



Seedburo[®]
Equipment Company

INSTALLATION & OPERATING INSTRUCTIONS



MPG-3000-T

LARGE CAPACITY
ENVIRONMENTAL
TEST CHAMBER
CONSOLE-STYLE
GERMINATOR

SEEDBURO EQUIPMENT COMPANY
2293 South Mt. Prospect Road
Des Plaines, IL 60018 USA
Phone: USA + 312-738-3700
Fax: USA + 312-738-5329
www.seedburo.com
sales@seedburo.com

TOUCH SCREEN PROGRAMMED CONTROLS

Meets test requirements that may require a controlled single set point temperature, alternating temperature patterns, light, dark or alternating light periods.

LARGE CAPACITY ENVIRONMENTAL TEST CHAMBER CONSOLE-STYLE GERMINATOR



MPG-3000-T

Table Of Contents:

Definitions	3
Installation	5
Proper Electrical Hook-up	6
Feature Call-outs	7
Equipment Set-up	9
Controller Menu Prompts	10
Set-up Mode Menu Prompts	11
Automatic Mode	12
Manual Mode	12
Maintenance Instructions	13
Germinating Lights Replacement	13
Cleaning the Humidity Atomizing Unit	14
Submersible Water Pump	16
Parts List	Back Cover

SPECIFICATIONS

Large Capacity:

- 807 liter (0.807m³) / 28.5 CuFt test versatile.
- Double walled insulation between interior and exterior walls.
- Interior and exterior made of stainless steel.
- Full view inner acrylic door allowing inspection of samples, and reducing disturbance of temperature.
- Controlled environment.

Heating:

- Indirect forced circulated heating system.
- Warm air provided by efficient long life heating element(s) evenly distributed throughout the chamber.
- Stable and even temperature sensitivity for cyclic and growth.

Cooling:

- Cooling unit is circulated system.
- Even temperature sensitivity for cyclic and growth.
- High end CFC free sealed fan cooled compressor.

Humidity:

- Large water atomizer.
- Adjustable range of 10% - 90%.
- Accuracy of +/- to 4% (chamber will vary in saturation points dependent on temperature tests and capacity).

Temperature Range:

- 0°C (32°F) to 56°C (132°F).

Temperature Precision:

- Temperature sensor sensitivity of + 0.5°C (1°F) or better.

Illumination:

- Highly efficient long lasting LED lights.
- Six (6) total located at the either side of the chamber.
- The illumination is adjustable with three (3) settings.

Controls:

- Touch panel.
- Fully programmable.
- User friendly.
- Audio and visual icons and alarms.

The Most Technically Advanced Germinator Available

Seedburo's Deluxe Microprocessor-Controlled Germinator provides unmatched consistent reproducible environmental conditions automatically for uninterrupted operation. The "user-friendly" state-of-the-art "touch-screen" is easy to use and allows the control of almost any combination of temperature, light intensity, humidity parameters and time options, with greater accuracy than typical electromechanical controlled units.

This large and highly advanced test chamber is extremely versatile, meeting many test requirements that may require a controlled single set point temperature, alternating temperature patterns, light, dark or alternating light periods. Accurate and reliable controls are easy to use, making this an excellent choice for running special tests, as well as the ability to easily store and retrieve repetitive test procedures. With the use of the USB Port, test data can be recorded permanently for clear interpretation.

Applications of the MPG-3000-T versatile testing chamber would typically include meeting specific requirements of temperatures, humidity and light level intensity, such as: pre-chiller, seed germination, seed tests and research, plant test and research, plant growth, propagation, accelerated aging, forestry, zoology, botany, tetrazolium, biological research and tissue cultures tests.

The "Flo-Thru" air distribution system is comprised of independent heating system, a separate cooling system, as well as a humidification water atomizer. All components are self-contained, completely enclosed for operator safety. The air pattern created circulates conditioned air throughout the chamber and assures minimal temperature variance between test trays. The MPG-3000-T is standard with interior full view see-thru split doors, for periodic inspection of samples with minimal disruption to the temperature / humidity balance in the interior chamber. Test trays are perforated for greater air flow and are resistant to rusting or mineral deposits build-up, making cleaning simple.

