

WaterPro RO

Models 90750, 90751, 90750-02, 90751-02

INSTRUCTION MANUAL

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Components Shipped

Carefully check the contents of the carton for damage that might have occurred in transit. Do not discard the carton or packaging material until all components have been checked against the following list and the equipment has been installed and tested:

As shipped, the carton should contain the following:

Part Number	Description
90750	WaterPro RO - wall mounted
or	
90751	WaterPro RO - bench top
or	
90750-02	230 V WaterPro RO - wall mounted
or	
90751-02	230 V WaterPro RO - bench top
90813	Manual
90447	Spanner wrench
90822	Spanner wrench - Large
90790	Template
10503-06	Guide to Water Purification

INTRODUCTION

General Description

The Labconco WaterPro RO systems, models 90750, 90751, 90750-02 and 90751-02 produce reverse osmosis water upon demand. The units are equipped with a 6 liter reservoir as standard.

The unit may be interfaced with a Labconco WaterPro Polishing Station to directly feed the Polishing Station with RO purified water. The unit may also be connected to a Labconco Glassware Washer to dispense RO purified water for the final rinse of pertinent glassware used in the laboratory.

An optional dispensing gun is available to easily connect in-field and dispense up to 6 feet away from the unit.

The units are to be used either on a counter top bench surface or mounted on a wall shown in Figure 1.

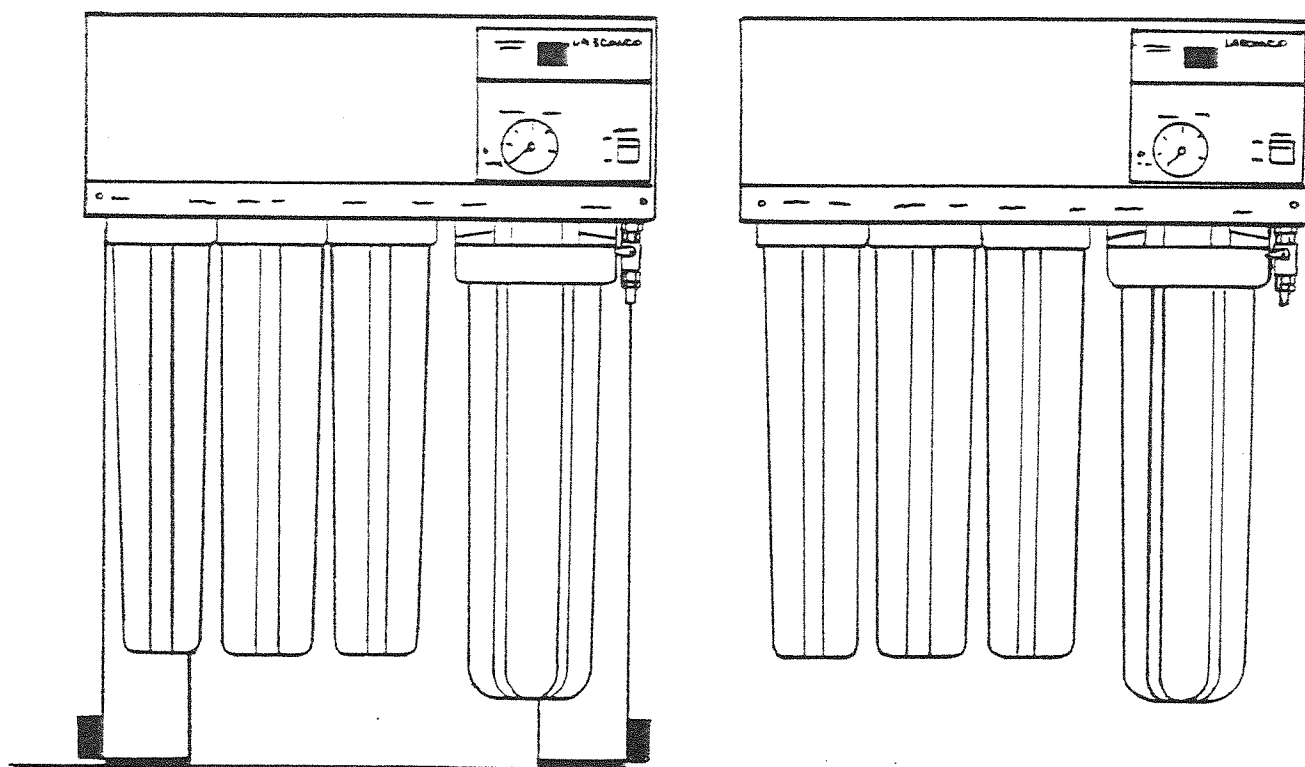


Figure 1

Performance

Labconco's RO system dispenses 5 liters of RO water between 1 minute 10 seconds and 1 minute 30 seconds from the reservoir when the valve is initially opened and up to 1000 ml per minute directly from the RO, depending on water inlet temperature, after the reservoir has been depleted. The unit removes 90 to 99% of ions and organics. The purity is read in conductivity (microsiemen) displayed digitally.

The unit accepts both softened and tap feed water. Softened water is preferred for extended membrane life. Softened water is required when the LSI (Langlier Saturation Index) is positive. This is determined through the Water ProFile test from Labconco. The water is pretreated with activated carbon and particulate filters prior to the reverse osmosis operation and storage.

Labconco's RO module is preset in-house to 120 psi operating back pressure for the RO membrane to give optimal conversion rate for long membrane life.

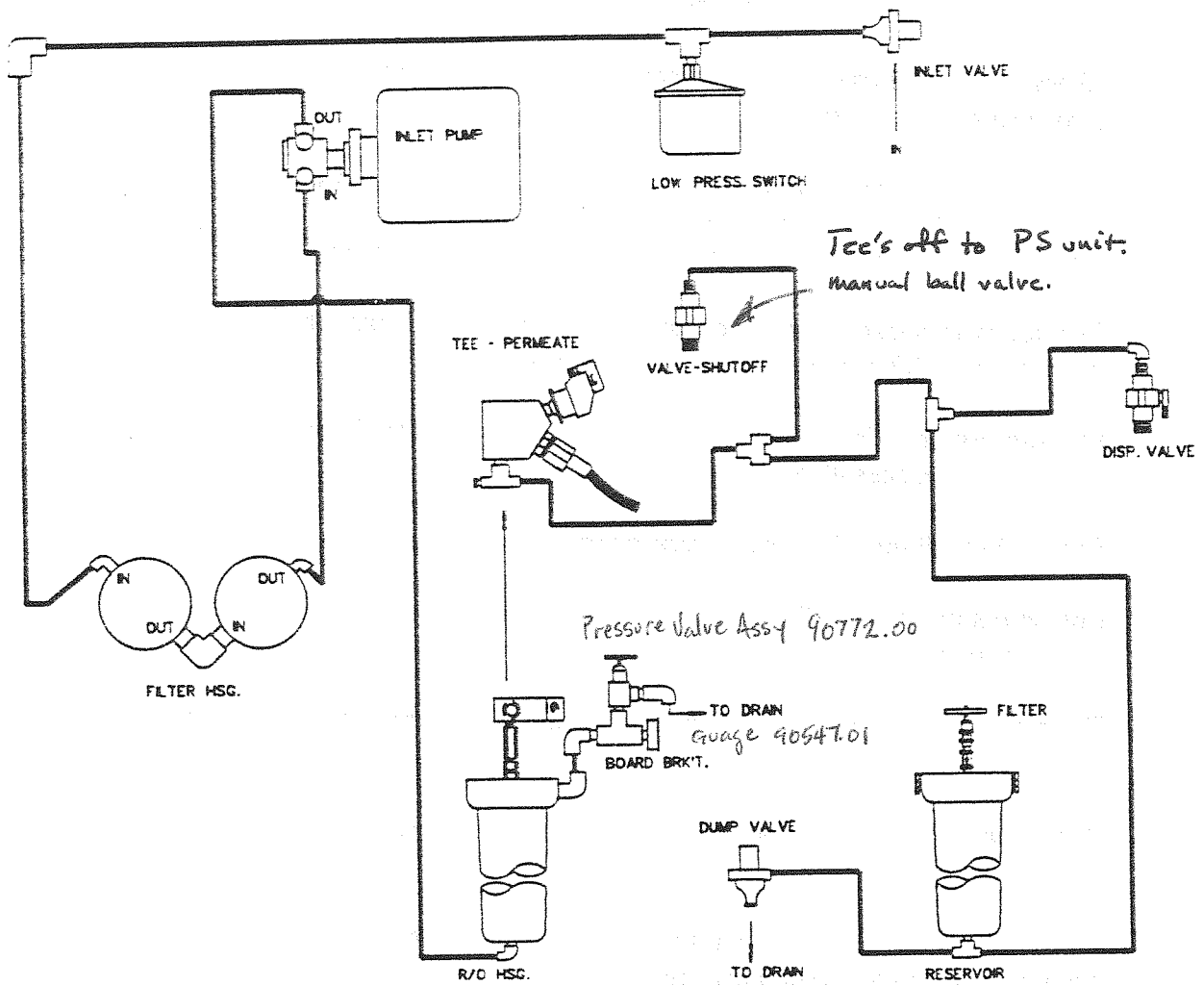
To reduce bacterial growth in the reservoir, an automatic flush valve is incorporated to automatically empty the reservoir while flushing the RO membrane for 4 minutes every 6 hours. This process is controlled by the microprocessor board.

