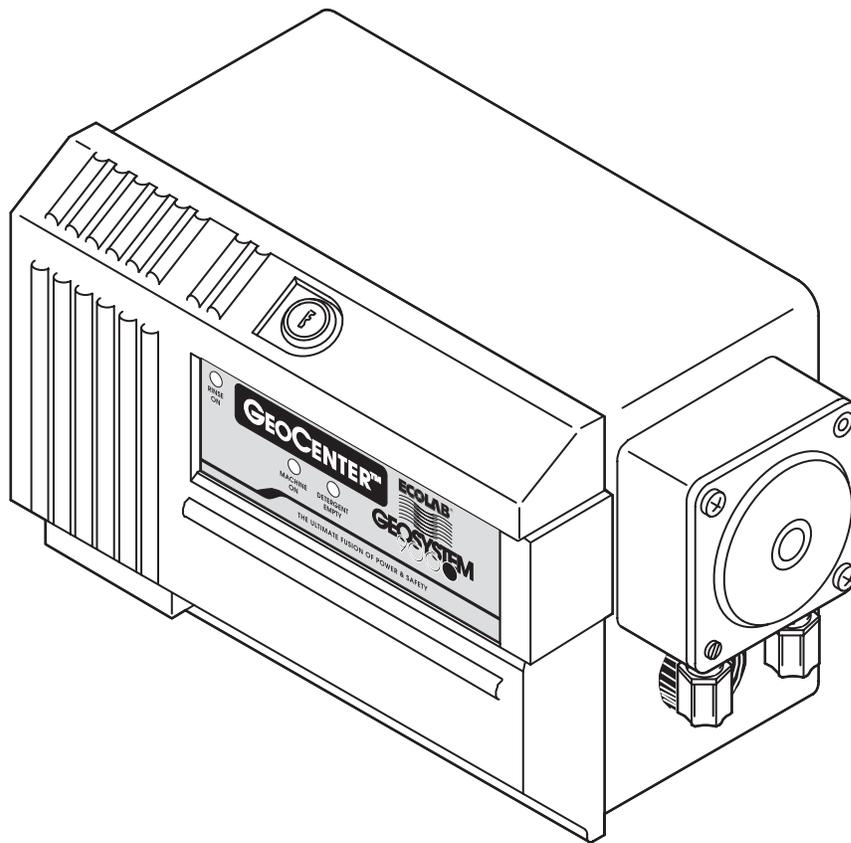


GEOCENTER

Installation and Operation Manual

Dispenser Complete 9223-1091



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**GEOCENTER
Installation and Operation Manual**

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1.0 PREFACE

This manual has been written to present the basic installation and operation characteristics of the *GeoCenter*. ***This manual applies, in its entirety, to current units.***

Guidelines will be suggested in reference to the preferred method of installation, however, the variety of equipment and the surrounding physical environment will dictate the actual installation of the *GeoCenter*.

WARNING: These installation and servicing instructions are for use by qualified personnel only. The installation must be made in accordance with local plumbing and electrical codes.

2.0 INTRODUCTION

The GeoCenter is a self contained detergent monitoring and dispensing controller combined with a rinse injector in the same cabinet.

The system includes two (2) separate printed circuit control boards, one each for the detergent control system and the rinse injector, transformers for each, and a solenoid valve. These components are contained in a housing that is compact in size but provides easy access for adjustments and servicing.

The Detergent Control System features include:

- S-2000 SENSOR must be used with the Geosystem products.
- Two Pole Probe for soft to medium hard water and where soft metals are not being washed in the machine.

The controller provides overshoot control by “pulse feeding” detergent when wash tank concentration is near the desired control point. Visual indicators signal concentration status of the wash tank.

- A “FEED” light will illuminate when concentration is below the set level.
- A “100%” light will illuminate when at or above the set point. This “100%” light will flash to indicate the proper time to titrate the wash solution.

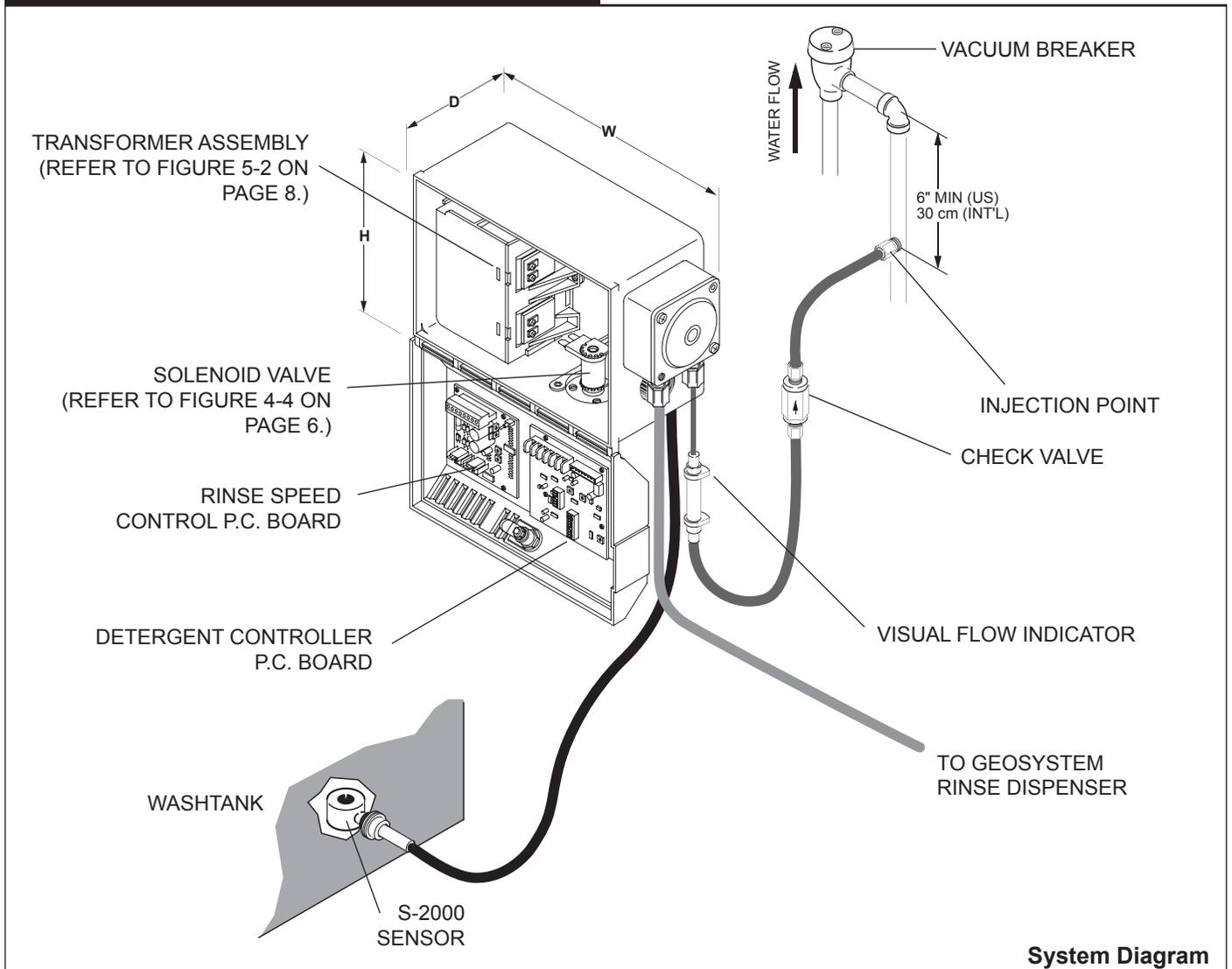
Consistent detergent control is achieved over a wide range of wash tank temperatures through the temperature compensation feature when using the S-2000 Sensor.

