



# Installation - Tank & Aerator

1500 SERIES MEDIA PLANTS & ALL OTHER MODELS

## NSF LISTED & 1500 S SERIES PLANTS

- These instructions apply to J-1500 Series and 1500 S Series plants. Each series has a 500, 750, 1000, 1250 and 1500 GPD plant.
- J-1500 Series plants have been tested and meet NSF Standard 40 criteria for a Class I NSF Listing.
- 1500 S Series plants are normally identical to the J-1500 Series plants but changes, approved by health officials, may be made.

## TANK INSTALLATION

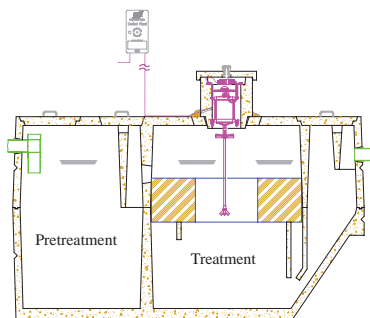
Only sanitary wastewater should be permitted to enter the system. The plant is not designed to receive flow from footer drains or roof downspouts. Water softener backwash must not be discharged into the system. The system should be located in an area which provides protection of the air intake from snow, ice or debris which may accumulate.

It is important that all local and state laws and plumbing codes regarding the plant be followed. Items such as the connection of plumbing fixtures to the tank inlet line, position of inlet and discharge lines, grade and any other aspects of plant or plant related plumbing should be checked with the appropriate contractors to make sure all work conforms to regulations.

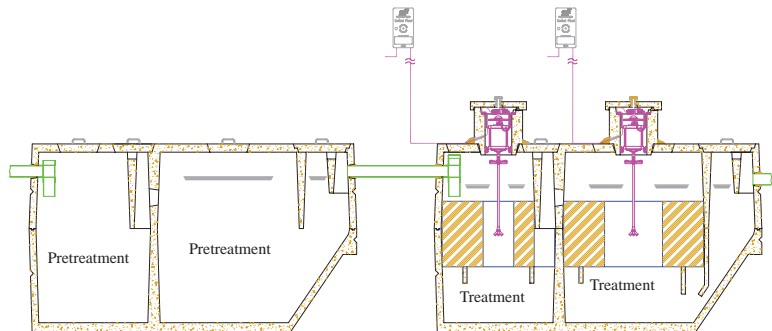
Location of the tank must be in accordance with Health Department regulations. Choose a location which is on ground, which will not flood, which provides adequate fall and allows installation of lines which are as short and straight as possible.

As you know there are many considerations in proper installation of a tank and the most important of which is that the tank installation meets the Health Department's regulations. Some major items are: Have solid earthen pad; consider sand or small pea gravel pad; seal tank at shop if set in one piece; seal at job site if delivered in sections; tank must be level within (1") from end to end and side to side; use mastic sealing for sealing risers and mounting casting; seal inlet and outlet sewer lines to tank; backfill carefully around tank; fill tank with water.

## REPRESENTATIVE 1500 SERIES PLANTS



500 & 750 GPD Plants



1000, 1250 & 1500 GPD Plants

1500 Series media installation is done by the distributor before the tank is delivered. There are 4 different sets of media and these are installed in different combinations in the 5 different tank sizes in the 1500 GPD Series.

# AERATOR INSTALLATION

## IMPORTANT

- When installing the aerator be extremely careful of aspirator shaft. It has a very critical straightness tolerance. Don't ever let it touch anything except liquid. Also remember that the fit between coupling and aspirator shaft is quite close. Be careful not to burr or dirty the ends of either part.
- Both the Floodproof and Standard aerator models have been carefully designed and built to give years of trouble-free operation. To assure this long, trouble-free life, it is absolutely necessary to carefully follow the aerator installation and handling instructions.
- Life of the aerator depends on a straight shaft. Never lift aerator by the shaft or subject the shaft to any bending, bumping, or strain. Never let the shaft contact anything but liquid.
- You can eliminate well over 50% of your service calls if you always inspect the final outlet and test for proper drainage at installation time.
- The Floodproof model aerator is totally sealed to protect it from water damage by flooding. It is, however, not designed to operate under water. This aerator is oil-filled and sealed. Do not disassemble it or remove plugs or bolts.
- The "Control Panel Instructions" contain a wiring diagram and detailed wiring instructions. These are included in every Control Panel Box and in the Distributor's Notebook. A wiring diagram, and detailed instructions are also on the inside of each Control Panel.

## BEFORE GOING TO JOB SITE

Before going to job site, telephone contractor and check the following. Don't make a wasted trip.

