AROMA MIST

Model: AI-1 / AI-2

Model: AI-1-4 / AI-2-4

Installation and Operation Manual

AromaMist AI-1 / AI-2 / AI-1-4 / AI-2-4

Commercial Steam Bath Aroma Bathing Systems

Installation and Operation Manual
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I. Introduction

Congratulations, you have just purchased the world's most advanced chemical metering pump, the **AromaMist** pump. The **AromaMist** pump is a major breakthrough in affordable chemical metering.

This instruction manual covers all facets of operation of the **AromaMist** pump, including unpacking, mounting, electrical and plumbing connection and start-up. Safety, maintenance and repair, warranty and factory information is also provided. Please read this manual completely before proceeding.

Observe safety protocols, and heed all warnings and precautions.

WARNING: Steambath equipment can be unique.
It is always recommended to have a certified licensed electrician install the AromaMist pump system.

II. Unpacking

The **AromaMist** pump has been shipped to you as a complete metering package, ready for installation. If shipping carton shows any signs of damage, notify the shipping company immediately upon receipt. Shipper cannot be held responsible for damage from shipping.

III. Safety Considerations

NOTE: All AromaMist pumps are primed with water before leaving the factory.

A. Chemical Compatibility

AromaMist metering pumps are designed to work with most liquid chemicals. A chemical resistance chart is available for determining specific compatibility with a wide variety of chemicals.

B. Safety Equipment and Preparation

Always wear the proper protective clothing and gear when working around chemicals and chemical metering pumps. Safety glasses, gloves, and aprons are critical in preventing accidental exposure to dangerous chemicals.

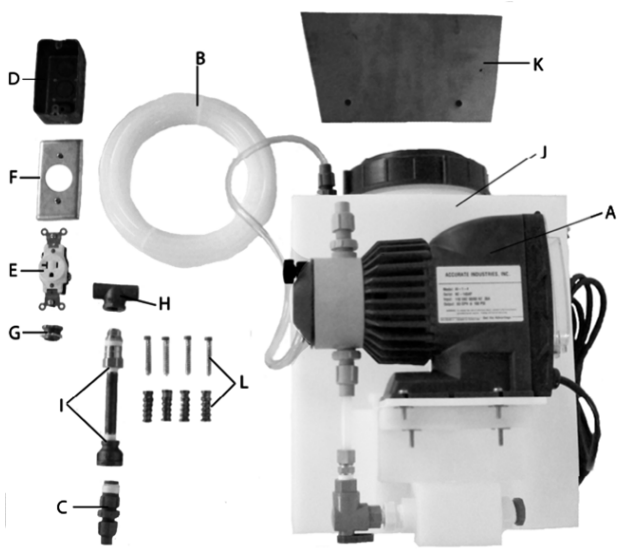
C. In Case of Accident

If a chemical spillage occurs, consult the Material Safety Data Sheet (MSDS) for specific instructions regarding the chemical being used.

D. Liquids Under Pressure

Liquids under pressure can present a special hazard when a line or seal is punctured resulting in the spraying of chemical many yards away.

AromaMist AI-1-4 / AI-2-4 Pump Package Contents



Item	Description	Stock Code
A.	Pump Only (110/120v)	AROMAMIST019
	Pump Only (220/240v)	AROMAMIST020
B.	3/8" Discharge Tubing 20'	AROMAMIST001
	Foot Valve (Models AI-1 and AI-2 only, not shown)	AROMAMIST002
	Ceramic Weight (Models AI-1 and AI-2 only, not shown)	AROMAMIST003
C.	Injection Valve	AROMAMIST004
D.	Electrical Box	AROMAMIST005
E.	Electrical Outlet	
	110/120v (AI-1)	AROMAMIST006
	220/240v (AI-2)	AROMAMIST007
F.	Electrical Cover Plate	AROMAMIST008
G.	Electrical Box Connector	AROMAMIST009
H.	Brass T	AROMAMIST010
I.	Brass Spray Nozzle	AROMAMIST011
	Brass ¼" x 4" Nipple	AROMAMIST012
	Brass Reducer	AROMAMIST013
J.	5 Gallon Tank (Option)	AROMAMIST024
K.	Mounting Bracket	AROMAMIST025
L.	* Mounting hardware	
	(* Included with mounting bracket)	

IV. Installation

A. Location

Select a mounting location convenient to the chemical supply as well as a source of power for the pump. Do not install the pump in a location where the ambient temperature exceeds 120 degrees F (50°C). Higher temperatures will affect the output as well as the useful life of the pump. While the **AromaMist** pump is suitable for most outdoor installations, do not use the standard poly tubing in direct sunlight. If you must mount pump in direct sunlight or under bright fluorescent lights, consult your distributor or the factory.

