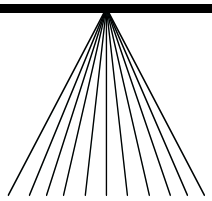
Automist Systems



Installation Manual

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Installation Suggestions

INDOOR APPLICATIONS

- Put the pumping system/reservoir in an area that has access to a 110 volt outlet and a water supply. If the installation is in a large facility: the pumping system/reservoir should be placed as close to the center of the facility as possible. Or the shortest distance to the most distant nozzle. This will keep line pressure loss to a minimum.
- If there is **no** air movement in the facility, and ceiling height is under 10 ft., tilt nozzles at alternating 30 degree angles whenever possible. This will improve lateral movement of the insecticide spray.
- If windows and doorways are **not** open, or if there is no air movement in the building, it is suggested that a fan or fans be installed for air circulation. This will also help with spray dispersion and provide increased insect kill.
- **Do not** place nozzles in front of or with-in 10 ft. of exhaust fans.
- **Do not** place nozzles to spray directly on drinking cups, feed mangers or bunks.
- Nozzles should be centered between and a minimum of 3 ft. above any dairy cows.

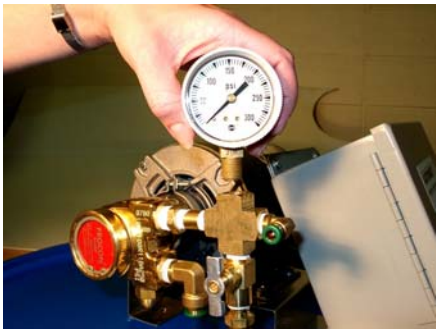
OUTDOOR APPLICATIONS

- For very large areas that require long runs of tubing, more than one pumping unit may be needed to maintain proper line pressure.
- **Do not** place nozzles to directly spray on to live plants. Drift and over spray is acceptable. The burning of foliage is an indicator that a spray nozzle may be spraying on a plant or plants. Most plants are very hardy toward the insecticides used.
- **Do not** place nozzles within close proximity of decorative ponds or ponds that contain live fish.
- **Do not** place nozzles close to large bodies of water such as rivers, lakes or other. Most labeling forbids the use of insecticides within the close proximity of open bodies of water.
- When pyrethrin is used outdoors, make sure black colored tubing is used. Pyrethrin does biodegrade in direct sunlight.

Assembly/ Installation

1. Unpack materials and check that all pieces have arrived in good condition. System box should include:
- Pumping unit (motor, timer, pump on bracket)
- Suction tubing attached to suction filter, float & weight
- Gauge
- 4 - 1/4” bolts
- 4 - 1/4” nuts
- 8 - 1/4” flat washers
- short tubing for return line

2. Secure the timer, motor & pump assembly bracket to the reservoir lid using the supplied 4 - 1/4” x 3/4” bolts, 4 - 1/4” nuts and 8 - flat washers (see reservoir lid diagram for location). Tighten firmly with a wrench.



3. Screw the gauge in to the top of the pump plumbing assembly. Using a wrench - tighten securely making sure the gauge is facing forward.

4. Using the reservoir lid diagram locate the “suction line” hole in the lid. Using your fingers, push the supplied 3/8” tube/suction line (long - with float switch attached) through the reservoir lid from the bottom side and up into the Presto-Loc 3/8” male elbow fitting (closest fitting to the pump, see picture at the left) until it is secure. Remember - push the tubing firmly in to the fitting, making sure it is secure. No tools are necessary.

The suction line, filter, float and weight should be positioned as in the picture to the left. Always check to see that the black float bulb is not restricted in its movement. It should be able to move freely. This black bulb is the float switch. When the bulb is facing up the system can be activated. When the liquid gets low and the bulb lays on its side or faces down, the system will be deactivated.

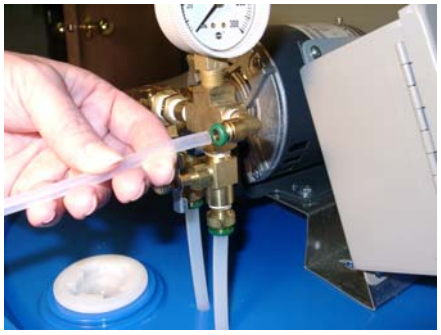
Assembly/ Installation Continued

5. Using the reservoir lid diagram, locate the “return line” hole in the lid. Using your fingers, push the 3/8” tube/ return line (short) through the reservoir lid from the bottom and up into the Presto-Loc male connector (farthest from the pump) which is attached to the needle valve fitting, make sure it is secure. Remember - push the tubing firmly in to the fitting, making sure it is secure. No tools are necessary.

