

OPERATION MANUAL

SAP- series

OPERATION INSTRUCTION

SAP- series

AUTOMATIC AUTOCLAVE STERILIZER

CONTENTS

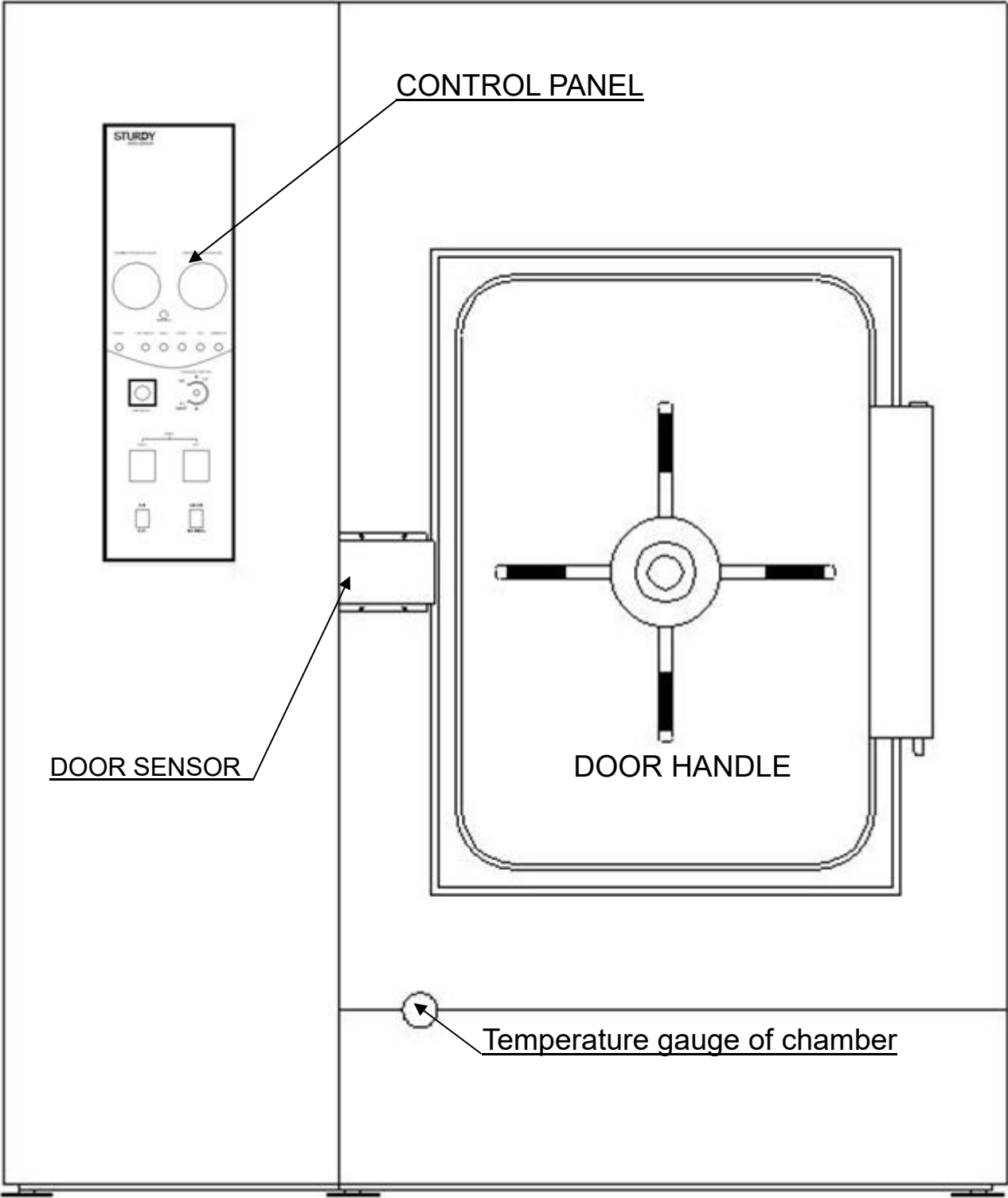
Please read this manual carefully prior to using your new Autoclaves. Following the simple instructions contained in this manual will help ensure ease of use, Trouble free operation and a longer working life for your Autoclave.

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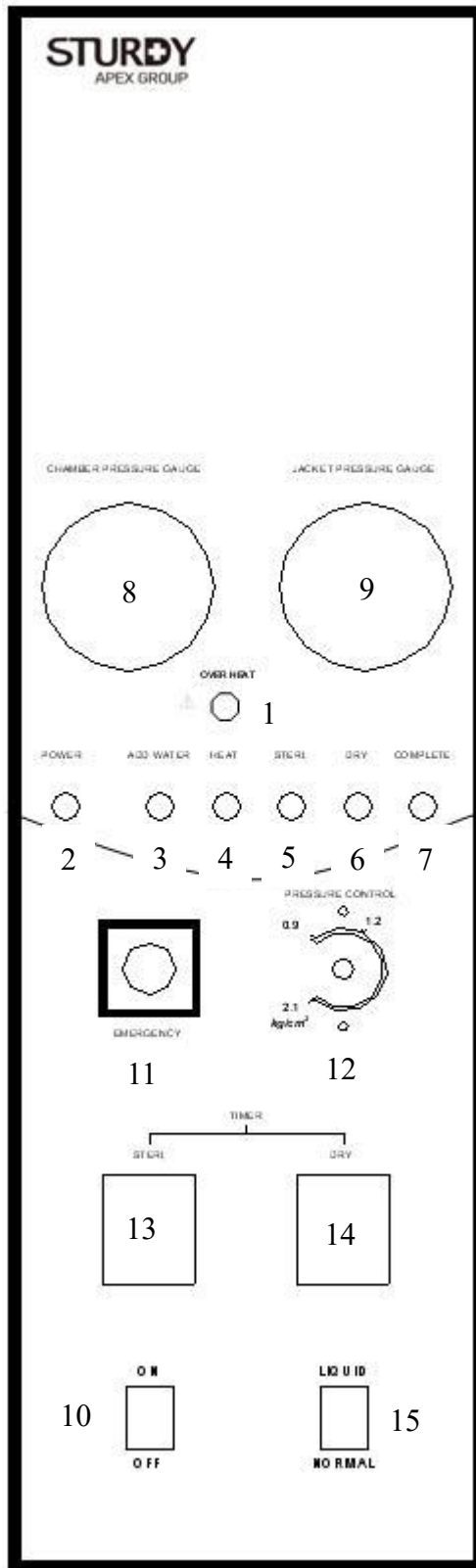
STURDY INDUSTRIAL CO., LTD.

ISO 13485 Certificated Firm

CHAPTER 1 LOCATION of CONTROLS



CONTROL PANEL :



1. OVER HEAT INDICATION LAMP
2. POWER INDICATION LAMP
3. ADD WATER INDICATION LAMP
4. HEATING UP INDICATION LAMP
5. STERILIZATION INDICATION LAMP
6. DRY INDICATION LAMP
7. COMPLETE INDICATION LAMP
8. CHAMBER PRESSURE GAUGE
9. JACKET PRESSURE GAUGE
10. START SWITCH
11. JACKET STEAM / WATER EXHAUST KNOB (EMERGENCY USE)
12. PRESSURE CONTROL SWITCH (WORKING PRESSURE ADJUSTABLE)
13. STERILIZATION TIMER
14. DRY TIMER
15. LIQUID / NORMAL STERILIZATION PROGRAM SELECTION SWITCH

CHAPTER 2 SPECIFICATION

	SAP-S0680	SAP-S0848
CHAMBER SIZE	610mm(W) X 915mm(H) X 1220mm(D)	610mm(W) X 915mm(H)X 1520mm(D)
CHAMBER CAPACITY	680 L	848 L
OVERALL SIZE	1740 (W) X 2100 (H) X 2020(D)mm	1740 (W) X 2100 (H) X 2320 (D)mm
POWER CONSUMPTION (No Fuse Breaker installation)	15KW * 2	12KW * 4
CHAMBER & HOUSING	MADE BY STAINLESS STEEL #304	
DESIGN TEMPERATURE	140°C	
Chamber Design	ASME Standard	
Control System	Elec. Automatic Control System with Pressure control system	
WORKING TEMPERATURE	0.9 kgf/cm ² (118°C) to 2.1 kgf/cm ² (134°C) \approx 246°F ~ 273°F ADJUSTABLE.	
ADD WATER FUNCTION	AUTOMATICAL Water Level Control Switch	
DRY FUNCTION	AUTOMATICAL	
COMPLETE INDICATION	YES, BY "COMPLETE" INDICATION LAMP	
CHAMBER TEMPERATURE BALANCE	INSTALLED STEAM TRAP FOR CHAMBER	
SAFETY VALVE	WILL EXHAUST WHEN JACKET PRESSURE OVER TO 2.55 ~ 2.6 kgf/cm ² . (SIZE: Ø1")	
VACUUM (OPTIONAL)	LOW VACUUM WITHOUT VACUUM PUMP (STANDARD) CAN BE OPTIONED WITH VACUUM PUMP.	
LIFE TIME	7 Years	
SAFETY DEVICE	① PRESSURE SAFETY VALVE ② PRESSURE CONTROL SWITCH ③ TEMPERATURE PROTECT SWITCH ④ LOW WATER INDICATOR ⑤ ELEC. CIRCUIT PROTECTION DESIGN ⑥ CHAMBER DESIGNED BY ASME STANDARD Low water indication/cut-off	
STANDARD ACCESSORIES	Sterilization Tray - 1 pc. (st.st. #304) Water level glass viewer tube x 1 pc.	
OPTIONAL ACCESSORIES	Please refer Page 2 - 2.	
Pressure Control Switch	Yes/1 pc.	