B. Electrical

1. **AromaMist** pump models AI-1 and AI-1-4 are 120V AC pumps and have a voltage regulated internal power supply capable of operating in the range of approximately 95V to 135V AC. Use a power supply of 100 to 120V AC for best results. The 3-wire grounding plug must be used in a 3-wire wall plug (see typical steam solenoid electrical hook up below).

CAUTION: Never remove ground wire from plug.

2. **AromaMist** pump models AI-2 and AI-2-4 are 240V AC pumps and have a voltage regulated internal power supply capable of operating in the range of approximately 195V to 260V AC. Use a power supply of 210 to 250V AC for best results. Pump is supplied without a country specific plug unless otherwise stated (see typical steam solenoid electrical hook up below).

C. Plumbing

1. Piping Connections

The **AromaMist** pump uses carefully matched components to achieve a predictable metering output. This predictability can only be maintained if all fitting sizes remain unaltered. **Do not** attempt to reduce tubing size. All tubing connections should be double-checked to insure against leakage. If hazardous chemicals are being pumped, use shielding around discharge tubing.

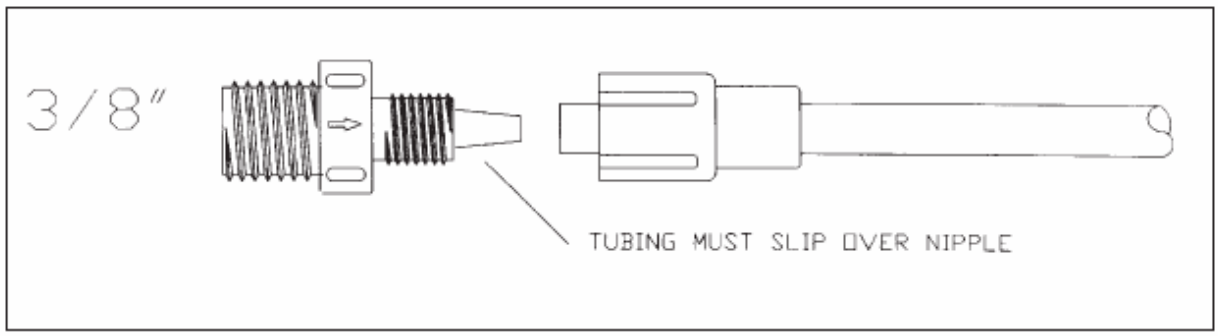
NOTE: **When cutting lengths of tubing for your installation, ensure a clean, square cut. Use short lengths of tubing and as few connections as possible.**

2. Tubing Nuts

Do not over tighten the tubing connectors. Tighten the fittings no more than 1/4 turn after the fitting contacts the seal. Hand tighten only. Do not use a wrench or pliers as they may damage the fittings. Do not use Teflon tape except on NPT fittings. Be sure to observe applicable local plumbing codes.

WARNING: Clear flexible tubing is not intended for pressurized use.