- Is there access to facility? (There should be.)
- Take additional risers. They may be needed.
- Is plumbing complete so a proper drainage test can be run? (It must be.)
- Is correct Control Panel installed and connected to electrical system? (Don't go unless it is.)
- Is Control Panel equipped with either a 4 amp circuit breaker (Standard ) or a 7 amp circuit breaker (Floodproof). You must not install aerator unless Control Panel has correct circuit breaker.
- Is underground cable connected, extended to tank and inside mounting casting? (It should be.)
- Is there enough cable in mounting casting to extend 48" above grade? (There should be.)
- Is tank full to flow line?

## INSTALLATION STEPS

### 1. Turn Off Power.

Turn the aerator Control Panel switch to "OFF". Next turn power that controls this circuit at main panel "OFF".

### 2. Install Plastic Inlet Tee (if tank does not have optional cast-in tee).

Attach tee to the influent pipe with the short pipe pointing down. Seal influent pipe in place. The tee is provided by distributor.

### 3. Install Plastic Transfer Tee (if tank does not have cast-in transfer tee).

Install the tee in the submerged transfer hole on the inlet compartment side. See drawing for plant size you are installing. Seal tee in place. The tee is provided by distributor.

### 4. Install Plastic Outlet Tee (if tank does not have cast-in outlet tee).

Attach tee to the effluent pipe with the short pipe pointing down. Seal effluent pipe in place. The tee is provided by distributor.

### 5. Check Aerator/Flow Line Measurements.

Location of aerator to flow line is very important. Measure distance from ledge in mounting casting to liquid level in tank. Tank must be full to flow line. If it is between 25" to 27", aerator location is correct. If it is not, change aerator mounting casting.

## **6. Inspect Tube Settler and Skimmer.** Optional on Model J-153 only.

Be sure tube settler is properly installed in settling compartment and surface skimmer tee is properly installed into sleeve cast in baffle wall between aeration and settling compartment. Correct installation details for these are on “Mold Use and Tank Construction” page and notebook blueprints. These items must be correctly installed before proceeding. The plant flow line must be within 1” of center of surface skimmer. If it is not, plant outlet must be relocated because the surface skimmer will not function if flow line is not within proper limits.

## **7. Check Vent Position.**

Check position of vent cap in cover. It must be installed in center of cover as shown in illustration. If vent cap is not centered, the outside-air-hose will bend and air to the aerator will be cut off.

## **8. Inspect Outlet.**

Inspect final discharge point of system to insure it is not and cannot become blocked. If there is a chance that it may become blocked in the future, inform owner and contractor that this situation must be corrected before you can install aerator. Tell them blockage will lead to improper drainage and repeated stoppages - this can be avoided by preventive action now. (DO NOT INSTALL AERATOR IF SUCH A SITUATION EXISTS.)

## **9. Effluent Sample Means.**

Collection and assessment of effluent samples is required for all NSF Listed plants. There are four sample taking means from which samples may be taken. One of these methods must be chosen prior to plant installation and necessary arrangements made during installation to incorporate this method into the overall system. For information on “Collecting & Assessing Samples” see “Plant Inspection & Service” instructions, pg. 2. The means are as follows:

- A. Final Outlet Samples - Can be taken at the final outlet point if it is accessible. The final outlet must be elevated sufficiently to allow a free-flowing sample to be taken.
- B. Sample Cross Samples - The cross must be as close as possible to the discharge end of the tank. One horizontal arm of the cross should act as the first section of the discharge line from the tank. The other horizontal arm acts as a continuation of the discharge line. One vertical arm of the cross extends downward and the other extends up to grade. The arm to grade should be covered with a removable cover.
- C. Distribution Box Samples - To use this method the box must have an inlet line high enough above the box floor so that a free-flowing sample can be taken. Also the top of the box must be slightly above grade and covered with a removable cover. If the box doesn't meet these qualifications it must be modified so that it does or this method of sample collection cannot be used.
- D. Baffled Outlet Samples -- A sample from inside the plant outlet baffle may be taken. The outlet must have an open top and the plant discharge line must lead directly to it. It must also be accessible from grade and covered with a removable cover. Baffles are usually constructed with cast-in concrete sides or a plastic tee is used.

## **10. Test for Proper Drainage.**

Be sure tank is full to the flow line. Fill bathtub, laundry sinks, and any other fixtures that drain into system. Then, simultaneously drain all these fixtures and flush toilets. Go quickly to tank and observe any rise in water level. It is sometimes necessary to observe tank for as long as ten minutes in order to give water time to reach it. In other cases, water reaches it almost immediately. If the water rises over 3” and does not go down immediately, inform contractor that aerator cannot be installed until this situation is corrected.