Optional Function

	<div> <div>☉ Optional Function</div> <div>△ Standard Function</div> </div>										
SAP-XXX	A	B	D	F	K	L	T	V	W	X	Y
	△	△	☉	☉	☉	△	☉	☉	☉	☉	☉
Function Code	<div> <div>A.: Fully automatic control from Sterilization to Dry. With Water level switch.</div> <div>B.: Automatic add water function</div> <div>D.: Double door device</div> <div>F.: Square chamber with elec. sliding door.</div> <div>K.: Pressure door lock device.</div> <div>L.: Water level switch</div> <div>T.: Temperature control switch</div> <div>V.: Dry vacuum function</div> <div>W.: Add water pump device</div> <div>X.: Temperature recorder (with single sensor record)</div> <div>Y.: Temperature recorder (with 6 sensor record)</div> </div>										
Accessories Code	Big Size Autoclave (over than 80 liter) With Steam Cover Accessories Code										
	0 = Steam cover only 1 = Sterilization plate x 2 + Plate frame x 1 (For chamber § 400~700mm only)										
	7 = Chamber rail + Sterilization basket x 2 (For chamber § 400~500mm only)										
	4 = Chamber rail + Sterilization basket x 3 (For chamber § 600~700mm only)										
	2 = Chamber rail + Cart + Sterilization basket x 2 (For chamber § 400~500mm only)										
	3 = Chamber rail + Cart + Sterilization basket x 3 (For chamber § 600~700mm only)										
	6 = Chamber rail + Cart										
	1 Phases (1Ø)	<div> <div>A=AC-100V</div> <div>B=AC-110V</div> <div>C=AC-120V</div> <div>D=AC-200V</div> <div>F=AC-220~240V</div> </div>									
	3 Phases (3Ø)	<div> <div>H=AC-220~240V</div> <div>J=AC-380V</div> <div>K=AC-415V</div> <div>L=AC-440V</div> </div>									
		PS. Function V, Function R, = 3 phase only.									

CHAPTER 3 PREPARATION

CHECKLIST FOR UNPACKING INSTRUCTIONS:

TO UNPACK AUTOCLAVE FROM WOOD

1. Remove top pieces wood.
2. Remove the holder wood (4 pieces).
3. Remove each sidewall pieces (4 pieces) of the case.
4. Remove the fixing holder on each down side.
5. Move the autoclave out from the plank.

INSTALLATION – 1:

1. Fixing Ø½” the fill water inlet.
2. Fixing Ø½” the steam generator exhaust outlet
(Ø1”: If had vacuum function)
3. Fixing Ø½” the chamber and jacket exhaust outlet.
4. Fixing Ø½” the vacuum pump water inlet
5. Fixing Ø1” the vacuum pump water exhaust outlet

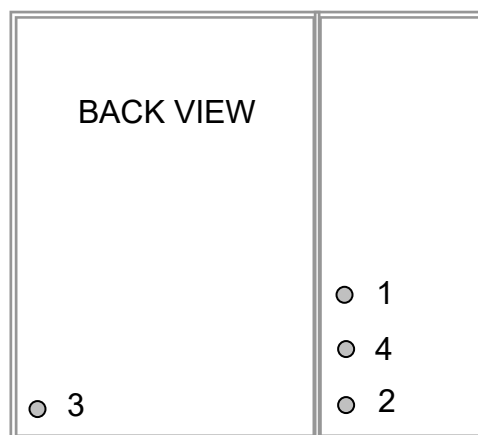
**PS: No.2, 3, please connected with metal tube,
because the water is high temperature.**



CAUTION: Waste water should be brought into the sewerage system following the local rules or requirements.

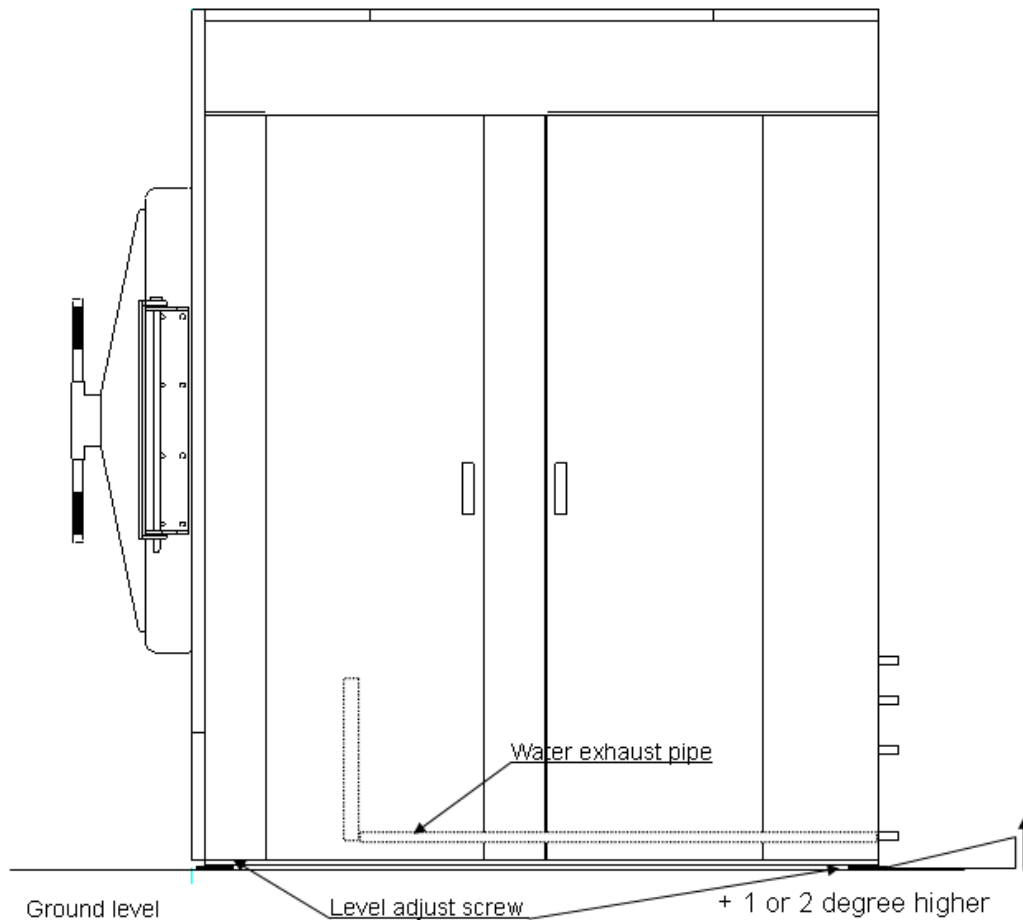
PS: PLEASE CHECK THE ACCESSORIES ENCLOSED, AT FIRST.

6. Put this autoclave on the ground with level, and keep the distance more than 60 cm between the wall and the case. And **keep this autoclave in level condition.**
7. Check the elec. power source must be same as machine **380VAC** . **The no fuse breaker is necessary, please don't forget to install for electric power source**
8. The water source must be distilled water. Basically the hard water is not allowed to use in SAP series. If you use hard water, please option one filter before the machine. And must clean the chamber and boil per each month. This autoclave have auto-add-water device. Until the flow water touch the full level sensor on the steam generator, the solenoid valve will cut-off the water flow in automatically.
9. Please see the power indication, if power lamp is light on, that means the power is already stand-by now.



INSTALLATION - 2 :

As to the good dry function, please check the level installation.



If the dry is not so well, please check the ground level and adjust the level adjusts screws as our suggestion;

Adjust the backside leg's screw to make back side higher or adjust the front side leg's screw to make front side lower.

Normally the back will higher than front side about 1 to 2 degree.



