CHEMICAL SANITIZING DISHMACHINE

Manufactured in the United States by:

Jackson

INSTALLATION & OPERATION MANUAL

FOR ECOLAB MODEL:

OMEGA 5E

ECOLAB®

October 4, 2007
P/N 7610-003-28-32 (Revision A)

www.ecolab.com

REVISION/ PAGE	REVISION DATE	MADE BY	APPLICABLE ECN	DETAILS
A	04-02-2007	MAW	N/A	Release to production.
3	08-20-2007	MAW	N/A	Corrected dimension from 38” to 39”.
30, 35	08-27-2007	MAW	N/A	Added two Ecolab numbers.
2, 7	09-07-2007	MAW	N/A	Removed total cycle time of 130. Corrected booster heater cover to say control box cover.
32	10-04-2007	MAW	7934	Changed cover on power junction box.

NOMENCLATURE FOR THE MODELS COVERED IN THIS MANUAL

OMEGA-5E

Omega 5E - Chemical sanitizing, electrically-heated dishmachine

Model:_____

Serial No.:_____

Installation Date:_____

Service Rep. Name:_____

Phone No.:_____

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SPECIFICATION INFORMATION

SECTION 1: SPECIFICATION INFORMATION

SPECIFICATIONS OF THE OMEGA 5E

OPERATING CAPACITY (NSF RATED):

RACKS PER HOUR	29
DISHES PER HOUR	725
GLASSES PER HOUR	725

OPERATING CYCLES (SECONDS):

NORMAL CYCLE:

WASH TIME	45
RINSE TIME	25
TOTAL CYCLE TIME	90

WASH TANK CAPACITY (GALLONS): 1.2

WASH PUMP CAPACITY (GPM): 61

OPERATING TEMPERATURES:

WASH (MINIMUM)	120°F
WASH (RECOMMENDED)	140°F
RINSE (MINIMUM)	120°F
RINSE (RECOMMENDED)	140°F

WATER REQUIREMENTS:

WATER LINE SIZE NPT	1/2”
DRAIN LINE SIZE NPT	2”
FLOW PRESSURE PSI	20 ±5

MINIMUM CHLORINE REQUIRED (PPM): 50

ELECTRICAL REQUIREMENTS:

WASH PUMP MOTOR HP 3/4

VOLTS	PH	HZ	RINSE HEATER RATINGS	TOTAL AMPS	TYPICAL ELECTRICAL CIRCUIT
115	1	60	2KW@110V	*16 A	20 AMP

* This dishmachine is designed so that the wash motor is never running when the wash heater is on. Service load is based upon the higher of the two amperages.

NOTE: Typical Electrical Circuit is based upon (1) 125% of the full amperage load of the machine and (2) typical fixed-trip circuit breaker sizes as listed in the NEC 2002 Edition. Local codes may require more stringent protection than what is displayed here. Always verify with your electrical service contractor that your circuit protection is adequate and meets all applicable national and local codes. These numbers are provided in this manual simply for reference and may change without notice at any given time.

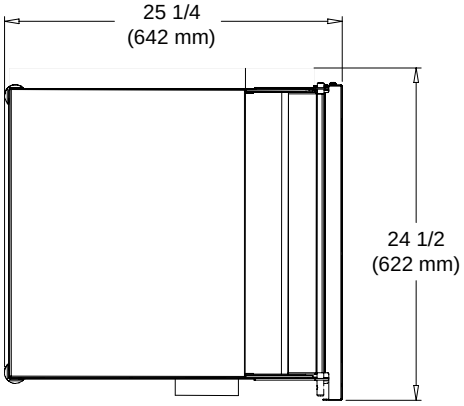
FRAME DIMENSIONS:

WIDTH	24 1/2”
DEPTH	25 1/4”
DEPTH, WITH FRONT DOOR OPEN	36 3/4”
HEIGHT	41 3/8”
MAXIMUM WASH CHAMBER CLEARANCE	11 1/2”

NOTE: Always refer to the machine data plate for specific electrical and water requirements. The material provided on this page is for reference only and may be subject to change without notice.

SECTION 1: SPECIFICATION INFORMATION

DIMENSIONS

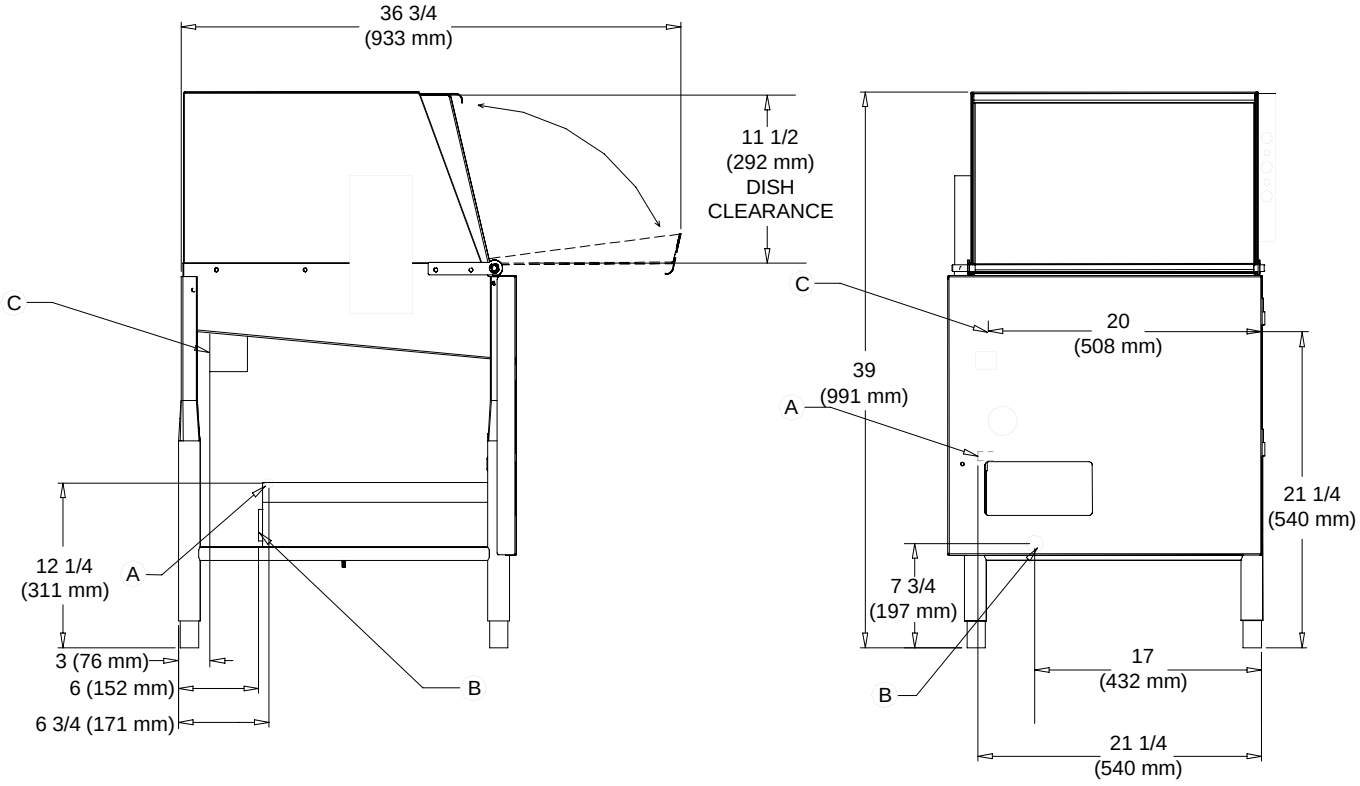


A - Incoming Water Connection

B - Drain Connection - 2" IPS

C - Electrical Connection Point

NOTE: All vertical dimensions are at lowest point due to adjustable bullet feet and may be raised an additional 2 3/4".



SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

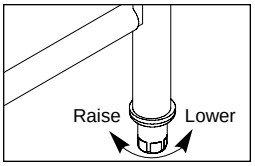
SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

INSTALLATION INSTRUCTIONS

VISUAL INSPECTION: Before installing the unit, check the container and the machine for any damage. A damaged container could be an indication of damage to the unit. If there is damage to both the container and the unit, DO NOT throw away the container. The dishmachine has been inspected and packed at the factory with the expectation that it will arrive to you in new, undamaged condition. However, rough handling by carriers or others may damage the unit while in transit. If this situation does occur, do not return the unit to Ecolab; instead contact the carrier and ask them to inspect the damage to the unit and to complete an inspection report. You must contact the carrier within 48 hours of receiving the machine. Also, contact your Ecolab representative.

UNPACKING THE DISHMACHINE: Remove the machine from the container and inspect for any missing parts. If an item appears to be missing, contact your Ecolab representative immediately to report it.

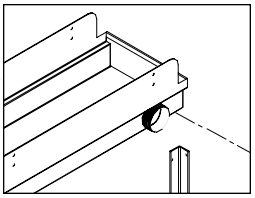
LEVEL THE DISHMACHINE: The dishmachine(s) covered in this manual are designed to operate on a level surface. Ensure that the machine is level from side to side and from front to back; adjust the unit's bullet feet as required. Failure to level the dishmachine may cause decreased washing performance.



Frame with Adjustable Foot

PLUMBING THE DISHMACHINE: All plumbing connections must comply with all applicable local, state and national plumbing codes. The plumber is responsible for flushing the incoming water line prior to connecting it to remove all foreign debris that may get trapped in the valves or cause an obstruction. Any valves that are fouled by matter left in the water line and the expenses resulting are not the responsibility of the manufacturer.

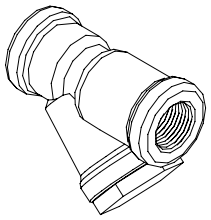
CONNECTING THE DRAIN LINE: The Omega 5 drain requires a minimum 2" NPT piping that is pitched at least 1/4" per foot. There must also be an air gap between the machine drain line and the floor sink or drain. If a grease trap is required by code, it should have a flow capacity of 5 gallons per minute.


Drain Connection

WATER SUPPLY CONNECTION: Install the water supply line (1/2" NPT minimum) to the dishmachine line y-strainer using copper pipe. It is recommended that a water shut-off valve be installed between the main supply and the machine to allow for service. The water supply line must be capable of 20 $\pm$5 PSI "flow" pressure at the recommended temperature as indicated on the data plate.

In areas where the water pressure fluctuates or is greater than the recommended pressure, it is suggested that a water pressure regulator be installed. The Omega 5 does not come with a water pressure regulator as standard equipment.

It is also recommended that a shock absorber (not supplied with the Omega 5) be installed in the incoming water line. This prevents line hammer (hydraulic shock), induced by the solenoid valve, which can cause damage to the equipment.


Y-Strainer

PLUMBING CHECK: Slowly turn on the water supply to the machine after connecting the incoming fill line and drain line. Check for leaks and repair as required. Leaks must be repaired prior to placing the machine in operation.

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

ELECTRICAL INSTALLATION INSTRUCTIONS

ELECTRICAL POWER CONNECTION: Electrical and grounding connections must comply with all applicable portions of the National Electric Code (ANSI/NFPA 70) and/or other electrical codes that may apply.

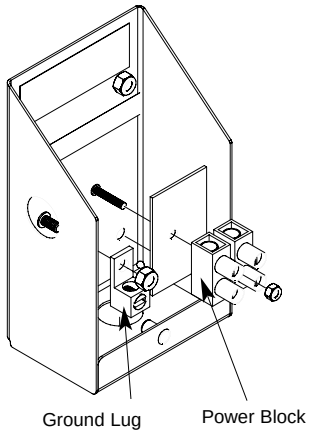
Disconnect the electrical power supply and lockout the disconnect switch to indicate that you are working on the circuit.

The dishmachine data plate is located on the left front corner of the machine. Refer to this data plate for information concerning the unit's specific electrical requirements.

To install the incoming power lines, open the connection box by removing the connection box lid. Install 1/2" conduit into the pre-punched holes in the back of the connection box. Route the power wires and connect to the power block and grounding lug. Install the service wires (L1 and N) to the appropriate terminals as they are marked on the terminal block. Install the grounding wire into the lug provided. Wires should be firmly secured in place.

It is recommended that "De-Ox" or another similar anti-oxidation agent be used on all voltage connections.

VOLTAGE CHECK: Ensure that the machine is off and apply power to the machine. Check the incoming power at the terminal block and ensure it corresponds to the voltage on the machine data plate. Do not run the dishmachine if the voltage is too high or too low. Shut off the service breaker and mark it as being for the dishmachine. Advise all personnel of the location of the service breaker. Replace all covers and tighten the screws.



NOTE: Always refer to the machine data plate for specific electrical and water requirements. The material provided on this page is for reference only and may be subject to change without notice.

SECTION 2: INSTALLATION/OPERATION INSTRUCTIONS

OPERATION INSTRUCTIONS

OPERATIONAL START-UP AND CHECK: Before proceeding with the start-up, verify the following:

1. Open the door and verify that the sump strainer is correctly installed in the sump.

2. Verify that the drain stopper is in position.

3. Check that the plugs are securely screwed into the ends of the wash arm.

4. Check that the wash arm is securely screwed into the stationary base and that it rotates freely.

5. Check the levels in all chemical containers and replace if necessary.

INSTALLATION/INITIAL START-UP PROCEDURE:

1. Turn on dishmachine

a) Turn on the incoming power to the machine at the circuit disconnect box.

b) Turn on the dishmachine by pressing the ON/OFF button. The red light will come on.

c) Check voltage at incoming terminals L1& L2. The voltage measured at these points should match data plate voltage.

d) If voltages are in required range, close the control box cover.

2. Fill Rinse Booster Heater with Water

a) Before the heater element can be energized, the rinse booster heater must be initially filled with water. Damage to the heater element will occur if the element is not submerged in water. To initially fill the booster heater with water:

i) Press and hold the FILL button to turn on the incoming water solenoid valve. Continue holding the button until you hear water entering the wash chamber through the airgap, then release the button. The rinse booster heater is now filled with water.

ii) Turn off the unit by pressing the on/off switch.

3. Enable Heater Element

a) For the initial start-up only, the heater element must be enabled. The machine is shipped from the factory with the heater element disabled. This is done to ensure that the heater element is not damaged by energizing the element without the element being submerged in water. To enable the heater element:

i) Remove the control box cover panel.

ii) Connect the tagged white/blue wires.

iii) Replace control box cover.

iv) Press the on/off switch, heaters will energize to maintain booster heater temperature.

Note: Water must be in the sump while the machine is running to avoid running the pump dry and causing damage to the pump seal.

4. Adjust dishmachine fill level.

If the water level is not between the linses on the drain standpipe, it will require adjustment. Check to ensure that the recommended water pressure is being supplied to the machine (20 ±5 PSI is required). If the water pressure is correct then the fill valve cam will need adjustment. Use the following steps to adjust the cam.

A. Turn power off at the machine circuit breaker.

B. Open control box cover

C. Locate the timer fill valve cam (Cam 4 from the timer motor)

D. Locate the spanner wrench taped to the electrical panel. The spanner wrench is used to adjust the cam.

E. To increase the water level, open the notch of the adjustable cam. To decrease the water level, close the notch. Care must be taken that the set point does not extend into the home position of the timer. Do not move the side of the cam that starts the fill; this will change the sequence of cycle operation.

F. With the door closed turn the power circuit breaker on. Open and close the door to run a cycle, then check the water level. Adjust as necessary then close the control box cover.

Refer to pages entitled “Cam Timer Operation”.

NOTE: The machine must run a complete cycle to drain and fill. If the machine is not allowed to drain, the water will build up inside the tub. After the initial fill, the rinse water for the current cycle will become the wash water for the next cycle.

The dishmachine is now ready to proceed with the washing of dishes.

WARNING: Certain materials, including silver, silver plate, aluminum and pewter, are attacked by sodium hypochlorite sanitizers (bleach).

PREPARING DISHES: Preparation of the ware will help ensure good results and less re-washes. If not done properly the dishes will not be clean and will reduce the efficiency of the dishmachine.

The following steps should be followed to ensure good results:

A. Remove all scraps and gross soil into a garbage can.
B. Separate and pre-soak silverware.
C. Separate and pre-soak the egg and casserole dishes.
D. Scrape all ware with a brush or spatula.
E. Flush cups, bowls and glasses with running water.
F. Prewash dishware by soaking or spraying with a pre-rinse hose.
G. Place dishes and cups in dish rack. Cups should be upside down (so they don’t hold water).
H. Place glasses and flatware in their respective racks. Scatter flatware loosely in rack. Glasses should be placed upside down in a properly sized rack. For optimal results, flatware should be washed twice, the first being horizontal, the second in a special rack to hold flatware vertical.

DAILY MACHINE PREPARATION: Before proceeding with start-up, verify the following:

A. Open door and verify that the sump strainer is in place in the sump.
B. Verify that the drain stopper is in position.
C. Check that the plugs are securely screwed into the ends of all wash arms.
D. Check that the wash arms are securely screwed into the stationary bases and rotate freely.
E. Check levels in all chemical containers and replace if empty.
F. For initial fill, close doors then depress the “FILL” switch to the “FILL” position.

WASHING A RACK OF WARE:

A. Open doors, place a full rack into the machine, and close doors. Push the start switch and hold until unit starts (about 2 seconds).
B. After cycle is completed open doors and remove rack.
C. Repeat steps A and B.

SHUT DOWN AND CLEANING:

A. At the end of mealtime, move the “ON/OFF” switch to the “OFF” position.
B. Open doors and manually remove drain stopper to drain the unit.
C. Remove and clean upper and lower wash arms.
D. Remove and clean the sump strainer.

