



Laboratory Equipment Manufacturer
www.mrclab.com



INSTRUCTION MANUAL FOR

Constant Temp. & Humi.

Chamber

HG/FG/LG/TG



PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION

3, Hagavish st. Israel 58817 Tel: 972 3 5595252, Fax: 972 3 5594529 mrc@mrclab.com

MRC.VER.02-10.10

Warning

Before connection the power to Mains supply and operating the equipment check the following:

1. Make sure that Mains supply is correctly grounded
2. Use only distilled water

Non-implementation of the requirement in this warning revokes the warranty of the goods

CONTENTS

·	– Foreword	3
·	– Products specification :	
2-1 、	– Characteristics	4
2-2 、	– Control system	4
2-3 、	– Property	4
2-4 、	– Construct	5
2-5 、	– Temperature and humidity control	6
2-6 、	– Safety protection device	7
2-7 、	– Water supply system	7
·	– Outward manual :	
3-1 、	– Instruments front view.....	8
3-2 、	– Instruments back view.....	9
3-3 、	– Instruments right flank view	10
3-4 、	– Inner chamber explain.....	11
·	– Install manual :	
4-1 、	– Install site signify view	12
4-2 、	– Electricity supply explain	13
·	– Inspection prior operation :	
5-1 、	– Device inspection	14
·	– Control panel poard explain :	
6-1 、	– Standard Control panel poard explain	16
·	– Operation manual :	
7-1 、	– Component function	18
7-2 、	– Controller operation	20
·	– Machine control circuit view	
8-1		22

-Foreword :

Thank you for purchasing and applying the product of “multi-layered constant temperature and humidity experimenter machine” manufactured by MRC CO;

Ltd. This manual illustrates in detail in addition to walking you through how to install, operate and maintain as well as use the steps to observe and follow the simplified troubleshoot methods.

Please finish reading this manual in detail and operate according to the manual illustration of standard operation. This can enable smooth operation as well as safely complete test requirements. Please follow each and every detail so as to prevent any equipment malfunctions resulted from inappropriate human operation. Accurately carry out the regular maintenance procedures can lengthen the lifespan of equipment operation.

Prior the rollout of any company product, it must undergo rigorous QA and inspections by this company. If there is any problem or operation difficulty, please contact our dealer or directly with us.

- Products specification :

2-1

Characteristics : Two or three multi-layered piled up style, it can cut down the space occupation.

2-2 、

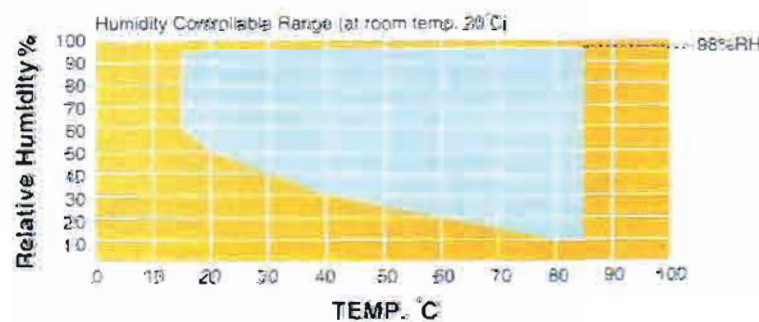
Control system : BTHC (Balanced Thermo & Humidity Control) adopts the P.I.D output from microcomputer to control SSR, heating as well as adding humidity to balance the losses from temperature and humidity. It can singularly apply the constant temperature or humidity control and independently control at each layer.

2-3 、

Property : Air cooling style in the 25°C environment. Water cooling style with water cooling temperature of 25°C without external loading :

- a 、 -**Temperature range** : **H-Type** : 0~100(150)°C [HG-40 · HG-50 · HG-60]
F-Type : -20~100(150)°C [FG-40 · FG-50 · FG-60]
L-Type : -40~100(150)°C [LG-40 · LG-50 · LG-60]
- b 、 -**Temperature control stability** : $\pm 0.2^{\circ}\text{C}$
- c 、 -**Average temperature distribution** : $\pm 1.0^{\circ}\text{C}$
- d 、 [- **Temperature rising time span** : - Approximately averaging at $2^{\circ}\text{C}/\text{min}$
- e 、 - **Temperature decreasing time span** : - Approximately averaging at $1^{\circ}\text{C}/\text{min}$
- f 、 -**Humidity range** : 20%~98%RH
- g 、 - **Humidity control stability** : $\pm 2.5\%\text{RH}$
- h 、 - **Average distribution** : $\pm 3.0\%$
- i 、 - Control Humidity range for temperature and humidity :

[As depicted in Fig.]



Temp. & humi. Control range

2-4、 - **Construct** :

a、 -Size :

Model	(W*H*D) mm Internal size	(W*H*D) mm External size
HG、FG、LG-40	400*500*400	930*1310*810
HG、FG、LG、TG-50	500*600*500	1030*1410*910
HG、FG、LG、TG-55	600*750*600	1120*1455*1000
HG、FG、LG、TG-60	700*850*700	1230*1660*1210
HG、FG、LG、TG-80	1000*1000*800	1530*1810*1310
HG、FG、LG、TG-100	1000*1000*1000	1530*1810*1510

b、

Material of internal box : Stainless steel plate (SUS304#)

c、

Material of external box : Stainless steel plate (SUS304#)

d、

Material for heat preservation : Rockwool and hardened Polyurethane Bubbling

e、

Heater : Stainless steel SUS316# Fin tail heat sink in seamless pipe type

f、

Humidifier : Stainless steel SUS304# MA model heater , Surface distillation type

g、

- **Circulation system** :

1、 -Induction motor

2、 - Stainless steel with extra long axis

3、 -Siroco Fan

h、

Chamber door : Each independent layer with single piece door and independent window

2、

Window : W250*H250mm , 5 layers of vacuum glass

3、

Lighting in the box : 18W PL lamp , electric lamp lighting device

i、 - **Freezing system** :

1、

All sealed air cooling system : H、F-Type : One element type、
L、T-Type : Two element type

2、

Freezer : All sealed type assembled and imported from Europe and USA

3、

Coolant : Adopted environmental friendly coolant

4、

Condenser : Air cooling by fan

5、

Evaporator : Fin type evaporator, auto adjustment with attached load
carrying capacity

6、

Attached equipment : Dry filter、Solenoid Valve、Expansion valve

2-5、 - **Temperature and humidity control** :

a、

Accuracy of the controller : Temp. $\pm 0.1^{\circ}\text{C}$ +1digit F.S、Humd. $\pm 1\%$ +1digit F.S

b、

Controller sensitivity : Temp. $\pm 0.1^{\circ}\text{C}$ 、Humd. $\pm 0.1\%\text{RH}$

c、

Sensor : Temp. -PT100Q Platinum Resistance Thermometer、Humd. -PT100Q
Platinum Resistance Thermometer, dry and wet ball conversion
transmitter

d、

Controller possesses the function of sectional OFFSET calibration.

e、

Controller possesses three sets of PID controlling parameters, and can execute
Auto Tuning algorithm

2-6 、 - **Safety protection device** :

a 、

Overheat protection device : K-Type, the temperature controller generates the input signal, when overheating, it automatically cut off the power for electrical heater, and the orange colored lamp OVER TEMP. on the control panel will lit.

b 、

Safety protection for humidifier : It possesses the electricity cutoff device preventing from heating without water inside, and liquid expansion type for protecting from overheating. When humidifier is overheated, it automatically cut off power for humidifier.

c 、

Cooling and freezing system : Protection device for overheating and overloading.

d 、

Main power switch : Protection device for leakage current and overloading

e 、

Control loop for fuse protection

2-7 、 - **Water supply system** :

a 、

Below the machine platform, there attaches a set of stainless steel water tank, which can recollect the water from dehumidifying process back into the water tank.