6. Next, insert the black electrical cord from the float switch (this cord has a molded connector on it and is attached to the suction line) through the reservoir lid from the bottom. Plug the molded connector from the float switch into the matching molded connector on the right side of the timer enclosure making sure that the molded connectors are securely pushed together tight.

7. Secure the nozzle assemblies and tubing to the structure using electrical staples, plastic ties, loop clamps or other fasteners. Secure tee nozzle assemblies on both sides, elbow nozzle assemblies on just the one side.

8. (May not apply to all systems) Install the cross feed tubing line or lines in the center of the barn using proper fittings or refer to how your system was designed.



9. Making sure the tubing is cut straight, attach a coil of tubing to the Presto-Loc male elbow pressure fitting located on the pump, see picture to the left. Push the tubing into the fitting firmly. Run the tubing from the pumping unit out to the first nozzle assembly or to the proper center fitting, which ever applies to your system, refer again as to how your system was designed. Attach a fastener to the tubing approximately every 5-6 feet between nozzles to prevent the lines from sagging. Continue installing the tubing from one nozzle assemblies to the next, following your system design, until all nozzle assemblies are plumbed with tubing.

Assembly/ Installation Continued

10. The system is now ready to test. Remove the 2" filler cap located on the top of the reservoir lid on 30 & 55 gallon reservoirs, remove the complete lid on 15 gallon reservoirs. Fill the reservoir 1/2 full with water. Replace the 2" filler cap or lid. Plug the systems power cord into 110 Volt outlet. Push the manual button and activate the system. With the system running, turn the pressure adjusting needle valve on the pump in a clockwise direction to increase or counter-clockwise direction to decrease the pressure until the gauge reads 170 - 180 PSI. The 170 -180 PSI will not be reached until the system purges all air out of the tubing lines and nozzles. While all nozzles are operating, check that there are no leaks at any connections. If no leaks are found, unplug the power cord and once again remove the 2" filler cap or lid.

11. With the filler cap removed, add your insecticide concentrate according to the instructions on the insecticide label, then continue to add more water until the solution is about 5 inches from the top of the reservoir lid. Replace the filler cap or reservoir lid.

12. Now determine how many spray cycles are desired per day and at what times they should occur. Normally **3 to 6 spray cycles** per day indoors for flies, **2 spray cycles** per day outdoors for mosquitoes. Spray cycles for flies should be set to run between 6 AM and 7 PM daily, spray cycles for mosquitoes should be set to run early morning and late night.
Push the white tabs on the clock timer in an outward direction for each desired spray cycle time (see picture to the left). When the timer tabs are positioned, rotate the timer dial in a clockwise direction **ONLY**, to set the correct time of day.

13. Next, set the small timer dial (small black knob) to the desired amount of spraying time, normally **about 30 - 45 seconds**.

14. Plug the power cord back into a 110 volt outlet. The system is now operational and will spray automatically at the preset intervals.

NOTE: When the spray solution in the reservoir reaches its low limit, the float switch inside the barrel will disengage the motor to protect the pump and you will need to refill the reservoir (follow refill directions). **It is very important not to run the system completely out of liquid. Running the pump without liquid will result in damage to the pump.**

If power is lost due to storms, etc., when power is restored simply rotate the large clock timer dial clockwise to reset the time of day and normal operation will continue.

Initial System Filling

There are many insecticides in the marketplace. Always make sure that only water-based products are used in the Automist System

Fill the reservoir 1/2 full with water, then add the insecticide concentrate (slowly), continue to add water until the liquid reaches a point about 5 inches from the top of the reservoir. When the reservoir is full of the solution, stir thoroughly.

- It is a violation of Federal Law to use insecticides in a manner inconsistent with their labeling.
- As with an insecticide, always wear goggles, face shield or safety glasses. You should also wash thoroughly with soap and water after handling and remove any contaminated clothing and wash before reuse.
- Always store and dispose of any pesticide container by the approved State and Local procedures in your area.

System Refill

When the liquid in the reservoir becomes low, the system will automatically shut itself off. This is a safety precaution - running the pump dry can cause damage and void warranty.