TO PREPARE PUMPS FOR OPERATION

The OMEGA 5E dishmachines are supplied with detergent, rinse additive and sanitizer dispensing chemical feeder pumps. Locate the open ends of the chemical tubes with the tube stiffeners and place each one in the appropriate container.

A. Red Tubing = Detergent

B. Blue Tubing = Rinse Aid

C. White Tubing = Sanitizer

PRIMING PERISTALTIC PUMPS

Peristaltic pumps need priming when the machine is first installed or if for some reason the chemical lines have been removed and air has been allowed to enter.

CAUTION: Water must be in the sump and wash tank prior to the dispensing of chemicals. Sanitizer in concentration is detrimental to the metal of the dishmachine and may cause damage without dilution.

1. Verify that the proper chemical tube stiffener inlet is in the proper container.

2. Use the toggle switches on the left side of control box to prime each pump. One will prime the sanitizer pump only, and the second will prime either the detergent or rinse aid pump, depending upon which way it is depressed.

3. To prime the pumps, hold the switch in the momentary position until chemical can be observed entering the sump.

4. Detergent is dispensed as required during the wash cycle by the cam timer. The amount of detergent may need to be increased or decreased depending on water quality and type of detergent. It is adjusted by changing Cam 6 on the cam timer.

5. Rinse additive is dispensed as required into the final rinse. The amount of rinse aid may need to be adjusted depending on water hardness and results. It can be changed by changing Cam 7 on the cam timer.

6. Sanitizer, either chlorine or iodine, is dispensed into the final rinse. The amount of sanitizer may need to be adjusted depending on the concentration and type of sanitizer used. It is adjusted by changing Cam 5 on the cam timer.

WARNING: Some of the chemicals used in dishwashing may cause chemical burns if they come on contact with your skin. Wear appropriate protective gear when handling these chemicals. If you do come in contact with these chemicals flush the area with fresh water.

CAM TIMER OPERATION

The cam timer is a 1 minute, 30 second, 8-cam timer that controls the operation of the dishmachine. The following is a description of the set points for each cam and the function of each switch.

CAM 1: Cam 1 is a cut cam with a single notch and serves as the cycle/reset control.

FUNCTION: When the machine is in the operation mode the notch is the home position. The machine will remain idle until the door is opened, then cam 1 moves to the start position and holds until the door is closed. The closing of the door will start the next cycle. The cam will rotate a complete cycle, and return to the home position and hold.

CAM 2: Cam 2 is a cut cam and provides the wash cycle timing.

FUNCTION: The wash cam works off the normally open contacts of Cam 2. This requires the switch be held closed by the cam. It will close and energize the wash pump 2 seconds after the cycle switch is activated. The pump will operate through the wash cycle (40 seconds) then shut down for the dwell period (20 seconds). As the cam rotates it energizes the pump for the rinse cycle (25 seconds). When cam 1 reaches it's home position it will de-energize cam 2, shutting down the wash pump.

NOTE: The last 6 cams are adjustable. The following instructions will require that the timer position have the cams to the front and the motor to the left.

CAM 3: Cam 3 is an adjustable cam and controls the drain solenoid.

FUNCTION: The drain solenoid works off the normally closed contacts of cam 3. When the cycle is initiated, the micro switch will be held open until it is allowed to drop into the notch of the cam. This energizes the drain solenoid which drains the machine. After a 12 second delay the cam reverses the micro switch, de-energizing the drain solenoid. This cam may require adjusting due to varying water pressure. The drain solenoid must remain open long enough to remove whatever water the fill valve solenoid allows in the machine.

SETTINGS: The right side of cam 3 must be set to pick up the switch arm just before the wash/rinse cycle cam switch drops. It will hold the drain solenoid open to drain all the water in the tank from the unit during the dwell period. Any adjustment made to the drain should be made to the left side of cam 3. The cam must be moved back into the wash time until all of the water is drained from the machine.

CAM 4: Cam 4 is an adjustable cam and controls the fill valve and therefore the rinse cycle.

FUNCTION: The fill valve cam works off the normally closed contacts of cam 4. This requires the switch to be held open by the cam and allowed to drop into the notch to operate the fill valve. This energizes the fill solenoid which opens to fill the machine with fresh water. After a 10 second delay, the cam reverses the micro switch, de-energizing the fill solenoid. The fill cam may require adjustment due to varying water pressure. The fill solenoid must remain open a sufficient length of time to fill the machine to the correct level.

SETTINGS: The right side of cam 4 must be set to allow the switch arm to drop 2 seconds before the drain solenoid is de-energized which flushes the detergent residue from the unit. It will hold the fill solenoid open until the cam switch arm is raised. At that time the fill solenoid is de-energized, shutting off the incoming water. The tub will be filled to the correct level to rinse the rack. Any adjustment made to the timing of the fill solenoid should be made with the left side of cam 4. To increase the water level, open the notch of the cam and for decreasing the level of the notch should be closed.

CAM 5: Cam 5 is an adjustable cam and controls the sanitizer pump.

FUNCTION: The sanitizer pump cam works off the normally closed contacts of cam 5. This requires the switch arm to be held open by the cam and allowed to drop into the notch to operate the pump. The time that the sanitizer pump will remain energized must be determined in the field to suit the chemical used and water conditions.

SETTINGS: The left side of cam 5 must be set to allow the switch arm to drop in past the starting point of the fill cam and after the drain solenoid has closed. The adjustment for sanitizer volume must be made with the right side of the cam. To increase the volume the notch should be increased or to decrease the amount of sanitizer the notch should be closed slightly in increments until the correct level is reached.

CAM TIMER OPERATION (CONTINUED)

CAM 6: Cam 6 is an adjustable can and controls the detergent pump.

FUNCTION: The detergent pump cam works off the normally closed contacts of cam 6. This requires the switch arm to be held open by the cam and allowed to drop into the notch to operate the pump. The time that the detergent pump will remain energized must be determined in the field to suit the chemical used and water conditions.

SETTINGS: The left side of cam 6 must be set to drop in past the starting point of the wash pump cam. The adjustment for detergent volume must be made with the right side of the cam. To increase the volume, the notch should be increased or to decrease the amount of detergent the notch should be closed slightly in increments until the correct level is reached.

CAM 7: Cam 7 is an adjustable cam and controls the rinse aid pump.

FUNCTION: The rinse aid pump cam works off the normally closed contacts of cam 7. This requires the switch arm to be held open by the cam and allowed to drop into the notch to operate the pump. The time that the rinse aid pump will remain energized must be determined in the field to suit the chemical used and water conditions.

SETTINGS: The left side of cam 7 must be set to drop in past the starting point of the fill cam and after the drain solenoid has closed. The adjustment for rinse aid volume must be made with the right side of the cam. To increase the volume the notch should be increased or to decrease the amount of detergent the notch should be closed slightly in increments until the correct level is reached.

CAM 8: Cam 8 is an adjustable cam and is not used.

SECTION 3:
PREVENTATIVE MAINTENANCE

SECTION 3: PREVENTATIVE MAINTENANCE

PREVENTATIVE MAINTENANCE

The dishmachines covered in this manual are designed to operate with a minimum of interaction with the operator. However, this does not mean that some items will not wear out in time.

There are many things that operators can do to prevent catastrophic damage to the dishmachine. One of the major causes of component failure has to do with prescrapping procedures. A dishmachine is not a garbage disposal; any large pieces of material that are put into the machine shall remain in the machine until they are either broken up (after spreading out on your ware!) or physically removed. Strainers are installed to help catch debris, but they do no good if they are clogged. Have operators regularly inspect the pan strainers to ensure (1) that they are free of soil and debris and (2) they are laying flat in the tub.

When cleaning out strainers, do NOT beat them on waste cans. The strainers are made of metal and can be forgiving; but once severe damage is done, it is next to impossible for the strainer to work in the way it was designed to. Wipe out strainers with a rag and rinse under a faucet if necessary. For stubborn debris, a toothpick should be able to dislodge any obstructions from the perforations. Always ensure that strainers are placed back in the machine before operation and that they lay flat in the tub.

You may wish to contact your Ecolab representative in order to learn more about how your water hardness will effect the performance of your machine. Hard water makes dishmachines work harder and decreases efficiency.

Again, it is important to remind operators that trying to perform corrective maintenance on the dishmachine could lead to larger problems or even cause harm to the operator. If a problem is discovered; secure the dishmachine using proper shut down procedures as listed in this manual and contact your Ecolab representative.

Some problems, however, may having nothing to do with the machine itself and no amount of preventative maintanence is going to help. A common problem has to do with temperatures being too low. Verify that the water temperatures coming to your dishmachine match the requirements listed on the machine data plate. There can be a variety of reasons why your water temperature could be too low and you should discuss it with your Ecolab representative to determine what can be done.

By following the operating and cleaning instructions in this manual, you should get the most efficient results from your machine. As a reminder, here are some steps to take to ensure that you are using the dishmachine the way it was designed to work:

1. Ensure that the water temperatures match those listed on the machine data plate.
2. Ensure that all strainers are in place before operating the machine.
3. Ensure that all wash and/or rinse arms are secure in the machine before operating.
4. Ensure that drains are closed/sealed before operating.
5. Remove as much soil from dishes by hand as possible before loading into racks.
6. Do not overfill racks.
7. Ensure that glasses are placed upside down in the rack.
8. Ensure that all chemicals being injected to machine have been verified as being at the correct concentrations.
9. Clean out the machine at the end of every workday as per the instructions in the manual.
10. Always contact your Ecolab representative whenever a serious problem arises.
11. Follow all safety procedures, whether listed in this manual or put forth by local, state or national codes/regulations.

SECTION 4:
TROUBLESHOOTING

SECTION 4: TROUBLESHOOTING

COMMON PROBLEMS

WARNING: Inspection, testing and repair of electrical equipment should be performed only by qualified service personnel. Certain procedures in this section require electrical tests or measurements while power is applied to the machine. Exercise extreme caution at all times. If test points are not easily accessible, disconnect power, attach test equipment and reapply power to test. When replacing electrical parts, disconnect power at source circuit breaker.

Problem: Machine will not run; no power to the unit.

1. Verify that the service disconnect or service breaker are not off.
2. Verify that electrical service has been hooked to the machine.
3. Verify that the correct voltage, phase and frequency have been hooked to the machine.
4. Verify wiring of power switch to the schematic. Check continuity of switch. If switch is wired correctly, switch may need replaced.

Problem: Machine has power, but will not cycle.

1. Verify that the correct voltage, phase and frequency have been hooked to the machine.
2. Check that the switch button hasn't seperated.
3. Check cycle switch for continuity.

Problem: Machine runs, but there is no water.

1. Verify that there is water connected to the machine and that it is turned on.
2. If a strainer is placed in line with the machine, ensure that it is not clogged.
3. Verify that there is 20 $\pm$5 PSI of water flow pressure to the machine.
4. Water fill valve may be faulty and may need to be replaced.

Problem: Machine runs and there is water, but dishes are dirty.

1. Ensure that good prescrapping occurs be removing as much heavy soil from the ware as possible before starting the cycle.
2. Verify that chemical concentrations for detergent are correct for the given water conditions.
3. Verify that none of the wash or rinse arms have clogged nozzles.
4. Ensure that the unit is filling to the correct water level.

SECTION 5:
SERVICE PROCEDURES

SECTION 5: SERVICE PROCEDURES

RINSE SOLENOID VALVE REPAIR PARTS KIT

These dishmachines are equipped with electrical solenoid valves to allow for automatic fill and rinse. These valves are designed to specific tolerances and design aspects that must be met in order to function properly.

Ecolab offers repair kits for replacing some of the wear items associated with solenoid valves which will allow you to save money in that replacement of these parts can take place *without* removing the solenoid valve from the plumbing assembly.

The instructions provided here are for maintenance personnel only. Unauthorized persons should not attempt any of the steps contained in these instructions.

Warning: many of the instructions and steps within this document require the use of tools. Only authorized personnel should ever perform any maintenance procedure on the dishmachine!

PREPARATION

1. Power must be secured to the unit at the service breaker. Tag or lock out the service breaker to prevent accidental or unauthorized energizing of the machine.

2. Ensure that incoming water to the machine is secured either by use of a shut-off valve or disconnecting the incoming water line.

TOOLS REQUIRED

The following tools will be needed to perform this maintenance evolution:

1. Small flathead screwdriver
2. Medium flathead screwdriver
2. Needle nose pliers
3. 5/16” nutdriver
4. Channel locks
5. 12” pipe wrench

TIME REQUIRED

It is estimated that it will take (1) person twenty minutes to perform this task, not including all of the items indicated in the section entitled “PREPARATION”.

IMPORTANT NOTES

1. Read these instructions thoroughly before attempting this maintenance evolution. Become familiar with the parts and what actions need to be taken. This will save time in the long run!

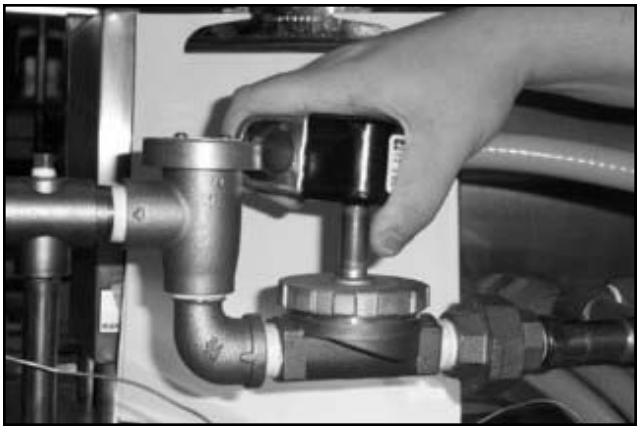
2. The procedures demonstrated in this manual are shown being performed on an ES-4400 rack conveyor dishmachine. The actual maintenance steps, however, apply to any Parker style solenoid valve found on a Ecolab dishmachine.

STEPS

1. Remove the top screw with the 5/16” nutdriver. Remove the screw and the data plate and set to the side.

Removing the top screw

2. With the top screw and data plate removed, grasp the solenoid coil and gently pull up. The coil should slide up, allowing you to remove it from the valve bonnet. If you are wanting to replace the coil, continue on with Step 3. If you are wanting to replace some of the internal components of the valve, proceed to step 12.



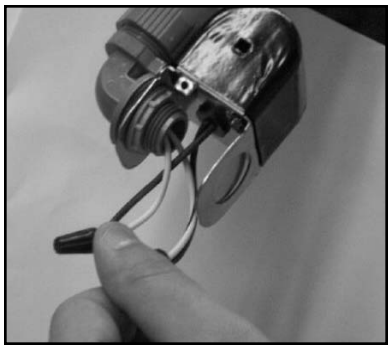
Removing the coil

3. **NOTE:** Replacing the solenoid coil requires working with the wiring of your machine. It is important that all wiring maintenance be performed by qualified personnel. Always verify the wiring steps presented in this instruction with the schematic that shipped with the unit. A current schematic can also be found in the unit’s installation manual. Before beginning any step that involves working with wiring, ensure that the steps located in the section entitled “Preparation” have been performed. Power must be secured to the machine at the service breaker. Failure to do so could result in severe injury to maintenance personnel.

RINSE SOLENOID VALVE REPAIR PARTS KIT (CONTINUED)

Prying open the coil wire cover

4. When replacing the coil, ensure that when removing the coil wire cover that care is taken not to damage the wires inside. Using the medium flathead screwdriver, gently use it to open the cover enough to where it could be pulled off.



Straightening the wires

5. Once the coil wire cover has been removed and set to the side, take the internal wires and pull them out straight.

Removing the wire nuts

6. Remove the wire nuts from the wires and separate them.

Loosening the conduit nut

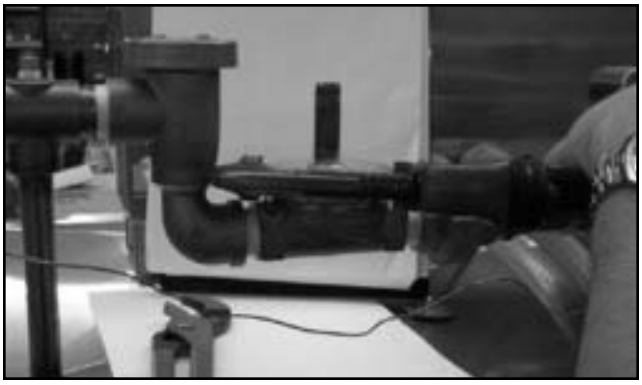
7. Using a pair of channel locks, gently loosen the conduit retaining ring for the conduit nut. Once it is loosened, use your fingers to unscrew and remove it.

8. Pull the conduit away and discard the bad coil. Take the new coil and attach the conduit, reinstall & tighten the conduit nut, and pull the wires through so that you will be able to wire the valve back up.

9. Reconnect the wires from the conduit to the wires from the solenoid as they had been connected previously. Ensure that the wire nuts are on tight.

10. Slide the coil wire cover back on, taking care not to damage the wires.

11. If you are done performing maintenance on the valve, continue on to step 23. Otherwise, please go on to step 12.L

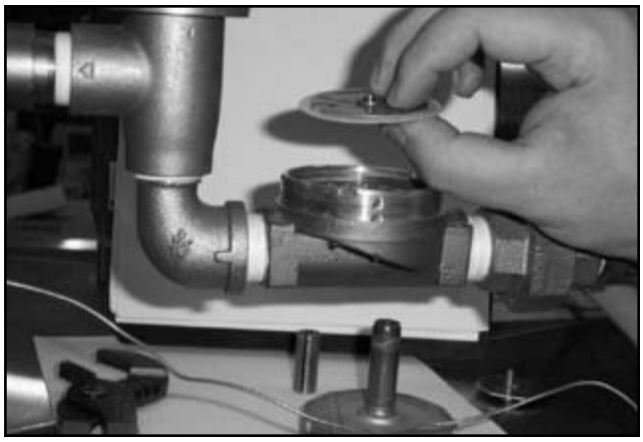


Loosening the valve bonnet

12. To remove the valve bonnet, grasp it with the jaws of the pipe wrench and turn to the left. **Note:** on some models you may have to remove the valve in order to perform this and any further steps. Be careful not to damage the plumbing assembly. Only use the pipe wrench enough to where you can spin the valve bonnet off with your hand.

