

CHEMBINE

FREE FORM PLASTICS - A DIVISION OF BOURGAULT INDUSTRIES - MADE IN CANADA

MANUAL



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CHEMBINE

CONTENTS

FREE FORM WARRANTY POLICY	3
SAFETY.....	5
INITIAL STARTUP	5
CHEMBINE FUNCTIONS.....	6
HOW TO USE THE KNIFE BLOCK AND RINSE	7
VALVE OPERATION.....	8
SOLID CHEMICAL MIX.....	9
JUG CHEMICAL MIX.....	10
TOTE CHEMICAL MIX.....	11
CHEMICAL INDUCTION MIX	12
VALVE POSITIONS.....	13
WINTERIZE	17
Figure 1 - Bypass Valve Open	13
Figure 2 - Bypass Valve Closed	13
Figure 3 - Inductor Source Selection Tote.....	14
Figure 4 - Inductor Source Selection Chembine.....	14
Figure 5 - Pump Source Selection Tank.....	15
Figure 6 - Pump Source Selection Off	15
Figure 7 - Pump Source Selection Chembine	16

CHEMBINE

FREE FORM WARRANTY POLICY

Free Form Plastic Products (referred to as Free Form), a Division of Bourgault Industries Ltd., warrants its **new**, unused, Agricultural Equipment to be free of defects in material and workmanship at time of the delivery to the first retail purchaser according to the Free Form Warranty Policy.

1) BASIC WARRANTY REPAIR PERIOD AND REMEDIES

a) Free Form will repair or replace, at its option, without charge for parts or labour, **any defective part** of the equipment for a period of twelve (12) months from delivery to the first retail purchaser.

b) Free Form will repair or replace, at its option, without charge for parts, any **Free Form manufactured part** that is found to be defective for the period of thirteen (13) months to twenty-four (24) months from delivery to the first retail purchaser.

c) Free Form will repair or replace, at its option, for a charge of 50% of the parts, any **Free Form manufactured part** that is found to be defective for the period of twenty-five (25) months to thirty-six (36) months from delivery to the first retail purchaser.

Note: A Free Form Manufactured Part is any part which has been manufactured by Free Form. Parts purchased from an outside supplier are not considered to be manufactured by Free Form. Purchased parts would include bearings, bolts, etc...

d) Any parts that are covered by an Extended Warranty published by Free Form, are an exception to the Basic Policy, and are to be warranted as per the details of the Extended Warranty document. The extended warranty policy may change from time to time without warning from Free Form.

2) EXCEPTIONS TO THIS WARRANTY

a) In no event shall the owner be entitled to recover for incidental, special or consequential damages such as, but not limited to; loss of crop, loss of profit or revenue, other commercial losses, inconvenience or cost of rental of replacement equipment.

b) **Repair, Maintenance, and Service items not related to defects:**

i. Loss or damage during shipment (see: Free Form Whole goods Shipping Policy)

ii. Failure resulting from lack of or improper maintenance.

iii. Damage caused by operator abuse, negligence, or improper operation.

iv. Non-defective items replaced due to customer demand unless authorized by Free Form.

v. No reimbursable maintenance items including but not limited to oil, etc.

vi. Any and all costs for repairs or replacement of parts not shown to be defective.

vii. Damage due to accidents.

c) **Pump and fittings** are **not** covered under this warranty policy, but by the warranty policy of their manufacturer.

e) **Replacement Parts** will be warranted for twelve months from the repair date, providing the bill of sale is attached to the warranty claim.

f) The terms of this warranty are subject to Provincial and State Legislation. Free Form reserves the right to make changes in accordance with these Acts at any time without notification or obligation. The stated warranty contained in the Free Form Warranty Policy applies in all situations, unless the law provides a greater

CHEMBINE

warranty in the jurisdiction of the retail customer.

g) Free Form reserves the right to continually improve its equipment, and reserves the right to change products or specifications at any time without notice or obligation.