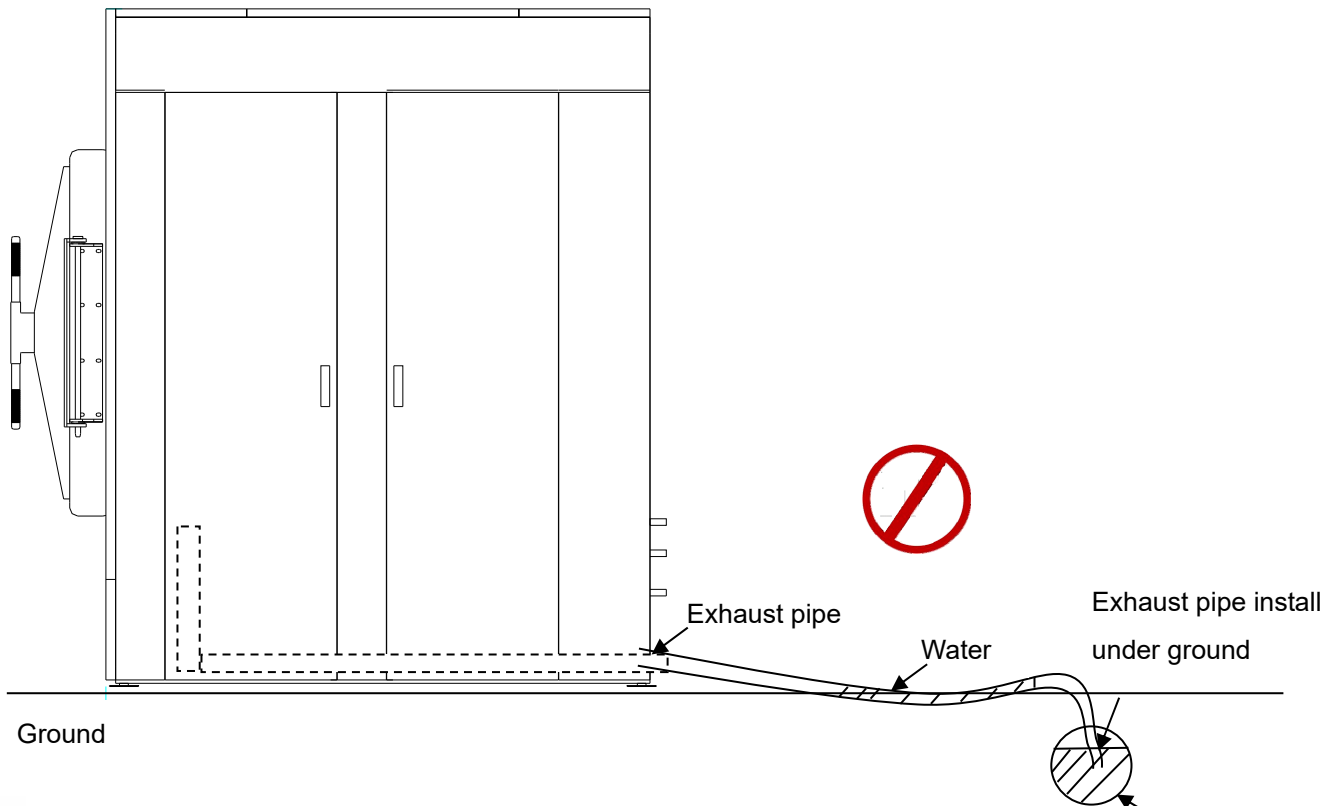
CAUTION: The autoclave MUST BE earthed!



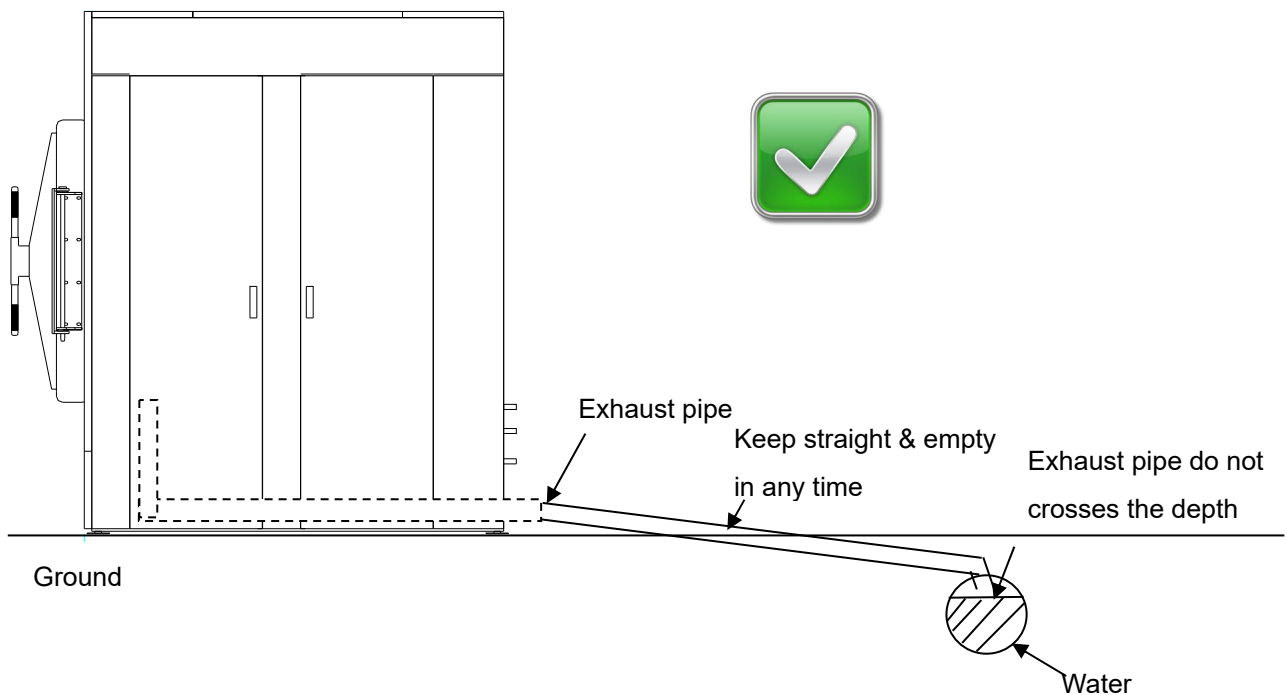
CAUTION: The circuit-breaker is also serves as a disconnect device for disconnecting the power, it should be so located that the circuit-breakers are not blocked by any other devices.

INSTALLATION - 3 :

◎Exhaust pipe

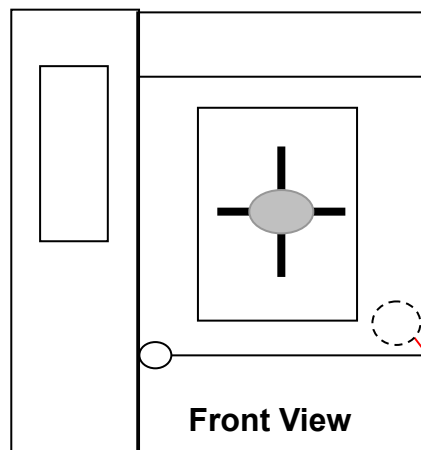


⚠ CAUTION: The balance water in the tube or pipe, it will make the vacuum release function fail (because it just a little vacuum in the chamber only). Exhaust pipe installation by this way, it will keep the straight and empty in any time.

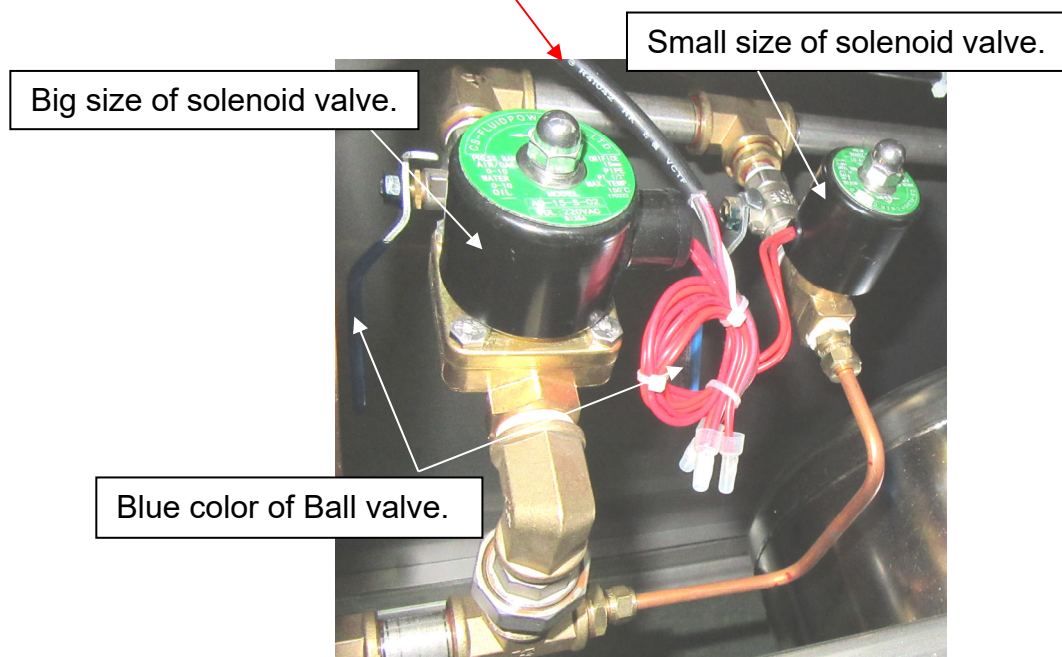


The exhaust of “LIQUID PROGRAM” is too quick or slow. Please adjust the exhaust of liquid program. The step is as following:

10. Adjust exhaust of “LIQUID PROGRAM”:
 - 10-1 please set the LIQUID program. The parameter is as following:
 - 10-1-1. Set the pressure 1.2 kgf/cm².
 - 10-1-2. Set the sterilization timer 40 minutes.
 - 10-1-3. Set the dry timer 15 minutes.
 - 10-2 Pressures the “START “ to start the autoclave.
 - 10-3 Now you can adjust exhaust valve when steam cycle is at “DRY” step.
 - 10-4 The two-exhaust ball valve is parallel together (Please see photo).
 - 10-5. The big size of solenoid valve is used for normal program. Another one (small size) solenoid valve is used for liquid program.
 - 10-6. Please you can adjust gap of the “BALL VALVE “ that is front of small size solenoid.



You can see the both solenoid as following photo.



Photo

CHAPTER 4 PLACEMENT OF ITEMS TO BE STERILIZED

NOTE: Refer to infection control, such as sterilization and sterility assurance in health care facilities of your local authority, for load placement guidelines.

NOTE: Please place items to be sterilized on the tray properly in order to have the best sterilization and/or drying result.

NOTE: It is recommended not to exceed 70% of pouch if pouch are used for sterilization.