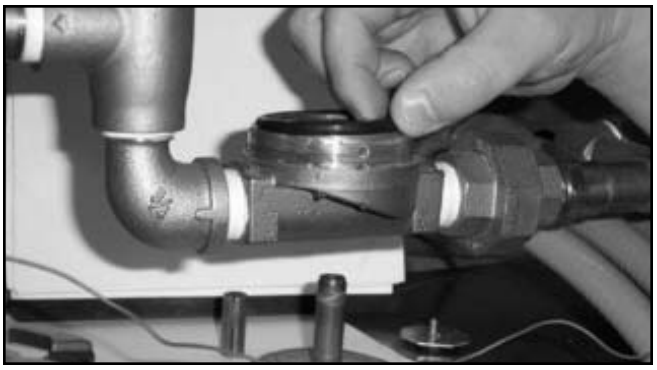
Removing the valve bonnet

13. Slowly remove the valve bonnet. **Note:** The spring for the plunger is located directly under the bonnet and may come free if you are not careful. Remove the plunger, spring and valve bonnet and place to the side.



Removing the diaphragm

17. Remove the diaphragm retainer and then the diaphragm itself. Many problems associated with a solenoid valve can be traced to a clogged pilot port in the diaphragm.

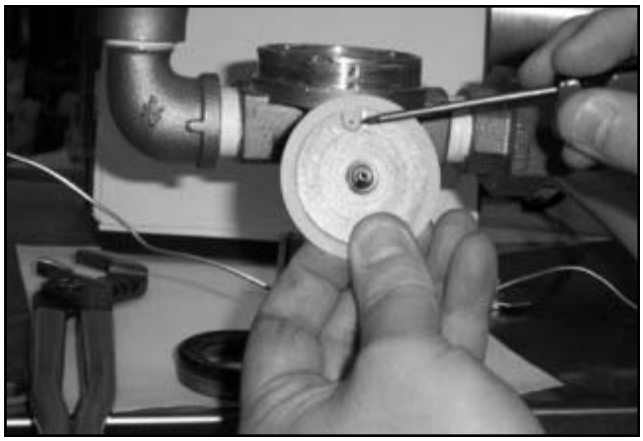


Removing the O-ring

14. Remove the O-ring and inspect it. If it has any tears or cuts or excessive flat spaces, it should be replaced.

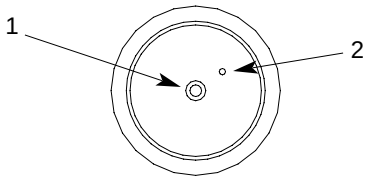
15. Examine the threads for the valve bonnet. Check them for scoring or signs of damage. Take a cloth and clean them out to remove any foreign particles that might get lodged in the threads and cause a leak. Severely damage threads should not be repaired; instead it is recommended that the entire valve should be replaced. These instructions do not provide information on replacing the solenoid valve.

16. **Note:** Even though an O-ring may not appear damaged, it is a good idea to go ahead and replace it if you have a new one. This will help ensure that your valve remains leak-free in the future!



Pointing out the extension hole

18. As indicated in the photo above, the extension hole can become clogged. If it is difficult to clean out, you can use a heated straight pin to push through the hole. The center hole, the pilot port, must also be clear. If the diaphragm is torn or bent in any way, it must be replaced.



Diaphragm showing (1) pilot port and (2) extension hole

Removing the screen retainer

19. Using the small flathead screwdriver, lift out the screen retainer. Verify that the holes in it are free of clogs and debris.

Removing the mesh strainer screen

20. Again using the small flathead screwdriver, carefully remove the mesh screen from inside the valve body. The screen should be taken and rinsed out to remove any debris fouling it.

View inside the solenoid valve body

21. With the mesh screen removed, look down into the valve and verify it is not clogged. Remove any foreign objects from the valve body that would obstruct flow.

22. Reassemble the valve, reversing the steps needed to take it apart. Replace defective replacement parts with new parts from ordered kits. Ensure that components are sufficiently tightened to prevent leakage.

AFTER MAINTENANCE ACTIONS

Reconnect the incoming water (if disconnected) and turn on. Then restore power to the unit. Run the unit for at least 10 minutes to ensure there are no leaks. If any problems arise please contact your Ecolab representative.

SPECIAL PARTS

Repair kit includes: Plunger, Spring, O-ring, and Diaphragm.

1/2” Repair Kit
Ecolab No.: 85283489
Mfg. No.: N/A

3/4” Repair Kit
Ecolab No.: 85283406
Mfg. No.: N/A

110/240 Volt Coil & Housing Only
Ecolab No.: 85289411
Mfg. No.: N/A

1/2” 110/240 Volt Solenoid Valve Complete Assembly
Ecolab No.: 96580683
Mfg. No.: N/A

3/4” 110/240 Volt Solenoid Valve Complete Assembly
Ecolab No.: 85260511
Mfg. No.: N/A

SECTION 6:
PARTS SECTION

HARDWARE- Stainless Steel

Ecolab No.	Description	Jackson No.
96023832	SCREW 4-40X1/4"	05305-002-32-38
96584354	SCREW 4-40X3/8"	N/A
88120365	SCREW 4-40X1/2"	N/A
96570478	SCREW 4-40X3/4"	N/A
96028436	SCREW 4-40 X 1"	N/A
88125554	SCREW 6-32X3/8"	N/A
88120068	SCREW 6-32X1/2"	N/A
96025010	SCREW 6-32X3/4"	05305-011-37-05
96032883	SCREW 6-32X1-1/2"	N/A
88120639	SCREW 8-32X3/8"	05305-172-02-00
88123740	SCREW 8-32X1/2"	05305-172-07-00
88120175	SCREW 8-32X5/8"	N/A
88122254	SCREW 8-32X3/4"	05305-172-06-00
88120878	SCREW 10-32X3/8"	05305-173-12-00
88120142	SCREW 10-32X1/2"	N/A
88120217	SCREW 10-32X3/4"	05305-011-62-17
88120282	SCREW 10-32X1"	N/A
88120936	SCREW 10-32X1-1/2"	N/A
88120753	SCREW 10-24X3/8"	05305-173-03-00
88120746	SCREW 10-24X1/2"	N/A
88120191	SCREW 10-24X3/4"	N/A
88120019	SCREW 10-24X1"	N/A
88120000	SCREW 10-24X6"	N/A
88220007	SCREW SOCKET 1/4-20X3/8"	N/A
88020433	SCREW 1/4-20X1/2"	05305-274-02-00
88000013	SCREW 1/4-20X5/8"	05305-274-24-00
88020458	SCREW 1/4-20X3/4"	05305-274-04-00
88030069	SCREW 1/4-20X1-1/2"	05305-274-23-00
88000104	SCREW 1/4-20X2-1/2"	05305-274-13-00
88021027	SCREW 3/8-16X3/4"	05306-011-71-60
88021050	SCREW 3/8-16X1-1/4"	05305-276-10-00
88926002	SCREW SOCKET 3/8-16X1-1/2"	N/A
88021076	SCREW 3/8-16X1-3/4"	05306-011-36-94
88420047	NUT HEX 4-40	N/A
88420062	NUT HEX 6-32	N/A
88420070	NUT HEX 8-32	N/A
88420088	NUT HEX 10-32	N/A
88420120	NUT HEX 10-24	N/A
88420104	NUT HEX 1/4-20	05310-274-01-00
88422043	NUT HEX 5/16-18	05310-275-01-00
88422068	NUT HEX 3/8-16	05310-276-01-00
88429121	NUT LOCK 4-40	N/A
88460050	NUT LOCK 6-32	05310-373-03-00
88429105	NUT LOCK 8-32	05310-272-02-00
88460068	NUT LOCK 10-32	05310-373-02-00
88429063	NUT LOCK 10-24	05310-373-01-00

88429113	NUT LOCK 1/4-20	05310-374-01-00
88419056	NUT LOCK 5/16-18	N/A
88419007	NUT LOCK 3/8-16	05310-011-72-55
88520000	WASHER FLAT 1/4	05311-002-78-93
880530597	WASHER FLAT 5/16	05311-175-01-00
880530605	WASHER FLAT 3/8	05311-176-01-00
88521059	WASHER LOCK #8	05311-272-01-00
88521075	WASHER LOCK #10	N/A
88521083	WASHER LOCK 1/4	05311-274-01-00
88521117	WASHER LOCK 5/16	05311-275-01-00
88521109	WASHER LOCK 3/8	05311-276-01-00
88520069	WASHER LOCK 1/2	05311-011-71-93
88500000	WASHER BEV 3/8 SQUARE	05311-011-35-36
88900733	PIN COTTER 1/16X1/2"	05315-011-68-56
96027495	PIN COTTER 3/32X3/4"	05315-207-01-00
88900501	PIN COTTER 1/8X3/4"	05315-011-60-09
88930581	PIN COTTER 1/8X1-1/2"	05315-002-05-86
88920087	PIN COTTER 3/16X1-3/4"	N/A

HARDWARE MISC.

83109041	CABLE TIE 7"	05975-602-05-16
83109199	CABLE TIE 15" 100PK	N/A
83109025	CABLE TIE W/SCREW HOLE	N/A
89990121	GREASE SILICONE 3OZ TUBE	N/A
89992176	SILICONE CAULK WHITE 3OZ TUBE	N/A
89991996	TEFLON TAPE ROLL	N/A
83109125	ELECTRICAL TAPE	N/A
96022447	ENDCAP, DOOR HANDLE	05340-011-35-00
96552336	DOOR GUIDE, PLASTIC, 23 1/2” Long	05700-111-33-59

ELECTRICAL

83300541	CONDUIT 1/2"	05975-111-46-57
83312017	NUT, CONDUIT 1/2"	N/A
83311506	CONNECTOR, CONDUIT 1/2"	05975-011-45-13
83311753	ELBOW, 90DEG, CONDUIT 1/2"	05975-111-01-00
83311852	ELBOW 45DEG, CONDUIT 1/2"	05975-011-45-23
83115003	PLUG, PLASTIC 1/2"	N/A
96540067	PLUG, METAL 1/2"	N/A
83199570	PLUG, RUBBER 1/2"	N/A
83116814	PLUG, METAL 1-1/2"	N/A
87301412	HANGER, CONDUIT METAL	N/A
96203153	TERMINAL FEMALE 1/4" W/PIGGY BACK	N/A
83100002	TERMINAL FEMALE 1/4" 14-8GA	N/A
83102269	TERMINAL FEMALE 1/4" 16-14GA	N/A
83102244	TERMINAL FEMALE 1/4" 22-18GA	N/A
83101022	CONNECTOR BUTT SPLICE 16-14GA	N/A
83101014	CONNECTOR BUTT SPLICE 22-18GA	N/A
83102152	TERMINAL SPADE #8HOLE 16-14GA	N/A
83102129	TERMINAL SPADE #8HOLE 22-16GA	N/A
96570221	TERMINAL SPADE #10HOLE 14-16GA	N/A

96032271	TERMINAL SPADE .25HOLE 12-10GA	N/A
96032701	TERMINAL SPADE .25HOLE 16-14GA	N/A
83100073	TERMINAL EYELET #8HOLE 16-14GA	N/A
83100339	TERMINAL EYELET #10HOLE 16-14GA	N/A
83101113	WIRE NUT 18-12GA	N/A
83101089	WIRE NUT 14-10GA CRIMP	N/A

PLUMBING

89009138	THERMOMETER, SCREW-IN, ES2000/4000	06685-111-35-30
96021316	THERMOMETER, 96"LEAD, CONVEYOR	06685-111-68-49
85390193	GAUGE PRESSURE 0-30PSI, BOTTOM MOUNT	06685-011-64-29
96582086	GAUGE PRESSURE 0-100PSI, BOTTOM MOUNT	06685-111-88-34
85390417	GAUGE PRESSURE 0-100PSI, BACK MOUNT	06685-011-48-32
96022421	WASH ARM PRESSURE TEST KIT	N/A
85230191	NEEDLE VALVE, 1/4" PIPE	N/A
85250587	VALVE BALL 1/2"PIPE	N/A
85200269	VALVE GLOBE 1/2"PIPE	04820-100-15-00
85250595	VALVE BALL 3/4"PIPE	N/A
85221018	REGULATOR WATER 1/4"PIPE, 180F	04820-011-69-05
85220077	REGULATOR WATER 1/2"PIPE, 140F	04820-100-04-07
85220010	REGULATOR WATER 3/4"PIPE, 180F	04820-100-01-06
85284214	REPAIR KIT 3/4" WATER REGULATOR	N/A
96027024	STRAINER Y 1/2" PIPE	04730-217-01-10
85300325	STRAINER Y 3/4" PIPE	04730-717-02-06
85300301	SCREEN, COARSE 3/4”	N/A
85300333	SCREEN, FINE 3/4”	N/A

TUBING

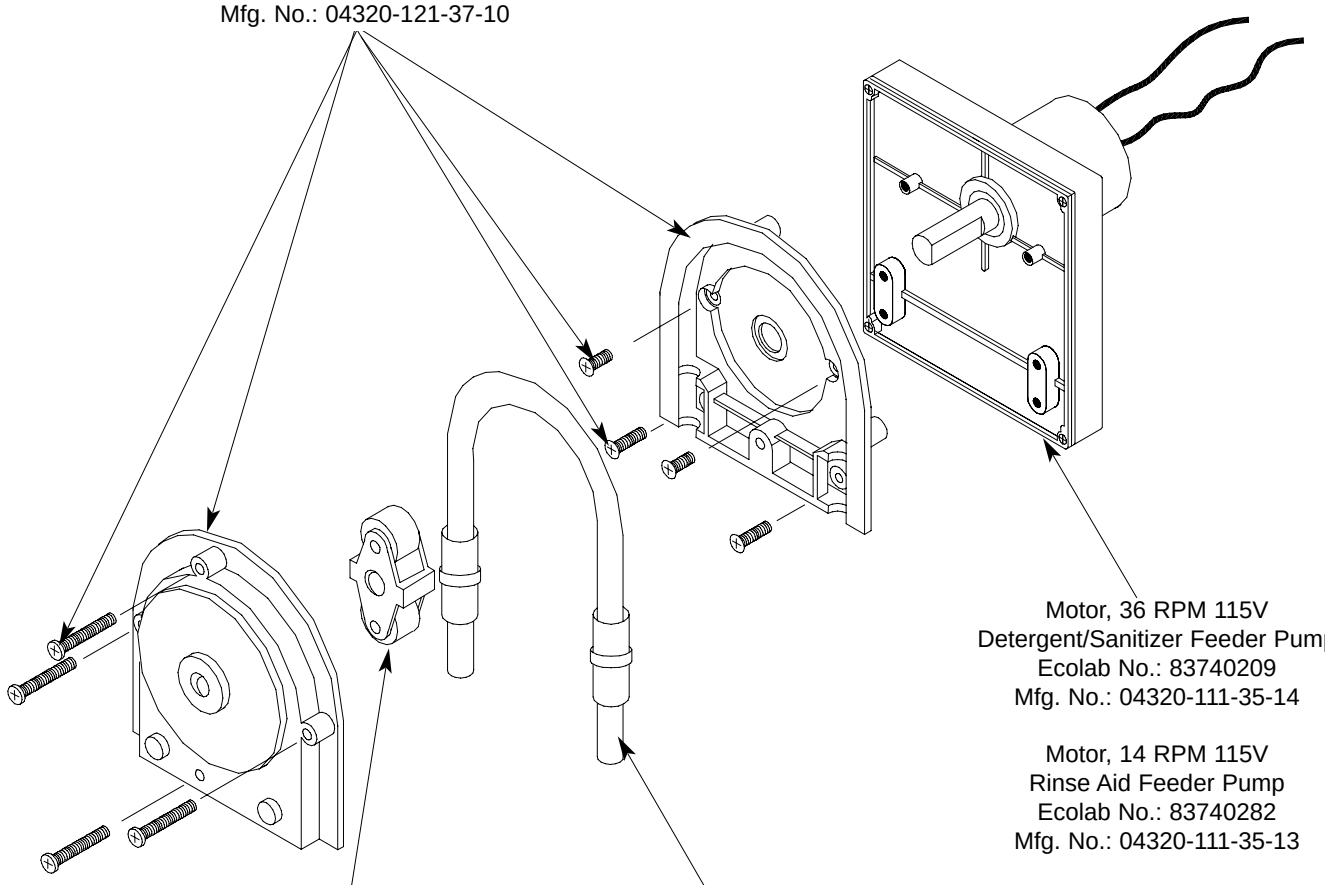
85015105	TUBING 1/4" CLEAR	05700-011-37-12
85015097	TUBING 1/4" RED	05700-011-37-14
85015089	TUBING 1/4" BLUE	05700-011-37-16
92661024	COPPER TUBE 1/4" 50 FT	N/A
92661016	COPPER TUBE 3/8" 25 FT	N/A
92661032	COPPER TUBE 1/2" 50 FT	N/A

TUBING MISC.