3) OWNER'S OBLIGATION

It is the **responsibility of the owner, at the owner's expense, to transport the equipment to the service shop of an authorized Free Form Dealer (place of purchase) or alternately to reimburse the dealer for any travel or**

transportation expense involved in fulfilling this warranty.

It is the **responsibility of the owner to read, understand and practice the maintenance, safety, and operational guidelines set out in the operator's manual** furnished with the equipment.

It is the owner's responsibility to ensure that the Warranty Registration, which must be signed by the owner, is completed and returned to Free Form by the dealer. The completed and signed Warranty Registration is required to register a new unit for warranty.

CHEMBINE

SAFETY

Safety is extremely important when working with dangerous chemicals and devices.

The safety factor CANNOT be overstressed.

For your safety, or that of others who you may have operating your Chembine, it is important that anyone working on or around the machine realizes the inherent dangers presented by the nature of the work the machine does. Toxic chemicals, flammable liquids, sharp edges, pressurized fittings and hoses all pose hazards. **The lack of safety could cause serious bodily injury or death**, therefore the Chembine should never be used by someone who is not familiar with this manual or the chemicals they are using.

1. Familiarize yourself with the possible dangers of the chemicals.
2. Be sure no one comes near the Chembine when operating, especially children.
3. Always wear proper personal protective equipment as recommended by the chemical suppliers.
4. Take care when refueling the pump to prevent fires. A hot engine can cause a fire and extreme caution should be taken when dealing with one.
5. Always be mindful of fittings under pressure and avoid dead heading the system.

INITIAL STARTUP

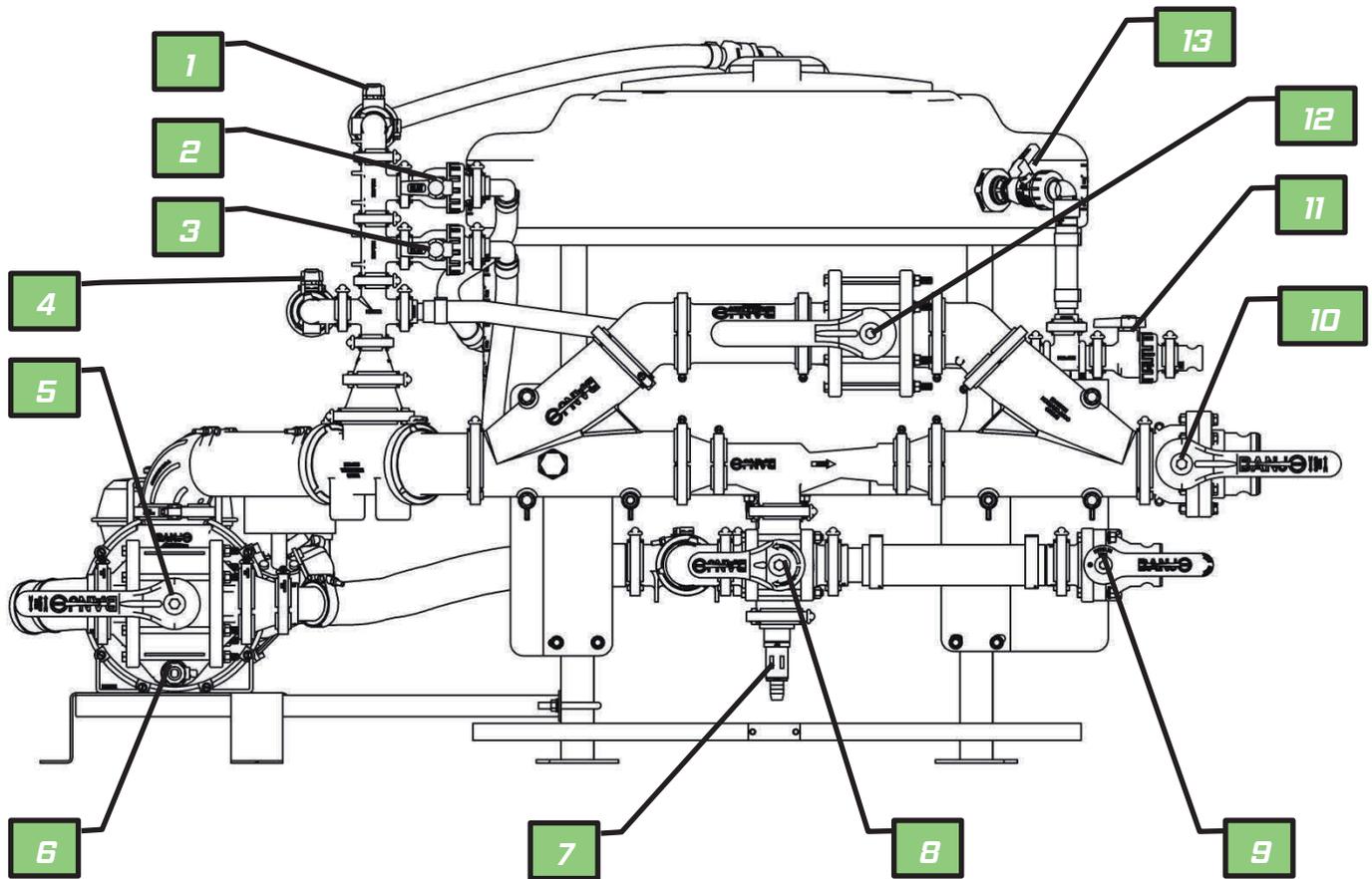
Before you start up the Chembine for the first time ensure the engine oil and coolant for the wet seal are topped up.