Unit is constructed entirely of high-grade commercial type 304 / 18-8 stainless steel, including rigid tubular and welded base frame, for greater durability, easy cleaning and to prevent rodent infestation. Outer doors have magnetic gasket seals and heavy duty polished hardware. There are 6 each vertically mounted LED lighting fixtures, three (3) mounted on front door, as well as three (3) located on back wall, allowing for varying levels of light conditions throughout the entire 807 liter (0.807m³) / 28.5 CuFt of interior. Unit is mounted on heavy-duty casters for mobility.

If your operation is looking for the answer to testing procedures made easy, the fully automatic MPG-3000-T programming features allow the most dependable and versatile testing perimeters to date.



Heated Test: Above room ambient temperatures
 Cool Test: Below room ambient temperatures
 Cycle: A given period of time within either a hot or cold test



WARNING: Only distilled or purified water should be used. Fill the water reservoir to approximately 20 mm (2") from the top. Always make sure that the water level is high enough to assure that the water intake tube or submersible pump is under water. Exposing the intake or pump out of the water will cause the pump to burnout and fail.



CAUTION!

Read this entire "Installation and Operating Instructions" carefully prior to plugging equipment into a power source and/or into service. Information found in this manual is important for safe operation and proper use / maintenance.



WARNING!

Verify the electrical requirements of equipment and verify the intended electrical power receptacle. The intended power receptacle must be compatible with the operational electrical requirements of the equipment and be properly grounded. The electrical data plate of your equipment is located near the electrical power supply cord (extension cord).



WARNING!

Do not apply more than intended rating to the supply (power cord). Use only the specified power cord and connector. Refer to a qualified service technician for changes to the electrical supply cord.



WARNING!

If there are any questions with regards to wiring, adequate electrical supply, proper power to you building / outlets or service for your equipment, a qualified electrician should be contacted before using your equipment.



WARNING!

Follow local regulations of electrical codes, installation methods and proper use of equipment.



CAUTION!

Germinator and or Lab Test Chamber equipment should only be used for its intended purpose, of typical testing with requirements of temperatures between 0°C and 37.75°C (32°F and 100°F), humidity up to 95% and light level intensity not to exceed the manufacture standard, and those standard test in a professional setting with qualified technicians, to prevent personal injury or a hazard to property including equipment. Consistent with tests, such as: pre-chiller, seed germination, seed tests and research, plant test and research, plant growth, propagation, accelerated aging, forestry, zoology, botany, tetrazolium, biological research and tissue cultures tests.



DANGER!

Failure to read, follow all installation / operation instructions, as well as safe working habits, can result in a situation that personal injury hazards may exist that may not be apparent, or a condition where a hazard to property including the product itself.

CAUTION

INSTALLATION

Remove the packing material

Great care has been taken to protect the unit and content during shipping. After uncrating the unit, make sure to remove all cardboard, padding, wood, tape, plastic ties, and other packing material that secure shelves, racks, humidifier, water reservoir, etc... in place during transit.

Serial and Model Number:

These numbers are found on the nameplate (serial tag) affixed to the lower back or side of the unit. Please record these numbers along with the voltage, amperage and code number in this booklet, in the space provided on the back cover for easy and quick reference. If you ever need technical information or parts, this information will be required in order to provide you proper assistance.

Installation & Location:

Select location for installation

ALWAYS:

- Install equipment to assure that the location for your equipment is level.
- Install equipment away from heat sources and extreme cold areas.
- Install equipment to assure sufficient clearance to side and back walls of 6" (152.4 mm).
- Install equipment only in appropriate areas that are conducive to electrical appliances.
- Install equipment in an appropriate safe working environment.

NEVER:

- Never install equipment in an area of standing water.
- Never install equipment in an area with overhead power-lines
- Never install equipment in an area not conducive to safe and proper operator use.

PROPER ELECTRICAL HOOK-UP



Caution:

To protect operator as well as equipment from a possible power surge:
- Verify that the power switch is in the “OFF” position before plugging in the electrical cord.

- Verify the electrical requirements of equipment and verify the intended electrical power receptacle. The intended power receptacle must be compatible with the operational electrical requirements of the equipment and be properly grounded. The electrical data plate of your equipment is located near the electrical power supply cord (extension cord), indicating voltage, amp, wattage, Hz, and phase.

- Plug the power cord into a proper voltage and grounded outlet only.



Danger:

DO NOT, UNDER ANY CIRCUMSTANCES, CUT OR REMOVE THE GROUNDING PRONG (Earth Ground) FROM THE CORD PLUG.



