



LAB-TECH INC.

INSTALLATION & OPERATING INSTRUCTIONS



MPG-2000

**MICROPROCESSOR
CONTROLLED
CONSOLE-STYLE
GERMINATOR**

DISTRIBUTED EXCLUSIVELY BY

SEEDBURO EQUIPMENT COMPANY
1022 WEST JACKSON BLVD.
CHICAGO, IL 60607 USA
Phone: USA + 312-738-3700
Fax: USA + 312-738-5329

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.

CAUTION

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 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, photo stability tests, zoology, botany, tetrazolium, biological research and tissue cultures tests.



DANGER

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.

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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 built-in printer, the recorder insures that immediate and accurate test data is recorded permanently for clear interpretation.

Applications of the MPG-2000 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, photo stability tests, zoology, botany, tetrazolium, biological research and tissue cultures tests.

Please take the time to read, understand and follow the installation, operation and maintenance / care instructions in this book, as well as all warning / caution stickers and labels found with, on or attached to the unit. This will assure safe and proper use of the unit, as well as trouble free service.



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



Only distilled or purified water should be used with the MPG-2000.
 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 1-1/2" 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.

SEEDBURO MICROPROCESSOR GERMINATOR: 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 **built-in printer**, the recorder insures that immediate and accurate test data is recorded permanently for clear interpretation.

Applications of the MPG-2000 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, photo stability tests, 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-2000 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 "cool-white" fluorescent lighting tubes, 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 28.5 cu ft of interior. Unit is mounted on heavy-duty 5" casters as standard.

If your operation is looking for the answer to testing procedures made easy, the fully automatic MPG-2000 programming features allow the most dependable and versatile testing perimeters to date.

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:

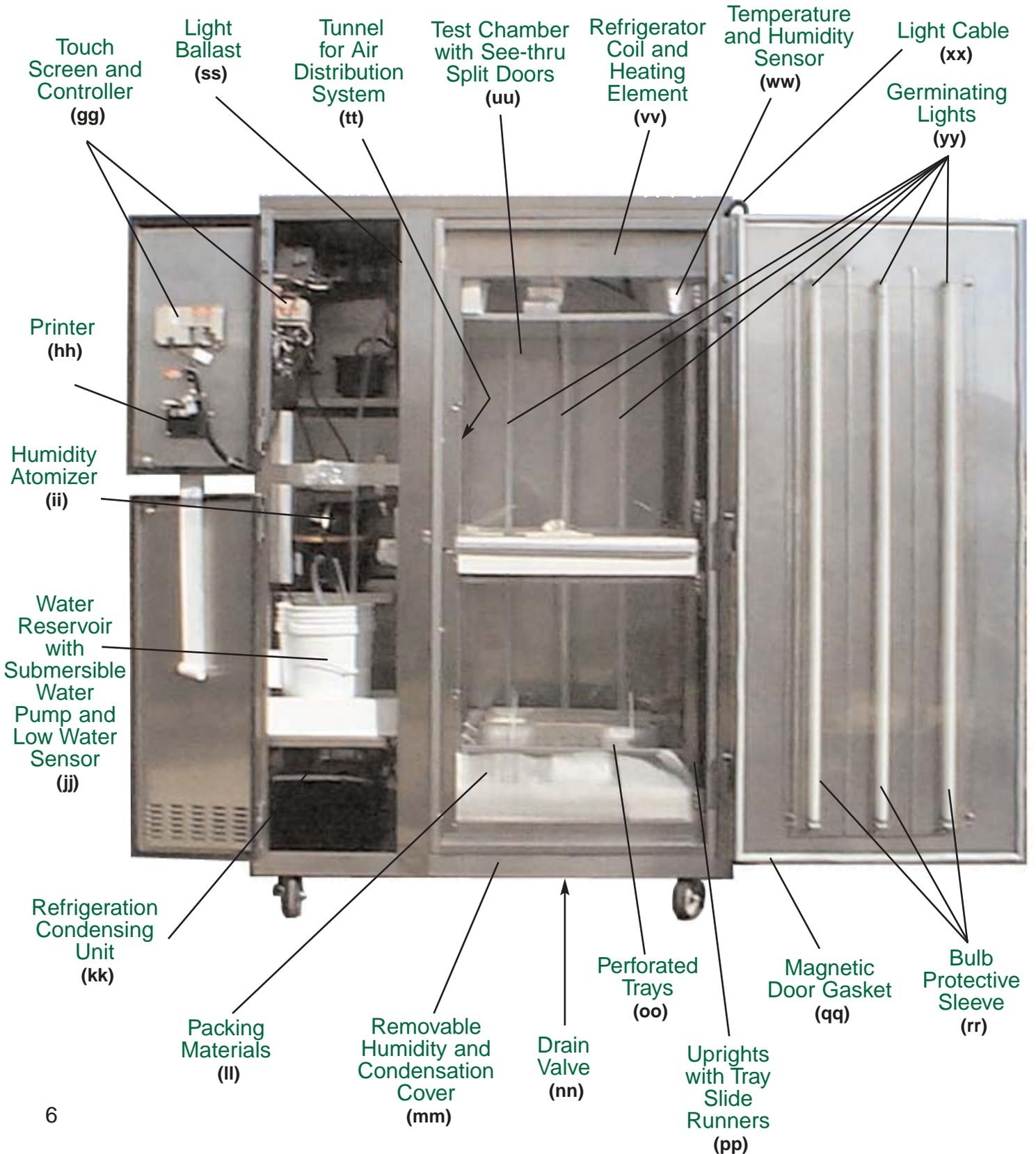
For your protection, do not bypass any interlocks, electrical safety devices or fuses. Only a qualified electrician should attempt repair or replacement of electrical wiring and or components.