A hydrophobic filter is installed above the reservoir to filter air entering when the check valve opens. The check valve introduces sterile air into the reservoir to keep an adequate charge in the system.

Optional storage tanks are available to provide additional capacity for RO water storage. A 6 liter tank may be purchased to combine to the integral 6 liter tank to deliver 12 liters of RO water. A 70 liter tank with or without a dispensing gun and pump is available for multiple feed.

Figure 2 shows the Flow diagram of the WaterPro RO.

INTRODUCTION



Always closed
opens every 12 hrs

Figure 2

INTRODUCTION

Component Identification

- (1) **Control Panel.** The control panel located to the right of the unit contains the RO back pressure gauge, display switch, pilot light and PC board.
- (2) **ON/OFF Switch.** The ON/OFF switch activates the microsiemen display.
- (3) **Pressure Gauge.** The pressure gauge indicates the RO back pressure. It is preset at Labconco at 120 psi. **Do not increase or decrease the pressure.**
- (4) **Check Valve.** The check valve introduces air into the reservoir to keep an adequate charge in the system.
- (5) **Air Vent Filter.** The air vent filter introduces bacteria-free air into the reservoir.
- (6) **Inlet Valve.** The inlet valve allows feed water to enter the system.
- (7) **Conductivity Sensor.** The conductivity sensor transmits conductivity readings of the permeate (RO purified water) to the PC board.
- (8) **Pressure Switch.** The pressure switch shuts down the system when the pressure in the reservoir reaches 40 psi.
- (9) **Rotary Vane Pump.** The rotary vane pump boosts the pressure to the RO.
- (10) **Low Pressure Switch.** The low pressure switch senses low inlet pressure and shuts off the pump.
- (11) **Flush Valve.** The flush valve opens and discards water from the reservoir every 6 hours.
- (12) **Dispensing Valve.** The dispensing valve dispenses RO water when turned to the ON position.
- (13) **Check Valve.** The check valve installed in the RO housing prevents damage to the membrane due to permeate back pressure.
- (14) **Alternate Valve.** This shut-off valve allows the unit to be connected to other equipment (such as a polishing station or glassware washer).

Component Identification

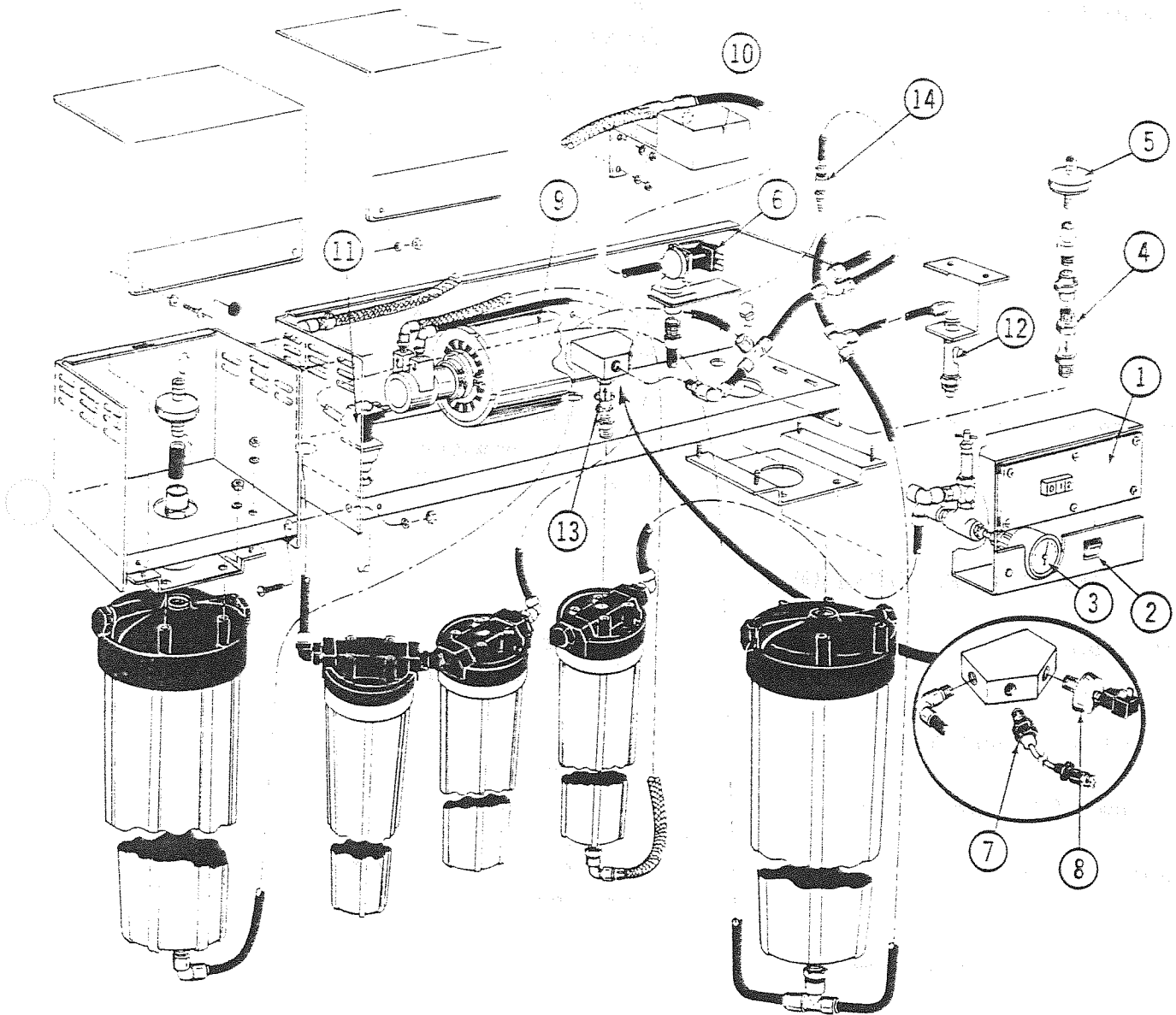


Figure 3-

INSTALLATION

RO SPECIFICATIONS

Technology:	Reverse Osmosis
Reverse Osmosis Membrane:	Polyamide thin film composite membrane
Minimum Rejection Rate:	94%
Maximum Pressure drop per element:	6 psig
Relative Humidity:	Less than 80%
Water Dispensing System:	Dispensing valve designed to deliver controlled amounts of reverse osmosis water. Alternate valve dispenses continuously to alternate units. (EG Water Pro Polishing Station and glassware washer).
RO Water Production Rate:	From standard reservoir: 5 liters for 1 min. 10 sec. - 1 min 30 sec. From RO: Up to 1 LPM (at 25°C) From Optional Storage Tanks:
Optional Storage Tanks:	6 liter (90997 & 9099701 (w/ stand) 70 liter with or without a pump and dispensing gun. (9100000 & 9100001, 9101000 & 9101001)
INLET WATER SPECIFICATIONS:	
Temperature:	10° - 35° centigrade (50° - 95° Fahrenheit)
pH:	4 - 10
Water Pressure and Flow:	30 - 100 psi (2-7 bar) 2 gallons/min (7.6 liters/min)
Maximum Silt Density Index:	5 SDI
Turbidity:	≤ 1 NTU
Langlier Saturation Index*:	Negative (if positive requires water softener pretreatment)
Maximum Ion Concentrations:	
Iron (Total):	0.1 ppm (mg/L)
Manganese:	0.1 ppm
Free Chlorine:	0.5 ppm

*LSI is indicated in the Water ProFile water analysis test and recommendations will be made by Labconco.

Preparation

Do not remove the RO system from its shipping box until it is ready to be placed in its final location. Call Labconco at (800) 821-5525 or (816) 333-8811 or return the business reply card to obtain your Water ProFile test kit. Pretreatment of the feed water if required, will be recommended after analysis.

Stand Installation

(For Models 90751 and 90751-02 only). Tools needed: 1/2" nut driver or socket wrench.

- (1) Locate the following hardware from the plastic bag:
 - 4 - Hex head 1/4-20 x 1/2 cap screws
 - 4 - Flat washers
 - 4 - Lock washers
- (2) Carefully unpack WaterPro RO from box.
- (3) Remove left and right leg assemblies of stand from box. See Figure 4.
- (4) Place RO unit so that it lays front panel down on a padded surface. Support the bowls so that they are horizontal. This can be accomplished by using the packaging specifically designed for the bowls from the shipping box.
- (5) Align the holes in the stand legs with four smaller threaded holes in the back of the housing now facing the operator. There are two screws per leg. See Figure 4 below. Note: Normally the outer column of holes should be used. The inner column holes are to be used if optional 70 liter tank will be placed behind the RO station.
- (6) Repeat for all four holes and pull unit to standing position.
- (7) Unit is now ready for further installation.