92630000	WASH TANK CONNECTOR, 45DEG 1/2" HOSE	04730-002-69-80
92002008	WASH TANK CONNECTOR, 18DEG 5/8" HOSE	04820-111-51-14
92002019	WASH TANK CONNECTOR, 45DEG 5/8" HOSE	04730-011-45-21
96581475	CHECK VALVE, ELBOW, RINSE LINE	N/A
92171271	RINSE INJECTOR CHECK VALVE KIT	N/A
96572573	PICK-UP TUBE STIFFENER	05700-002-66-49
87301149	CLAMP, HOSE 7/32-5/8"	05700-000-35-06
87301131	CLAMP, HOSE 5/16-7/8"	04730-011-36-05
96020078	CLAMP, HOSE 11/16-1.5"	N/A
87301362	CLAMP, HOSE 7/8-2.75"	04730-719-01-37
87301503	CLAMP, HOSE 4.75-6.5"	04730-011-34-90

SECTION 6: PARTS SECTION

CHEMICAL FEEDER PUMP ASSEMBLY



Squeeze Tube Lubricant
Ecolab No.: 89990121

Housing Kit (Red roller)
Ecolab No.: 96562871
Mfg. No.: 04320-121-37-10

Motor, 36 RPM 115V
Detergent/Sanitizer Feeder Pump
Ecolab No.: 83740209
Mfg. No.: 04320-111-35-14

Motor, 14 RPM 115V
Rinse Aid Feeder Pump
Ecolab No.: 83740282
Mfg. No.: 04320-111-35-13

Motor, 36 RPM 240V
Detergent/Sanitizer Feeder Pump
Ecolab No.: 96029293
Mfg. No.: 04320-111-47-47

Motor, 14 RPM 240V
Rinse Aid Feeder Pump
Ecolab No.: 96029897
Mfg. No.: 04320-111-47-46

Motor, 14 RPM 24V
Rinse Aid Feeder Pump
Ecolab No.: 96030317
Mfg. No.: 04320-011-63-33

Roller, Red (Detergent/Sanitizer)
Ecolab No.: 96037924
Mfg. No.: 04320-111-36-70

Roller, White (Rinse Aid)
Ecolab No.: 84800041
Mfg. No.: 04320-002-82-28

Roller, Black
Ecolab No.: 96029533
Mfg. No.: 04320-111-65-27

Squeeze Tube, Detergent/Sanitizer
(Use with the red roller.)
Ecolab No.: 96562673
Mfg. No.: 05700-111-35-29

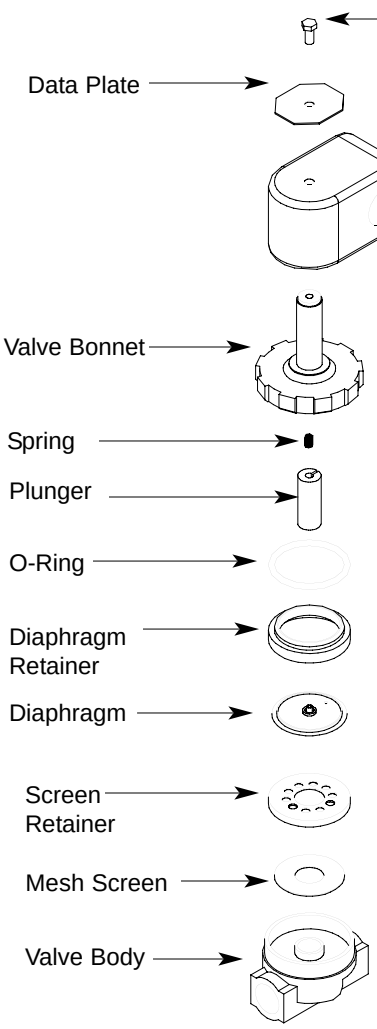
Clear Squeeze Tube, Rinse Aid
(Use with the white roller.)
Ecolab No.: 85017119
Mfg. No.: 05700-011-76-41

Tube, Small 7/32”
(Use with the black roller.)
Ecolab No.: 85016079
Mfg. No.: 05700-011-65-21

1/4” Sight Tube	Ecolab No.: 92001017	Mfg. No.: N/A
3/8” Sight Tube	Ecolab No.: 96569496	Mfg. No.: 05700-111-35-33

SECTION 6: PARTS SECTION

SOLENOID VALVE REPAIR PARTS KITS



Repair kit includes: Plunger, Spring, O-ring, and Diaphragm.

1/2” Repair Kit
Ecolab No.: 85283489
Mfg. No.: N/A

3/4” Repair Kit
Ecolab No.: 85283406
Mfg. No.: N/A

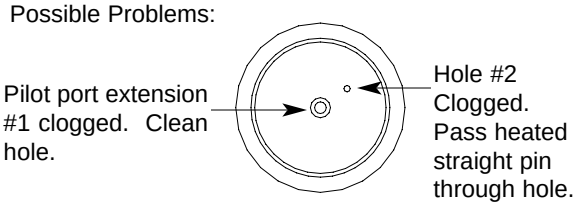
1/2” 110/240 Volt Solenoid Valve
Complete Assembly
Ecolab No.: 96580683
Mfg. No.: 04810-100-12-18

3/4” 110/240 Volt Solenoid Valve
Complete Assembly
Ecolab No.: 85260511
Mfg. No.: 04810-100-53-00

TO DISASSEMBLE - These valves may be taken apart by unscrewing the bonnet and the enclosing tube assembly from the valve body assembly. After unscrewing, carefully lift off the bonnet and enclosing tube assembly. Don’t drop the plunger. The o-ring seal and diaphragm cartridge can now be lifted out. Be careful not to damage the machined faces while the valve is apart.

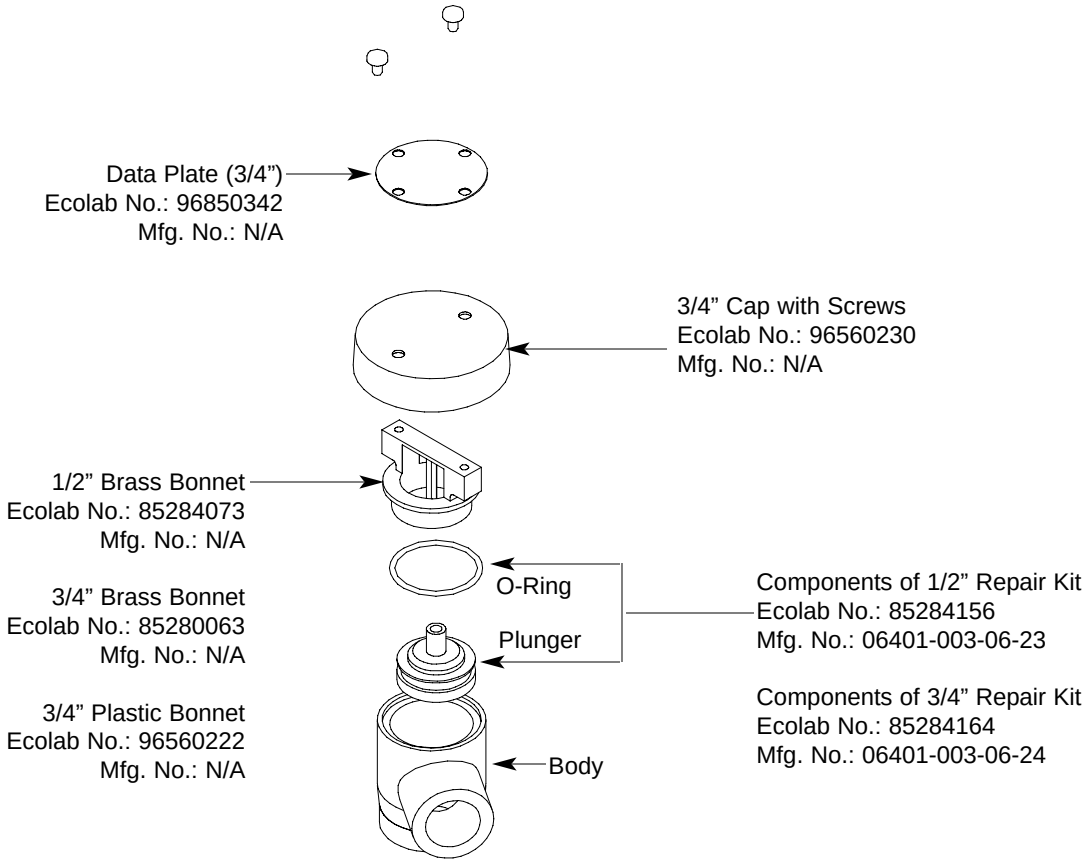
TO REASSEMBLE - Place the diaphragm cartridge in the body with the pilot port extension UP. Hold the plunger with the synthetic seat against the pilot port. Make sure the o-ring is in place, then lower the bonnet and enclosing tube assembly over the plunger. Screw the bonnet assembly snugly down on the body assembly.

Possible Problems:



SECTION 6: PARTS SECTION

VACUUM BREAKER REPAIR PARTS KITS



1/2" Complete Vacuum Breaker Assembly
Ecolab No.: 85242543
Mfg. No.: 04820-003-06-13

3/4" Complete Vacuum Breaker Assembly
Ecolab No.: 85242626
Mfg. No.: 04820-002-53-77

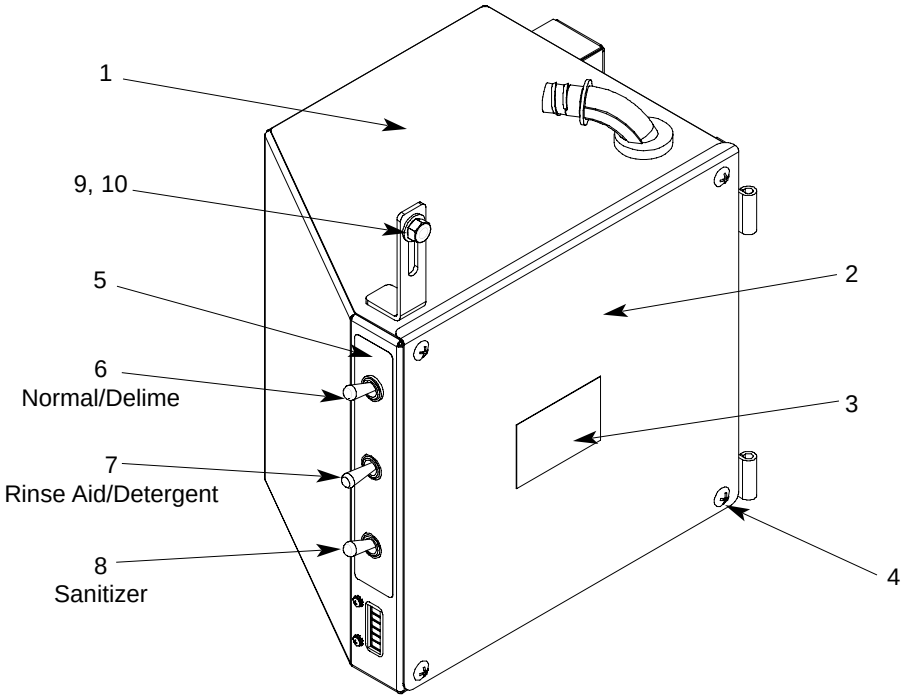
1/4" Complete Vacuum Breaker Assembly
Ecolab No.: 85242501
Mfg. No.: 04810-011-51-62

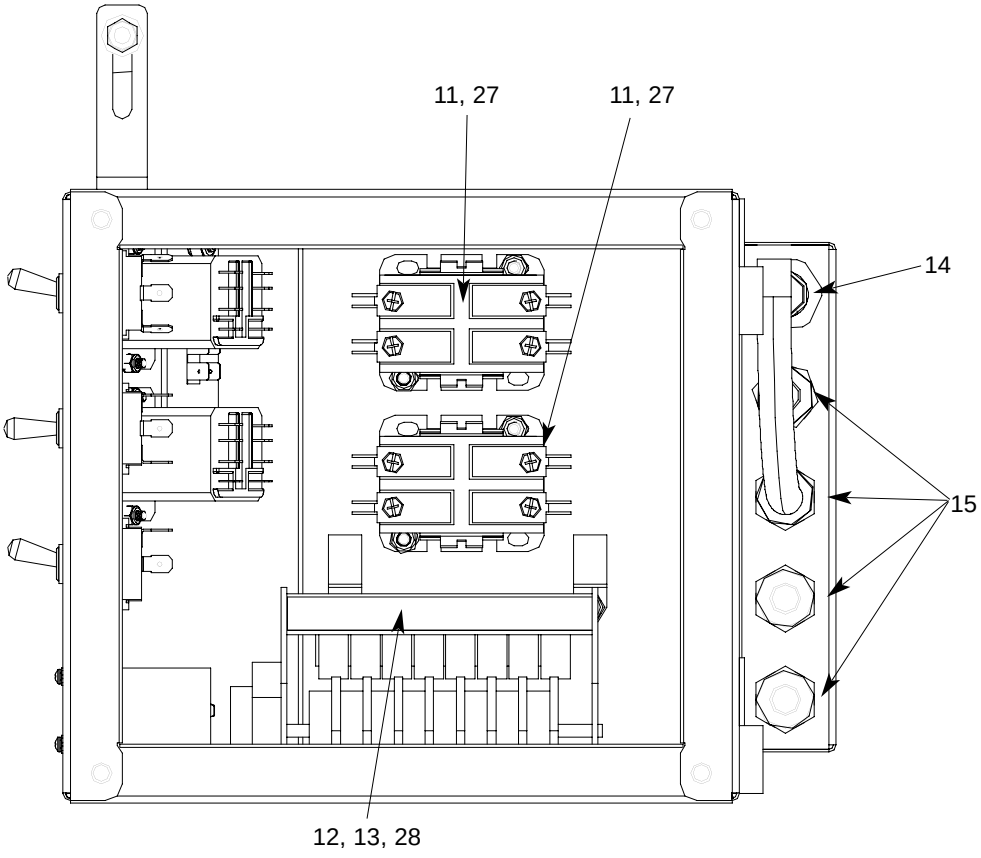
1/4" Complete Vacuum Breaker Assembly
Bottom Inlet & Outlet
Ecolab No.: 85242000
Mfg. No.: N/A

3/8" Complete Vacuum Breaker Assembly
Ecolab No.: 85242527
Mfg. No.: 04820-002-75-73