WARNING:

If the product loses the ground connection, usage of knobs, controls, hinges latches and all other parts may become conductive of electricity can cause an electrical shock. Electrical products may be hazardous if misused.



WARNING:

For your protection, do not bypass any interlocks, electrical safety devices or fuses. Only a qualified electrician should attempt repair or replacement of electrical wiring and or components.



Danger: BE SURE THE EQUIPMENT IS UNPLUGGED FROM ELECTRICAL SOURCE BEFORE REMOVING CONTROL PANEL.

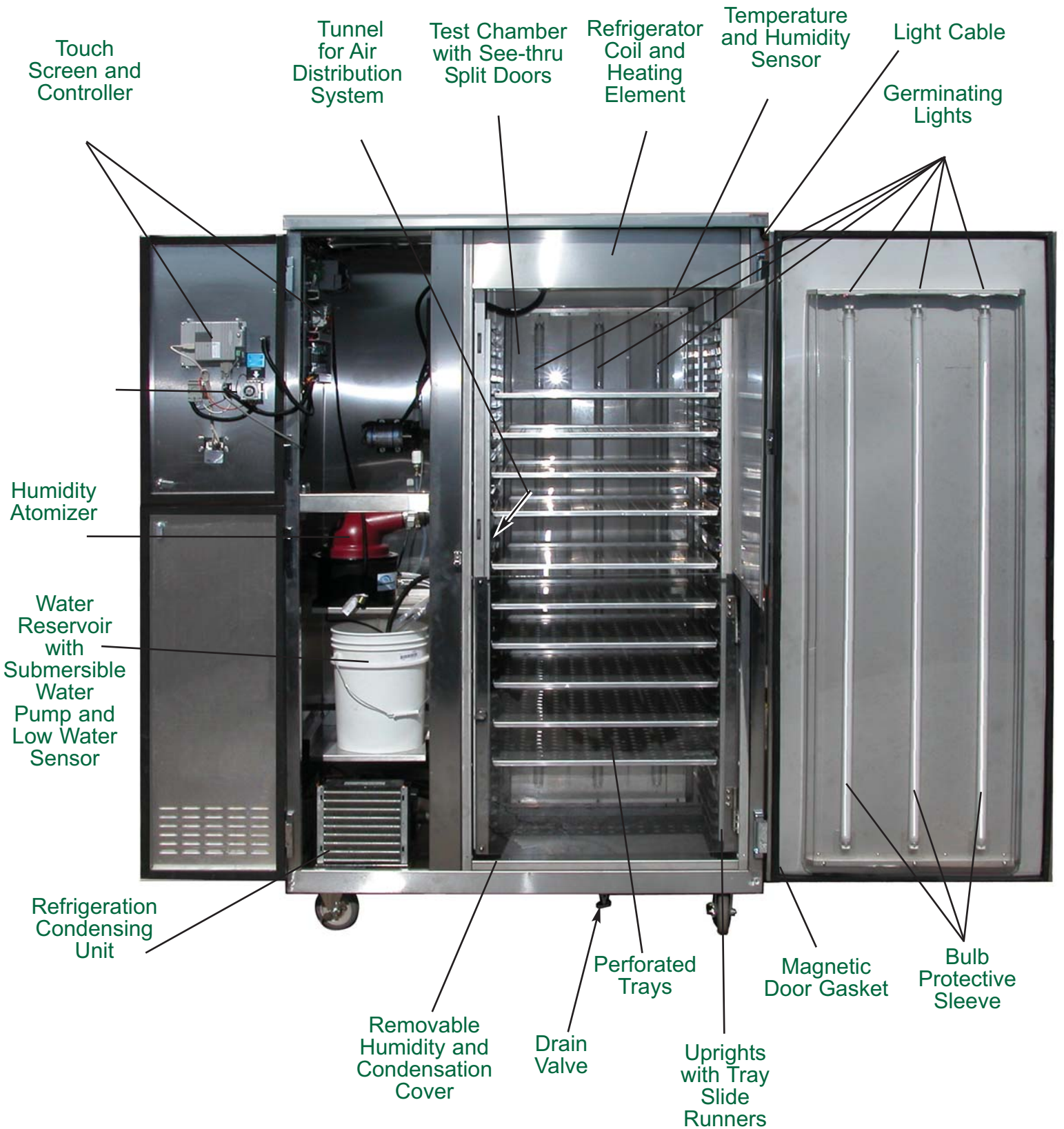
Always make sure that the water level is high enough to assure that the water intake tube or submersible pump is under water. Exposing the pump out of the water will cause the pump to burnout and fail.