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

MICROPROCESSOR CONTROLLED CONSOLE-STYLE GERMINATOR

(SHOWN WITH PACKING MATERIALS)



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.
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 1-1/2" 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-2000. 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.

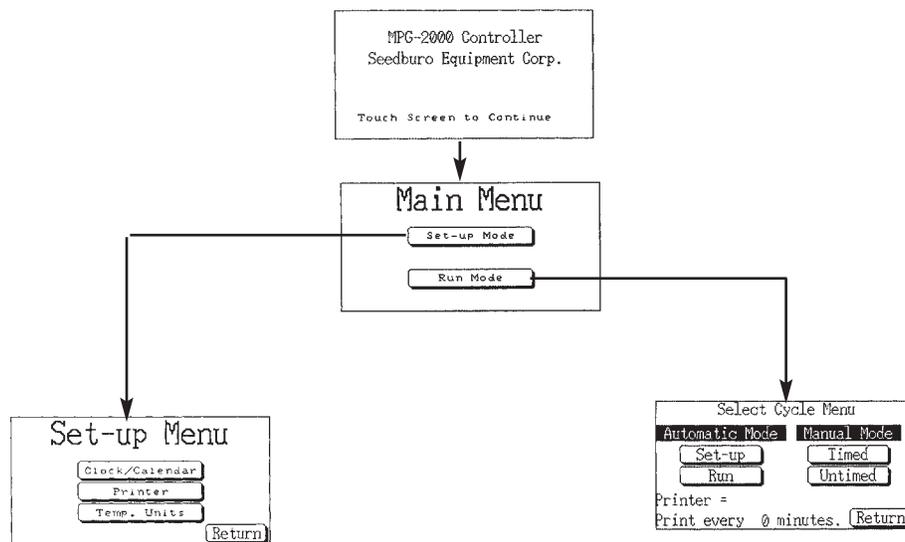
- Water other than distilled or purified contain contaminates as well as minerals that will harm the water reservoir, spray nozzle, humidifier, pump and sensors, and may cause damage over time.
- Never use well or dirty water, as this will cause internal damage.
- Use of any water other than distilled 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.