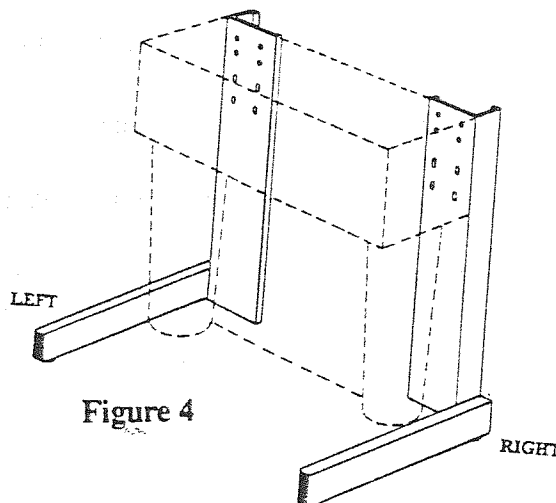


Figure 4

INSTALLATION

Location

The RO system should be placed close to a water source and drain. The unit can be wall mounted or placed on a bench top with the stand installed. **There are 2 drain lines. One is from the flush valve and the other is from the RO. Direct both drain lines to a drain and secure in place. Insert tubing in envelope into fitting labeled 'inlet' and connect to feed water.**

Mounting surface composition, condition and construction must be considered when mounting this unit. The surface must be able to support at least 500 pounds. Inadequate support may result in damage to the mounting surface and/or equipment.

Wall mounted units require a minimum of 6" clearance on the bottom for cartridge and membrane installation/removal.

Utility Connections

The electrical outlet should be rated at 115 VAC, 60 Hz, 15 Amps for models 90750 and 90751 (230 VAC, 50 Hz, 10 Amps for models 90750-02 and 90751-02) and be dedicated to the RO system only.

All plumbing connections to the RO system should be easily accessible and have an in line, shut-off valve should disconnection be required.

Refer to "RO Specifications" section for feed water requirements.

Optional Tank Installation

6 Liter Storage Tank (P/N 90997 & 9099701). Refer to Figure 5.

- (1) Unplug the RO unit. Turn the feed water off and open the dispenser and direct the water to drain until flow ceases flow.
- (2) Remove the two black pop off hardware covers from the front of your RO system and set aside for re-assembly.
- (3) Remove the two screws with the plastic collar and set aside.
- (4) Remove the front cover to the RO Station.
- (5) Remove the new 6 liter storage tank from its carton.
- (6) Remove the two pop off covers from the 6 liter storage tank as well as the two screws with the plastic collar. Set aside to be reused later. Remove the cover of the 6 liter storage tank.
- (7) Remove the screw located on the left corner of the RO as shown and set the hard-

ware aside to be reused.

- (8) Line up the two studs on the 6 liter cabinet with the front and back top row slots in the RO.
- (9) Install the flat washers, lock washers and nuts from the carton on those two studs.
- (10) Insert the screw, removed from the unit, through the 6 liter cabinet and your RO as shown.
- (11) Install the lock washer and nut and then tighten.

70 Liter Storage Tank (9100000, 9100001, 9101000, & 9101001)

Refer to 70 Liter Storage Tank Manual.

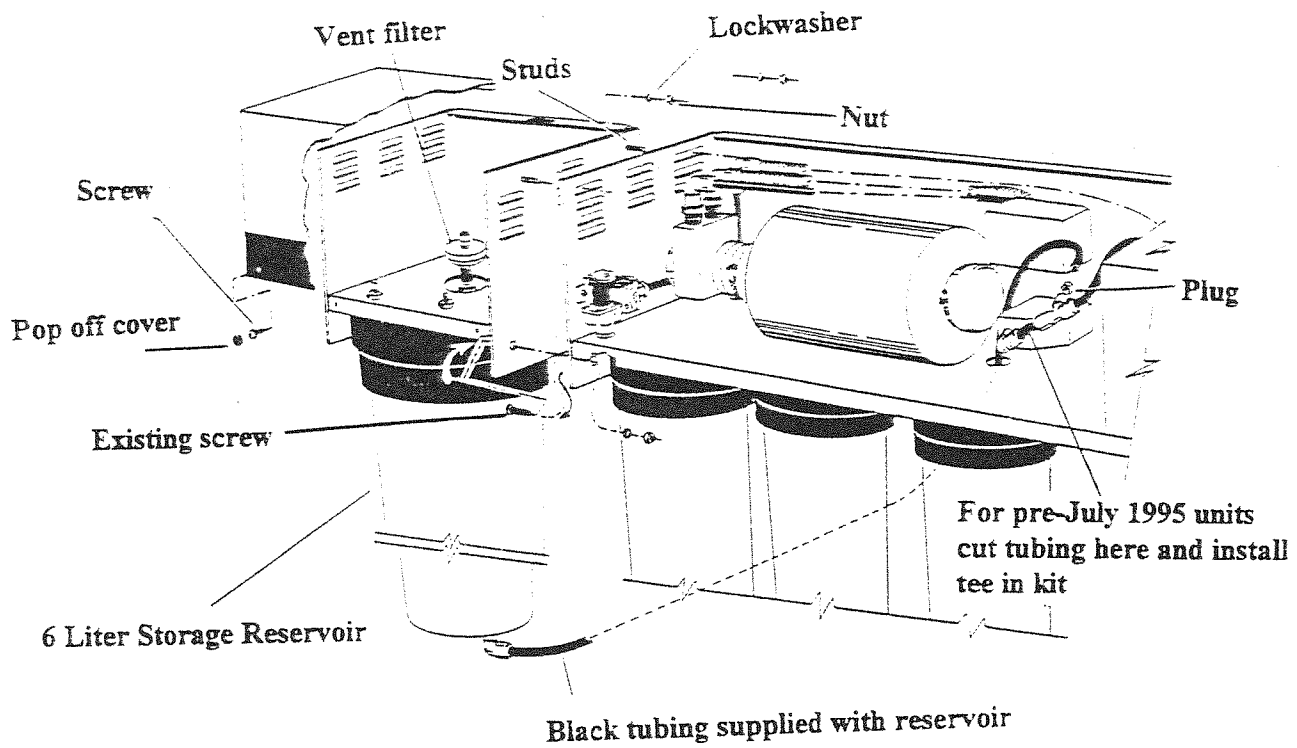


Figure 5

Tubing Installation

The tubing connectors used in the WaterPro RO have been selected for their dependability and ease of installation. A detailed drawing of a typical connection is shown in Figure 6.

For flexible tubing, be sure to insert a tube support. Rigid tubing does not require the use of a tube support.



TUBE SUPPORT

1. Tubing should have tube support inserted if flexible.
2. Moisten the end of the tubing with water and insert straight into the fitting until the tubing bottoms on the fitting shoulder.
3. To remove the tubing from the fitting, press the gray collar in and pull the tubing straight out.

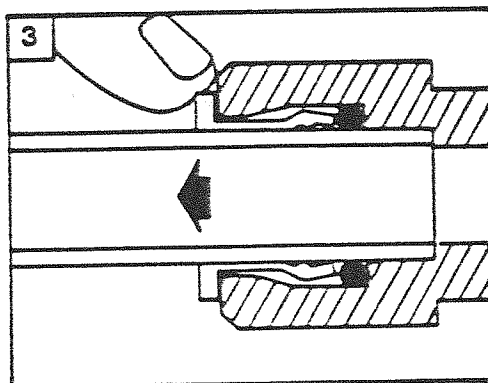
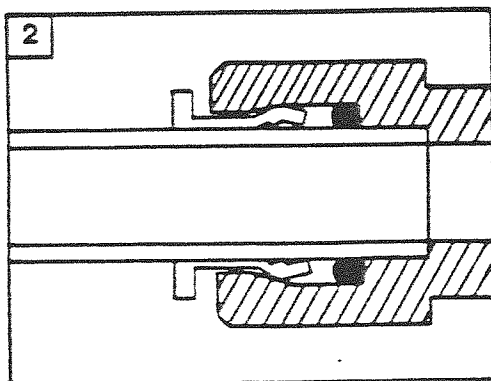
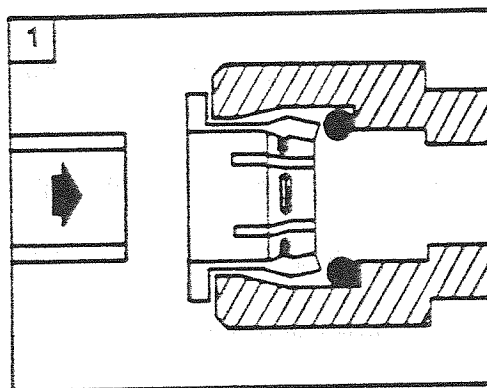


Figure 6

INSTALLATION

Optional Dispense Gun Installation

- (1) Disconnect power and feed water and bleed the pressure by opening the ball valve.
- (2) Remove the two black caps on the front of the RO by popping off with a flat head screw driver or equivalent.
- (3) Remove the two screws with a Phillips screw driver.
- (4) Lift up and remove front cover of unit to expose the interior.
- (5) Remove the dark gray metal bracket with a grommet from the plastic bag.
- (6) Install on the right side of the RO unit with the hardware provided for the top row of the second column of slots. Remove the existing screw on the RO station (right side) and pass the screw through the lower hole in the gun bracket. Refer to instruction sheet included in the Dispense Gun Kit.
- (7) Remove the dispense gun with the tubing from the box.
- (8) Push back the gray collar to release the black tubing connecting the ball valve to tee (under unit).
- (9) Push the black short tubing on dispense gun assembly into the open end of the tee.
- (10) Click the gun in the open position and direct to drain.
- (11) Connect to power and turn feed water ON.
- (12) Allow water to fill clear tubing attached to the gun and then close gun. Check for leaks.
- (13) Place gun in bracket previously installed so that the head of the gun rests on the hook surface.
- (14) The unit is ready to be used.