WARNING: Be careful when removing the sterilized items as the metal surfaces might still be hot. Always wear suitable hand protection to remove the box or use the appropriate aids (tray holder) to lift the trays.



WARNING: To sterilize absorbent cotton or woolen, please wrap it with sterilizing pouch to avoid piping clog. Place a chemical indicator for



WARNING: If implements are packed with sterilizing pouches, please make sure not to pile them up.



Figure 1

1. Before loading, ensure instruments are cleaned and rinsed.
2. Be sure there will be enough space between each wrap for better air flow as shown in Figure 2.

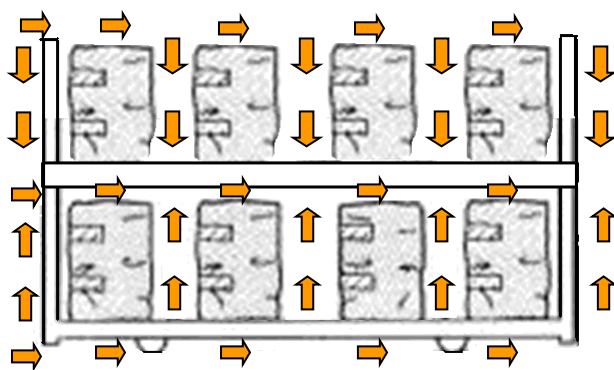


Figure 2

3. If implements are packed with sterilizing pouches and placed inside a sterilization box, make sure to display items as shown in Figure 3.

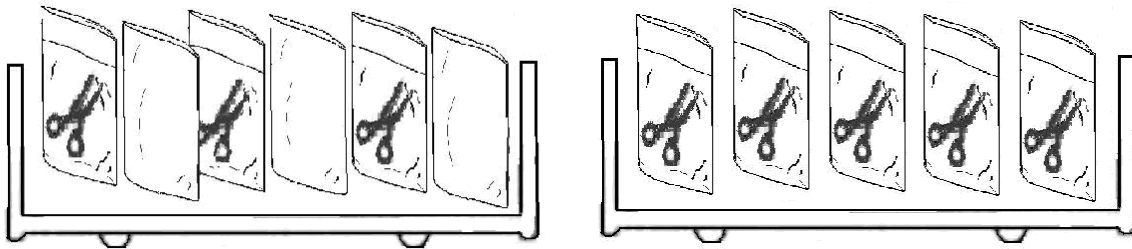


Figure 3

4. If implements are treatment plate, make sure to arrange items as shown in Figure 4.

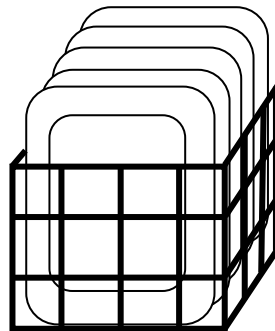


Figure 4

5. If compound items, such as solid loads and porous loads, are packed at the same wrapped, be placed them at the lowest side of the chamber to prevent condensation drops.

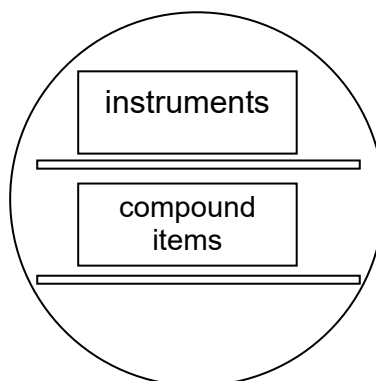


Figure 5

6. Do not exceed to its maximum limit and/or touch the walls of the chamber; and make sure there are enough space for free circulations of steam penetration.
7. Uniform placing of objects that do not overlap.
8. Place tubes or hollows loads horizontal to tray without overlapping. When place sterilizing pouch on the sterilization box or tray, make sure the medical grade paper is facing upward.
9. Round pans, trays, pots pan, etc., should be opening upside down as shown in Figure 6.

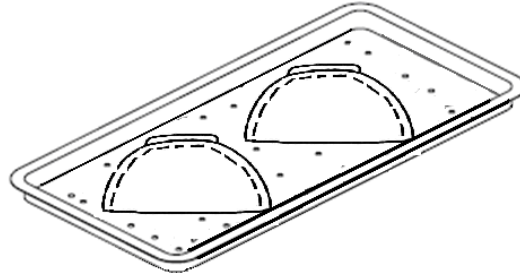


Figure 6

10. Detach caps from can-like items and separated them for sterilization work.
11. If implements are packed with sterilizing pouches, please make sure not to pile them up.

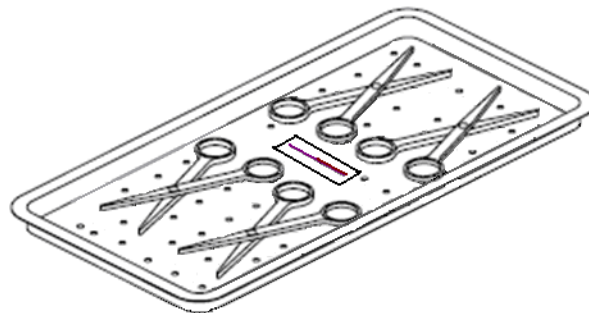


Figure 7

12. Follow the instruction of the instrument to clean and wash the hollow instruments prior sterilizing work, and wipe excess detergents or water. Keep the double ended hollow instrument as straight as possible while keeping two ends opened.
13. An additional temperature sensor and recorder are required for liquid sterilization program as shown in Figure 8.

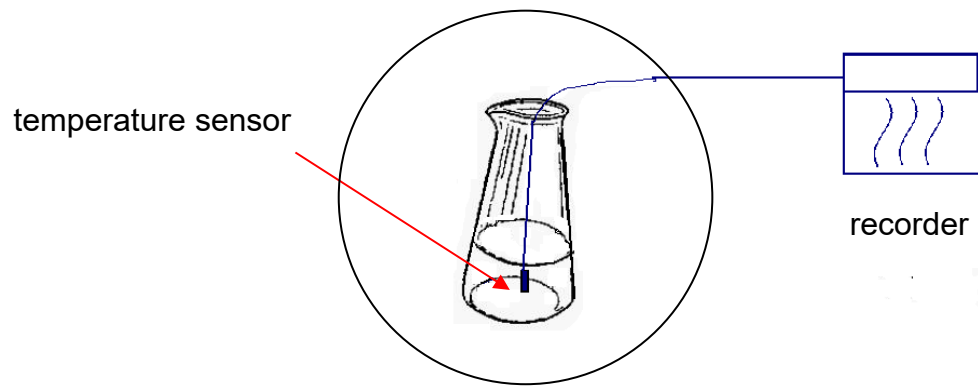


Figure 8

14. Make sure that the items to be sterilized are placed in proper position and then closed the door for sterilization works.

CHAPTER 5 OPERATION

PLEASE CHECK CHAPTER 3. AT FIRST.

1. Open the door and put the sterilized instruments into the chamber. Then closed the door.

PLEASE DON'T FORGET TO PUT THE STERILIZATION INDICATOR INTO CHAMBER.

2. Set-up the pressure control knob 0.9 kgf/cm² to 2.1 kgf/cm²

PS: Set-up the temperature control switch 50°C to 136°C (For optional function “T” only)

3. Sep-up the sterilization time.

AS TO THE TIME SET, PLEASE REFER THE ENCLOSED APPENDIX.

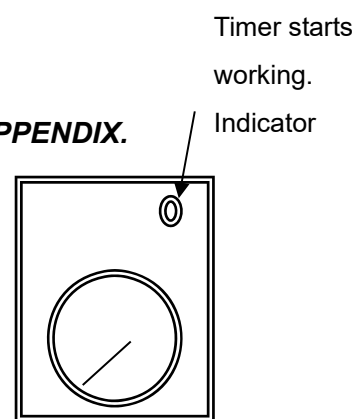
4. Sep-up the dry time.

AS TO THE TIME SET, PLEASE REFER THE ENCLOSED APPENDIX.

5. After the chamber pressure up-to the pressure you set-up,

The LED of sterilization timer turn to “flash” that means the sterilization timer starts work. Then the LED turns light on.

This means the sterilization timer finished working then the the dry-timer starts working.



Timer

6. The LED of dry timer turn to “flash” that means the dry timer start work and the “DRY” Indication lamp will be light on. **Meanwhile the jack steam pressure will be exhausted to make the chamber vacuum.** The LED turns light on. This means the dry cycle is finished. Then, the dry-timer stop working, and the “COMPLETE” indication lamp light on.