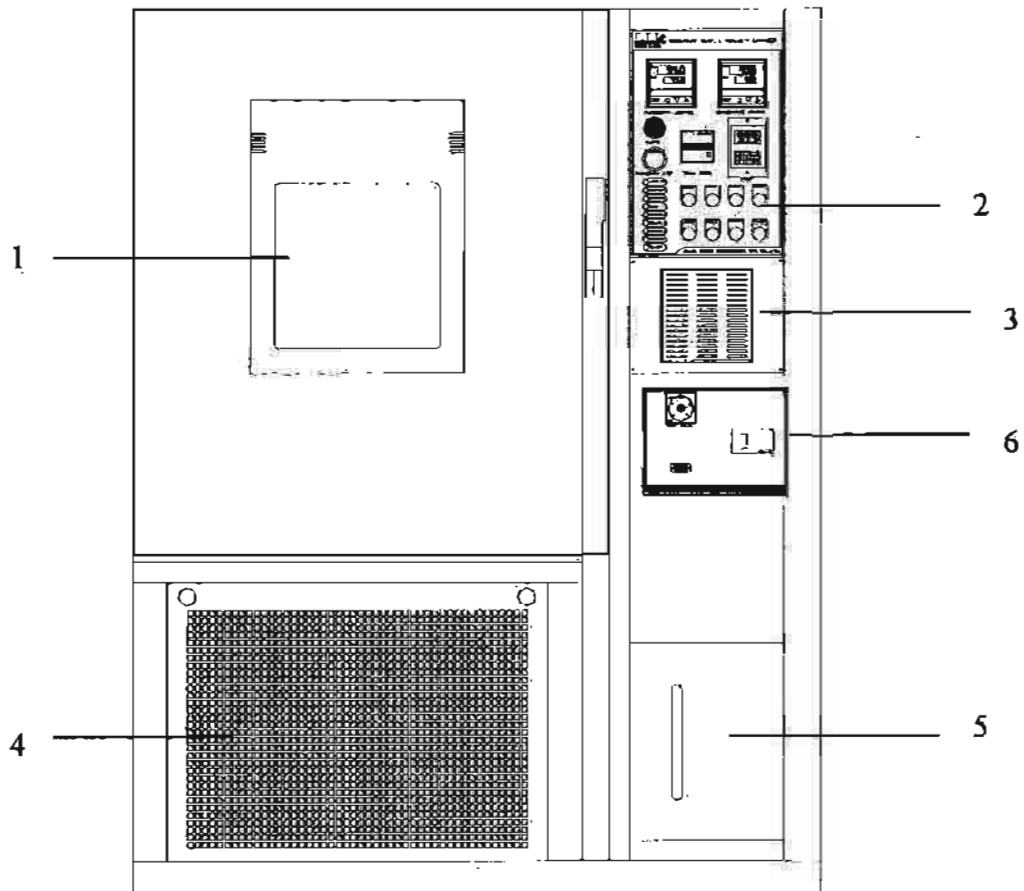
b 、

The attached filter is used for the filtering process when the water from the tank is pumped up to the machine platform.

– Outward manual :

3-1 、

– Instruments front view :

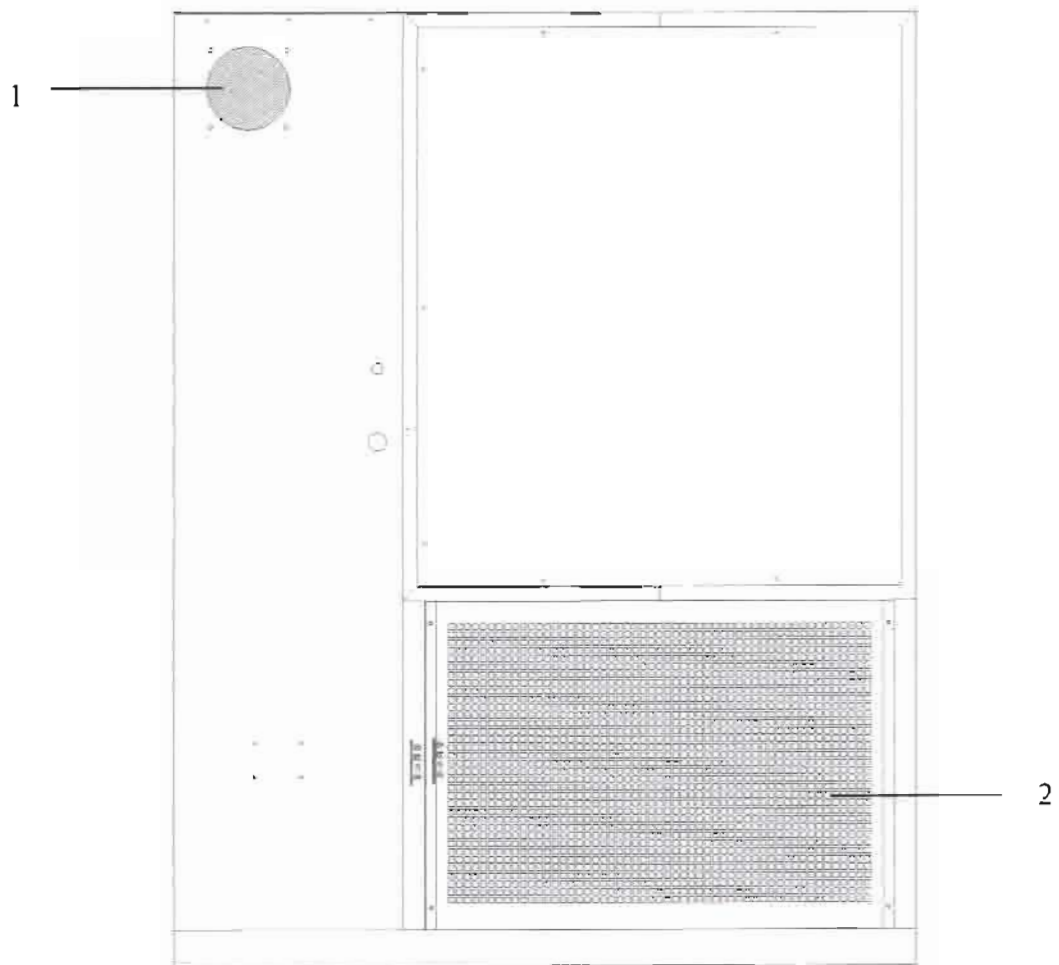


- Front view

1. - Window
2. - Controller panel
3. - Reserved space for recording machine's fastening plate
4. - Condenser
5. - Water tank under the machine platform
6. - Main electric power switch

3-2 、

– Instruments back view :



-Back view

1. - Heat dissipation fan for electric control box
2. - Rear heat dissipation net

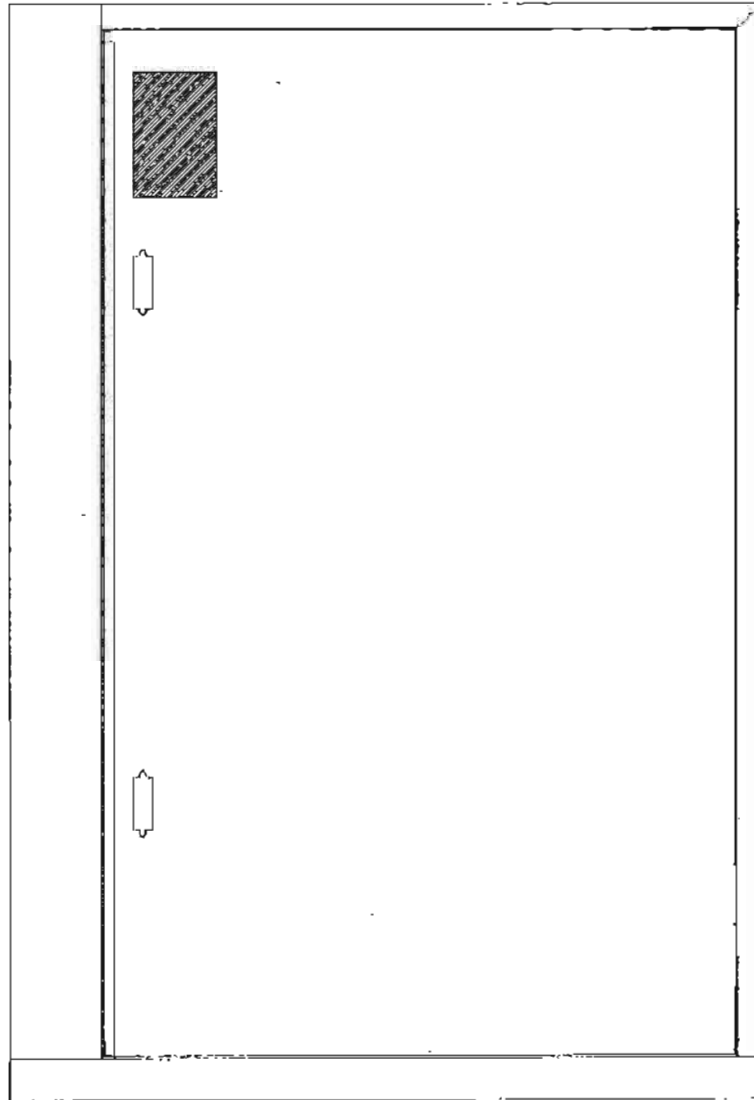
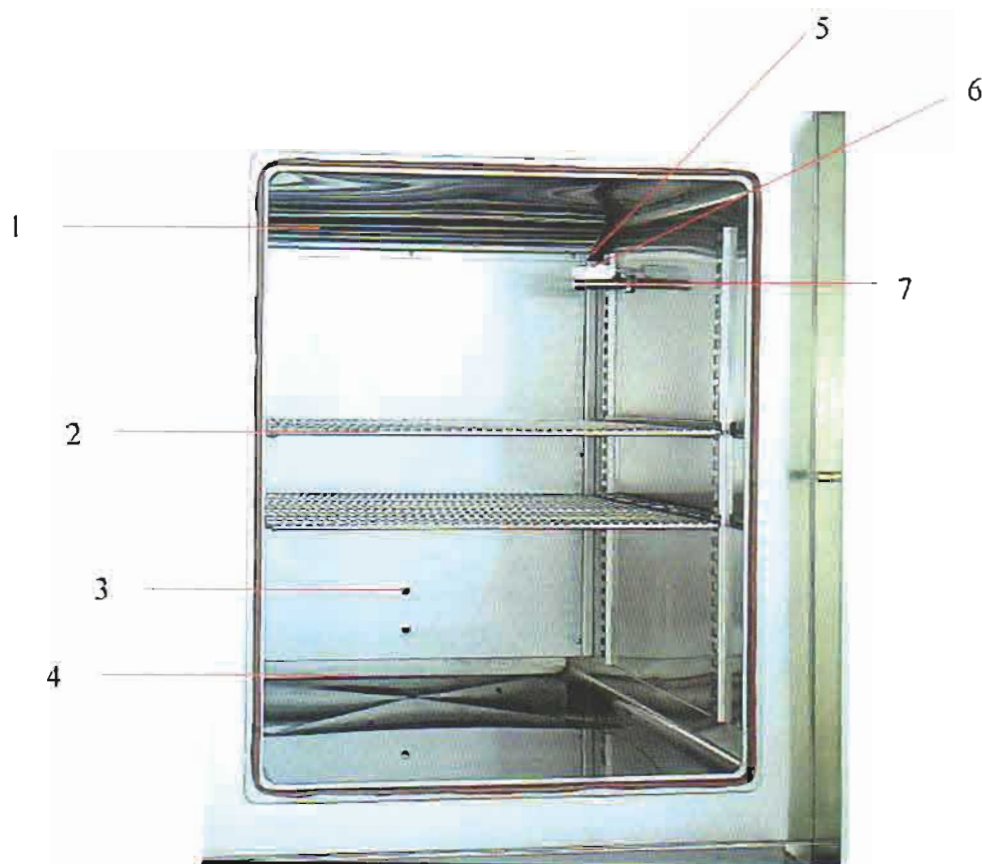


