

CROPCARE

Equipment Built For You

12 GALLON FOAM MARKER SYSTEM

Model F1200A

Owner's Manual



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A Paul B Zimmerman Inc. Company

PaulB LLC thanks you for choosing to purchase our model F1200A 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 or personal injury.
- ◆ **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 Crop Care 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. There are four pre-drilled holes located on the bottom of the foam marker frame. 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.

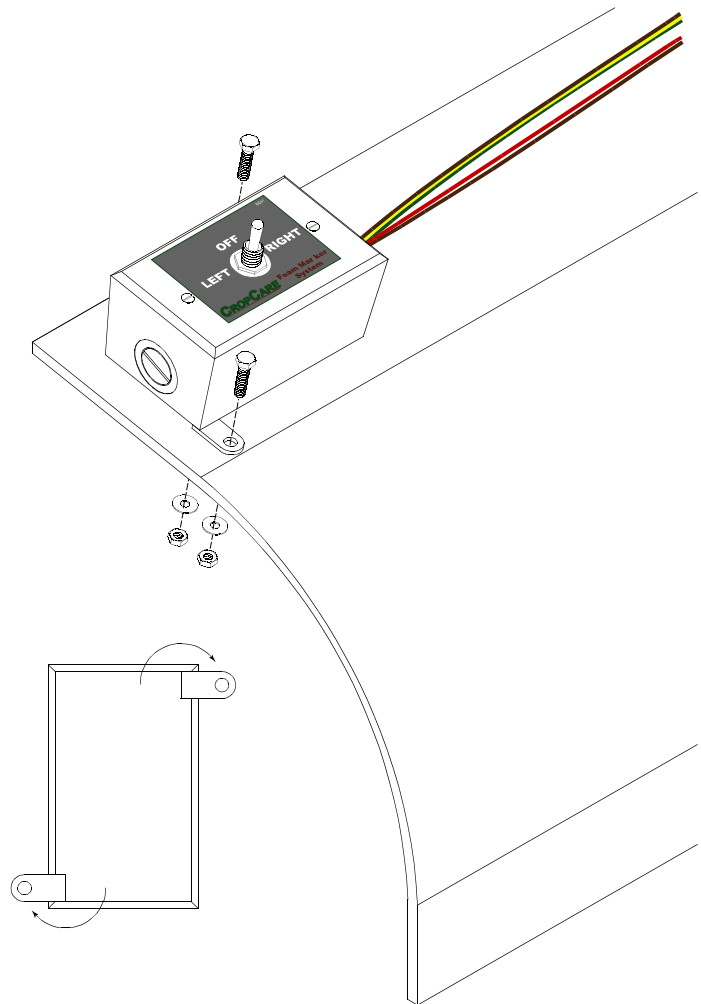


Figure 2: Control box mounting

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.

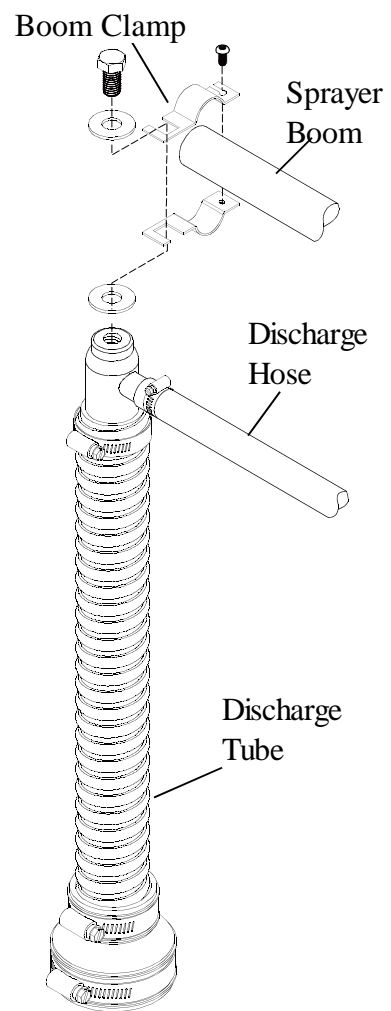


Figure 3:
Discharge tube mounting

Mixing Chambers

1. The foam mixing chambers should be mounted in a vertical position and can be secured with the four large hose clamps included in the kit. See figure 4.5 on page 5. They should be located behind the sprayer or somewhere on the inner boom wing. The distance from each mixing chamber to each discharge tube must not exceed 25'. It is best to locate the mixing chambers where most of the 3/4" hose can be used. This keeps the 1/2" hose shorter and results in better performance of the marker.

