

AMSCO Maintenance Manual



OFFICE AUTOCLAVE
Model 8816M

(3/86) P-750847-091

SV-5047

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CHAPTER I INTRODUCTION

This manual contains information for installing, servicing, adjusting, trouble shooting and repairing the 8816M Autoclave Office Pressure Sterilizer manufactured by the American Sterilizer Company, Erie, Pennsylvania. A complete illustrated parts list appears at the end of the manual.

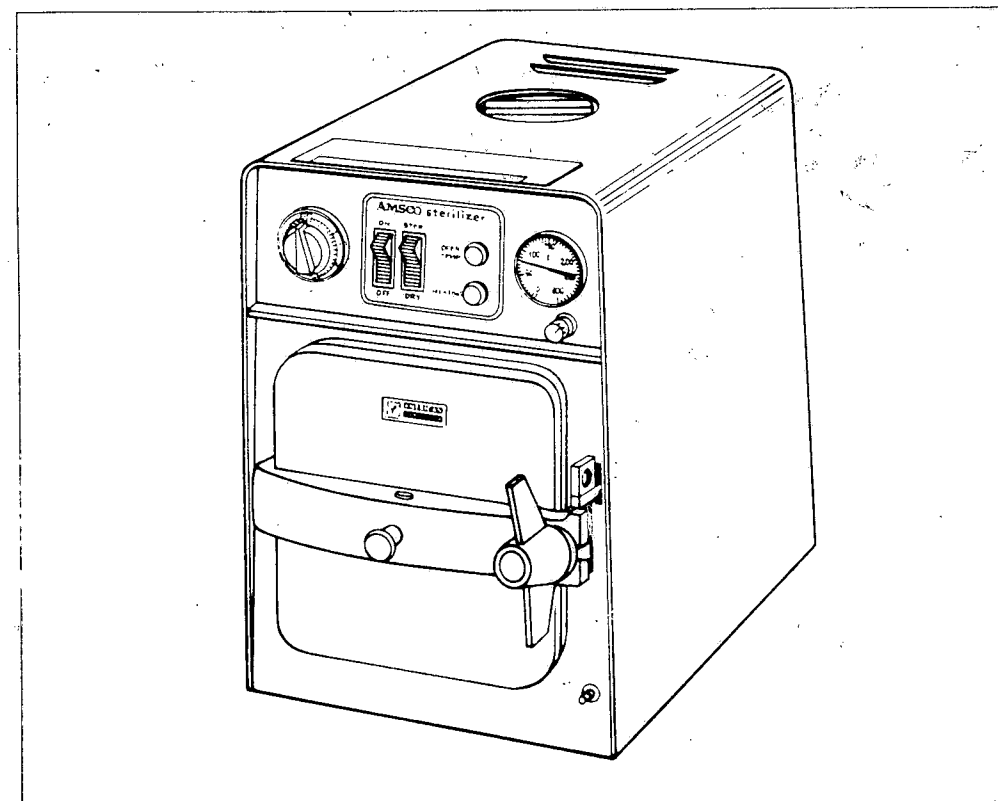


Figure 1-1. Model 8816M Autoclave Office Pressure Sterilizer

CHAPTER II

GENERAL DATA

Length	22 inches
Width	13-1/8 inches
Height	17-5/16 inches
Weight	71 pounds (uncrated), 93 pounds (crated)
Temperature Control	Adjustable from 230° to 270° F.
*Power Requirements	120 volts, 60 cycles, 15 amperes or 240 volts, 60 cycles, 15 amperes
Water Reservoir Capacity	3-1/2 quarts (approximately)
Cutout Thermostat	Stemco Type SM-18, open on rise at 300° ± 13° F.
*Heaters	Immersion Type, 800 watts, 120 volts or Immersion Type, 700 watts, 240 volts
Thermometer	Fahrenheit, ± 1° accuracy
Toggle Switch	Double pole, double throw, single actuator, 15 amperes, 120 volts
Timer	0 to 60 minutes
*Grounded Type Connector Cord	6 feet long
Adapter	Plug to connect cord into an ordinary 2 wire outlet

*See name plate for power source requirements.

Table of Leading Particulars

CHAPTER III

INSTALLATION

Local electric power fluctuations sometimes necessitate a slight adjustment of the originally determined settings of the thermostat.

To assure sterilization, the temperature must be maintained throughout the cycle and, therefore, periodic checks should be made to ensure that the chamber temperature is maintained by the established thermostat settings.

For efficient operation and positive sterilization, the following procedure should be followed before the sterilizer is first put into service:

1. Remove the water reservoir cover (1, fig. 3-1) and fill the reservoir with water to about 1/2 inch below the filling opening (approximately 3 quarts). Replace the water reservoir cover.

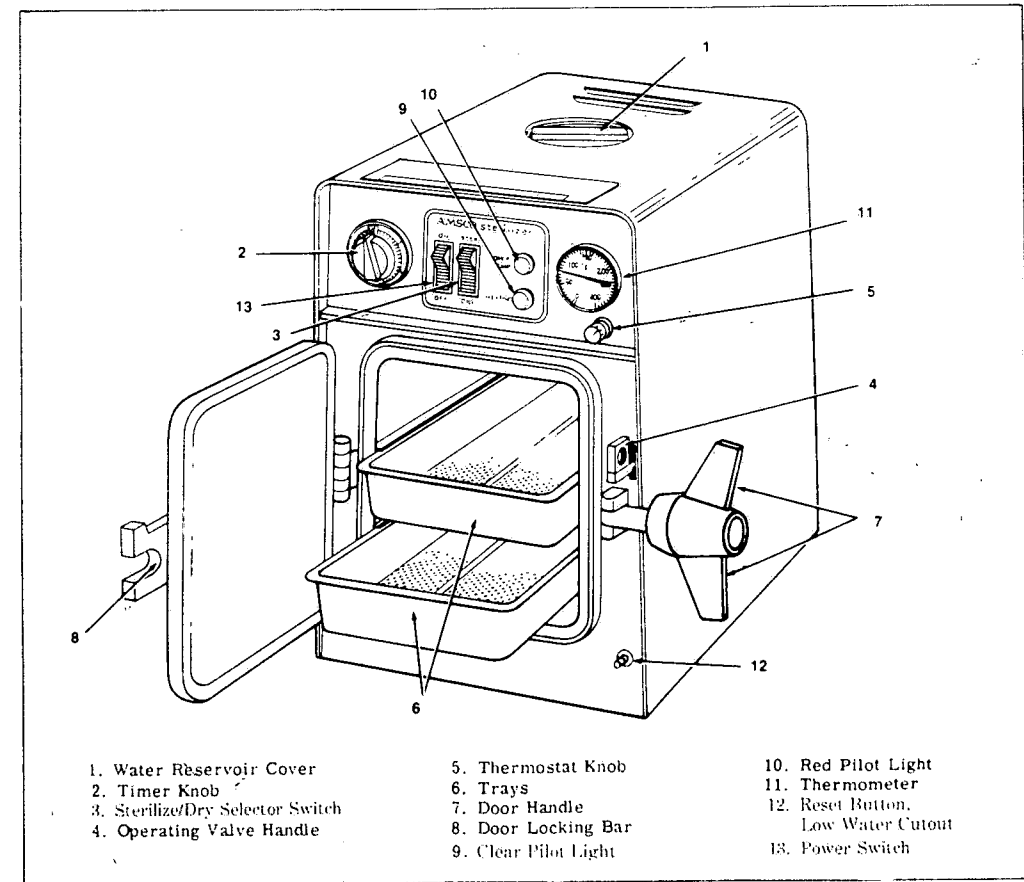


Figure 3-1. Controls

Distilled or demineralized water is recommended because it causes less build-up of scale which is detrimental to efficient operation.

2. Ensure that the controls are set as follows:

- Timer and heater control pointing up (in "OFF" position).
- Sterilizer-dry switch actuated to "STER" position.
- Operating valve handle raised to maximum height.
- Thermostat control turned fully counterclockwise.
- Power switch to "OFF" position.

3. Plug the unit into the electric outlet of the voltage specified on the plate (fig. 7-1 or 7-1A) on rear of the sterilizer.

4. Open the sterilizer door and remove the trays (fig. 3-1) so that the water level indicator in bottom of the inner liner is clearly visible.

Push the operating valve handle down, thus allowing water to flow from the reservoir to the chamber. When the water in the chamber reaches the water level indicator, pull the operating valve handle up to close the valve. Water should barely touch the bottom edge of the word "LEVEL".

5. Close the door, swing the door handle into the slot in the door locking bar and turn the door handle clockwise until the door is tightened. Push the operating valve handle down until it rests on the door locking bar.

6. Turn the thermostat control fully clockwise and back it off about one quarter of the way (approximately 250° F. setting). For operation at 270° F., turn the thermostat control fully clockwise and then counterclockwise to adjust to the desired temperature.

NOTE: Do not remove the plastic bag covering the timer. These are used to prevent corrosion caused by condensation.

7. Set the timer and heater control for 30 to 40 minutes. Press Power Switch to "ON" position; the unit is now on. Both the white and red pilot lights will glow. Red indicates that the power is on and white indicates that the heaters are on.

8. When the white pilot light goes out, (the heaters are cut out by the thermostatic control) check the thermometer. If it registers less than 250° F. or 270° F., turn the thermostat control slightly to the right. Then white pilot light will again glow and when it goes out, check the thermometer. Continue adjusting the thermostat control clockwise for higher temperature and counterclockwise for lower temperature — until the 250° F. or 270° F. reading is maintained by the thermostat.

9. When the timer bell signals the end of the cycle, press Power Switch to "OFF" position to cut off all electric power to the unit. Lift the operating valve handle to exhaust steam and residual water from the chamber back into the reservoir. When the chamber temperature on the thermometer registers 212° F. or less, open the sterilizer door by turning the handle counterclockwise (to left); swing it to the right away from the locking bar and pull the sterilizer door open about 1/8 inch with the heat resistant knob in center of the door locking bar. Allow the sterilizer to cool for about ten minutes.

OPERATING INSTRUCTIONS — Units Shipped Before 10/74

General

Anyone can learn to operate an 8816M in a few minutes as evidenced by the following simple step-by-step instructions. The same instructions will be found on a permanent plate affixed to the top of each unit. These provide a convenient reminder for the new operator or for one whose use of the unit is infrequent.

IMPORTANT—The first time the unit is used, and before actually sterilizing the first load, please make the "Preoperation Adjustments" described at the top of the back of this page. Making these initial adjustments will save time and error in the future, thus assuring maximum efficiency, positive sterilization, and quick drying.

1. Open door—pull operating valve handle down. When water reaches level indicator in chamber, push valve handle up.
2. Load machine—close door—pull valve handle down on hinge door locking bar.
3. Turn thermostat knob (located below thermometer) clockwise halfway for 250° F.—all the way 275° F.
4. Snap toggle switch to "STER" position.
5. Set timer—red and white lights will glow.
6. When chamber temperature reaches knob setting—white light will go off. Adjust knob to obtain operating temperature clockwise for higher temperature—counterclockwise for lower temperature.
7. Set timer for exposure period desired. Bell will indicate end of cycle.
8. Raise valve handle up to exhaust steam. When temperature drops to 212° open door slightly (approximately 1/4").
9. Snap toggle switch to "DRY" position. Set timer for desired drying time—10 to 15 minutes. Bell will indicate end of drying cycle. Unload machine.