SECTION 6: PARTS SECTION

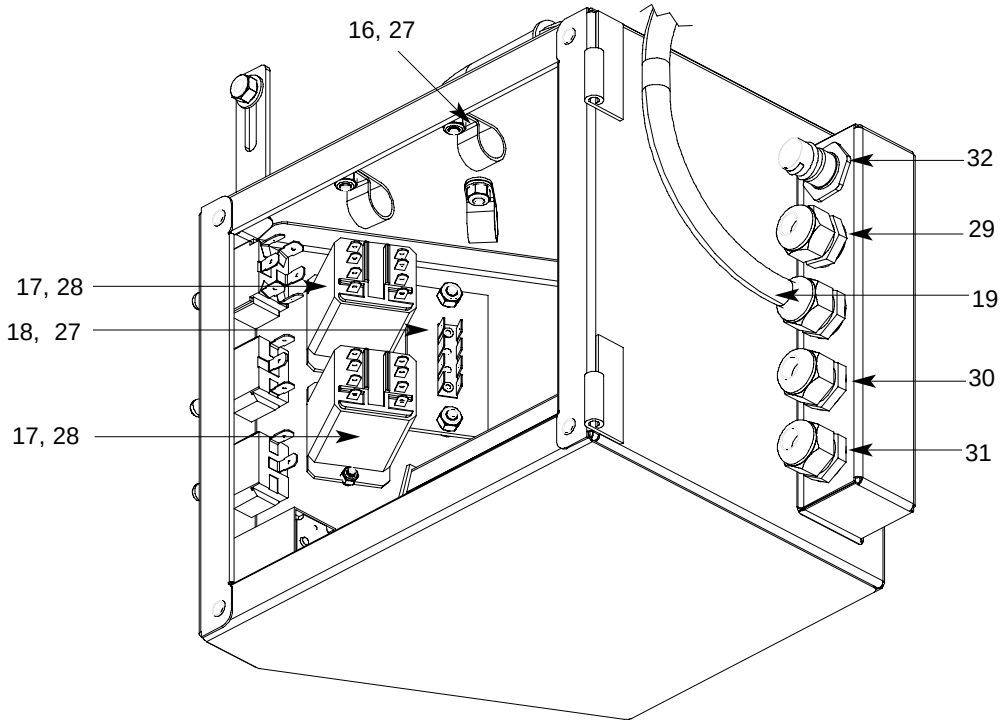
CONTROL BOX ASSEMBLY

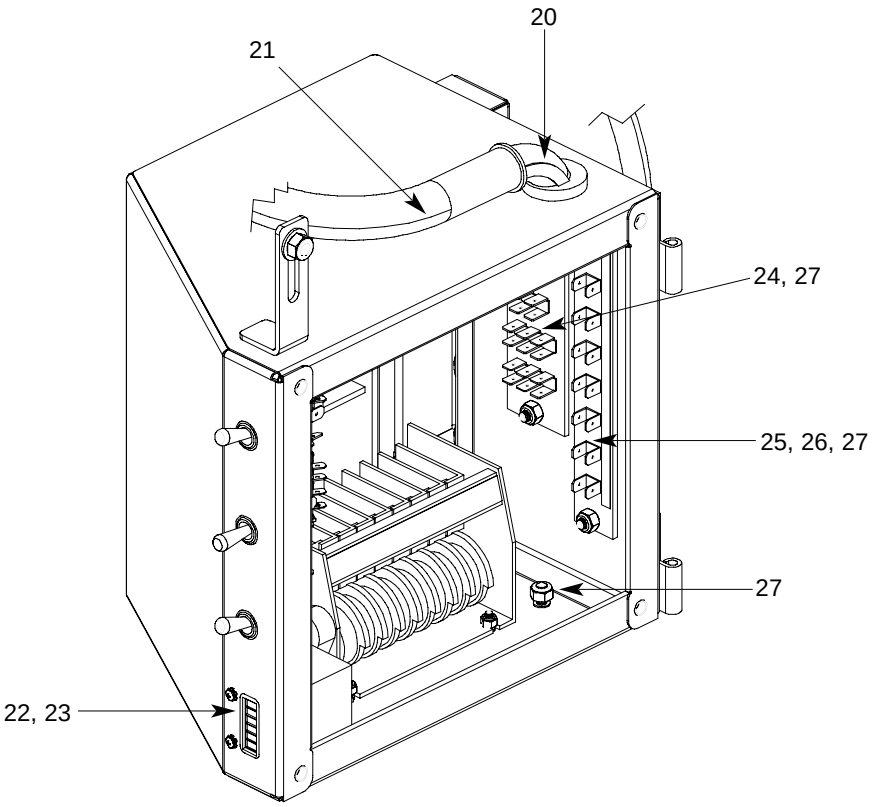




SECTION 6: PARTS SECTION

CONTROL BOX ASSEMBLY



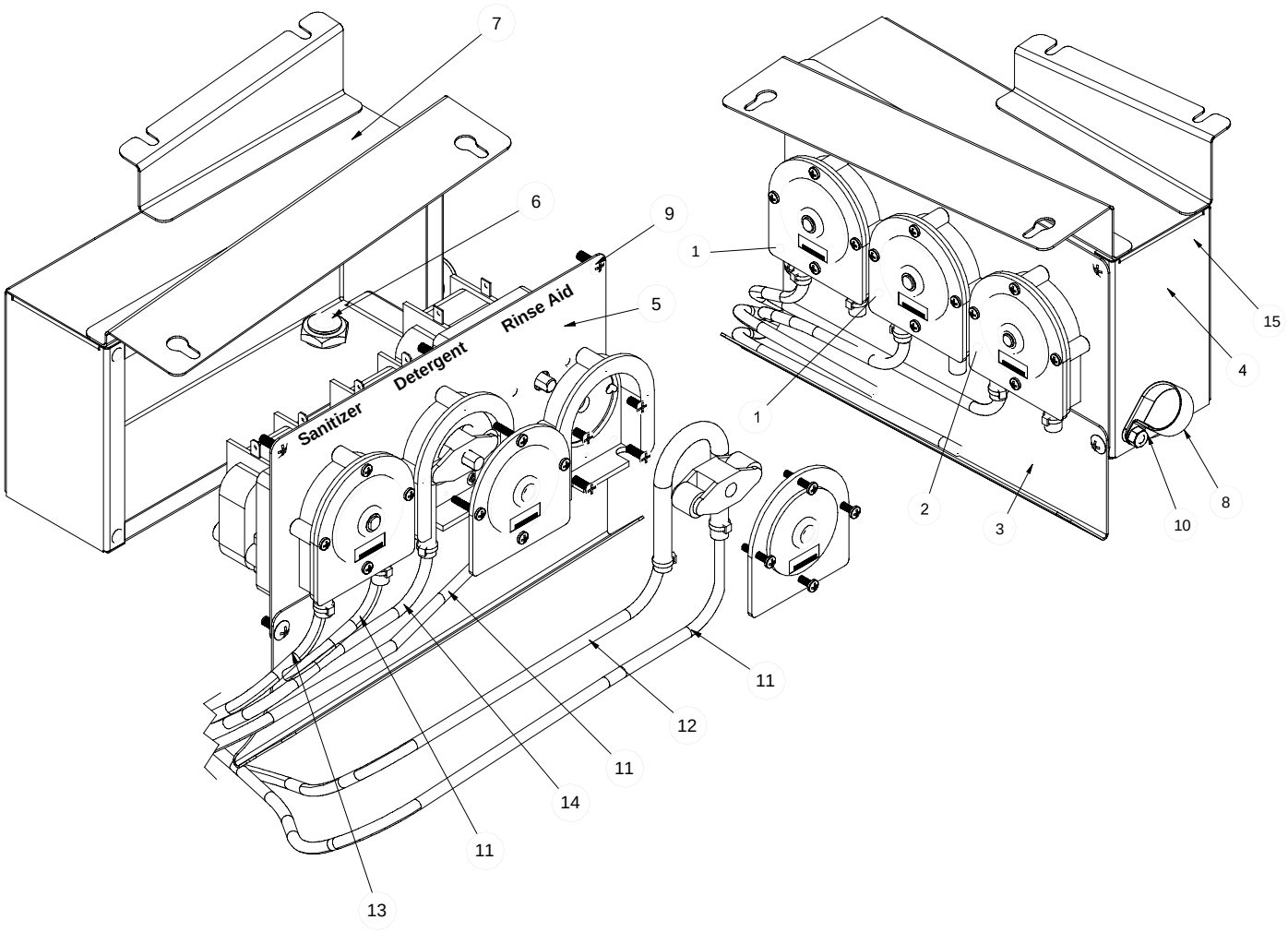


CONTROL BOX ASSEMBLY (CONTINUED)

ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Control Box Weldment	96630942	05700-003-09-42
2	1	Control Box Cover	96633054	05700-003-30-54
3	1	Decal, Warning - Disconnect Power	96039821	09905-100-75-93
4	4	Screw, 10-32 x 1/2" Long, Phillips Tusshead	96022140	05305-011-39-36
5	1	Decal, Peri-pump Prime	96633256	09905-003-32-56
6	1	Switch, Delime/Normal	83020149	05930-301-21-18
7	1	Detergent/Rinse Aid Pump Prime Switch	83020271	05930-011-35-27
8	1	Sanitizer Pump Prime Switch	83020164	05930-111-38-21
9	1	Locknut, 1/4"-20 S/S Hex with Nylon Insert	88429113	05310-374-01-00
10	1	Washer, 1/4"-20 S/S	88520000	05311-174-01-00
11	2	Contactor	83008250	05945-109-05-69
12	1	Timer, 8 Cam	83010785	05945-111-35-32
13	1	Decal, Cam Timer	96584594	09905-011-37-21
14	4	Fitting, Conduit, Heyco 1/2''	83311217	05975-011-49-03
15	1	Fitting, 1/2'' Straight Snap In	96633327	05975-003-33-27
16	5	Clamp, 5/8" Nylon	87301024	04730-011-39-01
17	2	Relay, 2 Pole	96582895	05945-111-35-19
18	1	Terminal Board	96584693	05940-021-94-85
19	1	Harness, Switch Panel	96633537	05700-003-35-37
20	1	Fitting, 1/2'' 90 Deg. Snap In	96633328	05975-003-33-28
21	1	Conduit, 1/2" x 40"	96633336	05700-003-35-48
22	1	Cycle Counter, 115V	83650044	05990-111-35-38
23	2	Screw, 4-40 x 1/4" Phillips Pan Head	96023832	05305-002-32-38
24	1	Terminal Board	96021134	05940-002-78-97
25	1	Terminal Board	96030424	05940-001-97-91
26	1	Decal, Terminal Board 8 Position	N/A	09905-003-09-30
27	16	Locknut, 10-24 S/S Hex with Nylon Insert	88429063	05310-373-01-00
28	6	Locknut, 6-32 S/S Hex with Nylon Insert	88460050	05310-373-03-00
29	1	Harness, Wash Pump	96633534	05700-003-35-34
30	1	Harness, Drain Solenoid	96633536	05700-003-35-36
31	1	Harness, Peri-pump	96633535	05700-003-35-35
32	1	Conduit, 1/2" x 17"	96633336	05700-003-35-49

SECTION 6: PARTS SECTION

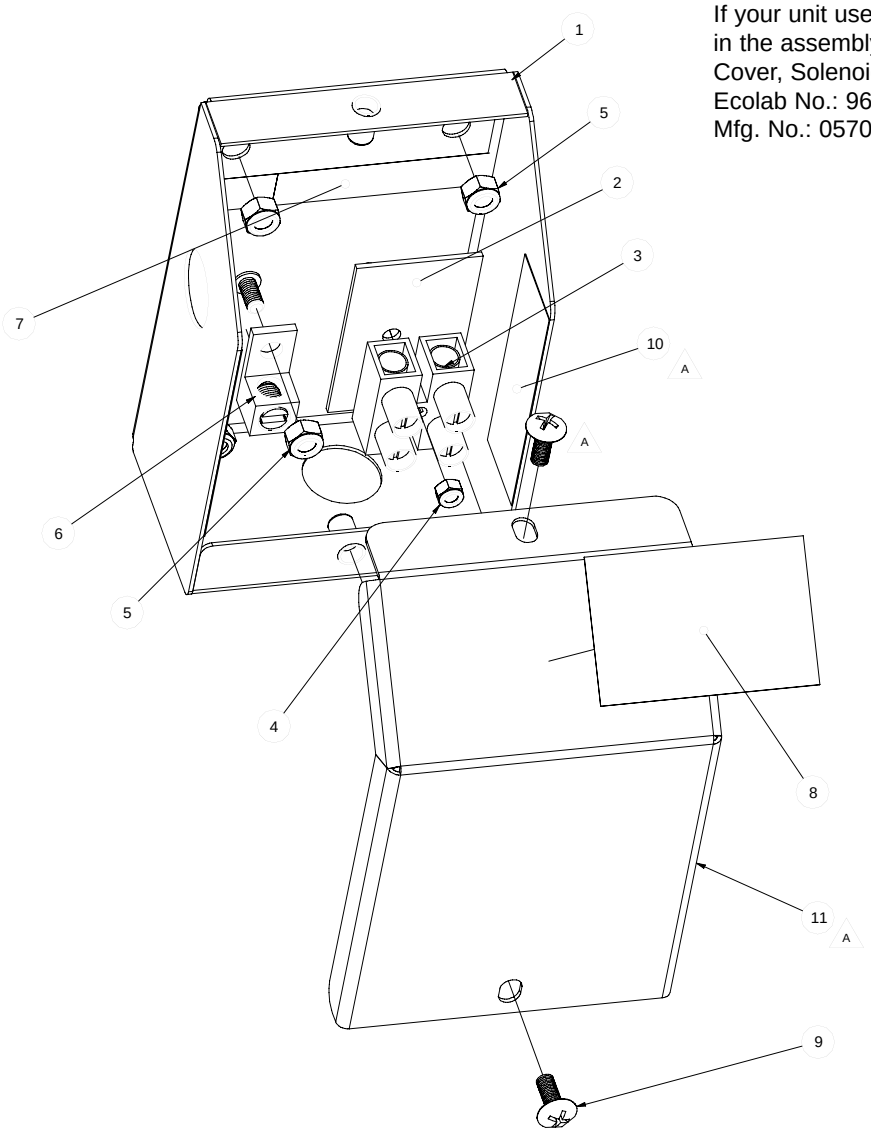
PERI-PUMP BOX ASSEMBLY



ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	2	Peri-pump Assembly, 36 RPM	See Page 25	05700-002-96-08
2	1	Peri-pump Assembly, 14 RPM	See Page 25	05700-002-96-09
3	1	Drip Channel	96633289	05700-003-32-89
4	1	Weldment, Peri-pump Box	96633200	05700-003-32-00
5	1	Weldment, Peri-pump Box Cover	96633380	05700-003-33-80
6	1	Fitting, Conduit, Heyco 1/2''	83311217	05975-011-49-03
7	1	Clamp, 5/8" Nylon (Located inside of box)	87301024	04730-011-39-01
8	1	Clamp, 1" Nylon	N/A	04730-002-41-88
9	5	Screw, 10-32 x 1/2'' Long, Phillips Tusshead	96022140	05305-011-39-36
10	3	Locknut, 10-24 S/S Hex with Nylon Insert	88429063	05310-373-01-00
11	3	Tube Stiffener (Not Shown)	96572573	05700-002-66-49
12	1	Tubing, 1/4'' OD x 60" Long, Blue	See Page 24	05700-002-52-34
13	1	Tubing, 1/4'' OD x 60" Long, White	See Page 24	05700-002-52-33
14	1	Tubing, 1/4'' OD x 60" Long, Red	See Page 24	05700-011-63-18
15	1	Terminal Board (Not Shown)	96030424	05940-001-97-91

SECTION 6: PARTS SECTION

ELECTRICAL CONNECTION BOX ASSEMBLY

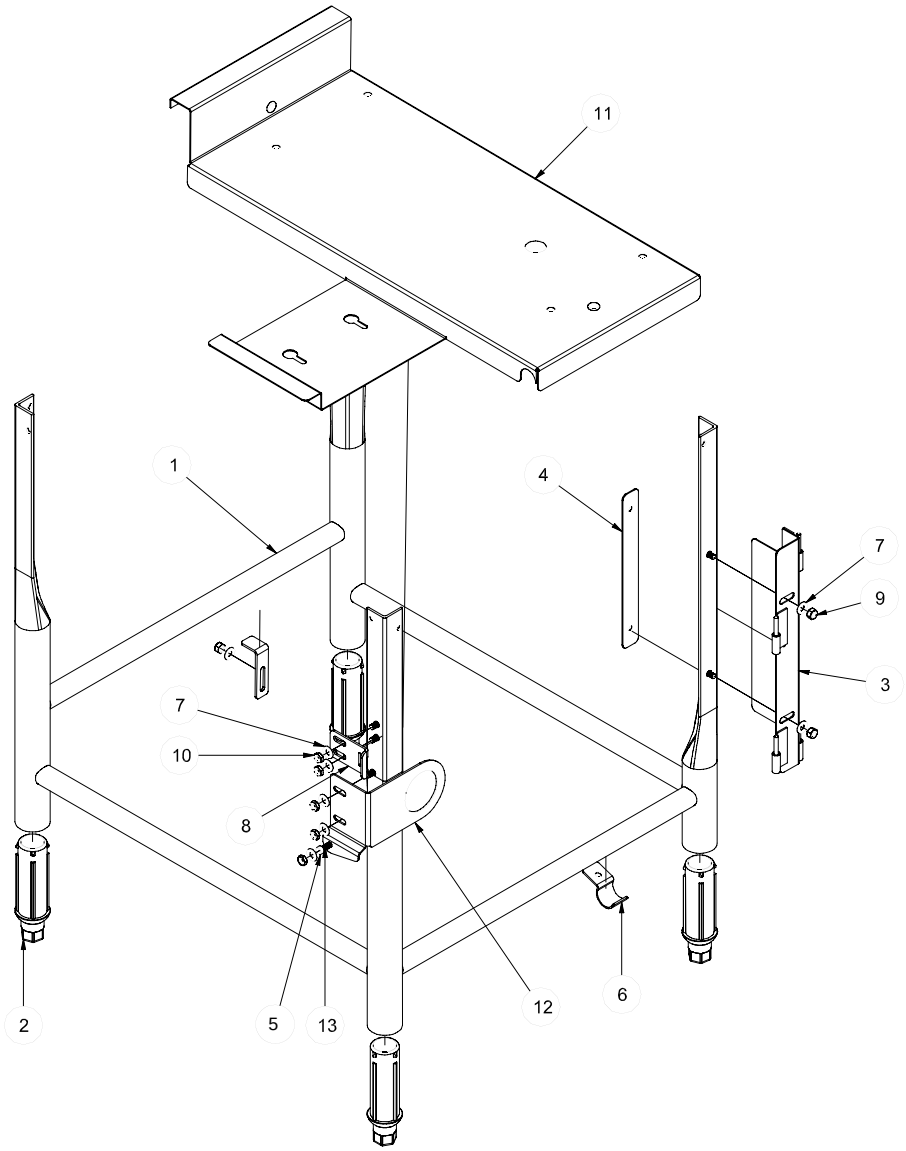


If your unit uses a different style cover than shown in the assembly, please order the following.
Cover, Solenoid Box
Ecolab No.: 96632246
Mfg. No.: 05700-003-22-46

ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	**1**	**Box, Power Junction Weldment**	**96633058**	**05700-003-30-58**
2	1	Terminal Block Spacer	96025127	05700-011-40-05
3	1	Terminal Block	96025119	05940-500-09-61
4	1	Locknut, 6-32 with Nylon Insert	88460050	05310-373-03-00
5	5	Locknut, 10-24 with Nylon Insert	88429063	05310-373-01-00
6	1	Lug, Ground	83118000	05940-200-76-00
7	1	Decal, Power Connection	96028402	09905-011-47-64
8	1	Decal, Warning to Disconnect Power	96039821	09905-100-75-93
9	1	Screw, 10-32 x 1/2” Long, Phillips Trusshead	N/A	05305-011-39-36
10	2	Decal, Copper Conductors Only	96021365	09905-011-47-35
11	1	Cover, Solenoid Box	96634672	05700-003-46-72