7. About 40 second's buzzer will report you, “MY DEAR MASTER! YOUR COMMAND HAS BEEN COMPLETED.”

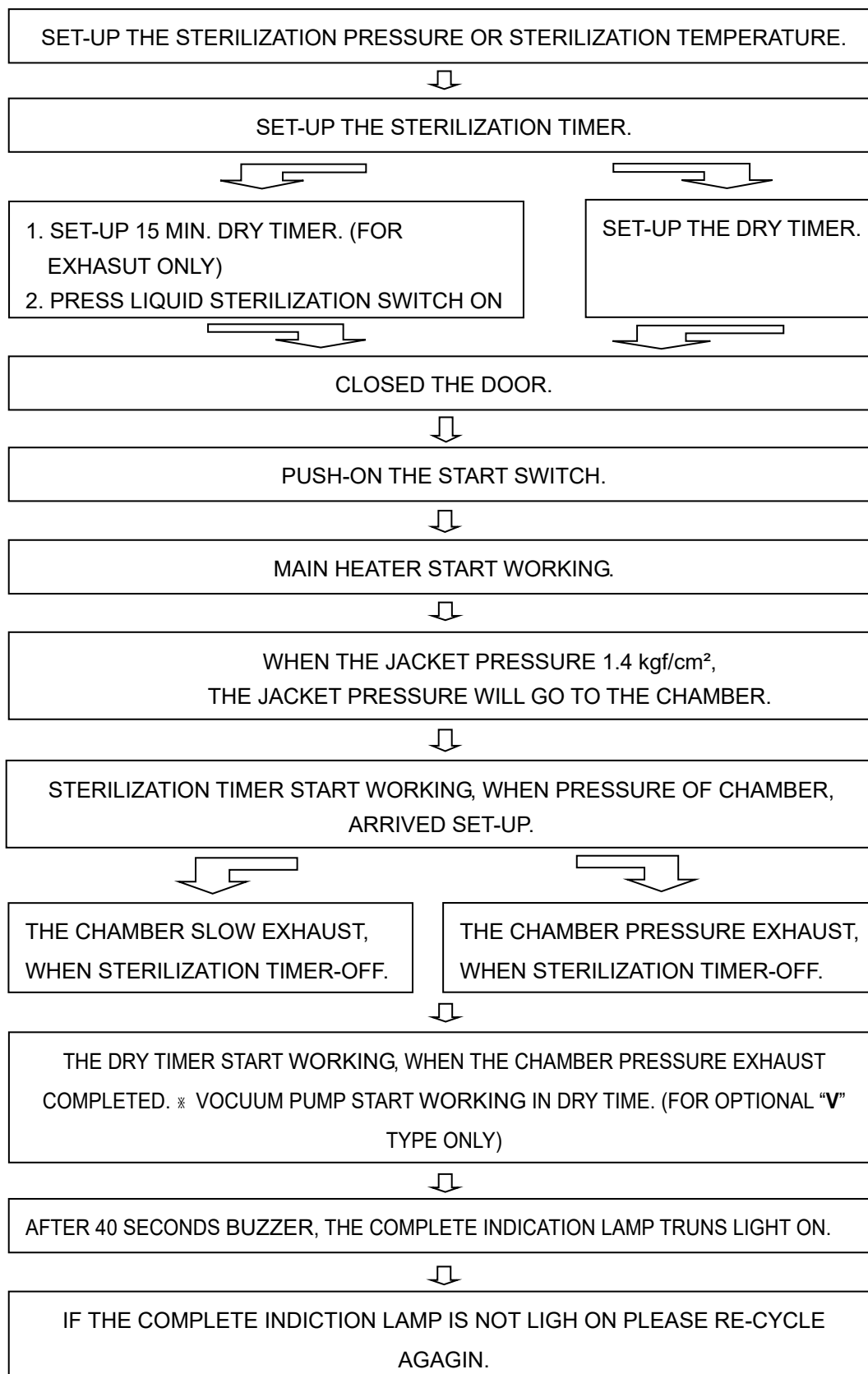


CAUTION

- ◎BEFORE OPENING THE DOOR ENSURE THE PRESSURE GAUGE IS AT “ZERO” POSITION.
- ◎PLEASE DON'T FORGET THE CHECK THE STERILIZATION IDICATOR, AFTER STERILIZATION CYCLE.
- ◎IFYOU NEED DO THE NEXT RUN. PLEASE TURN OFF THE POWER SWITCH THEN TURN ON POWER SWITCH TO RESET MACHINE AGAIN. (IF THE BALANCE WATER IN THE BOIL IS ENOUTH)

CHAPTER 5-1 OPERATION BASIC STEP OF STERILIZING

PLEASE CHECK CHAPTER 4. OPERATION AT FIRST.








CAUTION

1. CHECK THE PRESSURE GAUGE RETURN TO “**ZERO**” POSITION BEFORE THE DOOR OPENED.
2. OPEN THE DOOR, IN 10 MINUTES, AFTER ALARM TO MAKE THE DRY FUNCTION IN GOOD CONDITION.
3. IF YOU NEED DO THE NEXT RUN. FIRST TURN THE “START” SWITCH TO “OFF” POSITION THEN TURN ON THE POWER SWITCH TO RESET MACHIN.

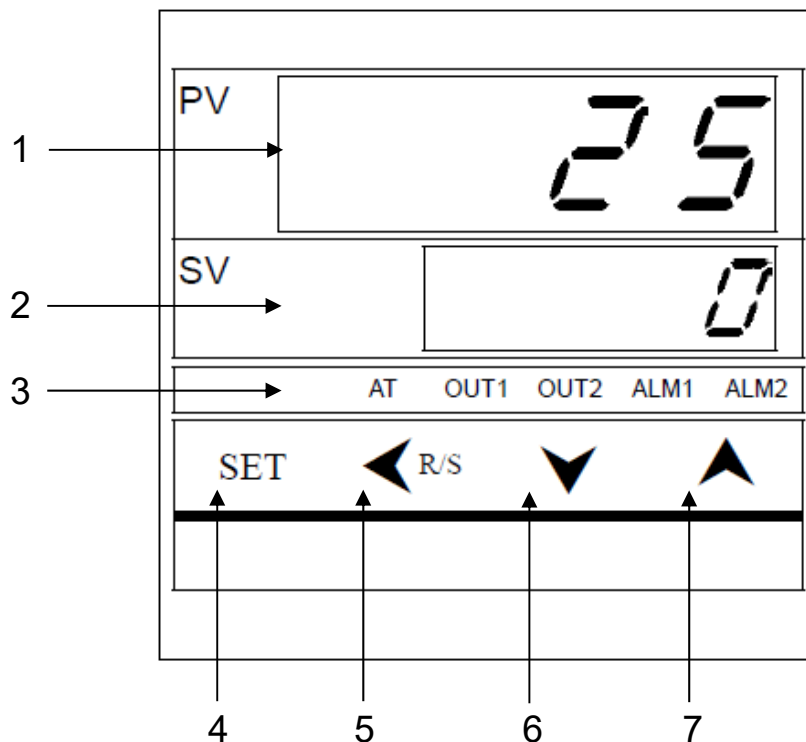
CHAPTER 5-2 OPERATION

Operation for CB-100 Temperature control

※Use CB-100 temperature controller position description :

1. PV: Actual chamber temperature display (green color)
2. SP: Set value (set sterilization temperature) display (Orange color)
3. Indication Lamps:
 - “AT”: Auto-tuning Lamp (green): Flashes during auto-tuning execution.
 - “OUT1”: Control Output Lamp (green): Lights when control output is turned On.
 - “ALM 1”: Control Output Lamp (red): Lights when alarm 1 output is turned On.
4. **SET** key: Used for parameter calling up and set sterilization temperature registration.
5.  KEY: 1). Shift digits, when settings are changed.
2). Modify the internal data of the temperature controller with the SET button .
6.  Down-key: Decrease numerals.
7.  Up-key: increase numerals.

=====



How to operation the CB-100 temperature control.

Power on the machine, and wait 5 second for machine self-test.



※Set the sterilization temperature.

1. Press **SET** key
2. Please press ▼ or ▲ to set sterilization temperature 121 or 134C
3. Press **SET** key again
4. Temperature set is complete.



NOTE: *Do not change the following parameter, changing the parameter would cause damage to the machine. The different series machine has a different parameter, please follow the steps below to set the parameter.*