3. Tubing Connections

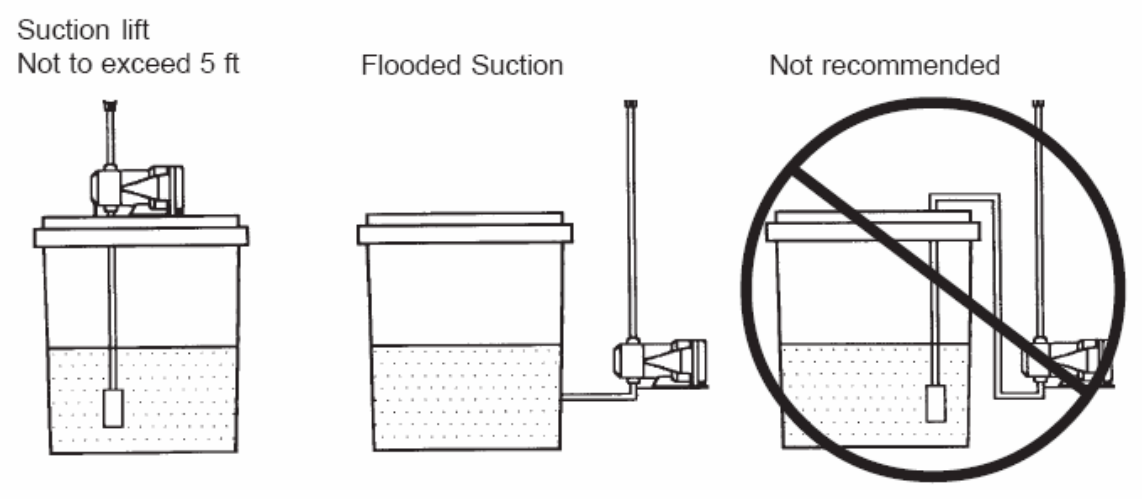


3/8" Tubing Connection

4. Suction Lift vs. Flooded Suction Applications *(models AI-1 and AI-2 only)*

Suction Lift Installation
Mount the **AromaMist** pump on the top of or above a chemical tank, not to exceed 5 feet from pump to bottom of tank.

Flooded Suction
This installation is recommended wherever possible. Priming is easier and loss of prime is reduced.



5. Foot Valve Installation *(models AI-1 and AI-2 only)*

A weight is provided to hold the tubing and foot valve in a vertical position at the bottom of the tank.

Do not allow the foot valve to lie horizontally in the chemical container.

This defeats the action of the valve and can cause the pump to lose prime. Keep suction tubing reasonably short and avoid high spots or bends.

6. Wall Mounting

The fluid end portion (head assembly) of the pump is set up to accommodate mounting of the pump to the chemical container, either as a flooded suction or a suction lift.

The pump head must be kept in a vertical position for proper operation. The head can be removed and rotated 90° if needed to keep the inlet and outlet valves in a vertical position.

7. Injection Valve Installation

The injection valve is designed to prevent a back flow and to inject chemical into the line.

To work properly, this valve must NOT be mounted above the steam line or facing downward into the steam line.

One end of the injection valve is 1/2" MNPT.

Install this end into the piping system. Use Teflon tape on this fitting only. Connect the pump's discharge tubing to the opposite end of the injector.

Do not use Teflon tape or joint compound on this fitting. Connect tubing between this fitting and the pump discharge fitting at the pump.

8. Priming/Bleed Valve Connection (models AI-1 and AI-2 only)

Connect the clear poly tubing to the outlet of the bleed or priming valve. Position the free end of this tube in the chemical container, above the fluid level.

AromaMist AI-1-4 / AI-2-4

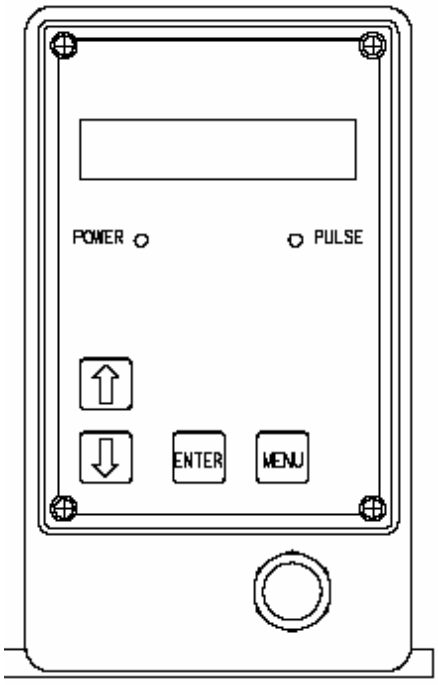
Typical Installation

AromaMist Electrical Detail

V. Start-Up

A. Front Panel Description

Model AI-1 and AI-2 pumps come with the following standard panel features:



- 1x16-backlit LCD display
- On/Off power indicator light
- Pulse or Stroke indicator light
- Up and Down arrow keys for setting adjustments
- ENTER key to save desired adjustments
- MENU key to enter and exit pump set-up

* On/Off Switch Programming

Programmable Features	Range of Feature	Default of Feature
Strokes Per Minute	1 to 99	10 Strokes Per Minute
Limit Timer	0 to 240 Minutes (4 Hours)	60 Minutes
On-Delay	0 to 7200 Seconds (120 Minutes)	20 Minutes
Off-Delay	0 to 480 Minutes (8 Hours)	4 Hours 40 Minutes
Restore Factory Defaults	'Y'es or 'N'o	N

B. Priming the Pump

1.Pump Priming Mode

Plug in and/or power up the pump at the switch.