The detergent controller also indicates low power supply to the system.

The Rinse Injector System features Include:

- Double roller peristaltic pump
- Squeeze tubes with different delivery rates for high or low volume requirements.
- Variable speed DC motor, 3-36 RPM.
- Regulated DC Speed Rinse Control P.C. Board.
- Selector switch to run continuously or to time out within 51 seconds.
- Start delay of 0-10 seconds.

3.0 SPECIFICATIONS



System Diagram

3.1 Dimensions

- Height (H): 7-5/8" (19.4 cm)
- Width (W): 11-3/8" (28.9 cm)
- Depth (D): 6-3/8" (16.2 cm)
- Weight: 12 LB. (5.4 kg)

3.2 Access Requirements

Mounting location must allow cabinet cover to swing down 180° for adequate installation and service. Allow room on the right side to service the peristaltic pump, and on the left for electrical service.

3.3 Product Pickup and Discharge

The pick-up tubing, 1/8" (3.2 mm) Polyflo, must not exceed 10' (3 meters) in length. The maximum discharge tubing length of 150' (45 meters) will accommodate remote installations of the GeoCenter. If tubing length exceeds 50' (15 meters) the tubing must be replaced with 1/4" (6.3 mm) Polyflo tubing to minimize back pressure.

An injection fitting assembly requires a 1/8 NPT tap into the final rinse line.

3.4 Electrical Requirements

The GeoCenter operates on a 24 volt AC, 50/60Hz power source supplied through two 30 VA transformers. The transformer primaries can be either 115 or 230 volts. One transformer provides power for the detergent control and the other provides power for the rinse injector.

If the primary voltage is 440 volts, two separate, externally mounted transformers will be required. The 24 volt secondary wiring of one transformer will be connected directly to the Detergent Controller P.C. Board. The 24 volt secondary of the second transformer will be connected directly to the Rinse Speed Control P.C. Board. Both the internal transformers can be removed when wiring for a 440 volt installation.

IMPORTANT: Make sure the power source is turned off

before beginning wiring connections or servicing the high voltage portion of the system.

All field wiring practices must conform to national electrical codes and Ecolab® Installation Standards. All high voltage wiring must be a minimum 14 GA./600 volt insulated wire. Wiring from the power source to the transformer must be enclosed in conduit, seal-tite or other housing approved for damp locations.

3.5 Plumbing Requirements

Water supply tubing from the source to the solenoid valve at the GeoCenter, and from the solenoid valve to the Geosystem Detergent Dispenser will normally be 1/4" O.D. copper tubing.

Refer to the Installation and Operation Manual of the Geosystem Detergent Dispenser used for this application to aid in the installation of the GeoCenter.

3.6 Components Supplied

The GeoCenter includes:

- Detergent Controller P.C. Board
- Solenoid Valve
- 2 30 VA Transformers
- Cell Wash Tank Connector
- Rinse Speed Control P.C. Board
- S-2000 cell with 12 foot cable

3.7 Components Not Supplied

- Geosystem Detergent Dispenser
- Geosystem Rinse Dispenser
- Wiring and wiring connectors
- 1/4" copper tubing and installation fittings
- 440 volt transformers (if required)
- Seal-Tite, fittings and clamps
- 14 GA/ 600 volt insulated wire
- Two Pole Probe
- VANGUARD Wash Max
- Pressure Switch

4.0 INSTALLATION PROCEDURES

4.1 Pre-Planning the Installation

There is no substitute for planning the installation prior to beginning the work, minutes in planning may save hours in installation time. The following items should be taken into consideration before installing the GeoCenter:

- Allow visual displays on the front of the cabinet to be in full view of the operator.
- Permit shortest possible tube, wire, and conduit lengths
- Provide accessibility for adjustments and servicing.
- Provide as much protection from moisture/steam and heat as possible.

The following items should be taken into consideration before installing the Sensor. The sensor should be located in an area of the wash tank that provides:

- A minimum 2" (5 cm) from the tank bottom, sidewall, overflow piping, etc.
- As far as possible (2" minimum) (5 cm) from heater elements or coils.
- Protection from physical hazards.
- For constant submersion of all parts of the sensor in the wash water. This is a particular concern on shallow tank machines.

NOTE: The S-2000 Sensor is provided with a 12' cable and mounts from the inside of the washtank. Sufficient clearance on the inside is required to allow insertion/removal of the sensor.

NOTE: A S-2000 sensor with 24' cable is available where necessary (9212-2316).

4.2 Installing the Transformer

1. Mount the plastic transformer enclosure assembly into the plastic GeoCenter enclosure. (Refer to Figure 4-1). Attach to plastic GeoCenter enclosure with 8-32 x 5/16 screw in kit bag. Ground using green/yellow wire.

