



Coster Water

**COMMERCIAL
REVERSE OSMOSIS UNIT
MODEL CWM-E1
MODEL CWM-E2
OPERATOR'S & PARTS MANUAL**

DO NOT USE OR OPERATE THIS EQUIPMENT UNTIL THIS MANUAL
HAS BEEN READ AND THOROUGHLY UNDERSTOOD

PART NUMBER 62502818 Rev. A

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62502818 Rev. A

12/17

Coster/62502818RevA

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TO THE PURCHASER

This product is designed and manufactured to give years of dependable service when properly maintained and used for the purpose for which it was intended. Never allow anyone to operate this equipment until they fully understand the complete contents of this manual. For owners who do not operate this equipment, it is their responsibility to insure that the operator has been properly instructed and is fully aware of the contents of this manual. The owner is also responsible to insure that the operator is physically and mentally capable of operating this equipment. Information contained in this manual is important in the safe handling of this equipment, and also achieving an efficient operation. If there are any questions about information in this manual, it is important to contact your dealer for clarification.



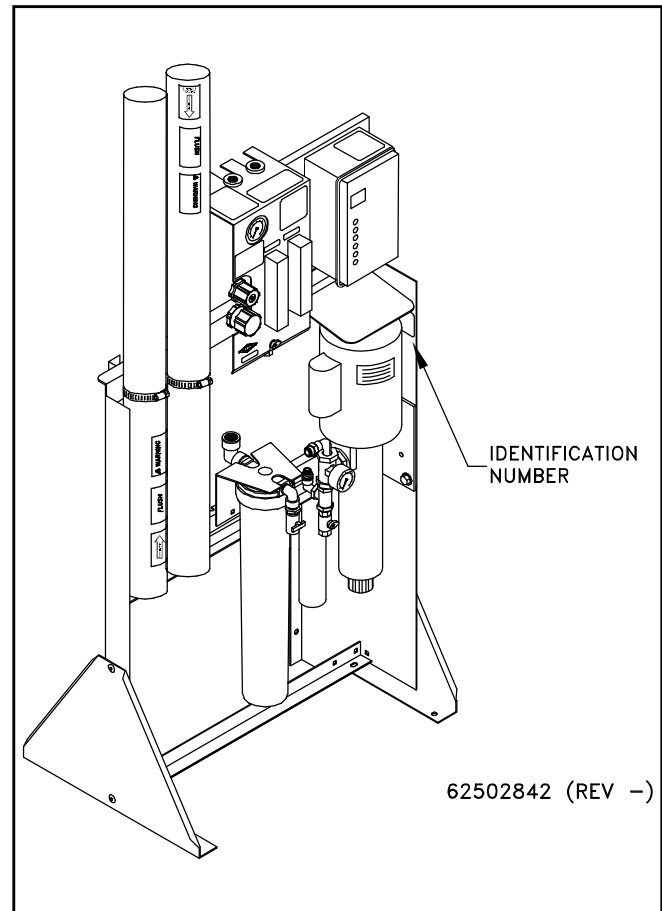
This is the safety alert symbol, it is used to alert the operator to instructions concerning the personal safety and risk factor of this equipment. Always observe and heed these very important instructions to promote a safe operation with good preventive maintenance habits.

Always obtain original equipment service parts from Coster Engineering. Never accept any type of substitute items, as this could affect the equipment performance.

A registration card is to be filled out by your dealer with your name and address and promptly returned to the factory. The form provides a ready reference to help in answering questions that you may have at a later date. You will need to furnish the same information to your dealer when obtaining service parts. This equipment is warranted as STATED ON REAR COVER OF THIS BOOK.

We urge you to make certain that your completed registration card has been sent in so that you will receive maximum service benefits. This form does not put you on any mailing list nor is the information on the card available to anyone else.

The location of the identification number plate on this equipment is as shown.



Please fill in the following information for your records:

DATE OF PURCHASE _____

OWNER'S NAME _____

DEALER'S NAME _____

IDENTIFICATION NUMBER _____

IMPORTANT: Never operate this machine until the user fully understands the complete contents of the owners instruction manual. For owners who do not operate this equipment, it is their responsibility that the user has been properly instructed and fully aware

of the manual contents. This is important in the safe handling and in obtaining an efficient operation of the machine.

Please retain this manual for future reference.

Please read this manual in its entirety before using this machine.

DISCLAIMER

The information contained in this document is subject to change without notice.

Coster Engineering shall not be liable for technical or editorial omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

SAFETY



TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.

This symbol means **ATTENTION: BECOME ALERT, YOUR SAFETY AND OTHERS IS INVOLVED.**

SAFETY SIGNAL WORDS

DANGER: Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.

WARNING: Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.

CAUTION: Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



WARNING: Read and understand operator's manual prior to making any repair, adjustments, or performing any maintenance on this machine.



WARNING: Install and operate this machine only in accordance with all applicable labeling, licensing, testing and inspection, installation, electrical, plumbing, health and safety, food water and vending machine codes.



WARNING: Unplug this machine prior to making any repairs. Failure to take proper precautions may result in electrical shock and death.



WARNING: Do not make any alteration or modification in the wiring or plumbing of this machine. Such alterations can result in damage to your machine, and /or cause injury, illness, or death to maintenance personnel, operators, and users of this machine.



WARNING: Flush system before use to remove all chemicals present.

The preservative, sodium bisulfite (SBS), is used to prevent microbiological growth during storage and shipment. Some individuals may experience a severe allergic reaction if machine is not flushed before start up.



WARNING: If unit is used to produce potable drinking water, **DO NOT OPERATE WITHOUT AN ACCEPTED STERILIZATION DEVICE** (ultraviolet light, ozone generator etc.) to treat the reverse osmosis water. The device must be properly sized and maintained according to all applicable federal, state and local regulations. Unit must be equipped with automatic shut down device preventing untreated water to be dispensed if sterilization device fails.



WARNING: This machine must be connected to an inspected, approved, potable water system only containing 500 parts per million (PPM) of total dissolved solids (TDS) or less.



WARNING: Use only sanitary FDA approved piping, regenerate, filters and membranes in this machine. Failure to do so may result in illness, injury, or death to users of this machine.



WARNING: Never allow unauthorized or improperly supervised personnel to operate or service this machine. They must be responsible, properly trained and qualified.



WARNING: Do not look directly into the ultraviolet light or eye damage may result. Always wear UV safety goggles and cover all exposed skin when securing UV bulb.



WARNING: To prevent accidental tipping, the unit must be secured to the wall or base. The wall or base must be capable of safely holding the weight of the unit.

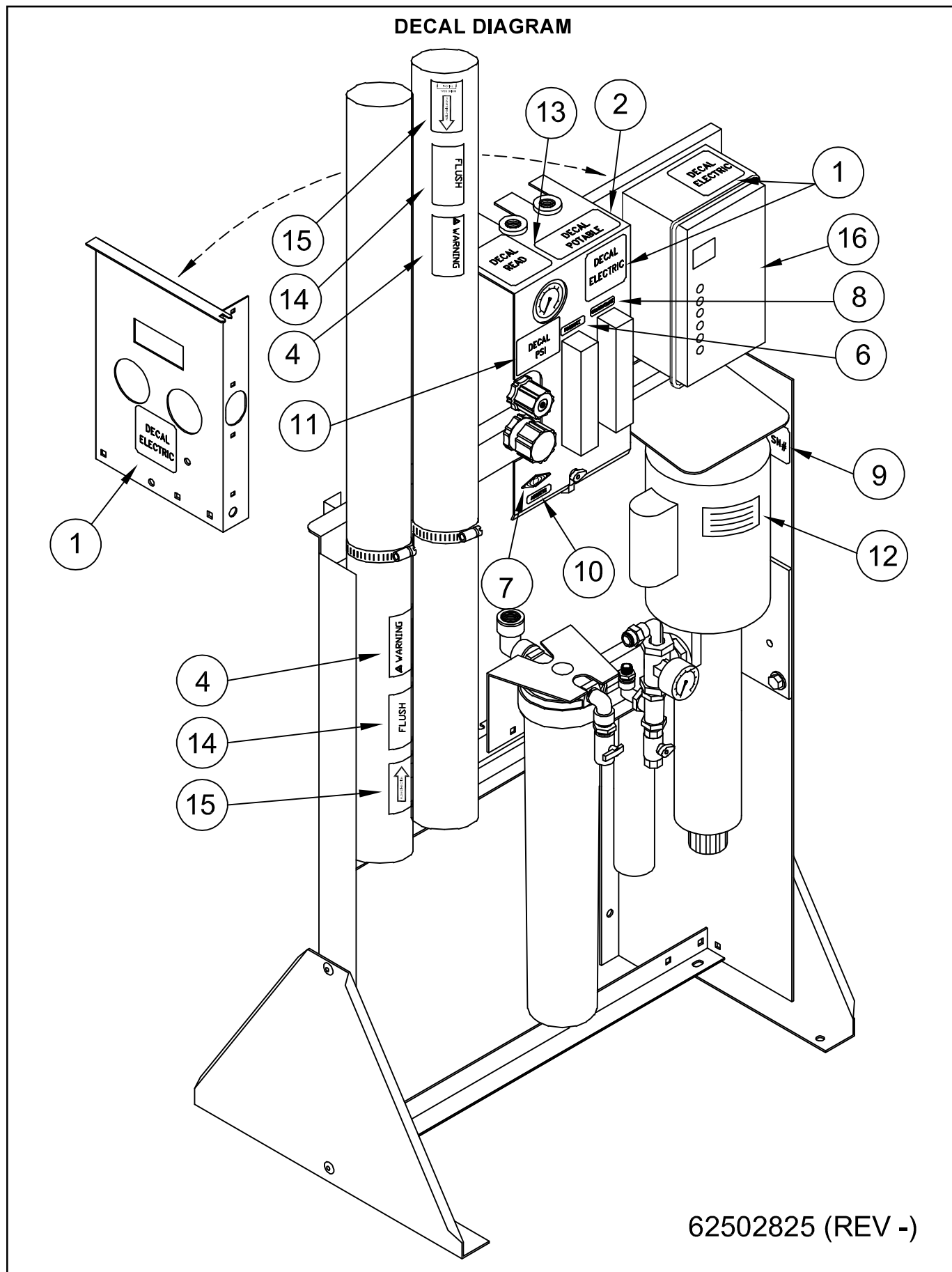


FIGURE 1



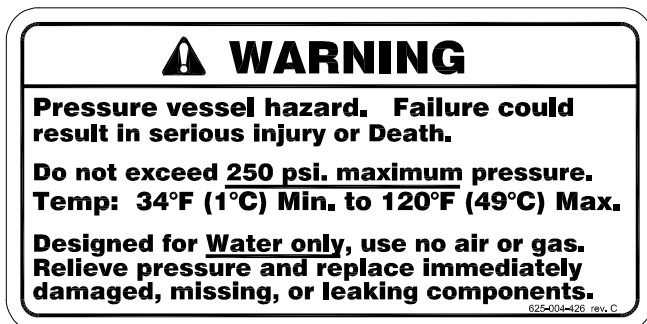
1. Decal 625-002-075 located on flowmeter panel and electrical bracket rear. (Fig. 1)



2. Decal 625-002-085 located by inlet. (Fig. 1)



3. Decal 62501730 located on front of dispenser option. (Not Shown)



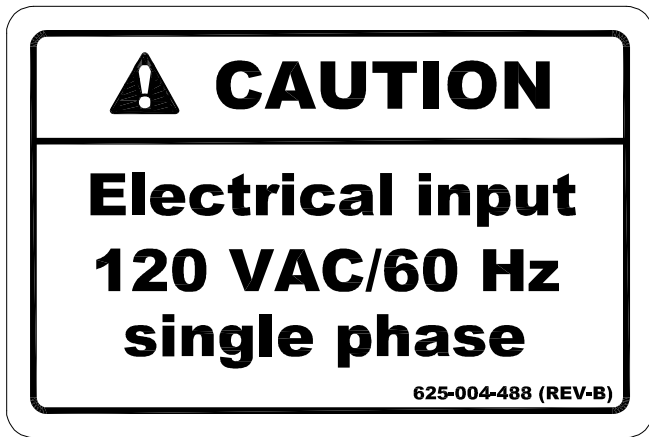
4. Decal 625-004-426 located on pressure vessel. (Fig 1)

SERVICE LOG Ultraviolet Lamp

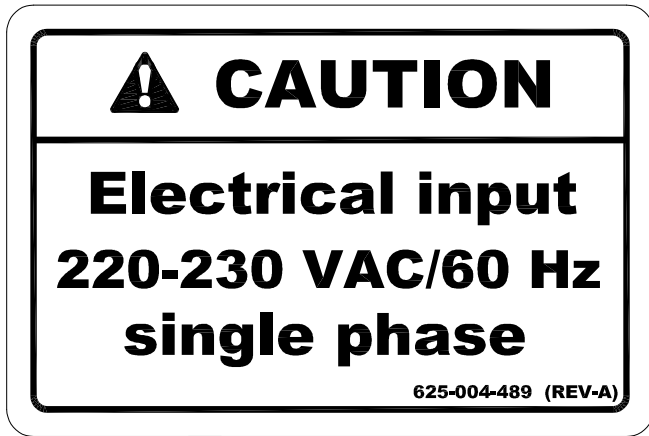
DATE LAMP INSTALLED	DATE LAMP TESTED	DATE LAMP INSTALLED	DATE LAMP TESTED

a. Replace UV Lamp Every 6 Months of use or:
b. Test at 6 Months for Minimum intensity of 16,000 microwatt seconds per square centimeter at 254 nanometers and Replace every 12 Months of use. For Replacement log order 62502938.

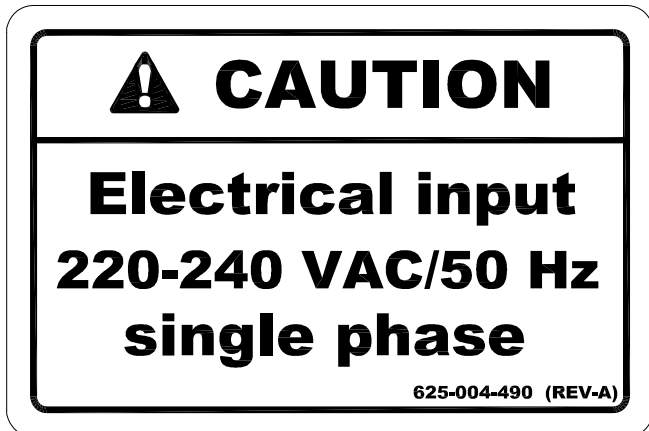
5. Decal 62502938 service log decal located by optional ultraviolet light. (Not Shown)
6. 625-004-018 Decal, permeate, located on control bracket (Fig. 1)
7. 625-001-030 Decal, Coster 1/4 size logo located on control bracket (Fig. 1)
8. 625-002-093 Decal, concentrate, located on control bracket (Fig. 1)
9. 625-004-475 Serial Plate, located on frame below electrical bracket (Fig. 1)
10. 625-001-025 Decal, Coster address, located on control bracket (Fig. 1)
11. 62500527 Decal, 125 PSI max. (Fig. 1)
(Located on control bracket)



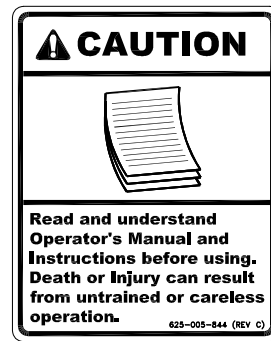
12. 625-004-488 Decal, Caution, 120 VAC 60 Hz. (120 VAC 60 Hz units only). located on pump motor. (Fig 1)



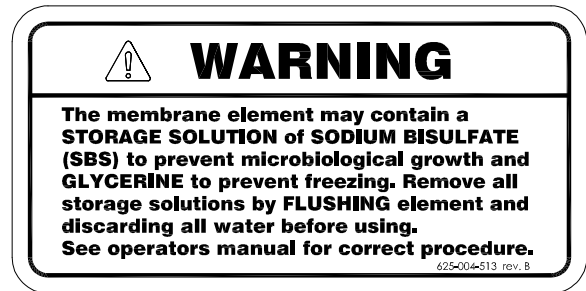
12. 625-004-489 Decal, 240 VAC 60 Hz. (230 VAC 50 Hz. units only) located on pump motor (Fig. 1).



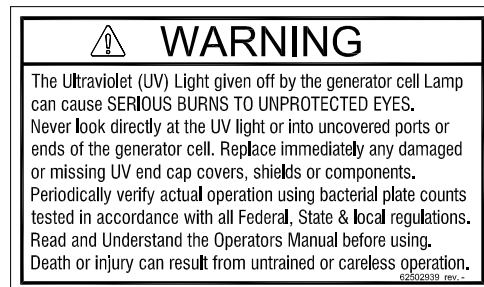
12. 625-004-490 Decal, Caution, 240 VAC 50 Hz. (240 VAC 50 Hz. units only) located on pump motor.



13. 625-005-844 Decal, Caution, read instructions located on control bracket (Fig. 1).



14. 625-004-513 Decal, located on membrane housing (Fig. 1).
15. 62501209 Decal, flow direction, located on membrane housing (Fig. 1).
16. 62502732 Decal, Instruction, located inside electrical box. (Fig. 1)



17. 62502939 Decal, U.V. Warning located by optional U.V. light (Not Shown).

SAFETY FEATURES

This machine provides the needed safety shut offs should certain conditions exist.

The machine will not operate if:

1. The feed inlet pressure is less than approximately 10 psi.

TECHNICAL SPECIFICATIONS

DIMENSIONS:

Height:72 Inches
 Depth:20 Inches
 Width:30 Inches

SPECIFICATIONS:

Model	Elements	Production *	Recovery	Motor **	Shipping Weight (Approx.)	Inlet ***	Outlets	
							Product	Concentrate
CWM-E1	Qty. 1	1,500 GPD	50%	3/4 HP	215 Lbs.	3/4" FNPT	1/2" FNPT	1/2" FNPT
CWM-E2	Qty. 2	3,000 GPD	50%	3/4 HP	240 Lbs.	3/4" FNPT	1/2" FNPT	1/2" FNPT

* Approximate product flow based on properly pretreated feed water of 1000 ppm TDS (as NaCl), 15° C (59° F) and silt density index less than 3. Production capacity may vary due to feed water temperature, pressure, quality and product back pressure.

** Electrical: Standard: 240 VAC 60 Hz Single Phase Pump: (15 Amp Type 6-15P Plug)
 125 PSI Maximum (4" Element).
 Optional: 120 VAC 60 HZ Single Phase Pump: (20 Amp Type 5-20P Plug)
 Optional: 240 VAC 50 Hz (Plug varies depending on location).

*** Inlet Pressure: 20 PSI Minimum (when running), 80 PSI Maximum.

We reserve the right to amend these specifications at any time without notice. The only warranty is the standard written Coster Engineering warranty. We make no other warranty, expressed or implied. Consult factory for details.

STANDARD FEATURES:

RO Element: 4" x 40" Extra Low Energy Thin Film
 Pressure Vessels: 304 Stainless Steel (SS)
 Pump: Centrifugal SS Shell SS Shaft
 Frame: 409 SS
 Flow Meters: Product And Waste
 Low Pressure Cutoff Switch
 Pre Filter: 1 Micron Sediment
 Pump Inlet Pressure Gauge
 Inlet Feed Electric Solenoid Valve
 Inlet Manual Shutoff Valve
 Product Reverse Flow Check Valve
 Waste Recycle Valve
 Control: Programmable with LCD readout.

OPTIONS:

Carbon Tank for Chlorine Removal
 Water Softener
 UV Light
 Remote Storage Tank
 Product Dump Valve Kit (Option Requires TDS Meter)
 Cover, Painted
 Total Dissolved Solids (TDS) Meter
 Remote System Status Indicator Lights

GENERAL INFORMATION

The Coster Engineering Commercial Water Machines are designed to supply a reverse osmosis water from an approved potable water supply.