If pump is in stroke mode, (pump LCD display reads "strokes/min") press the enter **(ENTER)** key to initiate the pump priming mode.

If pump is in delay mode, (pump LCD display reads "start in: xxx min xx sec") power down the pump. With pump off and while pressing on the down arrow (↓) key, power on the pump at the switch to initiate pump stroke mode. Press the enter **(ENTER)** key to initiate the pump priming mode.

Note: Prime mode (125 strokes/minute) will always automatically default to stroke mode after 1 minute. If additional priming time is desired, press the enter **(ENTER)** key during the stroke mode to initiate further priming. Repeat as necessary until pump priming is complete *(see step 2)*.

To exit the pump priming mode, press the enter **(ENTER)** key to return to the pump stroke mode.

2.Priming/Bleed Valve

With pump in priming mode, if fluid begins moving up suction line without hesitation, bleed valve adjustment is not required. If fluid is not moving up suction line, open bleed valve approximately one (1) turn or until fluid begins to move. When fluid level reaches the pump head assembly, close bleed valve allowing fluid to flow through pump head and up to the injector spray head assembly.

Once priming is completed, press the enter **(ENTER)** key to return the pump stroke mode.

NOTE: Do not over-tighten bleed valve as damage may occur.

C. Adjusting Pump Feed Rate/Strokes per Minute

The **AromaMist** pump can be adjusted to deliver the exact fluid feed rate desired. The number of pulses/strokes per minute can be easily adjusted and displayed on the pump LCD display. Feed rate can be adjusted from 1 to 99 strokes per minute. Depending on application, desired feed rate will vary. Starting with the factory pre-set 10 strokes per minute, adjust the fluid feed rate up or down depending on your particular application.

To adjust the feed rate:

- While in the pump stroke mode, press the menu **(MENU)** button. The LCD display will read "`Strokes = 10/min`"

- With the blinking cursor on the XX, (the number field) press the up arrow (↑) to increase the strokes/minute or press the down arrow (↓) to decrease the strokes/minute.

- Press the menu **(MENU)** button to exit the feed rate adjustment mode.

D. Adjusting the "Limit To"

If the **AromaMist** pump strokes continuously for more than 60 minutes, the pump will go into an Alarm mode and stop stroking. Further investigation should be made as to why the electrical source kept the pump in a stroke mode for a continuous 60 minutes.

If the **AromaMist** pump is in Alarm mode, turn the power switch to the off mode and then power it on again to reset the Alarm mode.
The "Limit To" factory default setting is 60 minutes and can be adjusted from 0 to 240 minutes (4 hours). A setting of 0 turns the "Limit To" feature off.

CAUTION: It is not recommended to exceed the factory 60 minute default setting.

To adjust the "Limit To" setting:

- Press the menu **(MENU)** button.

- Press the enter **(ENTER)** button to skip over "`strokes = xx/min`".

- When the LCD displays "`Limit To: XX Min`" use the up arrow (↑) and down arrow (↓) buttons to adjust the desired Limit To.

- Press menu **(MENU)** to exit "Limit To" adjustment mode

E. Adjusting the "On Delay"

On cold equipment start-up, the **AromaMist** pump is programmed to delay for 20 minutes before it begins to pump fluid. This "On Delay" allows for the time it takes steam to be generated before fluid is introduced into the steam line. When the pump is in the "On Delay" mode, the LCD display will read "`start in: xxx min xx sec`", and the keypad is disabled.

You may override the "On Delay" mode by powering the pump on at the switch while simultaneously pressing the down arrow (↓) key.

Note: The "On Delay" feature is designed to prevent fluid waste.

> **Adjustable from 0 - 120 minutes, the "On Delay" should be set for one minute less than the amount of time it takes your equipment to generate steam on a cold start-up.**
>
> **If you believe an adjustment must be made for your application, please consult the factory prior to proceeding.**

To adjust the "On Delay" setting:

- Press the menu (MENU) button

- Press the enter (ENTER) button to skip through the `Strokes = x/ min`

- Press the enter (ENTER) button to skip through the `Limit To XX Min`

- When the LCD displays "`On xxx min xx sec`" use the up arrow (↑) and down arrow (↓) buttons to adjust the desired on delay.