1. Press **SET** key about 3 second. The display is PV ... AL1
SP... 0



2. Press **SET** key. The display is PV ... ATU
SP ... 0

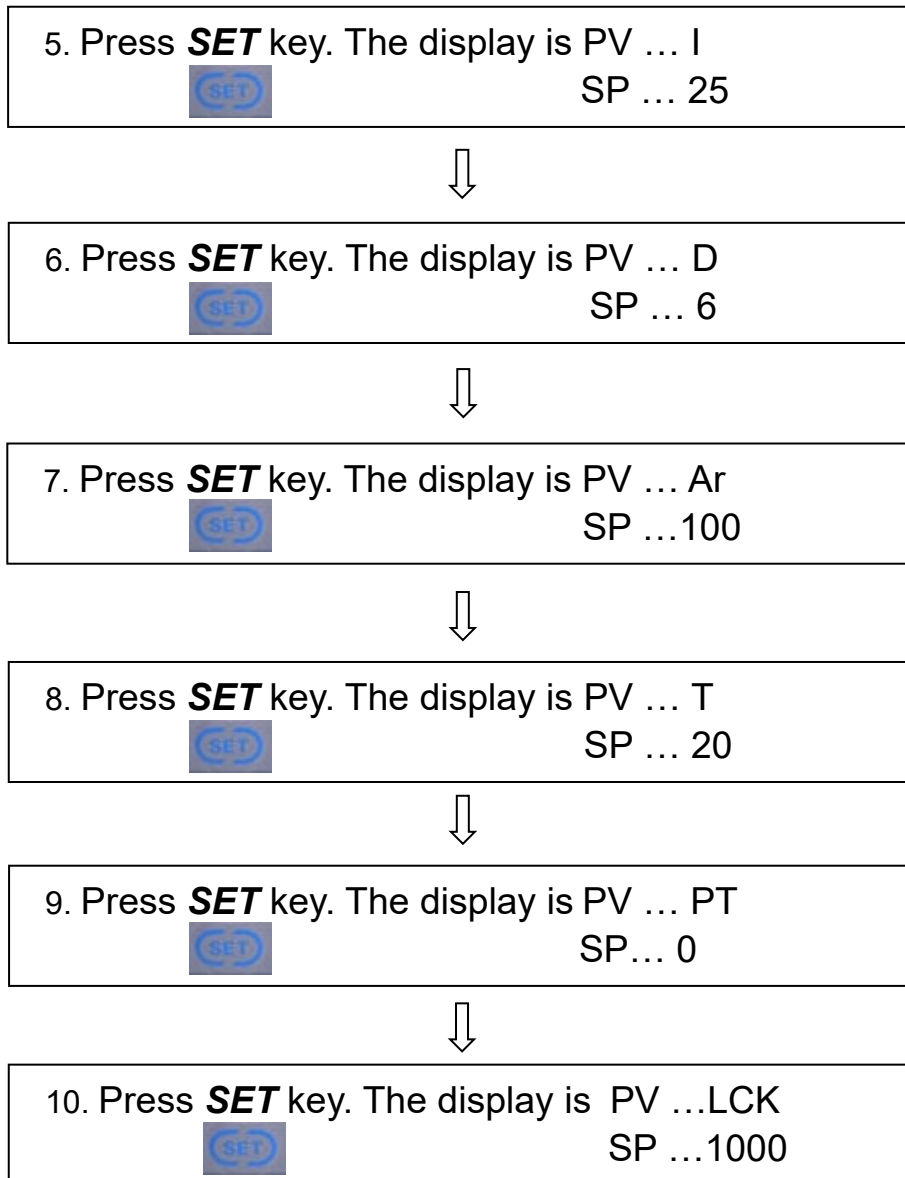


3. Press **SET** key. The display is PV ... STU
SP ... 0



4. Press **SET** key. The display is PV ... P
SP ... 1.2



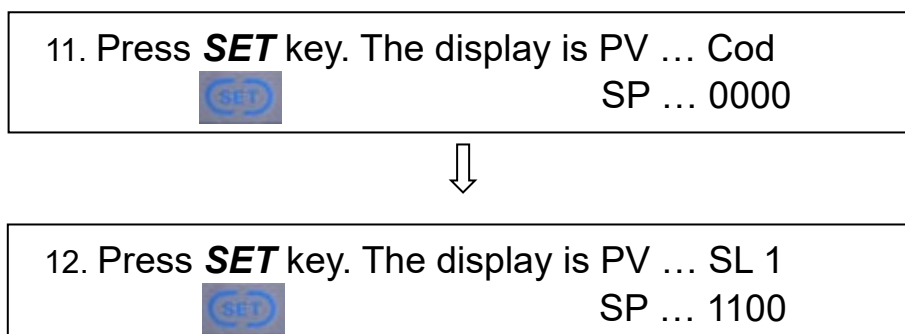


0011 To lock the data

Press "**SET**" key for about 3 seconds, the machine returns to operating mode.

=====

Press "**SET**" and "<R/S" Key at the same time for about 3 seconds, then enter the next level.





13. Press **SET** key. The display is PV ... SL 2
SP ... 0000



14. Press **SET** key. The display is PV ... SL 3
SP ... 0000



15. Press **SET** key. The display is PV ... SL 4
SP ... 0001



16. Press **SET** key. The display is PV ... SL 5
SP ... 0000



17. Press **SET** key. The display is PV ... SL 6
SP ... 0001



18. Press **SET** key. The display is PV ... SL 7
SP ... 0000



19. Press **SET** key. The display is PV ... SL 8
SP ... 0000



20. Press **SET** key. The display is PV ... SL 9
SP ... 0000



21. Press **SET** key. The display is PV ... SL10
SP ... 1000





22. Press **SET** key. The display is PV ... SL11
SP ... 0000



23. Press **SET** key. The display is PV ... Cod
SP ... 0001



24. Press **SET** key. The display is PV ... SLH
SP ... 136



25. Press **SET** key. The display is PV ... SLL
SP ... 0



26. Press **SET** key. The display is PV ... oH
SP ... 2.0



27. Press **SET** key. The display is PV ... AH1
SP ... 2.0



28. Press **SET** key. The display is PV ... dF
SP ... 1



29. Press **SET** key. The display is PV ... STTn
SP ... 100



30. Press **SET** key. The display is PV ... STPK
SP ... 67



31. Press **SET** key. The display is PV ... STIK
SP ... 16



32. Press "SET" and "<R/S" Key at the same time
for about 3 seconds and return to the operating
mode.....setting complete.

CAUTION:

1. Turn on the power switch, wait about 5 seconds until the temperature digital display is in standby condition, and set up the sterilization temperature.
2. Press the "SET" bottom over 3 seconds, the display would transfer to other modes. Press the "SET" bottom over 3 seconds again, the display would back to operating mode.

CHAPTER 6 WARNING

1. ALWAYS check the pressure gauge is reading ZERO (0) before opening the door. DO NOT attempt to open the door if the pressure is not zero (0).
2. "USE ONLY DISTILLED or SOFT & FILTERED WATER". Regular tap water contains minerals, especially chlorides, which have corrosive effects on stainless steel. Failure to use distilled water will invalidate the warranty.
3. Please keep open the water source into the chamber. Or not, the low-water protector will cut-off the elec. power.
4. Please attend the high temperature on the door of the chamber. When she is working.
5. The door handle must be closed well, when the unit is in sterilization.
6. Please install the No Fuse Breaker, between the elec. Power source and autoclave. (Please refer P. 2.)
7. Use only a dedicated power supply.
8. The filter valve inside the housing should be cleaned at least every season.
9. Use Sterilization Indicator Test Strips to check that sterilization has been successful. These strips also are kept as a record of sterilization.
10. In the emergency condition, please push down the emergency switch immediately, And turn-OFF at the mains power switch, and No Fuse Breaker.
11. Keep the chamber and gasket clean.
12. The sign of caution and indication:



Caution! Hot surface.



Grounding terminal.



This label means indicator for power on



This label means indicator for power off



Consult instructions for use



Disposal of Electrical & Electronic Equipment (WEEE):

This product should be handed over to an applicable collection point for the recycling of electrical and electronic equipment. For more detailed information about the recycling of this product, please contact your local city office, household waste disposal service or the retail store where you purchased this product.

Date of Manufacture: EX: 2008-01 is mean January / 2008.



Authorized Representative at europe.



Manufacturer.



Caution, risk of electric shock.

13. Storage Environment: Temperature: -10°C to +50°C / HUMIDITY: ≤ 80%

14. Working Environment: Temperature: 5°C to +40°C / HUMIDITY: ≤ 80%

15. Transportation Environments: Temperature: -10°C to +60°C / HUMIDITY: ≤ 80%

CHAPTER 7 APPENDIX

SETTING UP THE STERILIZATION TIME:

*** PRESSURE ON 2.1 kgf/cm² (APPROX. 134°C / 273°F)**

UNWRAPPED	Set-up 4 minutes sterilization time.
WRAPPED	Set-up 15 minutes sterilization time.

*** PRESSURE ON 1.2 kgf/cm² (APPROX. 121°C / 250°F)**

UNWRAPPED	Set-up 22 minutes sterilization time.
WRAPPED	Set-up 30 minutes sterilization time.
LIQUID	Set-up 40 minutes sterilization time.

*** DRY TIME: 30 minutes**

*** SPECIAL SELECTION RANGE:**

※ STERILIZATION PRESSURE SELECTION RANGE 0.9 to 2.1 kgf/cm²

※ STERILIZATION TEMPERATURE SELECTION RANGE 105°C to 136°C.

(For Optional Function "T" only.)

※ STERILIZATION TIME SELECTION RANGE 0 to 60 minutes

※ DRY TIME SELECTION RANGE 0 to 60 minutes adjustable.

Please donot set-up the dry time over than 30 minutes. Because
Sometime the boil water will be not enough.

FOR REFERENCE: 1 kgf/cm² = 0.98 bar = 14.2 psi.

**# *Sterilization instruments must be made by metal without plate, or
autoclaveble plastic or rubber material.***

This machine can use liquid sterilization function.

CHAPTER 8 TROUBLE SHOOTING

* POWER LAMP IS NOT LIGHT ON:

1. Cause: Power supply is not properly connected.
Solution: Try to connect power supply until power indicator goes on.
2. Cause: No Fuse Breaker broken.
Solution: Replace the No Fuse Breaker.
3. Cause: Bulb broken.
Solution: Replace the bulb.
4. Cause: Power switch broken.
Solution: Replace power switch.

* HEATING-UP LAMP IS NOT LIGHT ON:

1. Cause: Lamp Broken.
Solution: Replace the bulb.
2. Cause: Heater broken.
Solution: Replace the heater.
3. Cause: Power relay broken.
Solution: Replace the power relay.
4. Cause: Pressure control switch broken.
Solution: Replace the pressure control switch
5. Cause: Temperature control switch broken.
Solution: Replace it. (For Optional Function "T" only.)

* DRY LAMP IS NOT LIGHT ON:

1. Cause: Lamp broken.
Solution: Replace bulb.
2. Cause: Dry timer broken.
Solution: Replace the dry timer.

* LOW WATER (OVER HEAT) INDICATION AND ALARM:

1. Cause: Water is not enough.
Solution: Check water source.
2. Cause: Water level sensor surface dirty and non-conductive
Solution: Call service.

3. Cause: Check the water pipe leakage or other problem.
4. Cause: Check manual valves and solenoid valve (and Add-Water Pump for optional function “W” type.) by engineers.