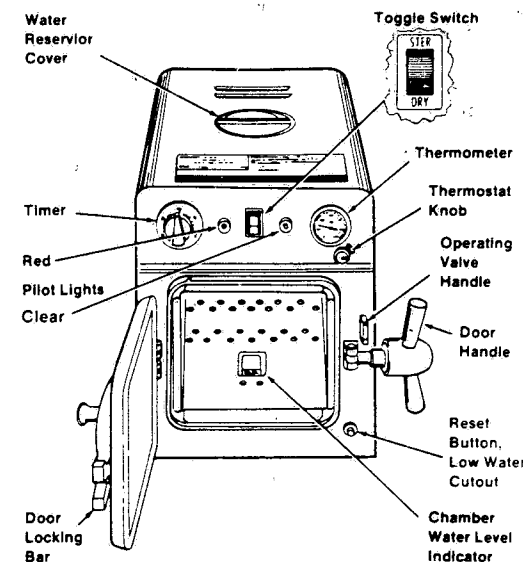
Recommended Exposure Period

	250° F	270° F
Surgical Instruments without muslin cover	15 min.	3 min.
Surgical Instruments with muslin cover	20 min.	7 min.
Surgical Instruments wrapped	20 min.	10 min.
Dressings and Small Packs in muslin covers	20 min.	
Utensils, Syringes disassembled and Glassware in muslin covers	15 min.	7 min.
Rubber Gloves in muslin cover	15 min.	
Tubing in muslin cover	20 min.	
*Solutions 125-200-250 ml. Pyrex flasks	25-30 min.	
*Solutions 30 ml. Pyrex flasks—Test Tubes up to 100 mm.	15 min.	

*Cool solutions gradually. Do not push up operating valve handle, or open door until thermometer registers 212° F or less. The relatively fast normal exhaust system of the 8816M causes a boiling action which will pop flask covers and cause liquid loss. The use of this unit for sterilizing vaseline gauze is not recommended.

Safety Features

The 8816M automatically turns off should it overheat. Invariably this is due to lack of water in chamber. To reoperate turn timer full counterclockwise to off position, lift operating valve handle to exhaust pressure, wait for temperature to drop to 212° F or less, open door, refill chamber with water, wait 10 minutes to prevent damaging thermostat, press red reset button, and proceed with regular operating cycle from beginning.



The unit has a safety valve which will "pop-off" at 280° F to 285° F. When this occurs, it merely releases excess pressure. The autoclave may continue to be operated with safety at the 250° F setting until a serviceman can make necessary adjustments.

Suggestions for Efficient Operation

Slight thermometer fluctuation above and below setting is normal for thermostat cycling. As explained in "Preoperation Adjustments D" on back of this sheet, variations in electric power may also cause this. When chamber temperature is not maintained within a few degrees of selected temperature throughout the entire exposure period, thermostat should be adjusted. If this does not remedy the trouble or if temperature ever fails to register 270° F with thermostat on full, call for an authorized serviceman and operate at 250° F exposure until thermostat is adjusted.

Life of door gasket will be prolonged if door is not overtightened. Refer to No. 2 of "Detailed Instructions" for further information. Call your serviceman when gasket no longer seals properly or replace according to instructions on replacement gasket envelope. If gasket tends to stick to door, spray chamber edge with Amso silicone lubricant, part number 40348.

To clean chamber and liner, remove knurled nut located in center back of liner, and slide liner forward through door. This provides convenient access to liner and inner chamber for removing scale which causes inefficient operation. Initial weekly inspections are suggested to establish desirable regular cleaning intervals. For minimum cleaning use distilled or demineralized water to fill reservoir.

Normally the reservoir need not be emptied, but should it be desirable, a drain plug is provided at the back of the unit. It is easily removed with a screwdriver or thin coin.

An occasional drop of machine oil on hinge pin, lock bolt pin and threads on door handle assures easy operation.

Preoperation Adjustments

To assure efficient operation and positive sterilization the following procedure should be followed BEFORE using the unit for actual sterilization.

A. Plug into electric outlet of voltage specified on plate on back panel of autoclave.

B. Check controls—should be set as follows:

- Timer knob pointing up—"OFF" position
- Toggle switch snapped to "STER" position
- Operating valve handle raised to maximum level
- Thermostat knob turned full counterclockwise (to left) for lowest heat adjustment

C. Remove cover and fill reservoir with distilled or demineralized water to about 1/2 inch below filling opening (approximately 3 quarts). Tap water is not recommended because it causes rapid build-up of scale which is detrimental to efficient operation.

D. Run a trial sterilizing cycle to determine thermostat knob settings to maintain 250° F and 270° F. This must be done "on

location" due to local variations of electric power. Follow steps 1 through 5 of operating instructions. At No. 3 turn thermostat knob full right—back off about 1/4 for approximate 250° F setting. For operation at 270° F turn thermostat knob clockwise until it hits stop. Then turn knob counterclockwise to adjust to temperature desired. Set timer for 30 to 40 minutes. Both the white and red pilot lights will glow. When white pilot goes out, heater is cut out by thermostat control; check thermometer. If it registers less than 250° F or 270° F, turn knob slightly to right (white pilot light will again glow). When white pilot goes out, check thermometer. Continue adjusting thermostat knob (left for lower—right for higher temperature) until 250° F or 270° F is maintained by the thermostat. For positive sterilization, temperature must be maintained throughout the cycle. Therefore, periodic checks should be made to make certain that chamber temperature is maintained by the established thermostat settings. Electric power fluctuations sometimes necessitate slight adjustment of the originally determined settings. This is rare, but can occur—thus this suggestion.

Details and Explanation of Operating Instructions

For those interested in reasons why, and for reference purposes, the following operation details are included:

1. Open door and remove trays so water level indicator is clearly visible. Push operating valve handle down. This opens valve from reservoir to chamber. When water in chamber reaches level indicator, immediately lift operating valve handle to close valve.

2. Load autoclave, close door, swing door handle into slot in door locking bar and turn handles clockwise to snug door against gasket, but do not force. Push operating lever down until it rests on the door locking bar. If door is not sealed wisps of steam will escape as pressure is attained in the chamber. Tighten door handle slightly until escaping steam stops. Experience will soon enable the operator to attain a good seal without overtightening which can damage gasket and necessitate premature replacement.

3. Turn thermostat control knob to desired temperature, as predetermined by the procedure described in "D" of above section—"Preoperation Adjustments."

4. Snap toggle switch to "STER" position. This does not turn on heaters, but sets up the electrical circuit through the thermostat for the heat required for the sterilization cycle.

5. Set timer, which is also the "on-off" switch, for preheat cycle of 15 to 20 minutes. Actual time required to attain desired temperature depends upon electric power conditions. Bell will ring when cycle is completed.

6. Thermometer should now register selected temperature of 250° F or 270° F. If not, adjust thermostat knob and reset timer for additional preheating to attain selected (250° F or 270° F) temperature before sterilizing cycle is started.

7. When thermometer registers desired chamber temperature, set timer for sterilizing exposure cycle. Bell will ring and unit will automatically turn off when cycle is complete. Under ideal conditions of minimum electric power fluctuation some operators combine No. 5

and No. 7 by adding preheat time and exposure time to get a single timer setting for both cycles. This is not a recommended procedure, and if used, thermometer should be periodically checked at exact conclusion of preheat portion of cycle. If exposure period starts before the chamber temperature of 250° F or 270° F is reached, sterilization will not be accomplished.

8. When bell signals end of sterilizing cycle timer cuts off all electric power to unit. Lift operating valve handle to exhaust steam and residual water from chamber back into reservoir. When chamber temperature on thermometer registers 212° F, or less open door by turning handles to left (counterclockwise), swing to right away from locking bar, and pull door open with heat resistant knob in center of door locking bar. Open door about 1/4 inch. This is called "cracking" the door to provide a chimney-like draft to hasten the drying cycle.

9. Snap toggle switch to "DRY" and set timer for drying cycle which is normally 10 to 15 minutes. White and red pilot lights will glow indicating that drying heater and timer are on. Varying conditions may indicate a longer or shorter cycle to provide adequate drying of a particular load.

SPARE PARTS LIST

	115-Volt	230-Volt
Lamp, Pilot—Red	41083-091	455050-001
Lamp, Pilot—Clear	41084-091	33696-091
Heater	40894-091	40893-091
Thermostat, Temperature Control	33149-091	33149-091
Gasket, Door	40842-091	40842-091
Thermometer	13638-091	13638-091
Switch	45325-091	45325-091
Cutout, Low Water, Auto Reset *	150825-264	150825-264

When ordering parts, specify serial number located on sterilizer name plate and maintenance instruction number 41086.

*See Paragraph 6 in Chapter VI

With proper care and use, your 8816M Autoclave will be virtually trouble-free. However, should your autoclave need adjustment or service... call or write your authorized Amsco Surgical Supply Dealer or American Sterilizer Company. Amsco Servicemen are dispersed throughout the United States to provide you with prompt expert service when such service is not available from your dealer.

OPERATING INSTRUCTIONS — Units Shipped After 10/74

WARNING LIQUID STERILIZATION

TO PREVENT POSSIBLE PERSONAL INJURY OR PROPERTY DAMAGE RESULTING FROM BURSTING BOTTLES AND HOT FLUID, YOU MUST FOLLOW THE RECOMMENDED PROCEDURE LISTED BELOW:

RECOMMENDED PROCEDURE:

- USE ONLY VENTED CLOSURES — DO NOT USE SCREW CAPS OR RUBBER STOPPERS WITH CRIMPED SEAL.
- USE ONLY TYPE 1 BOROSILICATE (PYREX) GLASS BOTTLES — DO NOT USE ORDINARY GLASS JUGS OR ANY CONTAINER NOT DESIGNED FOR STERILIZATION.
- ONLY FOLLOW PROCEDURE FOR STERILIZING FLASKED SOLUTIONS.
- AT END OF CYCLE, OPEN STERILIZER DOOR, NO MORE THAN 1/4 INCH. WAIT 10 MINUTES BEFORE UNLOADING STERILIZER.
- DO NOT ALLOW HOT BOTTLES TO BE JOLTED. THIS CAN CAUSE HOT BOTTLE EXPLOSIONS! DO NOT MOVE BOTTLES IF ANY BOILING OR BUBBLING IS PRESENT.
- BOTTLES SHOULD BE COOL TO TOUCH BEFORE ATTEMPTING TO MOVE THEM FROM STERILIZER TO THE STORAGE AREA.

BEFORE OPERATING THIS EQUIPMENT

PRIOR TO DETERMINING THERMOSTAT CONTROL KNOB SETTINGS AND AT BEGINNING OF THE DAY

1. Be sure power cord plug of sterilizer is inserted into properly grounded electric service outlet.

IMPORTANT: Before plugging in sterilizer, check plate on back of unit for proper voltage.

2. Be sure controls are set as follows:

- a. Power switch is at OFF.
- b. Timer is at OFF.
- c. Selector switch is at STERILIZE.
- d. Operating valve handle is in upper position.
- e. Thermostat control knob is turned fully counterclockwise.

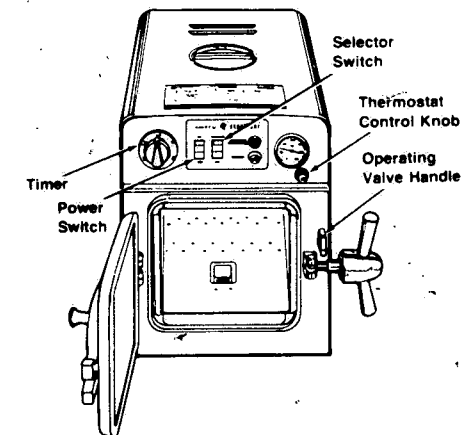


Figure 1

3. Remove water-reservoir cover and pour distilled or demineralized water into reservoir until water level is 1/2-inch below top of reservoir (reservoir holds approximately 3 quarts). Replace cover. Periodically check reservoir when sterilizer is being used; replenish water when necessary.