4.3 Mounting the GeoCenter

1. Mount the GeoCenter cabinet to the wall using the supplied screws, washers and plastic wall anchors. The GeoCenter cabinet may also be installed on top of the dish machine, using the universal mounting brackets, and may be the preferred location in some installations. The installation should be secure, neat and square, refer to Figure 4-1.

4.4 Mounting Sensor in Wash Tank

Review Item 4.1, *Pre-planning the Installation*, before the installation begins.

IMPORTANT: Before drilling the hole check for obstructions both inside and outside of the wash tank.

1. Cut a 7/8" (22 mm) hole into the wash tank wall.

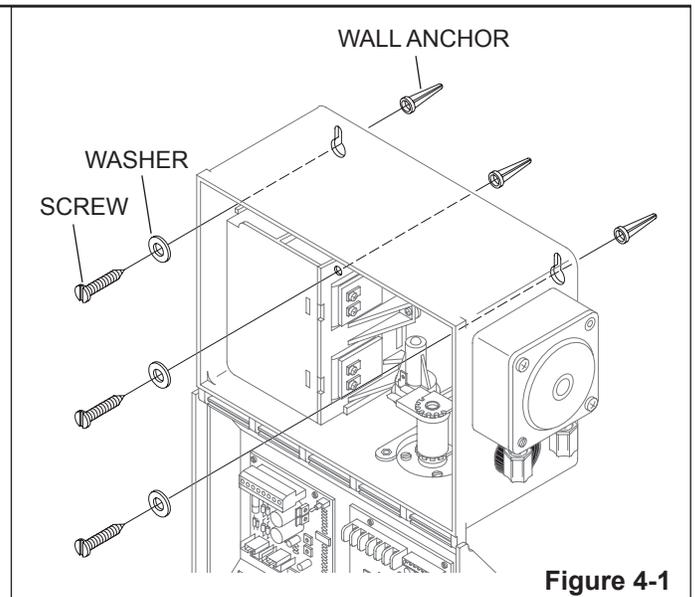


Figure 4-1

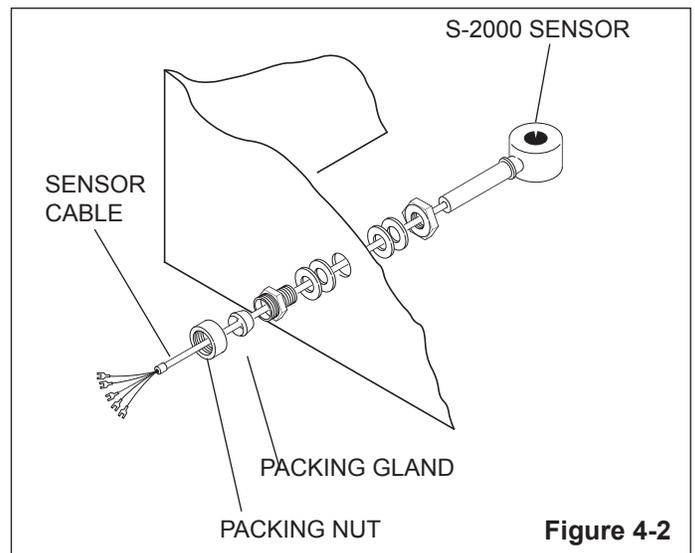


Figure 4-2

2. Properly **DEBURR** the hole.
3. Attach the sensor connector to the tank using the provided metal lock nut and the stainless steel and rubber washers on both the inside and outside surfaces of the tank wall. Regardless of which sensor is used, the packing nut end of the tank connector must be on the outside of the machine wall, refer to Figure 4-2.
4. Position the sensor by sliding it through the connector opening and tightening the packing nut.

4.5 Geosystem Detergent Dispenser Installation

1. Install the desired Geosystem Detergent Dispenser following the installation instructions provided for that unit.

4.6 VANGUARD Wash Max Installation

1. Install the desired VANGUARD Wash Max following the installation instructions provided for that unit.

4.7 Geosystem Rinse Dispenser

1. Install the Geosystem Rinse Dispenser following the installation instructions provided for that unit.

4.8 Rinse Injector Connections

Identify the point at which rinse additive will be injected into the final rinse line, refer to Figure 4-3.

NOTE: The injection point has to be installed a minimum of 6" (15.2 cm.) below the vacuum breaker with the cabinet mounted at or below that point. In many International accounts the minimum distance beneath the vacuum breaker is 30 cm. (11.8"). Install fitting using Teflon tape or pipe sealant to prevent leakage.

4.9 Hydraulic Connections and Visual Flow Indicator

1. Connect 1/8" product discharge tubing between the outlet of the pump squeeze tube and visual flow indicator, refer to Figure 4-3.

Note: The visual flow indicator is required for NSF listing.

2. Assemble the Visual Flow Indicator by inserting the 1/8" tube fully into one of the two 1" sections of 1/4" OD x 1/8" ID PVC tubing provided.
3. Insert this injection tubing assembly fully into the outlet end of the Flow Indicator tube, also called the sight tube.
4. Secure all connections with the clamps provided.
5. Complete the outlet of the Visual Flow Indicator in the same manner and extend the 1/8 tubing to the check valve and injection fitting. Refer to Figure 4-3.

IMPORTANT: When the product is being injected into the final rinse line, movement of the product will be visible in the flow indicator tube. The dishwasher operator must be instructed to observe the Flow Indicator periodically to insure that product is in fact being dispensed.