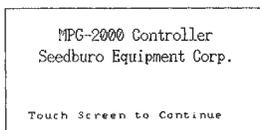
7. Wet the sample trays and the Kem-Pak or seed towels.

CONTROLLER MENU PROMPTS TITLE SCREEN & MAIN MENUS

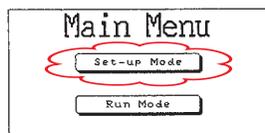


CONTROL SCREEN OPERATING INSTRUCTIONS

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



3. The control panel will illuminate, showing the "Title Screen".
4. The MPG-2000 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":

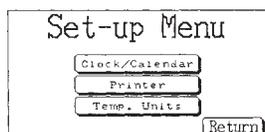
This function is for setting up the following parameters:

"Clock" (Real Time)

"Printer" functions (On / Off and interval between prints)

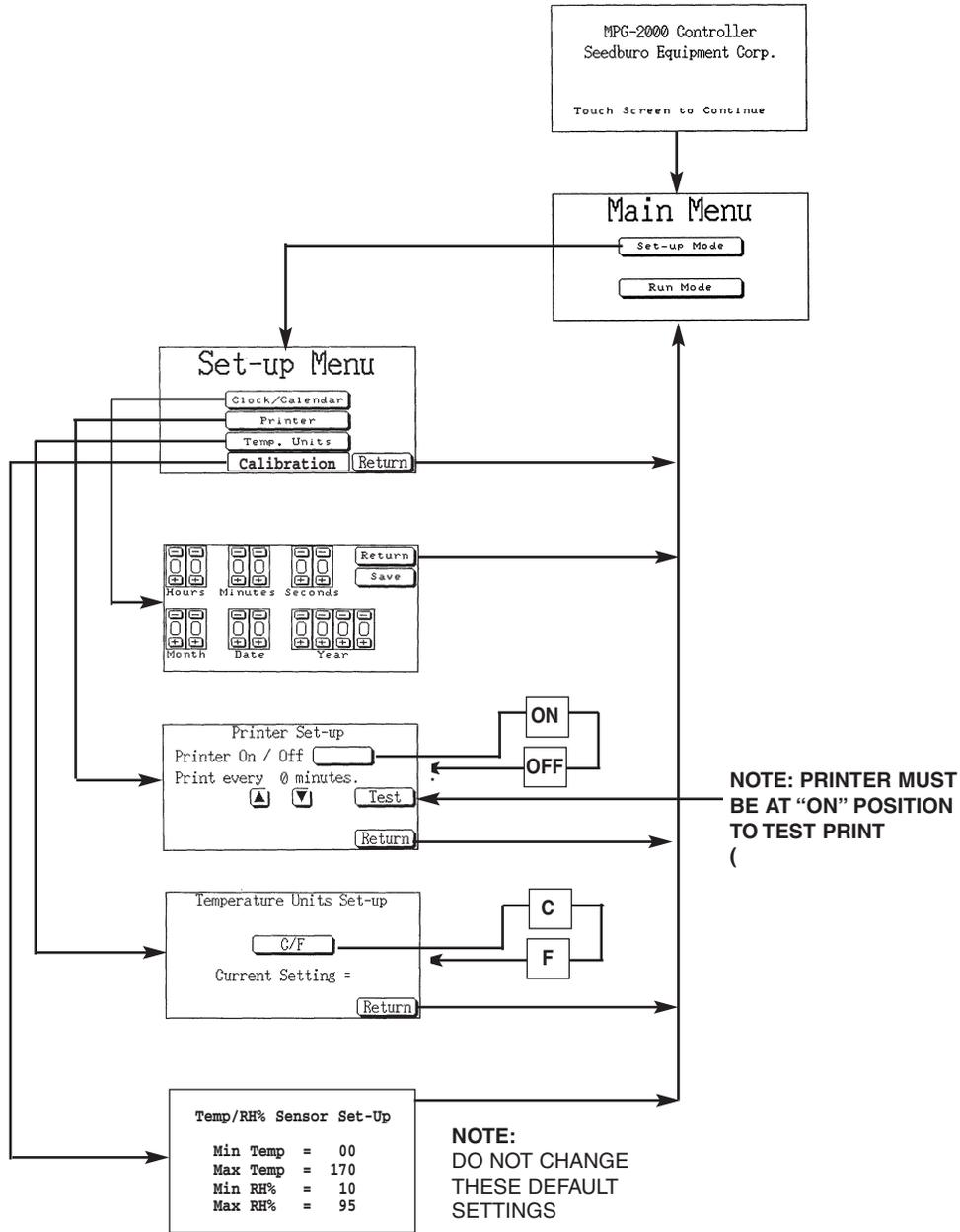
"Temp. Units". (°F or °C scales).