Only distilled or purified water should be used with the MPG-3000-T.
Tap water is not recommended, as tap water contains minerals that may cause a residue build-up over time.



WARNING: Exposing the pump out of the water will cause the pump to burnout and fail. Fill the water reservoir, using only distilled or purified water, to approximately 20mm (2") from the top. The reservoir is located in the compartment behind the lower left access door. Always make sure that the water level is high enough to assure that the submersible pump is under water.

NOTE: When a "dry test" is being conducted, you do not have to fill the water reservoir, but the humidity controller ***MUST be turned "OFF"*** or placed at a zero "0%" humidity level setting. Failure to do so will cause the pump to run dry and burn the pump out, causing damage to the water pump, voiding the warranty of the pump and humidifier.



EQUIPMENT SET-UP

1. After uncrating the unit, make sure to remove all cardboard, padding, wood, tape, plastic ties, and other packing material securing all shelves, racks, humidifier, water reservoir, etc... in place during transit.

2. Install the adjustable tray slide runners at desired spacing on the tray slide uprights and locate the sample trays on the tray slide runners. The trays have been designed to be removable / adjustable for the greatest flexibility and for ease of cleaning.

WARNING

3. Open the lower left control / component access door to locate the water reservoir (plastic bucket) and submersible pump.



WARNING: Only distilled or purified water should be used. Fill the water reservoir to approximately 20mm" (2") from the top. The reservoir is located behind the lower left front access door. Always make sure that the water level is high enough to assure that the submersible pump is under water. Exposing the pump out of the water will cause the pump to burnout and fail.

4. Only distilled or purified water should be used with the MPG-3000-T. Tap water is not recommended, as tap water contains minerals that over time may cause a residue build-up. Tap water must be distilled or purified.

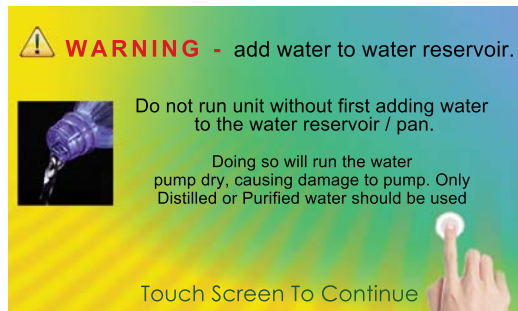
- Water other than distilled or purified contain contaminates as well as minerals that will harm the water reservoir, spray nozzle, humidifier, pump and sensors, and may cause damage over time.
- Never use well or dirty water, as this will cause internal damage.
- Use of any water other than distilled or purified will void warranty of all fluidic components and those sensors that read and display temperature and humidity levels as well as the refrigeration coil.

5. If a "dry test" is being conducted, you do not have to fill the water reservoir, but the humidity controller **MUST** be turned "OFF" or placed at a zero "0%" humidity level setting. Failure to do so will case the pump to run dry and burn the pump out, causing damage to the water pump, voiding the warranty of the pump and humidifier.

6. For best results, before loading the germinator chamber with test samples, operate the unit for approximately 30 to 45 minutes to allow the chamber to "pre-condition" and reach temperature and humidity levels.

7. Wet the sample trays and the Kem-Pak or seed towels.

CONTROLLER MENU PROMPTS TITLE SCREEN & MAIN MENUS



CONTROL SCREEN OPERATING INSTRUCTIONS

1. Plug unit in to proper outlet.
2. Turn the "ON / OFF" rocker switch on the face of the control panel to "ON".



- Wait approximately 20 seconds:
3. The control panel will illuminate, showing the "Title Screen".
 4. The MPG-3000-T Controller is a soft-touch interactive display screen. Touch the screen to continue.
 5. The Main Menu screen allows two choices of "Set-Up Mode" or "Run Mode".