- Press menu (MENU) to exit "On Delay" adjustment mode.

F. Adjusting the "Off Delay"

The **AromaMist** pump allows for an "Off Delay" adjustment in order to determine when the pump startup should be delayed. After initial cold start-up, and during operation, there will not be an "On Delay" occurrence unless the **AromaMist** Pump has been powered off for the amount of time selected in the "Off Delay" adjustment mode. The factory default is set for 4 hours 40 minutes. The "Off Delay" is adjustable from 0-8 hours (480 minutes).

Note: "Off Delay" settings need only be adjusted if during any normal operating day, the *AromaMist* Pump will NOT be off for more than 4 hours (240 minutes). If you believe an adjustment must be made for your application, please consult the factory prior to proceeding.

To adjust the "Off Delay" setting:

- Press the menu **(MENU)** button
- Press the enter **(ENTER)** button to skip through the `Strokes=xx min`
- Press the enter **(ENTER)** button to skip through the `Limit To XX Min`
- Press the enter **(ENTER)** button to skip through the "`On xxx min xx sec`"
- When the LCD displays "`Off x hr xx min`" then use the up arrow (↑) and down arrow (↓) buttons to adjust the time accordingly.
- Press menu **(MENU)** to exit the "Off Delay" adjustment mode.

G. Restoring Factory Defaults

The **AromaMist** pump has been programmed with a feature allowing it to be reset to factory default settings. To clear **AromaMist** pump memory settings and return to the factory defaults:

- Press the menu **(MENU)** button.
- Press the enter **(ENTER)** button to skip through the "`Strokes = xx/min.`"
- Press the enter **(ENTER)** button to skip through the "`Limit To XX Min.`"
- Press the enter **(ENTER)** button to skip through the "`Limit To.`"
- Press the enter **(ENTER)** button to skip through the "`On xxx min xx sec.`"
- Press the enter **(ENTER)** button to skip through the "`Off xx hr xx min.`"
- When the LCD displays "`Restore Defaults? N`", press the up arrow (↑) or down arrow (↓) to change the response to "`Y.`"
- Press menu **(MENU)** to exit this mode.

VI. Maintenance

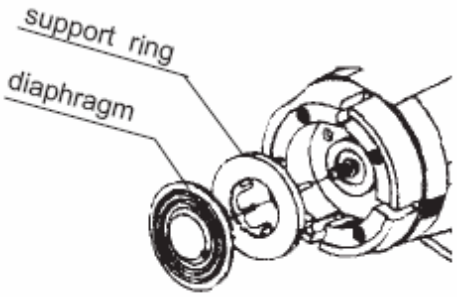
The **AromaMist** pump is designed for long service life with minimum maintenance. If for any reason maintenance is necessary or desirable, the **AromaMist** pump is easily maintained.

Before any maintenance or service is performed, observe the following precautions:

1. Disconnect the **AromaMist** pump from power source.
2. Drain chemical from discharge tubing.
3. Disconnect discharge tubing from pump.
4. If the **AromaMist** pump is used in a flooded suction application, remove foot valve from chemical container.
5. Observe relevant safety protocols when handling parts which have been in contact with hazardous chemicals.

NOTE: Tighten pump head screws after pump's initial week of operation.

A. Diaphragm replacement



1. Remove fluid end cover by lightly prying it loose from the fluid end.
2. Remove the four screws attaching the fluid end to pump body.
3. Remove the fluid end from the pump body.
4. Unscrew the diaphragm from the pump shaft in a counter-clockwise direction. Be careful that diaphragm support ring does not fall out.
5. Do not allow sharp or abrasive objects to come in contact with pump parts.
6. Inspect end of shaft to assure that threads are in good condition. Replace shaft bellows if necessary. No further disassembly is recommended.
7. Screw new diaphragm onto pump shaft until it bottoms out on shoulder of shaft. It is not necessary to tighten further.
8. Replace fluid end. Make sure that screws are evenly tightened.
9. Reconnect plumbing and power. Prime the pump.

B. Check Valve Replacement, Suction

NOTE: When installing check valves, remember that the seats are always installed at the bottom.