1. PARTICLE PREFILTRATION

The first step is a twenty (20) inch, 1 micron sediment cartridge filter composed of spun polypropylene.

The particle filter removes suspended particles such as, silt, fine sand, and grit.

2. CARBON PREFILTRATION (Optional)

This filter removes chlorine that would destroy the reverse osmosis membrane.



WARNING: Unit must have a device to remove chlorine if present. Chlorine will destroy the R.O. membrane.

3. REVERSE OSMOSIS

Next, a reverse osmosis (RO) membrane removes up to 98% of the water's remaining dissolved contaminants.

The amount of RO water produced by the machine will drop if...

- A. The feed water temperature drops. For every one degree centigrade drop in feed water temperature, R.O. product will fall 3 percent.
- B. The R.O. membrane becomes fouled. In normal operation, minerals and biological materials may build up on the membrane. In most cases the membrane can be cleaned to increase its water production.
- C. The feed water TDS increases. If the TDS of the feed water to the machine rises, production of water will decrease.

4. THE R.O. WATER STORAGE TANK (Optional)

The optional storage tank is covered tank. The tank must be constructed of an FDA approved material, such as stainless steel or polyethylene, suitable for storing RO water.

5. POST CARBON FILTRATION (Optional Dispensing Unit)

Prior to ultraviolet sterilization and dispensing, a final carbon impregnated filter cartridge polishes the product water removing any remaining odors, tastes, or discolorization.

6. ULTRAVIOLET STERILIZATION (Optional)

The final water treatment process is ultraviolet sterilization. While the product water is being dispensed, it passes through a chamber which irradiates the flow with ultraviolet light.



WARNING: If unit is used to produce potable drinking water, DO NOT OPERATE WITHOUT AN ACCEPTED STERILIZATION DEVICE (Ultraviolet Light, Ozone Generator etc.) To treat Reverse Osmosis water, the device must be properly sized and maintained according to all applicable federal, state and local regulations. Unit must be equipped with a shut down device preventing untreated water to be dispensed if sterilization device fails.

INSTALLATION AND SETUP

PRELIMINARY SITE INSPECTION

WATER SERVICE

The industrial unit can only be connected to an approved potable water source that will provide a 6 GPM feed minimum.

Obtain or measure the following parameters from the water source. (Contact Coster Engineering for required test equipment if not available locally.)

- | | |
|-------------|-----------------|
| 1. TDS | 3. Hardness |
| 2. Chlorine | 4. Iron (Total) |



WARNING: Chlorine will damage the reverse osmosis membrane. Feed water, free chlorine must be 0 to 0.1 ppm maximum. Carbon filters must be replaced when the residual free chlorine approaches 0.1 ppm. Failure to maintain proper chlorine levels may void your warranty.



CAUTION: Under no circumstances allow your machine to freeze. Freezing may cause permanent damage to your plumbing or other wetted parts.

NOTE: Values for hardness and iron can be obtained from your local municipality, sending a sample to Coster, or obtaining and testing your own sample. Should the hardness of the feed water source exceed 150 ppm, (approx 8 grains), and/or the iron level exceeds .05 ppm, softener pretreatment will be required.

ELECTRICAL



WARNING: Verify grounding continuity before operation.

Connect only to a properly grounded outlet. If possible connect unit to separate branch circuit with no other appliances or equipment on it. 240 VAC units require a 15 amp circuit. 120 VAC units require a 20 amp circuit.

PLUMBING

The machine should not exceed 100 feet from access to the nearest water source and drain connection.



WARNING: Use only sanitary approved FDA materials for plumbing connections.

SET-UP

SERVICE CONNECTIONS

1. Water feed line - 3/4 inch FNPT connection (See Figure 2).
2. Plumbing connections should be a minimum of 3/4" ID for feed.
3. The feed pressure should not be less than 20 psi at the machine when running.
4. Drain line and product line - 1/2" FNPT connection (1/2" ID).

MACHINE SET UP

NOTE: To reduce surface rust, Do Not lay carbon steel tools on stainless unit. Lightly coat entire stainless surface of frame vessel and cover with WD-40 spray lubricant (or equal). Wipe off excess lubricant with a soft clean cloth.

NOTE: Do not plug machine in or apply power until all of the required installation procedures have been completed.

NOTE: Be sure that installation of this machine complies with all applicable federal, state and local electrical and plumbing codes and standards for electrical and plumbing codes. Installations - The machine must be installed in a location free of dust and debris.

1. Move the machine to desired setup location. Cut the banding and remove packing material; inspect the machine for any damages that may have occurred in transit.

MACHINE SETUP (Continued)

2. Place machine on floor and secure. Refer to Figure 3 for optional wall mounting.
3. Connect plumbing inlet and outlet lines. Use guidelines specified in: "Service Connection", Figure 2. Secure plumbing to walls or hangers.
4. Install prefilter.

NOTE: Do Not plug machine in or apply power until requested.

5. Check all fittings for tightness.

NOTE: This will prevent water leakage caused by loosening of fittings during shipment.

6. Install optional tanks and float switch per following illustrations.

NOTE: Storage tank must be equipped with a float switch and tank overflow drain line to prevent over filling of tank.

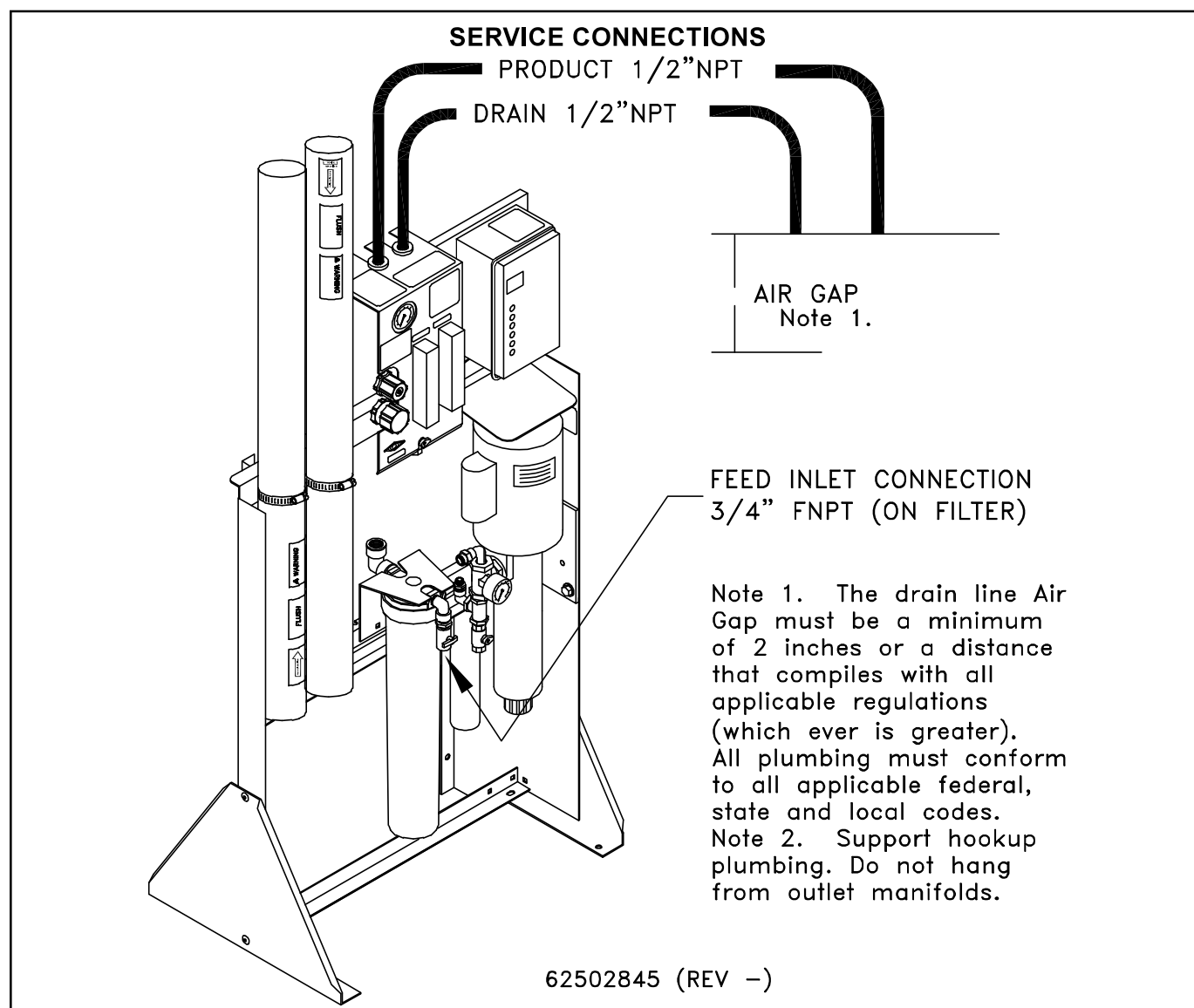


FIGURE 2

WALL MOUNTING

Wall Mounting Option:

1. Use four (4) 7/16 diameter holes on rear of unit as attachment points for mounting to wall. Refer to illustration for hole locations.

2. Prepare wall for unit mounting.

CAUTION: When drilling into wall, do not contact or damage hidden electrical wiring or other utilities.

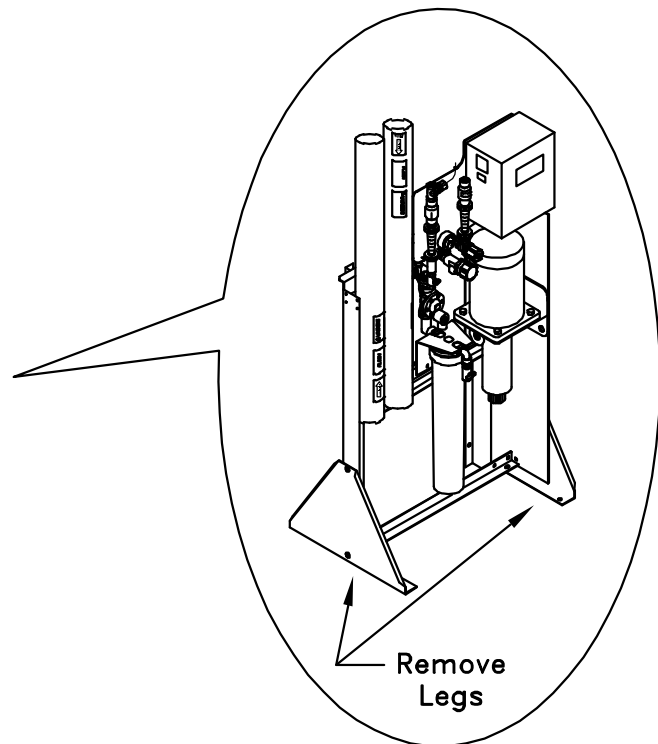
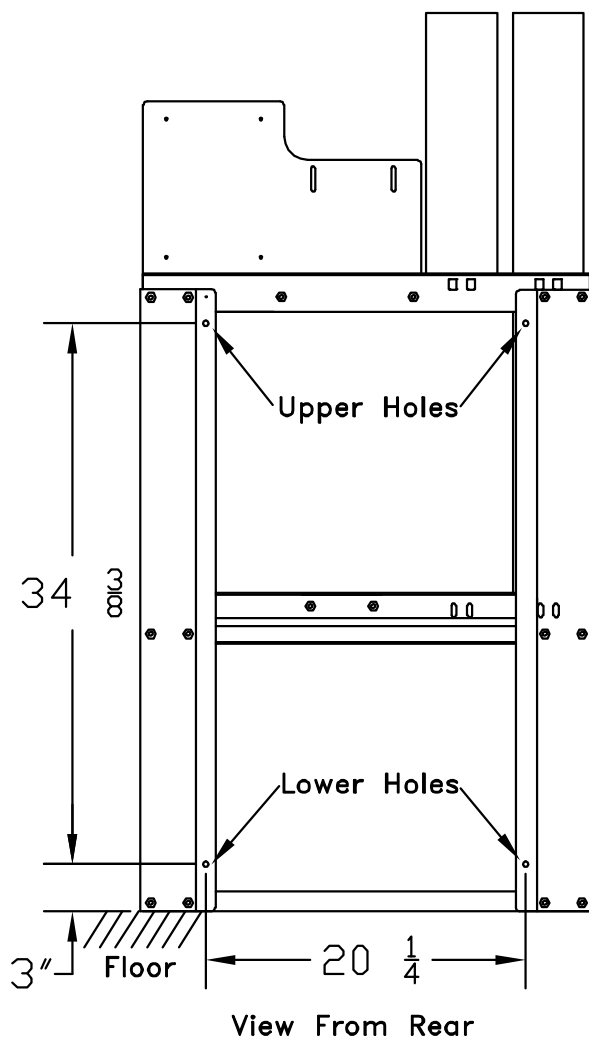
IMPORTANT: Hardware used to attach unit to wall must be secured to structural members capable of supporting unit weight.

WARNING: Support unit adequately **BEFORE** removing leg brackets. Failure to do so may result in injury or damage to unit.

3. Remove leg brackets from each side of frame.

4. Slide unit against wall in desired location. With unit sitting on floor, against wall, attach to wall with appropriate hardware. (Customer supplied).

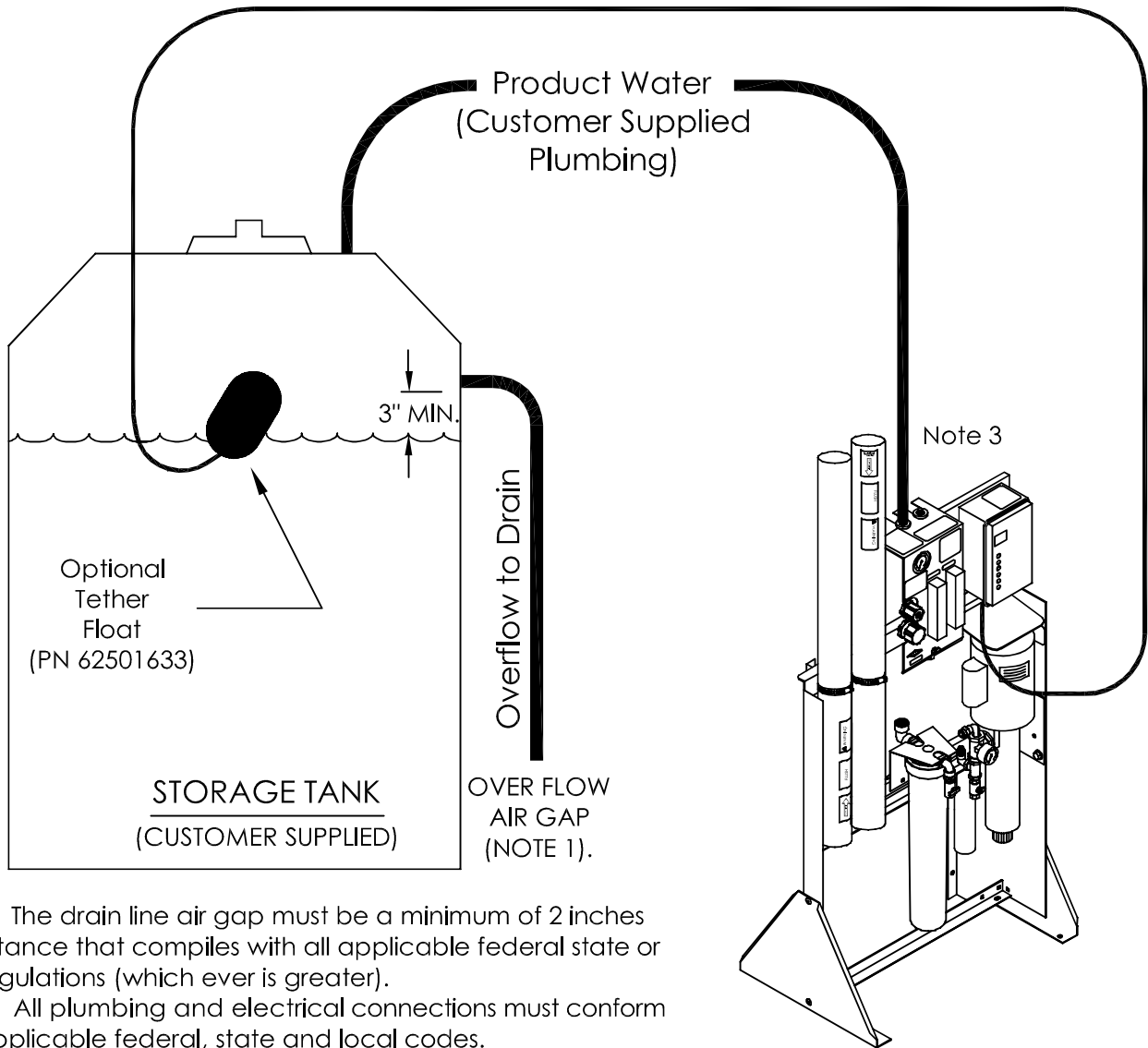
Note: Weight of unit should be supported by floor, not wall.



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FIGURE 3

OPTIONAL KIT# 62502190 TANK FLOAT SHUTDOWN



Note 1) The drain line air gap must be a minimum of 2 inches or a distance that compiles with all applicable federal state or local regulations (which ever is greater).

Note 2) All plumbing and electrical connections must conform to all applicable federal, state and local codes.

Note 3) Adequately support hookup plumbing. Do not hang plumbing from outlet manifolds.

Note 4) Tank float switch/switches must be installed and configured so the switch opens when the tank is full.

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FIGURE 4

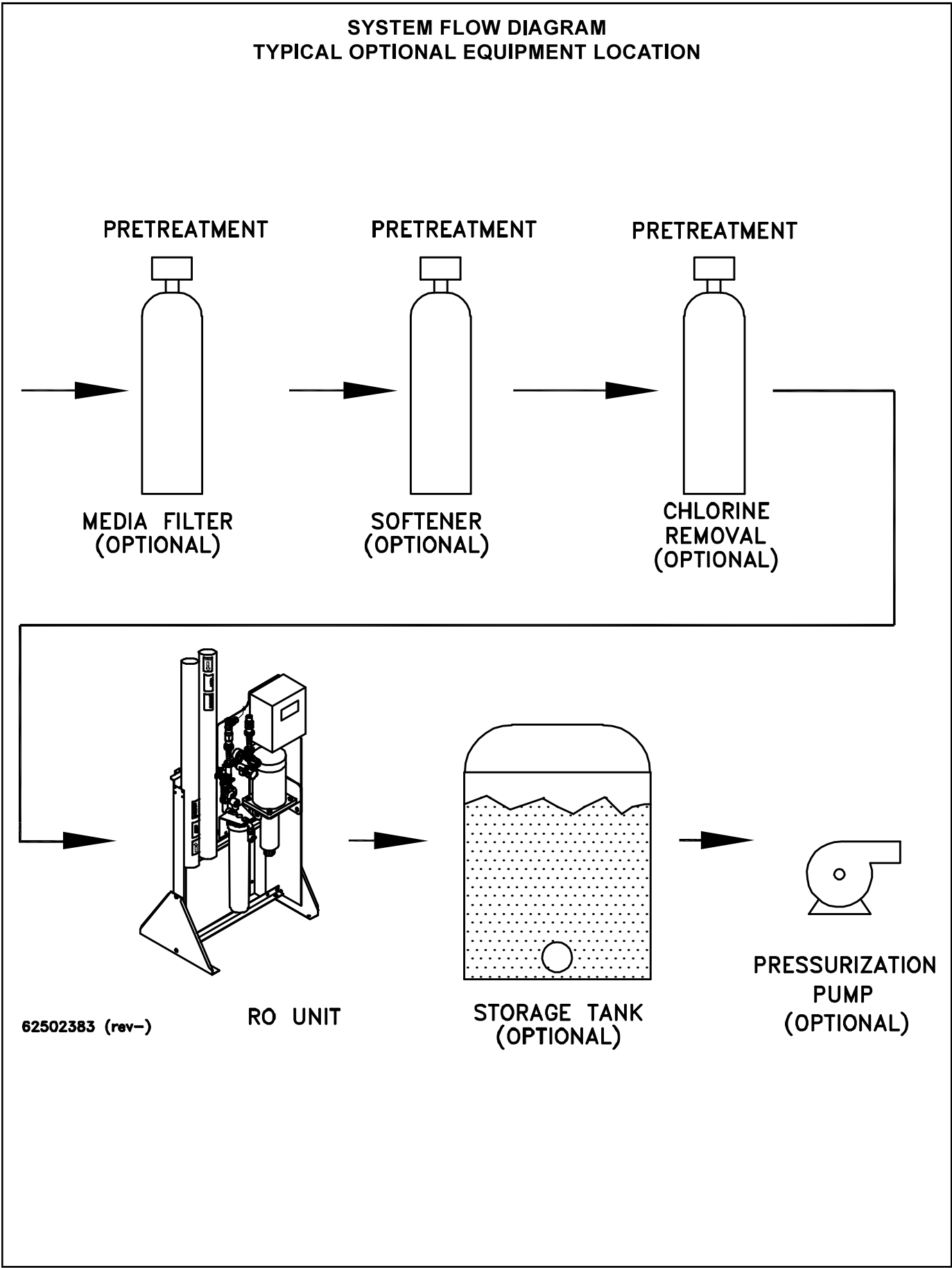


FIGURE 5

SYSTEM START UP

I. FLUSHING



WARNING: Your reverse osmosis element may contain a storage solution made up of Sodium Bisulfite (SBS). Some individuals may experience allergic reactions to SBS. Please make sure the system is flushed thoroughly. The element may also contain a Propylene Glycol solution to prevent freezing in winter months.