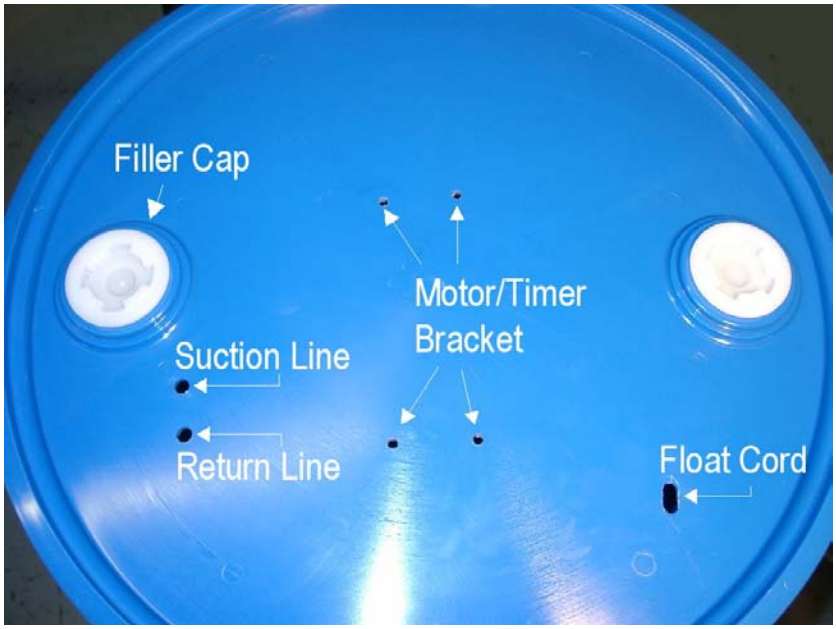
When adding the water, fill the barrel to approximately 1/2 full, then add the insecticide concentrate (slowly), continue to add water until the liquid reaches a point 5 inches from the top of the reservoir. After filling, stir the solution thoroughly. Follow same steps as above for yellow residue.

System Winterizing

It is always best, if possible, to run the system to a point where the liquid is at its lowest point in the reservoir

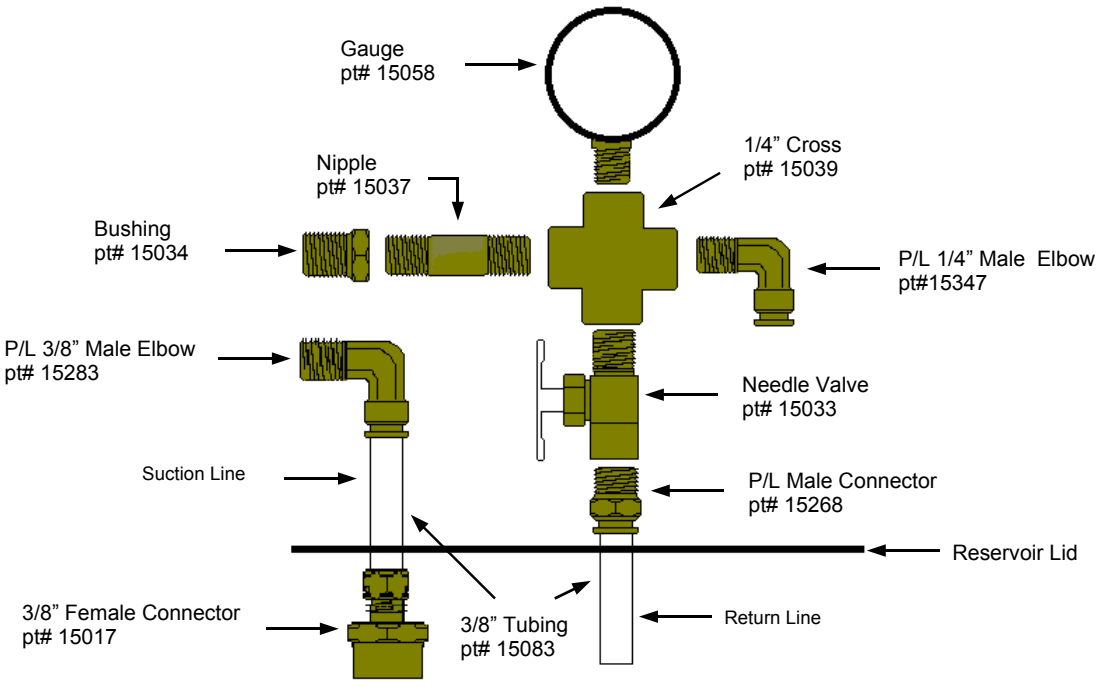
1. Remove steel band from reservoir lid.
2. Remove reservoir lid (with pumping unit still attached) from reservoir or slid it to the side making sure it does not fall into the reservoir.
3. Pull the suction line and float assembly out of the liquid in reservoir.
4. Make sure you are using an environmentally safe product to winterize your system such as wind shield washer fluid. Dump the environmentally safe windshield washer fluid in to a one gallon or larger pail, then place the suction line in the bucket, also making sure that the return line discharges into the same pail.
5. Manually run the pumping unit until the environmentally safe windshield washer fluid has filled all tubing lines and nozzles. Once all the insecticide has been purged and you see the environmentally safe windshield washer fluid spraying from all nozzles shut the system off or unplug it. **(Do not run the pump dry.)**
6. With the systems power cord unplugged. Pull the suction line out of the environmentally safe windshield washer fluid . Replace the suction filter. Using a cable tie, tie the suction filter and float to the suction tubing just under the lid. **(Do not allow strainer and float to stay in liquid over winter months. Freezing may damage them.)**
7. To de-winterize the system, stir insecticide in barrel, untie and place suction filter & float assembly in insecticide liquid... Plug the power cord in ... Set time of day on the clock timer... Set pins for spray cycles desired... Start power unit manually and run it until all environmentally safe windshield washer fluid is purged from the system the system is now ready for automatic operation.