6. Trim and connect the 1/8" product pick-up tubing supplied with the rinse injector to the inlet side of the pump.
7. Connect 1/4" O.D. copper tubing from the water source to the inlet side of the solenoid valve located at the bottom on the GeoCenter cabinet, refer to Figure 4-4.
8. Connect 1/4" O.D. copper tubing from the outlet side of the solenoid valve to the Geosystem Detergent Dispenser. Refer to the *Installation and Operation Manual* of the Geosystem Detergent Dispenser used to determine

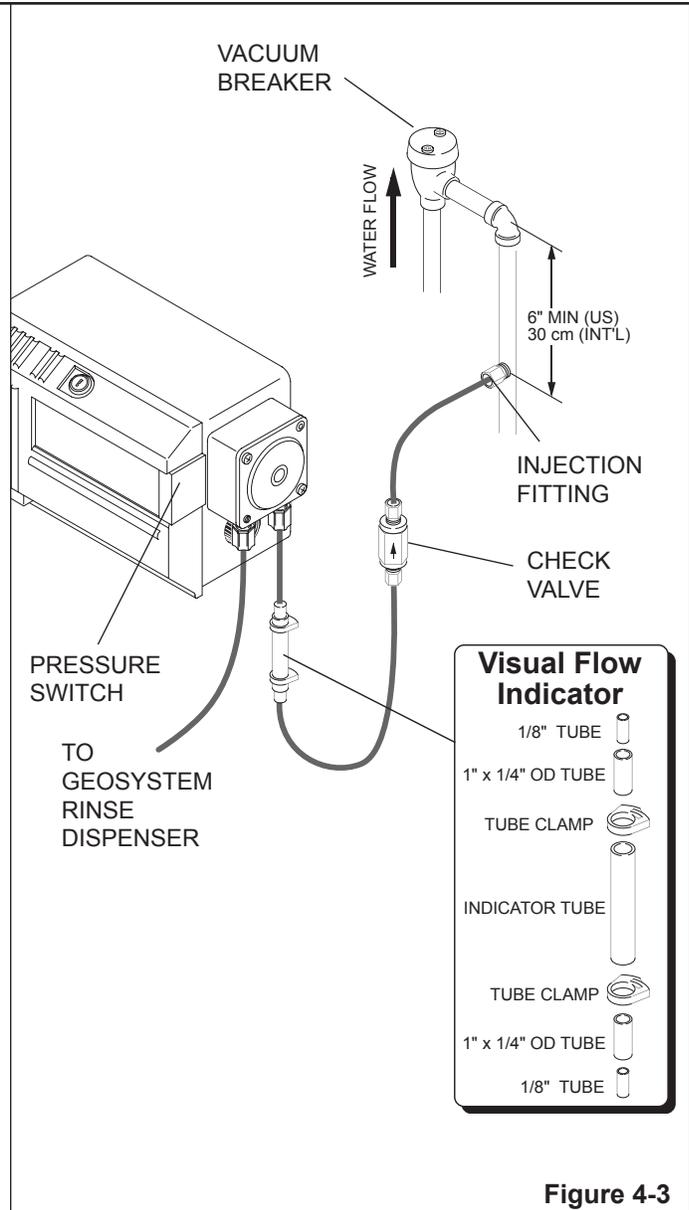


Figure 4-3

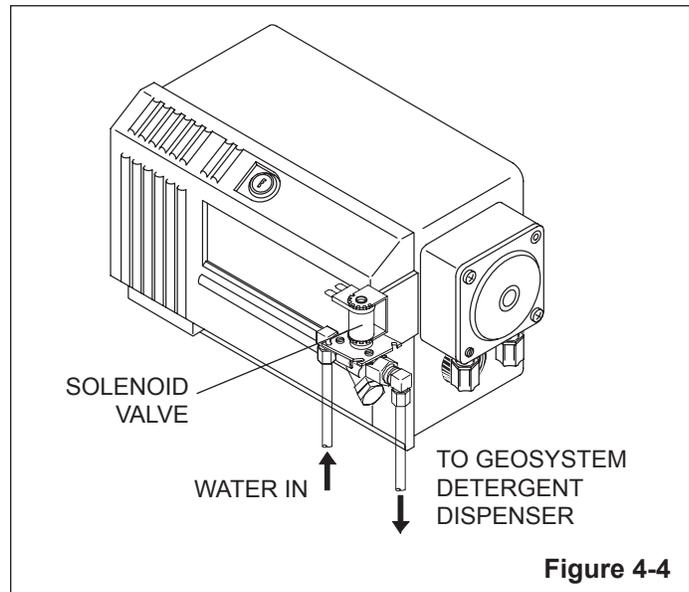


Figure 4-4

5.0 ELECTRICAL CONNECTIONS

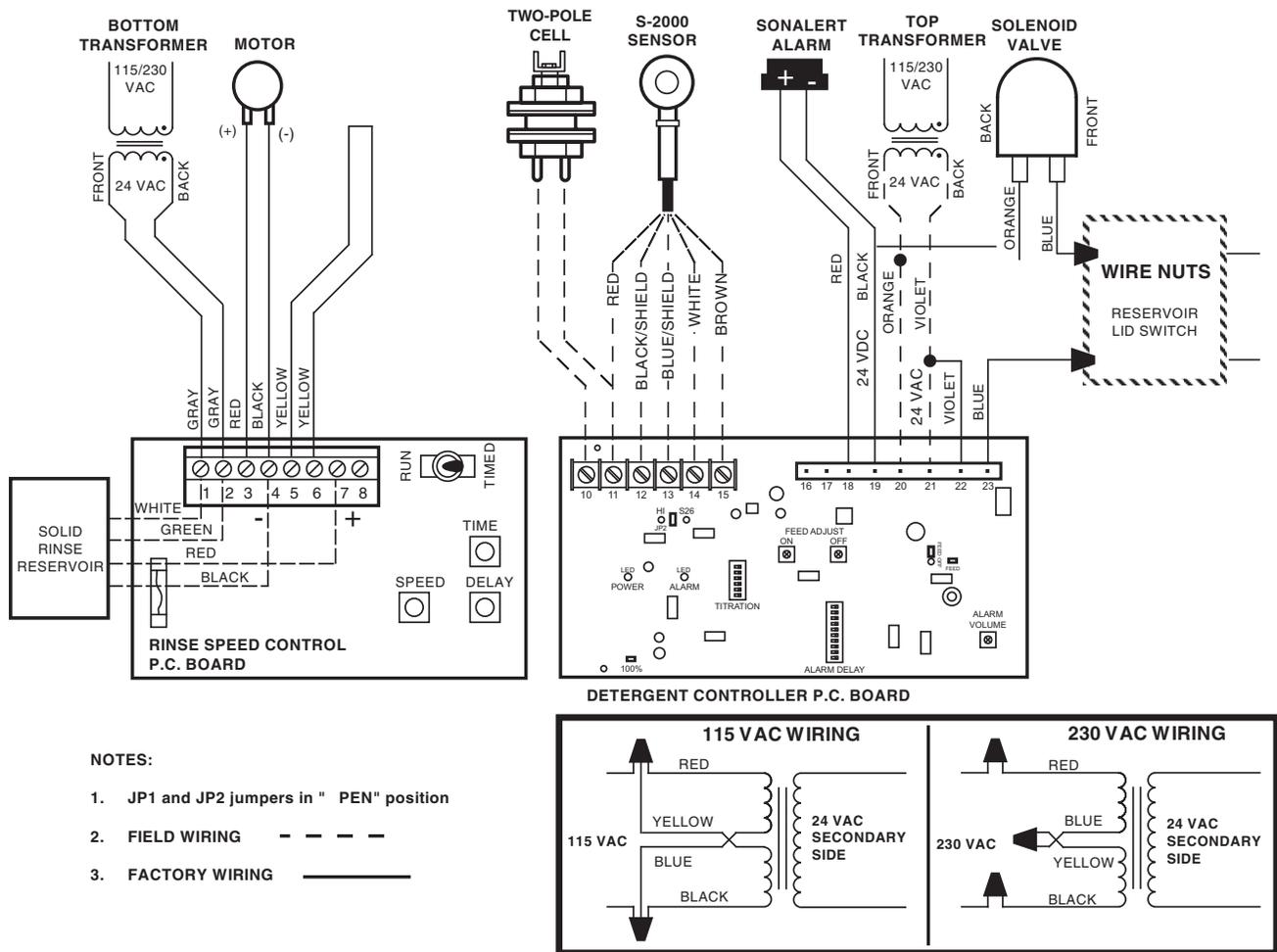


Figure 5-1

5.1 Transformer Wiring

The GeoCenter is shipped with two (2) 30 VA transformers, one for the detergent control system and the other for the rinse injector. Install the assembly into the GeoCenter according to *Figure 5-2*.

Both transformers in the GeoCenter should be connected to the single power source, refer to *Figure 5-1*.

On **Door Type Dishmachines**, two (2) separate power sources from the dishmachine are required.

A power source that is activated during the wash cycle of the machine should be connected to the **top** transformer. Make sure to wire the transformer for the proper voltage, refer to *Figure 5-1*.

The power source for the rinse injector should be connected to the **bottom** transformer. Make sure to wire the transformer for the proper voltage.

5.2 440 Volt Machine Power Supply

NOTE: Most 440 volt machines will provide a source of 115 or 220 volts for the dispenser supply. If only 440 volts is available, it will be necessary to externally mount two 440 to 24 volt transformers. The transformers shipped with the GeoCenter will not be used, and it is suggested that these transformers not be installed.

1. Remove the built-in transformers from the GeoCenter Cabinet, refer to Figure 5-2.