Refer to Figure 6.

IMPORTANT: All product and concentrate water must be discarded during flushing procedure.

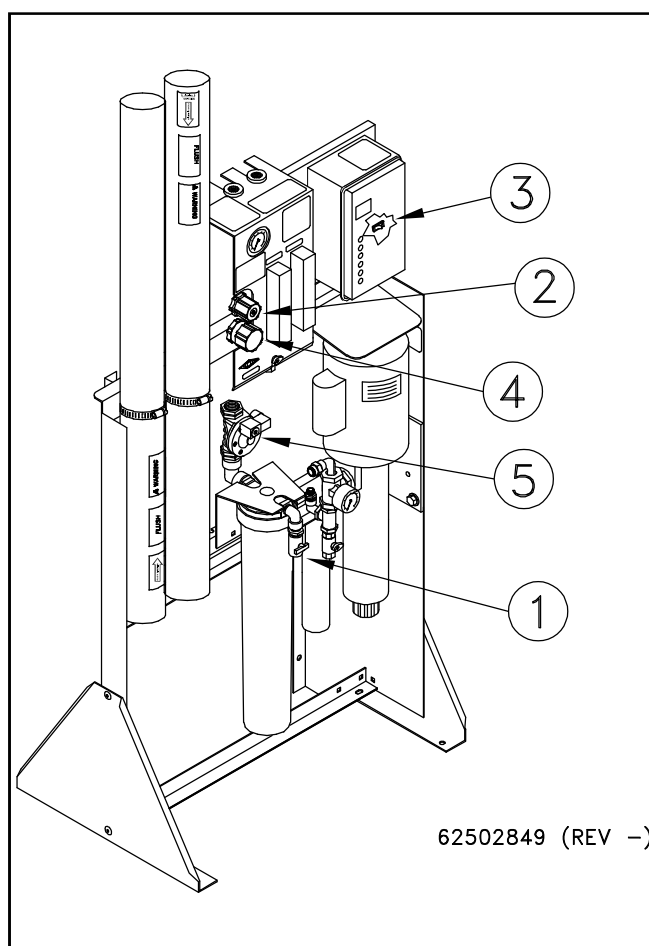
1. Open water inlet valve #1.
2. Open (fully counter clockwise) concentrate back pressure valve #2.
3. Manually open inlet electrical solenoid valve # 5, located by inlet filter, by turning red (or white) actuator 90°. The actuator is located directly by the solenoid coil. Leave open until flow is indicated in flow meters, and air has been purged from hoses and vessels. Close manual red (or white) actuator by turning 90° after all air has been purged from system.

IMPORTANT: Take a sample of water from filter sample cock during this time. Test for chlorine. Do this during the first five (5) minutes of operation. Free chlorine must be 0 to 0.1 ppm maximum.

4. Position switch #3 to "ON".
5. Close electrical box cover. Plug in machine.

NOTE: Unit must have a float signal to start the 2 minute pre flush cycle.

6. Run at low pressure (50-70 psi) for at least 5 minutes.
7. Adjust operating pressure with valves 2 and 4. Do not exceed 125 psi.
8. After 15-20 minutes, take a sample of product water. Continue to flush until water is odor free.



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FIGURE 6

II. SYSTEM CHARGING

1. Clean product storage tank. Triple rinse after cleaning.
2. Attach product water line to tank. (Fig.4).

IMPORTANT: Product water flow meter reading should equal but never be larger than concentrate flowmeter reading. This 50% recovery rate should never be exceeded to promote long membrane life. Reduce recovery rate (by increasing concentrate flow) when feeding high TDS water that may cause premature membrane fouling.

$$\text{Recovery Rate} = \frac{\text{Product Flow (GPM)}}{\text{Product Flow (GPM) + Concentrate Flow GPM}} \times 100\%$$

3. Let machine charge until storage tank is full, observing that RO unit flushes and shuts down automatically.
4. Machine is now ready to use.

GENERAL MAINTENANCE

General maintenance depends upon the feed water quality and use of the machine. To build a proper maintenance schedule, a log sheet, as shown in the rear of this manual, should be prepared for each machine. The log sheet will contain information about feedwater and product (permeate) water quality. Periodic analysis of water quality and system parameters; flow rate and pressure readings, will help track the performance of the machine and indicate if any replacement parts are needed. Additionally, the log sheet will track replacement dates of any components, system repairs, or comments concerning operation.

The following schedule is a “Rule-of-Thumb” guide to performing general maintenance and service on the unit. For additional maintenance information addressed in the schedule below, please refer to the appropriate sections in the manual.

MAINTENANCE SCHEDULE

Daily

- Check the machine for proper working order. Fix any leaks immediately.
- Maintain unit cleanliness.

IMPORTANT: To reduce rust, Do Not use Carbon Steel Wire Brushes or devices to clean stainless frame or vessels. Clean with soap and water and plastic (non-metallic) abrasives and brushes. Lightly coat stainless with WD-40 or equivalent spray lubricant suitable for location.

Weekly

- Test and record the chlorine level after the precarbon filter. Use the test cock on pump inlet to collect the sample. The carbon filter must be replaced when the residual free chlorine approaches 0.1 ppm maximum. Free chlorine will destroy the membrane (See Filter Maintenance and Measuring Chlorine Section).

- Log sheet readings on a weekly basis are completed for more critical operations. Frequency to be determined by customer/owner.

Weekly Or Bimonthly

- Check the 20” sediment filter, replace if dirty. Replace the filter when pressure drop approaches 15-20 psi maximum.
- Check machine for leaks or damage.
- Check salt tank level (where applicable).

6 Months

- Coliform test.

NOTE: Must conform to all state and local regulations regarding frequency.

- Test UV light (If equipped).

Periodic (As Required)

- Sterilization as required.

NOTE: Must conform to all state and local regulations.

- Clean exterior of unit.

IMPORTANT: Your actual maintenance schedule may vary according to water quality, machine usage, and must conform to all federal, state and local requirements. Please adjust the maintenance schedule as required. However, for any filter replacement please do not exceed the maximum period of time or volume of water recommended for their respective replacement.

FILTER MAINTENANCE

NOTE: Coster Engineering recommends frequent replacement of the prefilters in order to minimize any possible fouling of the reverse osmosis element. It is Coster Engineering's belief that such replacements will save you money in membrane replacement in the long run.

General

The following points should be observed when changing filters.

1. Filter housings are to be screwed on only hand tight.
2. Relieve line pressure before attempting to unscrew filter housing. Close inlet valve. Relieve line pressure by opening sample port.
3. Unscrew filter cartridge housing (counter clockwise) by hand.
4. Discard old filter.
5. Clean filter housing and rinse with clean water.

NOTE: If the interior of the filter housing gets slimy, a cleaning and disinfection will be required. (See Sterilization Section).

6. Insert new cartridge.

Make sure cartridge filter is lined up on top and bottom posts before screwing cartridge housing tight.

7. Replace cartridge housing.

Check to make sure o-ring is clean, properly seated and lubricated before assembling filter housing.

IMPORTANT: Always flush carbon fines from a new filter using sample port until water runs clear. Carbon fines can damage the RO membrane.

NOTE: Use only food grade grease for lubrication.

Sediment Filter

This filter catches any of the sediment in the feed water. It also prevents any carbon fines from getting through to the membrane. It should be inspected and changed according to the maintenance schedule. The frequency of changes can be adjusted according to the appearance of the interior of the sediment filter.

Pre-Carbon Filter (Optional)

This filter removes chlorine and other volatile organics before the feed water is fed to the membrane. With sediment filter installed, always flush a new filter using sample port until water runs clear with no visible trace of carbon fines.

NOTE: Chlorine will attack the membrane, destroying the membrane and it's ability to reject contaminants. Filters must be replaced when the residual free chlorine approaches 0.1 ppm maximum. Test for free chlorine using "low range" 0-.7 mg/1 test kit instructions.

Change Schedule

Pre Carbon

- Checked or Replaced: Daily/Weekly
- Replacement: As required/0 to .1 ppm max free chlorine
- Max: As required

Sediment

- Checked or Replaced: 1-2 weeks
- Replacement: As required
- Max: 90 days

NOTE: Filter replacement listed is maximum amount of time period and volume. Actual replacement must be tailored to specific feed water quality.

R.O. MAINTENANCE

Reverse Osmosis Membrane Performance

1. Collect a sample of product water.
2. Take a TDS (product water) reading with your TDS meter.
3. Collect a sample of the feed water through the sample port located on prefilter.
4. Take a TDS (feed water) reading.



IMPORTANT: If feedwater quality changes, check pretreatment devices for proper function.

5. Calculate rejection of the minerals with the following formula:

$\text{Rejection \%} = \frac{\text{TDS (Feed Water)} - \text{TDS (Product Water)}}{\text{TDS (Feed Water)}} \times 100$

6. Compare current rejection reading with the first entry on the log sheet.



IMPORTANT: If product flows and/or system rejection decreases, reduce recovery of system by increasing concentrate flow to drain.

Short Term Shut Down

Run the unit for 10-15 minutes daily to flush water through the system. Variables which may affect this schedule are ambient temperature and feedwater quality.

Long Term Storage

Remove membrane and immerse in a storage solution of 1.0% by weight sodium bisulfite. For freeze protection add 20% by weight propylene glycol to the storage solution.

Mixing ratio for storage/shipping solution:

- 1 U.S. gallon (3.79 liters) potable water
(plus)
- 1.3 oz (38 grams) sodium bisulfite (food grade)
(biological growth reduction)
(plus)
- 27 fluid oz. (760 grams) Propylene Glycol (freeze protection)

UV LIGHT MAINTENANCE



WARNING: Ultraviolet light given off by the UV lamp can cause serious burns to unprotected eyes. Do not operate the UV Lamp when it is removed from the UV chamber. Unintended use or damage of the system may result in the exposure of dangerous UV radiation. UV radiation may, even in little doses, cause harm to the eyes and skin.



WARNING: When testing UV intensity, always wear UV safety goggles (available from Coster Engineering). Exposure may result in irreversible eye damage.



WARNING: Cover all exposed skin surfaces or skin damage may result. Perform test during closed or quiet times. Keep all unprotected persons away from direct view of the UV lamp.



IMPORTANT: A dirty quartz sleeve will reduce UV light transmission to the water and reduce disinfection performance of the UV light. When feeding a UV light with water containing higher mineral content than RO water, such as alkaline water, the Quartz Sleeve coating buildup is accelerated and requires more frequent cleaning. Initially, check sleeve monthly or bimonthly and adjust cleaning procedure to suit the type of water that you are vending. Refer to vending machine operators manual and UV light manufacturer operators manual quartz sleeve cleaning instructions.

TESTING LAMP INTENSITY/REPLACEMENT

Option 1. Replace UV Lamp every 6 months of use.

Option 2. Test at 6 months and replace every 12 months of use. A minimum intensity level of 16,000 UWs/cm² at 254 nm wave length shall be maintained for the life of the lamp.

Readings are obtained with a commercially available portable UV intensity meter. Consult Coster Engineering for recommended meter type. Follow all instructions and safety procedures included with meter.

An LED monitor located on the side of the UV assembly will indicate whether the UV bulb is lit. If this monitor light is not on, it will prevent the machine from dispensing water.

If the LED monitor goes out, shut off water supply to sterilizer immediately and disconnect power supply. Replace UV lamp with a new one by following installation directions. Regularly inspect the unit to ensure that the monitor light is still glowing.

QUARTZ JACKET CLEANING/REPLACEMENT

1. Disconnect power to vending machine.
2. Shut off the water supply.
3. Remove UV chamber from mounting clamps.
4. Disconnect the lamp connector at the end of the UV chamber and remove lamp from chamber.
5. Remove Quartz Sleeve as follows:
 - a. Unscrew retaining nuts, remove floating spring, and carefully slide sleeve out of UV chamber.
 - b. Clean sleeve with vinegar or some other mild acidic solution, then rinse with water.
 - c. Clean and lubricate O-rings with food grade lubricant or replace with new O-rings.

6. Reinstall Quartz Sleeve in UV chamber as follows. **NOTE:** Be sure no marks or fingerprints are on sleeve or lamp.

- a. Position sleeve in chamber allowing sleeve to protrude an equal distance at both ends of chamber.
- b. Slide O-rings onto each end of sleeve.
- c. Reinstall retaining nuts and floating spring.



IMPORTANT: Glass Quartz Sleeve is fragile, hand tighten nuts only.

7. Install UV lamp, lamp connector, and secure UV chamber in mounting clamps.
8. Test the unit by plugging it into the electrical outlet. The indicator light on the side of the housing should glow steadily within a few seconds. If the light does not come on or continue to glow steadily, check lamp electrical connection. Replace lamp if necessary.
9. Turn on water supply and check all connections for leaks. Allow the water to run for a few minutes to clear out any air or dust that may be in the cell.

ELECTRICAL SECTION



WARNING: Unplug this machine prior to making any repairs. Failure to take proper precautions may result in electrical shock and death.



WARNING: Be sure power has been disconnected when electrical box cover has been removed. A qualified electrician should be called in to complete any repairs.

A. COMPONENT FUNCTION (Figures 7, 9)

- MR-1 Pressure pump Motor Relay. Controls start/stop of pressure pump
- T-1 Transformer, 120 VAC x 24 VAC Supplies power to PLC and PLC Inputs/Outputs
- SW-1 On/Off Switch
- F-1 Fuse, 1 amp, Fast Acting
- PLC Programmable Logic Controller,
(R-1) 8 Inputs/4 Outputs, LCD Readout, and Operator Interface

Remote Indicator Light Panel (Optional, not shown) Consists of three Indicator Lights

1. System Run Light (Green-Top)
2. System Fault Light (Red-Middle)
3. System Power Light (Green-Bottom) indicates SW-1 is in "ON" position and electrical power to the machine

B. PLC COMPONENT

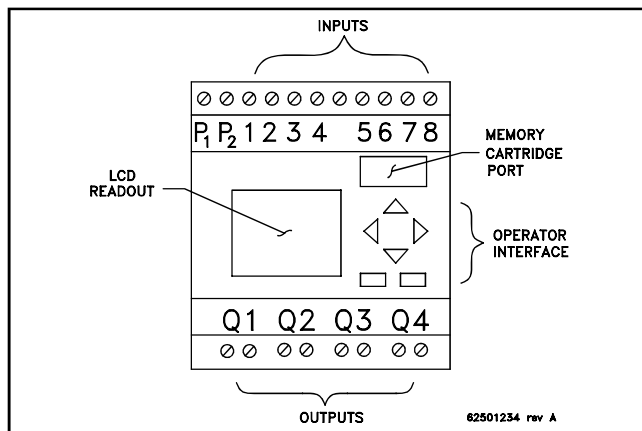


FIGURE 7

INPUTS

- I1 - Remote Storage Tank Float
(On starts RO)
(Off stops RO/Tank Full)
- 12 - Input Pressure Switch
(On - Supply Pressure OK)
(Off - Stop's RO)
- 13 - Pretreatment Device Shutdown (Optional)
(On - Pretreat OK)
(Off - Stops RO)
- 14 - TDS Shutdown (Optional)
(On - TDS High/Stops RO)
(Off - TDS OK)

OUTPUTS

- Q1- Feed Valve Solenoid
Q2- MR-1, Pressure Pump Relay
Q3- Product Dump Valve (Optional)
Q4- Remote Red Fault Light (Optional)

Operator Interface

Consists of six push buttons; Up Arrow, Down Arrow, Left Arrow, Right Arrow, ESC, and OK.

Clock settings and various timer function block settings can be changed using the Operator Interface.

LCD Display

Displays messages, input/output status, and function block status.

Note: LCD display contrast can be adjusted by accessing "Parameter Assignment Menu", then entering "Set...." Mode.

Refer to Figure 8 for navigation instructions between the PLC parameter assignment menu, PLC status screens, and PLC operating mode messages.