1. Disconnect suction tubing from pump.
2. Remove fluid end per previous procedure.
3. Unscrew suction fitting from pump head.
4. Remove check valve from suction fitting and replace.
5. Remove O-ring from cavity in fluid end.
6. Remove check valve from suction side of pump and replace.
7. Install new O-ring in suction cavity of fluid end.
8. Replace suction fitting with check valve in fluid end.
9. Replace fluid end. Make sure that screws are evenly tightened.
10. Reconnect plumbing and power. Prime the pump.

C. Check Valve Replacement, Discharge.

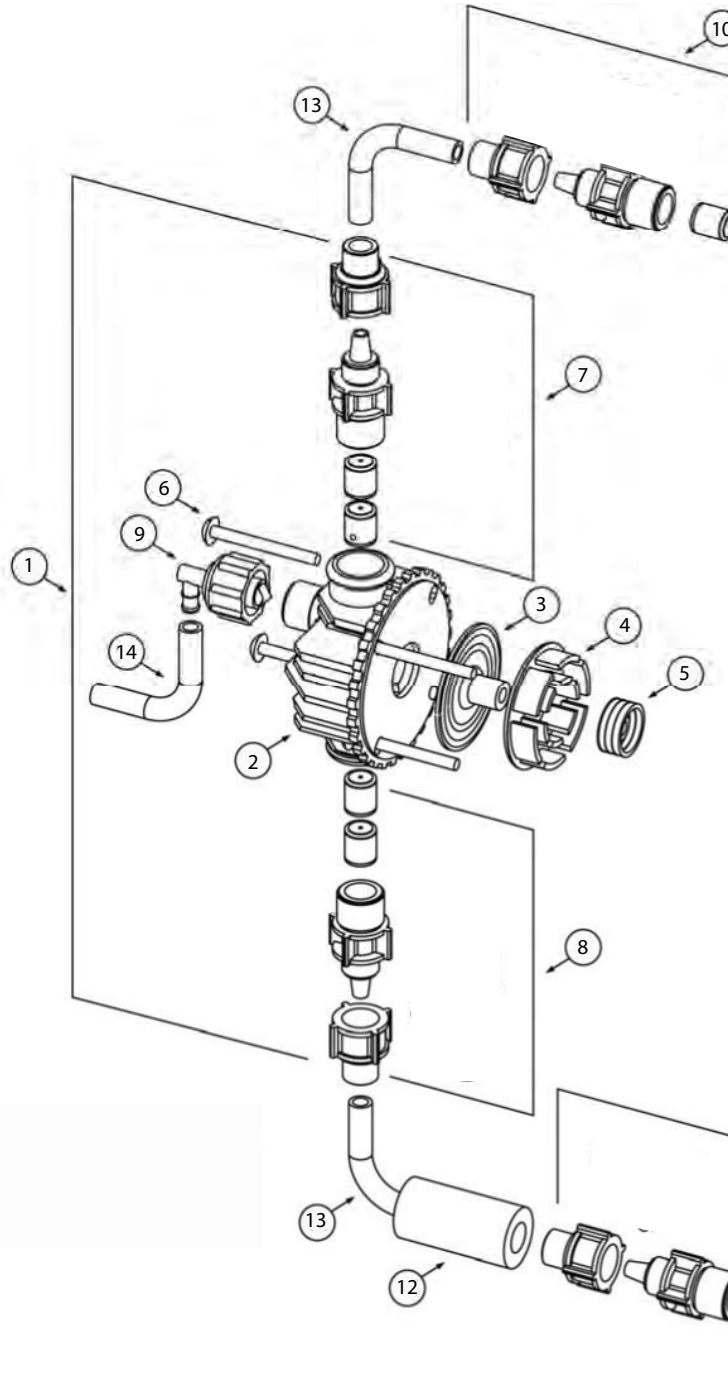
1. Disconnect discharge tubing from pump.
2. Remove fluid end per previous procedure.
3. Unscrew discharge fitting from pump head.
4. Remove check valve from discharge fitting and replace.
5. Remove O-ring from cavity in fluid end.
6. Remove check valve from discharge side of pump and replace. Some resistance may be encountered when removing this valve from the fluid end. If so, insert an abrasion free object (the inner tube from a ballpoint pen, will work) in the face of the pump head to push it out.
7. Install new O-ring in discharge cavity of fluid end.