2. Connect one of the 24 volt leads, using a butt-connector or a wire nut, from the external transformer to the two VIOLET wires normally connected to the top transformer.
3. Connect the single ORANGE wire to the other transformer lead.
4. Connect one of the 24 volt leads using a butt connector to one of the GRAY wires normally connected to the bottom transformer.
5. Connect the other wire in the same manner.

5.3 S-2000 Sensor Wire Connections

1. Attach the BROWN wire to terminal #15, refer to Figure 5-1.
2. Attach the WHITE wire to terminal #14
3. Attach the BLUE/SHIELD wire to terminal #13.
4. Attach the BLACK/SHIELD to terminal #12.
5. Attach the RED wire to terminal #11.
6. Ensure JP1 and JP2 on the PC Board are only installed on one pin.

5.4 Geosystem Detergent Dispenser Wiring Connections

The Geosystem Detergent Dispenser features a switch on the lid to interrupt detergent feed if the lid is opened. (Use a 2 conductor cable between the GeoCenter and Detergent units).

At the GeoCenter (Refer to Figure 5-1 on page 7):

- Wire nut the leads from the 2 conductor cable to the two WHITE wires provided with the wire nuts.

5.5 Geosystem Solid Rinse Reservoir Connections

The Geosystem Solid Rinse injector reservoir features a lid switch to interrupt water spray to the rinse additive if the lid is opened.

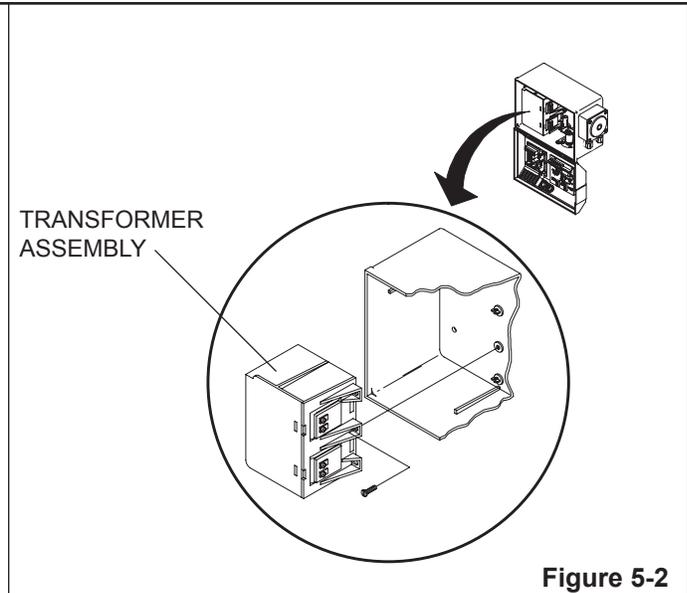


Figure 5-2

At the GeoCenter Controller (Refer to Figure 5-1):

- The WHITE and GREEN wires are connected to terminals #1 & #2 on the green Phoenix connector.
- The black and red wires are connected to terminals #4 and #7 respectively.

IMPORTANT: RED must be connected to #7. BLACK must connect to #4.

NOTE: This refers only to the Solid Rinse Additive dispenser. Hook up the Geomax unit for use with liquid rinse additives.

5.6 VANGUARD Wash Max Wiring Connections

The VANGUARD Wash Max features a safety switch on the lid to interrupt detergent feed if the lid is opened. A 20' two conductor cable is connected to the unit to help installation.