## **11. Unpack Aerator.**

Remove Control Panel and vent cap. Set them aside to be used with next Jet Plant. Carefully remove aspirator shaft. Slide foam restrictor onto shaft so that side of foam restrictor labeled “This side toward motor” faces away from aspirator. Set this down gently in a safe place and remove parts bag, owner's manual, and aerator. Because the aerator fits tightly into carton, it helps to grip the bottom of carton with your feet when pulling it out. Inspect all parts for shipping damage. Notify the carrier immediately if there is any damage. The fit between coupling and aspirator shaft is quite close. When handling these, be careful not to burr or dirty-ends of either part.

Exposing aerator to severe cold, such as the back of a truck or an unheated storage area, could cause circuit breaker to trip when power is first applied due to the drag from cold bearing grease. To prevent this problem, place aerator in a warm area (cab of truck) for a short time before installation. After aerator, is initially started, cold weather will not affect its operation.

## **12. Electrical Connection.**

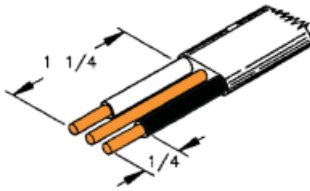
Before proceeding, make sure power is “OFF” at both the aerator Control Panel and at the main electrical panel in the house. Test all three leads of cable with a neon glow tester to be sure power is “OFF”. Check the dimension of the underground cable to make sure it is not smaller than 23/64” x 11/64”. If it is smaller, the grommet will not be watertight.

A. Factory-installed cord & connector.

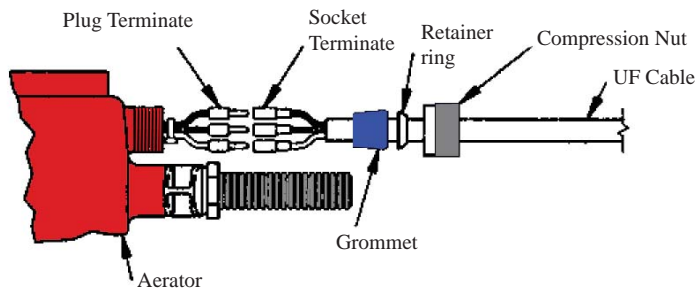
- Install female half of electrical connector on end of cable, in mounting casting, coming from facility. Follow wiring instructions furnished with electrical connector.
- Connect two halves of connector.

B. Wiring the aerator direct.

- Strip the jacket of cable coming from facility approximately 1 1/4" as shown in illustration. Strip 1/4" of insulation from black and white lead wires.



C. Slide compression nut, retainer ring, and grommet from parts bag onto cable as shown in illustration.



- Push factory applied plug terminals on aerator leads into socket terminals on cable, black to black, white to white, and green to ground.
- Crimp socket terminals from parts bag onto black, white, and ground wires of cable.
- Push all three connectors into component enclosure at the same time so that unstripped portion of cable is 1 1/2" inside threaded bushing.
- Slide grommet, retainer ring, and compression nut into place. Tighten compression nut as tight as possible by hand. Then, tighten compression nut with pliers until it will go no further. If retainer ring or cable starts to twist, back off compression nut and start over.

D. How to make a power cord assembly.

1. Cut a piece of cable 15" long for a power cord to be connected to the aerator.
2. Strip and connect one end of power cord to aerator following instructions for "wiring the aerator direct" above.
3. Connect male half of electrical connector to other end of power cord. Follow wiring instructions furnished with electrical connector.
4. Install female half of electrical connector on end of cable in mounting casting. Follow wiring instructions furnished with electrical connector.

NOTE: Aerator power cord assemblies with or without connector are available from Jet.

### 13. Install Foam Restrictor and Aspirator Shaft.

An aerator laying on its side would rest on the foam restrictor and bend the aspirator shaft or motor shaft. For this reason, it is necessary to either block up lower end of the aerator, or allow it to overhang an object during installation of aspirator shaft.

Slide foam restrictor down shaft until it stops at ground-step on aspirator shaft. Tighten set screw firmly. The Allen key should spring, but do not tighten it so much that it slips and rounds out the hex socket.

Slide aspirator shaft into coupling already attached to aerator motor shaft until foam restrictor stops against coupling. Firmly tighten the two set screws closest to foam restrictor. The Allen key should spring, but do not tighten it so much that it slips and rounds out hex socket.