SECTION 6: PARTS SECTION

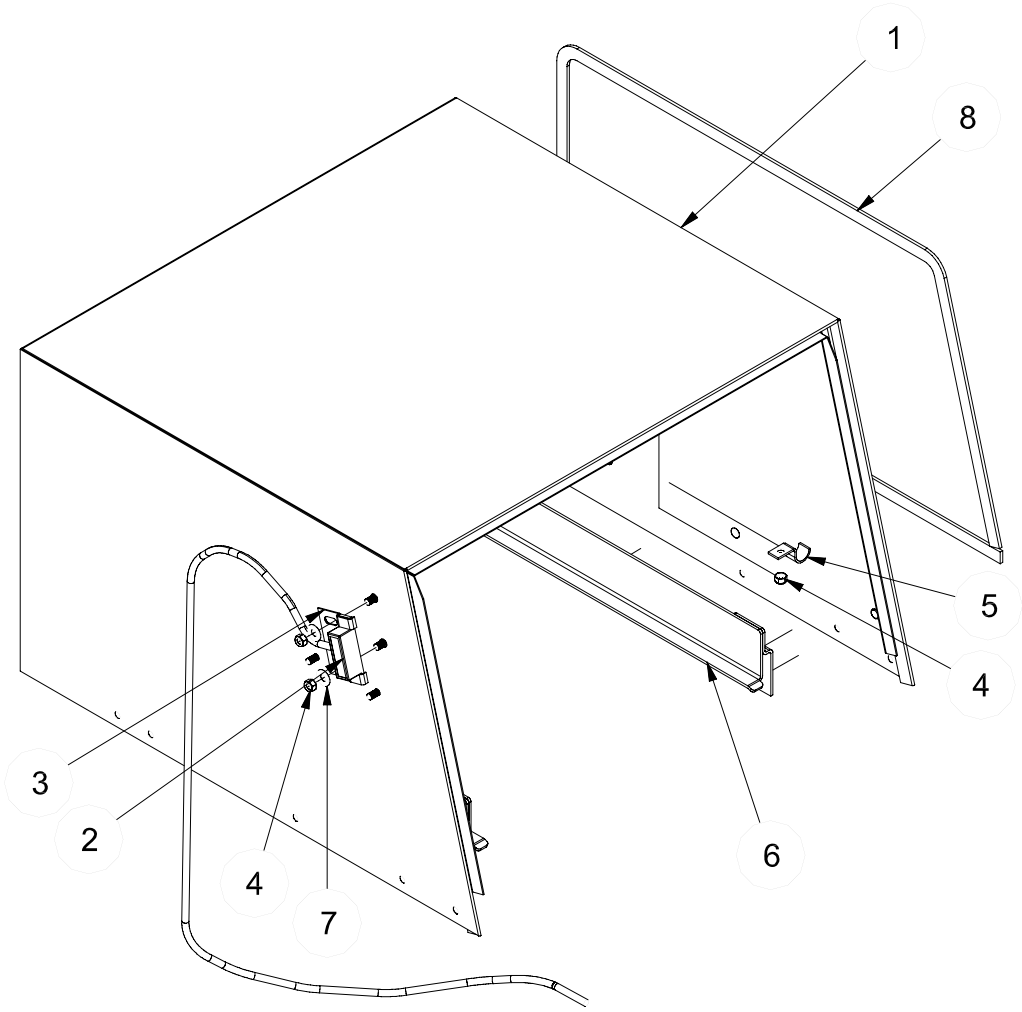
FRAME ASSEMBLY



ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Frame Weldment	N/A	05700-003-09-40
2	4	Foot, 3” Adjustable	96582039	05340-002-14-55
3	1	Plate, Hinge Weldment	96631011	05700-003-10-11
4	1	Washer, Hinge Weldment	N/A	05700-002-54-62
5	1	Spacer, PB Bolt	96582788	05700-000-29-40
6	1	Clamp, Pipe	96572466	05700-000-35-05
7	8	Washer, 1/4”-20 S/S	88520000	05311-174-01-00
8	1	Keeper, Door Panel Latch	96630931	05700-003-09-31
9	4	Locknut, 1/4”-20 S/S Hex with Nylon Insert	88429113	05310-374-01-00
10	5	Nut, Hex 1/4”-20	88420104	05310-274-01-00
11	1	Booster Mounting Plate Weldment	N/A	05700-002-51-93
12	1	Bracket, Temperature Gauge	96631453	05700-003-14-53
13	1	Bolt, 1/4”-20 x 1/2” Long	88020433	05305-274-02-00

SECTION 6: PARTS SECTION

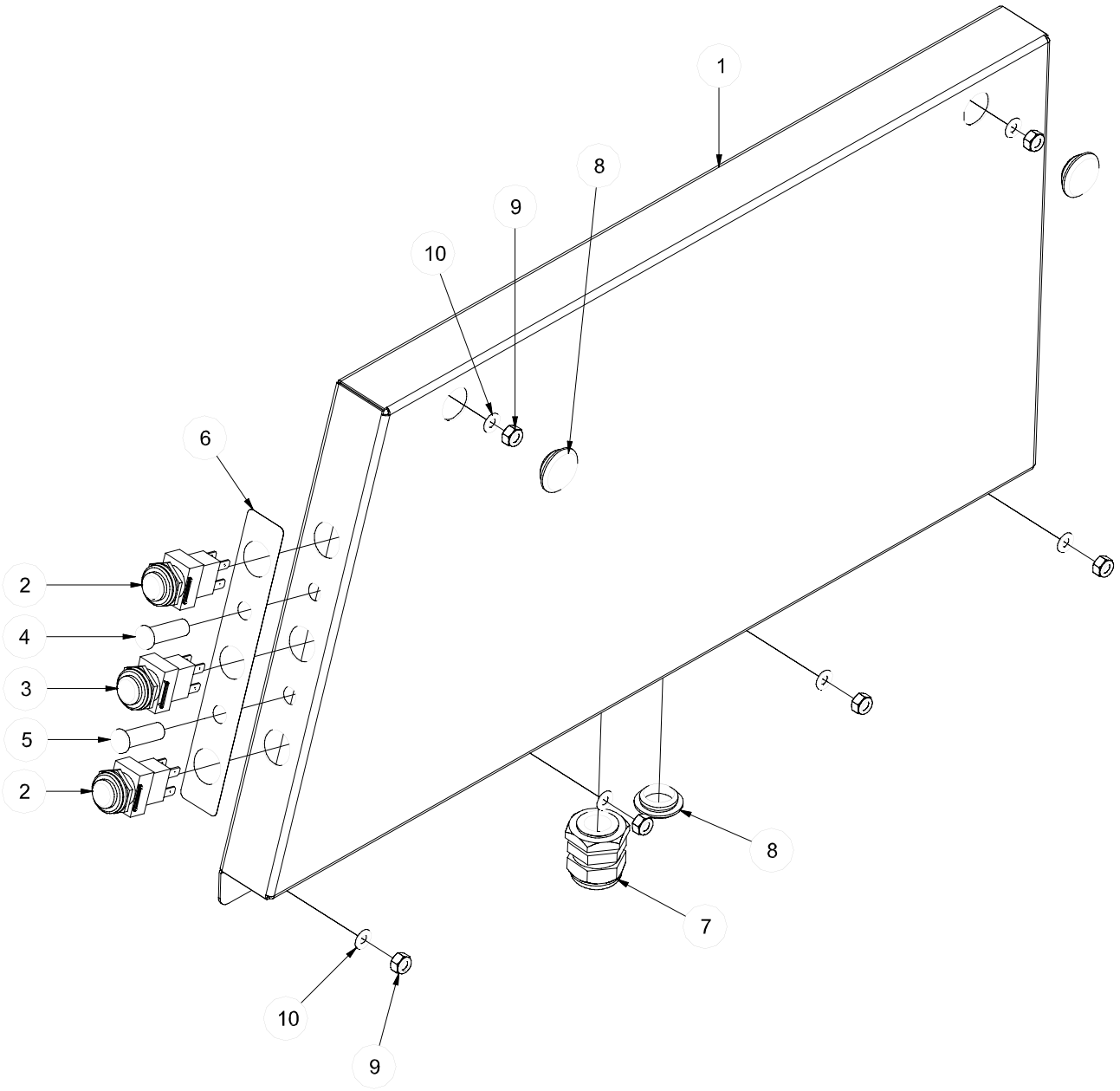
HOOD ASSEMBLY



ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Hood Weldment	N/A	05700-003-09-56
2	1	Switch, 115V Reed	96027990	05930-002-36-80
3	1	Bracket, Limit Switch	96021472	05700-021-71-18
4	4	Locknut, 10-24 with Nylon Insert	88429063	05310-373-01-00
5	2	Clamp, Pipe 5/8”	87301149	05700-000-35-06
6	2	Rack Rail Weldment	96040001	05700-002-45-67
7	2	Washer, 1/4”-20 I.D.	88530589	05311-174-01-00
8	1	Gasket, Side Panel (5.3 Feet)	N/A	05700-003-35-51

SECTION 6: PARTS SECTION

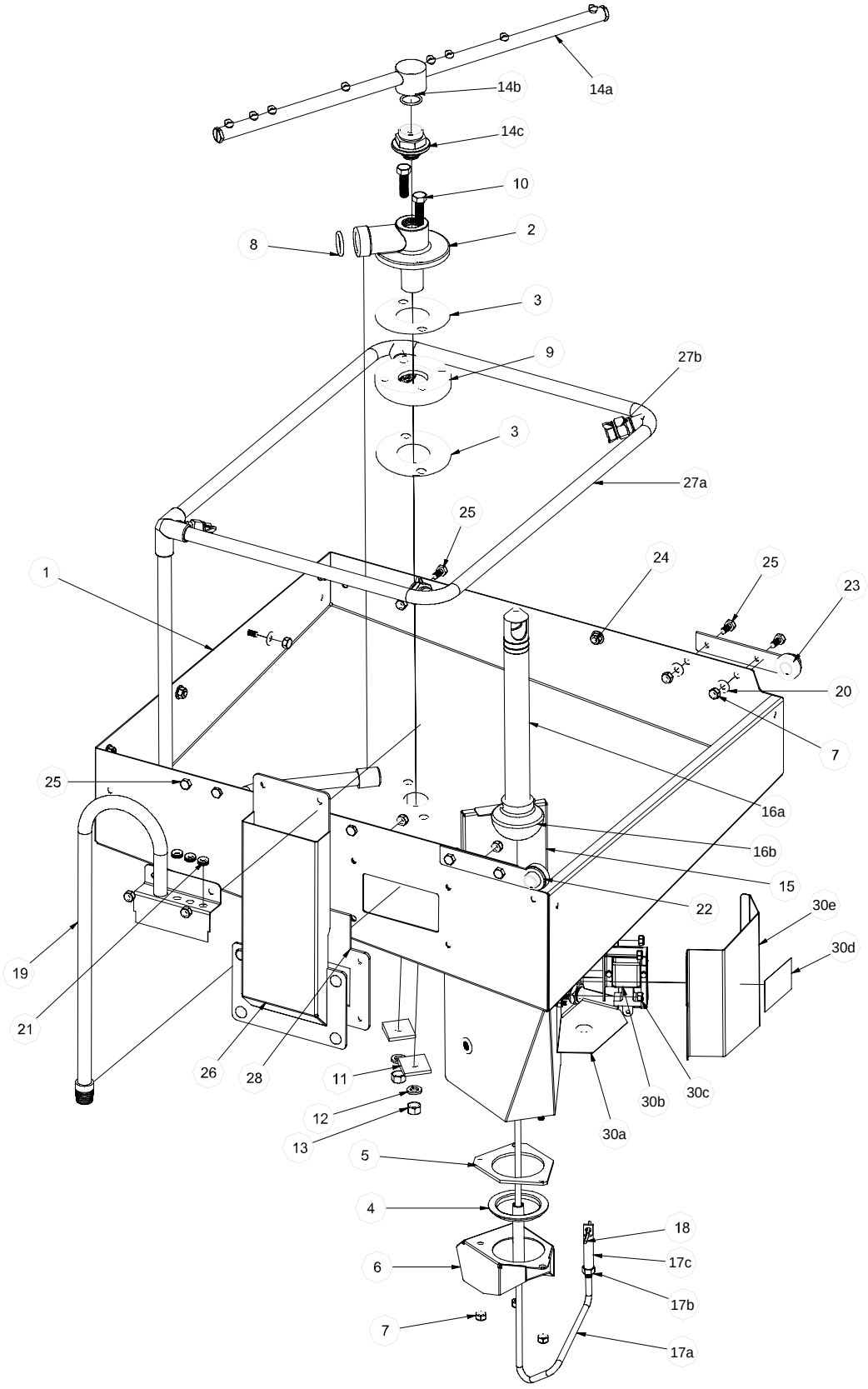
SWITCH PANEL ASSEMBLY



ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
		Complete Side Panel Assembly	N/A	05700-003-24-38
1	1	Side Panel Weldment	N/A	05700-003-24-36
2	2	Switch, Prime Assembly	96027103	05700-003-14-91
3	1	Switch, On/Off Assembly	96027102	05700-003-14-92
4	1	Light, Amber	96581822	05945-504-06-18
5	1	Light, Red	83630392	05945-504-07-18
6	1	Decal, Switch Panel	96630863	09905-003-08-63
7	1	Fitting, .25-.546	96039110	05975-011-65-51
8	3	Plug, 3/4” hole	83115002	04730-011-60-21
9	6	Locknut, 10-24 with Nylon Insert	88429063	05310-373-01-00
10	6	Washer, #10	N/A	05311-173-02-00

SECTION 6: PARTS SECTION

TUB ASSEMBLY

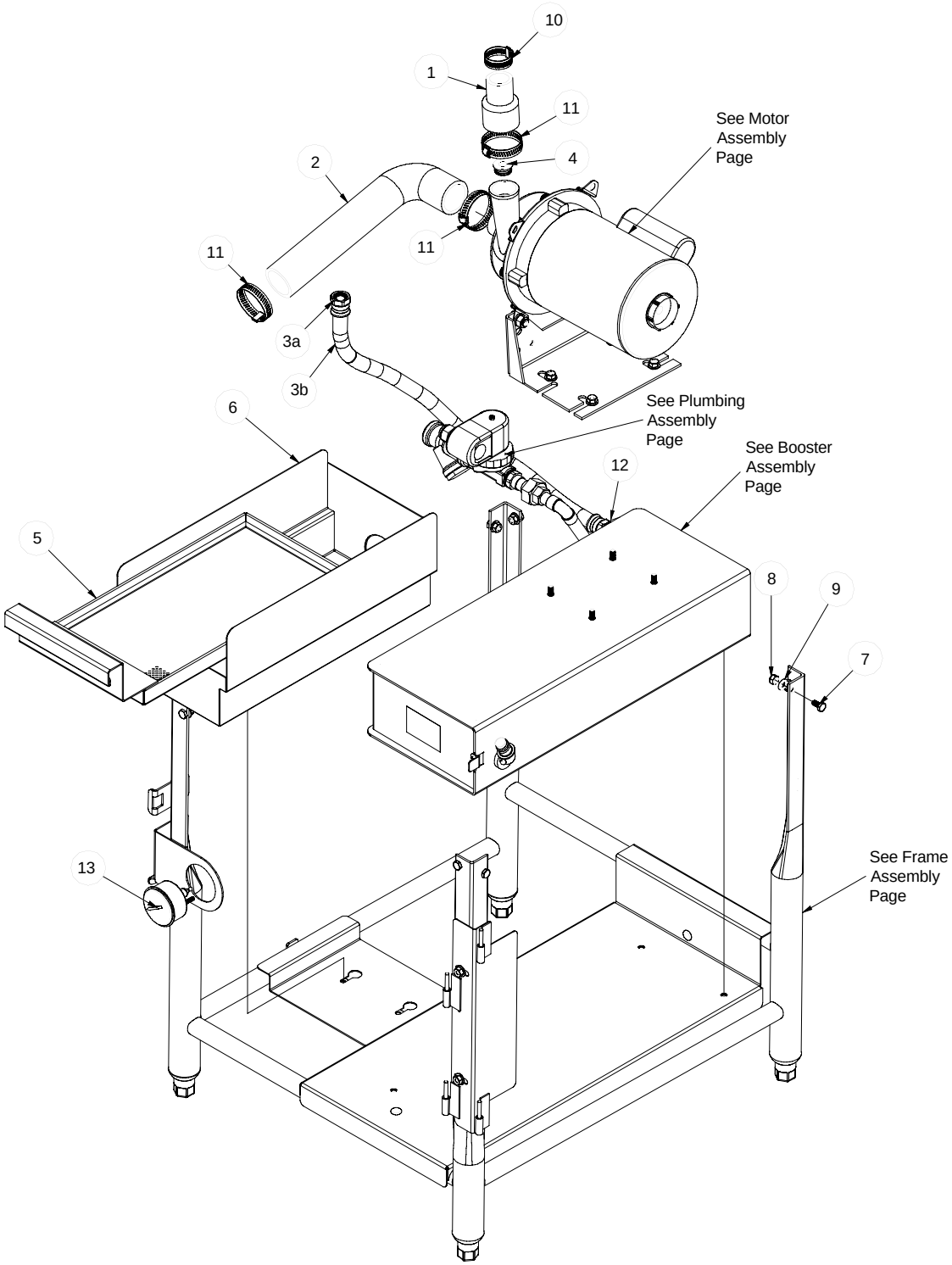


TUB ASSEMBLY CONTINUED

ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Tub Weldment	N/A	05700-003-09-51
2	1	Lower Manifold Weldment	96039920	05700-002-45-51
3	2	Manifold Gasket	96552864	05700-111-35-03
4	1	Drain Seat Insert	96582929	05700-021-34-38
5	1	Spillway Gasket	96582903	05700-111-34-52
6	1	Spillway Weldment	96583000	05700-031-37-86
7	23	Locknut, 1/4”-20 S/S Hex with Nylon Insert	88429113	05310-374-01-00
8	1	Manifold O-Ring	87203154	05330-111-35-15
9	1	Modified Casting Wedge	96583497	09515-011-46-61
10	2	Bolt, 3/8”-16 x 1 1/4” S/S	88021050	05305-276-10-00
11	2	Washer, 3/8” Bevel-Square Iron	88500000	05311-011-35-36
12	2	Lockwasher, 3/8”	88521109	05311-276-01-00
13	2	Nut, 3/8”-16 S/S Hex	88422068	05310-276-01-00
14	1	Complete Wash Arm Assembly	N/A	05700-003-31-60
14a	1	Wash Arm Weldment w/ End Plugs	96585187	05700-003-31-61
	1	Wash Arm End Plugs	96633159	05700-003-31-59
14b	1	Wash Arm O-ring	87200013	05330-002-60-69
14c	1	Wash Arm Bearing Assembly	96552567	05700-021-35-97
15	1	Sump Strainer	96582029	05700-002-60-50
16a	1	Stand Pipe Weldment	96582747	05700-021-33-29
16b	1	Stopper, Stand Pipe	96557475	05700-121-35-54
17	1	Drain Link Assembly	N/A	05700-002-45-52
17a	1	Drain Link	96039938	05700-002-40-83
17b	1	Nut, Hex, 5/16”-18	88422043	05310-275-01-00
17c	1	Drain Link Connector	96028261	05700-002-38-10
18	1	Hair Pin, 1/8” to 1”	96035241	05315-011-60-09
19	1	Fill Tube Weldment	96039896	05700-002-45-61
20	18	Washer, 1/4”-20 I.D.	88530589	05311-174-01-00
21	3	Chemical Tube Grommet	N/A	05325-002-42-65
22	1	Pivot Plate, Left Door Complete Assembly	N/A	05700-002-45-62
22a	1	Door Pivot Plate Left Weldment	96039953	05700-002-45-63
22b	1	Door Pivot Plate Bearing	96039961	03110-002-45-09
23	1	Pivot Plate, Right Door Complete Assembly	N/A	05700-002-52-95
23a	1	Door Pivot Plate Right Weldment	96039953	05700-002-52-94
23b	1	Door Pivot Plate Bearing	96039961	03110-002-45-09
24	3	Bolt, 1/4”-20 x 1/2” Long	88020433	05305-274-02-00
25	6	Screw, 1/4”-20 x 5/8” Long	88000013	05305-274-24-00
26	1	Air Gap Weldment	N/A	05700-003-23-48
27	1	Halo Assembly	N/A	05700-003-23-49
27a	1	Halo Weldment	N/A	05700-003-16-65
27b	4	Spray Nozzle and Receptacle	96042031	04730-002-55-61
28	1	Gasket, Air Gap	N/A	05330-003-24-17
29	2	Clamp, 1” Nylon (Not Shown, located on bottom of tub.)	N/A	04730-002-41-88
30	1	Drain Solenoid Box Assembly	N/A	05700-003-09-61
30a	1	Solenoid Box Weldment	96633588	05700-003-35-88
30b	1	Drain Solenoid, 115V	83999078	04810-200-11-00
30c	4	Locknut, 10-24 with Nylon Insert	88429063	05310-373-01-00
30d	1	Decal, Warning	96039821	09905-100-75-93
30e	1	Solenoid Box Cover	96633025	05700-003-30-25
31	1	Fitting, Thermometer Bulkhead (Not Shown)	96631001	05700-003-10-01