NOTE: Since excess water will drain from the overflow tube at the rear of the sterilizer, provide a device for either catching the water or directing it to a drain. Distilled or demineralized water is recommended to minimize scale formation in heating chamber.

THERMOSTAT CONTROL KNOB SETTINGS

Determine the thermostat control knob settings for 250 and 270 F by performing the following:

1. Open chamber door and remove trays. Pull operating valve handle down. When water in chamber reaches the Level Indicator, push operating valve up.
2. Close chamber door and lower operating valve handle to top of door locking bar.
3. Turn thermostat control knob for 250 or 270 F. (Turn knob clockwise until it hits the stop for 270 F. For 250 F, turn knob back 1/4 after hitting the stop.)
4. Press power switch to ON.
5. Set timer for 30 to 40 minutes. OPERATING TEMPERATURE and HEATING lights will go on.
6. When OPERATING TEMPERATURE light goes out, thermometer should read desired temperature (250 or 270 F). If it does not, turn knob slightly clockwise to increase temperature or counterclockwise to lower temperature. OPERATING TEMPERATURE light will come on when temperature is less than thermostat setting. Repeat this procedure until desired temperature (250 or 270 F) is achieved and maintained on thermometer.

NOTE: If thermometer fails to register 270 F with thermostat control knob at extreme clockwise position call an authorized serviceman to adjust the thermostat.

7. Note position of thermostat control knob. Then repeat procedure for the other temperature (250 or 270 F).

OPERATING INSTRUCTIONS

1. PREPARATION

Open chamber door and remove trays; water level indicator should be visible. Pull operating valve handle down; water flows into chamber. When water in chamber reaches the Level Indicator, push operating valve handle up; water stops flowing.

2. LOAD STERILIZER

Prepare load before inserting trays into chamber. (Do **not** sterilize Vaseline Petroleum jelly gauze in this unit.)

- a. **Instruments** — Only use trays supplied with sterilizer. Rinse instruments prior to placing them in trays.

- **Wrapped** — Place towel in bottom of tray. Wrap instruments in muslin and place them on tray.
- **Unwrapped** — Place instruments on tray.

NOTE: Muslin or towel cover facilitates drying and prevents contamination in transit.

- b. **Dressings, Small Packs and Rubber Tubes and Gloves** — Wrap them in muslin and place them loosely in the trays (furnished).

- c. **Empty Glassware, Syringes and Utensils** — Place empty containers (wrapped or unwrapped) on their sides or inverted in the sterilizer tray.

WARNING

TO PREVENT POSSIBLE PERSONAL INJURY RESULTING FROM BURSTING BOTTLES AND HOT FLUID, USE ONLY BOROSILICATE (PYREX) FLASKS WITH VENTED CLOSURES FOR STERILIZING LIQUIDS.

• SEE PAGE 3-5 FOR FURTHER INFORMATION.

- d. **Flasked Solutions** — Place 75 ml flasks, filled with solution, on trays in any order desired. When sterilizing 200 or 500 ml flasks, remove trays from chamber and place flasks inside chamber.

3. OPERATION

- a. Close chamber door by inserting door handle into slot in door locking bar and turning handle clockwise to snug (do not force) door against gasket. Then lower operating valve handle to top of door locking bar.

NOTE: If door is not sealed, wisps of steam will escape as chamber operating pressure is reached. Slowly tighten door handle until steam stops escaping.

- b. Turn thermostat control knob to desired temperature (250 F or 270 F). These positions were determined in "Thermostat Control Knob Settings."

- c. Press power switch to ON. Power is supplied to unit.

- d. Be sure selector switch is at STERILIZE. This sets up heating electric circuit through the thermostat; heaters are not energized.

- e. Set timer for 15 to 20 minutes. (Actual time required to attain desired temperature depends upon electric power conditions and load.) OPERATING TEMPERATURE and HEATING lights are energized.

NOTE: The sterilizer is equipped with a safety valve that will release when chamber reaches 278 F to 280 F (33 psi). If the safety valve releases, excess pressure is being released from the chamber. Safe operation of the sterilizer can be continued at 250 F thermostat control knob setting. Call authorized serviceman to make necessary adjustments.

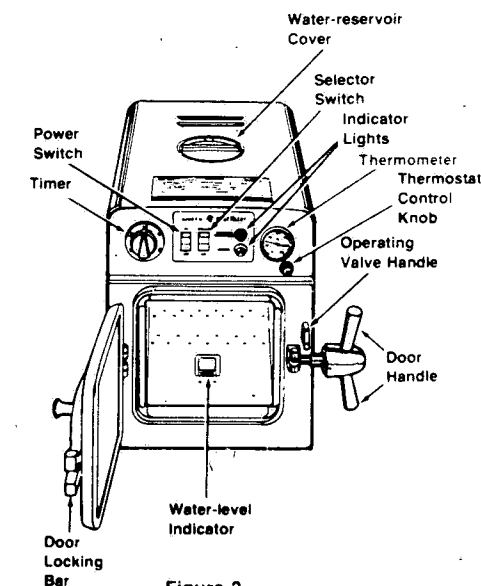


Figure 2

IMPORTANT: If both the operating and heating lights shut off during a sterilize cycle due to overheating, it is usually caused by insufficient water in the bottom of the chamber. Correct this situation as follows:

(1) Turn timer off and lift operating valve handle to exhaust chamber pressure.

(2) When chamber temperature reaches 212 F, open chamber door and allow chamber to cool for 10 minutes.

(3) Pull operating valve handle down until water in chamber reaches Level Indicator, then push handle up.

(4) Close door and lower operating valve handle to top of door locking bar.

(5) Set timer for 15 to 20 minutes. Continue the cycle.

f. When bell sounds indicating that preheating period has been completed, thermometer should show desired temperature and OPERATING TEMPERATURE light should be off. If desired temperature has not been attained, turn thermostat control knob clockwise to raise temperature or counterclockwise to lower and reset timer for 15 to 20 minutes.

g. When thermometer shows desired temperature, set timer for desired exposure period see Table on this page.

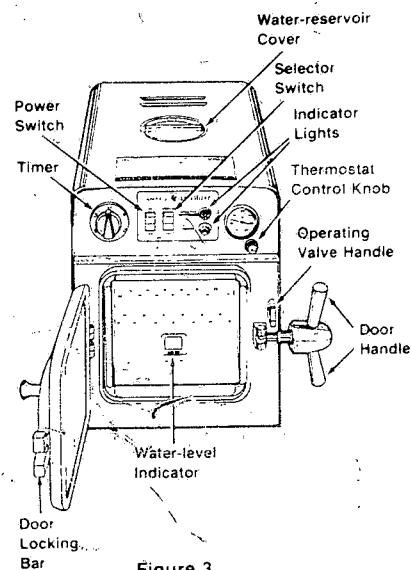


Figure 3

RECOMMENDED STERILIZATION EXPOSURE PERIODS

	250 F (121 C) Minutes	270 F (132 C) Minutes
Surgical instruments (unwrapped) without cover	15	3
Surgical instruments (unwrapped) with cover	20	10
Surgical instruments, wrapped	30	15
Dressings and small packs, wrapped	30	15
Utensils, syringes and empty glassware with cover	20	10
Rubber gloves, wrapped	20	
Rubber tubing, wrapped	30	15
75 ml Square-Pak flasks filled with solution	20	
200 ml Square-Pak flasks filled with solution	25	
500 ml Square-Pak flasks filled with solution	30	

NOTE: Slight thermometer fluctuations above setting is normal for thermostat cycling. However, if chamber temperature is not maintained within 4 F of desired temperature throughout the entire exposure period, perform procedures in "Thermostat Control Knob Settings." Call an authorized serviceman if this does not solve the problem. If thermometer fails to register 270 F with thermostat control knob at extreme clockwise position, operate sterilizer at 250 F until thermostat is adjusted by an authorized serviceman.

h. A bell will sound indicating that exposure period is completed. Sterilizer will turn off automatically.

i. Proceed as applicable:

(1) **Dry Goods:** Lift operating valve handle, then proceed to step "j".

(2) **Flasked solutions:** When thermometer shows below 212 F, lift operating valve handle. Wait at least 10 minutes, then open door approximately 1/4 inch with wing nut still engaged in door bar lock groove. After waiting at least 10 minutes, proceed to step "n".

NOTE: Lifting the handle exhausts steam and residual water from chamber back into reservoir.

j. When thermometer shows below 212 F, open door as follows:

(1) Turn door handle counterclockwise.

(2) Swing door handle to right away from locking bar.

(3) Pull door open approximately 1/4 inch, with heat resistant knob in center of door locking bar.

k. Press selector switch to DRY.

l. Set timer for 0 to 60 minutes. HEATING light and heaters will be energized.

NOTE: "Operating temp." and "Heating" lights will flash on and off during the dry phase.

m. A bell will sound indicating that drying period is completed.

n. Press power switch to OFF.

o. Completely open chamber door and remove load.

INSPECTING, CLEANING AND PREVENTIVE AND MINOR MAINTENANCE

CAUTION: Repairs, other than those described in these instructions, should be attempted ONLY by experienced mechanics fully acquainted with this equipment. Use of inexperienced, unqualified persons to work on the equipment or the installation of unauthorized parts could invalidate the warranty or result in costly damage.

WEEKLY

Inspecting Chamber. Inspect chamber and liner to determine if cleaning is necessary. To reduce the need for cleaning, use distilled or demineralized water to fill reservoir. If cleaning is necessary, follow chamber cleaning procedure under "As required."

QUARTERLY

Lubricating Chamber Door. Place a few drops of machine oil on hinge pin, lock bolt pin and threads on door handle.

AS REQUIRED

- 1. **Cleaning Chamber.** Remove knurled nut in center back of liner and slide liner forward toward door. Remove scale from liner and inner chamber.
- 2. **Door Gasket.** If gasket sticks to door frame, spray edge with fluorocarbon lubricant (AMSCO P-753377-091). When gasket no longer seals, replace gasket according to instructions included with replacement gasket or call serviceman.
- 3. **Emptying Reservoir.** Open petcock valve at back of unit using your fingers.

REPLACEMENT PARTS

When ordering replacement parts, please include the **part numbers** and **descriptions** listed subsequently. You must use only AMSCO authorized parts or warranty is voided.

To hasten service to you, include on your order the model, unit and serial numbers of this equipment.

Send your order directly to the supplier that serves your area. Your AMSCO representative will give you the address as well as ordering information regarding other parts.

DESCRIPTION	PART NUMBER
TIMER	33115-091
SWITCH, Selector	45325-091
SWITCH, ON-OFF	45325-091
THERMOMETER	13638-091
GASKET, Door	74374-091
THERMOSTAT, Temperature Control	33149-091
HEATER (120 V, 700 Watts)	93206-001
HEATER(120 V, 800 Watts)	40894-091
HEATER(240 V, 800 Watts)	40893-091
LIGHT INDICATOR, RED (120 V)	41083-091
LIGHT INDICATOR, RED(240 V)	455050-001
LIGHT INDICATOR, CLEAR (120 V)	41084-091
LIGHT INDICATOR, CLEAR (240 V)	33696-091
LAMP, Pilot (BOX OF 10)	764317-708
*CUTOUT, Low Water, Automatic Reset	150825-264

*For units with automatic reset low water cutout. For units with manual pushbutton reset on front panel, see Chapter VI, paragraph 6.

LIQUID STERILIZATION

Your AMSCO Sterilizer is designed to process liquids when borosilicate (Pyrex) flasks with vented closures are used.

Borosilicate (Pyrex) glass is recommended because it is a superior glass capable of containing higher pressures, of resisting thermal shock (such as cold air striking the hot glass), and of withstanding repeated handling.

Vented closures are recommended because, by design, they will prevent excess pressure by automatically venting a flask!