RO Membrane Installation

- (1) Install prefilter, P/N 90927, in first bowl (the bowl on the left side).
- (2) Install carbon/prefilter in second bowl.
- (3) Remove the braided tubing from the connector in the bottom of the third bowl by pressing the grey collar back towards the connector and pulling the tubing straight out. (See Tubing Installation).
- (4) With the Spanner Wrench supplied, remove the third bowl from the unit.
- (5) Center the lower spacer disk over the support post in the bottom of the bowl.
NOTE: Orient the disk in the bowl so that the slots are upward. (See Figure 7).
- (6) Install the lower adaptor into the bottom of the RO membrane by pushing it until it seats firmly.
- (7) Install the upper adaptor in the top of the RO membrane by twisting while pushing until it seats firmly.
- (8) Place the Reverse Osmosis membrane in the bowl such that the upper adaptor is in the top of the bowl.
- (9) Thread the bowl in the system.
- (10) Connect the tubing into the elbow. A firm tug on the tubing should not pull it out.
- (11) Connect a drain line to the dispensing valve.
- (12) Start unit with the dispensing valve open for two hours. (Be sure prefilter and carbon/prefilter are in place)
- (13) Close dispensing valve or gun and allow unit to automatically shut off.
- (14) Unit is ready for operation.

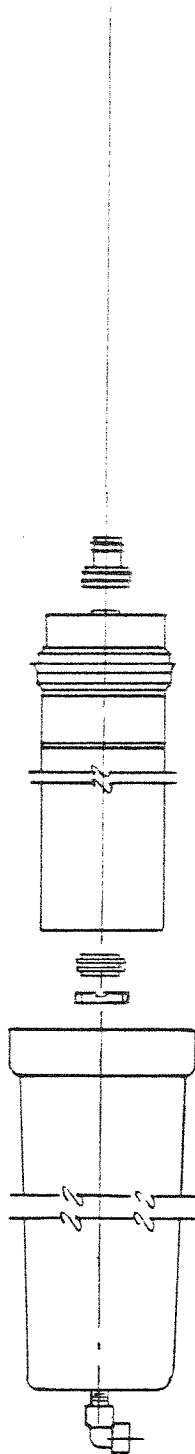


Figure 7

WaterPro PS Feed

The WaterPro RO can be used to feed purified water to a polishing station such as the WaterPro Polishing Station.

Connect black 1/4" x 3/8" polyurethane tubing from Polishing Station (PS) connection kit (P/N 90789) or equivalent to alternate valve, and clamp in place. Insert into bulk-head fitting in WaterPro PS. See Figure 7.

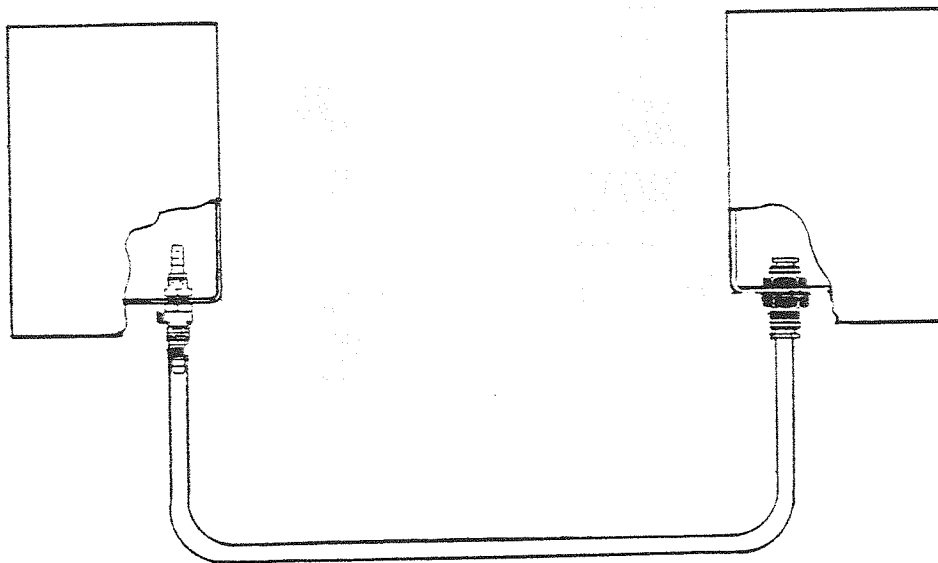


Figure 8

INSTALLATION

Push alternate valve upward to initiate water flow to the Polishing Station. See Figure 9.

Washer Feed

The WaterPro RO can be used to supply purified water for the final rinse cycle in Labconco's laboratory glassware washers.

If the RO water is to be used to supply final rinse water to the glassware washer, connect tubing from the alternate valve to the connector attached to tubing on the distilled water pump behind the washer (Interconnect Kit: P/N 90651). Alternate valve must be pushed upward for water to flow. See Figure 9.

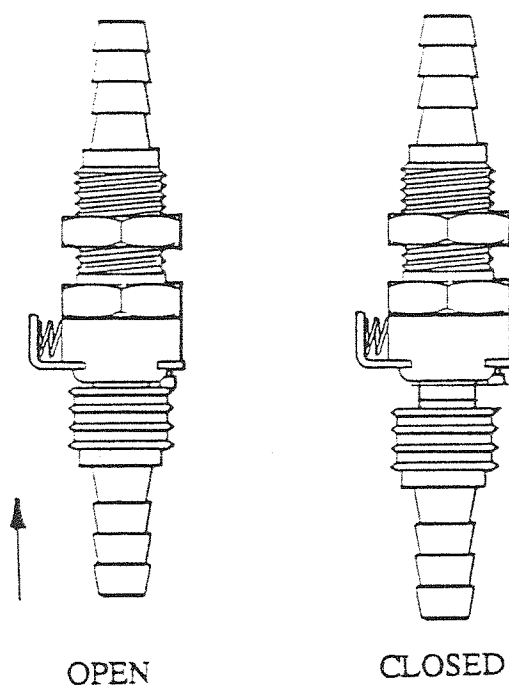


Figure 9

- Pretreat feed water appropriately as indicated by Labconco water test to extend life of the RO membrane.
- Change prefilters frequently as stated in this manual to prevent free chlorine from destroying the RO membrane.
- Ensure that the unit is connected to electrical service according to local and national electrical codes. Failure to do so may create a fire or electrical hazard.
- Do not remove or service any electrical components without first disconnecting the RO system from the outlet.
- Preserve RO membrane whenever unit is unplugged for more than a week without usage per instructions under "Preserving RO Membrane".
- Mounting surface composition, condition and construction must be considered when mounting this unit. The surface must be able to support at least 500 pounds. Inadequate support may result in damage to the mounting surface and/or equipment.
- System performance and cartridge life span are directly related to the feed water quality. It is important to establish feed water quality before operating the unit.

NORMAL OPERATION

Thoroughly understand procedures and equipment required before beginning work. Prefilter, carbon/prefilter and RO membrane should already be installed.

Initial Start Up

- Pretreat feed water as recommended by Labconco based upon the Water ProFile test.
- Plug unit in electrical outlet. Turn unit ON.
- Turn display switch to the ON position.
- Turn the feed water Valve ON.
- Connect tubing to dispensing valve and direct to drain. (For gun installation, extend gun to drain and click into the ON position.
- Turn dispensing valve to the ON position.
- Operate unit for 2 hours to purge preservative to drain.
- Close dispensing valve. Unit will fill reservoir and automatically shut off.
- Unit is now ready to dispense RO water any time from the dispensing valves (or optional dispensing gun).

Automatic Flush Valve

The unit is equipped with a flush valve. The flush valve automatically opens every 6 hours and dumps water from the reservoir to drain while the RO is being flushed. In order for the flush valve to work, keep the unit plugged into an electrical outlet at all times. (This could be bypassed by disconnecting leads to the flush valve. However, RO unit has to be operated everyday if flush is bypassed).

Six-Liter Reservoir

- Dispense 5 liters of RO water between 1 minute, 10 seconds and 1 minute 30 seconds when dispensing valve is initially opened.
- After reservoir is empty, RO dispenses up to 1000 ml per minute (at 25 °C).
- When ball valve is closed, reservoir is refilled in approximately 5 minutes (at 25°C).

Work Techniques

- Use clean glassware to collect RO water.
- Always leave unit plugged into electrical outlet. Disconnect unit to service.
- Preserve membrane if unit is left unplugged for more than a week.
- Check to ensure security of drain lines.
- Keep a log of RO performance.

Shut Down

When changing the filters or cleaning the unit, do the following:

- Turn ball valve to ON position to drain water and relieve pressure.
- Unplug unit from electrical outlet.
- Turn feed valve OFF.

Start Up

- Plug unit in electrical outlet.
- Turn feed water valve ON.
- Turn display switch ON.
- Open dispensing valve to vessel to be filled and dispense.

MAINTENANCE

Under normal operation, your RO unit will require little routine maintenance. The following schedule is recommended.