PS: THE FILTER MUST BE CLEAN PER EACH SEASON.

*** PRESSURE IN THE CHAMBER CAN'T EXHAUSE AUTOMATICALLY AFTER STERILIZATION:**

1. Cause: Filter is not clean.
Solution: Clean it.
2. Cause: Check solenoid valve for chamber exhaust.
Solution: The valve broken, replace it.
3. Cause: Check the power for solenoid.
Solution: Call service.

*** PRESSURE CAN'T UP:**



1. Cause: Check solenoid valve between chamber and jacket, If no function
Solution: The valve broken, replace it.
2. Cause: Check the power for solenoid.
Solution: Call service.
3. Cause: Check Heater function, if it is broken.
Solution: Replace the heater.
4. Cause: Check the power relay, if it is broken.
Solution: Replace the power relay.
5. Cause: Water level switch broken, to cut the power for heater.
Solution: Replace the switch.

*** DRY FUNCTION NOT PERFECT:**

1. Cause: Please open the door in 10 minutes, after alarm. If still have same problem,
Solution: please call engineer.
2. Cause: Check the chamber vacuum condition, if the pressure can't under -0.6 kgf/cm²,
Solution: Please call engineer. **(For optional function “V” type only)**

*** For optional function “K” type only.**

Due to the “PRESSURE DOOR LOCK DEVICE”, so if you can't open the door after work finished, please do following step:

- a. Please turn the handle “” to tight the door.
- b. Then, turn the handle “” back to open it.

*** The sterilization indicator can't change the color completely.**

1. Cause: The steam traps no function
Solution: Replace the steam trap.
2. Cause: The steam trap dirty inside
Solution: Clean the steam trap as Figure 1.



Figure 1

3. Cause: The chamber or jacket pressure control switch out of order to make chamber In low pressure and low temperature.
Solution: Replace it.

*** For “W” type optional function only:**

1. Cause: No auto-add water function
Solution-1: Add water solenoid valve broken, replace it.
Solution-2: Water pumps broken, replace it.
Solution-3: No water supply.
Solution-4: check the water pipe for leakage.

PS: ANY PROBLEMS PLEASE CHECK THE WIRE CONNECTION AT FIRST.

CHAPTER 9 MAINTENANCE REQUIREMENTS

DAILY:

- ⊙ WIPE THE INSIDE OF THE CHAMBER AND THE INSIDE OF THE DOOR WITH A NON-LINT CLOTHE SUCH AS A WETTEX.
- ⊙ CHECK WATER SOURCE.

WEEKLY:

- ⊙ CLEAN THE RACK AND TRAYS.
- ⊙ CLEAN THE FILTER IN THE CHAMBER. (ON THE EXHAUST HOLE)

MONTHLY:

- ⊙ AFTER STERILIZATION, WHEN THE CHAMBER PRESSURE STILL OVER THAN 0 kgf/cm², PLEASE TURN-OPEN THE JACKET EXHAUST VALVE KNOB. THEN, THE PRESSURE WILL EXHAUST THE BALANCE WATER AND STEAM FROM THE JACKET AND THE BOIL. THIS WAY WILL KEEP THE JACKET AND BOILER CLEAN. AND PUSH-ON THE POWER SWITCH TO REFILL THE WATER. TO THE BOIL AGAIN. AFTER 10 MINUTES, PLEASE PUCH-OFF THE POWER SWITCH, AND TURN-OPEN THE EXHAUST VALVE (KNOB) AGAIN. AFTER 2-3 TIMES, THE BOIL AND JACKET WILL BE CLEAN WELL.
- ⊙ PLEASE CHECK THE WATER LEVEL SENSOR AT TOP OF STERM GENERATOR.

YEARLY: (CHECK BY ENGINEER)

- ⊙ REMOVE, CLEAN AND REPLACE THE WIRE MESH FILTER AT INSIDE OF THE HOUSING. THEN, FIX RETURNS THE FILTER.
- ⊙ CHECK THE ELECTRIC WIRE SYSTEM, FUSE, AND CONNECTORS.
- ⊙ CHECK THE TUBING SYSTEM.
- ⊙ CLEAN THE SOLENOID VALVE.
- ⊙ CHECK THE INDICATION LAMPS, AND ALL CYCLE FUNCTION.
- ⊙ CHECK THE DOOR GASKET. (SUGGESTION: REPLACE IT PER YEAR.)
- ⊙ CHECK THE FUNCTION OF THE SAFETY VALVE.
- ⊙ CLEAN THE SURFACE OF THE WATER LEVEL CENSOR.

Cleaning Steps to the Water Sensors of the Steam Generator - Model SAP Series

⚠ WARNING: Danger of Electric Shock! Disconnect the power prior to the maintenance works.

- 1 Mark and record the wiring number for subsequent reinstallation works. Do not mix the High-Level-Sensor, Low-Level-Sensor and Ground sensors.
- 2 Disconnect the three wirings counter-clockwise by using a No. 10 wrench (or an adjustable wrench), as shown in Fig- 1
- 3 Loosen the two sensors nuts (High-Level-Sensor and Low-Level-Sensor) counter-clockwise by using a No. 27 wrench (or an adjustable wrench), and then loosen the Ground screw nut counter-clockwise by using a No. 17 wrench (or an adjustable wrench).

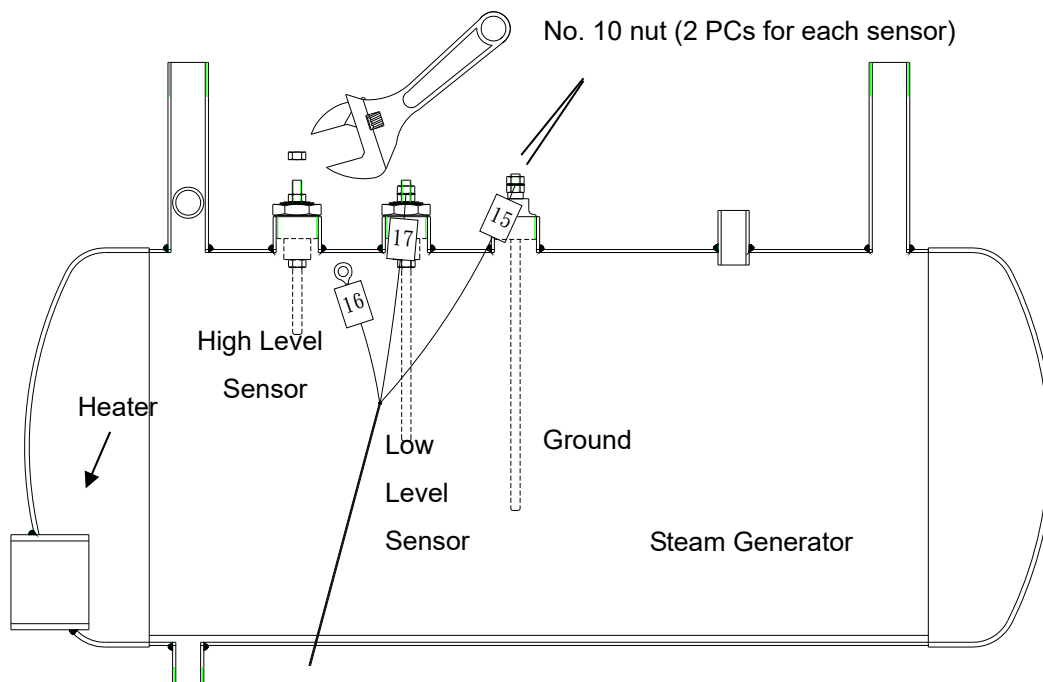


Fig- 1 Layout

- 4 Disassemble the High-Level-Sensor and Low-Level-Sensor as shown in Fig - 2 and Fig - 3.
- 5 Clean each part very careful to remove the scale and deposit with clean water, a small brush or scrub sponge may help to the cleaning works. Also clean the Ground Sensor

Rod as described above.

NOTE: Each part must be clean completely; there should be no dirt on the surface of the Teflon Insulator.

- 6 Dry all of the components after the cleaning work. Wrap the screw thread of the High-Level-Sensor and Low-Level-Sensor rods (Fig- 3) with sealing tape so that they can be tighten with Teflon Insulators.
- 7 Assemble the components as shown in Fig- 2 and Fig- 3
- 8 Wrap the screw thread of the nut with sealing tape for assembly purpose.
- 9 Install the three sensors and their associated wiring with the tools used in step 1. Visual inspect that the position and wiring identification are match to Fig- 1.
- 10 Restore the power.