If other types of glass (such as flint glass) and non-venting (sealed) closures are used to sterilize liquids in your AMSCO Sterilizer, a potential dangerous condition, capable of causing personal injury and property damage, is created. As the liquid and residual air in a sealed flask are heated, they expand and create an internal pressure greater than the external pressure of the steam. With the weaker glass, a greater potential for bursting exists.

After the sterilization exposure, the chamber is exhausted slowly but it still exhausts more rapidly than the pressure within a sealed flask.

This pressure within the flask will exist until the residual air and the liquid have cooled (unlike a flask with a vented closure that prevents this excess pressure). Thus, the potential exists for the flask to burst and cause personal injury or property damage.

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CHAPTER IV

MAINTENANCE

INSPECTION AND ADJUSTMENT

1. Inspect visually for any missing or loose attaching parts. Tighten any loose screws or nuts; replace any missing parts. Inspect electrical connections for tightness. Tighten if necessary. Check electrical wiring for defective insulation. See Figures 4-1 and 4-2, 4-2A, 4-2B or 4-2C for wiring.

NOTE: Wires should not touch any metal surfaces. If necessary bend wires to clear all metal. Be sure no wires come in contact with jacket (Figure 7-1 or 7-1A).

2. Adherence to proven techniques assures positive patient protection, and is both easier and more efficient for operator. For full details of proven techniques of sterilization and load preparation refer to "Guide To Sterilization Techniques For Medical Offices." If you do not have a copy of this valuable handbook, write to your AMSCO dealer or Wyuth Laboratories, Radnor, Pa. 19087.

3. **Thermostat.** If a temperature of 270 F cannot be achieved adjust the thermostat as follows:

a. Be sure the control knob is turned clockwise as far as it will turn. (Fig. 7-1 or 7-1A)

1.) The white marker on the knob should be in a "3:00 o'clock" position.

2.) If the white marker is not in the "3:00 o'clock" position, loosen the knob's set screw and place the knob at the "3:00 o'clock" position.

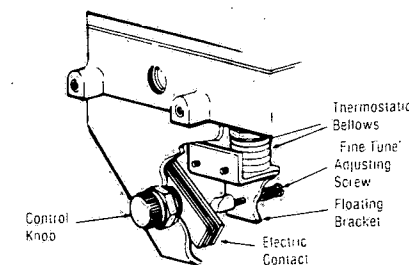
3.) Re-tighten the knob set screw.

WARNING: BE SURE UNIT IS UNPLUGGED BEFORE REMOVING COVER

b. Remove the sterilizer cover. (Fig. 7-1 or 7-1A).

NOTE: The jacket can be removed without water spillage by sliding the unit over the edge of a table and removing the (3) three screws on each side of the bottom edge.

c. Behind the control knob you will see the following:



NOTE: The thermostatic bellows expands as the sterilizer heats up. As the bellows expands, it pushes down on the floating bracket. The electric circuit is broken when the "fine-tune" adjusting screw touches the electric contact. The sterilizer heaters are shut off when the circuit is broken. As the sterilizer cools, the bellows contract and circuit is again completed and the heaters go back on. (This sequence continues throughout the cycle.)

d. Run a sterilizer cycle observing all the start-up procedures.

1.) If the sterilizer will not reach 270 F, the fine-tune adjusting screw is opening the circuit too soon.

2.) Back-off the screw by turning it counterclockwise, slightly. (Fig. 7-2)

NOTE: When the white light is on, power is to the heaters. Contact is broken when the white light goes off.

3.) Continue this procedure until 270 F is reached.

4.) Using the control knob on the front of the sterilizer, a 250 F setting is achieved when the white line is in the vertical (12:00 o'clock) position.

4. **Door Gasket.** Life of door gasket (Figure 7-1 or 7-1A) will be prolonged if door is not overtightened. Replace door gasket as follows:

a. Remove sterilizer door assembly by removing hinge pin.

b. Remove door crossarm by removing center post pin.

c. Place door assembly on frame of 2x4's so that center post extends into frame and door sits evenly on 2x4's.

d. Remove old gasket with pliers. Clean and spray groove with a dry release agent such as AMSCO FLUOROCARBON SPRAY (P-752870-091).

NOTE: Remove any sharp edges, such as burrs, from door groove.

e. Push gasket into groove at four corners, a short section at a time. (Make sure gasket seam is not placed in corner.) The gasket will appear too long. **DO NOT CUT IT.** Compress a short section of the gasket into groove, until entire length is inserted. (**NOTE:** Replacement gasket is sized to provide a TIGHT FIT.)

NOTE: Never use sharp tools to push gasket into groove.

f. After gasket has been installed, spray shell end ring with AMSCO FLUOROCARBON SPRAY (P-752870-091) to prevent gasket from sticking to it.

NOTE: Surfaces of the end ring should be sprayed once a week with fluorocarbon spray.

5. **Chamber and Liners.** To clean chamber and liner (Figure 7-1 or 7-1A), remove knob and slide liner forward through door. Clean scale from inner chamber and liner. Inspect weekly for excess scale and clean at regular intervals.

NOTE: The use of distilled or demineralized water will keep cleaning to a minimum.

6. **Reservoir.** To empty reservoir (Figure 7-1 or 7-1A) open shutoff needle valve (Figure 4-3).

7. **Lubrication.** An occasional drop of machine oil on hinge pin (Figure 7-1 or 7-1A), lock bolt pin and door handle eye-bolt assures smooth operation.

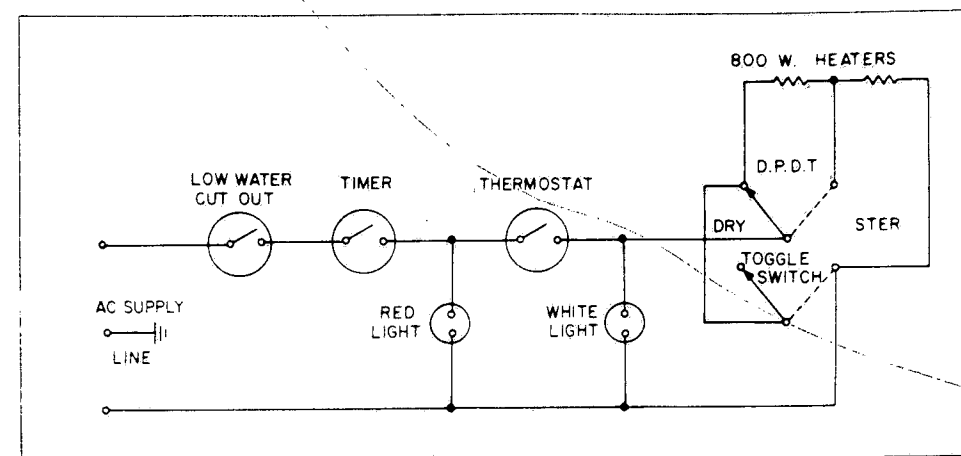


Figure 4-1. Schematic.

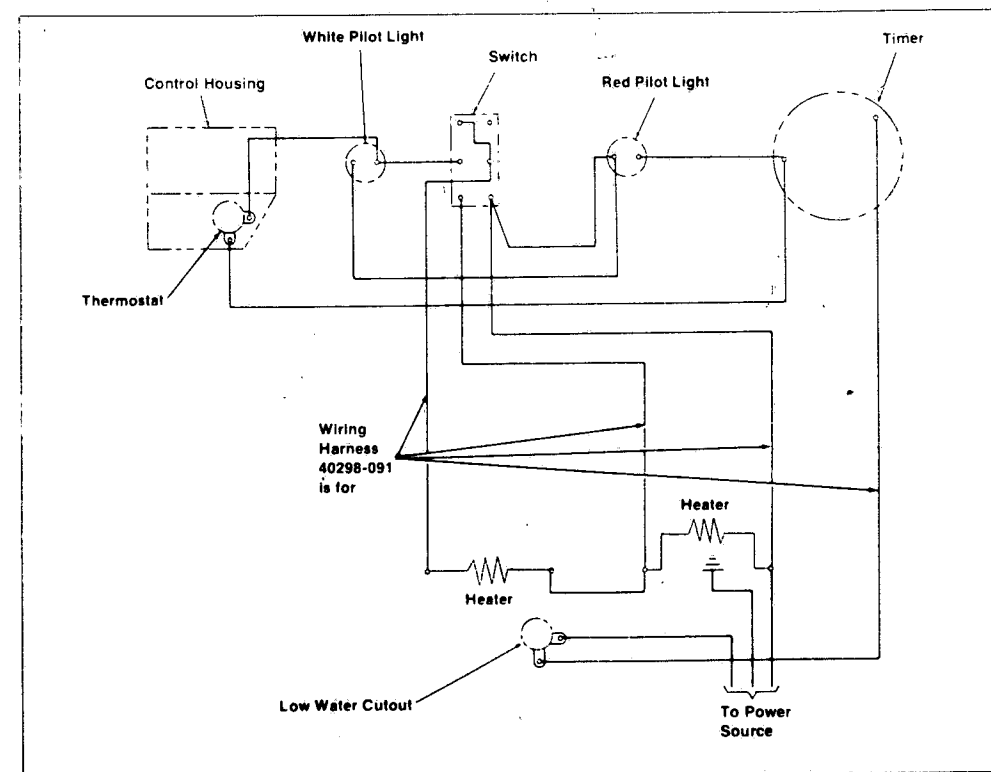


Figure 4-2. Wiring Diagram (For Units Shipped Before 10/74).

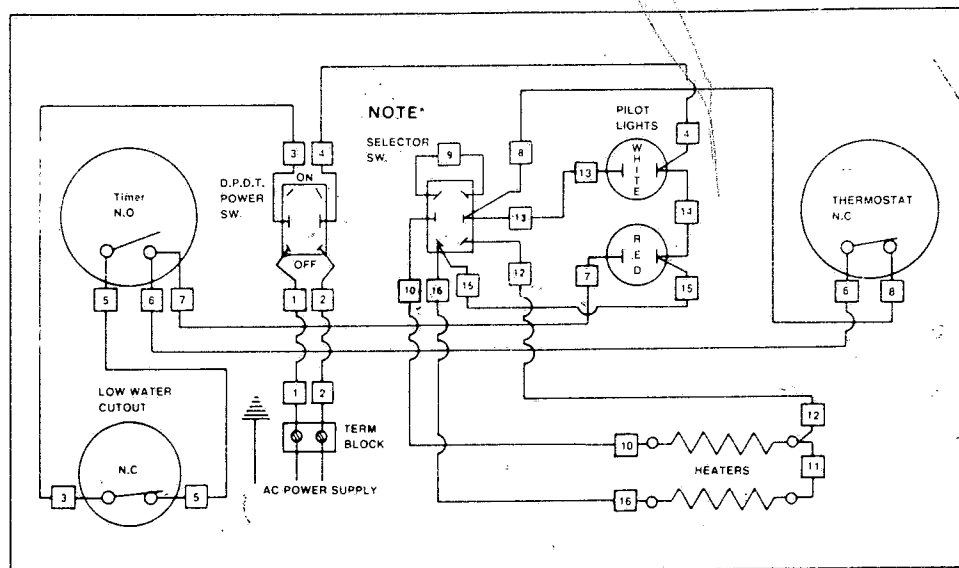


Figure 4-2A. Wiring Diagram (For Units Shipped After 10/74).
NOTE* (Correction to clarify this diagram only.
For all units shipped after 10/74)

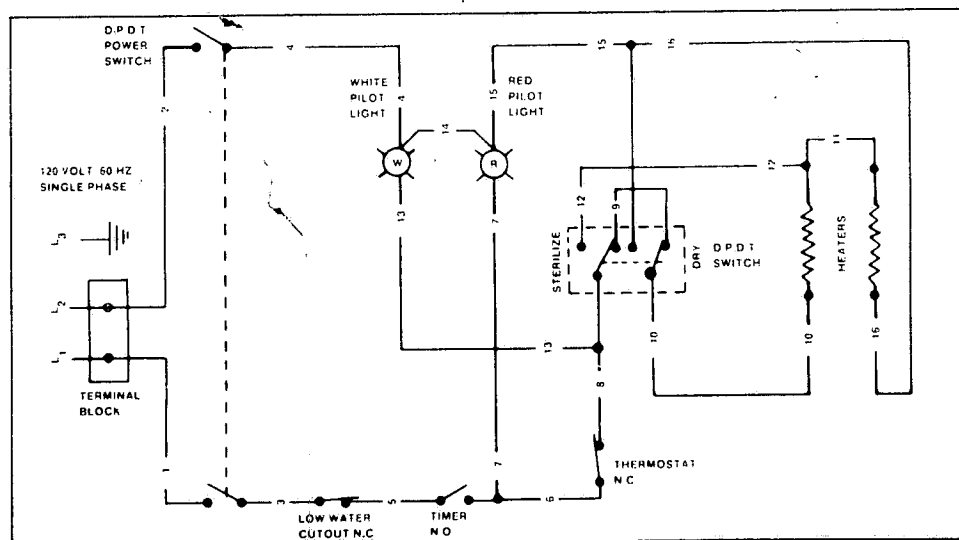


Figure 4-2B. Schematic (For Units Shipped After 10/74).