Follow the Shut Down Procedure

Weekly

- . Change prefilter and carbon/prefilter if more than 500 gallons of feed water have been processed.
- . Clean unit of any dust.
- . Preserve unit if unplugged for more than one week.

Monthly

- . Change prefilter and carbon/prefilter once every two months.
- . All weekly activities.

Quarterly

- . Change air vent filter.

Annually

- . Clean RO membrane
- . Disinfect unit.
- . All monthly activities.

Biennial (once every two years)

- . Replace RO membrane if the normalized (flow rate at 25°C see chart on page 36) flow rate has decreased by 20% or more.
- . All annual activities.

KIT #	DESCRIPTION
90787	RO Membrane Kit includes one each RO membrane and adaptor package
90789	WaterPro Polishing Station Connection Kit Contains one each 6' - 1/4" by 3/8" polyurethane tubing, one each tube support, one hose clamp each
90622	Replacement carbon/prefilter contains 2 each
PART #	
90927	20" Prefilter, combination carbon
90594	20" carbon/prefilter 1 of 90622
90786	RO Membrane

Sanitization

Sanitization is necessary when the RO element becomes biologically fouled. Biological fouling of the RO is an obstruction due to living or dead bacteria on the membrane surface. This may occur if the RO is left stagnant without flushing or operation for more than a week.

If Biological fouling occurs, the unit should be sanitized with 0.1% (wt/wt) formaldehyde as follows:

- (1) Collect approximately 4 liters of RO purified water in a container set aside.
- (2) Disconnect the unit by unplugging it from the outlet. Shut off the feed water valve.
- (3) Relieve the water pressure in the unit by opening the dispense valve (dispense gun, if installed) and directing the water to drain.
- (4) Remove both 20" prefilter and 20" carbon/prefilter cartridges. Do not remove RO membrane.
- (5) Carefully wash inside the prefilter bowl, carbon/prefilter bowl and standard reservoir bowl with liquid detergent using a clean sponge or cloth. Rinse out the bowls several times to remove any residue.
- (6) Prepare 0.1% formaldehyde in the RO purified water collected in Step 1.

CAUTION: Use only chlorine-free water. Use of chlorinated tap water will degrade and destroy the RO membrane.

- (7) Install a new 20" prefilter cartridge (P/N 90210) in the empty, clean 20" bowl (bowl #1)

CAUTION: Prepare and handle solutions in well ventilated areas. Wear protective clothing, gloves and eye protection. Dispose of excess or spillage properly.

- (8) Fill the carbon/prefilter bowl (bowl #2) with the 0.1% formaldehyde. Fill the reservoir (last bowl) one-third full with the 0.1% solution.
- (9) Reinstall the bowls in their correct position.
- (10) Plug the unit into the electrical outlet. Reopen the feed water valve.

- (11) Start the RO unit with the dispense valve closed. The unit will fill the reservoir and automatically shut off.
- (12) Allow the unit to stand for 1 hour.
- (13) If the system will not be in use for an extended time, leave the formaldehyde solution in the system.
- (14) If the system is to be returned to service, flush the residual solution from the vessel for 1 hour by attaching a hose to the dispensing valve and routing to drain as well as opening the dispensing valve and activating the unit.

Both inorganic and organic fouling are indicated when either or both of the following occur:

- The normalized (temperature corrected) product flow rate drops by 20 percent.
- The conductivity of the permeate rises noticeably.

Inorganic Fouling

Inorganic fouling is caused by mineral scale such as:

- Calcium carbonate
- Calcium sulfate
- Barium sulfate
- Strontium sulfate
- as well as ions such as
- Iron or manganese

Inorganic fouling can be cleaned with the following recommended solutions:

0.5% HCl with a final pH of 2.

Procedure

- (1) Collect approximately 4 liters of reverse osmosis water in a container set aside for use in preparing the cleaning solution.

CAUTION: Use chlorine-free water to prepare the cleaning solutions. The use of chlorinated tap water will destroy the reverse osmosis membrane.

DECONTAMINATION/CLEANING

- (2) Disconnect the RO unit from the electrical power source by unplugging the unit.
- (3) Shut off feed water valve.
- (4) Relieve the water pressure in the unit by opening the dispense valve and directing the water to a drain.
- (5) Remove the carbon/prefilter cartridge (second bowl from left) and discard the water.
- (6) Fill the carbon/prefilter bowl (bowl #2) approximately 3/4 full with the cleaning solution.
- (7) Reinstall the bowl.
- (8) Close the ball valve and open the feed water valve.
- (9) Plug the unit into an electrical outlet, activate the unit and allow it to operate until it automatically shuts off.
- (10) Disconnect the unit from the electrical outlet and allow the membrane to soak for at least 2 hours
- (11) Relieve the pressure by opening the dispense valve.

CAUTION: Do not attempt to remove the acid-filled bowls when the system is pressurized.

- (12) Carefully remove the prefilter bowl and dispose of the water appropriately.

CAUTION: The water in the bowl contains cleaning solution. Handle and dispose of properly.

- (13) Install a new prefilter (first bowl from left) and carbon/prefilter (second bowl) cartridges.
- (14) Connect a hose to the dispensing valve and route to drain. Activate the unit by connecting the unit to an electrical outlet. Leave the dispensing valve open and direct water to drain for 60 minutes. After each 20 minute interval, close valve and allow storage tanks to fill. Then open the dispense valve to drain.
- (15) At the end of the hour, relieve the pressure by opening ball valve (or dispense gun) and directing water to drain.

- (15) At the end of the hour, relieve the pressure by opening dispensing valve (or dispense gun) and directing water to drain.
- (16) Place paper towels beneath the standard storage tank (last bowl) and disconnect both ends of tubing from the tee. Discard the water in the tank and reinstall. Connect both ends of tubing as well.
- (17) Close dispense valve and start the unit. The RO module is now ready for normal operation.

Organic Fouling

Organic fouling can be caused by silt, bacterial slime or any other organic materials.

The following recommended cleaners may be used

- Sodium hydroxide 0.5%
- Sodium dodecyl sulfate 0.1% (Adjust pH to 11.5 with HCl if necessary)
- Trisodium phosphate, 1%
- Sodium tri-polyphosphate, 1%
- Tetra sodium EDTA, 1% (Adjust pH to 11.5 with HCl if necessary)

For cleaning procedure, follow steps 1 through 17 under Inorganic Fouling.

Preserving RO Membrane

If the system will not be in use (without electricity) for over a week, preserve with 0.1% formaldehyde.

- (1) Collect approximately 4 liters of RO purified water in a container set aside.
- (2) Disconnect the unit by unplugging it from the outlet. Shut off the feed water valve.
- (3) Relieve the water pressure in the unit by opening the dispensing valve (dispense gun, if installed) and directing the water to drain.
- (4) Remove both 20" prefilter and 20" carbon/prefilter cartridges. Do not remove RO membrane.

DECONTAMINATION/CLEANING

- (5) Carefully wash inside the prefilter bowl, carbon/prefilter bowl and standard storage tank bowl with liquid detergent using a clean sponge or cloth. Rinse out the bowls several times to remove any residue.
- (6) Prepare 0.1% formaldehyde in the RO purified water collected in Step 1.
- (7) Install a new 20" prefilter cartridge (PN 90210) in the empty, clean 20" bowl (bowl #1).
- (8) Fill the carbon/prefilter bowl with the 0.1% formaldehyde.
- (9) Reinstall the bowls in their correct position.
- (10) Plug the unit into the electrical outlet. Reopen the feed water valve.
- (11) Activate the unit and allow it to operate for 5 - 10 seconds.
- (12) Close off feed water and disconnect from electrical source.

Front Panel Removal

- (1) Locate the two black screw covers on the front panel.
- (2) Using a straight screw driver pop off the black covers.
- (3) Using a Phillips screw driver, remove the two screws holding the front panel.
- (4) Retain the plastic collars with the screws. Do not misplace.
- (5) Lift up on the cover to remove.

Prefilter And Carbon/Prefilter Replacement

NOTE: (Prefilter - change at least once a month, Carbon/Prefilter change at least once every two months).

- (1) Disconnect unit and relieve the pressure by opening dispense valve or gun.
- (2) With the spanner wrench provided, remove the first bowl.
- (3) Remove the old prefilter.
- (4) Discard water in bowl.
- (5) Clean the bowl with mild soap and water and towel dry.
- (6) Insert new prefilter and place bowl on unit.
- (7) Hand tighten bowl in place. Do not use wrench to tighten as this may damage the bowl.

Air Vent Filter Replacement

- (1) Disconnect unit from electrical outlet.
- (2) Remove top panel per instructions.
- (3) Viewing the unit from above, locate the filter above the final bowl, behind the microprocessor board.
- (4) With side to side motion, remove the spent filter.

- (5) Place a new filter in tubing with the inlet side facing away from the tubing.

NOTE: Air vents are disposable. However, they can also be autoclaved and reused.

- . Instructions for Autoclaving: Wrap the bacterial air vent filter in autoclavable paper and autoclave at 121°C (250°F) and 1.05Kg/cm² (15 psi) for 15 minutes. The air vent filter may be reautoclaved a maximum of four 15 minute cycles at 121°C.

Glassware Washer Interconnect

The Labconco WaterPro RO can be connected to any Labconco glassware washer to deliver reverse osmosis water during the final rinse cycle of the wash program.