Diagram viewed from the right



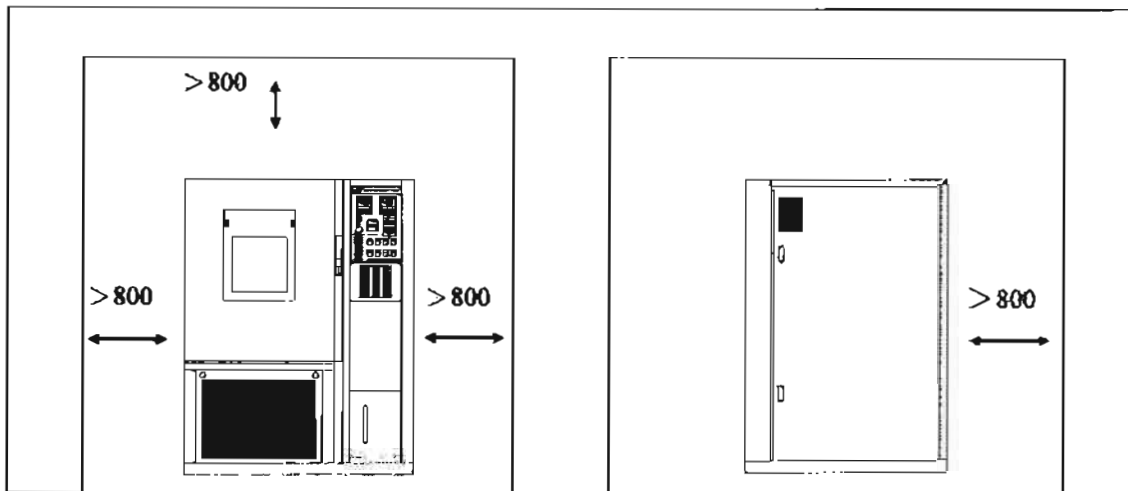
Internal installation diagram

1. Circulate Ventilation exit
2. Canopy plate in stainless steel
3. Observant exit for evaporator
4. Air duct circulate
5. Temperature measurement stick
6. Wet ball cloth + measurement stick
7. Wet ball water cup

– Install manual :

4-1、

– Install site signify view



Installation location should take into consideration of heat dissipation and ease to inspect and maintain for the machine platform :

1.

Peripheral temperature should be maintained within $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$, the machine platform can then be expected with most optimum operation. If the peripheral temperature is too high, it would impact the heat dissipation for compressor, thus, temperature control and the speed to lower the temperature cannot be controlled in a stable way, and it would cut down the lifespan for the compressor as well.

2.

Please install and place on the horizontal ground. It would facilitate internal water drainage to prevent from unnecessary internal water accumulation.

3.

There should be at least 80 cm and above in spacing distance between the wall and any other machinery, as depicted in the diagram above.

4.

Machine platform installation location should stay away from the sun, in addition, maintain indoor air ventilation.

5.

Machine platform should be situated away from heat sources as well as flammable and materials prone to be explosive.

Please follow the procedures as follow for electricity distribution process. Pay attention to the capacitance and do not have multiple machines connected to one identical electric source. It would prevent from producing voltage drops which could impact the machine's functionality even cause malpractice with machine being stopped. Please use the dedicated loop arrangements.

1.

Electric power distribution voltage according to specification in the table :

	AC 220V 1Φ2W		50Hz
	AC 220V 3Φ3W		60Hz
	AC 380V 3Φ3W		
	AC 380V 3Φ4W		

2.

Suitable caliber of electric chord : (Electric chord length in 3M)

	2.0~2.5mm ²		8.0~10.0mm ²
	3.5~4.0mm ²		14~16mm ²
	5.5~6.0mm ²		22~25mm ²

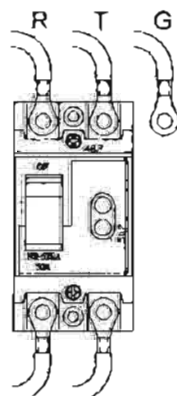
3.

When this machine's electric cable is connected to power source, the white color is the GROUNDING cable during single phase power distribution, and the red black color is the power source.

Three phase distribution is depicted as in diagram :

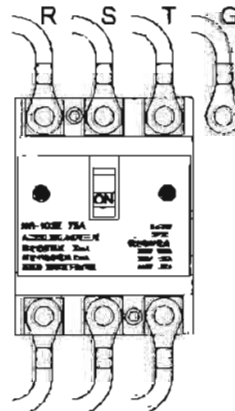
**AC110V / 220V
1Ph**

R:Red
T:Black
G:Wht



AC220V 3Ph

R:Red
S:Black
T:Waiht
G:Green



-Inspection prior operation :

5-1、

Device inspection

1.

Confirmation of electric power and the grounding cable

it should be installed according to the specified voltage and amperage,
and the grounding cable must be installed properly.

2.

Water supply confirmation

Ensure adequate water amount in the storage tank

Ensure water level inside the humidifier tank is accurate

Ensure water level for humidifier tank is accurate

Ensure water level inside the wet ball cup is accurate

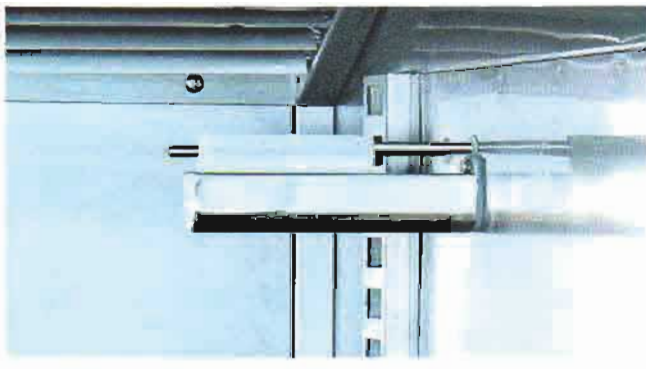
3.

Confirmation for the wet ball cloth

Is the wet ball cloth clean?(Replacement is recommended for every three months)

Is the water absorption capability adequate?

Is the installation location accurate?(The tip of the test rod should be sealed)



4.

Confirmation for water drainage pipe

Inspect to ensure the drainage outlet at the lower back of the inner tank is not clogged.



5.

Confirm the protective device for humidifier is set at 110°C .

6.

Confirm the protective device for extremity is set at $\pm 20^{\circ}\text{C}$.