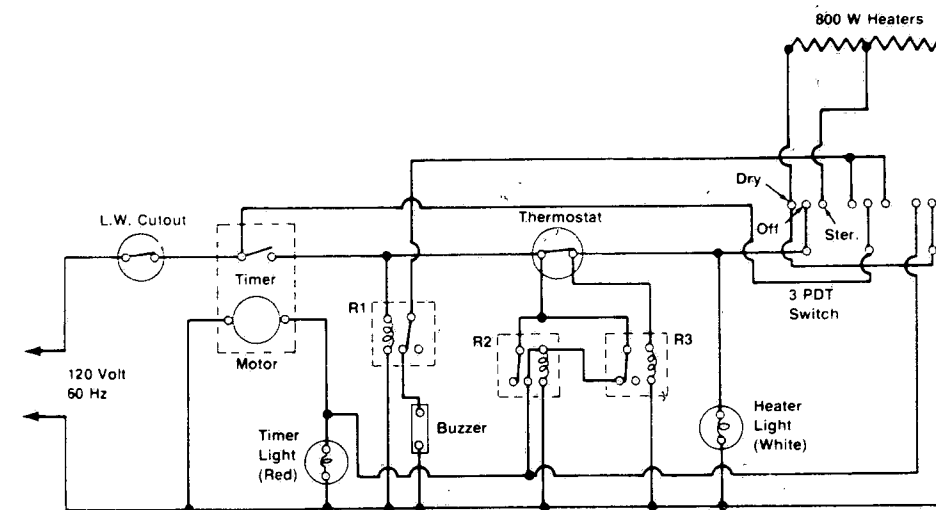


Figure 4-2C. Wiring Diagram (For Special Sterilizers Shipped to V.A. Hospitals).

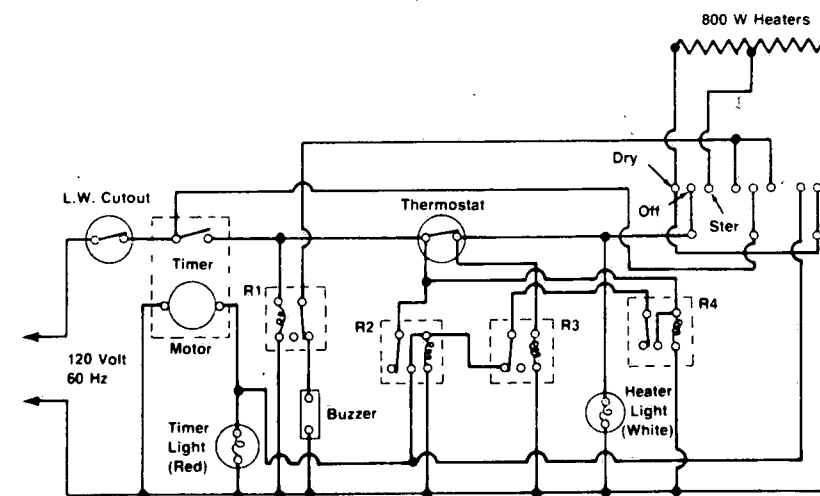


Figure 4-2D. Wiring Diagram (450999; For Sterilizers with Serial Numbers 1164MAC377J thru 1164MAC400J).

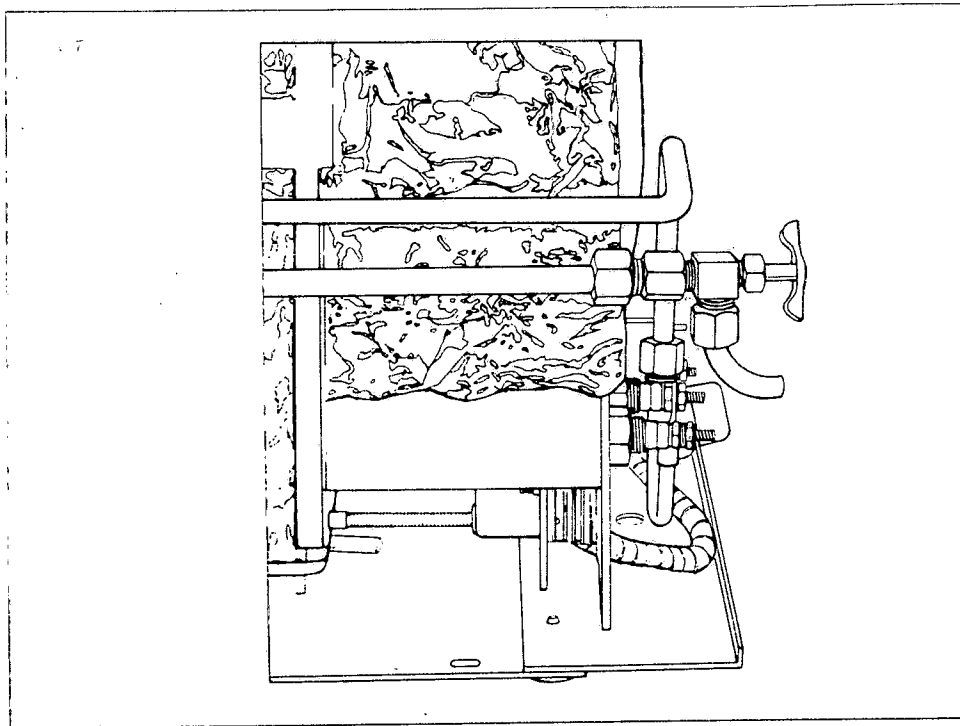


Figure 4-3. Shut-Off Needle Valve

CHAPTER V

TROUBLE SHOOTING

Trouble shooting can be analyzed by listing the trouble, probable causes, and corrective measure to be taken. As is the case with any such listing, there is always the possibility that improper operation is caused by conditions other than those listed.

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
Heaters do not work.	Defective heater (fig. 7-1 or 7-1A).	Replace with new heater (Chapter IV, Par. 5).
	Defective cord (fig. 7-1 or 7-1A).	Replace or repair.
	Loose or disconnected terminal.	Check and tighten all terminals.
	Defective wire.	Check insulation on all wires. Replace if defective.
Temperature does not rise to 270° F.	Defective timer (fig. 7-1 or 7-1A), thermostat (fig. 7-1 or 7-1A), or control housing (fig. 7-1 or 7-1A).	Check and replace with new as necessary.
	Thermostat needs readjusting.	Adjust thermostat (Chapter IV, Par. 4).
	Power source not supplying required voltage.	Check voltage at power source.
	Door gasket (fig. 7-1 or 7-1A) not sealing.	Replace door gasket (Chapter IV, Par. 5).
	Defective heater (fig. 7-1 or 7-1A).	Replace with new heater (Chapter IV, Par. 5).
System loses water.	Check insulation for heat loss.	Add insulation as required.
	Check tube and fittings.	Replace and tighten, as necessary.
Safety valve does not "Blow-off".	Safety valve (fig. 7-2) defective or dirty.	Repair and replace as necessary.
Red light does not glow.	Burned out bulb (fig. 7-1 or 7-1A).	Replace bulb.
	Defective cord (fig. 7-1 or 7-1A).	Replace or repair cord.
	No power to unit.	Check power source.
	Defective electrical connection.	Check all wiring.

TROUBLE	PROBABLE CAUSE	POSSIBLE REMEDY
White light does not glow.	Burned out bulb (fig. 7-1 or 7-1A). Defective cord (fig. 7-1 or 7-1A). Defective bulb socket (fig. 7-1 or 7-1A). Defective electrical connection to heaters. Defective heater (fig. 7-1 or 7-1A).	Replace bulb. Replace or repair cord. Replace bulb socket. Check all heater wiring. Replace heater.
Door does not lock tightly.	Door Gasket (fig. 7-1 or 7-1A) defective. Defective threads on eye-bolt (fig. 7-1 or 7-1A).	Replace gasket (Chapter IV, Par. 5). Replace eye-bolt.
No water in heater chamber.	Lines plugged. Defective control valve.	Remove lines and clean. Replace or repair control valve (Chapter VI, Par. 3).
Leaking door.	Improper gasket installation. Poor door alignment.	Make certain that gasket groove is clean and new gasket inserted without pinching or tearing of edges. Replace door assembly, door hinge assembly and handwheel assembly.
Burning material.	Operating valve not in proper position. Liner too close to the heating element. Burned out low water switch (fig. 7-1 or 7-1A).	Position valve body in order to create a 90° angle between valve handle and body. Re-adjust if necessary. Drill a 1/4" hole 5/8" below present hole in back of liner to raise liner above heater. Replace sterile dry switch and low water cutoff switch. Install warning decal.
Premature release of safety valve.	Faulty seat (fig. 7-2).	Install new teflon seat and tighten securely in position.

CHAPTER VI

COMPONENT REPLACEMENT

1. **Liner.** To remove liner (Figure 7-1 or 7-1A), remove nut and slide liner from unit.

2. **Handle.** When replacing old handwheel assembly, order new handwheel assembly (P-93037-001) and proceed as follows:

- Remove pin (item 36, Figure 7-1 or 7-1A) then remove old handwheel assembly.

- Install new assembly and replace pin.

3816M Autoclaves manufactured from 1961 through 1964, were provided with door bar lock hinges (38, Figure 7-1 or 34, Figure 7-1A) that had narrow slot to accept handwheel assembly eye bolt.

NOTE: The first three or four numbers of serial number indicate month and year that unit was manufactured (e.g., 263 MAC — manufactured February, 1963; 1263 MAC — December, 1963).

When replacing old handwheel assembly with new handwheel assembly (P-93037-001), a new door bar lock hinge (P-40852-056) is also required.

3. **Control Valve Assembly.** To replace control valve assembly, first drain all water from system. Remove jacket (Figure 7-1 or 7-1A), disconnect valve lever, and disconnect tubes at control valve assembly. Remove screws securing control valve and remove control valve. Replace control valve in reverse order of removal.

4. **Control Housing Assembly.** To replace control housing assembly (Figure 7-1 or 7-1A) first drain all water from system and remove jacket. Disconnect tube at

control housing assembly. Remove screws which secure control housing to front panel and remove control housing. Replace control housing in reverse order of removal.