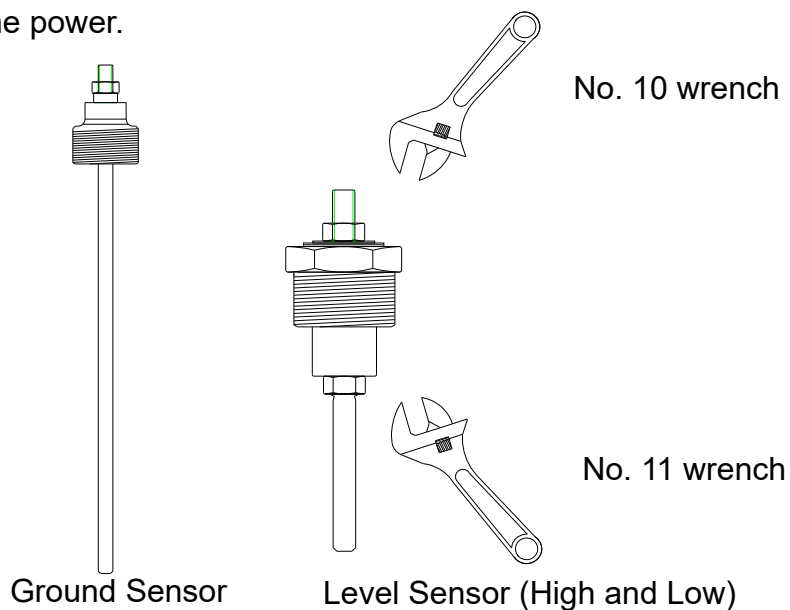


Fig- 2 Sensors

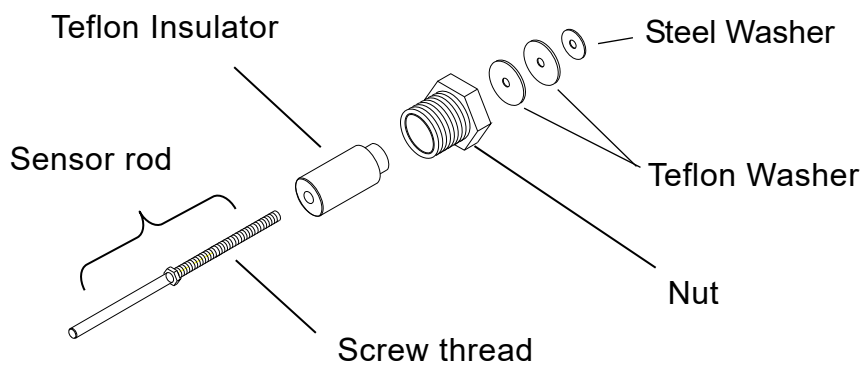


Fig- 3 Sensor Assembly

Cleaning Steps to the Water Sensors of the Steam Generator - Model SAP-D Series Dual-Door



WARNING: Danger of Electric Shock! Disconnect the power prior to the maintenance works.

- 1 Mark and record the wiring number for subsequent reinstallation works. Do not mix the High-Level-Sensor, Low-Level-Sensor and Ground sensors.
- 2 Disconnect the three wirings counter-clockwise by using a No. 10 wrench (or an adjustable wrench), as shown in Fig-1
- 3 Loosen the two sensors nuts (High-Level-Sensor and Low-Level-Sensor) counter-clockwise by using a No. 27 wrench (or an adjustable wrench), and then loosen the Ground screw nut counter-clockwise by using a No. 17 wrench (or an adjustable wrench).

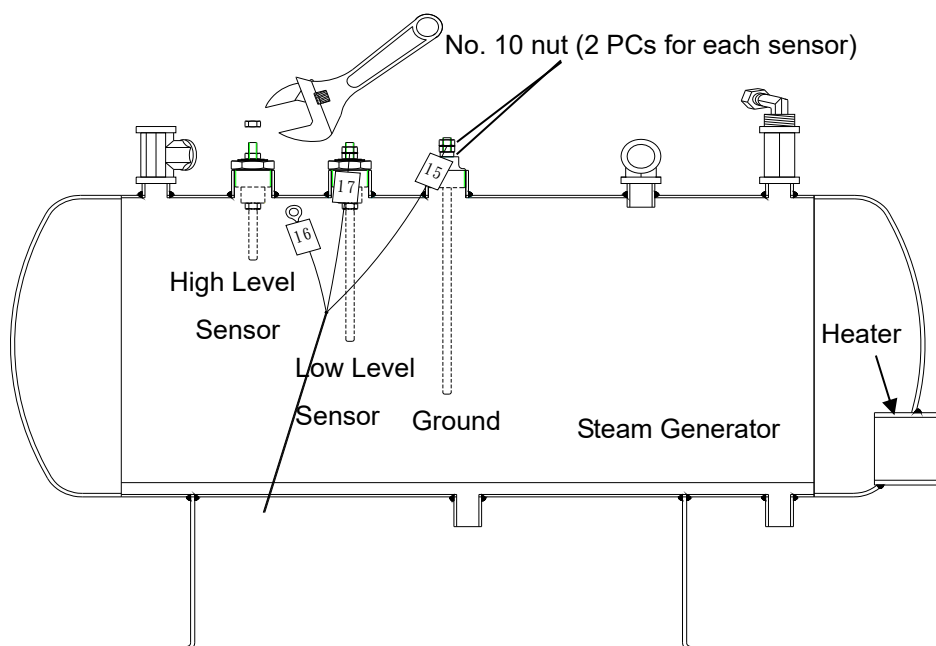


Fig- 1 Layout

- 4 Disassemble the High-Level-Sensor and Low-Level-Sensor as shown in Fig- 2 and Fig- 3.
- 5 Clean each part very careful to remove the scale and deposit with clean water, a small brush or scrub sponge may help to the cleaning works. Also clean the Ground Sensor Rod as described above.

NOTE: Each part must be clean completely; there should be no dirt on the surface of the Teflon Insulator.

- 6 Dry all of the components after the cleaning work. Wrap the screw thread of the High-Level-Sensor and Low-Level-Sensor rods (Fig- 3) with sealing tape so that they can be tighten with Teflon Insulators.
- 7 Assemble the components as shown in Fig- 2 and Fig- 3
- 8 Wrap the screw thread of the nut with sealing tape for assembly purpose.
- 9 Install the three sensors and their associated wiring with the tools used in step 1. Visual inspect that the position and wiring identification are match to Fig- 1.
- 10 Restore the power.

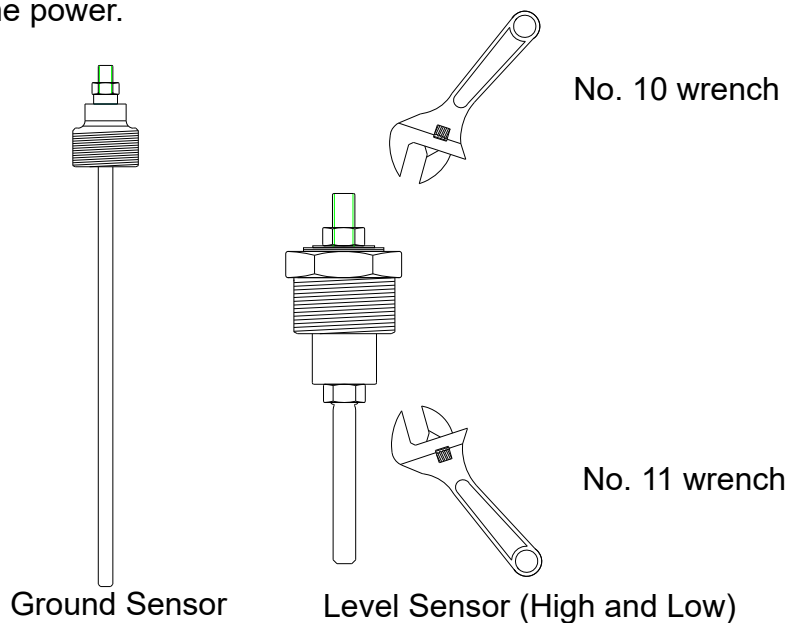


Fig- 2 Sensors

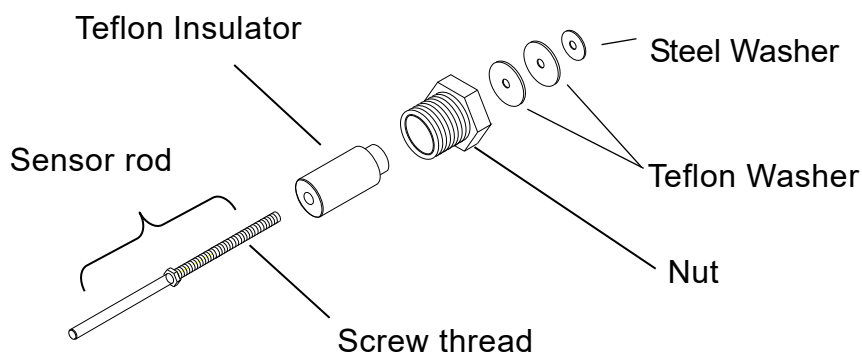


Fig- 3 Sensor Assembly

WARRANTY

"STURDY" product has one (1) year warranty from the date of purchase that covers any defects in materials and quality under regular use.

This warranty does not apply to any product damaged by accident, misuse, abuse, neglect, improper line voltage, drop, fire, flood or alteration/ repair by non-qualified service personnel.

The liability of Sturdy Industrial Co., Ltd. is limited to repair or replacement and under no circumstances shall "STURDY" be liable for any collateral consequential damages or loss. This guarantee excludes explicitly the expendables and consumable.

All warranty claims must be directed to the distributors or agents that Sturdy Industrial Co.,Ltd. authorized. Whom is responsible for the sales of this equipment. The customers are responsible for shipping expense.

.....
User's Name: _____

Address: _____


Country: _____ Tel: _____ Fax: _____

Date of Purchase: _____ Model No.: _____

Series No.: _____

Distributor: _____

Manufacturer: STURDY INDUSTRIAL CO.,LTD. (ISO 13485 CERTIFICATE FIRM.)

Name	Sturdy Autoclave Sterilizer
Model	SAP Series
Manufacturer 	Sturdy Industrial Co. Ltd.
Address	168, Sec. 1, Zhongxing Rd., Wugu District, New Taipei City, 24872, Taiwan