C. PLC Operating Mode Message

1. "Flush Mode RO startup (Pump Off)" indicates system is ro in startup pre-flush mode
2. "Run Mode (Pump On)" Indicates the system is in the run mode
3. "Flush Mode RO Shutdown (Pump Off)" indicates system is in RO shutdown post flush mode
4. "Standby: Unit Ready" Indicates system is in a normal shutdown mode
5. "Alarm Mode-Low Feed-Pressure" Indicates the system shutdown due to low feed water pressure
6. "Alarm Mode: High TDS Shutdown" Indicates the system is shutdown due to a high product water TDS alarm
7. "Standby: Pre-Treatment Device Shutdown" Indicates the system is temporarily shut down due to a pre-treatment interrupt device

LCD DISPLAY SCREEN NAVIGATION (RUN MODE)

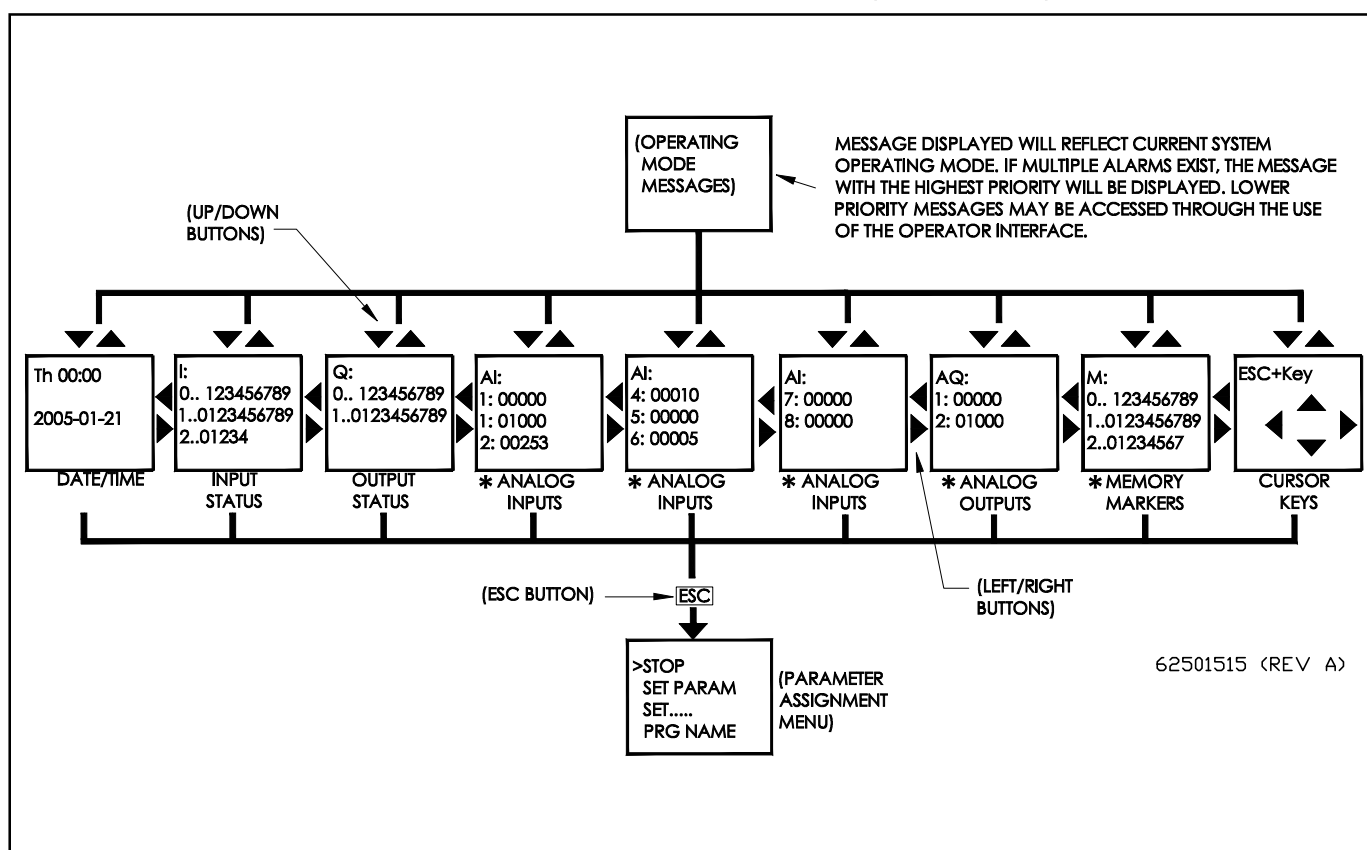
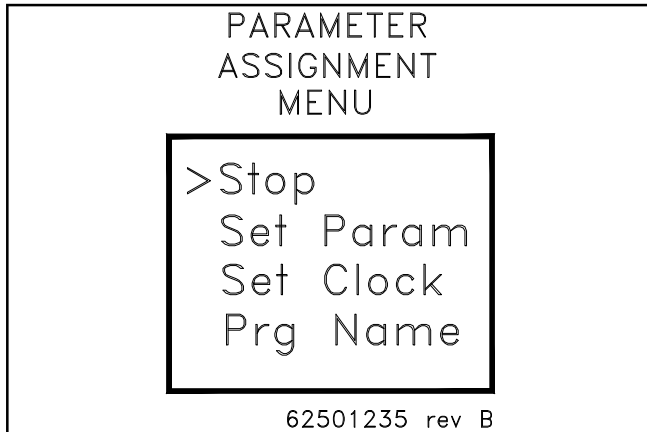


FIGURE 8

D. PLC SETTINGS

The PLC Timer, Clock, Date, and Pump Hour Meter Settings may be changed using the Operator Interface.

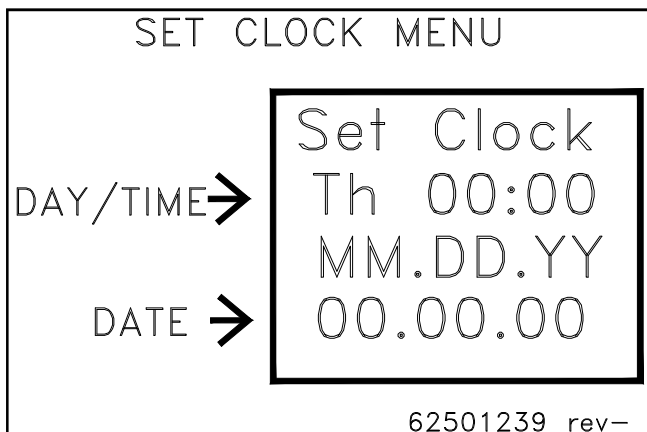
The PLC parameter assignment menu is used to access these functions.



Move the cursor to the desired function using the up/down buttons, then press the OK button to select that function. Pressing the Esc button will return the LCD readout to the previous readout.

E. PLC CLOCK SETTINGS

1. Enter the set clock mode.
2. Use Up/Down arrow button to place the cursor ">" next to "Set Clock".
3. Press the OK button.
4. Use the Left/Right arrow buttons to move the cursor. Use Up/Down buttons to change settings.

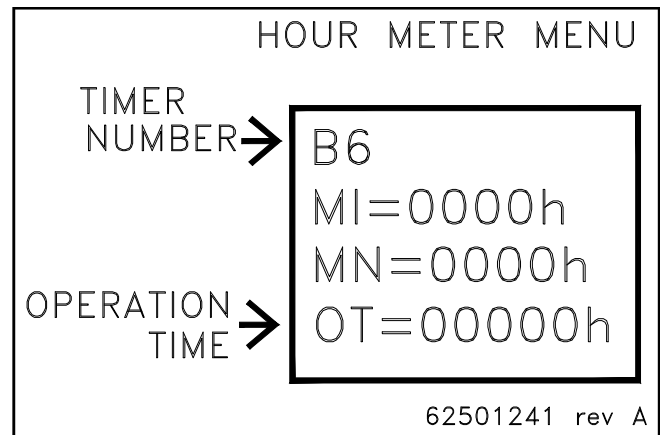


5. When finished, press the OK (escape) button to return to the Parameter Assignment Menu.

F. ELAPSED RUN TIMER (Pressure Pump)

The time of pump operation is accessed as follows:

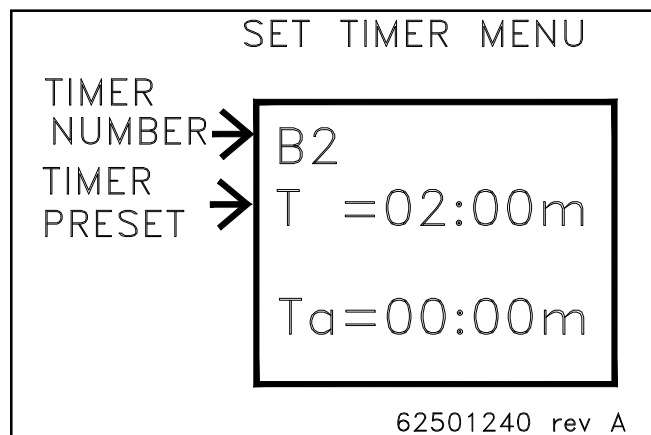
1. Enter the Set Param Mode. Press ESC.
2. Use Up/Down Arrow to place cursor ">" next to "Set Param".
3. Press "OK".
4. Use Up/Down Arrows to display "B6". The elapsed time in hours is indicated by "OT".



5. Press "ESC" to return to parameter assignment menu.

G. PLC TIMER PRESET SETTINGS

1. Enter the Set Param Mode.
2. Place the cursor ">" next to "Set Param".
3. Press the OK button. The PLC is now in the Timer Select Mode.
4. Use the Up/Down arrows to select the desired timer to be changed.
5. Press the OK button when the desired timer is displayed.
6. Use the Left/Right Arrow buttons to move the cursor, Up/Down buttons to change the preset.
7. Press the OK button to save the new timer preset.
8. Press the ESC button to return to the Set Param Menu. Repeat steps 2-8 to adjust any additional timers, or press ESC button again to Exit Parameterization Mode.



B32 = 8:00 minute TDS shutdown, delay off timer. Sets the time between TDS Monitor alarm and actual RO shutdown-Preset.

B33 = 5:00 second storage tank float switch input, delay off timer. Allows continued RO run time after loss of level switch input for topping off storage tank-Preset.

B34 = 1 hour low feed press alarm reset, delay on timer. Sets the time before the RO will attempt a restart after the occurrence of a low feed pressure alarm shut-down-Preset.

B2 = 2:00 minute RO Post Flush, delay off timer. Set the RO Postflush-Preset

B3 = 5:00 second storage tank float switch input, delay on timer- Allows for wave action in storage tank without starting RO system-Preset.

B4 = 2:00 minute RO Preflush, delay on timer. Sets the length of RO Preflush Preset.

B6 = Pressure Pump run time hour meter.
OT = actual pump run time.

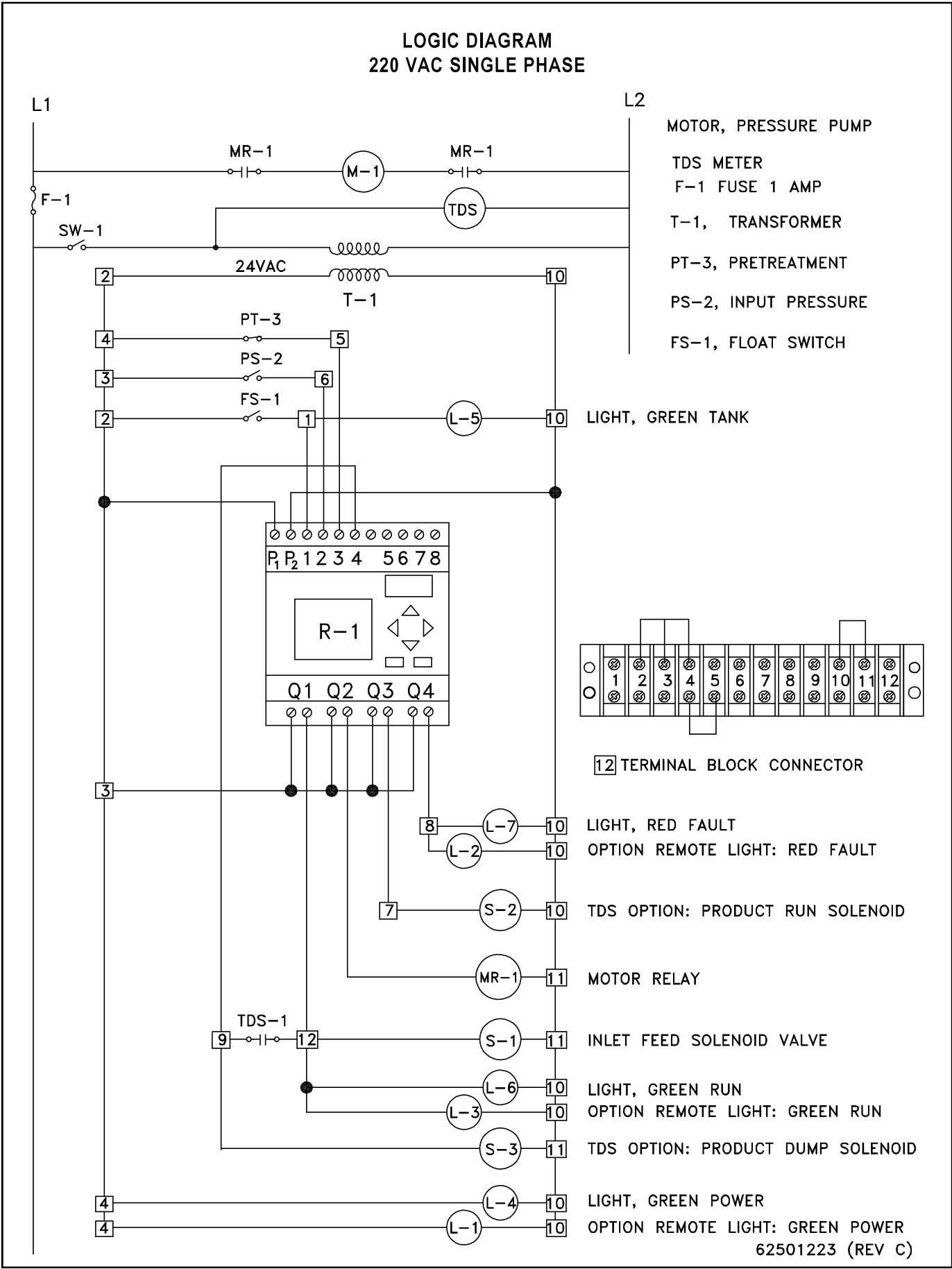


FIGURE 9

WIRING DIAGRAM
T-1 TRANSFORMER OPTIONAL 120 VAC UNITS

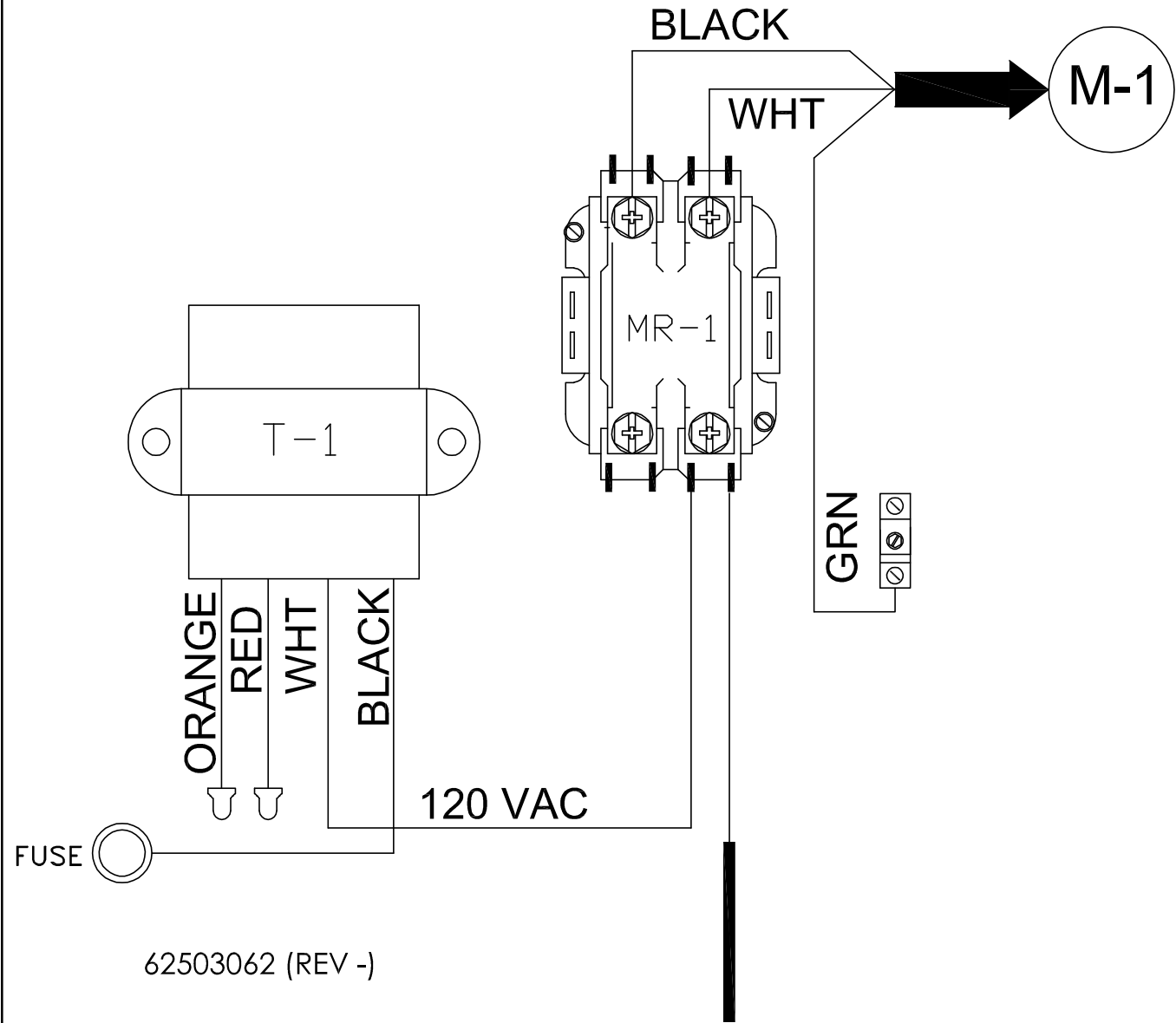


FIGURE 10

WIRING DIAGRAM 220 VAC SINGLE PHASE

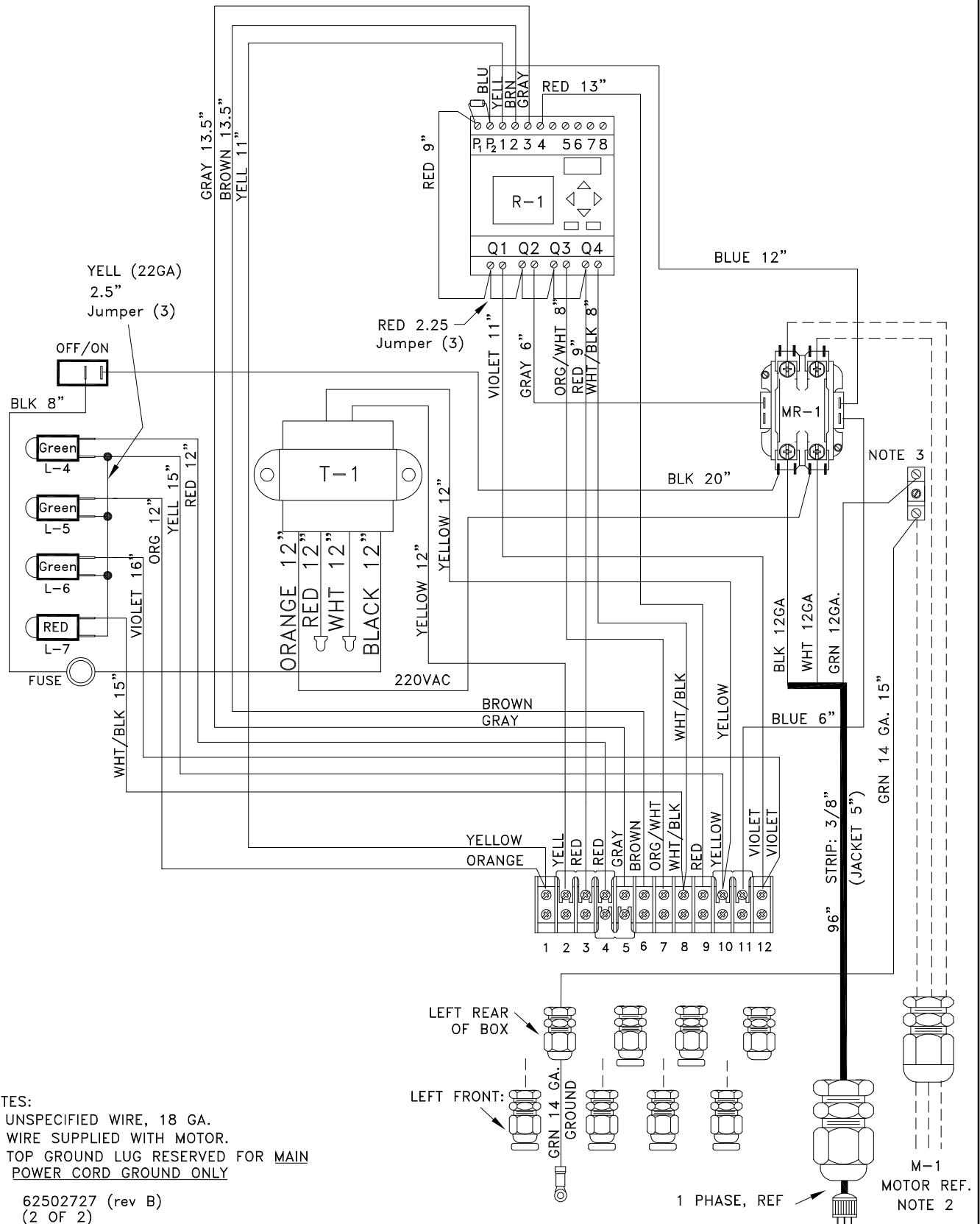
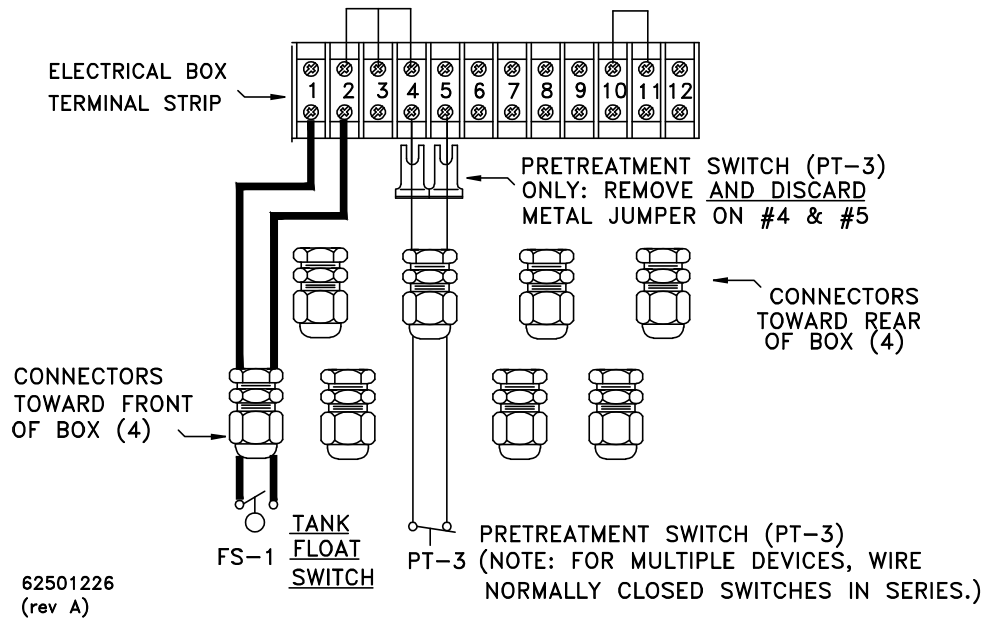


FIGURE 11

**HOOKUP DIAGRAM
STORAGE TANK FLOAT SWITCH AND PRETREATMENT SWITCH**



IMPORTANT: CUSTOMER SUPPLIED 24 VAC HOOKUP WIRE REQUIREMENTS:
a. 22 GA. MINIMUM (OUTSIDE DIAMETER: .114 MIN. 250 MAX.)
b. MUST COMPLY WITH ALL FEDERAL, STATE AND LOCAL CODES.