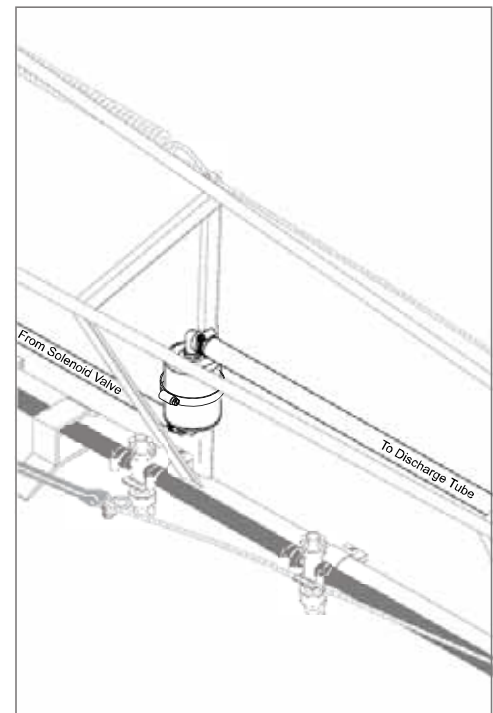


Figure 4.5:
Mixing Chamber Mounting

Discharge Hose

1. One 30 foot length of 1/2" discharge hose is included and may be cut as needed. Begin by attaching the 1/2" discharge hose to the hose barbs 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 barbs with the included nylon hose clamps.
2. Route the 1/2" discharge hoses to the mixing chambers.

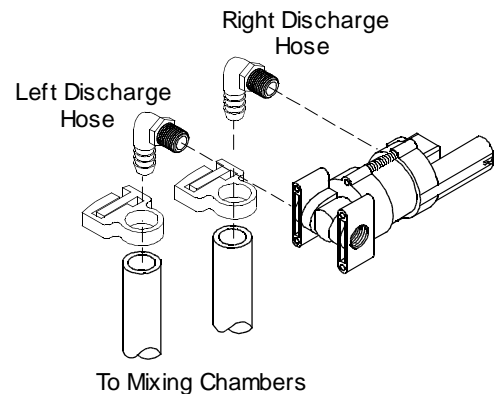


Figure 4: Discharge hose mounting

- 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. With the discharge hoses in the correct position, fasten them with the included cable ties.
3. One 50' length of 3/4" discharge hose is included and may be cut as needed. Attach the 3/4" hose to the mixing chambers and route to the discharge tubes. Clamp all ends with the included stainless hose clamps and secure the hose with the included cable ties. Be sure the hose doesn't interfere with the operation of the machine.

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 12 gallon capacity tank has an average foaming time of about four 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# 14):** 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# 15):** 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#24):** 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 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> |
|------------------------------|--|---|
| Motor Won't Run | Loose wire connections | Inspect wires and connections. |
| | Blown fuse | Replace fuse on wiring harness (ref# 47). |
| | Malfunctioning switch | See PaulB LLC for repair. |
| No Foam Output | Broken or bent leaf valve inside the compressor | Replace leaf valve. See compressor breakdown on page 12. |
| | Discharge hose is pinched or kinked | Locate problem area and fix or replace the hose. |
| | Plugged orifice disk or strainer on the end of the suction hose | Clean or replace the orifice disk or stainer (ref# 15, 14). |
| Foam On Only One Side | 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# 24). |
| Low Foam Rate | Partially plugged orifice disk or stainer on the end of suction hose | Rinse the orifice disk and stainer or replace them(ref# 15, 14). |
| | 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. |
| Discharge Tube Leaks | 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 F1200A

Warranty Coverage

PaulB LLC hereby provides a **Limited One (1) Year Warranty** on the foam marker, model F1200A, manufactured by PaulB LLC from the date of original purchase. Foam markers built by PaulB LLC are warrantied 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. For warranty service, please have a copy of the purchase invoice available.