"Set-Up Mode":

"Set-Up Menu":

This function is for setting up the following parameters:

"CLOCK /CALENDAR" (Real Time)

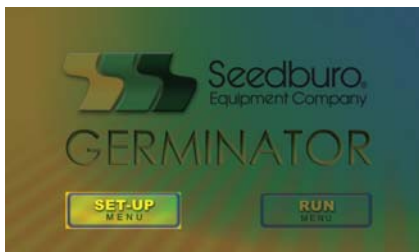
"DATA STORAGE" (Data Logging Set-Up)

"TEMPERATURE UNITS" (°F or °C scales)

"CALIBRATE" (Internal machine parameters - Password

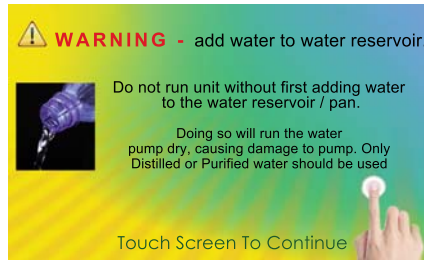
Protected)

Once these parameters have been set, they become the defaults and remain the settings for all tests, until changed or modified.

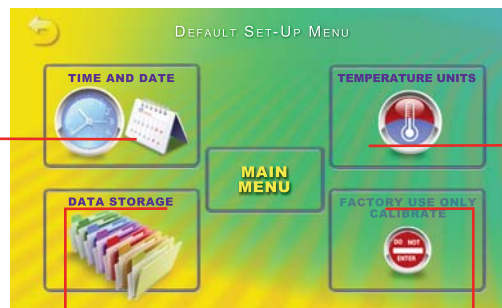


CONTROLLER MENU INSTRUCTIONS

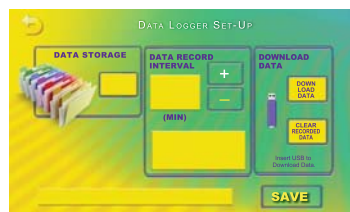
Set-up Mode



Before running the unit, you must first set-up the **CLOCK /CALENDAR**, **DATA STORAGE**, **TEMPERATURE UNITS** (°F or °C scales), and **CALIBRATE**. These become the settings for all tests until changed.



Clock / Calendar

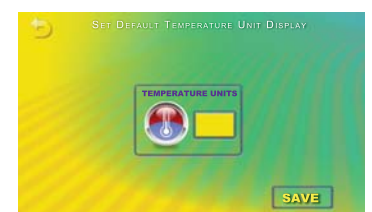


Data storage allows variable time interval in collection of test values.



SETTING DEFAULTS

Min Temp = 0 °C (32 °F)
Max Temp = 56 °C (132 °F)
Min RH% = 0%
Max RH% = 100%



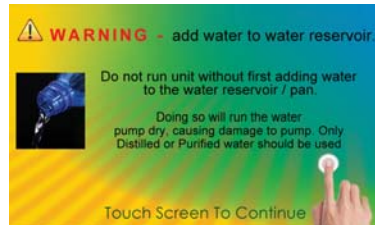
°F / °C Scale



Heated Test: Above room ambient temperatures
 Cool Test: Below room ambient temperatures
 Cycle: A given period of time within either a hot or cold test

CONTROLLER MENU INSTRUCTIONS

Run Mode

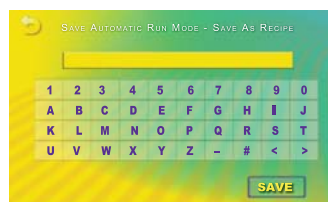
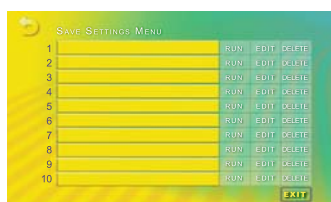
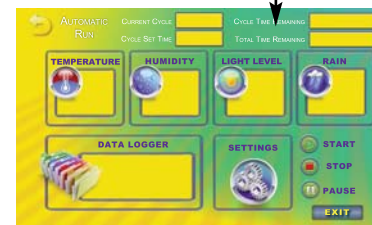
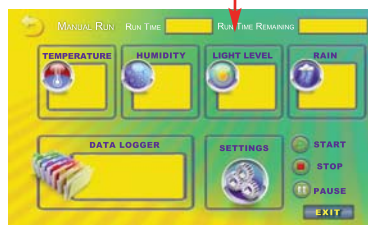
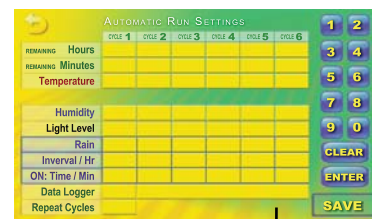
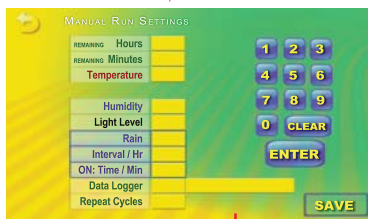


Pressing "RUN" without going through "SET-UP" will default to running the last program that was loaded.