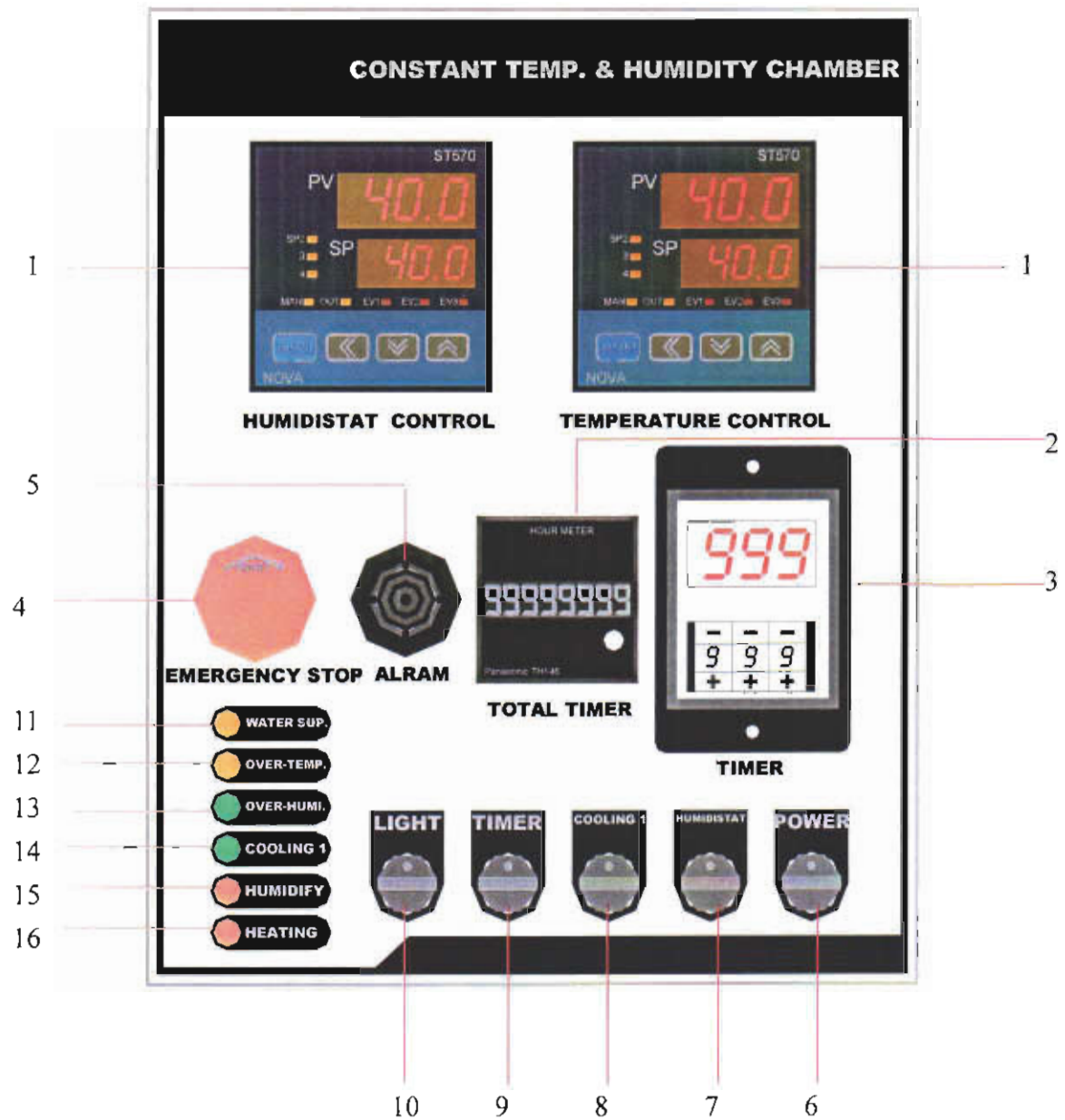
7.

Shut all the test access openings at the left side and the upper location for both the inner and outer boxes.

Control panel operation manual :

6-1

Constant Temp.Humi.Chamber Operate Panel :





CONSTANT TEMP. AND HUMI. CHAMBER

Operate instruction

7-1 · Component function :

1.

temp.and humi. Controller : set temp.and humi.of test condition.

2.

add.timer : total working time

3.

timer : set time before test

4.

Emergency Stop : It is used for emergency shutdown for the machine platform.
Press button, it will shutoff the power supply for the machine platform. If needs to restore, turn in direction of "RESET" arrow, it can restore the machine back to the state of operation.

5.

ALARM : After the experimentation is complete, the alarm will be sounded for the duration of 10 seconds.

6.

power switch : switch power on or off

7.

humi. controller switch : switch humi. Controller on

8.

cooling1(high seg.) compressor switch : cooling and absorbing humi.switch the compressor on

9.

time controller switch : the power of time controller switch,switch "on" is time control and "off" is running control.

10.

room lighting switch : the power of room lighting switch

11.

WATER SUP. : When humidifier is low on water, this lamp will lit and the electric power for the humidifier will be shutoff automatically.

12.

OVER-TEMP. : When this lamp is lit, it signifies the internal box is over heated, and exceeds the temperature range designated by the overheat protection device. And the heater will be automatically turned off. Please check the setting for overheat protection device is appropriate. (Settings at factory rollout : 100°C -TYPE SET 110°C, 150°C -TYPE SET 160°C)

13.

OVER-HUMI : When this lamp is lit, the humidifier is overheat. And the electric power supply for humidifier will be shutoff automatically. (Factory rollout setting for overheat protection device is at 110°C)

14.

cooling1 indicator : cooling compressor of the high temperature segment is running

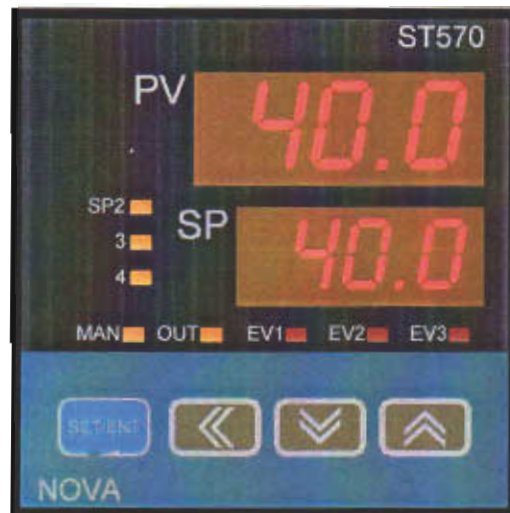
15.

humidify indicator : humidifying when it light

16.

heating indicator: : heating when it light.

Controller ST-570 **Operational illustration :**



-Control key

Press key	Functionality
SET/ENT (ENTER)	For switch back and forth for parameters and parameter setting Hold down this key for 3 seconds, it can switch back and forth between display operation and parameter setting
▲/▼ (UP/DOWN)	To be used for altering parameter values. To be used to move a whole group
(SHIFT) ◀	To be used to move to the item to be updated

LED Display

LED	Functionality
SP2,3,4	When SP operation is lit
EV1,2,3	When there is an occurrence of certain situation (representing the occurrence of alarm)
OUT	When the controlled output is lit
MAN	It is lit when manual control is activated, and it flashes when automate control is resumed.

Setting methods :

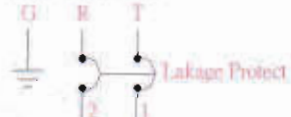
Press lightly the “《” key, and SP numeric column is lit, you can use “》” 、 “∨” keys to alter the experimentation values. After it is ready, lightly press SET/ENT key and this completes the setting.

Machine control circuit view

HG-60 :