At the VANGUARD GeoCenter (Refer to Figure 5-1 on page 7):

The RED and BLACK wires are connected to the two BLUE wires provided with the wire nuts.

5.7 Two Pole Probe Wire Connections

1. At the Two Pole Probe, connect the cell wiring to the 2 screws terminals. Leave enough slack in the wire to allow removal of the cell from the connector without having to disconnect the wire (refer to Figure 5-1).
2. At the GeoCenter connect the cell wires to TERMINALS #10 and #11.
3. Ensure JP2 on the PC Board is installed in the "S26" position.

6.0 SYSTEM ADJUSTMENTS

6.1 Cell/Sensor Selection

Ensure jumper JP2 on the detergent controller PC board is set properly for the corresponding cell/sensor. For S-2000 sensor operation, the jumper should only be installed on ONE pin of JP2.

For two-pole probe operation, the jumper should be installed on the right two pins of JP2, labeled "S26".

6.2 Concentration Adjustment

Concentration versus Conductivity

When the detergent is dissolved in the wash tank, it produces a certain **concentration** of product. A given concentration of product will, in turn, produce a corresponding **conductivity** signal that can be measured by the cell/sensor used by the detergent controller. The controller attempts to reach a desired solution concentration by using the conductivity signal to control when to feed detergent product into the wash tank.

However, the actual conductivity signal measured in the wash tank can vary significantly due to natural conductivity in the wash tank water. The detergent controller cannot distinguish between the conductivity signal produced by the water and that produced by the dissolved detergent.

For this reason, the setting of the TITRATION DIP switch should be viewed as a starting point that may require adjusting once the wash tank is titrated.

Titration Adjustment

Adjustment of the wash tank concentration is done using the six position TITRATION DIP switch on the detergent controller PC board. The individual positions on this DIP switch are labeled 1 through 6. Sliding a position to the left will turn that position ON. Sliding a position to the right will turn that position OFF. When a position is ON, the detergent controller will add detergent to the wash tank according to the following table:

SWITCH POSITION ON	1	2	3	4	5	6
APPROX. # GEO DROPS	2	4	8	16	32	64
APPROX. # STANDARD DROPS	1	2	4	8	16	32

When multiple positions are ON, the detergent controller will add all positions together to achieve the desired tank concentration.

Example using Standard Drops:

- Assume a desired tank concentration of 14 standard drops is required. Start by turning positions **1** and **2** and **3 ON**. ($2 + 4 + 8$ equals 14)
- Allow the detergent controller to feed until the 100% LED begins flashing rapidly. Immediately titrate the tank

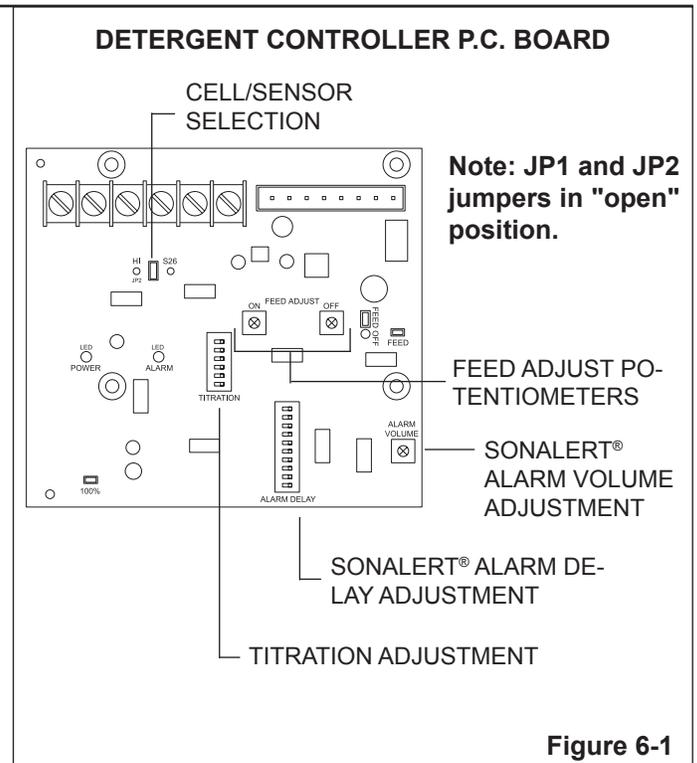


Figure 6-1

solution.

- If the actual titration measurement is only 10 drops, the wash tank water conductivity is already adding a reading of 4 drops to the measurement. The TITRATION DIP switch must be readjusted to a setting of 18 to add additional detergent to the tank.
- Turn positions **2** and **3** OFF and position **4** ON. This results in positions **1** and **4** ON. ($2 + 16$ equals 18)
- Repeat step 2. This should now provide the desired concentration.

6.3 Feed Adjustment Potentiometers

When the wash tank concentration is between 80% to 100% of the set point, the dispenser will provide an "on-off" pulse feed mode to control overshoot.

These potentiometers determine the duration of the "on-off" pulses. This allows for minimum overshoot dependent upon the detergent dispensing rate, refer to Figure 6-1.

The normal setting (as factory set) is both pots being in the full counter-clockwise position, providing for a 1 second "on" pulse and a 1 second "off" pulse. This is desirable for most operating conditions.

These are adjustable up to a maximum of 12 seconds. If the detergent delivery rate is very slow, such as might be encountered with low feed water temperature to the reservoir, it may be desirable to increase the "on" pulse time.

In a very large wash tank, it may be desirable to increase the "off" to allow the detergent to disperse evenly throughout the wash tank before further feeding occur.

6.4 Sonalert® Volume Adjustment

1. Turn all alarm delay switches off.
2. Put the unit into a feed mode by temporarily turning on additional titration switches and disrupting detergent feed by holding open the Geosystem Detergent Dispenser lid.
3. When the Sonalert® is activated, set the volume using the identified potentiometer - clockwise to increase the volume, refer to Figure 6-1.

The Sonalert® volume should be loud enough to be heard over the normal noise levels in the dish room, and yet not too loud that it may disturb customers in the dining room.