8. Replace discharge fitting with check valve in fluid end.

9. Replace fluid end. Make sure that screws are evenly tightened.

10. Reconnect plumbing and power. Prime the pump.

D. Liquid End Diagram



Item	Description	Stock Code
1	Complete Head Kit (includes)	AROMAMIST014
2	Pump Head *	
3	Pump Diaphragm *	
4	Support Ring *	
5	Shaft Seal *	
6	Head Bolts *	
	* Not sold separately	
7	Discharge Valve	AROMAMIST015
8	Suction Valve	AROMAMIST016
9	Priming Valve	AROMAMIST017
10	Injection Valve	AROMAMIST004
11	Foot Valve	AROMAMIST002
12	Ceramic Weight	AROMAMIST003
13	Discharge & Suction Tubing	AROMAMIST001
14	Priming Tubing	AROMAMIST018
	**Brass Check Valve	AROMAMIST027
	** Shut Off Valve	AROMAMIST028
	**Tank Plug	AROMAMIST029

** Items not shown and exclusive to aroma tank on model AI-1-4 and AI-2-4 pump systems.

VII. Troubleshooting

Problem	Cause	Remedy
Pump does not achieve or maintain prime	Air trapped in suction line	Straighten suction line so as to eliminate high spots.
	Foot valve contaminated or improperly installed	Inspect foot valve screen and assure that foot valve is in a vertical position below fluid level.
	Excessive lift	Maximum suction lift is 5 feet with water or fluids of similar specific gravity; less with heavier liquids such as acids. Mount pump in a lower position relative to the chemical container.
	Suction fittings not properly tightened	Check fittings. Overtightening may cause restriction. Conversely, if **any** leakage occurs, pump will suck air and fail to prime.
	Worn or contaminated check valves	Inspect check valves in fluid end for cleanliness. Clean or replace as necessary.
	Kink or pinch in suction tube	Inspect suction tube through its full length to assure that there are no kinks or other restrictions. Move any objects or equipment which impinges upon suction tube or reroute as required to assure a smooth transition from foot valve to pump.
	Low chemical level	Check fluid level in chemical supply tank.
Insufficient fluid	Worn or contaminated check valves	Inspect, clean or replace as necessary.
	Obstruction in suction line	Check suction line for obstructions, clogging, kinks or pinch points.
	Clogged foot valve screen	Clean or replace foot valve screen.
	Diaphragm worn or torn	Replace diaphragm, making sure that it is screwed on fully to shoulder of shaft.
	Electronic failure	Consult dealer or factory.

Problem	Cause	Remedy
Excessive fluid	Failure or lack of anti-siphon valve	Inspect or add anti-siphon valve. This is caused when system is in a vacuum condition or valve in delivery applications with flooded suction which feeds systems at very low pressures.
	Excessive stroke rate	Lower the stroke rate if adjustable on your pump.
	Improper stroke length	Consult dealer or factory.
Pump will not pump	System pressure too high	Check system pressure to assure that it is within system rated parameters of the pressure.
	Diaphragm improperly installed	Make sure that diaphragm is screwed fully onto shaft.
	Check valves worn or clogged	Clean or replace as required.
Pump will not run or not plugged in	Pump not turned on or not plugged in	Check outlet with meter to assure that 95-135 VAC is present on 120V systems, 195-260 VAC is present on 240V systems and that power supply cord is in good condition and plugged in.
	Electronic failure	Consult dealer or factory.
Excessive noise	Pump not primed	Prime pump.
	No output pressure	Add an anti-siphon valve to provide 25 PSI restriction on pump discharge.

VIII. Product Warranty

AromaMist

Limited Lifetime Warranty

If you should experience a problem with an **AromaMist** pump system, simply call (800) 97-STEAM (78326), and tell us your model and serial number of the pump and problem.

If we can't get your pump working over the phone, a fully warranted replacement will be shipped out the same day on 30-day memo billing. We will ask for a P.O. number for tracking purposes on the replacement unit which will only be used if the non-functioning pump is not returned. It is critical for us to get the old pump back for engineering evaluation as we continually strive to enhance our products.