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 or an authorized dealer. 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 or an authorized dealer.

F1200A Foam Marker Breakdown

F1200A Foam Marker Parts List

| <i>Ref #</i> | <i>Qty.</i> | <i>Part Number</i> | <i>Description</i> |
|--------------|-------------|--------------------|---|
| 1 | 1 | F1202A | Foamer frame 5 gallon |
| 2 | 1 | F1502A | Foamer cover |
| 3 | 1 | CB316*12 | 3/16" x 1/2" carriage bolt |
| 4 | 2 | CB14*12 | 1/4" x 1/2" carriage bolt |
| 5 | 2 | FN14 | 1/4" flange nut |
| 6 | 1 | DC2406 | Loom clamp nylon 3/8" |
| 7 | 1 | FN316 | 3/16" flange nut |
| 8 | 1 | F1204 | Tank mounting bolt, 5/16" x 1-1/2", SS |
| 9 | 1 | F1205 | Plastic bushing, 5/16" x 1-1/4" x 3/4" long |
| 10 | 4 | F1203 | Tank mounting bolt, 5/16" x 1", SS |
| 11 | 5 | RM1414 | Rubber washer, 5/16" x 1-1/4" |
| 12 | 1 | 62476 | Foamer tank lid, 5" |
| 13 | 1 | 38027 | Polv nozzle cap |
| 14 | 1 | 8079PP100 | Tip strainer poly 100 mesh SS green |
| 15 | 1 | CP491645 | Orifice Plate Stainless Steel |
| 16 | 1 | A3814BR | Brass adapter 3/8" MPT x 1/4" barb |
| 17 | 3 | HC041 | Snap grip clamp .41" - .36", size BB |
| 18 | 3.2' | 1954 | Vinyl tube 1/4" x 3/8", 55 psi |
| 19 | 1 | F2506 | Adapter w/ breather hole, 1/4" x 1/4" |
| 20 | 1 | 3EL14F | 1/4" FP x 1/4" barb poly elbow hose adapter |
| 21 | 1 | 3EL1414 | 1/4" MP x 1/4" barb poly elbow hose adapter |
| 22 | 1 | CM40** | Air compressor, Salvarani, 12 volt |
| 23 | 1 | 6468 | 1/4" MPT brass nipple w/ hex |
| 24 | 1 | 2204AWP** | Solenoid valve, 3 way, 12 v, 55 psi, 1/4" |
| 25 | 2 | 3EL1412 | 1/4" MP x 1/2" barb poly elbow hose adapter |
| 26 | 4 | HC067 | Snap grip clamp .67" - .59", size F |
| 27 | 30' | 1971 | Vinyl tubing 1/2" x 5/8", 30 psi |
| 28 | 2 | 3EL1212* | 1/2" MP x 1/2" barb poly elbow hose adapter |
| 29 | 2 | F1504A | Mixing chamber (includes ref# 28, 30) |
| 30 | 2 | 3EL1234* | 1/2" MP x 3/4" barb poly elbow hose adapter |
| 31 | 4 | 6810 | Hose clamp SS 1/2" - 1 1/8" |
| 32 | 50' | 3003 | Suction hose clear PVC 3/4", 85 psi |
| N/S | 2 | F510A* | Complete foam discharge tube, 3/4" hose barb (includes ref# 34-40) |
| 34 | 2 | F1513* | Foam discharge tube elbow, 3/4" hose barb (includes ref# 35-36) |
| 35 | 4 | FW12S* | 1/2" flat washer, SS |
| 36 | 2 | H12*34S* | 1/2" x 3/4" cap screw, SS |
| 37 | 2 | 6820* | Hose clamp, 3/4" - 1 3/4", SS |
| 38 | 1.1' | 3511* | Enforcer suction hose, 1 1/4", 100 psi |
| 39 | 2 | 6820* | Hose clamp, 3/4" - 1 3/4", SS |
| 40 | 1 | F1517* | 3" foamer boot |
| 43 | 1 | DC2406 | Loom clamp nylon 3/8" |
| 44 | 1 | F1509A | Foamer wiring harness compressor end |
| 45 | 1 | F1507 | Foamer wiring harness power end (includes ref# 46, 47, 51) |
| 46 | 1 | DC7300131 | Toggle switch, on-off-on |
| 47 | 1 | ATC-20 | Buss fuse, 20 amp |
| 48 | 1 | DE51 | Foam marker front cover decal |
| 49 | 1 | DE52 | Specifications and manufacturer decal |
| 50 | 1 | DE39 | Read owner's manual warning decal |
| 51 | 1 | DE41 | Foamer specifications decal |
| 52 | 4" | 8507K72 | Rubber trim strip |
| 53 | 2 | H6*16M | 6m x 16m bolt |
| 54 | 2 | FW6M | 6m flat washer |