HG-60,80/FG-60,80 Series Constant temp.& Humi.Chamber controller Diagram 1/2

AC110/220V 1PH



MS1

SSR1

MS2

SSR2

MS4

PL9

PL5

PL7

M

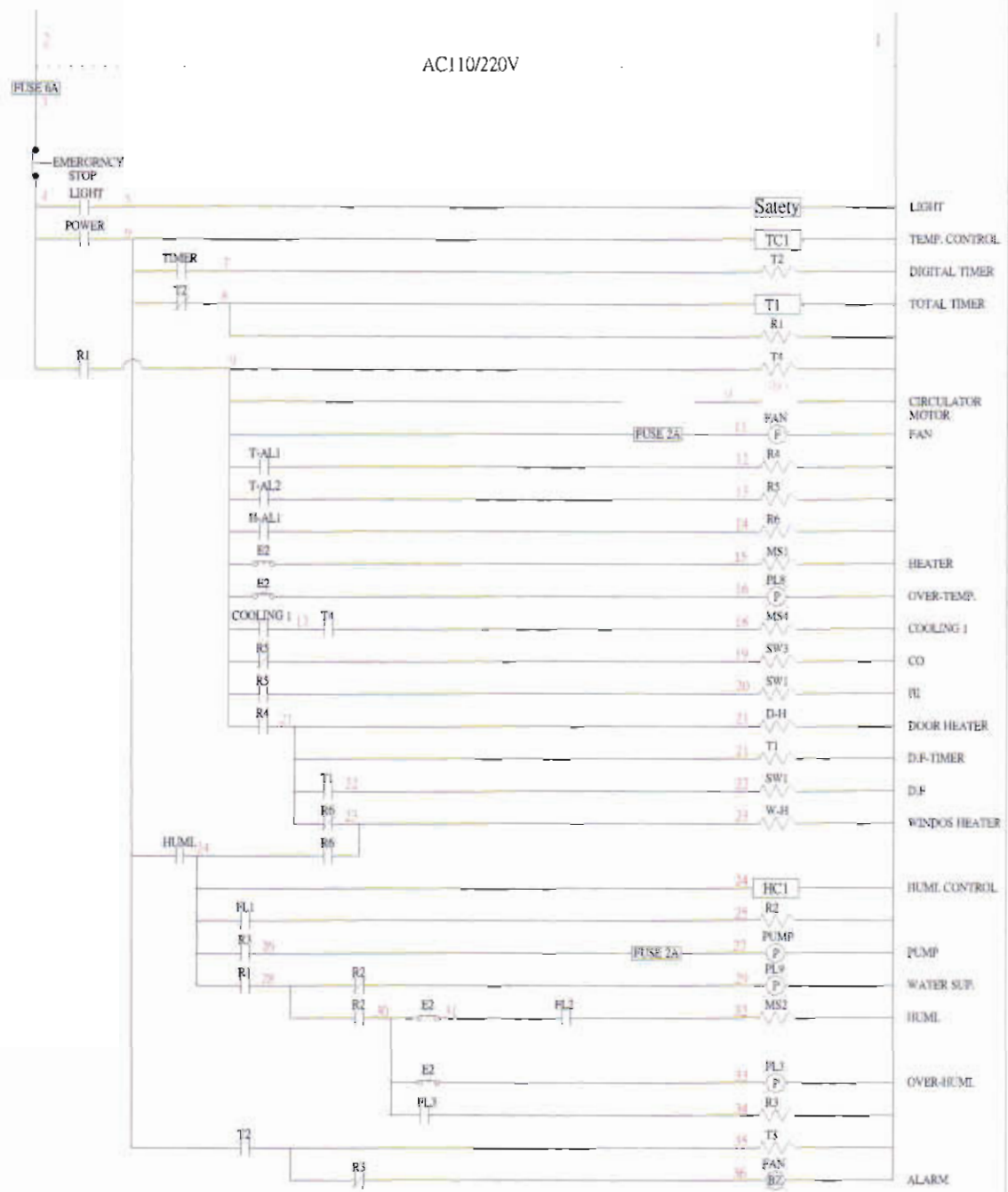
HEATER

HEATER

HEATER

COOLING I

HG-60.80/EG-60.80 Series Constant temp.& Humi.Chamber controller Diagram 2/2



CONSTANT TEMP. & HUMI. CHAMBER

constant temp. and humi. experimete
MANUAL



CONTENTS

Operational preparation for constant temperature and humidity experimenter... 3

Key items to watch out for during maintenance :

A 、 Freezer system portion	6
B 、 Temperature	6
C 、 Humidity portion	8
D 、 Other portions	9

Installation for safety measure	10
---------------------------------------	----

Simplified troubleshooting :

A 、 Simplified troubleshooting	11
B 、 water supply error	11
C 、 Over Temp	13
D 、 Over Humi.	14
E 、 Unable the reach the desired temperature range	15
F 、 Unstable thermostat.....	15
G 、 Unable to reach the desired temperature range	16

Simplified troubleshoot flowchart :

A 、 No display	17
B 、 Temp error	18
C 、 Humi. Error	19
D 、 temperature dropping error	20
E 、 Unable to raise the temperature.....	21
F 、 Temperature dropping is abnormal	22

Operational preparation for constant temperature and humidity experimenter

1 、 Confirmation for electric power supply and grounding ː

Is the electric power chord properly attached and grounded according to the display panel of the machine?

2 、

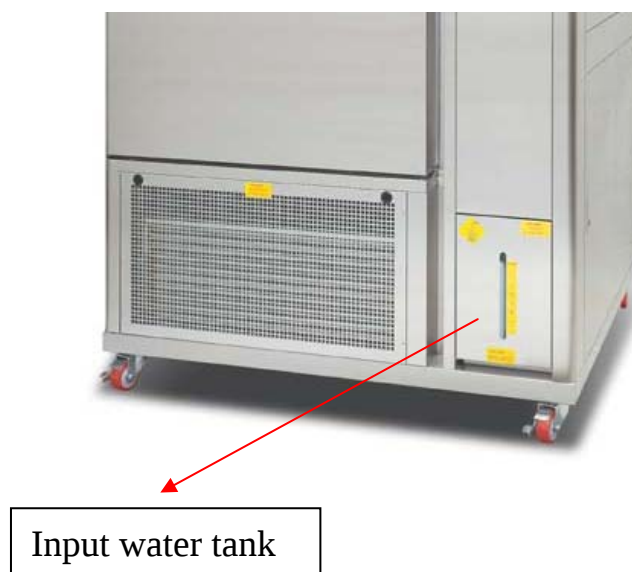
Is the temperature safety guard switch for extremely high temperature set at the highest temperature plus 10°C 。

The following programs dedicate for temperature and humidity control operation, and the items to beware of are ː

(A) Confirmation of water supply ː

Is the water supply adequate? (Is the water supply tank underneath the **right** side of machine full with distilled water or pure water?)

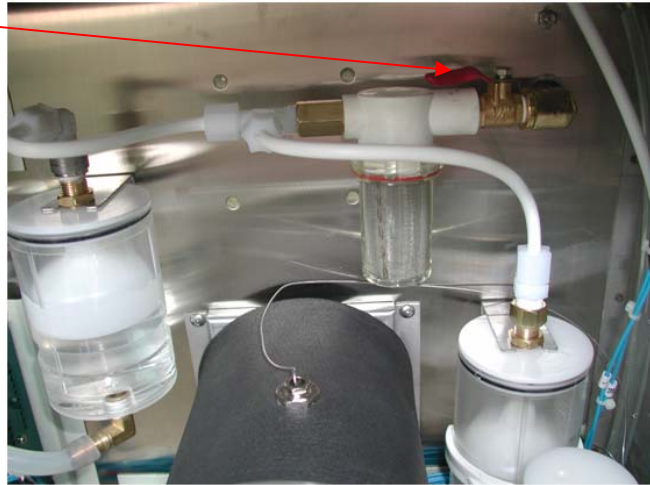
Is the automated water supply process working as expected?



(B) Confirmation prior entering the drainage pipe :

Is the water inlet valve at the upper right hand corner of the engine room turned on?

Water switch



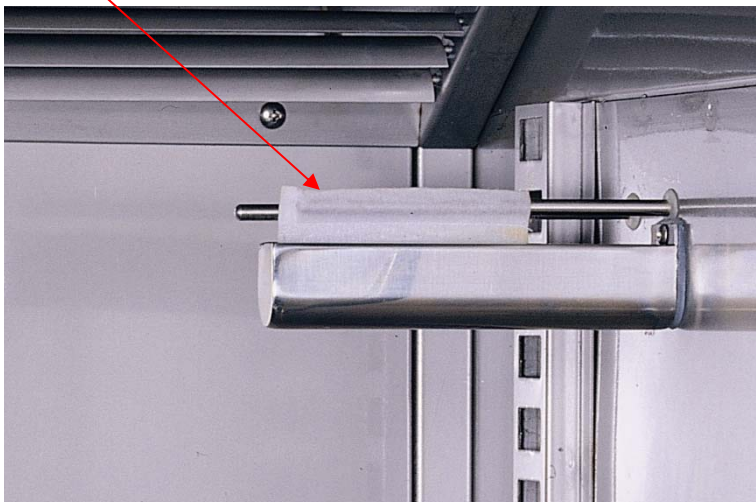
Is the inlet connection to drainage pipe solid ?

(C) Is the Psychrometer anchor confirmed?

Is the wet bulb gauze wet? (Is there water present in the wet-ball cup? If water is present, but the gauze can not be wet, please replace the gauze with new one.) (Replacement is recommended for every three months)

Wet ball

Wet ball- water level in the water supply cup



Is the water level in the water supply cup normal ?

(D) Water level confirmation for the moisturizer.

Is the water level for moisturizer 10 mm higher and above than heater ?



Is the water level for the water supply cup normal? (Check water level 3 to 5 minutes after the moisturizer bucket is replenished with water)

Is the water in the moisturizer clean? (Moisturizer should be replenished with fresh water on regular basis to keep it clean)

(E)

Check to make sure that the temperature protection safety switch for moisturizer is set at 110°C.

Note : If the temperature is the only concern, it should remove the gauze. After the operation higher than 85°C, the gauze must be replaced before next operation. Otherwise, it could not absorb water again. Wash hands before replace the gauze to ensure the wet bulb's gauze is both clean and can absorb water as expected.

Key items to watch out for during maintenance

A. – Freezer system portion :

1. Water cooling style : Regular cleaning the water tower (Once be-weekly). Clean the filter out of the water tower once monthly.

2. Air cooling style : Apply highly pressurized water gun to clean or use the vacuum cleaner to clean off the freezing unit underneath the machine so as to maintain proper air ventilation and good heat dissipation. This way would ensure the normal operation of the cooling system as well as the lifespan. But, be sure not to damage the heat sink fin. (Once every month)

Condenser



B. Temperature :

1.

Be sure not to open the box door during high temperature test.

2.

When machine operates below 0°C , it should not open the box door. Since during low temperature, if the door is opened it would induce other parts of the internal evaporator freezing, especially the lower the temperature, the worse it would get. If it is necessary to open the door, be sure to make it very quick.

3.

When the low temperature operation is complete, make sure to set the temperature condition at the dial of 60°C about half an hour to proceed to drying process, this is necessary to prevent it from influencing the measurement time needed for the next operation condition or freezing phenomenon.

4.

The machine is attached with one (temperature protection safety switch) to prevent the internal temperature exceeding the tolerance inside the box. If the “OVER-TEMP” lamp on the panel is lit, the control mechanism would cut off the heater electric power automatically. So please check the preset value (of temperature protection safety switch) to ensure the setting is accurate as expected. If there is any problem, please contact this company.