Manual Mode

Automatic Mode



MAINTENANCE INSTRUCTIONS

CLEANING

CLEANING DANGER:

Never allow electrical parts to become wet, as this may cause electrical shock or death!

**WARNING****WARNING:**

Use only distilled water or water that has been boiled. Mineral deposits will collect and damage sensors found in the unit, causing fluctuation in factory tolerances.

The MPG-3000-T is manufactured from stainless steel. Though stainless steel is extremely resistant to mineral deposits and rusting, mineral found in water will collect on stainless parts of the unit as well as components that meter and generate the temperature and humidity levels. Remember stainless steel is stain-less, not stain-proof.

To keep your cabinet clean, simply wipe the interior and exterior, as needed, with damp cloth or sponge with a mild soapy solution or white vinegar to aid in deliming. A stainless steel cleaner / polish that is widely available, or that can be obtained from the distributor from whom the unit was purchased. Never use abrasives, acids, or strong cleaners. Do not flood or allow electrical parts to become wet. The interior racks are removable without tools for easy cleaning. Do not use wax or strong cleaners on door gaskets.

LED BULB REPLACEMENT

- The Germinating Lights LED fixture may be protected by a Protective Sleeve.
- Replace fixture as necessary.

HUMIDITY ATOMIZING UNIT

Periodic Cleaning Required

The Humidity Atomizing Unit in your MPG-3000-T germinator is a precision-built instrument that, given proper care, will provide years of dependable operation. All that is required is periodic cleaning (approximately three to four times a year) depending upon the amount of use and the type of water used. Use only distilled water or water that has been boiled. Mineral deposits will collect and damage sensors found in the unit, causing fluctuation in factory tolerances. Failure to clean your unit may result in reduced performance, and if left unchecked, can lead to repairs or damage of the humidifier or other component parts of the system.

The location of the Humidity Atomizing Unit is behind the lower left hand door, as shown on page 8.

Removing the Humidity Atomizing Unit:

Step 1:

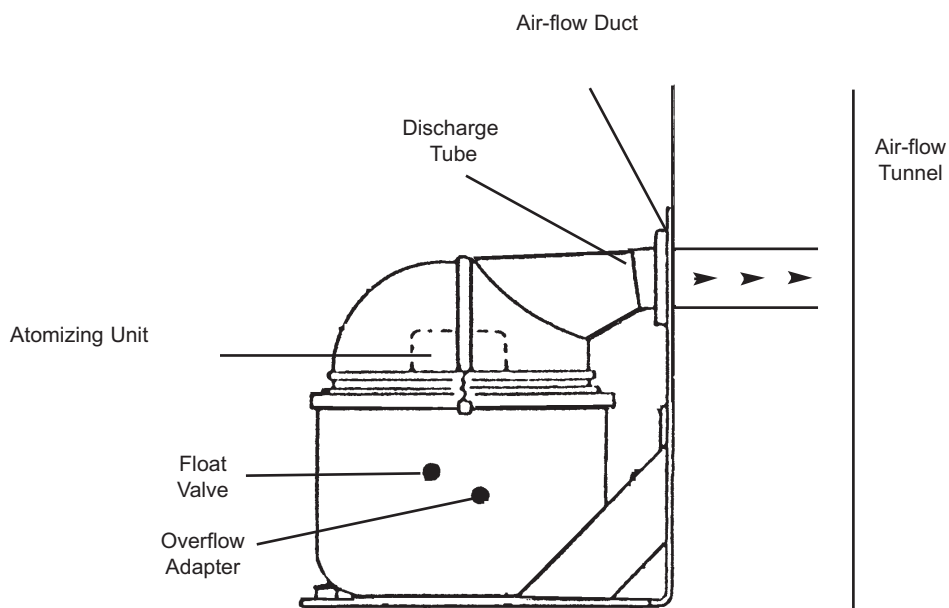
Turn the power switch to “OFF” on the MPG-3000-T and disconnect the electrical plug from the wall outlet.