Reservoir Lid

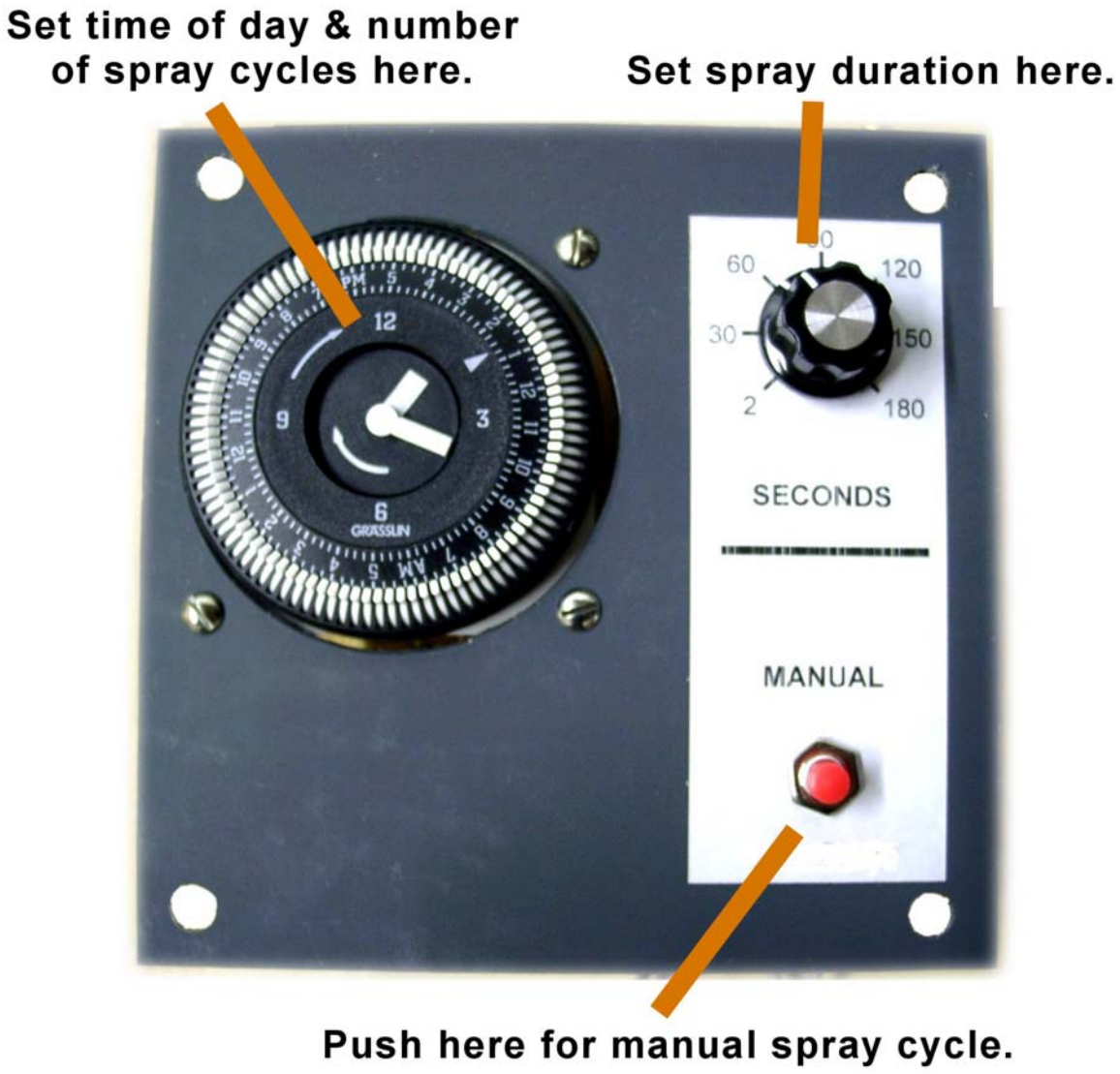


Front of Barrel

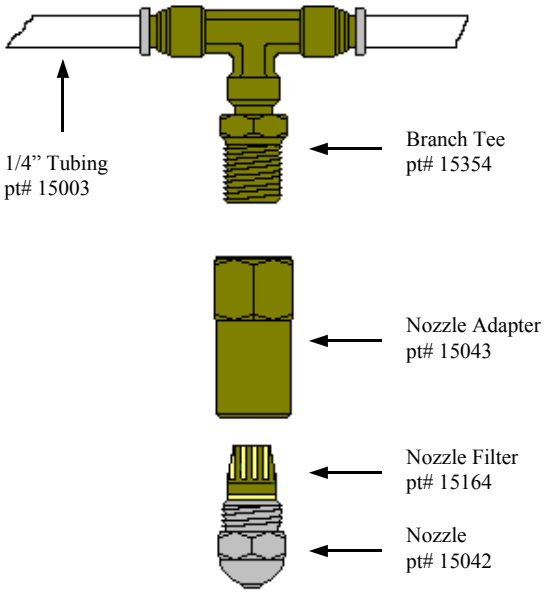
Pump Plumbing



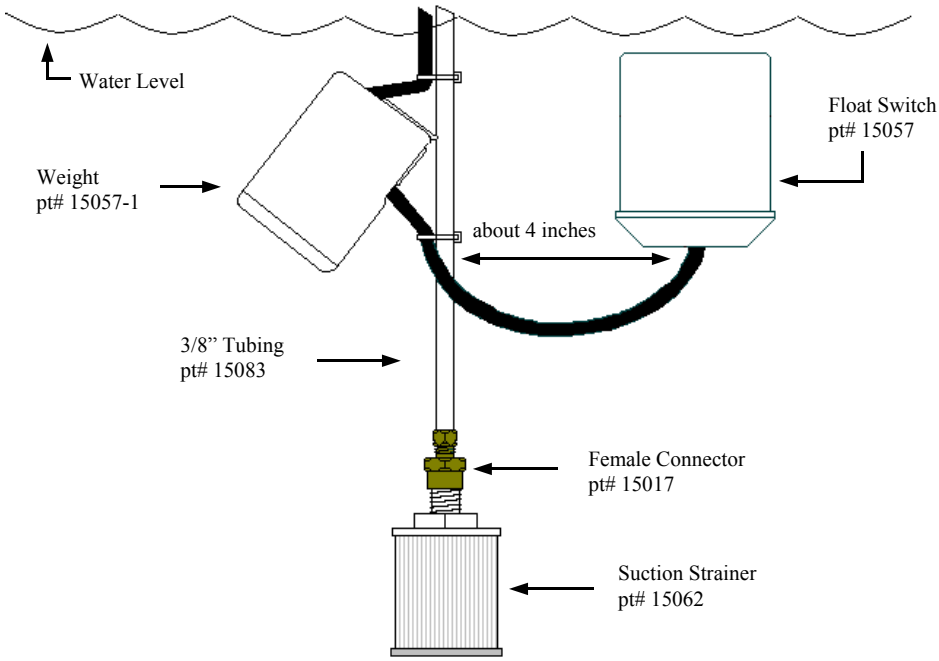
Standard Timer Assembly



Nozzle Assembly



Float Cord & Suction Strainer Assembly



System Spray Usage

Spray Rates

PSI	Seconds to spray	Spray Rate	Seconds to spray	Spray Rate
160	**37**	1 oz	56	1.5 oz
170	36	1 oz	54	1.5 oz
180	35	1 oz	53	1.5 oz
190	34	1 oz	51	1.5 oz
200	33	1 oz	50	1.5 oz
210	32	1 oz	49	1.5 oz

Gallons of spray solution at one ounce per cycle

Cycles Per Day

Number of nozzles	1	2	3	4	5	6
5	.037	.078	.117	.156	.195	.234
6	.047	.094	.140	.187	.234	.281
7	.055	.109	.164	.218	.273	.328
8	.062	.125	.187	.250	.312	.374
9	.070	.140	.211	.281	.351	.421
10	.078	.156	.234	.312	.390	.468
11	.086	.172	.257	.343	.429	.515
12	.094	.187	.281	.374	.468	.562
13	.101	.203	.304	.406	.507	.608
14	.109	.218	.328	.437	.546	.655
15	.117	.234	.351	.468	.585	.702
20	.156	.312	.468	.624	.780	.936
25	.195	.390	.585	.780	.975	1.170
30	.234	.468	.702	.936	1.170	1.404
35	.273	.546	.819	1.092	1.365	1.638
40	.312	.624	.936	1.248	1.560	1.872
45	.351	.702	1.053	1.404	1.755	2.106
50	.390	.780	1.170	1.560	1.950	2.340
60	.468	.936	1.404	1.872	2.340	2.808
70	.546	1.092	1.638	2.184	2.730	3.276
80	.624	1.248	1.872	2.496	3.120	3.744
90	.702	1.404	2.106	2.808	3.510	4.212
100	.780	1.560	2.340	3.120	3.900	4.680