Note : Usually, the setting (for temperature protection safety switch) should be set at the temperature which is 20°C higher than the maximum operational temperature for the settings of the dry-ball.

5.

During low temperature processing, no frequent opening of the box door is allowed. It would cause frosting on the evaporator which would impact cooling.

6.

After high or low temperature processing, no immediate opening of the box door is allowed so as not to damage the stainless steel material.

7.

Beware to remove the gauze from the wet bulb to prevent being scorched when temperature exceeds 100°C .

C. Humidity portion :

1.

This machine is attached with one (high temperature protection switch for the humidifier) to protect the humidifier being overheated. If the lamp of “OVER-HUMI.” on the panel is lit, the control circuit would automatically cut off the power source for humidifier. Please check to ensure the setting (high temperature protection switch for the humidifier). If the setting is accurate, then inform our company for further actions.

Note: Please make sure the “high temperature protection switch for the heater” must be set at the dial of 110°C.

2.

Absolute no touching on the surface of humidifier is allowed during heating to prevent from being burnt.

3.

Absolute no power off for the water pump switch of humidifier is allowed, otherwise, it would not humidify (When the water level of humidifier is not up to that of the heater, then, automated cutoff of the for the power switch of humidifier is activated to protect from overheating resulted from water shortage).

4.

Humidifier bucket is attached with large sized window to facilitate the observation for humidifier bucket. Depending on the cleaning condition for water, please check the dirt accumulation within the humidifier bucket. If there is dirt accumulation, please clean the humidifier bucket to ensure the maintenance of humidifier system for its normal operation as well as lifespan.

D. Other portions :

1.

The left side of this machine is attached with test inlet hole which allows the access for test circuitry to samples.

2.

During test, if there is a need to observe the conditions inside the box, light switch can be turned on to learn what is going on inside the box.

3.

Use alcohol to wipe clean the outer surface of instrument panel.

4.

Keep the inside of the box clean to prevent any impurities clogging the drainage outlet.

5.

Absolute no scratching on the display panel of the controller is allowed like the fingernail or other sharp subject.

6.

During the process of cleansing, do not splash the water on electric system to prevent from short-circuiting.

7.

When place in test sample, try not to bump on the seal and the inner steel plate, which would impact its sealed containment and result with leakage.

8.

During testing, do not pile the test samples on top of the test rack. Distances must be maintained between products so that proper ventilation within the box would be maintained.

Installation for safety measure

A 、

This test machine is equipped with breaker for safety protection. If there is any electric leakage or power surge, it would cut off the power.

B 、 - **Safety protection device for cooling system** :

Nearby the compressor, there is a power surge protection switch. At the power supply unit for the compressor, there is another protective device for power overload and electric current which provides redundant protection.

C 、 **Protective device for overheating** :

At the back of machine, there is a liquid expansion type installed. Overheating protection switch is set : For 100°C Type : SET 110°C; For 150°C TYPE : SET 160°C. If the lab temperature exceeds this preset limit, the heater power source would be shutoff automatically with the “OVER-TEMP” lamp on the control panel lit up indicating warning.

D 、 **Protective device for humidifier** :

a 、

When there is a water shortage in water tank, “WATER SUP.” indicator lamp will lit and the power source for humidifier will be cutoff.

b 、

If the protective device for humidifier senses overheating (factory setting at 110°C), the “OVER-HUMI.” lamp will lit up and the power source for humidifier will be automatically shutoff.

c 、

Water shortage at humidifier : At the right side of humidifier’s water level device, there is a inspection device for liquid level for humidifier. If there is any water shortage, the power source for humidifier will be shutoff.

E 、 Emergency power off device :

During emergency and it must be powered off, please press the red button of “EMERGENCY STOP” to power off. If to restore power, turn the button clockwise to restore power.

G 、

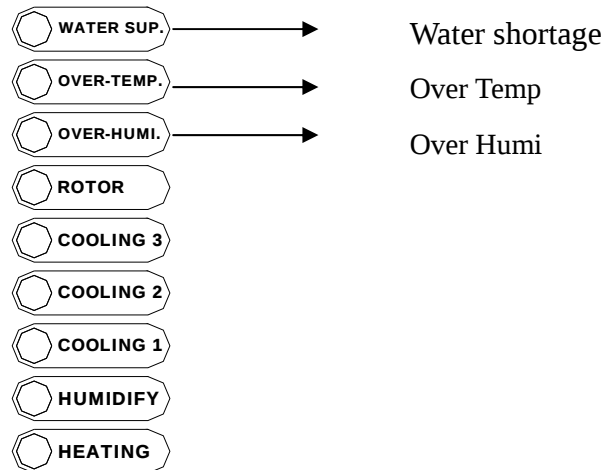
The alarm will be sounded after the test is complete. (Factory setting is 10 seconds)

H 、

Any switches or indicator lamps on the panel are to facilitate the initiations for all functionalities. The indicator lamp facilitates the observation for machine operation.

Simplified troubleshooting :

A 、 Simplified troubleshooting :



B 、 water supply error :

The following are the inspections for water shortage scenarios :

a.

Is the lower water supply tank functioning normal ?

b.

The reed switch at the lower water supply tank is not functioning as expected .

c.

Water flow is clogged.

Handling procedures :

a.

Wait until the water supply is normal prior operate.

b.

At the reed switch location, open the upper lid of the water supply tank, and manually test the reed switch. Check the RELAY switch within the circuitry panel to see any movement. If not, replace with new one.

c.

Replace the filter core.

d.

Contact this company for further processing.

C 、 **Over Temp. :**

a. -Abnormity of controller.

b. SSR Punch through.

c. Switch abnormality for liquid thermostat.

d. SHORT- Heater circuit shortage.

Handling procedures :

a.

Please check the MV (make sure the output is normal). Otherwise, please contact this company.

b.

SSR punch through SSR to Heater (If controller MV is normal, please apply the clamp meter to measure) to check whether there is any amperage. If there is, please replace according to original specifications.

c.

Make sure the controller for overheating is set at 100°C TYPE : SET**110°C**, 150°C TYPE : SET**160°C**. If it is, test turn on this switch to make sure it is working properly. Otherwise, replace with new one.

d.

If the heater is shorted out, contact this company for replacement.

D. Over Humi. :

- a. SSR Punch through
- b. Liquid thermostat switch setting abnormality.
- c. overheating due to lack of water.

Handling procedures:

a.

SSR punch through SSR to Heater (If controller MV is normal, please apply the clamp meter to measure) to check whether there is any amperage. If there is, please replace according to original specifications.

b.

Is the liquid thermostat switch setting being preset through 110°C? If it is, please test turn to make sure it works properly. If not, replace it.

c.

Please check according to the procedure for water shortage message.

PS.

If the above procedures cannot resolve the problem, contact this company as soon as possible.

E、 Unable to reach the desired temperature range :

Status:

-Heating indicator lamp is not lit.

1.

Check the thermostat controller output to ensure it is normal (Is SSR lamp lit?)

2.

Check the overheat protection switch to see it is set at temperature range 20 °C higher than the preset value

Handling procedures:

1.

Is SSR lamp lit as normal

2.

Is the setting for overheat protection 20°C higher than its preset value ?

F、 Unstable thermostat :

Check the PID value

- Handling procedures: PID -Execute automatic algorithm of PID

G、 each the desired temperature range

S :

Humidifier lamp is not lit.