Oil: 10W30 (0.63 qt.)

Coolant: 50/50 Antifreeze (0.75 qt.)

Fuel: 86 Octane minimum (0.95 gal.)

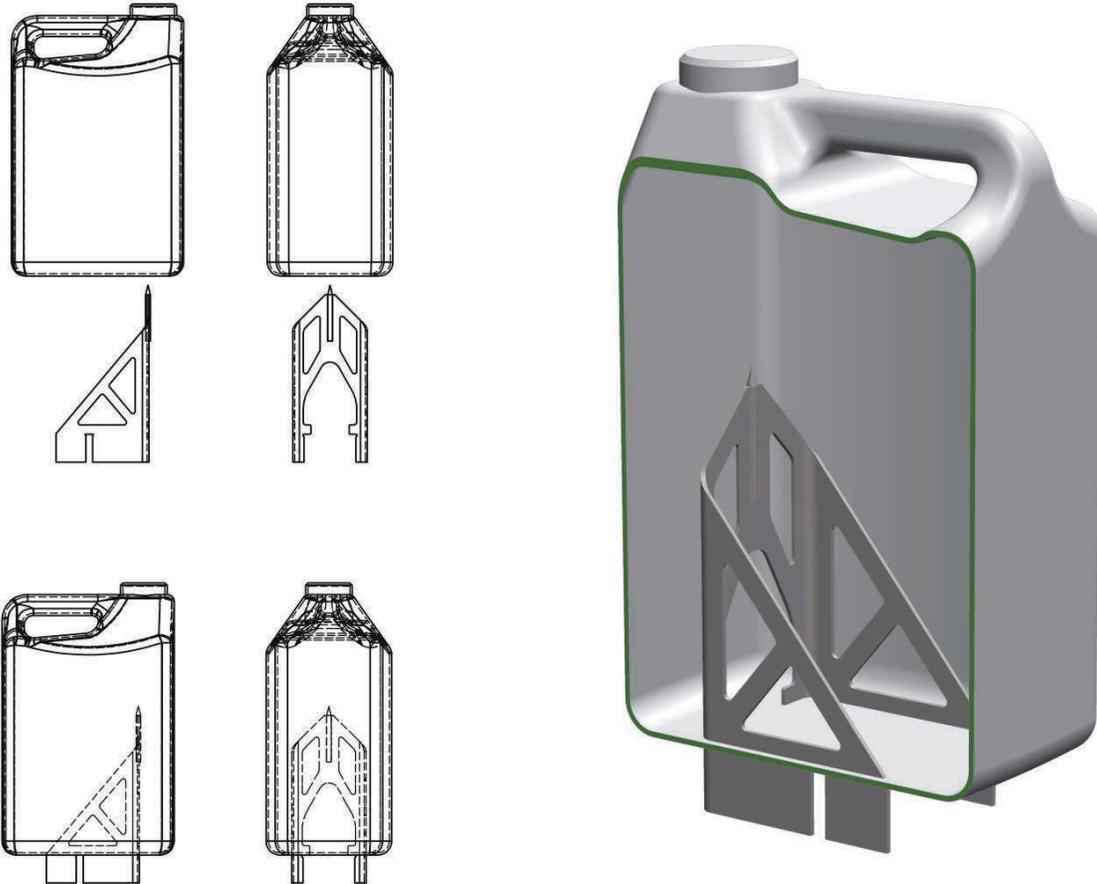
CHEMBINE



CHEMBINE FUNCTIONS

- 1- Rotary Rinse Valve: Open to activate tank rinsing function.
- 2- Vortex Agitation Valve: Open to activate vortex mixing agitation.
- 3- Bulkhead Agitation Valve: Open to activate bulkhead cleaning agitation.
- 4- Garden Hose Valve: Open for water when washing down equipment.
- 5- Pump Source Selection: Use to select the pump source.
- 6- Pump Bottom Drain: Open to drain the pump out complete.
- 7- Chembine Bottom Drain: Open to drain the Chembine out complete.
- 8- Inductor Source Selection: Selects inductor source between the main tank and an optional tote.
- 9- Tote Connection Valve: Open to allow flow from tote.
- 10- Cut Off Valve: Open to allow flow to the sprayer.
- 11- Fresh Water Valve: Open to allow fresh water source for cleanup.
- 12- Bypass Valve: Close to allow for flow through the inductor system.
- 13- Jug Rinse Valve: Open to activate the jug rinse.

CHEMBINE



HOW TO USE THE KNIFE BLOCK AND RINSE

Ensure to note the orientation of the jug handle and the leading edge of the knife point shown above. Lift the jug over the knife point, and then force the jug downwards. The Jug will bottom out on the frame of the knife block. Once the Jug has drained rinse by using the Jug Rinse Valve.

ALWAYS be aware of the sharp edges of the knife block when working with the CHEMBINE.

ALWAYS ensure you are familiar with all the safety requirements of the chemicals you are working with.

CHEMBINE

VALVE OPERATION

The Chembine can mix a variety of chemicals including solid materials alongside the typical liquid found in jugs and totes. Below is the standard process for operating the unit. Pay special care to the order of operations shown in brackets if required; this is important so as to avoid dead heading the pump.

When operating the Vortex Agitation Valve ensure that the eductor is fully submerged in order to prevent splashing from the tank.