This chart is based on the following:
180 lb. operating pressure
30 second spray cycles

TroubleShooting

Problem	What Could Be Wrong	How To Fix
The System will not turn on.	Insecticide level is to low.	Refill insecticide reservoir.
	Float switch (inside the reservoir) is stuck in a downward position.	Release float from stuck position.
The clock timer keeps time, but does not operate the System at preset times.	Possible internal timer problem	Contact a representative.
The System operates at normal pressure, but nozzles do not spray.	Nozzle tips may be plugged with debris.	Clean or replace nozzle tips.
The System operates, but has low or no pressure.	Pump may be defective.	Replace pump.
	Needle valve on pump is in an outward position.	Turn needle valve in until pressure returns to 170 psi.
	Suction strainer (inside of reservoir) is plugged with debris.	Remove suction filter, clean or replace.
	Air leak on a fitting in the System. Especially the suction fitting on the pump.	Check fittings, especially suction fitting on pump.
	Tubing may be damaged.	Check for damaged or leaking tubing.
The pump/motor surges on - off, on - off.	The liquid may be low and the return liquid is hitting the black float bulb.	Reposition the return line so that the liquid is not hitting the float bulb.

If a problem can not be found or fixed, contact a representative for more information. When calling about a problem, describe the problem in detail and the steps you've done to try to correct it.

Warranty

United Spray System, Inc. guarantees it's equipment to be free from defects in workmanship for a period of **one year from the date of purchase** by the end user. United Spray Systems, Inc. agrees to repair or replace at no charge, except shipping and handling, any part or parts found defective in normal use during the warranty period.

Repair service performed by parties other than authorized sales representatives of United Spray Systems, Inc. renders this warranty null and void; abusive or negligent use also invalidates this warranty. The customer agrees that no other remedy (including, but not limited to *claims for incidental, consequential, or special damages, or any cause, loss, action, claim or damage, including loss of time, whatsoever, or injury to person or property, or any economic loss*) shall be available, whether said claims be asserted on the basis of warranty, negligence, strict liability of otherwise. *United Spray Systems, Inc. warranty hereunder is expressly in lieu of all other warranties expressed or implied, including any warranties or mechantibility and fitness for a particular purpose. All of such other warranties being hereby expressly excluded.*

The disassembly of the timer assembly or pump voids all warranty coverage.