- (1) Manuals for both the glassware washer and the WaterPro RO should be on hand.
- (2) Prepare both units per operation instructions accompanying Interconnect Kit.
- (3) The Interconnect Kits are Labconco Part Number 90651 for 12 liter reservoir and 91002 for 6 and 70 liter storage tanks.
- (4) The WaterPro RO should be drained completely before installation of tank.

EXPENDABLES

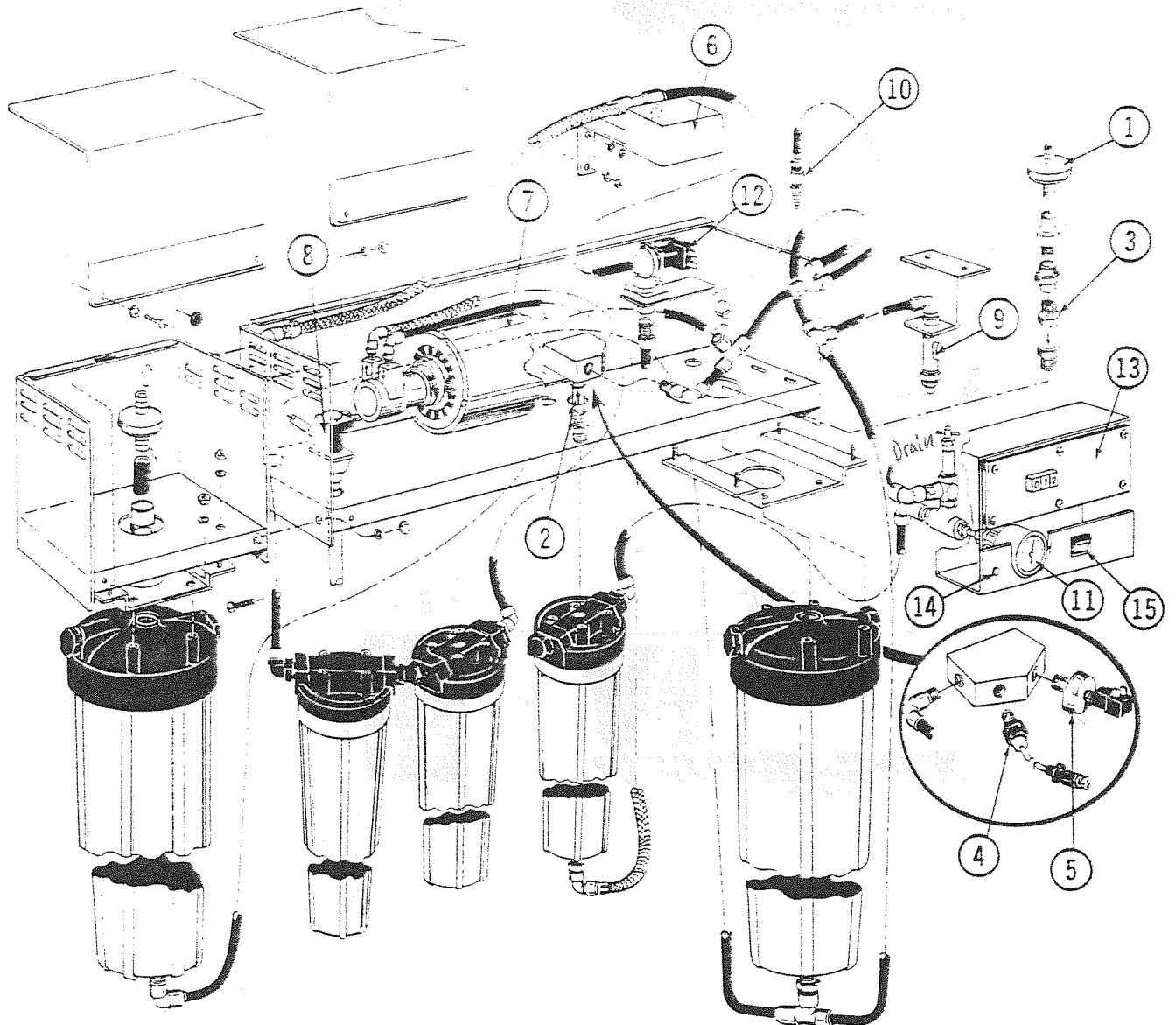
REFERENCE #	QTY	CATALOG #	DESCRIPTION
1	1	19305	Air vent filter
	Kit	90622	Carbon/prefilter pkg. of 2
	Kit	90787	RO membrane and adaptors

REPLACEMENT PARTS

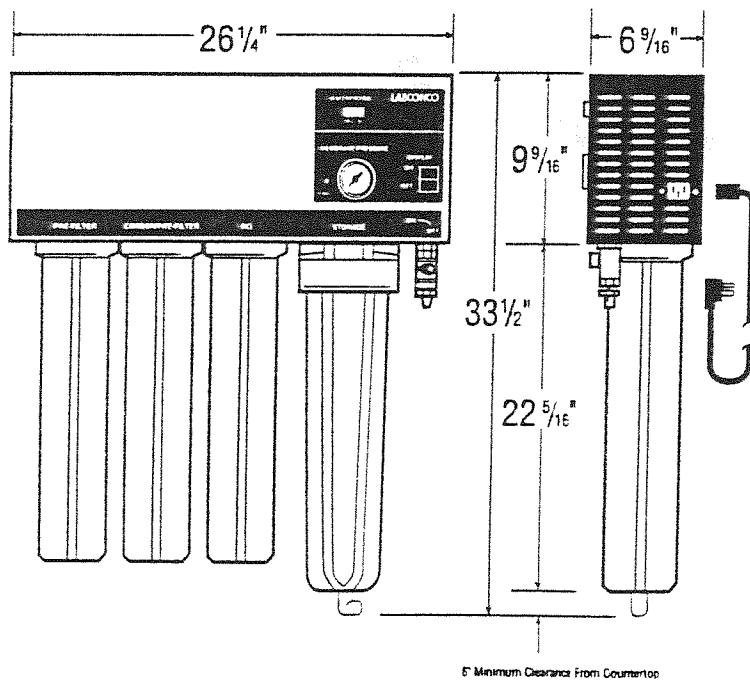
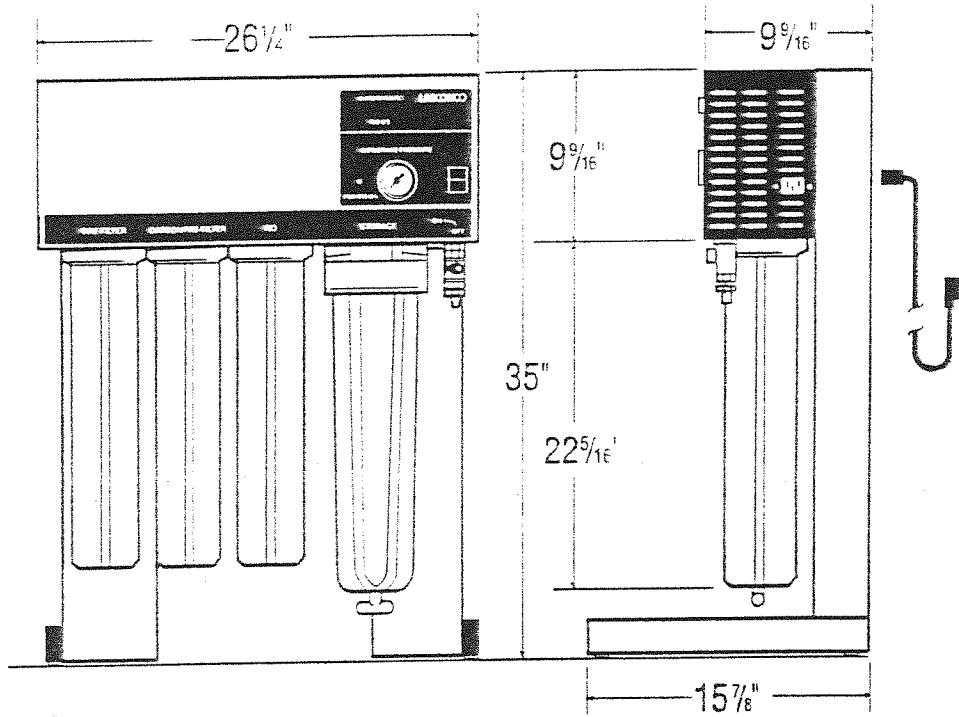
REFERENCE #	QUANTITY	CATALOG #	DESCRIPTION
2	1	13633	Check valve
3	1	13628	1/3 psi check valve
4	1	90607	Conductivity sensor
5	1	13021	High pressure switch
6	1	90753	Low pressure switch
7	1	90760-00	Inlet Pump Assy 115 V
7	1	90760-01	Inlet Pump Assy 220 V
8	1	90759	Dump Valve Assy
9	1	13629	Ball Valve 1/4 NPT
10	1	13627	Alternate Valve
11	1	90771	Pressure Gauge Assembly
12	1	90756(9075601)	Inlet Valve Assembly (230V)

ELECTRICAL

REFERENCE #	QUANTITY	CATALOG	DESCRIPTION
13	1	90793	PC Board Assy
14	1	12799	Pilot Light
15	1	13015	ON/OFF Switch
Not Shown	1	13345	Power Cord 125 V
Not Shown	1	13341	Power Cord 230 V