6.5 Sonalert® Alarm Delay

1. Set the alarm delay by using the 10 position dip switch, refer to Figure 6-1.

SWITCH ON	1	2	3	4	5	6	7	8	9	10
SECONDS	1	2	4	8	16	32	64	128	256	512

EXAMPLE: For a 2.5 minute (150 second) delay, turn on switches #8, #5, #3 and #2.

NOTE: On Door Type Machines, the delay should be approximately 30-35 seconds to allow it to be activated before the wash cycle is complete.

NOTE: On Conveyer Machines, (unless equipped with a D-ENERGIZER or other time-out device) the delay should be a minimum of 2 minutes.

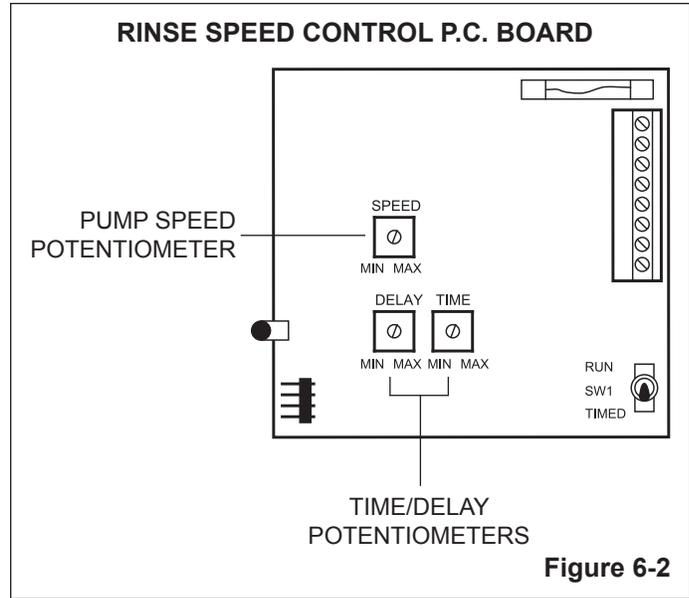
6.6 Rinse Speed Control

This is the normal mode of operation as a dishmachine rinse injector. Thru the pressure switch, the pump is activated whenever the final rinse is "on". By adjusting the speed control, the injection rate of the rinse additive can be controlled throughout the entire rinse cycle, refer to Figure 6-2. Injection rate can also be adjusted by use of alternate sized squeeze tubes:

Tube Size	INJECTION RATES	
	PUMP SPEED	
	3 RPM (minimum)	36 RPM (maximum)
1/8 cc/rev	3/8 ml (.0125 oz.)	4.5 ml (.15 oz.)
1/4 cc/rev	3/4 ml (.025 oz.)	9 ml (.30 oz.)
*1/2 cc/rev	1-1/2 ml (.05 oz.)	18 ml (.61 oz.)
1 cc/rev	3 ml (.10 oz.)	36 ml (1.22 oz.)
1-1/2 cc/rev	4-1/2 ml (.15 oz.)	54 ml (1.83 oz.)
2 cc/rev	6 ml (.20 oz.)	72 ml (2.43 oz.)

* Tubing provided with GeoCenter unit.

NOTE: 1cc = 1 ml



NOTE: The best injection rates are achieved in the 10-20 revolution per minute range. It is recommended to select the tubing that allows mid range operation.

6.7 Timed Feed

In this mode of operation, the dispenser will activate for a pre-set period of time. This would be used when dispensing control is determined by volume, refer to Figure 6-2.

Note that the TIME FEED and the SPEED CONTROL modes can be used together. For example, if the injector is activated during the fill cycle on a door type machine, by setting the TIME FEED for just a few seconds longer than the normal rinse time, this will be the maximum length of time the product will be injected during the fill.

6.8 Feed Delay

This feature can be used with either the SPEED CONTROL or TIME FEED mode. This is adjustable from 0 to 10 seconds, and delays the pump activation for that period of time after the unit is activated, refer to Figure 6-2.

7.0 SYSTEM OPERATING FEATURES

DETERGENT CONTROLLER P.C. BOARD

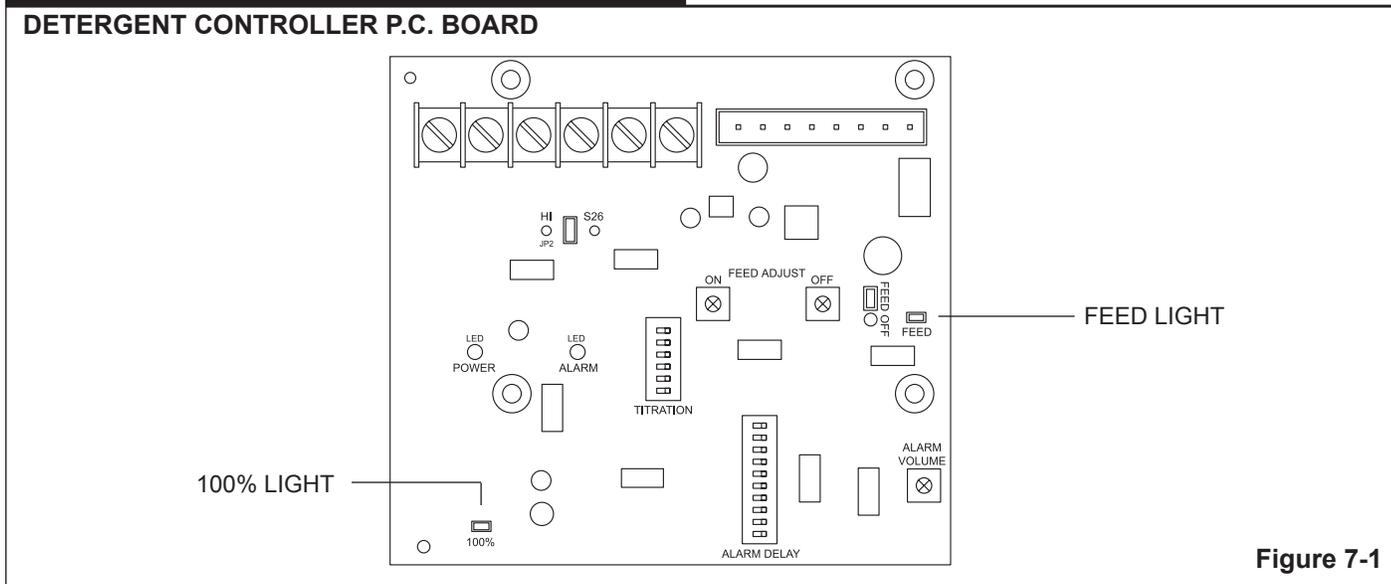


Figure 7-1

7.1 Power Lights

The "POWER" light on the front of the unit is lit when the unit is powered. If this light flashes, the power is below the minimum 19 volts required for proper operation of the unit. If this occurs, it may be necessary to locate an alternate power source. The power light for the rinse injector is illuminated whenever the rinse injector is operating.