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



CONTROLLER MENU INSTRUCTIONS

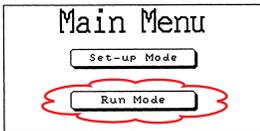
Set-up Mode



SETTING DEFAULTS
 Min Temp = 00
 Max Temp = 170
 Min RH% = 10
 Max RH% = 95

AUTOMATIC MODE OPERATING INSTRUCTIONS

The Main Menu screen allows two choices: "Set-Up Mode" or "Run Mode".
Touch "Run Mode" on the screen to continue into the "Run Mode" menu.



"Run Mode":

"Select Cycle Menu":

This function allows the selection in which to conduct a test procedure, of either "AUTO Mode" or "MANUAL Mode".

"AUTO Mode" consists of two (2) options:

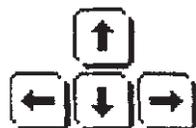
"Set-up" and **"Run"**.

"Set-up" allows the set-up (programming / editing and storing) of test criteria, such as:

- Hot cycle temperature and time duration
- Cold cycle temperature and time duration (allowing for alternating values for a given period of times)
- Humidity levels
- Light levels
- Repeated cycles (steps) are required to equal the total test time.

"Edit" allows the set-up test criteria to be changed.

Use cursor arrows to move into:

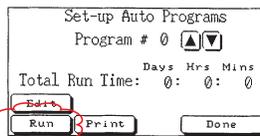
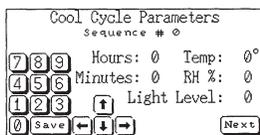
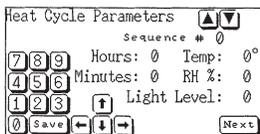
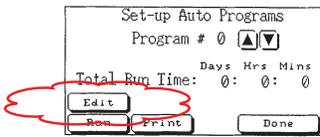
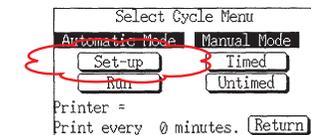


Cursor Arrows

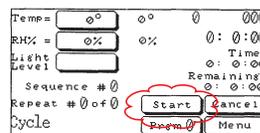
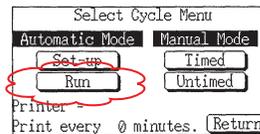
- Hours:** Enter numbers; then touch "SAVE"
- Minutes:** Enter numbers; then touch "SAVE"
- Temp:** Enter numbers; then touch "SAVE"
- RH%:** Enter numbers; then touch "SAVE"
- Light Level:** Enter numbers; then touch "SAVE"



Touch "SAVE" after each entry.



"Run" displays the settings and duration as cycle(s) begin and continue.



MANUAL MODE OPERATING INSTRUCTIONS

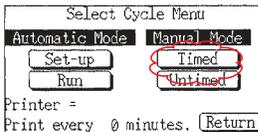
The Main Menu screen allows two choices: "Set-Up Mode" or "Run Mode".
Touch "Run Mode" on the screen to continue into the "Run Mode" menu.