To ease future disassembly, many distributors apply a light coating of lubricant, such as Vaseline, to end of motor and aspirator shaft. If lubricant is applied do not use too much or allow it to get into the hollow end of the connector or shaft. Current aerators use shafts with plastic aspirators on the end. Some older models (100-G, 100-FP) used a shaft with a propeller in addition to the aspirator. Shafts with a propeller must only be used with older aerators. Never use a shaft equipped with a propeller on any other aerator---this will damage the motor.

#### **14. Fit Brackets.**

If the bumpers on the bottom brackets do not press against all sides of mounting casting, remove aerator and spring brackets out until all of them touch the sides. The fit should be snug, but not tight enough to push bumpers off when aerator is installed. If mounting casting risers are used, it is easier to install or remove an aerator using a lift fork that is supplied in distributor's tool kit. The lift fork can be screwed onto a piece of 1" threaded pipe (supplied by distributor). A 5' length should be adequate for most installations. The lift fork should be positioned under the aerator lift handle.

#### **15. Install Drip Loops.**

Install aerator in mounting casting and push cable down below connector an inch or two. This forms a "drip loop" which channels any water running down the cable away from the aerator.

#### **16. Rotate Aerator Clockwise.**

Looking down at installed aerator, rotate it clockwise until one of the mounting brackets engages anti-rotation block in mounting casting. This prevents cutting off the air supply by twisting of the air hose and also eliminates electrical problems caused by twisted cables.

#### **17. Outside-Air-Hose.**

Aerators are equipped with a hose adapter and a 4 1/2" inch length of hose attached.

Important, hose must be in place to insure fresh air for proper treatment and to prevent possible moisture damage to the bearing on certain models.

If one or more risers are used, a longer hose is required. Remove the air hose from the top of the aerator and cut a piece from a bulk coil (sold separately) and install it. It must be long enough to fit completely on the plastic hose adapter (top, center of aerator - over shaft) and go straight up into the center of the vent. With one riser, the hose length should be 15 1/2' long. Each additional riser will require an additional 11" of hose.

Be sure hose is properly installed in vent cap. It must not be bent or kinked when the riser cover is replaced. After the riser cover is in place, remove the vent cap and check position of hose. It should be in the vent body but not close enough to the vent lid to restrict air flow.

If an optional padlock is to be installed on the vent cap, refer to notebook blueprint for an illustration of installation. Place padlock key with Control Panel.

#### **18. Check Wet Weather Safety Valve (Optional).**

If a wet weather safety valve is used, check its outlet to be sure it is free and remind owner to keep it free. For more information, on "Wet Weather Safety Valve", see "Troubleshooting Plant & Equipment".

#### **19. Perform Electrical Test.**

The instructions on inside of the Control Panel cover describe Control Panel operation. Read these before proceeding.

- A. Check to be sure the Control Panel installed is the correct one for the aerator. Current model Standard aerator Control Panels must have 4 amp circuit breakers and current model Floodproof aerator Control Panels must have 7 amp circuit breakers.
- B. Check the wiring to be sure all the above instructions have been followed. Have the electrical contractor correct the work, if necessary.
- C. Set the Control Panel switch to the "OFF" position. Turn the power to the Control Panel circuit "ON" at the main panel. With the power "ON", the aerator warning light should not glow. If installed, warning buzzer should not sound.
- D. Test for power to the panel. Place one prod of a neon glow tester on terminal #1 and the other to terminal #4. The test lamp should glow, indicating power to the panel.
- E. Set the Control Panel switch to the "CONT" position. Check the circuit for proper polarity by placing one prod of the neon glow tester on terminal #2 and the other prod to the bare ground wire in the Control Panel or any other ground such as a copper cold water pipe. The test lamp should glow, indicating proper polarity. Repeat test with terminal #1.
- F. If the Control Panel is equipped with a time clock, set Control Panel switch to the "AUTO" position. Place one prod of a neon glow tester on terminal #2 and the other on terminal #5. Manually rotate timer cam clockwise one complete revolution. The test lamp should go "ON" once and "OFF" once for each complete revolution, indicating the power is on to the aerator circuit and that switching circuit is operating properly.
- G. Turn the Control Panel switch "OFF". Install the aerator and connect it to the power supply.
- H. Turn the Control Panel switch to "CONT". The aerator should run and the aerator warning light should not glow. If installed, warning buzzer should not sound.
- I. If the Control Panel is equipped with a time clock, set the Control Panel switch at the "AUTO" position. Manually rotate the timer cam one complete rotation clockwise. The aerator should cycle on and off once and the aerator warning light should not glow. If installed, warning buzzer should not sound.

J. If these tests or checks are not satisfactory, correct the wiring.

K. When all checks are completed, make sure the Control Panel switch is in the “CONT” position for panels without a time clock and in the “AUTO” position for panels with a time clock. Close and latch the Control Panel cover.