Step 2:

Loosen discharge tube from Air-flow Tunnel. Loosen Air Intake Tube from Air-flow Tunnel. Lift unit out and away from the wall and air ducts.

Step 3:

Humidity Atomizing Unit will lift out easily from unit base. Remove for cleaning.

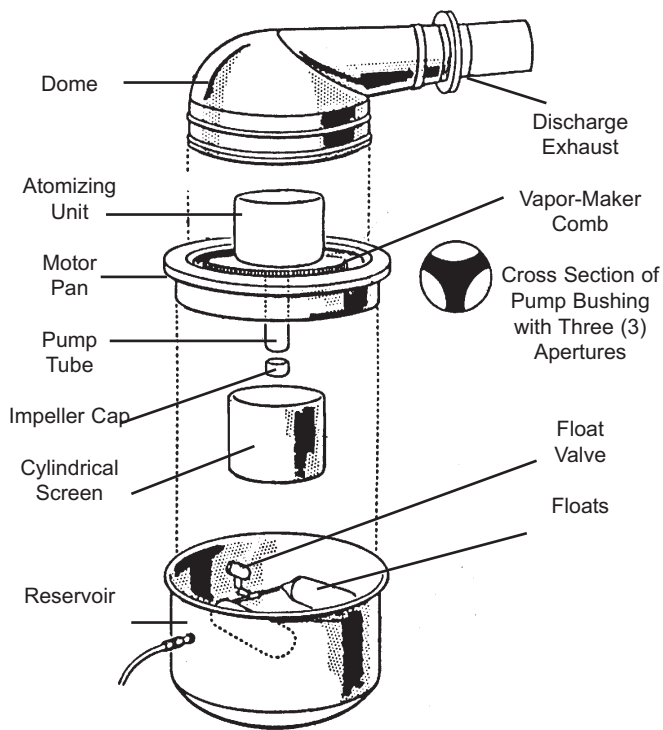


Cleaning the Humidity Atomizing Unit:

Step 4:

Note: Do not clean by submerging the unit in water!

The Dome rests on the Motor Pan. The Motor Pan sets on the Reservoir. Separate the Dome, Motor Pan and Reservoir. Empty and clean Reservoir of all liquids and waste materials. Care should be taken so as not to disturb Floats or Float Valve inside the Reservoir.



Gently free any accumulated solids or minerals. Remove the Cylindrical Screen by slightly twisting out of “lock” position and remove. Remove the Impeller Cap from Pump Tube, tapping lightly against bottom edge of the Cap with flat object, such as screwdriver handle or file - do not tap face of Cap. Then, clean the three (3) Apertures in the Pump Bushing of accumulated solids and minerals. Scrape out waste materials along inner walls of pump and tube. Clean Vapor-Maker Comb by brushing with a small wire brush or toothbrush. Clean Motor Pan of any accumulated solids or minerals.

Step 5:

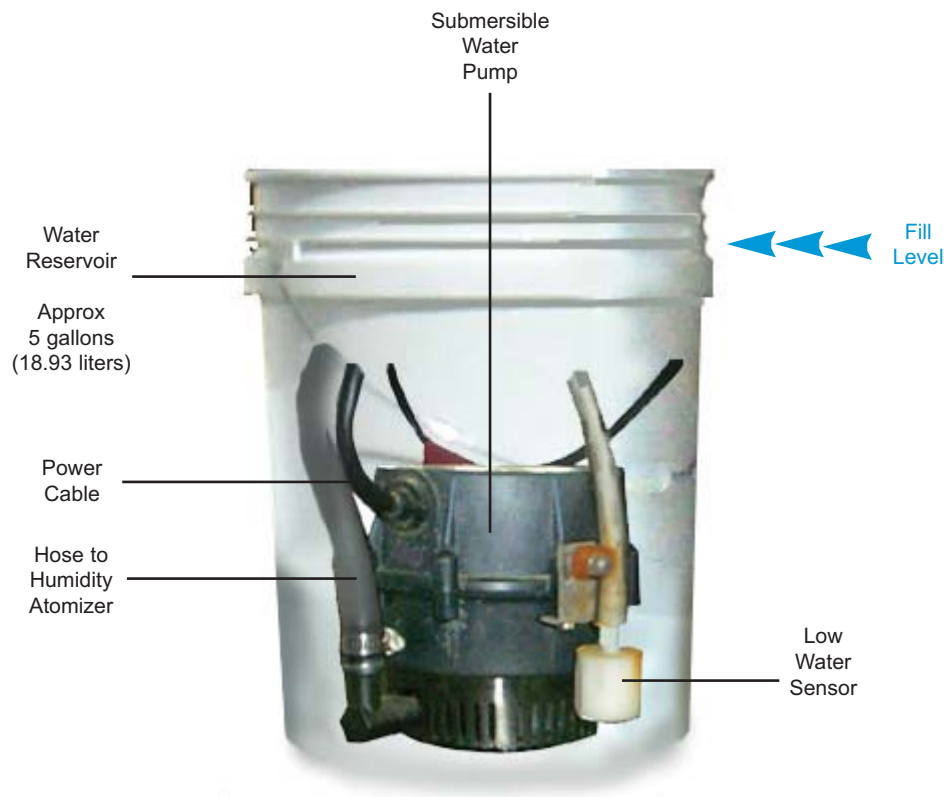
Replace Impeller Cap on Pump Tube. Tap lightly into place around edge. Do not tap face of Impeller or Cap. Spin Pump Tube by hand to insure free rotation. Replace Cylindrical Screen by twisting into “lock” position. Reassemble components.

Submersible Water Pump

The Submersible Water Pump is located within the 5 gallon Reservoir setting inside the lower left access compartment. The water pump is designed to be used as a fully submerged pump only. The water in which it is submerged acts as a coolant. Never allow your water reservoir to run dry, exposing the pump. The housing of the pump is constructed of durable and resistant material. The unit is designed to work with your MPG-3000-T Germinator to provide long and trouble-free service. The exterior provides a case housing for the motor and special dielectric oil used as a heat transfer agent and life-time bearing / motor lubricant. Under no circumstances should the case be opened to expose the motor or to drain the oil.



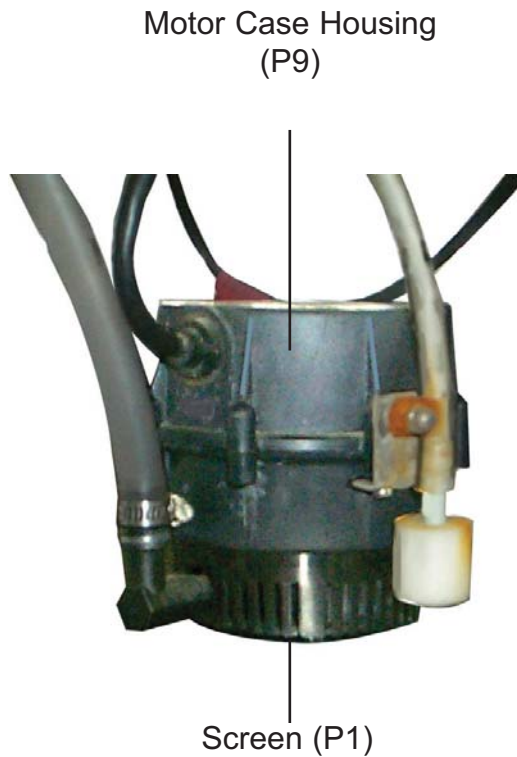
WARNING: Only distilled or purified water should be used. Fill the water reservoir to approximately 20mm (2") from the top. Always make sure that the water level is high enough to assure that the water intake tube or submersible pump is under water. Exposing the pump out of the water will cause the pump to burnout and fail.



Cleaning of the Submersible Water Pump:

Turn power to the germinator "OFF". Disconnect the electrical power plug from the wall outlet.

Remove Screen (P1) from pump. Remove only the 3 Screws (P3) that secure the Volute (P4) to the Motor Case Housing (P9). Lightly clean any corrosion or debris which may clog the Impeller (P7). Use a brush to scrape encrusted material, minerals and other deposits. Turn the Impeller (P7) by hand to make sure it turns freely.



EXPLODED VIEW OF SUBMERSIBLE PUMP Model Number: NK-2