"Run Mode":

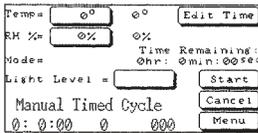
"Select Cycle Menu":

This function allows the selection in which to conduct a test procedure, of either "AUTO Mode" or "MANUAL Mode".



"MANUAL Mode" consists of two (2) options:

"Timed" allows the set-up of a test criteria (parameters) of the total test time required, given temperature of either a heated test or a cold test, the humidity level, and the light level.



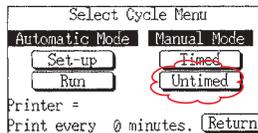
Hours, Minutes, Seconds: Enter numbers; then touch "SAVE"

Temp: Enter numbers; then touch "SAVE"

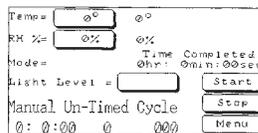
RH%: Enter numbers; then touch "SAVE"

Light Level: Enter numbers; then touch "SAVE"

Menu Prompts are detailed on adjacent page.



"Untimed" allows the set-up of a test criteria (parameters) of a given temperature of a heated test or a cold test, the humidity level, and the light level, *with no time limit*.



Temp: Enter numbers; then touch "SAVE"

RH%: Enter numbers; then touch "SAVE"

Light Level: Enter numbers; then touch "SAVE"

To end a test, the operator must manually "cancel" or "end" the test.

Menu Prompts are detailed on adjacent page.

MAINTENANCE INSTRUCTIONS

CLEANING

CLEANING DANGER:

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



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-2000 is manufactured from type 300 series 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.

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.

FLUORESCENT BULB REPLACEMENT

- The Germinating Lights Fluorescent Bulbs (**vv**) are protected by a Protective Sleeve (**pp**).
- Rotate bulb to release from terminal cradle(s).
- Slide off Fluorescent Bulb Protective Sleeve (**pp**).
- Replace bulbs as necessary.

Troubleshooting: If the Fluorescent Bulbs have been replaced and fail to light, the Ballast (**ss**) may need to be replaced. See page 6 for general location of Ballast.

Ballast: Model Number GE - B332I120RH, 120v.

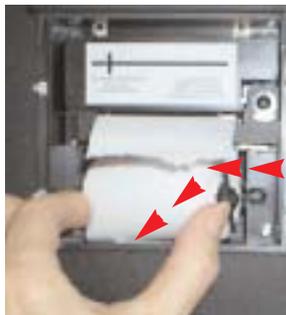
PAPER ROLL REPLACEMENT FOR PRINTER

Use Paper Roll: 2-1/4" x 1-1/2" Diameter
Diameter Core: 1/2"

1. Unlock the Printer Cover by holding cover on both ends and sliding it downward. Continue downward to remove the Printer Cover entirely.



2. To remove Paper Roll Assembly, push Paper Roll Holder inward from the right side and pull out.



Paper Roll Holder

3. Insert Holder into new Paper Roll Core.



Paper Feeder Button

4. Feed the end of paper into slot and push Paper Feeder Button. This will feed and advance the paper through the Printer Roller and exit from the Ribbon Slot.

5. Install the new paper roll in to the printer, inserting the left side first, then snap the right side of the holder in place.



HUMIDITY ATOMIZING UNIT

Periodic Cleaning Required

The Humidity Atomizing Unit in your MPG-2000 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 **(ii)** is behind the lower left hand door, as shown on page 6.