5. **Heater.** To remove heater (Figure 7-1 or 7-1A) disconnect power source. Remove liner. Disconnect electrical wiring harness at heater terminal. Unscrew screws securing heater to shell (Figure 7-1 or 7-1A). Remove heater through front door opening. Replace heater in reverse order of removal.

CAUTION: Assemble the heater with copper asbestos washer on the inside of the shell.

6. **Low Water Cutout.** Sterilizers built before December, 1977, included Low Water Cutout (P-42292-091). This Low Water Cutout is no longer available.

When replacing Low Water Cutout on sterilizers Built before September, 1981, order Service Kit P-150825-265.

When replacing Low Water Cutout on sterilizers built after September, 1981, and before August 26, 1982, (Serial Number 02-23882-013) for 120 V units and August 25, 1982, (Serial Number 02-23782-013) for 240 V units, order Service Kit P-150825-266.

When replacing Low Water Cutout on sterilizers built after August 26, 1982, (Serial Number 02-23882-013) for 120 V units and August 25, 1982, (Serial Number 02-23782-013) for 240 V units, order Thermostat P-150825-264.

NOTE: Low Water Cutout P-150825-264 (290 F) is now being used replacing Low Water Cutout P-455086-001 (270 F), and P-150825-032 (290 F).

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CHAPTER VII

PARTS BREAKDOWN

When ordering parts, specify the serial number
located on the sterilizer name plate.

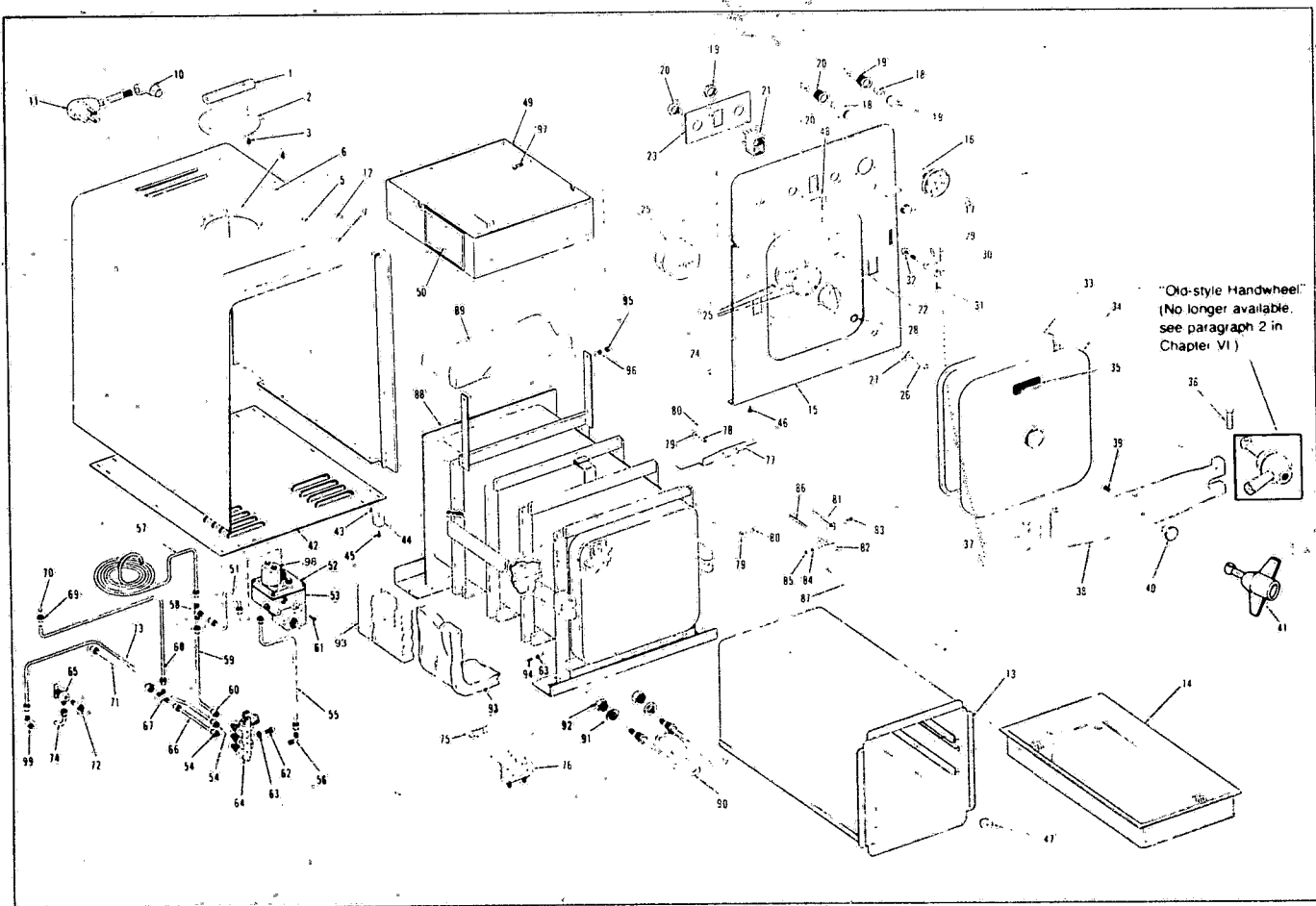


Figure 7-1. Model 8816M
Autoclave Office Pressure Sterilizer
(For Units Shipped Before 10/74).

Fig. & Index No.	Part No.	Description	Units Per Assy.
7-1		8816M Office Pressure Sterilizer (For Units Shipped Before 10/74)	
	43596-091	Cap Assembly (Consists of items 1 thru 3)	1
1	43597-091	• Handle	1
2	43575-061	• Cap	1
3	12534-061	• Screw, Round Hd.	2
4	40773	Plate, Instruction	1
5	43136-091	Insulator Tape, 1/4 inch Thick x 3/4 inch wide x 10-5/8 inch long	2
6	43135-091	Insulator Tape, 1/4 inch thick x 3/4 inch wide x 8-7/16 inch long	2
7	461634-001	Plate, Operating Instructions	1
8,9		Not Used	
	43137-091	Bushing	1
11	56399-005	Cord Assembly, 15 Amp, 120 Volts	1
	461633-001	Cord Assembly, 15 Amp, 240 Volts	1
12	41050-061	Jacket Assembly	1
13	41042-061	Liner Assembly	1
14	40690-061	Tray	2
15	NLA	Front Panel Assembly	1
16	13638-091	Thermometer	1
17	44686-091	Knob, Control	1
18	764317-708	Lamp, Pilot (Box of 10)	1
19	41084-091	Light, Pilot, Clear, 120 Volts (Assy.)	1
	33696-091	Light, Pilot, Clear, 240 Volts (Assy.)	1
20	41083-091	Light, Pilot, Red, 120 Volts (Assy.)	1
	455050-001	Light, Pilot, Red, 240 Volts (Assy.)	1
21	45325-091	Switch, DPDT, Single Actuator, 15 Amp, 120 Volts	1
22	44645-091	Decal	1
23	45489-061	Plate, Mounting	1
24	44654-091	Knob, Timer	1
25	33115-091	Timer	1
26	33145-031	Button, Reset	1
27	33140-051	Bushing, 5/8 inch dia. x 11 1/8 inch long	1
28	39377-091	Ring, Retainer	1
29	40864-091	Handle	1
30	40870-056	Lever	1
31	41923-041	Screw, Machine, Oval Hd., 6-32 x 1 1/2 inch	2
32	3065-041	Nut, Hexagon, 1/4-20	1
33	74374-091	Gasket	1
34	40845-032	Door Assembly	1
35	33114-091	Plate, Name	1
36	83618-001	Pin	1
37	83618-002	Pin	2
38	40852-056	Hinge, Door Lock	1
39	79764-001	Screw, Sems 10-32 x 9/16 inch	1
40	44668-001	Knob	1
41		Hand Wheel Assembly (See paragraph 2 in Chapter VI)	
42	40885-091	Cover	1
43	35544-045	Screw, Self Tapping, 6 x 1 1/2 inch	10
44	33168-091	Feet, 1/4 O.D. x 9/16 inch high	4
45	3986-041	Screw, Round Hd., Brass, 8-32 x 1 1/2 inch	4
46	20823-061	Screw, Self Tapping, 6 x 1 1/4 inch	12

Fig. & Index No.	Part No.	Description	Units Per Assy.
7-1-47	41022-042	Knob, Liner Retainer	1
-48	47622-091	Label, Warning	1
-49	461637-001	Pan Assembly	1
-50	40892-091	Sticker, Wiring Diagram	1
-51	40923-091	Tube	1
-52	3439-091	Plug, Pipe, 1/8 inch N.P.T.	1
-53	33164-091	Control Housing Assembly (See Figure 7-2 for details)	1
-54	22711-042	Fitting, Compression, 5/16 inch O.D.T. x 1/4 inch N.P.T.	3
-55	40928-091	Tube	1
-56	6750-091	Elbow, Compression, 5/16 inch O.D.T. x 1/8 inch N.P.T.	2
-57	40930-042	Tube	1
-58	43200-091	Tee, Compression, 1/4 inch O.D.T.	1
-59	43199-091	Tube	1
-60	19514-091	Fitting, Compression, 1/4 inch O.D.T. x 1/8 inch N.P.T.	1
-61	4617-041	Screw, Flat Hd., 8-32 x 3/8 inch	2
-62	9308-091	Screw, Fillister Hd., 10-32 x 1/2 inch	2
-63	10863-091	Washer, Shakeproof, 10-32	5
-64	33245-091	Control Valve Assembly (See Figure 7-3 for details)	1
-65	40931-091	Tube	1
-66	40921-091	Tube	1
-67	39227-091	Tee, Compression	1
-68	40932-091	Tube	1
-69	25365-091	Sleeve, Compression, 5/16 inch O.D.T.	1
-70	40881-091	Nut, Compression, 5/16 inch O.D.T.	1
-71	40929-091	Tube	1
-72	40891-091	Fitting, Compression, Female, 5/16 inch O.D.T. x 2/8 inch N.P.T.	1
-73	6758-044	Valve, Shut-Off, 5/16 inch O.D.T. x 1/8 inch N.P.T.	1
-74	454191-001	Tube	1
-75	150825-264	Low Water Cutout Automatic Reset (See paragraph 6 in Chapter VI)	1
-76	56399-022	Channel Assembly	1
	56399-020	• Channel	1
	56399-021	• Bracket, Sensor	1
	12529-061	• Screw, Truss Head #6-32 x 1/4	2
	5469-041	• Washer, Flat #6	2
	34518-061	• Screw, Set #8-32 x 1/4	2
	150828-080	• Spring	2
	3964-041	• Screw, Round Head #6-32 x 5/8	2
-77*	56399-019	Lever, Reset	1
-78*	150828-079	Pin, Pivot	1
-79*	5469-041	Washer, Flat #6	2
-80*	45301-091	Ring, Retaining	2
-81*	56399-018	Actuator, Lever	1
-82*	56399-017	Rod, Reset Assembly	1
-83*	12531-061	Screw	1
-84*	91146-061	Washer	1
-85*	8644-061	Nut	1
-86*	33143-091	Spring, Reset	1
-87*	150828-078	Tube	1
-88	40862-091	Shell Assembly	1
-89	43201-091	Insulation	3
-90	40894-091	Heater Assembly, 120 Volts **	2
	40893-091	Heater Assembly, 240 Volts	2
-91	74093-091	• Washer	4
-92	75241-042	• Nut	4

**NOTE: Includes 91 and 92

Fig. & Index No.	Part No.	Description	Units Per Assy.
7-1 -93	43201-091	Insulation	5
-94	15361-042	Screw, Machine, round Hd., 10-32 x 1/4 inch	2
-95	13794-041	Nut, Hex, 4-40	2
-96	30743-045	Lockwasher No. 4	2
-97	13334-091	Screw, Machine, Round Hd., 4-40 x 3/8 inch	2
-98	33166-091	Bolt	2
	32118-001	Adapter, Terminal (Not Shown)	1
	40298-091	Wiring Harness-See Fig. 4-2	1
	NLA	Adapter, Double (Not Shown)	2
-99	6750-091	Fitting Comp. Ell 5 16 ODT x 1/8 NPT	1

*For units with manual reset low water cutout.