FIGURE 12

WIRING DIAGRAM PRESSURE SWITCH AND INLET FEED VALVE

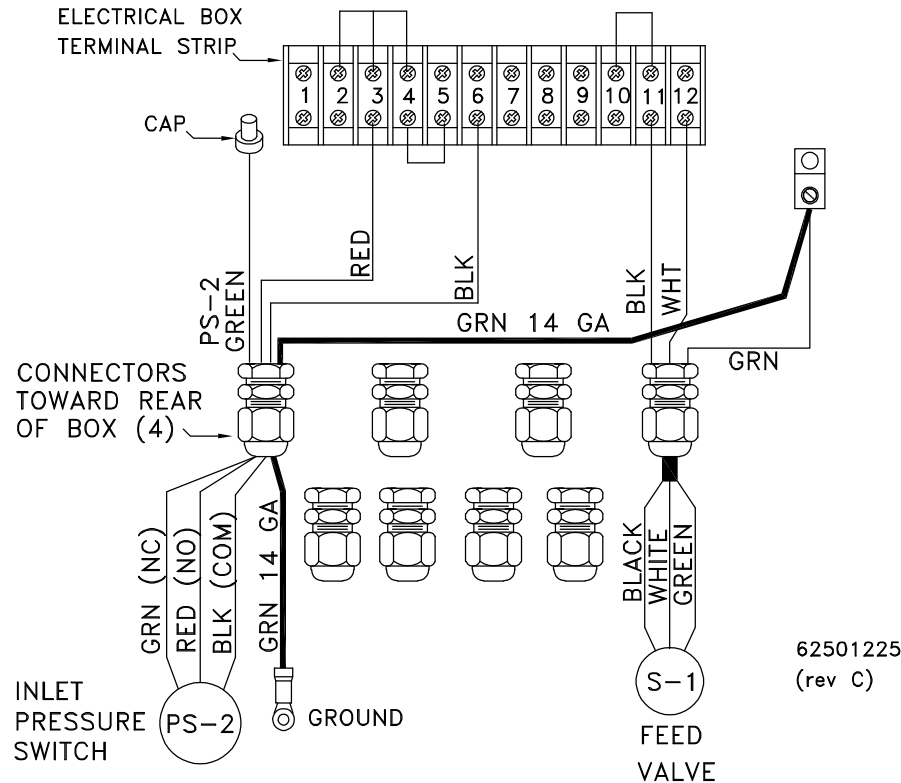


FIGURE 13

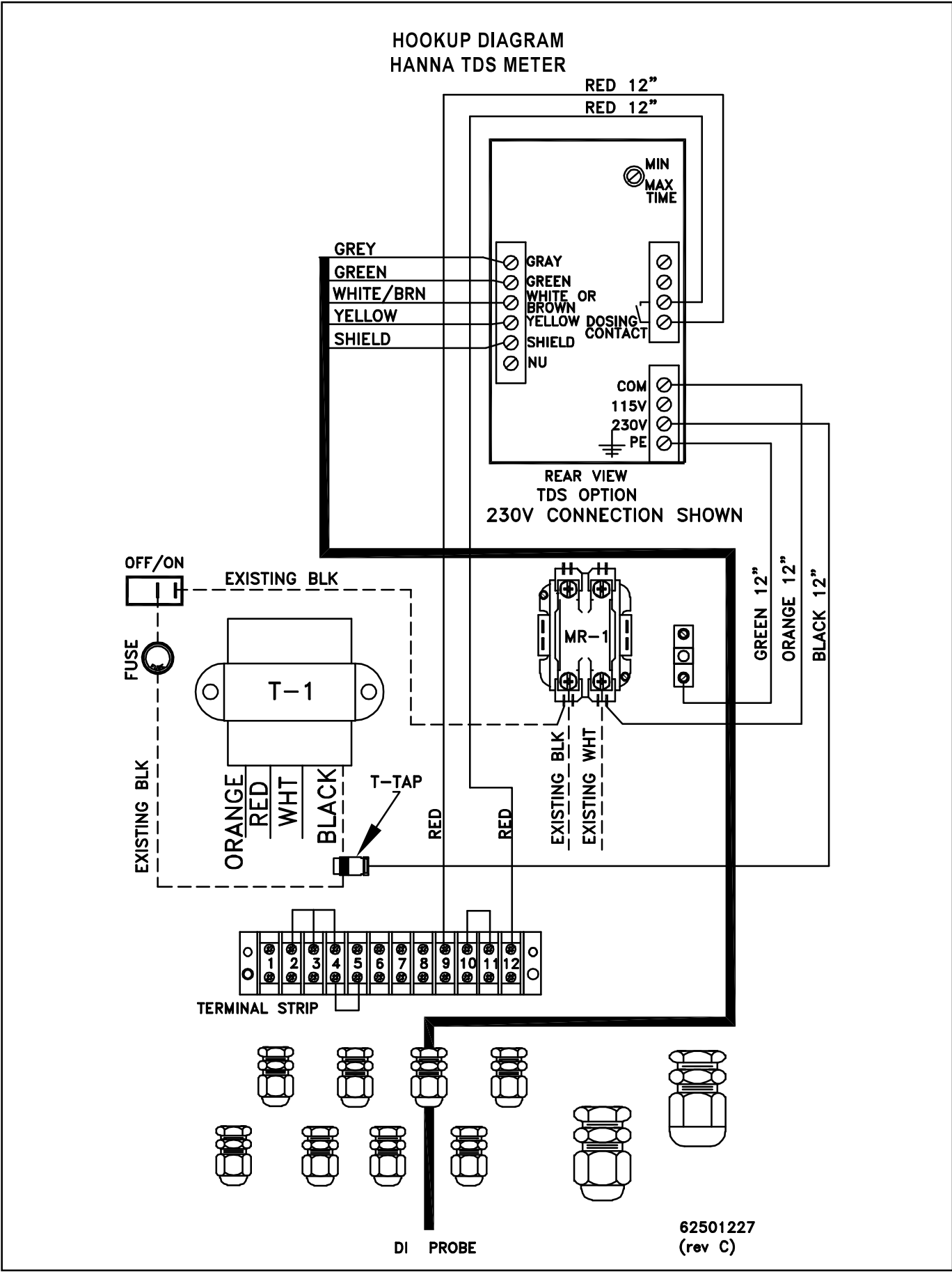


FIGURE 14

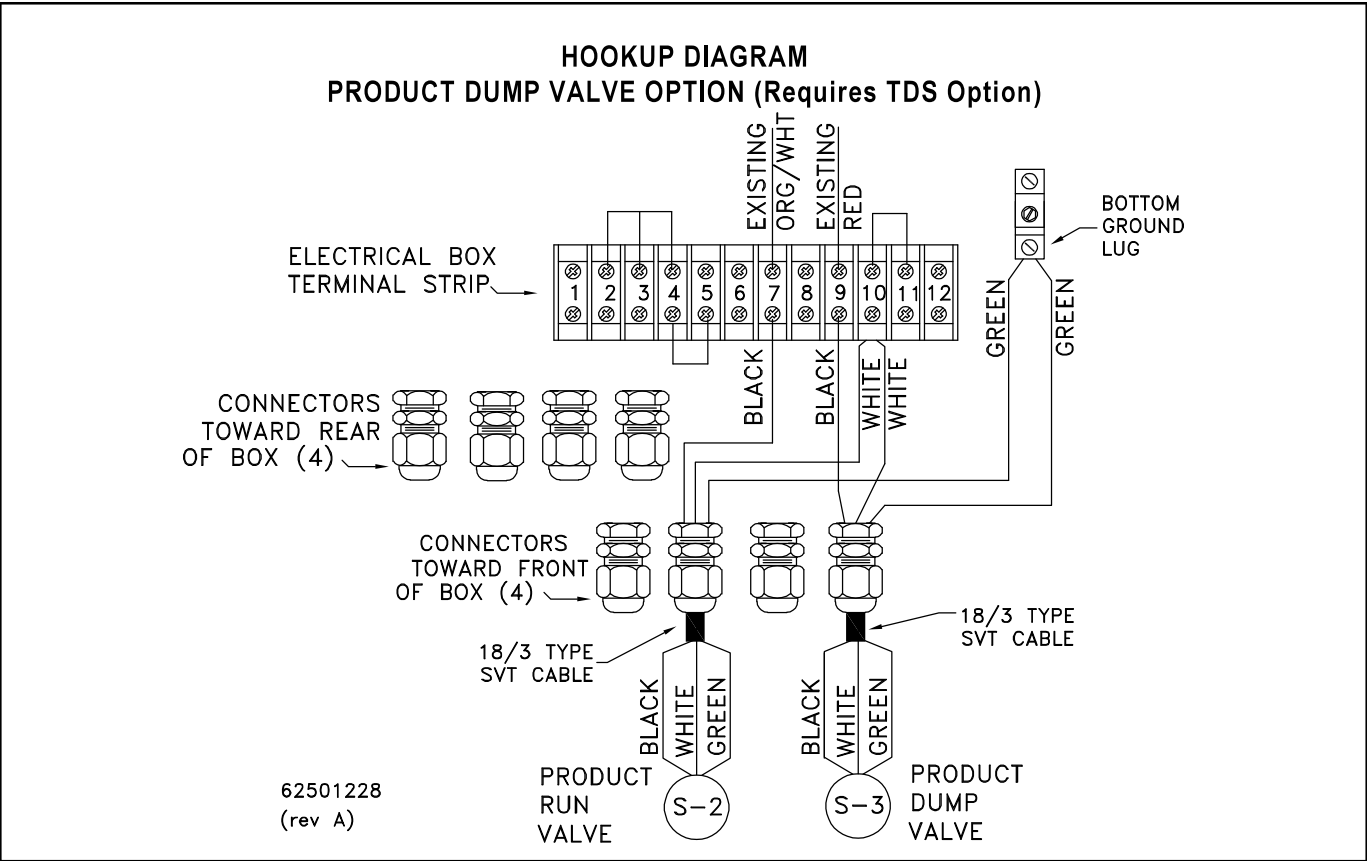


FIGURE 15

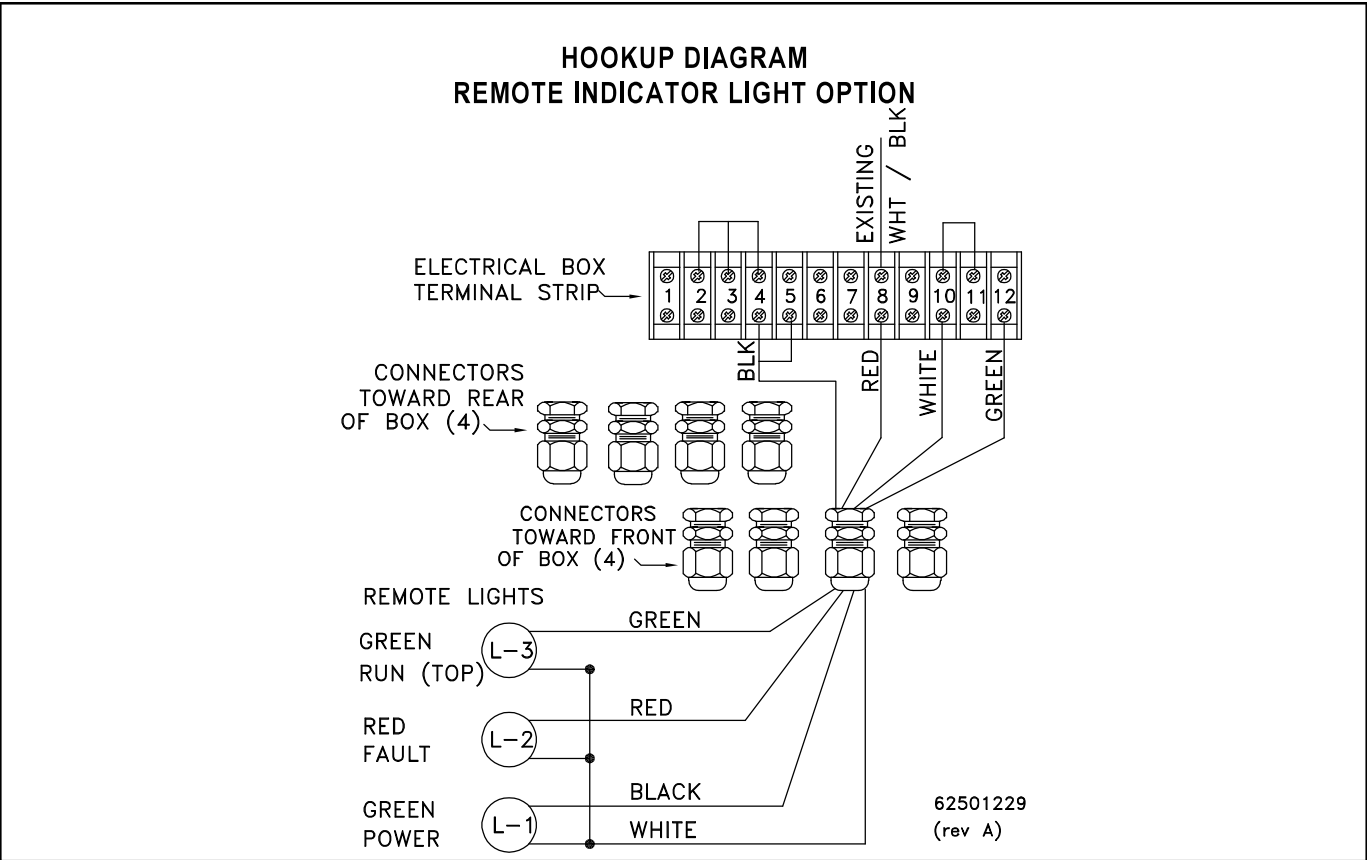


FIGURE 16

HANNA TDS- METER (Optional Equipment)

OPERATION

The TDS meter reading is only valid when the unit is producing water. When the unit is sitting osmosis occurs in the membrane and the reading will rise. The amount of the rise depends on the TDS of the raw feed water.

When the RO starts up, the TDS input is ignored for 5 minutes. The TDS meter will lock the RO unit of service at end of the 5 minute time period if high TDS water (above the set point) is indicated. Cycle power to reset PLC.

SET POINT

1. Press Set.
2. Use a small screw driver to adjust trimmer.
3. Press measure RO return to service.

CALIBRATION

1. Remove Probe.
2. Clean with vinegar and/or very fine sandpaper (#400 grit).
3. Rinse probe with calibration solution.
4. Immerse probe in clean calibration solution and adjust calibration trimmer to 42 ppm on Display, if using 84 us/cm Coster Engineering Calibration Solution.

PRODUCT DUMP VALVE

(Optional Equipment, Note; Requires TDS Option)

Product water will be immediately dumped to drain or directed to storage tank based on the TDS meter signal to the controller.

MANUAL TDS READING

A sample port valve on the bottom of the product manifold is used to obtain RO water. Sample must be taken when unit is running.

CLEANING - STERILIZATION

CUSTOMER CONTACT SURFACES

Cleaning and disinfecting of the customer contact surfaces must conform to state and local codes. However, it is recommended that daily cleaning and disinfecting of the customer contact surfaces be performed.

STERILIZATION OF COMPONENTS AND PLUMBING

Purpose

This procedure should be used if a bacterial contamination is suspected in the vending machine. This contamination may occur when poorly treated water containing a coliform count is fed into the machine. Bacteria may also grow in the machine if it is taken out of service and stored without sodium metabisulfite membrane preservative. This growth can sometimes occur in a one to two day period depending upon the conditions. No matter the cause, if you suspect bacterial contamination of a machine, this contamination should be eliminated by filling the plumbing with a Hydrogen Peroxide Solution. Allow to set 2-12 hours in the unit.

Hydrogen Peroxide Sterilization Solution Mixing Instructions

1. Fill two (2) five gallon pails with 4 1/2 gallons of potable or Reverse Osmosis water.
2. Add three (3) pints of a 3% hydrogen peroxide solution to the water in each pail.
3. Manually open the input feed solenoid and pump solution into the unit with a small separate pump.
4. Allow to set 2-12 hours.

Chlorine, as an alternative cleaner may be used on plumbing, but should **NEVER BE USED ON THE RO ELEMENT.**



WARNING:

- a. The temperature of your hydrogen peroxide sterilization solution should not exceed 75° fahrenheit (24° centigrade) or damage to the membrane may occur.
- b. Use only drinking (reverse osmosis) water to mix the .2% (by volume) sterilization solution.
- c. The maximum concentration of hydrogen peroxide (H₂O₂) that should come in contact with a RO membrane is .25% (by volume).
- d. If a RO membrane has been in operation for several months, it should be cleaned with an acid and/or alkaline cleaner before the sterilization procedures are completed.

TROUBLE SHOOTING

PROBLEM	CAUSE	CORRECTION
1. Machine will not charge	Feed line shut off valve closed	Open valve
	Float switch in storage tank	Check wires/replace switch Check PLC Input I.1 (If I.1 is on float switch and connecting wires are OK)
	Inlet solenoid valve closed	Dissassemble and clean and/or check for power to coil Replace valve if PLC Output 0.1 is indicated "On", and coil has 24 VAC
	Fuse blown	Replace
	Low input voltage	Check external supply circuit
	Pretreatment device in regeneration mode	Wait for cycle to finish (Indicated by PLC Input I.3 OFF!)
	Optional TDS meter indicating high TDS	Check meter settings/calibration NOTE: PLC Input I.4 is on when TDS is high.
	Defective inlet pressure switch	Replace NOTE: PLC Input I.2 is on <u>when running</u> , indicating inlet pressure switch is OK.