Removing the Humidity Atomizing Unit:

Step 1:

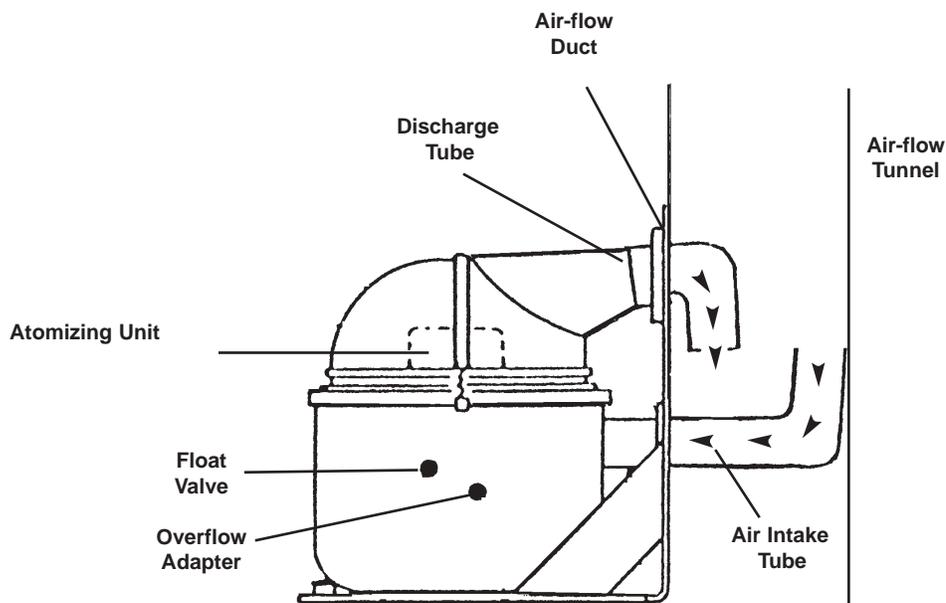
Turn the power switch to "OFF" on the MPG-2000 and disconnect the electrical plug from the wall outlet.

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.

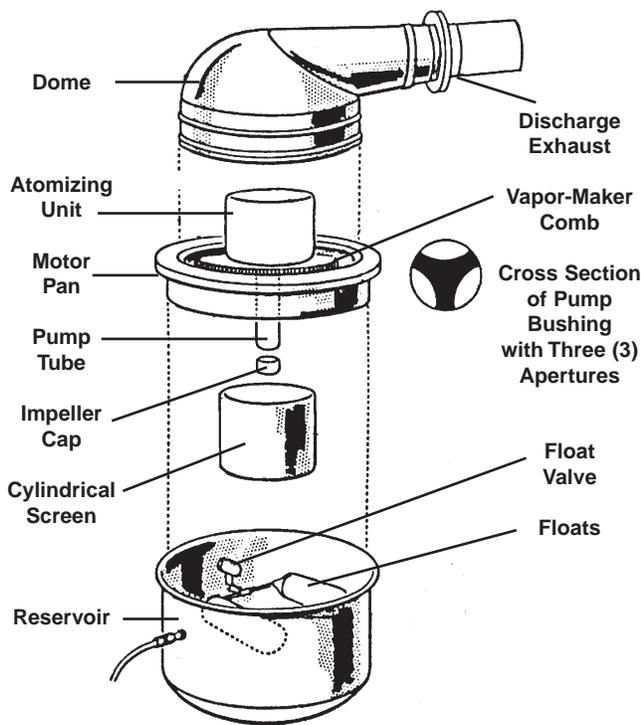


Cleaning the Humidity Atomizing Unit:

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 Cylinder 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:

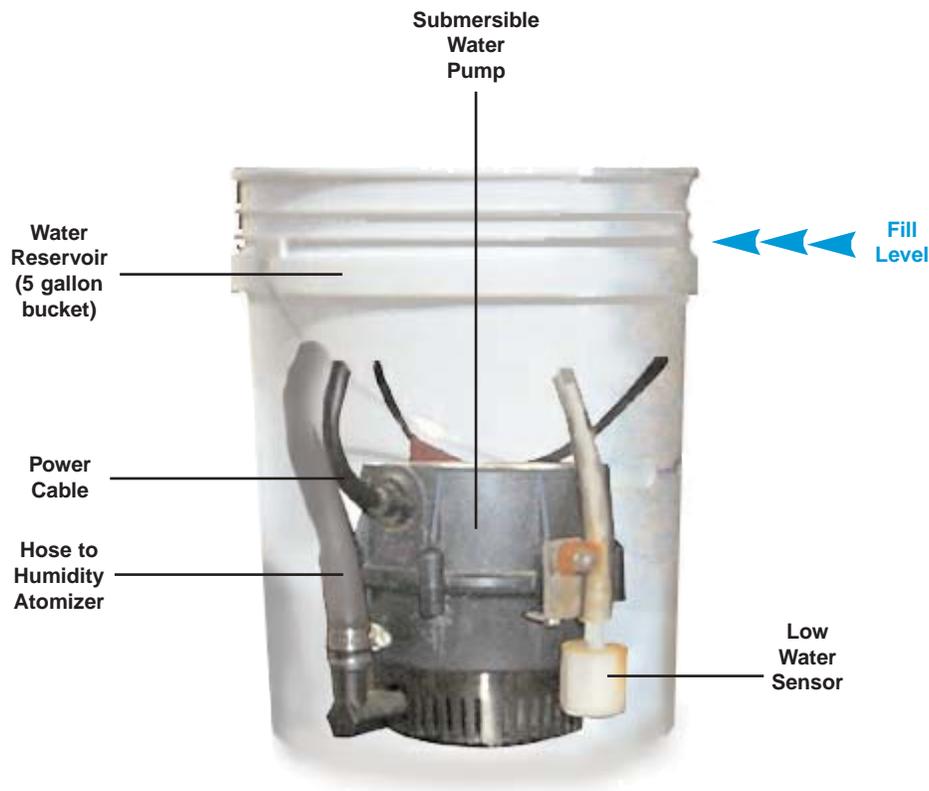
Replace Impeller Cap on Pump Tube. Tap lightly into place around edge. Do not tap face of Impeller or Cap. Spin Pump Tube by hand to insure free rotation. Replace Cylindrical Screen by twisting into "lock" position. Reassemble components.

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-2000 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.