The operations shown in this manual are based on the Free Form Plastics recommended setup utilizing a three way valve on the inlet of a wet seal pump to allow for recirculation ability. If you desire to illuminate the recirculation ability use the provided cap and elbow spare parts to close off the plumbing. Deviating from the standard setup will affect the operation processes shown in this manual. For these setups the operation guides on the following pages will provide a general basis for operation, but may need revising for your specific needs.

CHEMBINE

SOLID CHEMICAL MIX

Use this provided method for mixing solid chemicals through recirculation and agitation.

1. With the ignition pump off, pump source selection valve off, inductor source set to Chembine, bypass valve open, and all other valves closed you are in the starting position.
2. Set the pump source selection to draw from the tank position, and then start the pump. The Chembine will begin to fill.
3. When the Chembine's tank has filled to at least 25 IMP GAL change the pump source selection valve to draw from the Chembine. Immediately open the vortex agitation, and bulkhead agitation valve. The Chembine will begin to recirculate and mix.
4. Add chemical to the mixture as per your needs then employ the inductor by opening the cut off valve, closing the bypass valve, and setting the pump source selection to tank.
5. Once the chemical is inducted and you wish to rinse out the tank open the rotary rinse valve to begin rinsing. Close the bulkhead and vortex agitation valves. The Chembine will still be inducting the rinse into the sprayer.
6. Once the Chembine's tank is clean, close the rotary rinse valve and wait for the last wash to induct. Once complete open the bypass valve and the Chembine will begin to fill the sprayer at maximum flow.
7. When the sprayer is full set the pump source selection to off, throttle down the pump, and then close the cut off valve.