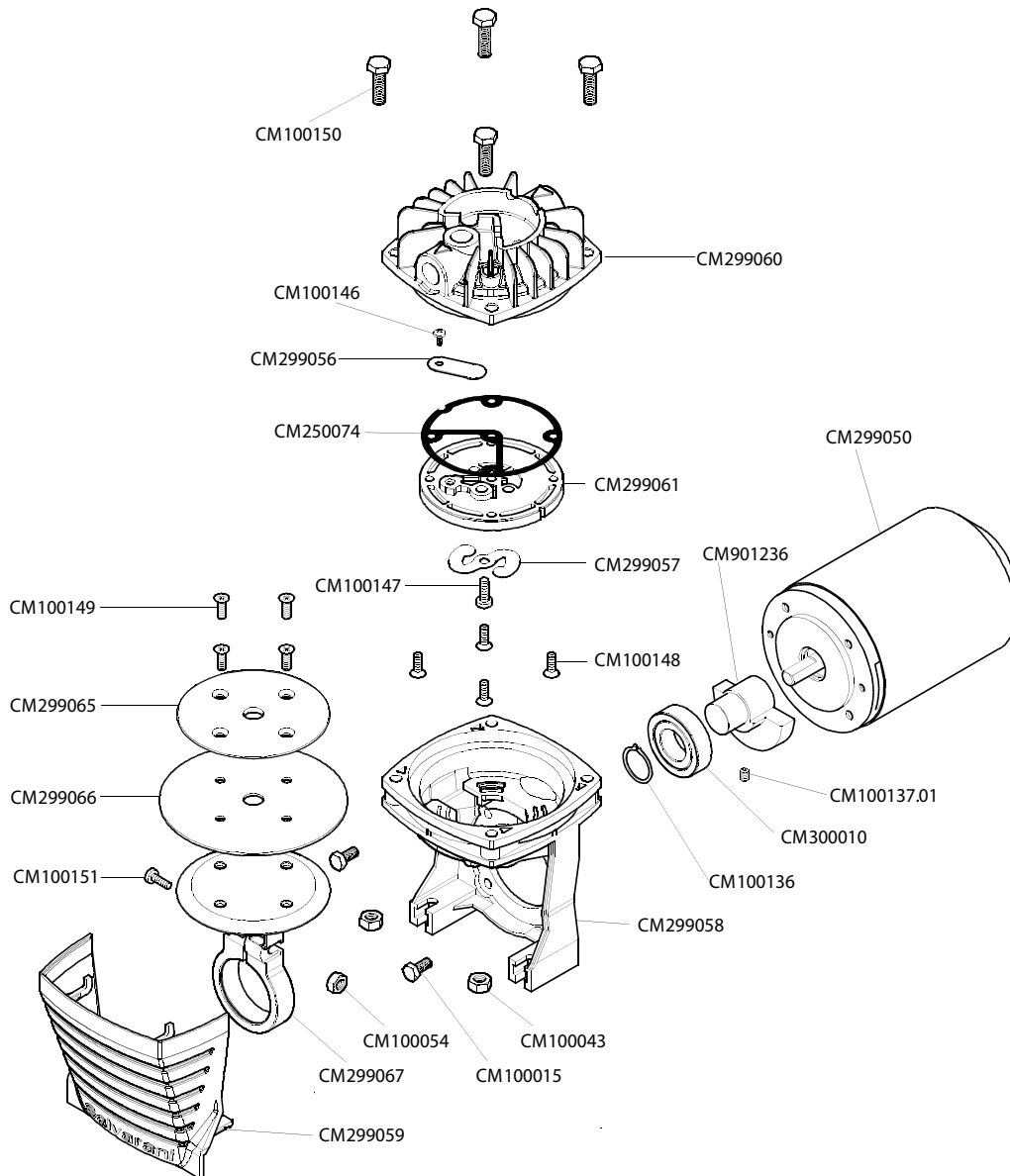
* Part is included in a complete assembly.