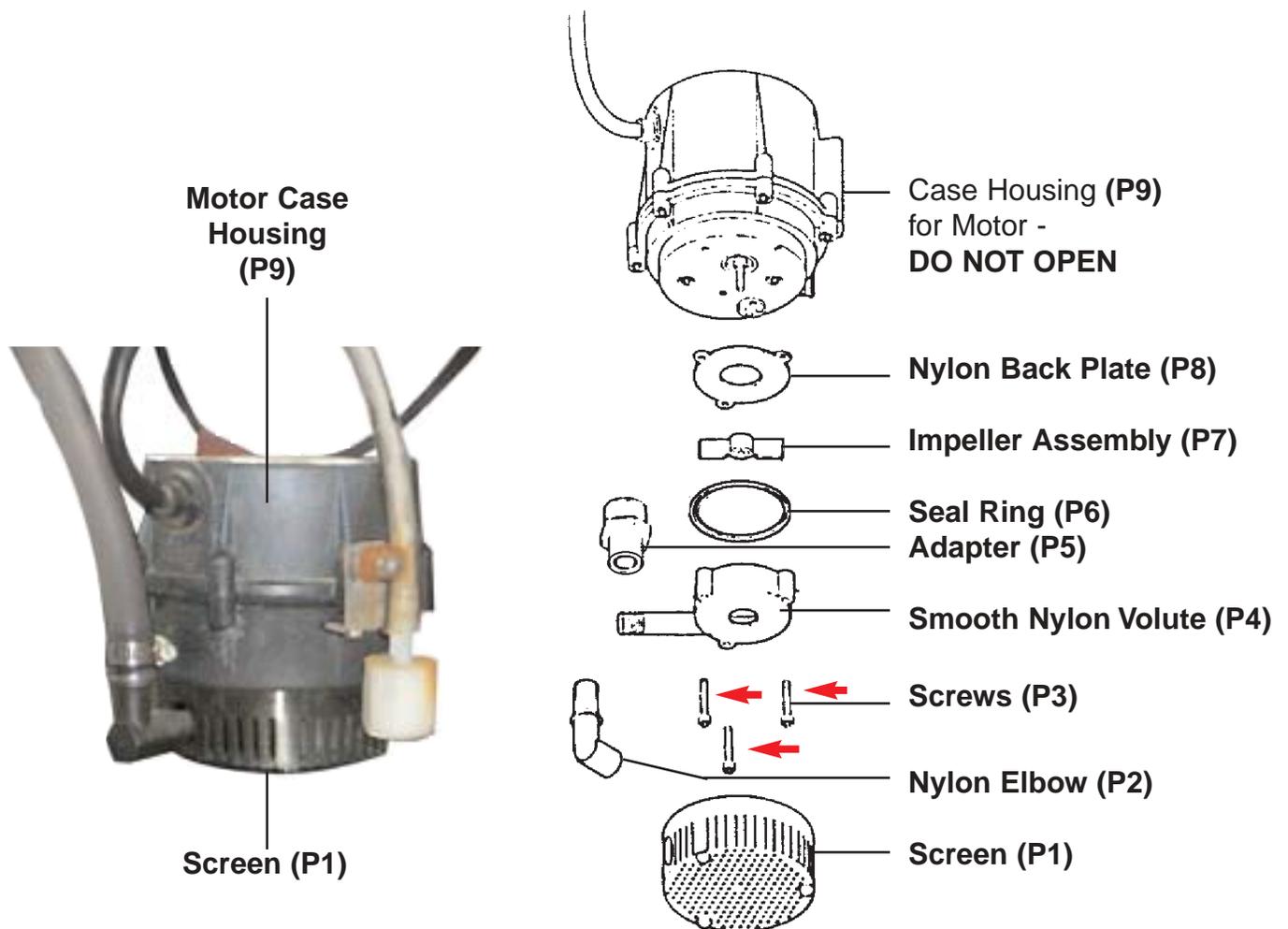
WARNING: Only distilled or purified water should be used. Fill the water reservoir to approximately 1-1/2" from the top. Always make sure that the water level is high enough to assure that the submersible pump is under water. Exposing the pump out of the water will cause the pump to burnout and fail.



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.





LAB-TECH INC.

MODEL NUMBER: **MPG-2000** SERIAL NUMBER: _____
VOLTAGE: _____ DATE OF PURCHASE: _____ Software Version: _____

PARTS LIST

REFRIGERATION COMPONENTS

Compressor/Condensing Unit	#4430AC
Evaporator Coil Motor & Fan Blade	#LS105
Dryer	#LTR-DRY
Expansion Valve	#VLV-EXP R

HARDWARE

Door Hinge	#HNG 217
Door Latch	#LTH DR LK
Door Strike	#STR LTH-1
5" Caster - Swivel	#CSTR 5 SB-5
5" Caster - Rigid	#CSTR 5 R2
Drain Shut-Off	#VLV ANG-5
Drain Pan	#PAN 12x20x4.0
Gasket, Door (per foot) for left compartments	#GSKT 3/4 WD
Door Gasket	#GSKT RTH
Perforated Trays - 22" x 25.5"	#TRAY-GERM

ELECTRICAL COMPONENTS

Heat Element	#EL1250/115HT	Light Ballast/Bracket	#5051
Fuse Holder (15 amp)	#HLDR FS	Fluorescent Lights 58" (6)	40 Watt
Fuse	#15 AMP	PLC Components	#MPG-2000
On-Off Switch	#SWH RCK LE1	High Limit Switch	#SNAP DISC
Extension Cord - 10"	#CRDSET 10/200	Humidity/Heat Sensor	#HUM/TEMP SENSOR
Controller Touch Pad	#GAMET		
Water Level Sensor	#SWH LOD LVL-MPG		
Pump	#PUMP SUBMER	Contact Seedburo for	
Humidifier	#HUM MICRO-1	Printer and Printer Paper	

LAB-TECH INC.

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