SOLID CHEMICAL MIX	PUMP SOURCE SELECTION	INDUCTOR SOURCE SELECTION	BYPASS VALVE	CUT OFF VALVE	VORTEX AGITATION VALVE	BULKHEAD AGITATION VALVE	ROTARY RINSE VALVE	JUG RINSE VALVE as needed	TOTE VALVE	FRESH WATER VALVE
Starting Point	OFF	CB	O	X	X	X	X	X	X	X
Start Pump	TANK	CB	O	X	X	X	X	X	X	X
Recirculate (25 IMP GAL MIN)	CB(1)	CB	O	X	O	O	X	X	X	X
Induction	TANK(3)	CB	X(2)	O(1)	O	O	X	X	X	X
Chembine Rinse	TANK	CB	X	O	X	X	O	X	X	X
Fill Sprayer	TANK	CB	O(2)	O	X	X	X(1)	X	X	X
Complete	OFF(1)	CB	O	X(2)	X	X	X	X	X	X

CHEMBINE

JUG CHEMICAL MIX

Use this provided method for inducting chemical when using jugs.

1. With the ignition pump off, pump source selection valve off, inductor source set to Chembine, bypass valve open, and all other valves closed you are in the starting position.
2. Working from right to left, open the cut off valve, close the bypass valve, set the pump source selection to the tank providing fresh water. Start the pump and the sprayer will begin filling slowly while drawing through the inductor.
3. Begin breaking jugs and rinsing as needed by operating the jug rinse valve.
4. When you are done adding chemical open the rotary rinse valve to clean out the Chembine's tank. The wash will induct into the sprayer.
5. Once the Chembine's tank is clean, close the rotary rinse valve and wait for the last wash to induct. Once complete open the bypass valve and the Chembine will begin to fill the sprayer at maximum flow.
6. Once the sprayer is full set the pump source selection to off, throttle down the pump, and then close the cut off valve.

JUG CHEMICAL MIX	PUMP SOURCE SELECTION	INDUCTOR SOURCE SELECTION	BYPASS VALVE	CUT OFF VALVE	VORTEX AGITATION VALVE	BULKHEAD AGITATION VALVE	ROTARY RINSE VALVE	JUG RINSE VALVE as needed	TOTE VALVE	FRESH WATER VALVE
Starting Point	OFF	CB	O	X	X	X	X	X	X	X
Start Pump	TANK(3)	CB	X(2)	O(1)	X	X	X	X	X	X
Break Jug and Rinse	TANK	CB	X	O	X	X	X	O	X	X
Chembine Rinse	TANK	CB	X	O	X	X	O	X	X	X
Fill Sprayer	TANK	CB	O(2)	O	X	X	X(1)	X	X	X
Complete	OFF(1)	CB	O	X(2)	X	X	X	X	X	X

CHEMBINE

TOTE CHEMICAL MIX

Use this provided method for inducing chemical when using totes.

1. With the ignition pump off, pump source selection valve off, inductor source set to Chembine, bypass valve open, and all other valves closed you are in the starting position.
2. Working from right to left, open the cut off valve, close the bypass valve, set the pump source selection to the tank providing fresh water. Set the inductor source selection to tote and open tote valve. Start the pump and the sprayer will begin filling slowly while drawing through the inductor.
3. Chemical from the tote will flow through the inductor to the sprayer.
4. When you are done adding chemical to the sprayer connect the fresh water valve to the tote connection valve in order to clean out the remaining chemical in the line.
5. Once the Chembine's tote line is clean, close the tote connection valve and open the bypass valve. The Chembine will begin to fill the sprayer at maximum flow.
6. Once the sprayer is full set the pump source selection to off, throttle down the pump, and then close the cut off valve.