SECTION 6: PARTS SECTION

FRAME AND MOTOR ASSEMBLY

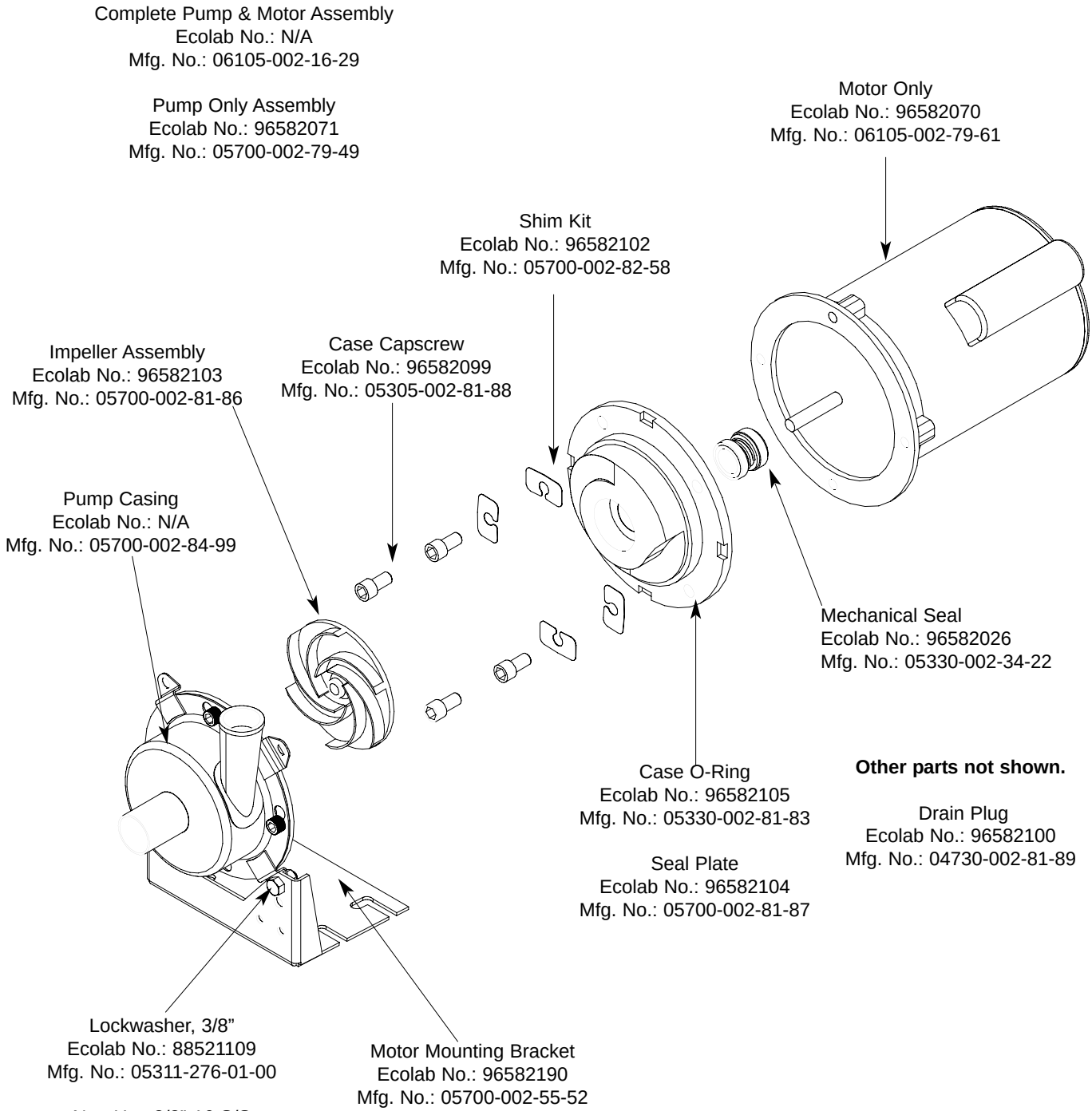


FRAME AND MOTOR ASSEMBLY (CONTINUED)

ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Discharge Tube Connector	96028253	05700-011-70-34
2	1	Pump Suction Hose	96039763	05700-002-40-82
3	1	Discharge Hose Assembly	N/A	05700-002-45-58
3a	2	Fitting, 1/2” Pushlock, Female, Brass	96039870	04730-011-93-99
3b	1	Hose, 1/2” x 22 1/2” Long	96039888	05700-002-45-59
4	1	Wash Restrictor	96628469	05700-002-84-69
5	1	Accumulator Strainer Weldment	N/A	05700-003-33-25
6	1	Accumulator Weldment	96042023	05700-002-51-95
7	8	Bolt, 1/4”-20 x 1/2” Long	88020433	05305-274-02-00
8	18	Locknut, 1/4”-20 S/S Hex with Nylon Insert	88429113	05310-374-01-00
9	18	Washer, 1/4”-20 S/S	88530589	05311-174-01-00
10	1	Hose Clamp, 13/16 TO 1 1/2”	96020292	04730-719-06-09
11	3	Hose Clamp, 1 1/16” to 2 1/4”	96020417	04730-719-18-00
12	1	Close Nipple, 1/2” Brass	85141208	04730-207-15-00
13	1	Gauge, Thermometer	96021316	06685-111-68-48

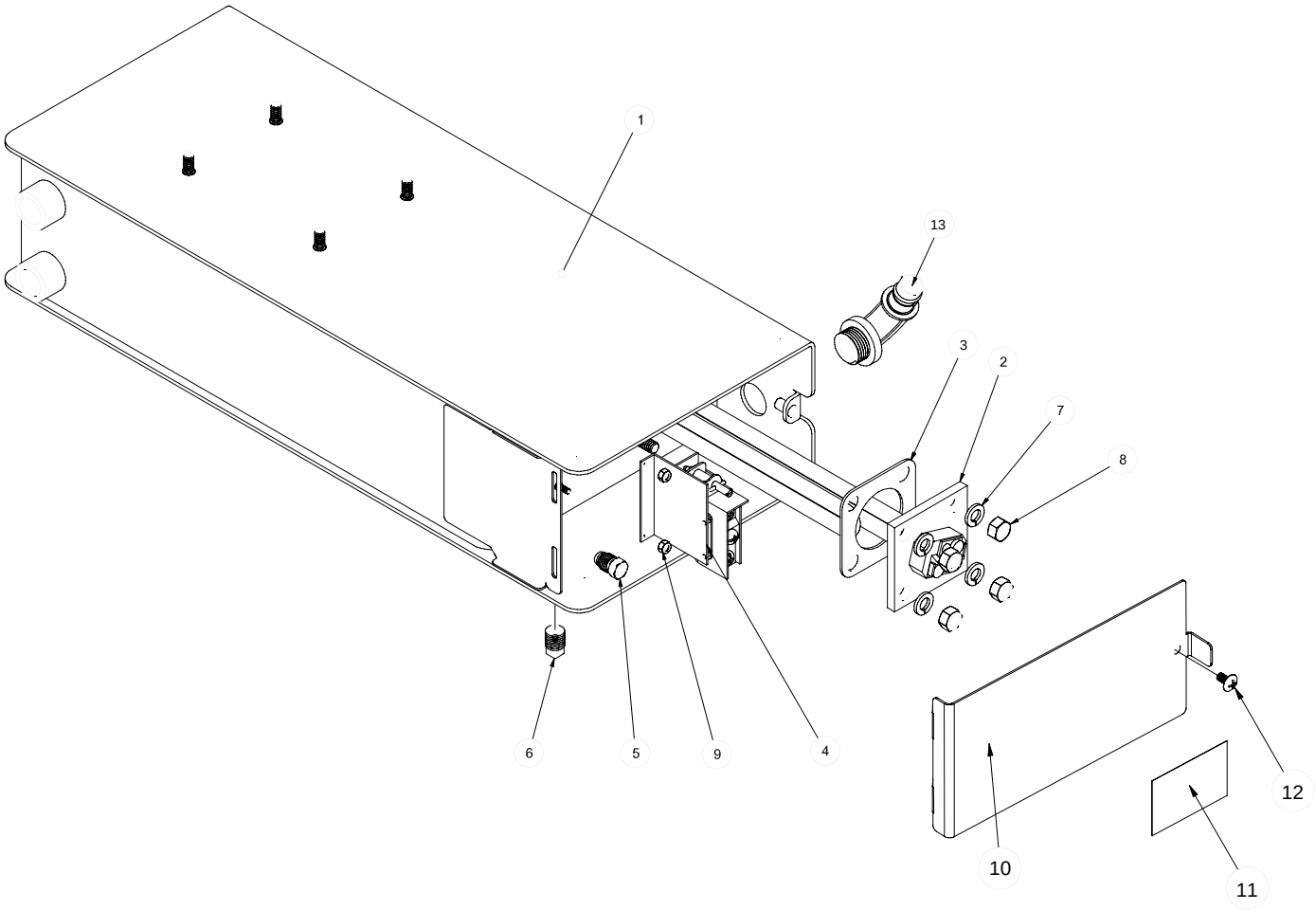
SECTION 6: PARTS SECTION

MOTOR & PUMP ASSEMBLY



SECTION 6: PARTS SECTION

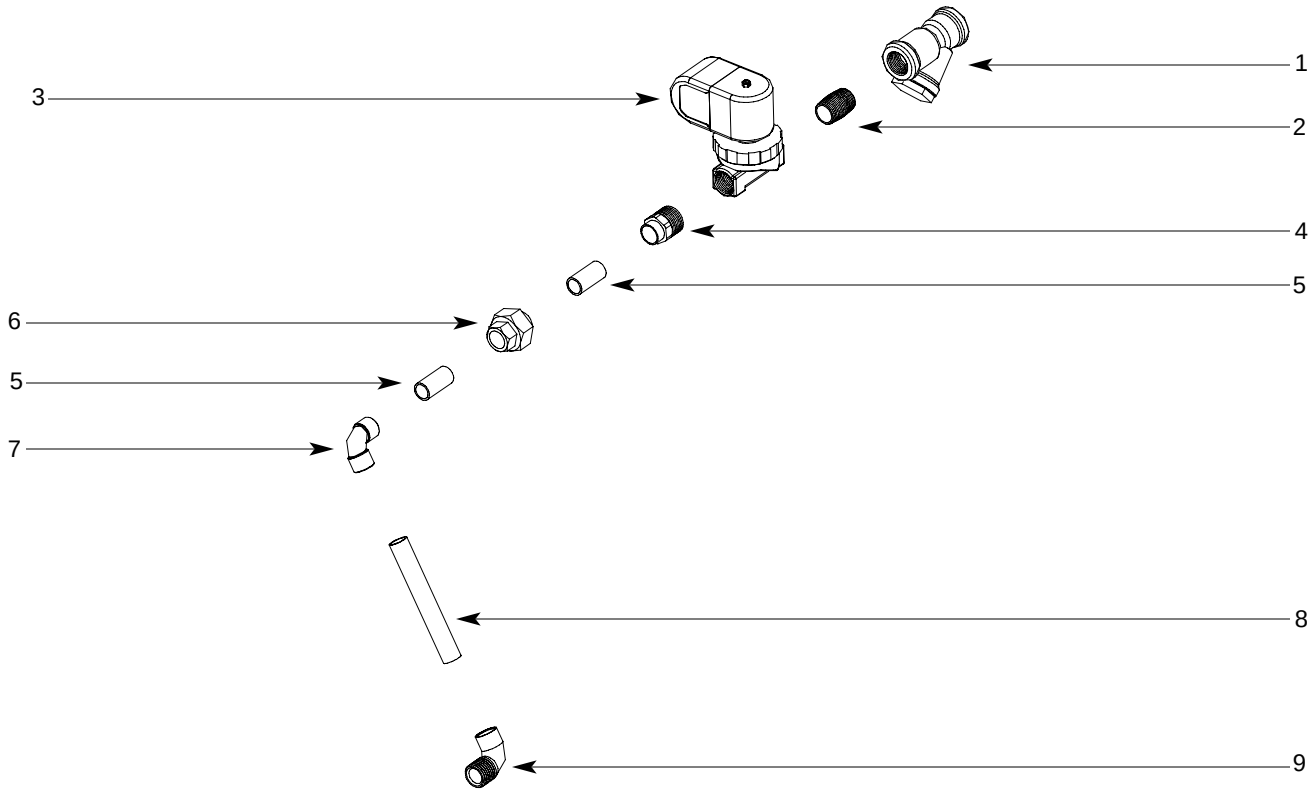
BOOSTER TANK ASSEMBLY



ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Booster Tank Weldment	96039839	05700-002-45-56
2	1	Heater, 120V, 2000 Watts	96039862	04540-002-45-13
3	1	Heater Gasket	N/A	05330-100-01-10
4	1	Thermostat	96631365	05930-003-13-65
5	1	Fitting, Imperial Brass	96024344	05310-924-02-05
6	1	Plug, 1/4” Brass	86135019	04730-209-01-00
7	4	Lockwasher, 5/16”	88521117	05311-275-01-00
8	4	Nut, 5/16”-18 S/S Hex	88422043	05310-275-01-00
9	2	Locknut, 6-32 S/S Hex w/ Nylon Insert	88460050	05310-373-03-00
10	1	Booster Tank Cover	96039847	05700-002-39-07
11	1	Decal, Warning, Disconnect Power	96039821	09905-100-75-93
12	1	Screw, 10-32 x 3/8”	88120878	05305-173-12-00
13	1	Fitting, 1/2” NPT x 90 Deg. Elbow	96633532	05975-003-35-32
13a	1	Nut, 1/2” NPT Nylon	96633533	05975-003-35-33