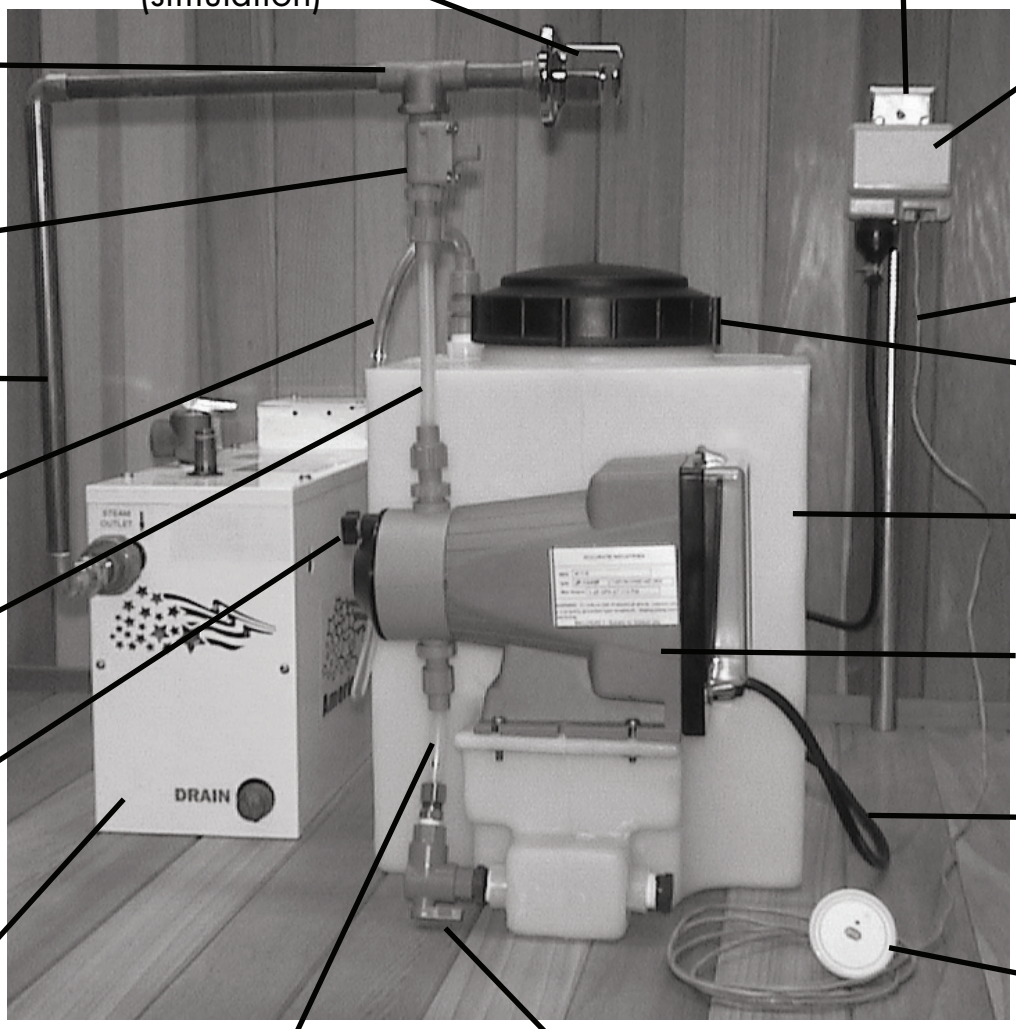
Accurate Industries warrants the **AromaMist** Essential Oil Delivery System of its manufacture to be free of defects in material or workmanship for the life of its use provided solely **AromaMist** essential oils are used; otherwise, liability under this policy extends for one (1) year from the date of purchase. Liability is limited to repair or replacement of any failed equipment or part proven defective in material or workmanship upon manufacturer examination. Removal and installation costs are not included in this warranty. Manufacturer's liability should never exceed the selling price of equipment or part in question.

Accurate Industries disclaims all liability for damage caused by its products by improper installation, maintenance, use or attempts to operate products beyond their intended functionality, intentionally or otherwise, or any unauthorized repair. Accurate Industries, Inc. is not responsible for damages, injuries or expense incurred through the use of its products.

The above warranty applies in lieu of other warranties either expressed or implied. No agent of ours is authorized to provide any warranty other than the above.

AROMAMIST TANK OPTION

(Typical Installation)



If *AromaMist* metering pumps are designed to work with *AromaMist* oils only. you have recieved this page, you have purchased the *AromaMist* Aroma Oil Pump System with the optional Aroma Tank.

This page replaces the installation section IV, letter F on page 7 of the enclosed installation manual. While following the provided step-by-step *AromaMist* Pump Installation detail beginning on page 7, ignore points 1-11 and 14-15, as they do not pertain to an aroma tank installation.