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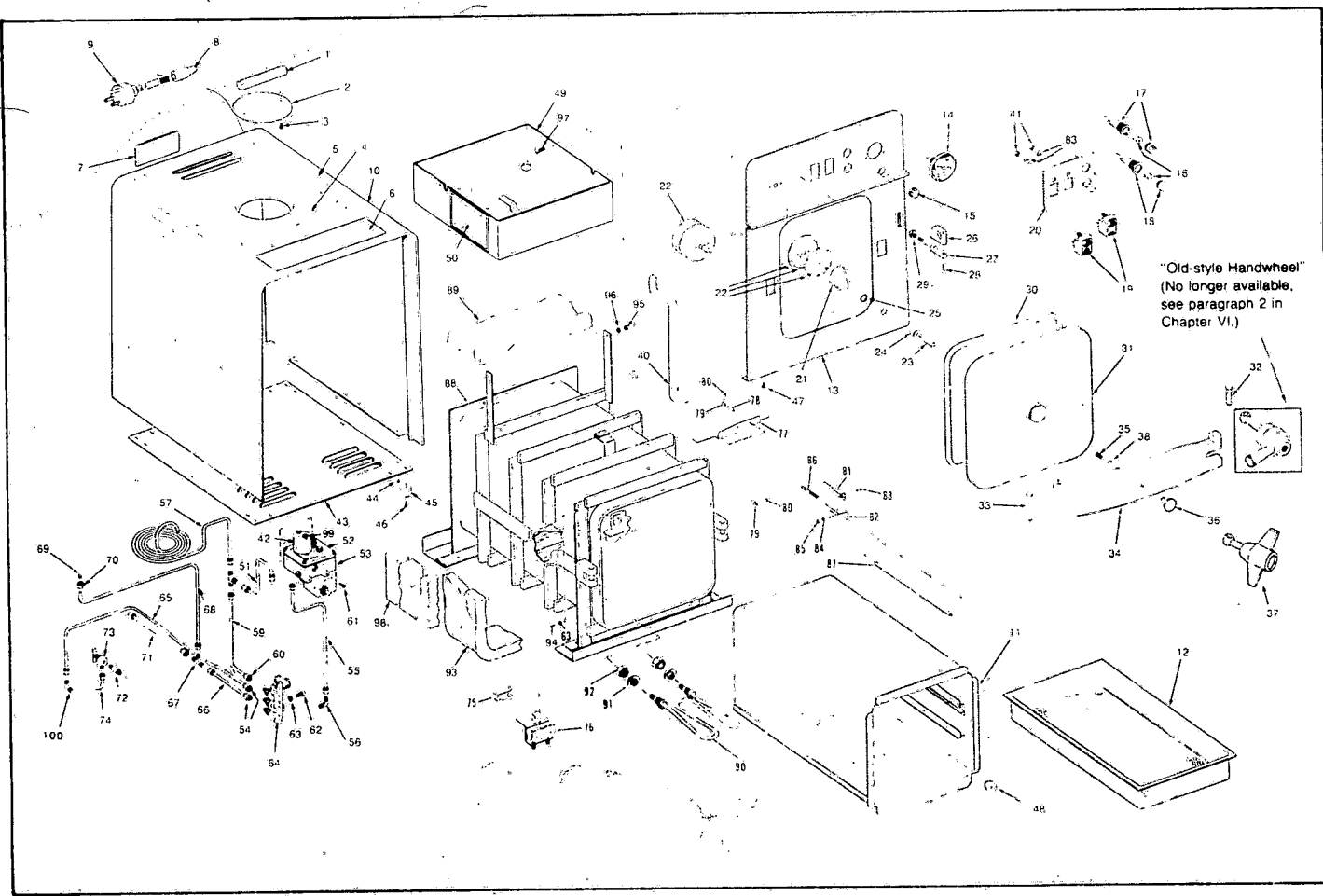


Figure 7-1A. Model 8816M Autoclave Office Pressure Sterilizer (For Units Shipped After 10/74).

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Fig. & Index No.	Part No.	Description	Units Per Assy.
7-1A-		8816M Office Pressure Sterilizer (For Units Shipped After 10/74)	1
	43596-091	Cap Assembly (Consists of items 1 thru 3)	1
-1	43597-091	• Handle	1
-2	43575-061	• Cap	1
-3	12534-061	• Screw, Round Hd.	2
-4	43136-091	Insulator Tape, 1/4 inch thick x 3 4 inch wide x 10-5/8 inch long	2
-5	43135-091	Insulator Tape, 1/4 inch thick x 3 4 inch wide x 8-7/16 inch long	2
-6	461634-001	Decal, Operating Instructions	1
-7	150369-001	Decal, Caution	1
-8	30627-091	Bushing	1
-9	56399-005	Cord Assembly, 15 Amp, 120 Volts	1
	461633-001	Cord Assembly, 15 Amp, 240 Volts	1
-10	41050-061	Jacket Assembly	1
-11	41042-061	Liner Assembly	1
-12	40890-061	Tray	2
-13	461629-001	Front Panel Assembly	1
-14	13638-091	Thermometer	1
-15	44686-091	Knob, Control	1
-16	NLA	Lamp, Pilot (SUB: 764317-708 Box of 10)	1
-17	41084-091	Light, Pilot, Clear, 120 Volts (Assy.)	1
	33696-091	Light, Pilot, Clear, 240 Volts (Assy.)	1
-18	41083-091	Light, Pilot, Red, 120 Volts (Assy.)	1
	455050-001	Light, Pilot, Red, 240 Volts (Assy.)	1
-19	45325-091	Switch, DPDT, Single Actuator, 15 Amp, 120 Volts	2
-20	461632-001	Plate, Control	1
-21	44654-091	Knob, Timer	1
-22	33115-091	Timer	1
-23	33145-031	Button, Reset	1
-24	33140-051	Bushing, 5/8 inch dia, x 11/16 inch long	1
-25	42639-091	Ring, Retainer	1
-26	40864-091	Handle	1
-27	40870-056	Lever	1
-28	41923-041	Screw, Machine, Oval Hd., 6-32 x 1 2 inch	2
-29	3065-041	Nut, Hexagon, 1/4-20	1
-30	74374-091	Gasket	1
-31	40845-032	Door Assembly	1
-32	83618-001	Pin	1
-33	83618-002	Pin	2
-34	40852-056	Hinge, Door Lock	1
-35	79764-001	Screw, Flat Head Machine, 10-32 x 9 16	1
-36	44668-001	Knob	1
-37	93037-001	Hand Wheel Assembly (See paragraph 2 in Chapter VI)	1
-38	79763-001	Lockwasher, #10	1
-39		Not Used	
-40	461630-001	Tube, Drain	1
-41	454273-001	Nut, Round Slotted, 6-32	2
-42	33154-091	Valve, Safety	1
-43	40885-091	Cover	1
-44	35544-045	Screw, Self Tapping, 6 x 1 2 inch	10

Fig. & Index No.	Part No.	Description	Units Per Assy.
7-1A-45	33168-091	Feet, 1/4 O.D. x 9/16 inch high	4
-46	3986-041	Screw, Round Hd., Brass, 8-32 x 1/2 inch	4
-47	20823-061	Screw, Self Tapping, 6 x 1/4 inch	12
-48	41022-042	Knob, Liner Retainer	1
-49	461637-001	Water Pan Assembly	1
-50	461631-001	Sticker, Wiring Diagram	1
-51	40923-091	Tube	1
-52	3439-091	Plug, Pipe, 1/8 inch N.P.T.	1
-53	33164-091	Control Housing Assembly (See Figure 7-2 for details)	1
-54	22711-042	Fitting, Compression, 5/16 inch O.D.T. x 1/4 inch N.P.T.	3
-55	40928-091	Tube	1
-56	6750-091	Elbow, Compression, 5/16 inch O.D.T. x 1/8 inch N.P.T.	2
-57	40930-042	Tube	1
-58	43200-091	Tee, Compression, 1/4 inch O.D.T.	1
-59	43199-091	Tube	1
-60	19514-091	Fitting, Compression, 1/4 inch O.D.T. x 1/8 inch N.P.T.	1
-61	4617-041	Screw, Flat Hd., 8-32 x 3/8 inch	2
-62	9308-091	Screw, Fillister Hd., 10-32 x 1/2 inch	2
-63	10863-091	Washer, Shakeproof, 10-32	5
-64	33245-091	Control Valve Assembly (See Figure 7-3 for details)	1
-65	40931-091	Tube	1
-66	40921-091	Tube	1
-67	39227-091	Tee, Compression	1
-68	40932-091	Tube	1
-69	25365-091	Sleeve, Compression, 5/16 inch O.D.T.	1
-70	40881-091	Nut, Compression, 5/16 inch O.D.T.	1
-71	40929-091	Tube	1
-72	40891-091	Fitting, Compression, Female, 5/16 inch O.D.T. x 1/8 inch N.P.T.	1
-73	6758-044	Valve, Shut-Off, 5/16 inch O.D.T. x 1/8 inch N.P.T.	1
-74	454191-001	Tube	1
-75	150825-264	Low Water Cutout Automatic Reset (See paragraph 6 in Chapter VI)	1
-76	56399-022	Channel Assembly	1
	56399-020	• Channel	1
	56399-021	• Bracket, Sensor	1
	12529-061	• Screw, Truss Head 86-32 x 1/4	2
	5469-041	• Washer, Flat 86	2
	34518-061	• Screw, Set 88-32 x 1/4	2
	150828-080	• Spring	2
	3964-041	• Screw, Round Head 86-32 x 5/8	2
-77*	56399-019	Lever, Reset	1
-78*	150828-079	Pin, Pivot	1
-79*	5469-041	Washer, Flat 86	2
-80*	45301-091	Ring, Retaining	2
-81*	56399-018	Actuator, Lever	1
-82*	56399-017	Rod, Reset Assembly	1
-83*	12531-061	Screw	1
-84*	91146-061	Washer	1
-85*	8644-061	Nut	1
-86*	33143-091	Spring, Reset	1
-87*	150828-078	Tube	1
-88	40862-091	Shell Assembly	2
-89	43201-091	Insulation (Replaces 40300-091)	4

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Fig. & Index No.	Part No.	Description	Units Per Assy.
7-1A-90	40894-091	Heater Assembly, 120 Volts, 800 Watts**	2
	93206-091	Heater Assembly, 120 Volts, 700 Watts	2
-91	74093-091	• Washer	4
-92	75241-042	• Nut	4
-93	40893-091	Heater Assembly, 240 Volts, 800 Watts	2
-94	43201-091	Insulation	3
-95	15361-042	Screw, Machine, Round Hd., 10-32 x 1/4 inch	2
-96	13794-041	Nut, Hex, 4-40	2
-97	30743-045	Lockwasher No. 4	2
-98	13334-091	Screw, Machine, Round Hd., 4-40 x 3/8 inch	2
	43201-091	Insulation	2
	32118-091	Adapter, Terminal Variable Intensity Control (Not Shown)	1
	466690-001	Wire Harness (Not Shown)	1
-99	33166-091	Bolt	2
-100	6750-091	Fitting Comp. EH 5 16 ODT x 1 8 NPT	1

**NOTE: Includes 91 and 92

* For units with manual reset low water cutout.