SECTION 6: PARTS SECTION

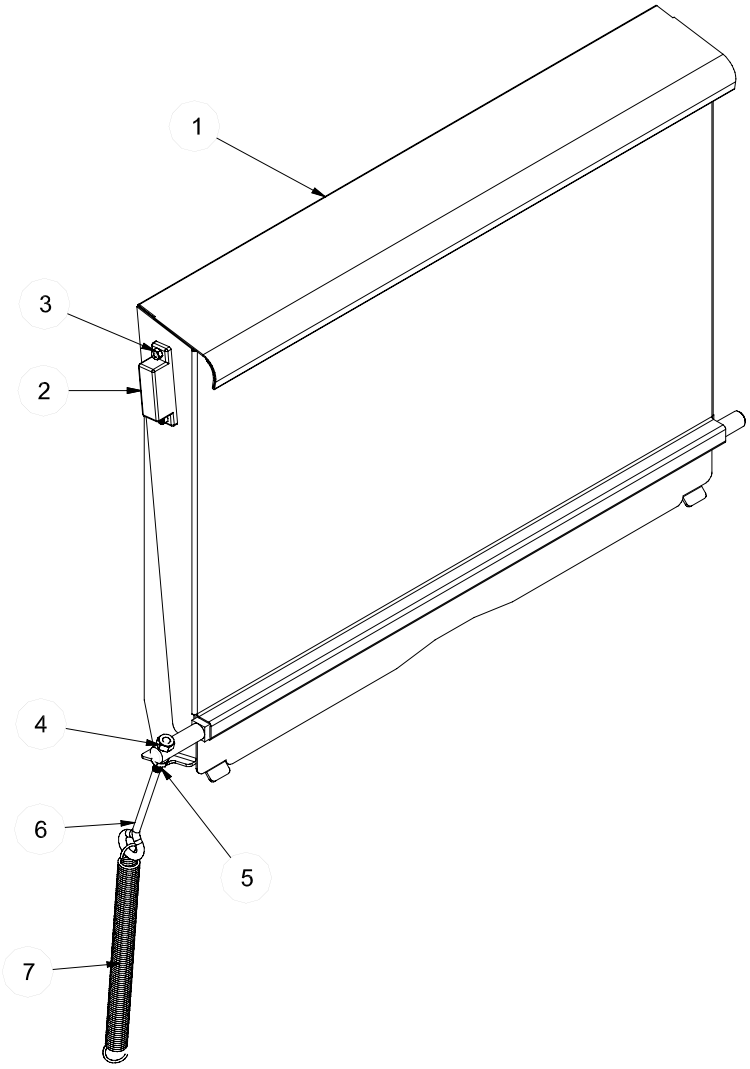
INCOMING PLUMBING ASSEMBLY



ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
1	1	Y-Strainer	96027024	04730-217-01-10
2	1	Nipple, Close, 1/2'' NPT, Brass	85141208	04730-207-15-00
3	1	Valve, Solenoid, 1/2'' NPT, 115V	85260743	04810-100-12-18
4	1	Adapter, 1/2'' Fitting (CU to Male)	96580907	04730-401-03-01
5	2	Tube, Copper, 1/2'' x 1 1/4'' Long	Buy Locally	05700-001-08-28
6	1	Union, 1/2'', Copper to Copper	85726081	04730-412-05-01
7	1	Elbow, 607, 1/2'' Copper to Copper	Buy Locally	04730-406-01-01
8	1	Tube, Copper, 1/2'' x 4 1/4'' Long	Buy Locally	05700-001-01-60
9	1	Elbow, 90° (CU to MSPS)	85634442	04730-406-32-01

SECTION 6: PARTS SECTION

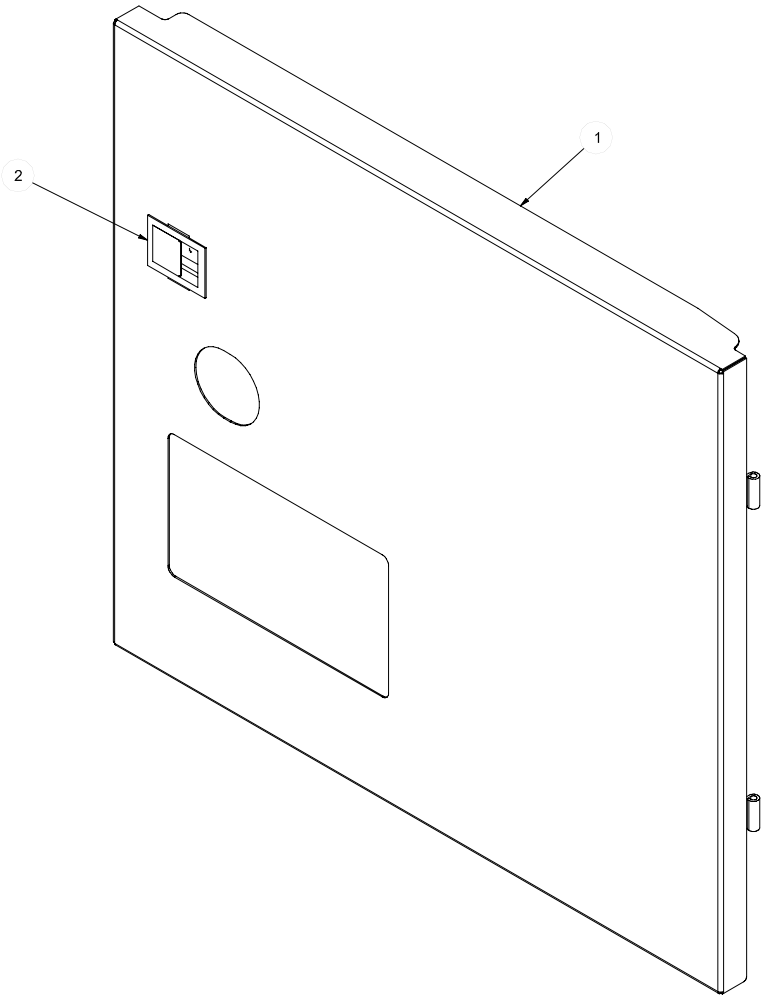
DOOR ASSEMBLY

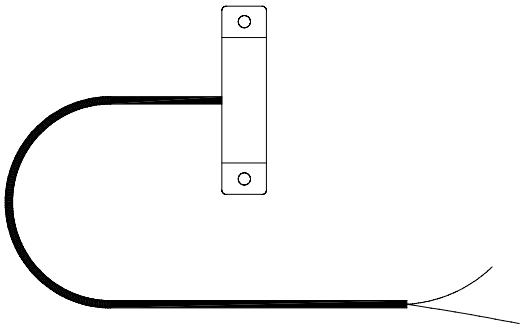


ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
		Complete Door Assembly	N/A	05700-003-24-73
1	1	Door Weldment	N/A	05700-003-23-60
2	1	Magnet, Reed Switch	N/A	05930-002-68-53
3	2	Locknut, 6-32 S/S Hex with Nylon Insert	88460050	05310-373-03-00
4	1	Locknut, 1/4”-20 S/S Hex with Nylon Insert	88429113	05310-374-01-00
5	1	Nut, Hex 1/4”-20 S/S	88420104	05310-274-01-00
6	1	Bolt, 1/4”-20 Eye, S/S	N/A	05306-002-55-59
7	1	Spring, Door	96583489	05340-011-44-58

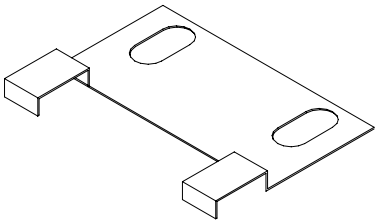
SECTION 6: PARTS SECTION

FRONT PANEL ASSEMBLY





Reed Switch
1 per machine
Ecolab No.: 96027990
Mfg. No.: 05930-002-36-80

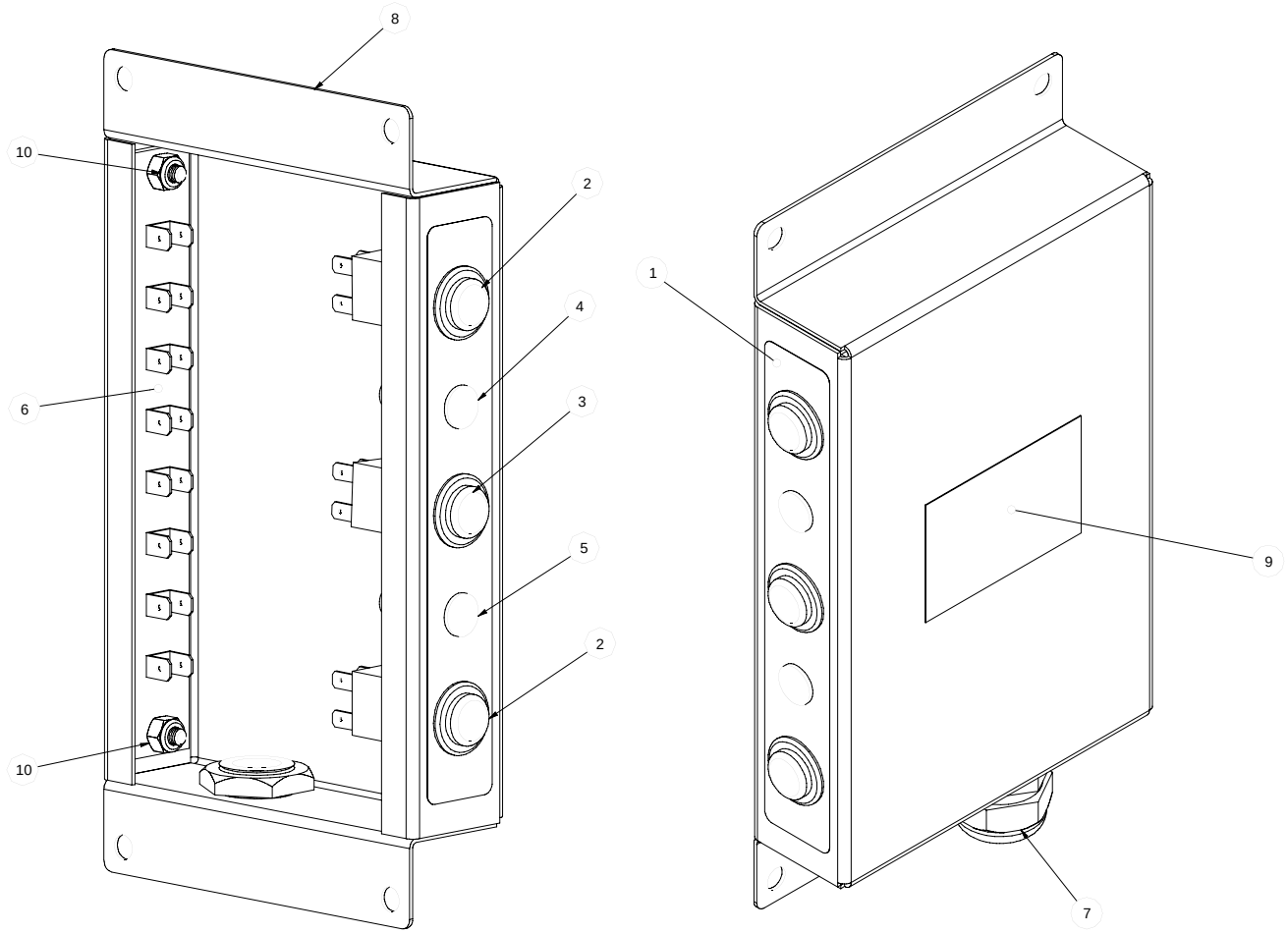


Magnet Switch Bracket
1 per machine
Ecolab No.: 96021472
Mfg. No.: 05700-021-71-18

ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
		Complete Panel Assembly	N/A	05700-003-09-53
1	1	Panel Weldment	96630954	05700-003-09-54
2	1	Handle	96031075	05340-001-96-30

SECTION 6: PARTS SECTION

RETROFIT KIT, SWITCH BOX ASSEMBLY

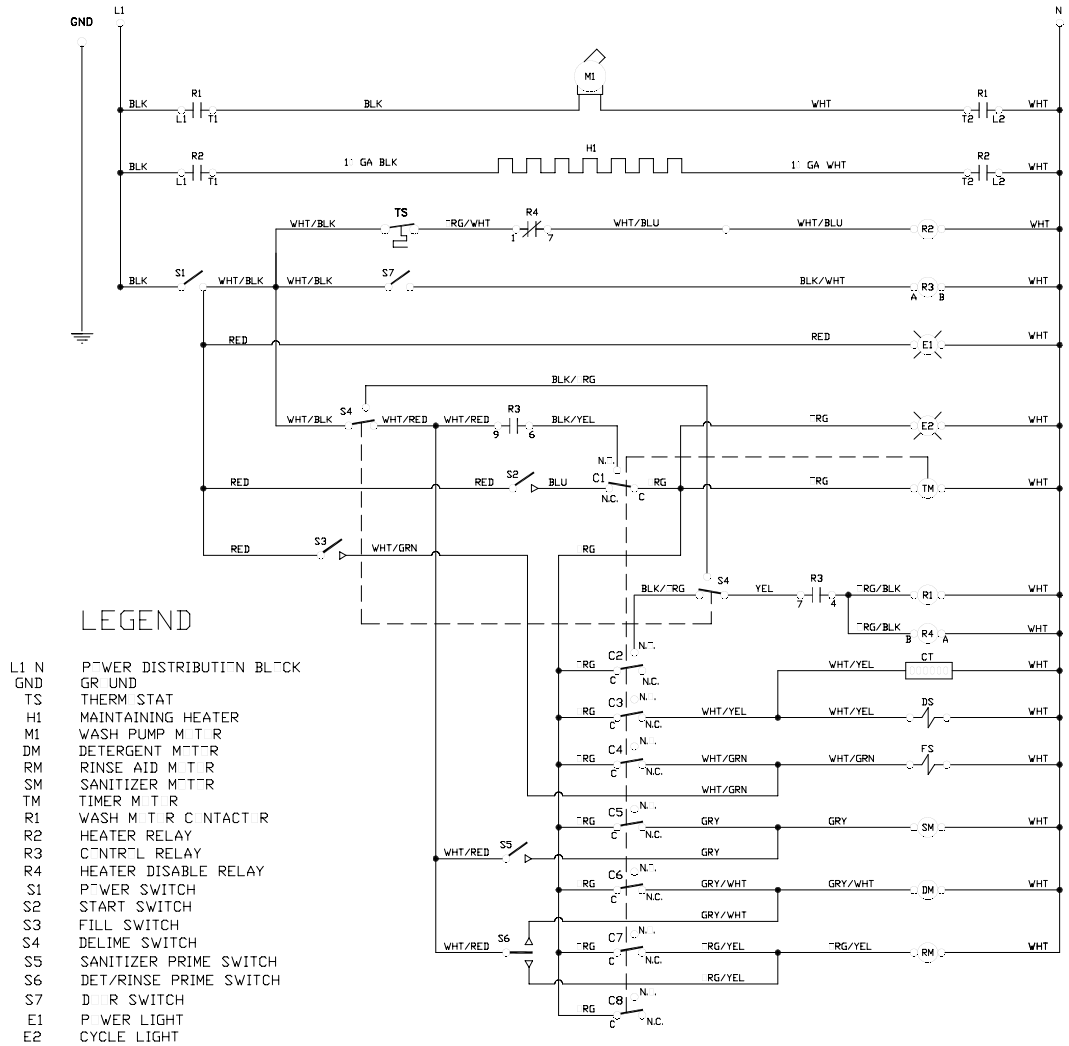


ITEM	QTY	DESCRIPTION	ECOLAB No.	Mfg. No.
		Complete Switch Box Assembly	N/A	05700-003-35-98
1	1	Decal, Switch Panel	96630863	09905-003-08-63
2	2	Switch, Prime Assembly	96027103	05700-003-14-91
3	1	Switch, On/Off Assembly	96027102	05700-003-14-92
4	1	Light, Amber	96583703	05945-504-06-18
5	1	Light, Red	83630392	05945-504-07-18
6	1	Terminal Board	96030424	05940-001-97-91
7	1	Fitting, .25-.546	96039110	05975-011-65-51
8	1	Switch Box Retrofit, Weldment	96630135	05700-003-01-35
9	1	Decal, Warning - Disconnect Power	96039821	09905-100-75-93
10	2	Locknut, 10-24 with Nylon Insert	88429063	05310-373-01-00
11	2	Gasket, Top Switch Box (Not shown)	96633598	05700-003-36-26
12	2	Gasket, Side Switch Box (Not shown)	96633598	05700-003-36-27

SECTION 7:
ELECTRICAL SCHEMATICS

SECTION 7: ELECTRICAL SCHEMATICS

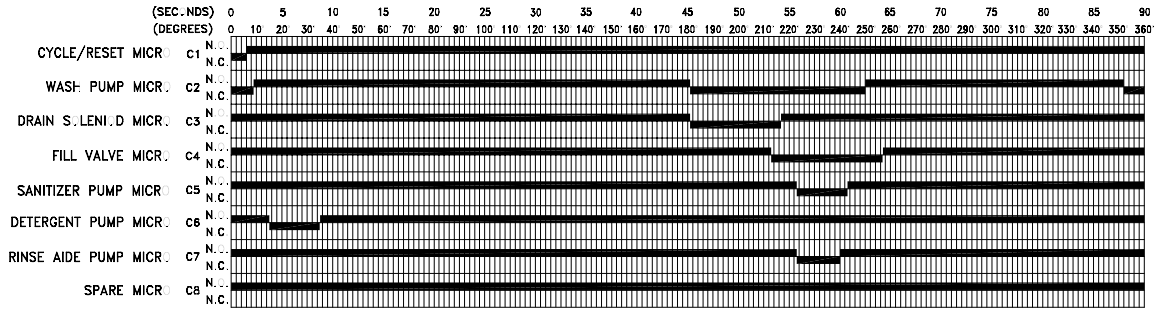
OMEGA 5E 115V, 50/60 HERTZ, SINGLE PHASE



LEGEND

L1 N	POWER DISTRIBUTION BLOCK
GND	GROUND
TS	THERMOSTAT
H1	MAINTAINING HEATER
M1	WASH PUMP MOTOR
DM	DETERGENT MOTOR
RM	RINSE AID MOTOR
SM	SANITIZER MOTOR
TM	TIMER MOTOR
R1	WASH MOTOR CONTACTOR
R2	HEATER RELAY
R3	CONTROL RELAY
R4	HEATER DISABLE RELAY
S1	POWER SWITCH
S2	START SWITCH
S3	FILL SWITCH
S4	DELIME SWITCH
S5	SANITIZER PRIME SWITCH
S6	DET/RINSE PRIME SWITCH
S7	DOOR SWITCH
E1	POWER LIGHT
E2	CYCLE LIGHT
DS	DRAIN SOLENOID
FS	FILL SOLENOID
CT	CYCLE COUNTER
C1	CYCLE/RESET MICR SWITCH
C2	WASH MICR SWITCH
C3	DRAIN MICR SWITCH
C4	FILL MICR SWITCH
C5	SANITIZER MICR SWITCH
C6	DETERGENT MICR SWITCH
C7	RINSE AID MICR SWITCH
C8	SPARE MICR SWITH

TIMING CHART



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SECTION 7: ELECTRICAL SCHEMATICS

TIMING CHART