PROBLEM	CAUSE	CORRECTION
2. Pressure pump will not start or cycles "On" and "Off"	Supply pressure too low Faulty MR-1 Pressure pump motor Sediment filter dirty	Increase the I.D. of supply line Replace if PLC output Q2 is indicated "On", and pressure pump motor is OK Replace if defective Replace (Max pressure drop approximately 15 psi)
3. Product water TDS too high	Membrane fouled, leaking internal O-Ring	Clean/replace membrane (See RO Element Section)
4. Chlorine detected after pre-carbon filter	Pre-carbon filter exhausted	Replace carbon filter
5. Optional UV light will not light Or Low UV output reading	Defective UV lamp or balast Slow unit Old or defective lamp	Replace Wait 3-5 minutes Replace

Trouble Shooting can be aided by referencing the PLC Input and Output Status screens. Refer to Figure 7 on page 22 to access these screens.

The Inputs and Outputs that are On are highlighted on the display.

1. Normal Standby: Displays I/O Status
Input I.3 On (All others Off)
2. Normal Start Up: Displays Flush Mode
Input I.1, 2, 3, On (All others Off)
Output Q.1, 3, On (All others Off)
3. Normal Run: Displays Run Mode
Input I.1, 2, 3 On (All others Off)
Output Q.1, 2, 3 On (All others Off)
4. Normal Shut Down: Displays Flush Mode
Input I.2, 3 On (All others Off)
Output Q1, 3 On (All others Off)
5. Pretreatment Device: Displays Stand By
Input I.3 is Off during pretreat regeneration
6. TDS Fault Mode: Displays Fault Mode
High TDS is Indicated Optional TDS Meter:
Input I.4 is On (Normal Run Mode Off)
7. Low Pressure: Displays Alarm Mode
Input I.2 Normal On when running Off when in Stand By or Fault Mode

SERVICE PARTS

It is the policy of Coster Engineering to constantly improve its products whenever it is practical to do so.

Coster Engineering must therefore reserve the right to redesign or change its equipment or component parts thereof without incurring the obligation to install or furnish such changes on equipment previously delivered.

INSTRUCTIONS FOR ORDERING PARTS

1. The reference numbers in the illustrations correspond to the numbers shown in the "Reference Number" column in the parts listing. The quantity in the "number required" column is the number of parts used in the accompanying illustration. The term "A/R" for number required indicates "as required" where the quantity may vary. Order all parts by their part number and description.
2. Always mention the identification number of the code and serial numbers found on the name plate of the unit on which the part is to be used. Much delay and confusion can be avoided when correct numbers are specified on parts order and correspondence.
3. Owner, order all parts through your local dealer.
4. Dealers must indicate how to ship; whether by truck, rail freight, express, or parcel post.
5. Collect phone calls are not accepted.
6. Address all orders for parts as follows:

COSTER ENGINEERING
217 E PLUM STREET
MANKATO, MN 56001
PH (844) 975-1100
FAX (507) 549-1101
costerwater.com

INSTRUCTIONS FOR RETURNING PARTS FOR ADJUSTMENT

1. To assure prompt handling of claims, your dealers should follow standard claim and forward claim procedures within thirty (30) days, of any part failure or malfunction believed to be a warranty claim.
2. No returned part will be accepted unless they are transportation prepaid and accompanied by the packing list, copy of the returned goods authorization form, or the packing list copy of the warranty claim form.
3. Parts returned should have a tag attached with sender's name and address clearly printed.

DISCLAIMER

This supplement contains additional information that is specific to units. It is used in conjunction with the basic machine operator's manual which includes safety and operational information.

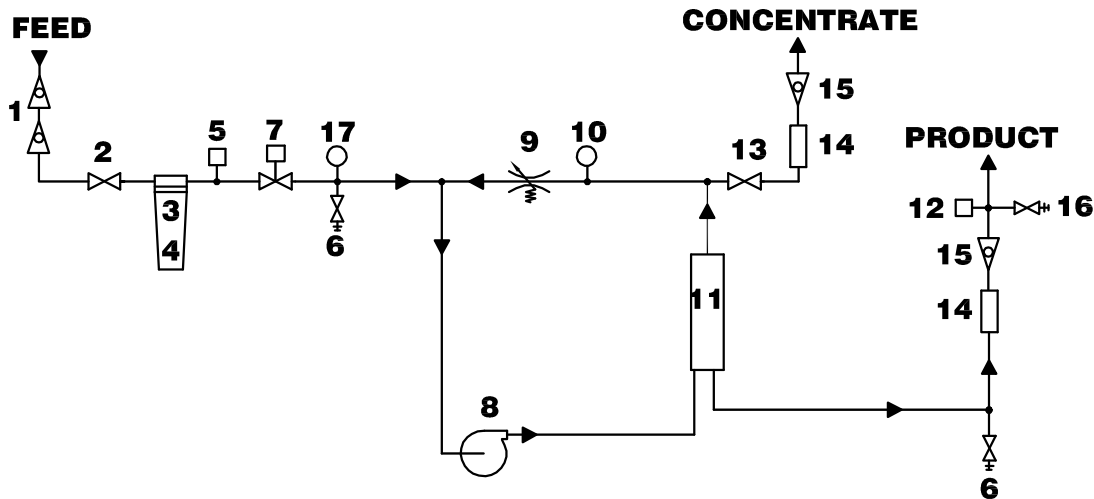
Retain all manuals for future reference. Read all and understand all manuals in their entirety before operation or service.

The information contained in this manual is subject to change without notice.

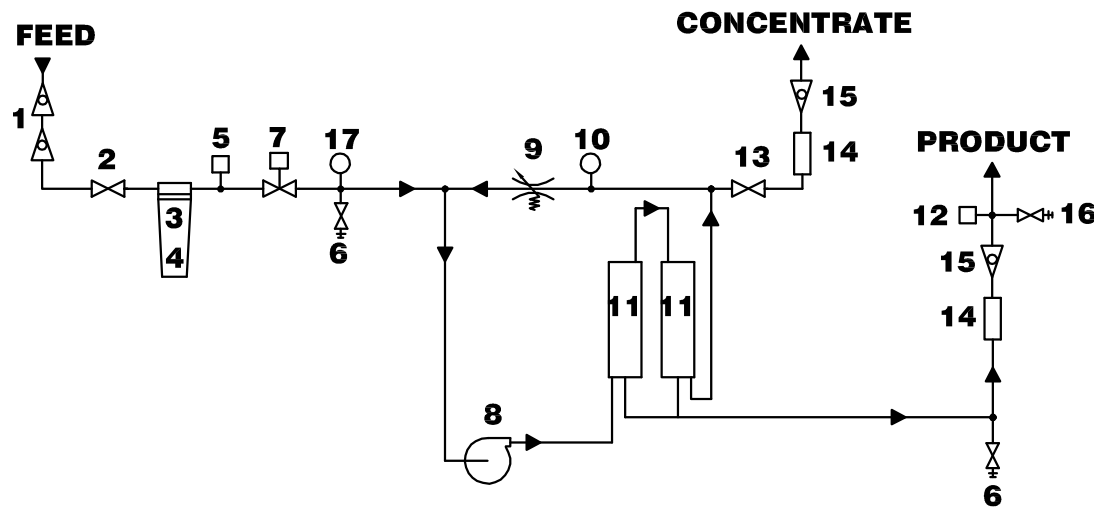
Coster Engineering shall not be liable for technical or editorial omissions made herein; nor for incidental or consequential damages resulting from the furnishing, performance, or use of this material.

FLOW DIAGRAM
(1 & 2 VESSEL)

1 VESSEL UNIT



2 VESSEL UNIT

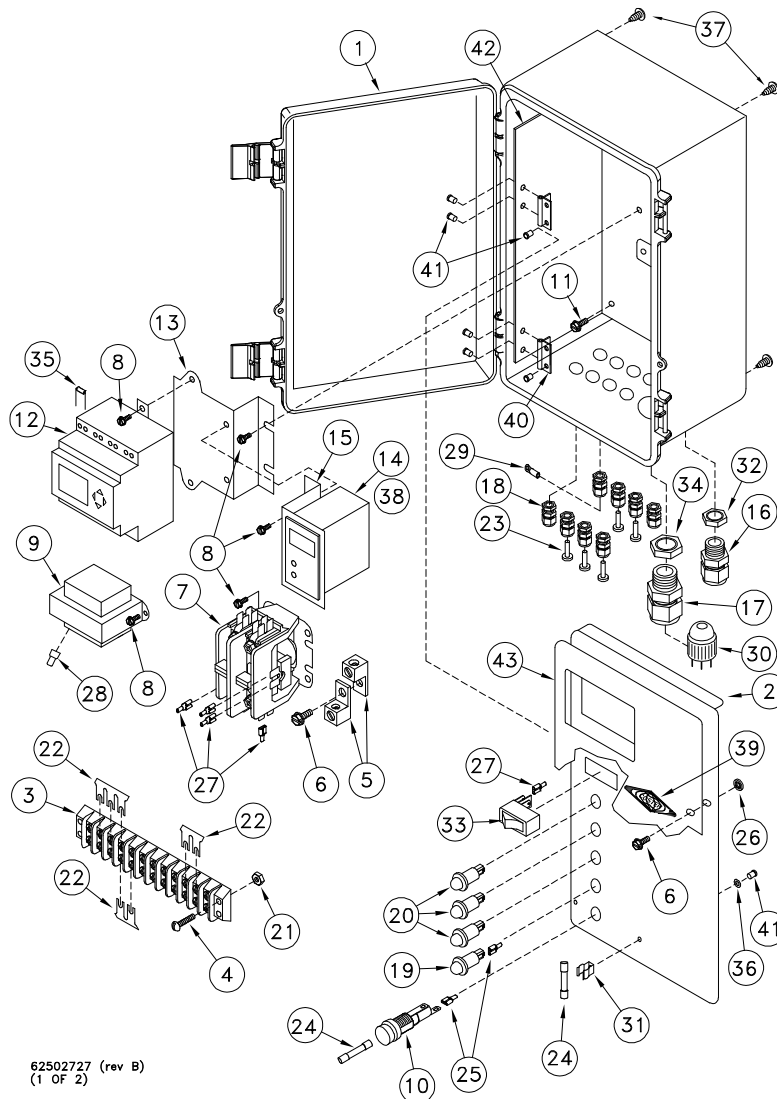


62502798 (REV -)

REF. NO.	PART NUMBER	DESCRIPTION	REF. NO.	PART NUMBER	DESCRIPTION
1	62502595	Valve, 1" Dual Check (Optional)	10	62502622	Gauge, Pressure 300 PSI Lead Free
2	62501440	Ball Valve PVC 3/4	11	62501152	Assembly, 4" Vessel W/Membrane
3	62502338	Filter Housing, 20" Drilled	12	62501594	Pressure Switch, 40-60 PSI
4*	625-004-946	Filter 20" Sediment 5 Micron	13	62501168	Valve, 1/2 Throttle
5	62501593	Pressure Switch, 5-10 PSI	14	62501676	Flowmeter, .2-2 GPM
6	625-004-206	Valve, 1/4 Sample	15	62501963	Check, Valve 1/8" Poly
7	62502690	Valve, Solenoid 24 VAC	16	62501090	100 PSI Relief Valve
8	62502757	Pump, SS Centrifugal 3/4 HP	17	62502627	Gauge 0-100 PSI Lead Free
9	62501568	Relief Valve			

* Recommended Spare Parts. ** Additional Recommended Spare Parts.

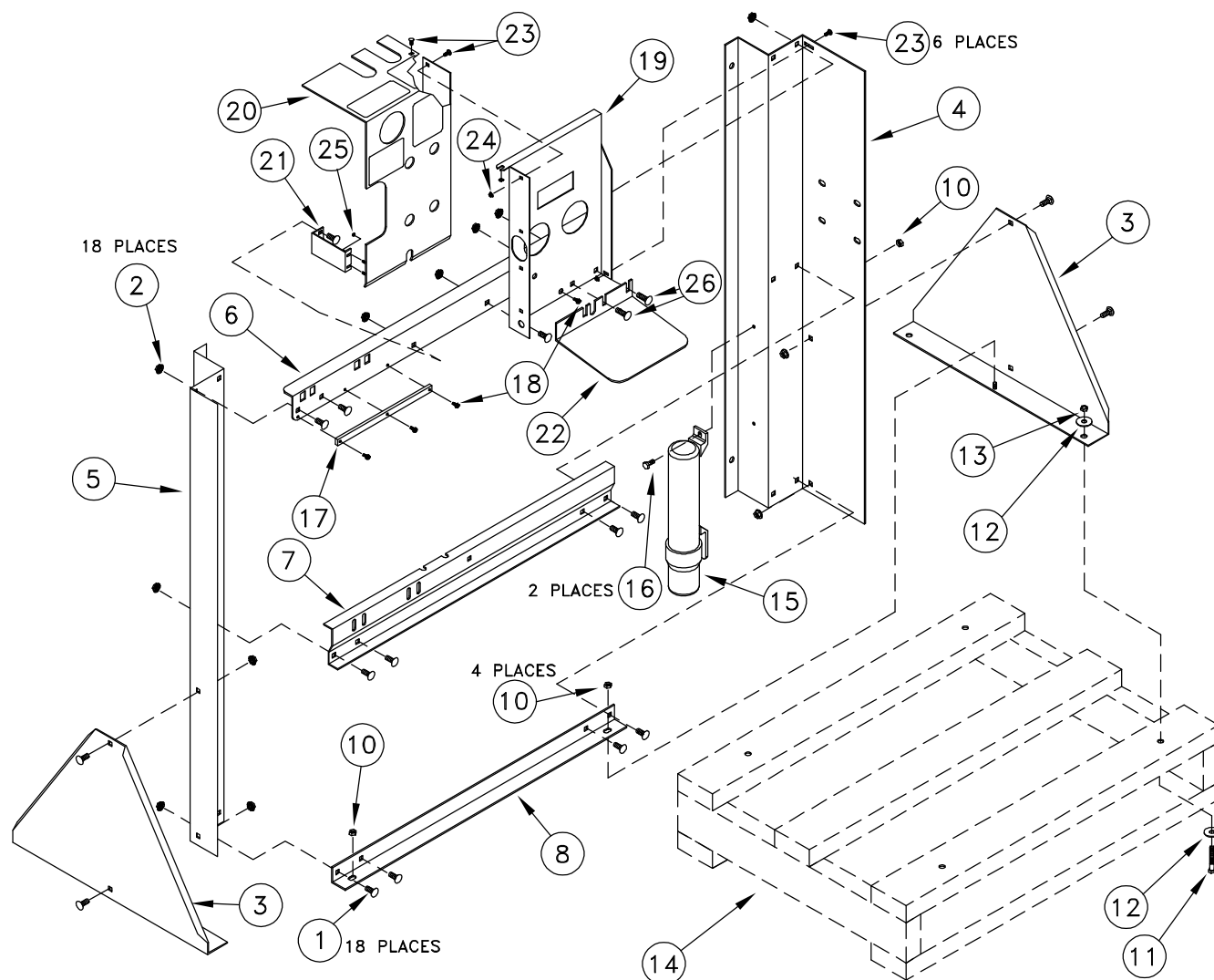
ELECTRICAL BOX



REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62502726	Box, Electrical Drilled	1	23	62500582	Plug, 1/4	5
2	62502729	Pannel, Elec Box	1	24*	625-005-577	Fuse, 1 A 3 AG	2
3	625-001-265	Term Block, 12 PL	1	25	62500631	Terminal, 3/16 F 22/18 GA.	10
4	950-004-086	Screw, #8-32 x 5/8	2	26	62502734	Retainer, Nylon	1
5	625-001-266	Term Block Ground Lug	2	27	625-005-219	Terminal, 1/4 F Push On	7
6	060905	S-Tap Screw, #10-24 x 1/2	2	28	62500123	Terminal, Solderless Cap	1
7	62501164	Relay, 40/50 A 24 VAC Coil	1	29	625-004-162	Terminal, 1/4 Ring	1
8	950-005-006	Screw, Tap #8 x 3/8	8	30	62501516	Plug 6-15P 15A (220 VAC Units)	1
9	62502423	Transformer, 240/24 VAC	1	30	62502468	Plug, 6-20P 15A (120 VAC Units)	1
10	39207034	Fuse Holder	1	31	62500635	Metal Fuse Clip	1
11	950-004-123	Screw, M5 x 8 Zn	4	32	62501454	Lock Nut 1/2 NPT	1
12	62501250	Relay, PLC w/ Program	1	33	62502526	Switch, Rocker	1
13	62502731	Bracket, Relay	1	34	62501455	Nut 3/4 NPT	1
14	62501119	Meter, TDS (TDS Option)	0	35	62501517	Surge Suppressor 51 V	1
15	62501148	Bracket, TDS (TDS Option)	0	36	952-004-068	Washer .2 x .44 x .04 SS	1
16	62501453	Strain Relief 1/2	1	37	950-005-044	Screw, Self Tapping 10-12 x 1/2	4
17	62501452	Strain Relief 3/4	1	38	62501193	Probe, TDS Meter Optional	1
18	625-001-324	Fitting HEYCO, 1/2	8	39	625-001-030	Decal, Coster Quarter Size	1
19	62502538	LED, 24V Red	1	40	62500763	Hinge, 1 x 3/4 x .035 Butt	2
20	62502733	LED, 24V Green	3	41	954-002-010	Rivet, 1/8 SS	7
21	951-001-012	Nut, Hex #8-32	2	42	62502730	Plate, Electrical Box Mount	1
22	625-004-051	Jumper, Snap Off Style	7	43	62502732	Decal, Instruction Control	1

* Recommended Spare Parts

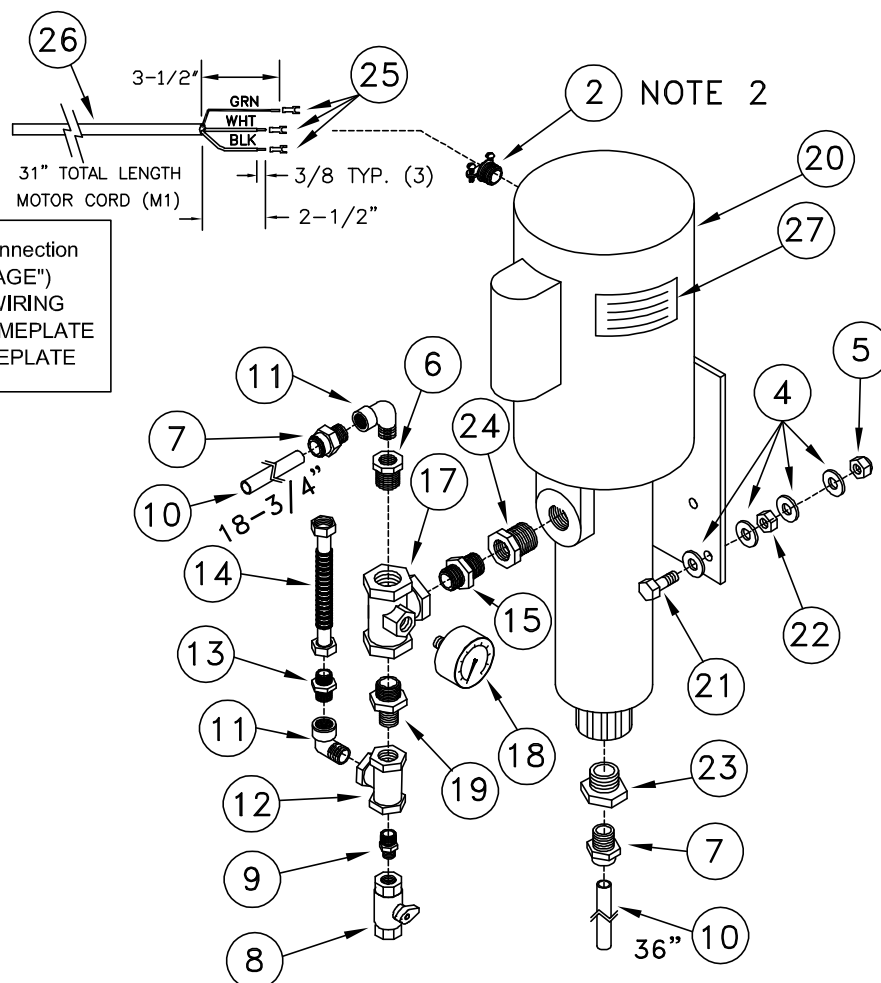
MAIN FRAME



62502786 (REV B)