DIMENSIONS



MODEL	ELECTRICAL REQUIREMENTS
90750-00	115 VAC - 60 Hz 1 Phase - 7.5 Amp
90750-02	230 VAC - 50 Hz 1 Phase - 4 Amp
90751-00	115 VAC - 60 Hz 1 Phase - 7.5 Amp
90751-02	230 VAC - 50 Hz 1 Phase - 4 Amp

R/O PRODUCTION RATES TABLE

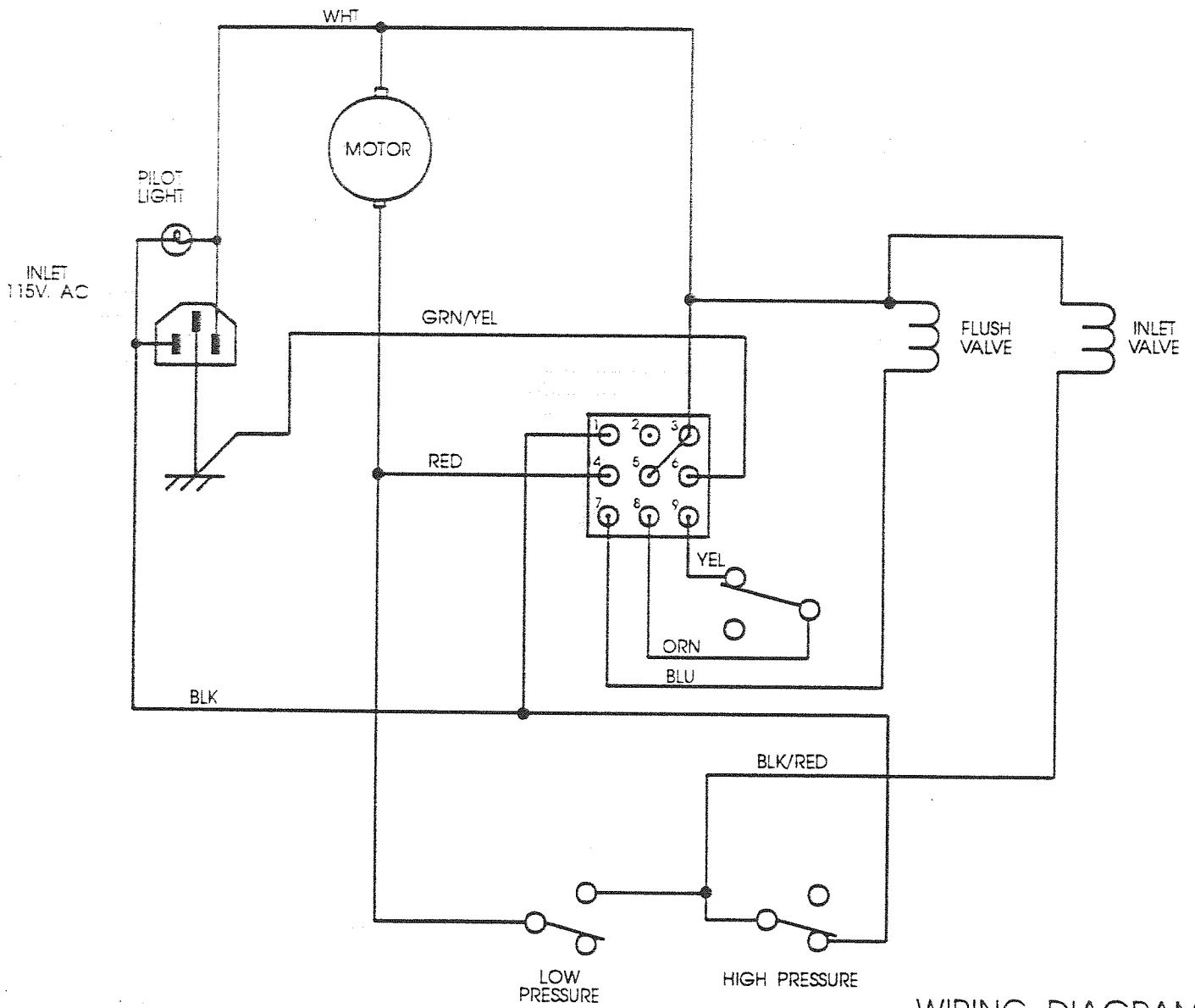
R/O Production Rates Versus Feed Water Temperature R/O Production Rates in Liters/Minute

Temperature C	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
	0.58	0.69	0.80	0.92	1.04	1.15	1.27	1.38	1.50	1.61	1.73	1.84	1.96	2.07	2.19	2.30										
	0.56	0.67	0.78	0.90	1.01	1.12	1.23	1.34	1.46	1.57	1.68	1.79	1.90	2.02	2.13	2.24										
	0.55	0.65	0.76	0.87	0.98	1.09	1.20	1.31	1.42	1.53	1.64	1.74	1.85	1.96	2.07	2.18										
	0.53	0.64	0.74	0.85	0.95	1.06	1.17	1.27	1.38	1.48	1.59	1.70	1.80	1.91	2.01	2.12										
	0.52	0.62	0.72	0.82	0.93	1.03	1.13	1.24	1.34	1.44	1.55	1.65	1.75	1.85	1.96	2.06										
	0.50	0.60	0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00										
	0.49	0.58	0.68	0.78	0.87	0.97	1.07	1.16	1.26	1.36	1.46	1.55	1.65	1.75	1.84	1.94										
	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13	1.22	1.32	1.41	1.50	1.60	1.69	1.79	1.88										
	0.46	0.55	0.64	0.73	0.82	0.91	1.00	1.09	1.18	1.27	1.37	1.46	1.55	1.64	1.73	1.82										
	0.44	0.53	0.62	0.70	0.79	0.88	0.97	1.06	1.14	1.23	1.32	1.41	1.50	1.58	1.67	1.76										
	0.43	0.51	0.60	0.68	0.77	0.85	0.94	1.02	1.11	1.19	1.28	1.36	1.45	1.53	1.62	1.70										
	0.41	0.49	0.57	0.66	0.74	0.82	0.90	0.98	1.07	1.15	1.23	1.31	1.39	1.48	1.56	1.64										
	0.40	0.47	0.55	0.63	0.71	0.79	0.87	0.95	1.03	1.11	1.19	1.26	1.34	1.42	1.50	1.58										
	0.38	0.46	0.53	0.61	0.68	0.76	0.84	0.91	0.99	1.06	1.14	1.22	1.29	1.37	1.44	1.52										
	0.37	0.44	0.51	0.58	0.66	0.73	0.80	0.88	0.95	1.02	1.10	1.17	1.24	1.31	1.39	1.46										
	0.35	0.42	0.49	0.56	0.63	0.70	0.77	0.84	0.91	0.98	1.05	1.12	1.19	1.26	1.33	1.40										
	0.34	0.40	0.47	0.54	0.60	0.67	0.74	0.80	0.87	0.94	1.01	1.07	1.14	1.21	1.27	1.34										
	0.32	0.38	0.45	0.51	0.58	0.64	0.70	0.77	0.83	0.90	0.96	1.02	1.09	1.15	1.22	1.28										
	0.31	0.37	0.43	0.49	0.55	0.61	0.67	0.73	0.79	0.85	0.92	0.98	1.04	1.10	1.16	1.22										
	0.29	0.35	0.41	0.46	0.52	0.58	0.64	0.70	0.75	0.81	0.87	0.93	0.99	1.04	1.10	1.16										
	0.28	0.33	0.39	0.44	0.50	0.55	0.61	0.66	0.72	0.77	0.83	0.88	0.94	0.99	1.05	1.10										
	0.26	0.31	0.36	0.42	0.47	0.52	0.57	0.62	0.68	0.73	0.78	0.83	0.88	0.94	0.99	1.04										
	0.25	0.29	0.34	0.39	0.44	0.49	0.54	0.59	0.64	0.69	0.74	0.78	0.83	0.88	0.93	0.98										
	0.23	0.28	0.32	0.37	0.41	0.46	0.51	0.55	0.60	0.64	0.69	0.74	0.78	0.83	0.87	0.92										
	0.22	0.26	0.30	0.34	0.39	0.43	0.47	0.52	0.56	0.60	0.65	0.69	0.73	0.77	0.82	0.86										

To read this chart: For example, if your regular flow rate is 1.00 liter at 25°C, read the 25°C in the left column, move across the page to the 1.00. If the temperature of the water is now 19°C, locate 19°C on the left side and move across into the same column as the 1.00. The flow rate will now be 0.82 LPM (820 ml/min).