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

F1200A Foam Marker Parts List (Continued)

| Ref # | Qty. | Part Number | Description |
|-------|------|-------------|---|
| 55 | 7 | NNC516 | 5/16" lock nut |
| 56 | 2 | H5C516*12 | 5/16" x 1/2" bolt |
| 57 | 1 | F1201 | Tank base frame |
| 58 | 1 | 3F34 | 3/4" pipe plug |
| 59 | 1 | N/A* | Tank adapter nut |
| 60 | 1 | N/A* | Tank adapter washer |
| 61 | 1 | 60402* | EPDM rubber washer |
| 62 | 1 | 60401 | Tank adapter, 3/4" (includes ref# 59, 60, 61) |
| 63 | 1 | DE39 | Read owner's manual decal |
| 64 | 1 | DE53 | Foamer specifications decal |
| 65 | 1 | W-5007 | Spring hose clamp |

Compressor Breakdown Part # CM40



Solenoid Valve Breakdown

Part # 2204AWP



| <i>Ref #</i> | <i>Qty</i> | <i>Part #</i> | <i>Description</i> |
|--------------|------------|---------------|---------------------------|
| 1 | 1 | 2686 | Coil w/ weatherpack plug |
| 2 | 1 | 1979 | Spring |
| 3 | 2 | | 6/32 x 2 screw w/ hex nut |
| 4 | 1 | 2264 | Plunger w/ viton seat |
| 5 | 1 | 1977 | O-ring, 014 vitron |
| 6 | 1 | 2241 | Valve body, .105 orifice |

Wiring Schematic

Figure 5 is a complete wiring schematic for the CropCare™ 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.

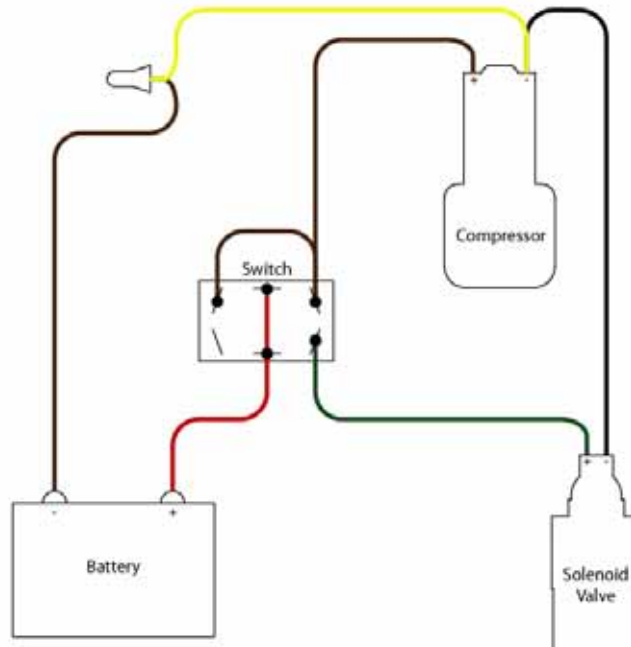


Figure 5: Wiring Schematic

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 CropCare Premium Foam Concentrate. This foam concentrate is long lasting and works well in all weather conditions.

Crop Care Premium Foam Concentrate (8 oz.)

Part Number: F1516



A sample size container of our CropCare Premium Foam Concentrate. This foam concentrate is long lasting and works well in all weather 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.

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.

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.**

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