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	950-003-077	5/16 Carriage Bolt, SS	16	14	62501140	Pallet, Shipping	1
2	951-002-011	5/16 Whiz Nut SS	18	15	79203392	Canister/Operator Manual	1
3	62502367	Brk, Leg CWM	2	16	950-001-334	Hex Bolt, 1/4-20 x 3/4	2
4	62502368	Brk, Side RH CWM	1	17	62502431	Brk, Vessel Spacer	1
5	62502369	Brk, Side LH CWM	1	18	392-010-028	Self Tap 8-32 x 1/2	4
6	62502370	Brk, Top Angle CWM	1	19	62502828	Brk, Electrical With Decal CWM	1
7	62502371	Brk, Mid Angle	1	20	62502801	Brk, Flowmeter W/Decals	1
8	62502372	Brk, Bottom Angle CWM	1	21	62502789	Brk, Flowmeter Support	1
9	N/A			22	62502791	Brk, Drip Cover	1
10	061605	1/4-20 Nylon Lock Nut	4	23	950-003-071	Carriage Bolt, 10-24 x 1/2 SS	6
11	950-001-114	Hex Bolt, 3/8-16 x 2	4	24	951-002-014	10-24 SS Whiz Nut	6
12	061916	Washer, 3/8 SS	8	25	951-003-011	Lock Nut, 8-32 Nylon Insert	2
13	951-005-051	Locknut, 3/8	4	26	950-003-083	5/16-18 x 1 Carriage Bolt SS	2

PUMP, STANDARD 120 VAC 60 HZ

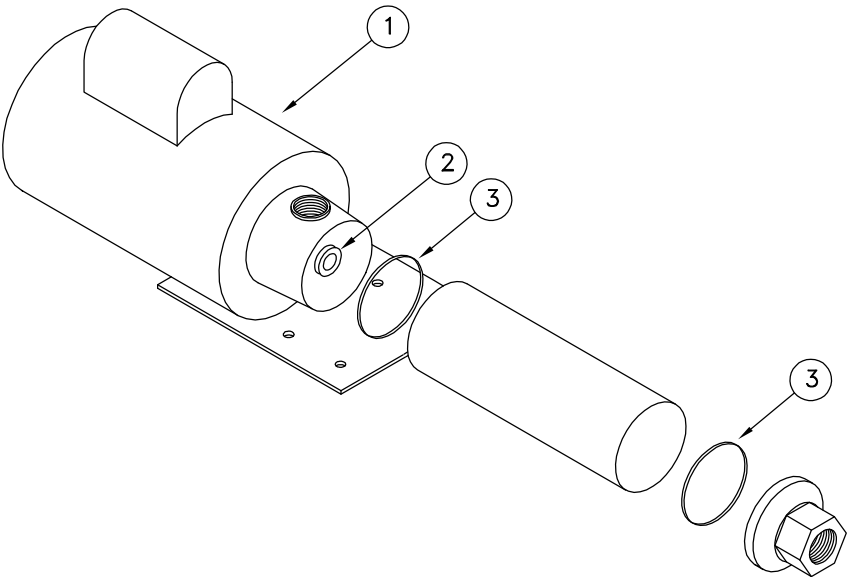


IMPORTANT: Motor Voltage and Cord Connection
 Step 1) Wire motor for 220V ("HIGH VOLTAGE")
 Step 2) Verify Correct INTERNAL MOTOR WIRING
 or SWITCH SETTING per Motor NAMEPLATE
 Step 3) Connect Motor Cord per Motor NAMEPLATE

62502800 (REV A)

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	N/A			15	62500437	Ftg, Nylon Nipple 3/4 x 3/4 MNPT	1
2	625-001-314	Ftg Elec, Romex Connect 3/8	1	16	N/A		
3	N/A			17	62502333	Ftg, Nylon Gauge Tee 3/4	1
4	952-002-013	Washer-Flat 3/8 SS	16	18	62502627	Gauge, 0-100 PSI LF	1
5	951-003-013	Locknut 3/8 UNC Nyl Ins SS Wax	4	19	62501592	Ftg, Nylon Nipple 3/4 x 1/2	1
6	62502435	Ftg Nylon Reduc Bush 3/4 x 1/2	1	20	62502757	Pump, Goulds 7 GPM 3/4 HP (60 Hz Units)	1
7	625-001-672	Ftg, Conn 1/2MPTX 1/2T	2	20	62502777	Pump, Goulds 7 GPM 1 HP (50 Hz Units)	1
8	625-004-206	Valve, 1/4 Ball PVC	1	21	950-001-344	HHCS, 3/8-16 X 1-1/4 SS	4
9	62501653	Ftg, Nylon Nipple 1/2 x 1/4	1	22	061910	Hex Nut, 3/8-16 SS	4
10	62501570	Tubing, Blk 1/2 OD x 3/8 ID	4.6	23	62501170	Ftg, Nylon 1 x 1/2 RB	1
11	62501655	Ftg, Nylon 1/2 Street 90	2	24	62501176	Ftg, Nylon 1 x 3/4 RB	1
12	62501300	Ftg, Nylon Tee 1/2 x 1/2 x 1/2 FPT	1	25	625-002-261	Spade 10-12 Ga Insul #10 Stud	3
13	62501169	Ftg, Nylon Nipple 1/2	1	26	625-001-280	Wire #12/3 Type Sj	2.6
14	62502356	Ftg, SS Conn 1/2 x 1/2 x 16"	1	27	625-004-488	Decal, Caution 120 Vac	1

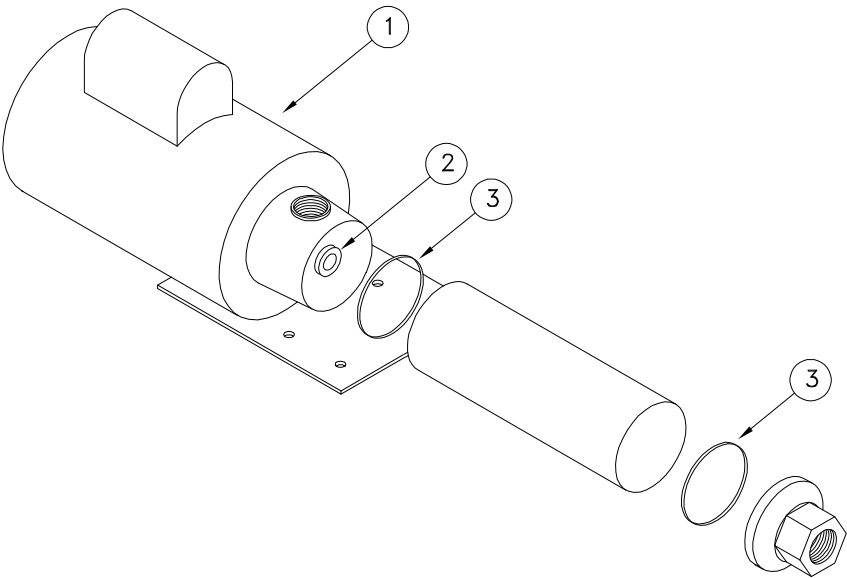
PUMP MODEL 7GBS07114 (60 HZ)



62502757 (rev-)

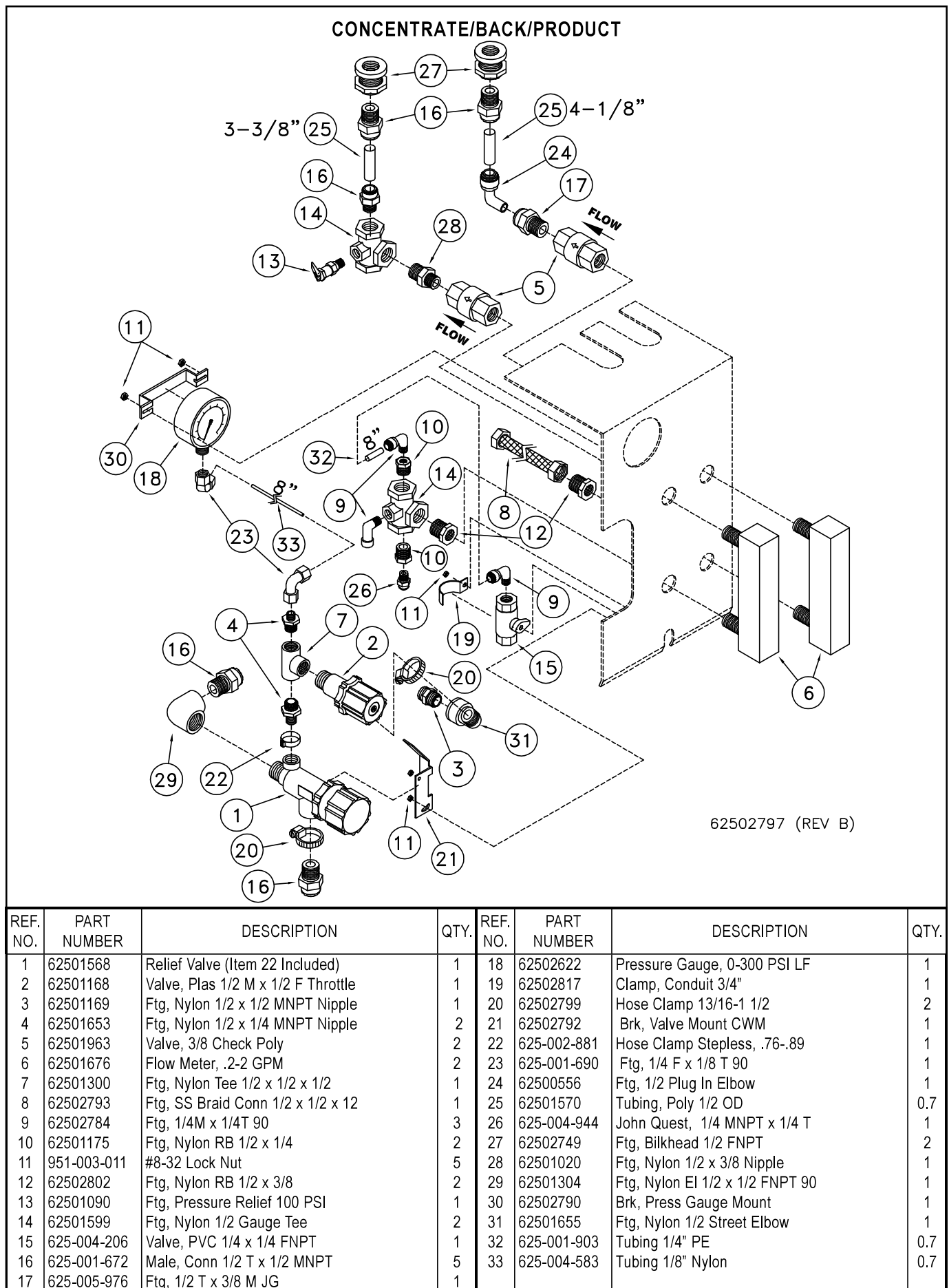
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62502758	Motor, 3/4 HP ODP 115/230 56J	1	3	62502756	O-Ring, Viton	2
2	62502754	Seal, Rotary W/Spring	1				

PUMP MODEL 7GBS1021T4 (50 HZ)

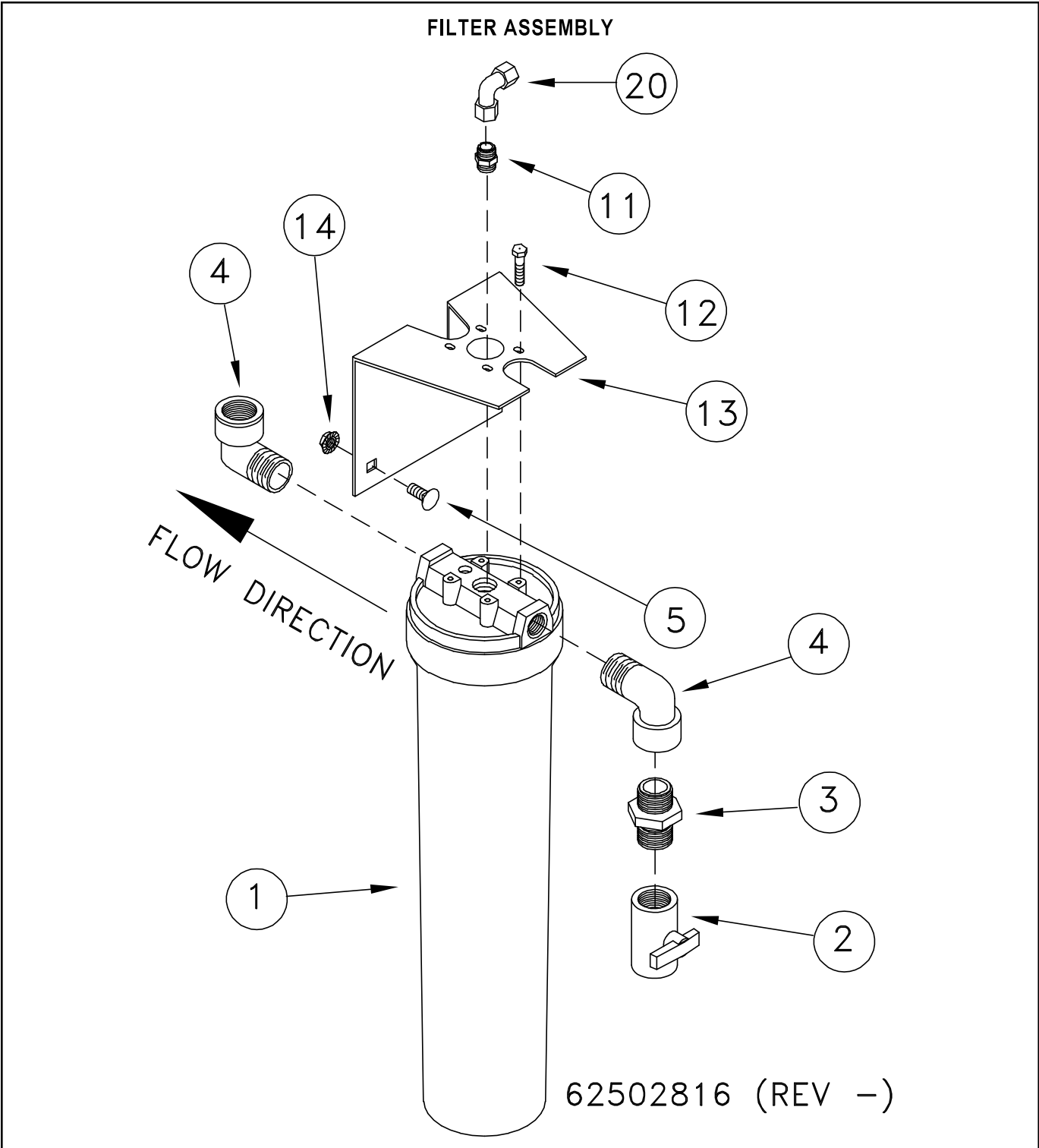


62502777 (rev-)

REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62502779	Motor, 1 HP ODB 115/230 56J	1	3	62502756	O-Ring, Viton	2
2	62502754	Seal, Rotary W/Spring	1				



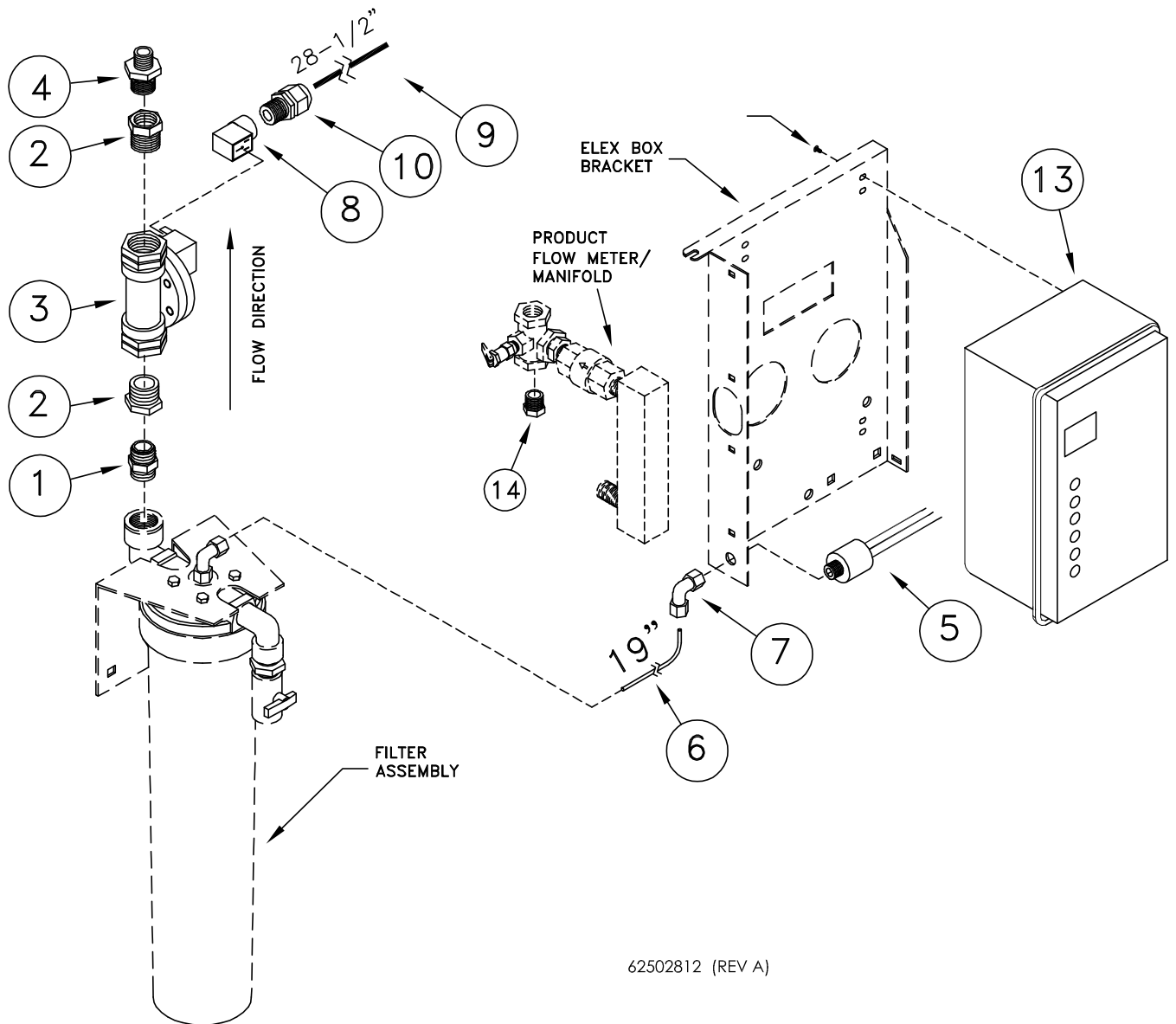
* Recommended Spare Parts. ** Additional Recommended Spare Parts.



REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62502338	Filter Housing, 20" Drilled	1	11	625-002-953	Ftg, Nylon Nipple 1/4	1
2	62501440	Ball Valve, 3/4 PVC	1	12	950-005-015	S-Tap Screw 1/4-14 x 3/4 Hex	4
3	62500437	Ftg, Nylon Nipple 3/4 MNPT	1	13	62502340	Brk, Filter CWM	1
4	62501443	Ftg, Nylon Street Elbow, 3/4	2	14	951-002-011	Whiz Nut 5/16-18 SS	2
5	950-003-077	Carriage Bolt, 5/16-18 x 5/8 SS	2	15	---		
6	N/A			16	---		
7	N/A			17	---		
8	N/A			18	---		
9	N/A			19	---		
10	N/A			20	625-001-690	Ftg, 1/8 T x 1/4 F 90 Jaco	1

* Recommended Spare Parts. ** Additional Recommended Spare Parts.