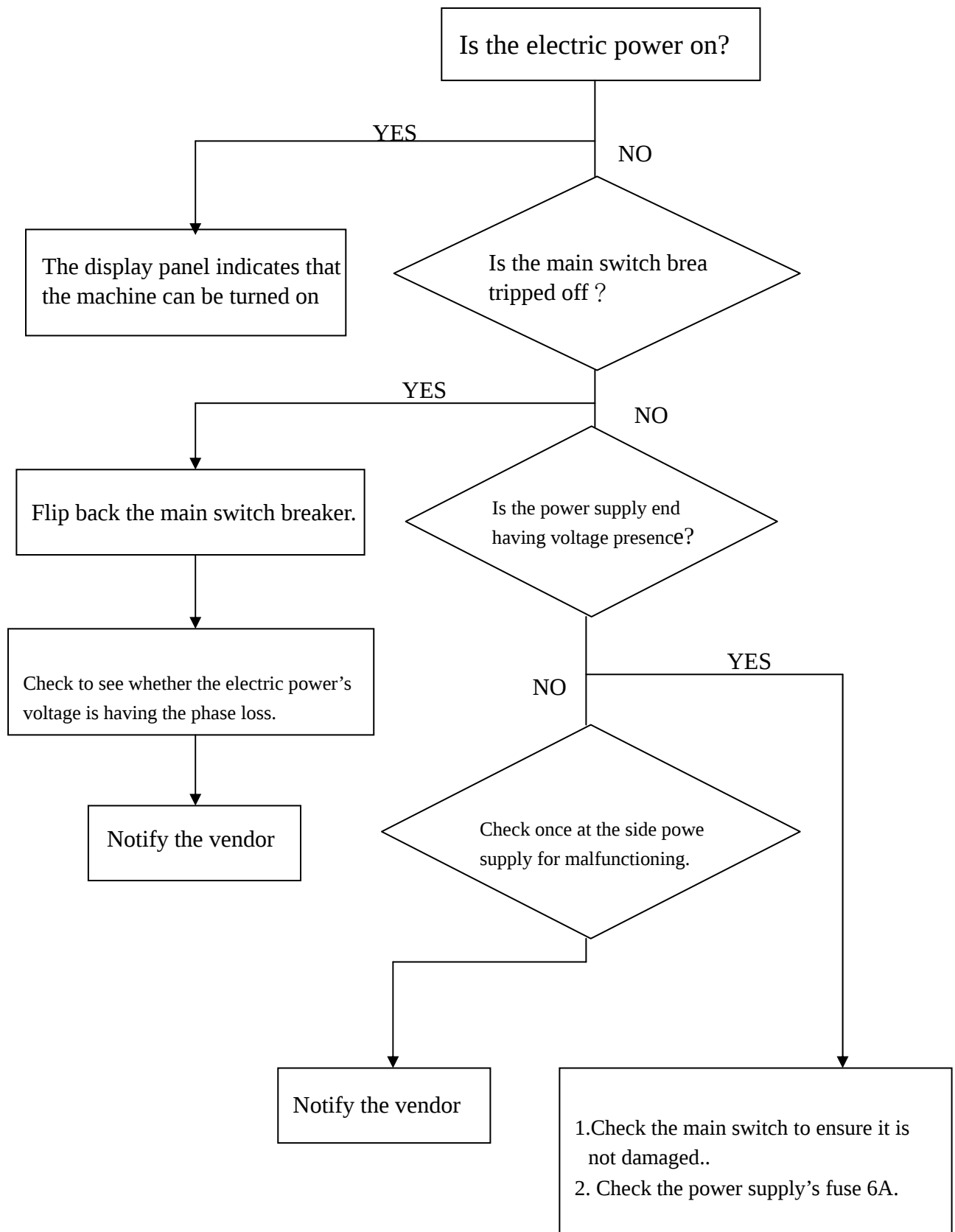
1. Is the “HEATERSUP” lamp lit ?
2. Is the protection device for humidifier overheat set at 110°C?
3. Is the humidifier’s water level low?
4. Check PID value.
5. The water inlet is clogged therefore the humidifier can take in water.

Handling procedures:

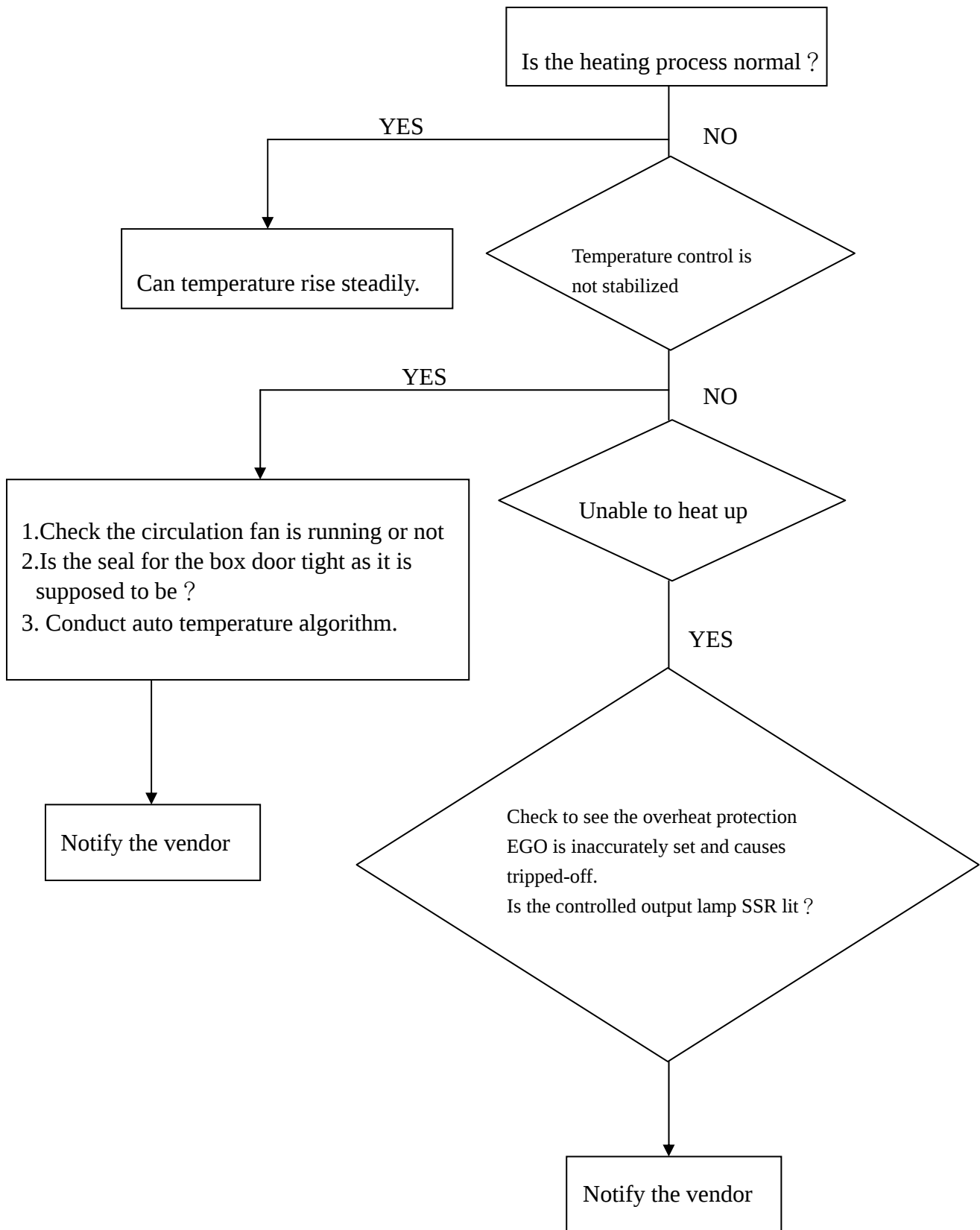
1. Add water to the water supply tank
2. SET 110°C
3. Raise the water level
4. Execute automated algorithm
5. Cleanse the screw at the water inlet

Simplified troubleshoot flowchart :

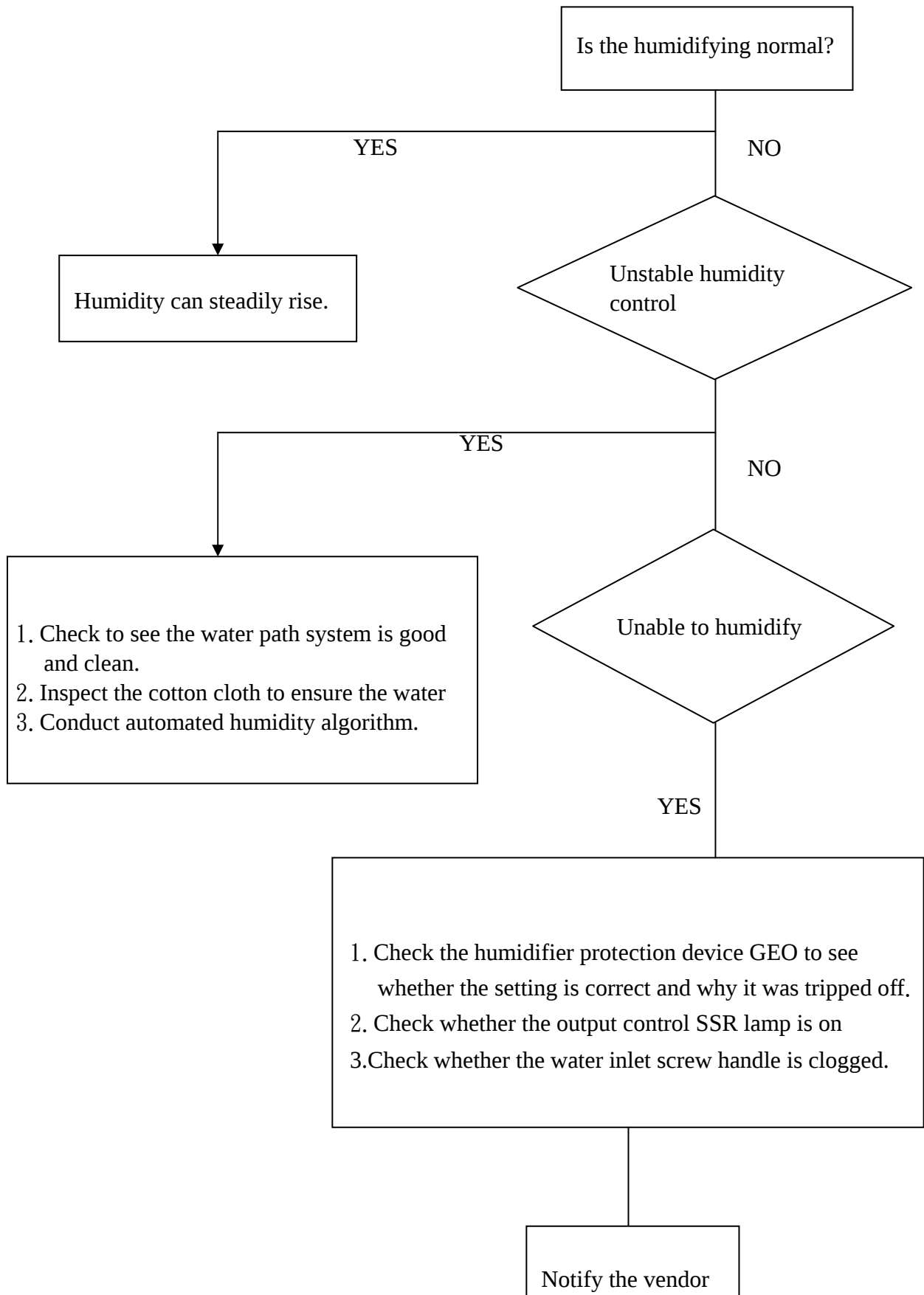
A 、 No display :