WIRING DIAGRAM

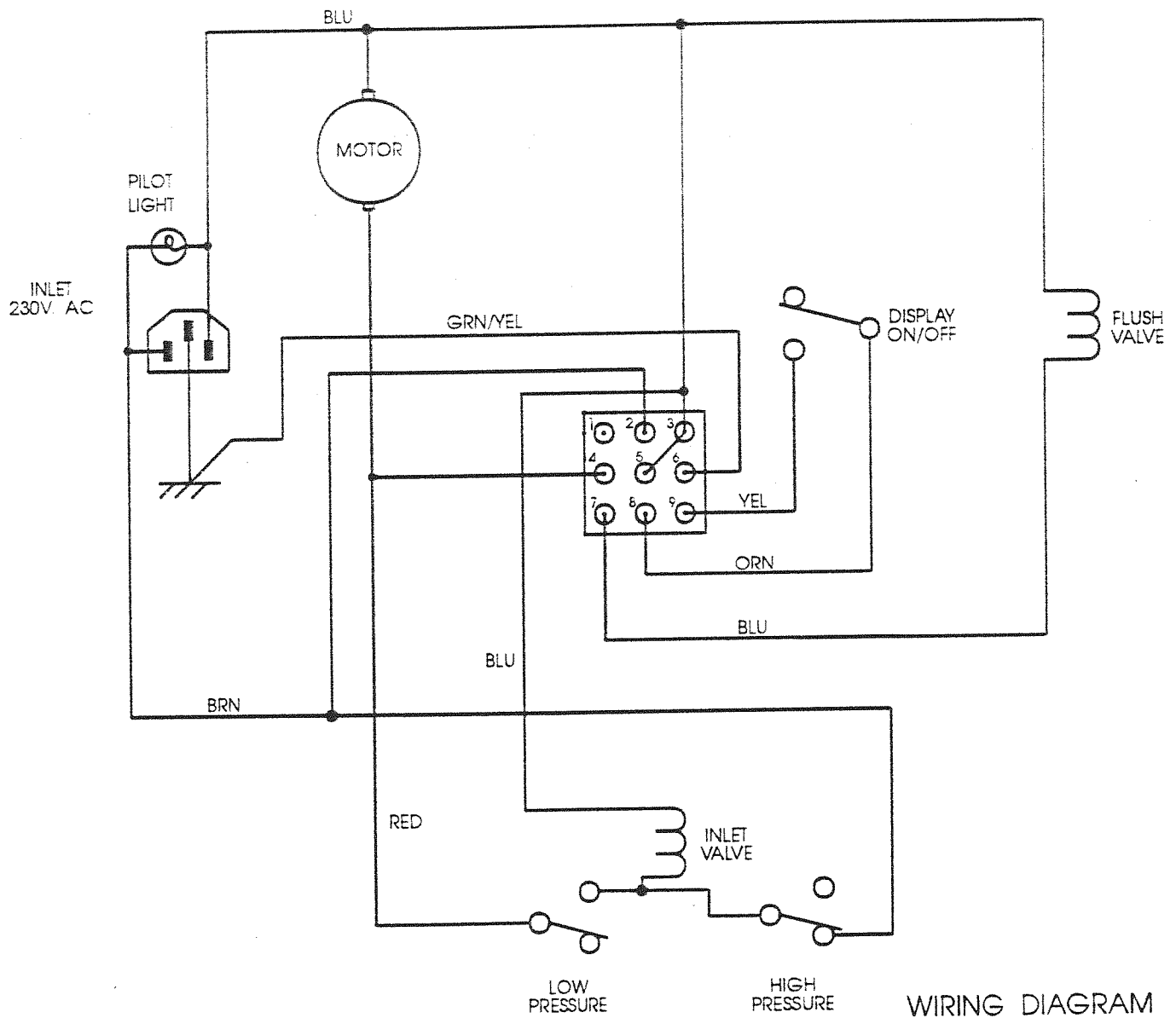
115 V Wall Mount and Bench Top
Models 90750 and 90751



WIRING DIAGRAM

WIRING DIAGRAM

230 V Wall Mount and Bench Top
Models 90750-02 and 90751-02



PROBLEM	CAUSES	CORRECTIVE ACTION
Pilot light not on	Unit not plugged into outlet	Plug WaterPro RO into appropriate electrical service.
Pilot light not on, however, unit works	Pilot light defective Pilot light wiring disconnected	Replace pilot light Unplug unit from outlet and connect disconnected wire.
Microsiemen (Conductivity) Display switch not ON reading not displayed	Switch wiring is disconnected	Turn display switch ON Unplug unit from outlet and connect disconnected wire
Pump does not operate, pilot light on	Feed water valve (manual) is closed Inlet valve disconnected or defective	Open feed water valve Unplug unit, connect wiring or replace inlet valve
Pump cycles ON and OFF	Insufficient feed water pressure Partial open feed valve Plugged prefilter Plugged carbon/prefilter Kinked or restricted tubing in system prior to pump Insufficient feed water flow	Pressure should be between 30-100 psig Open feed valve fully Replace prefilter Replace carbon/prefilter Trace restriction and remove or straighten tube Should be at least 2 GPM (7.6 Liters/minute)

TROUBLESHOOTING

PROBLEM	CAUSES	CORRECTIVE ACTION
Display reads 000.	Conductivity sensor disconnected from harness	Connect sensor to harness from circuit board
	Air gap	Purge unit until air is expelled by opening the dispensing valve.
Increase in μ s (microsiemen) reading	High inlet TDS.	This is normal. With increased inlet TDS, RO μ s increases.
	RO membrane scaling or other deposits.	Clean membrane per instructions in RO cleaning section
Excessively high μ s	RO membrane fouled Biofilm formed	Clean RO membrane per instructions in RO cleaning section
	RO poisoned. Chlorine Damage	Replace RO membrane and prefilters per installation instructions
Low flow rate at valve	Reservoir is empty	Reservoir dispenses 3.5 - 4.0 LPM. After the reservoir is depleted, flow rate is 800ml or more
	Loss of charge in reservoir	Unplug unit, drain and remove reservoir to allow air in. Replace reservoir and activate unit

PROBLEM	CAUSES	CORRECTIVE ACTION
Low flow rate at valve (con't)	Loss of charge in reservoir due to clogged filter	Replace Air Vent filter
	Low outlet temperature	RO production rate drops with decrease in temperature
	Kinked line in system	Trace and straighten line
	Decrease in RO back pressure	Increase pressure regulator to 120 psi

WATERPRO OPERATING LOG

Customer Name	Model Number
Customer 1	Model 100
Customer 2	Model 200
Customer 3	Model 300
Customer 4	Model 400
Customer 5	Model 500
Customer 6	Model 600
Customer 7	Model 700
Customer 8	Model 800
Customer 9	Model 900
Customer 10	Model 1000

Date Installed	Serial Number

Unit Location

[illegible]

We are committed to providing our customers with quality equipment and service after the sale. Part of this objective involves keeping you informed of changes and new product additions. We therefore request that you take a moment to fill out the product registration card so we may know your location as well as some of the reasons that prompted you to purchase our products.

Labconco Corporation warrants products of its manufacture for one year, from receipt of the equipment by the purchaser, against defects in materials and workmanship. This limited warranty covers parts and labor but not transportation and insurance charges. In the event of a warranty claim contact the dealer who sold you the product. If the cause is determined to be a manufacturing fault, the dealer or Labconco Corporation will repair or replace all defective parts to restore the unit to operation. Under no circumstance shall Labconco Corporation be liable for indirect, consequential or special damages of any kind. This statement of warranty may be altered by a specific published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments. Lamps and expendable items such as filters are not covered by this warranty. Damage due to corrosion or accidental breakage are also not covered.

WARNING: The disposal and/or emission of substances used in connection with this equipment may be governed by various federal, state or local regulations. All user's area concerning the dumping of waste materials in or upon water, land or air to comply with such regulations.

SHIPPING CLAIMS

If a shipment is received in visibly damaged condition, be certain to make a notation on the delivering carrier's receipt and have his agent confirm the damage on your receipt. Otherwise, the damage claim may be refused.

If concealed damage or pilferage is discovered, notify the carrier immediately and retain the entire shipment intact for inspection. Interstate Commerce Commission rules require that the claim be filed with the carrier within 15 days after delivery.

NOTE: Do not return goods. Goods returned without prior authorization will not be accepted. Labconco Corporation and its dealers are not responsible for shipping damage. Claims must be filed directly with the freight carrier by the recipient. If authorization has been received to return this product, by accepting this approval, the user assumes all responsibility and liability for biological and chemical decontamination and cleansing. Labconco reserves the right to refuse delivery of any products which do not appear to have been properly cleaned and/or decontaminated prior to return.

Accessory Part #	Description
90651	RO Interconnect Kit/Storage Tank Connects to Labconco glassware washer to provide purified water for the final rinse cycle. Also provides a 4 gallon tank for larger storage.
90789	PS Connection Kit Allows the WaterPro RO to feed a WaterPro Polishing Station.
90806	Gun Kit Allows in field installation of an optional gun to dispense RO water.
9100200	Interconnect kit for 6 and 70L tanks and Softener to Glassware washer. Allow RO Station or WaterPro Softener to be connected to a Flaskscrubber, Steamscrubber or other glassware washer to provide final rinse water.

CONTACTING LABCONCO

If you have any questions that are not addressed in this manual, or if you need technical assistance, please contact Labconco's Sales Information Department at (800) 821-5525, and Service Information at (800)-522-7658 or (816) 333-8811, between the hours of 7:00 a.m. and 6:00 p.m. Central Standard Time.

Labconco's mailing address is:

Labconco Corporation
8811 Prospect Avenue
Kansas City, Missouri 64132

Visit Labconco through the Internet at:

<http://www.labconco.com>

or

email: labconco@labconco.com