**20. Observe Aerator Operation.**

It should be quiet and free from excessive vibration. Heavy vibration indicates shaft damage. If heavy vibration occurs, install a new shaft and return the shaft that is damaged to the factory.

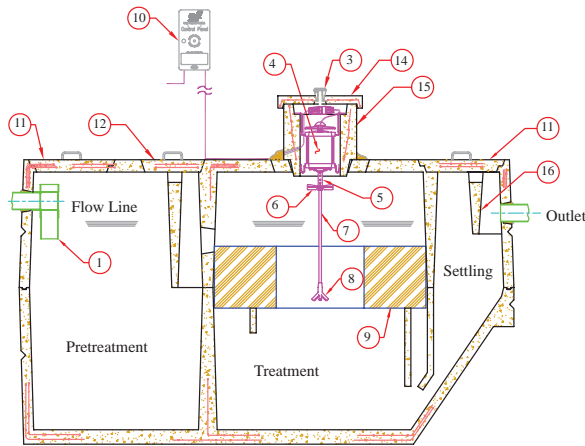
**21. Final Steps.**

A. Completely fill in label on front of Control Panel cover.

B. Remove the red “Notice to Occupant” tag from Control Panel.

C. Fill in “Installation and Service Record” card.

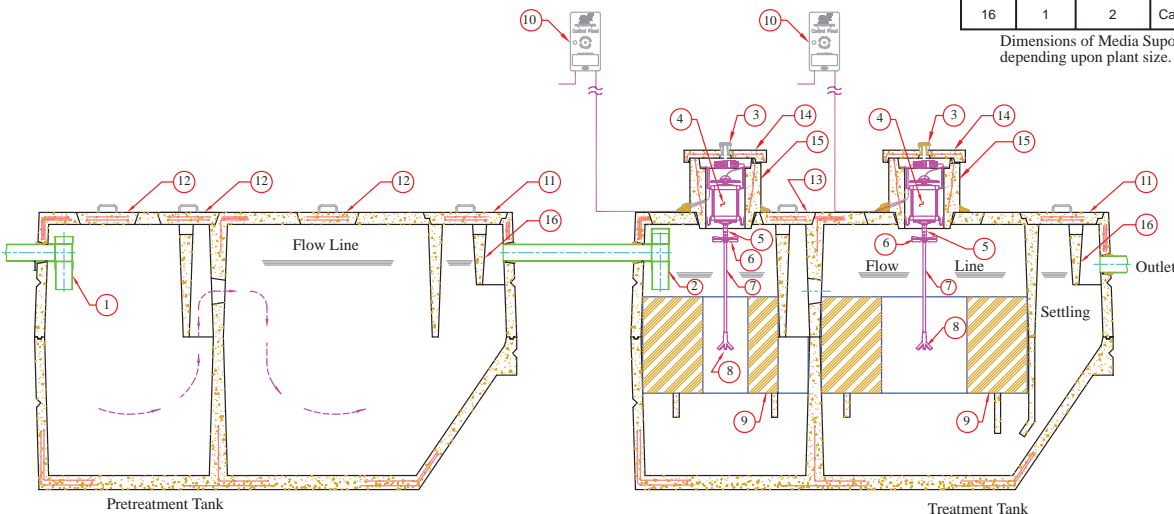
D. Explain “Owner’s Manual” to owner and wire manual to the Control Panel. Instruct owner to fill in “Owner Warranty Registration” card and mail it.



500 & 750 GPD Plants

Item	REQ'D		Description
	J-500 J-750	J-1000 J-1250 J-1500	
1	1	1	Vented Inlet
2	-	1	Capped Inlet
3	1	2	Vent Cap
4	1	2	Aerator
5	1	2	Coupling
6	1	2	Foam Restrictor
7	1	2	Aspirator Shaft
8	1	2	Aspirator
9	1	2	Jet BAT Process Media
10	1	2	Control Panel
11	2	2	Access Cover (Large)
12	1	3	Access Cover (Small)
13	-	1	Inspection Cover
14	1	2	Aerator Mounting Casting Cover
15	1	2	Aerator Mounting Casting
16	1	2	Cast-In Outlet Tee (Plastic Tee Optional)

Dimensions of Media Support beams & Hydraulic baffles vary depending upon plant size.



1000, 1250 & 1500 GPD Plants

**INSTALLER’S TOOL KIT**

A Jet Installer’s Tool Kit contains everything necessary for the proper installation of a Jet Aerator. Both standard and special tools are included in it. Complete kits are available from Jet Inc.



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