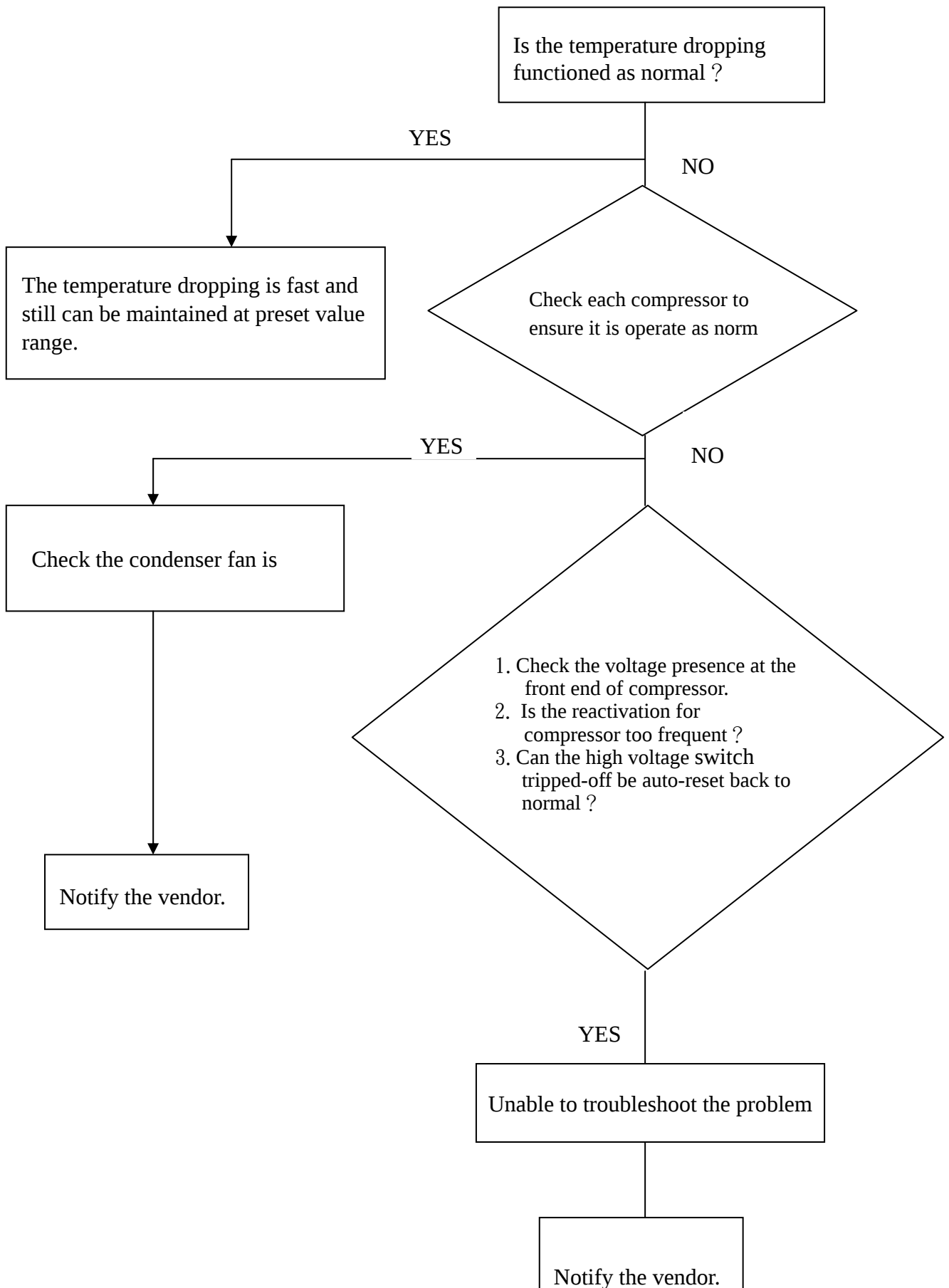
B 、 Temp error :



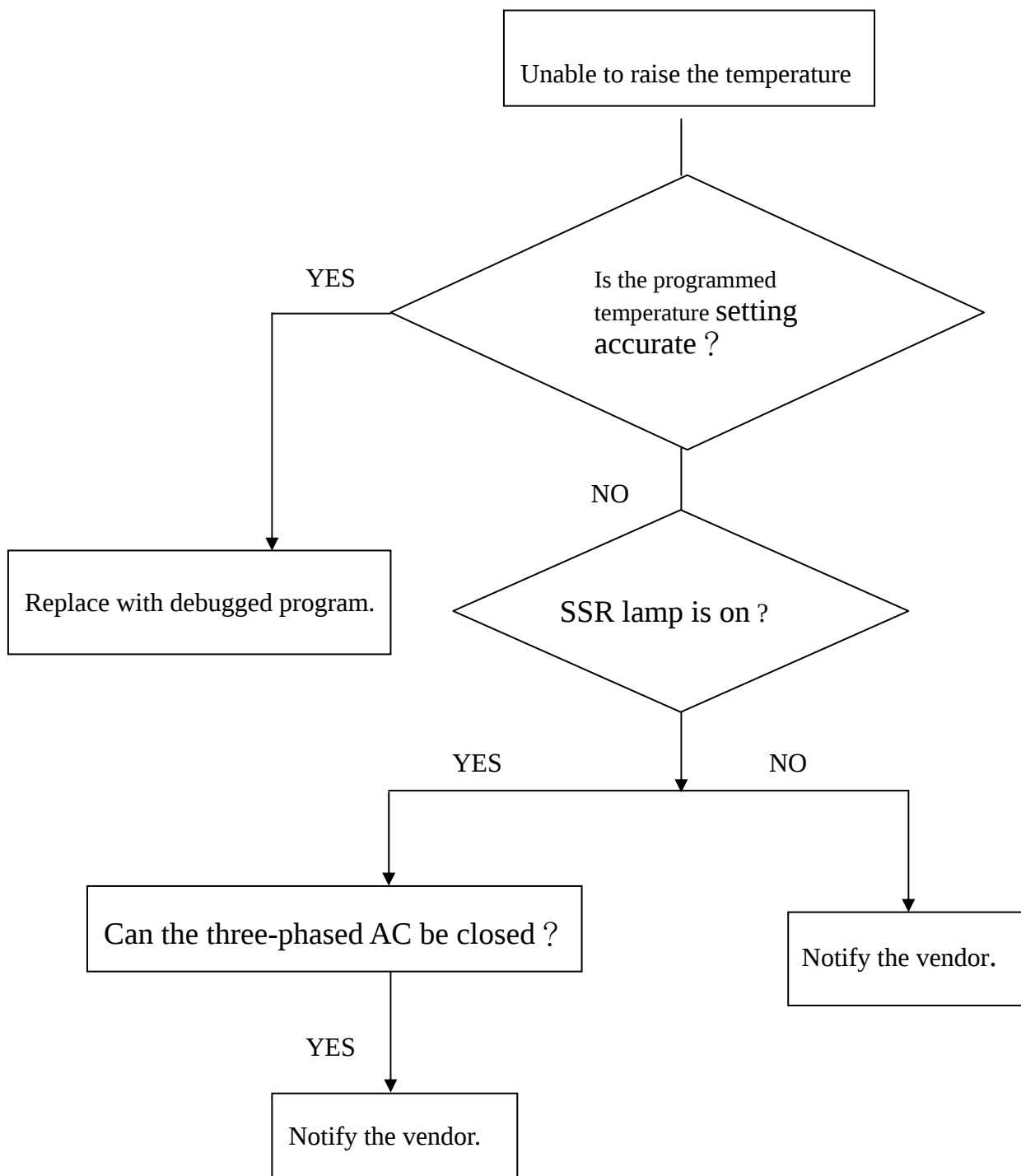
C 、 Humi. error :



D 、 temperature dropping error :



E 、 Unable to raise the temperature :



F 、 Temperature dropping is abnormal :