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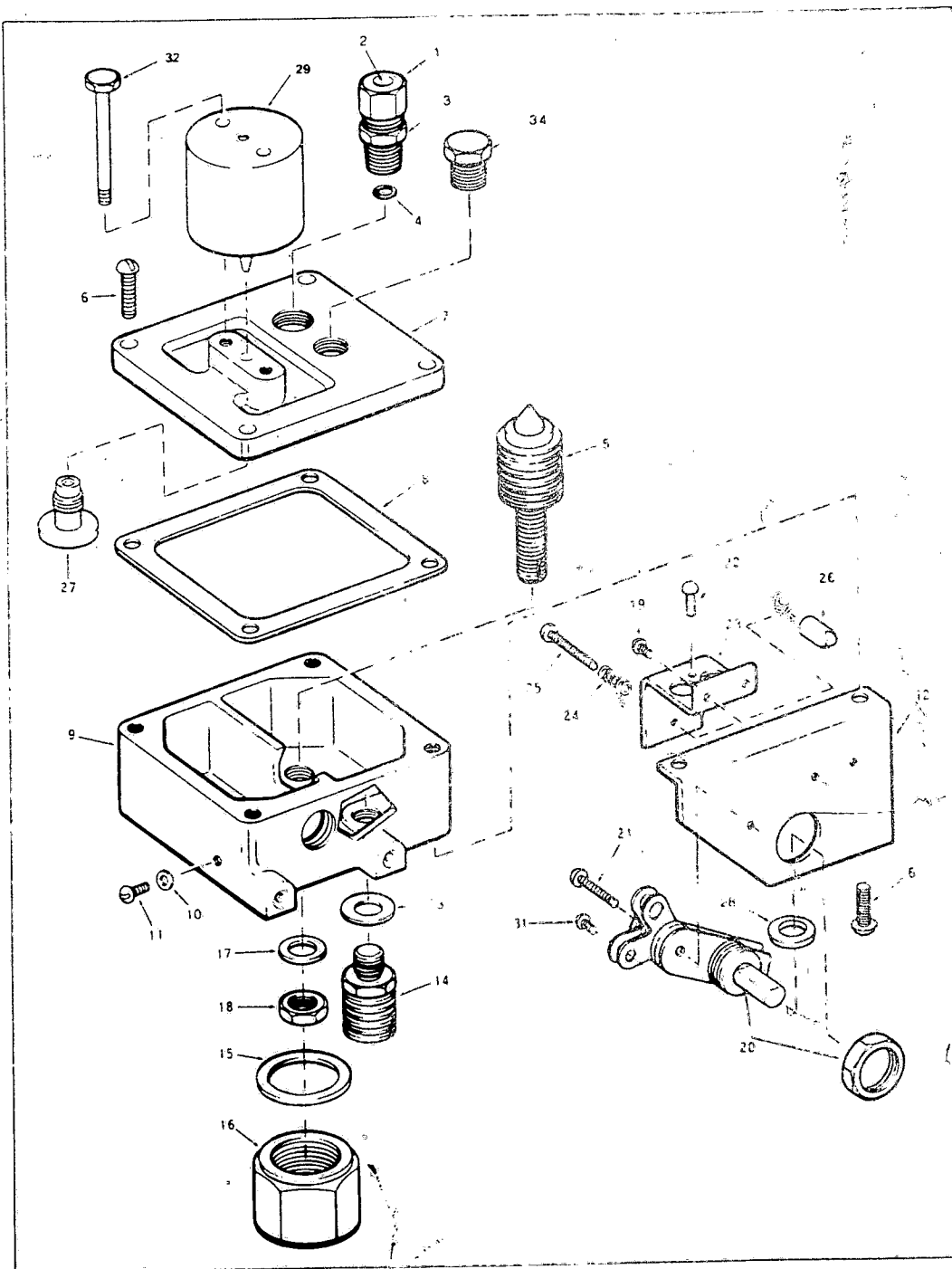
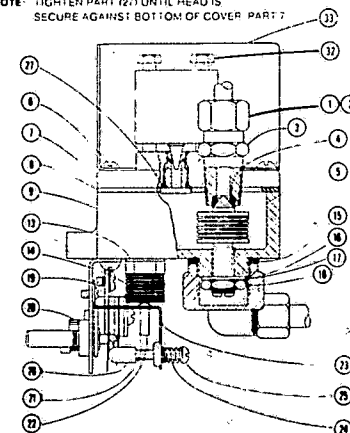


Figure 7-2. Control Housing Assembly.
(See Figure 7-2-A also)

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Fig. & Index No.	Part No.	Description	Units Per Assy
7-2-	33164-091	Control Housing Assembly	Ref.
1	30673-091	Nut	1
2	25364-091	Ferrule	1
3	33156-091	Fitting, Relief	1
4	33155-091	O-Ring, 3/16 inch I.D. x 5/16 inch O.D. x 1/16 inch	1
5	33158-091	Bellows	1
6	9298-041	Screw, Round Hd., Brass, 10-32	6
7	33161-091	Cover	1
8	33153-091	Gasket	1
9	33163-091	Housing	1
10	33227-091	Gasket	1
11	3967-041	Screw, Round Hd., Brass, 8-32 x 1/4 inch	1
12	33148-061	Bracket	1
13	33150-091	Gasket	1
14	33151-091	Bellows	1
15	33170-091	Gasket	1
16	33147-091	Nut	1
17	41232-091	Washer	1
18	3045-091	Nut, Hex Hd., Brass, 5/16-13	1
19	3982-041	Screw, Round Hd., Brass, 4-36 x 3/16 inch	2
20	33149-091	Thermostat, Temperature Control	1
21	3987-041	Screw, Round Hd., Brass, 8-32 x 3/4 inch	1
22	18856-091	Rivet	1
23	33152-042	Bracket	1
24	12461-042	Spring	1
25	3966-041	Screw, Round Hd., Brass, 6-32 x 1-1/4 inch	1
26	33228-091	Rod	1
27	37103-091	Seat	1
28	30616-091	Washer	1
29	33154-091	Valve, Safety (For units that do not require A.S.M.E. approval)	1
30	NLA	Kit, Control Housing Repair (Not Shown)	
31	462328-204	Screw, 6-32 x 3/16	2
32	33166-091	Bolt, Safety Valve	2
33	454196-001	GUARD (See Figure 7-2-A)	1
34	3439-091	Plug, Pipe, 1/8 inch (See Figure 7-2)	1

NOTE: TIGHTEN PART (21) UNTIL HEAD IS
SECURE AGAINST BOTTOM OF COVER, PART 7.



Only Use Safety Valve
(29) in States That
Do Not Require
ASME Approval

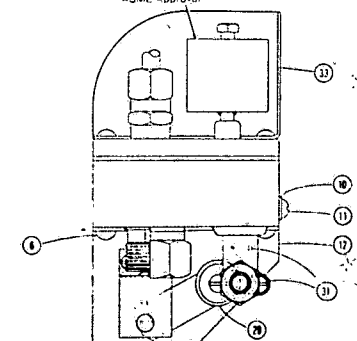


Figure 7-2-A CONTROL HOUSING ASSEMBLY
(For Reference Only)

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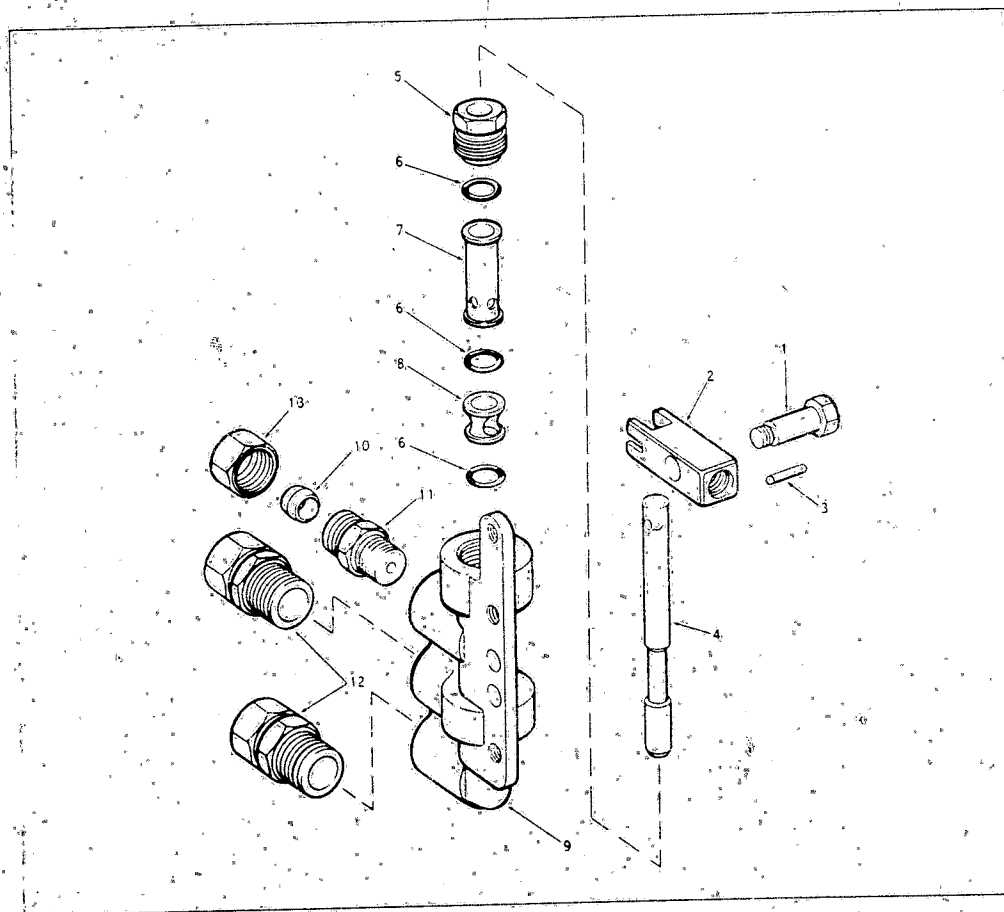


Figure 7-3. Control Valve Assembly

Fig. & Index No.	Part No.	Description	Units Per Assy
7-3	33245-091	Control Valve Assembly	Ref
-1	33237-091	Screw	1
-2	33238-042	Arm	1
-3	33236-061	Pin, Groove, 3/32 inch	1
-4	33242-061	Valve	1
-5	33243-091	Nut	1
-6	33241-091	O-Ring, 1 4-inch I.D. x 3/8 inch O.D. x 1/16 inch Thick	3
-7	33240-091	Port - Upper	1
-8	33239-091	Port - Lower	1
-9	33244-091	Body	1
-10	33638-091	Fitting, Restrictor	1
-11	25364-091	Sleeve, 1 4 inch O.D.	1
-12	22711-042	Fitting, Compression, 5/16 inch O.D. T. x 1/4 inch N. P. T.	2
-13	30673-091	Nut, Compression Fitting, 1/4 inch O.D.T. x 7/16-24	1

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SUGGESTED SPARE PARTS LIST

	120 Volt	240 Volt
Lamp, Pilot — Red	41083-091	455050-001
Lamp, Pilot — Clear	41084-091	33696-091
Heater, 700 Watt	93206-001	
Heater, 800 Watt	40894-091	40893-091
Gasket, Door	74374-091	74374-091
Thermometer	13638-091	13638-091
Switch	45325-091	45325-091
Cutout, Low Water	150825-264*	150825-264*
Thermostat, Temperature Control	33149-091	33149-091

*For Units with Automatic Reset Cutout (See paragraph 6 in Chapter VI)

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**AMSCO
SERVICE**

**OFFICE AUTOCLAVE
MODEL 8816 M
P-750847-002**

3/86

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