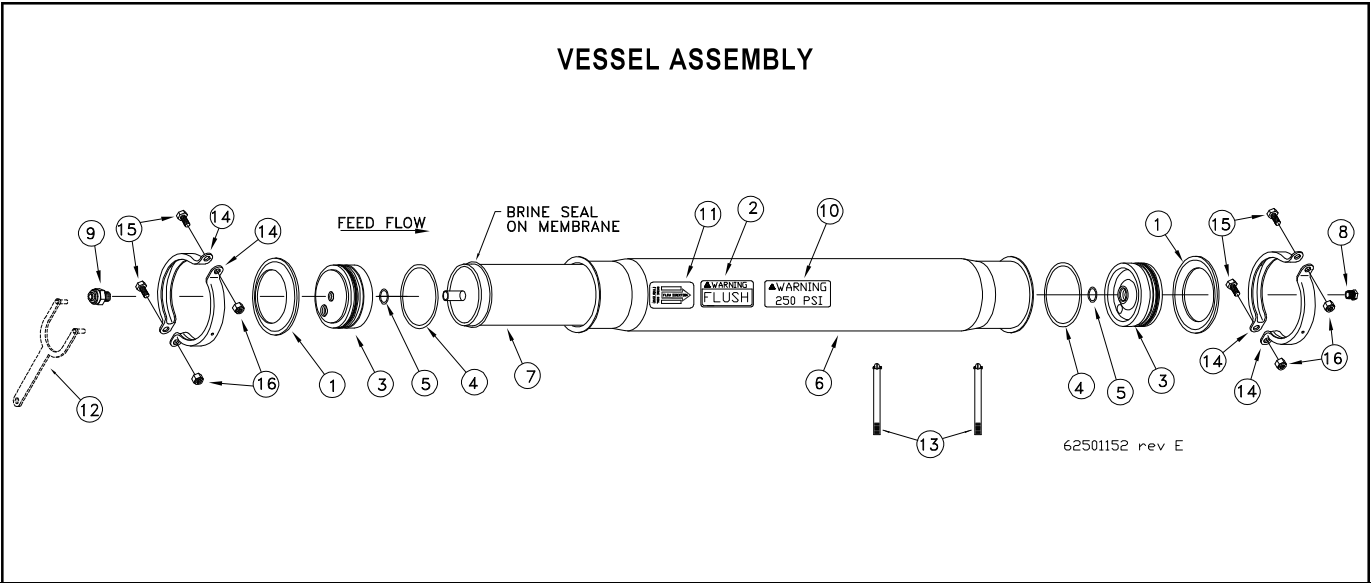
FEED SOLENOID / PRESSURE SWITCH / ELECTRICAL BOX ASSEMBLY



62502812 (REV A)

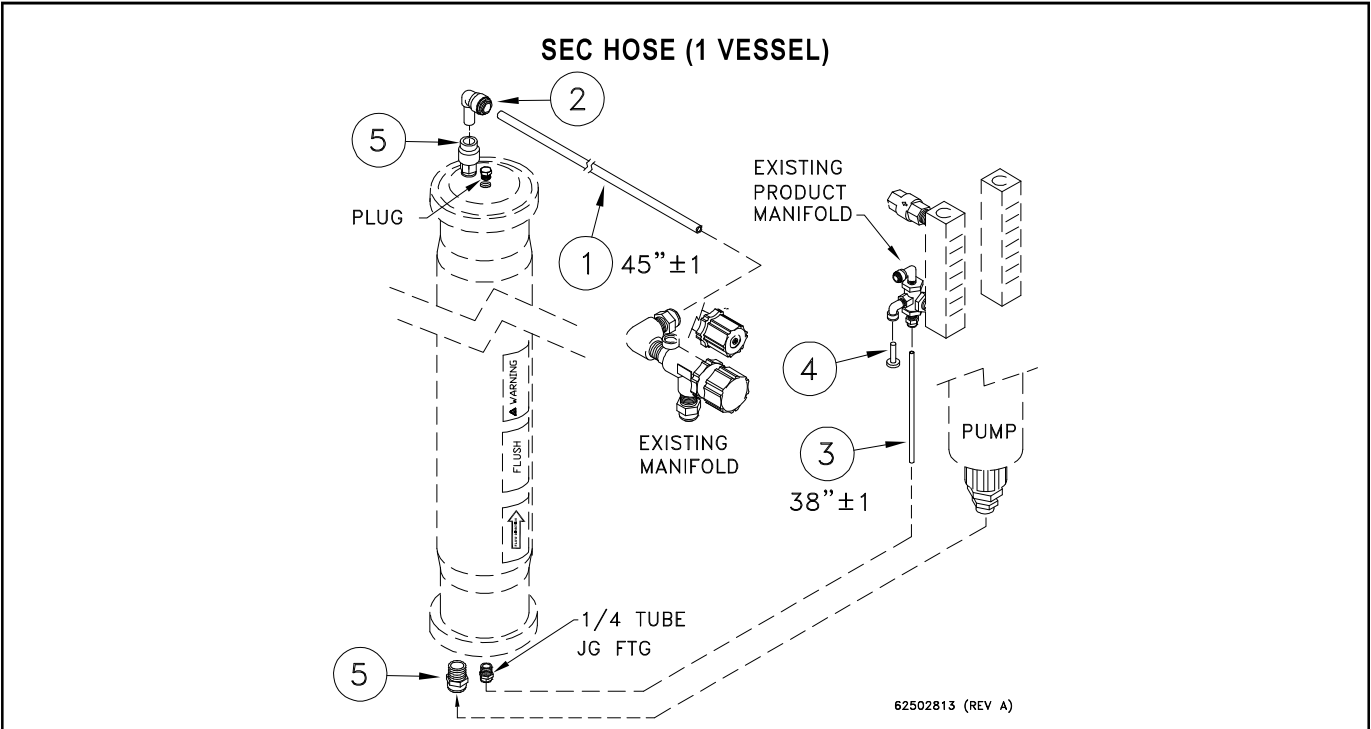
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62500437	Ftg, Nylon Nipple 3/4 MNPT	1	9	62502688	Wire, 18/3 Type SVT	2.4
2	62501176	Ftg, Nylon RB 3/4 x 1	2	10	62501453	Strain Relief, 1/2 MNPT	1
3	62502690	Solenoid Valve, 1" 24 VAC	1	11	N/A	N/A	N/A
4	62501592	Ftg, Nylon Nipple 3/4 x 1/2	1	12	N/A	N/A	N/A
5	62502593	Press Switch, SPDT	1	13	62502727	Electrical Box Assembly	1
6	625-004-583	Tubing, 1/8 OD Nylon	1.6	14	62501174	Ftg, Nylon Plug 1/2 MNPT	1
7	625-001-690	Ftg, 1/4 F x 1/8 T Jaco	1	15	62501516	Plug, 6-15P 220VAC (Not Shown)	1
8	62502689	Connector, DIN Solenoid	1	15	62502468	Plug, 6-20P 110VAC (Not Shown)	1

* Recommended Spare Parts. ** Additional Recommended Spare Parts.



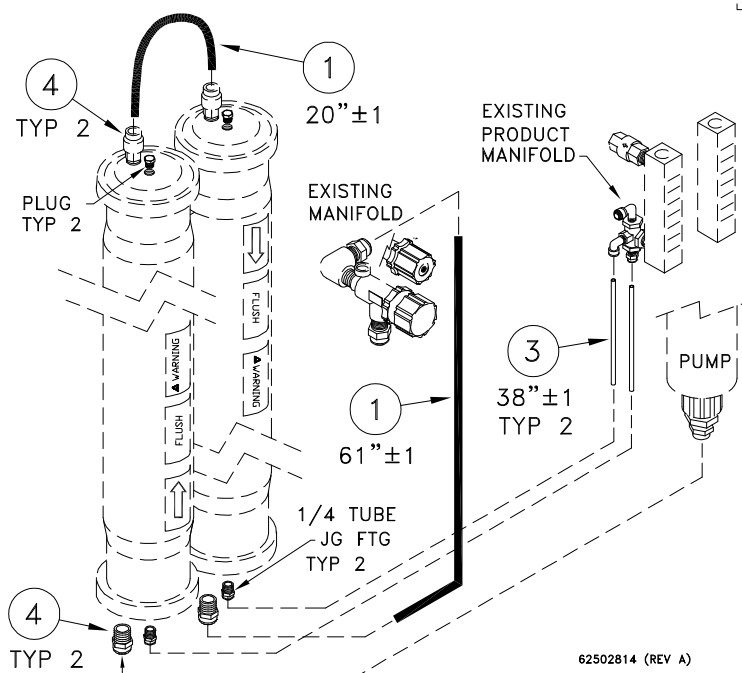
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62501497	Ring, End Cap Retainer	2	9	625-005-940	Ftg, Conn 3/8 MPT x 1/4 T	1
2	625-004-513	Decal, SBS Flush	1	10	625-004-426	Decal, Vessel Warning	1
3	62501758	Assmbly, End Cap 4	2	11	62501209	Decal, Brine Seal Flow Direct	1
4	625-001-506	O-Ring 342 Buna	2	12	62502477	End Cap Spanner Wrench	1
5	625-001-502	O-Ring 116 Buna	2	13	62501145	Hose, Clamp 5" SS, (Mounting)	2
6	62501493	Vessel, SS 4" (Includes # 10)	1	14	62501496	Clamp, Formed Flange	4
7	62501113	Membrane, Filmtec XLE 4040	1	15	031-09103	HHCS, 3/8-16 x 3/4 SS	4
8	625-003-230	Ftg., PVC Sch 80 Plug 3/8	1	16	951-003-013	Lock Nut, 3/8-16 SS	4

* Recommended Spare Parts. ** Additional Recommended Spare Parts.



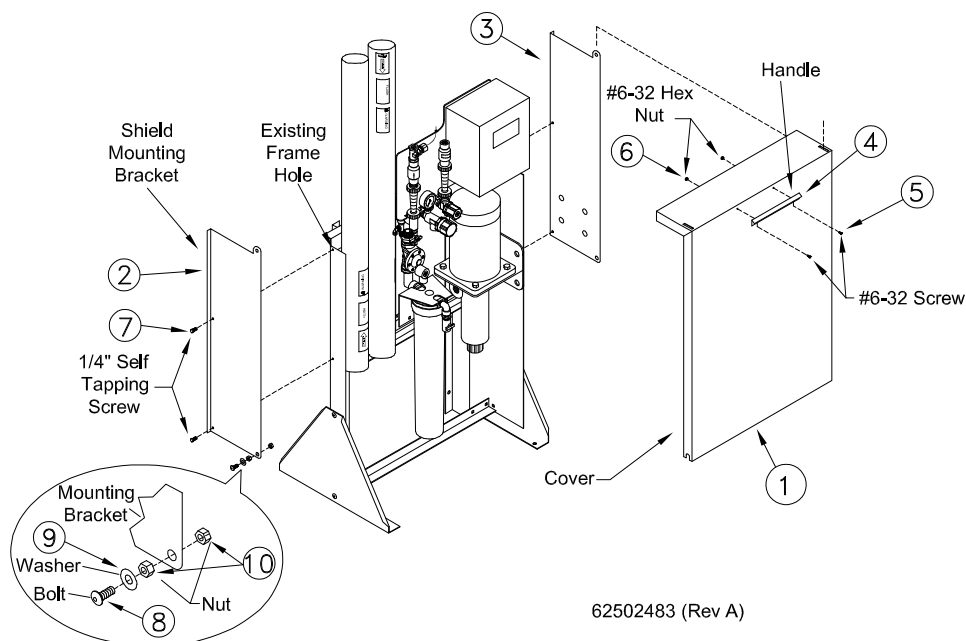
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62501570	Tubing Poly , 1/2 OD	3.8	4	62500582	Ftg, 1/4 Plug John Quest	1
2	62500556	Fitting Jg 1/2 T 1/2 Stem 90	1	5	625-001-672	Ftg, 1/2 M x 1/2 T John Quest	2
3	625-001-903	Tubing, 1/4 OD PE	3.2				

SEC HOSE (2 VESSEL)



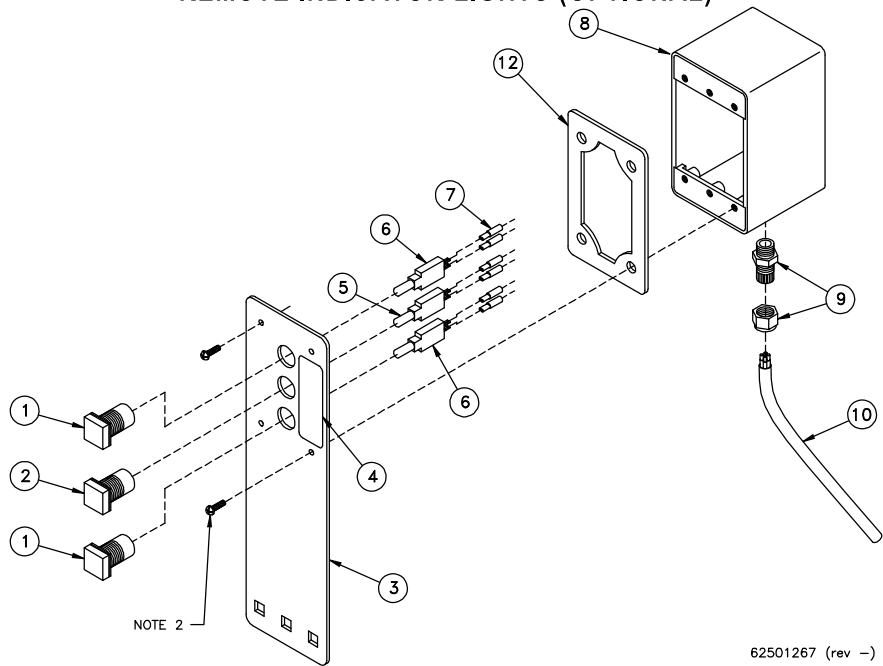
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62501570	Tubing Poly , 1/2 OD	6.8	3	625-001-903	Tubing, 1/4 OD PE	6.4
2	N/A			4	625-001-672	Ftg, 1/2 M x 1/2 T John Guest	4

CWN COVER (OPTIONAL)



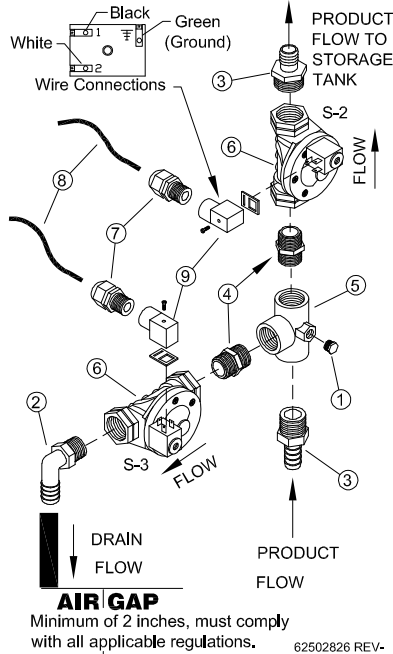
REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62502480	Cover, Painted	1	6	951-001-001	Hex Nut 6-32	2
2	62502479	Bracket, Mounting, LH	1	7	950-005-004	Self Tapping Screw 1/4-20	4
3	62502478	Bracket, Mounting, RH	1	8	950-011-063	Bolt, Socket Head 3/8-16	2
4	62501678	Bracket, Handle	1	9	061916	Flat Washer 3/8 Inch	2
5	950-005-031	Machine Screw 6-32	2	10	061910	Hex Nut 3/8-16	4

REMOTE INDICATOR LIGHTS (OPTIONAL)



REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	62501261	Light, Square Lens Green 16mm	2	7	38601225	Terminal .110 x .020 Female	6
2	62501263	Light, Square Lens Red 16mm	1	8	625-004-784	Conduit Outlet Box 3/4 Type FD	1
3	62501259	Brk, Indicator Light	1	9	625-001-324	Fitting, Elect, 1/4 HEYCO W/Lock Nut	1
4	62501265	Decal, Led Indicator Light	1	10	62501268	Wire, 22 GA./4 UL/CSA	5'
5	62501262	Light, Led Red 16mm	1	11	62500596	Wire, White 22 Awg UI-1007	6"
6	62501260	Light, Led Green 16mm	2	12	62501264	Conduit, PVC Blank Cover W/Seal	1

PRODUCT DUMP VALVE (OPTIONAL)



REF. NO.	PART NUMBER	DESCRIPTION	QTY.	REF. NO.	PART NUMBER	DESCRIPTION	QTY.
1	625-003-236	Fitting, 1/4 PVC SCH 80 Plug	1	6	62501163	Valve 1" 24 VAC Solenoid	2
2	62500432	Fitting, Nylon Elbow 1" x 3/4 Barb	1	7	62501453	Strain Relief 1/2 NPT	2
3	62500434	Fitting, Nylon 1" x 3/4 Barb	2	8	62502688	Wire Type SVT 18/3	12
4	62501157	Fitting, Nylon 1 x 1 Nipple	2	9	62502689	Connector DIN Solenoid	2
5	62501159	Fitting, Nylon Gauge Tee 1"	1				

LOCATION:

LOG SHEET

DATE					
HOUR METER (hrs)					
TDS FEED (ppm)					
TDS R/O (ppm)					
FILTER PRESSURE IN (PSI)					
FILTER PRESSURE OUT (PSI)					
MEMBRANE PRESSURE OUT (PSI)					
WATER METER READING					
UV INTENSITY					
CHLORINE LEVEL					
TEMPERATURE °F					
PRODUCT FLOW (GPM)					
CONCENTRATE FLOW (GPM)					

MACHINE MAINTENANCE (check when serviced)

SEDIMENT FILTER					
SALT TANK LEVEL (water softener pretreatment)					
EXTERNAL (Optinal) CARBON TANK CHANGED (gal.)					
UV LIGHT CHANGED (Optional)					
OPERATOR INITIALS					

NOTES: _____

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

COSTER ENGINEERING WARRANTY

The only warranty Coster Engineering gives is as follows:

Coster Engineering warrants each product it manufactures to be in accordance with our published specifications or those specifications agreed to by us in writing at time of sale. Our obligation and liability under this warranty is expressly limited to repairing or replacing, at our option, within one year from the date of shipment, to the original purchaser, any product not meeting the specification. **WE MAKE NO OTHER WARRANTY, EXPRESS OR IMPLIED AND MAKE NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR ANY PARTICULAR PURPOSE.** Our obligation under this warranty shall not include any costs or any liability for direct, indirect or consequential damage or delay. If requested by Coster Engineering, products or parts for which a warranty claim is made are to be returned freight prepaid to our factory. Any improper use, operation beyond rated capacity, substitution of parts not approved by Coster Engineering, or any alteration or repair by others in such manner as in our judgment affects the product materially and adversely shall void this warranty. **NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY.**

Coster Engineering reserves the right to make improvement changes, alter features, specifications, options and standard equipment on any of our products without notice and incurrence of obligation on prior manufactured machines.

WARRANTY DOES NOT APPLY to depreciation, parts replacement, maintenance, damage and service necessitated by **NORMAL WEAR**, misuse, lack of proper maintenance, accident, negligence or failure to follow specified operational instructions. Products not covered include, but are not limited to: filters, lamps, reverse osmosis membranes, and deionization resin which normally require periodic replacement or regeneration.

Products not manufactured by Coster Engineering may or may not be covered under warranties supplied by the original manufacture and shall be subject to their warranty limitations.

Repair or replacement of a product does not extend the original warranty.

No reimbursement will be made for labor for repair of any kind without prior authorization from Coster Engineering.

A DELIVERY REPORT FORM must be completed and received by Coster Engineering to initiate the warranty coverage.

COSTER ENGINEERING
217 E Plum Street
MANKATO, MN 56001