TOTE CHEMICAL MIX	PUMP SOURCE SELECTION	INDUCTOR SOURCE SELECTION	BYPASS VALVE	CUT OFF VALVE	VORTEX AGITATION VALVE	BULKHEAD AGITATION VALVE	ROTARY RINSE VALVE	JUG RINSE VALVE as needed	TOTE VALVE	FRESH WATER VALVE
Starting Point	OFF	CB	O	X	X	X	X	X	X	X
Start Pump	TANK(3)	TOTE	X(2)	O(1)	X	X	X	X	O	X
Induction	TANK	TOTE	X	O	X	X	X	X	O	X
Flush line	TANK	TOTE	X	O	X	X	X	X	O	O(1)
Fill Sprayer	TANK	TOTE	O(3)	O	X	X	X	X	X(2)	X(1)
Complete	OFF(1)	TOTE	O	X(3)	X	X	X	X	X	X

CHEMBINE

CHEMICAL INDUCTION MIX

Use this provided method for mixing solid chemicals through agitation and induction.

1. With the ignition pump off, pump source selection valve off, inductor source set to Chembine, bypass valve open, and all other valves closed you are in the starting position.
2. Set the pump source selection to draw from the tank position, and then start the pump. The Chembine will begin to fill.
3. With at least 25 IMP GAL in the Chembine tank open the vortex agitation valve, and bulkhead agitation valve. Then immediately open the cut off valve and close the bypass valve. The Chembine will begin to simultaneously mix chemical in the tank while inducing.
4. Once the chemical is inducted and you wish to rinse out the tank open the rotary rinse valve to begin rinsing. Immediately close the bulkhead and vortex agitation valves. The Chembine will still be inducing the rinse into the sprayer.
5. Once the Chembine's tank is clean, close the rotary rinse valve and wait for the last wash to induct. Once complete open the bypass valve and the Chembine will begin to fill the sprayer at maximum flow.
6. When the sprayer is full set the pump source selection to off, throttle down the pump, and then close the cut off valve.

LIQUID CHEMICAL INDUCTION MIX	PUMP SOURCE SELECTION	INDUCTOR SOURCE SELECTION	BYPASS VALVE	CUT OFF VALVE	VORTEX AGITATION VALVE	BULKHEAD AGITATION VALVE	ROTARY RINSE VALVE	JUG RINSE VALVE as needed	TOTE VALVE	FRESH WATER VALVE
Starting Point	OFF	CB	O	X	X	X	X	X	X	X
Start Pump & Fill to 25 IMP GAL	TANK	CB	O	X	X	X	X	X	X	X
Induction	TANK	CB	X(3)	O(2)	O(1)	O(2)	X	X	X	X
Chembine Rinse	TANK	CB	X	O	X	X	O	X	X	X
Fill Sprayer	TANK	CB	O(2)	O	X	X	X(1)	X	X	X
Complete	OFF(1)	CB	O	X(2)	X	X	X	X	X	X

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VALVE POSITIONS



Figure 1 - Bypass Valve Open



Figure 2 - Bypass Valve Closed

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Figure 3 - Inductor Source Selection Tote



Figure 4 - Inductor Source Selection Chembine

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Figure 5 - Pump Source Selection Tank



Figure 6 - Pump Source Selection Off

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Figure 7 - Pump Source Selection Chembine

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WINTERIZE

Preparing the Chembine for winter is a simple and easy process. Once the bulk of the liquid is removed through conventional means you are ready to begin the process below; Be sure that any possible low points in lines are not holding any excess water.

1. Open the pump bottom drain and the chembine bottom drain valve. Be sure to collect and dispose of the drained chemical as per the suppliers recommendations.
2. Close the two micro valves.
3. Pour antifreeze directly into the tank.
4. Open all the valves except the two bottom drain valves holding the antifreeze in partially. This will prevent any possible issues from residual moisture that may remain.