7.2 Feed Light

This light will be illuminated whenever the wash tank concentration is BELOW the control set point.

7.3 100% Light

This light will illuminate whenever the wash tank concentration is at, or above, the control set point, *refer to Figure 7-1*.

NOTE: This light will flash at the appropriate time the wash solution should be titrated. This will verify the desired control set point.

7.4 Temperature Compensation

The **concentration** of the dissolved detergent in the wash tank remains the same at any water temperature. However, the **conductivity** signal produced by a given concentration varies noticeably with water temperature. In general, the higher the wash tank temperature, the higher the conductivity signal. This can cause the detergent controller to feed less detergent product when the wash tank temperature increases and more when it decreases.

The S-2000 Sensor incorporates a thermistor that measures the wash tank temperature. The detergent controller PC board uses this temperature measurement to automatically adjust the detergent feed to maintain a desired concentration over a wide range of wash tank temperature.

Due to limitations in sensor technology, the thermistor in the S-2000 sensor responds slowly to changes in wash tank

temperature. Under certain conditions this slow response can cause the detergent controller to respond improperly to changes in wash tank temperature and feed erratically.

If erratic detergent feed is occurring, the temperature compensation feature of the S-2000 sensor can be removed by disconnecting the sensor brown wire from terminal #15 on the detergent controller PC board.

NOTE - This will cause the desired detergent concentration to drop significantly, which will require resetting the TITRATION DIP switch according to Section 6.2.

NOTE - When using a two-pole cell, temperature compensation is not functional, so detergent concentration will vary with wash tank temperature. For this reason, it is important to adjust titration using a two-pole cell ONLY when the wash tank is at the correct operation temperature.

7.5 Optional Jumper Settings

There are two additional jumper settings on the detergent controller PC board that are not normally used in standard installations. The function of these additional jumpers is explained here when a specific application requires them.

JP1 - FEED OFF - Installing this jumper will stop detergent feed when the empty product alarm is active. To start the unit feeding again the product container must be refilled and power to the unit must be turned OFF and back ON again.

JP2 - HI (left two pins of JP2) - Installing this jumper will multiply the TITRATION DIP switch position settings by a factor of 10 times. This allows the use of very high detergent concentrations that exceed the maximum setting of 63 drops. For example, turning ON position 3 and 4 with this jumper installed will result in a desired titration of about 120 drops.

8.0 SERVICE

8.1 Regular Inspection

1. Inspect the pump squeeze tube. If visible worn or cracking, replace the squeeze tube even if it is working properly at the time.

NOTE: Properly lubricate the tubing with the silicon lubricant provided.

2. Inspect all tubing connections for leaks, cracks or loose fittings. Tighten or replace as necessary.

8.2 Squeeze Tube Replacement Instructions

1. Loosen tube nuts and pick-up discharge ends of squeeze tube.
2. Remove the plastic cover from the face of the peristaltic pump.
3. Pull both ends of the squeeze tube away from pump body until tubes slips over the rollers.
4. Clean inside of pump body, wiping to remove particle matter and accumulation of old lubricant.
5. Inspect the roller assembly closely for signs of wear or cracking.
6. Slide the plastic fittings provided with the tubing inside the pump housing. It may be beneficial to use a screw driver and rotate the roller assembly clock-wise to assist in the placement of the tubing.
7. Lubricate the new squeeze tube and rollers. Use only silicon grease lubricant.
8. Replace the plastic cover on the face of the pump. DO NOT over tighten since plastic can stress crack if excess of force is applied.
9. Turn on final rinse to prime pick-up and discharge line and to check proper function of the new squeeze tube.

9.0 TROUBLESHOOTING

Symptom	Action
9.1 Unit does not operate - No Power Light.	<ol style="list-style-type: none">1. Check for 24 volt power on terminals #20 and #21. If 24 volt power is present, replace Detergent Controller P.C. Board.2. If no 24 volt power at #20 and 21, check for high voltage at machine power source.<ol style="list-style-type: none">a. If high voltage power, check wiring to transformer, and wiring from transformer to the P.C. Board. Repair/replace as required.b. If no high voltage power, check power source or use an alternate power source.
9.2 Unit does not feed - Power Light and Feed Light on.	<ol style="list-style-type: none">1. Check for 24 volt power at terminals #20 and #23. If 24 volt power is not present, replace Detergent Controller P.C. Board.2. If 24 volts is present, check the valve and valve circuit. Check for 24 volts at valve coil, if present:<ol style="list-style-type: none">a. Check for water to the valve.b. Disconnect the outlet tubing from the valve. If water flows thru the valve, check for plug or restriction in tubing to the reservoir, or in the reservoir spray nozzle.c. The valve will not open if the static water pressure is greater than 120 psi. Use an alternate water source or install a pressure reducing valve.3. If 24 volts is not present at valve coil, there is a break in power between the P.C. Board and the valve.<ol style="list-style-type: none">a. Tie together the 2 white wires. If detergent now feeds, the reservoir safety switch (or wiring) is defective. Repair/replace as required.b. If bypassing the safety switch does not allow the valve to operate, check the wiring and connections between terminals #20 and #21 and the valve.

<p>9.3 Unit does not feed - Power Light on, Feed Light not on.</p>	<ol style="list-style-type: none"> 1. Check jumper JP2 for proper setting for cell/sensor being used. (No jumper for S-2000, S26 position installed for two-pole cell). 2. Check TITRATION DIP switch setting. Temporarily increase the setting to see if feed occurs. 3. If Two Pole Probe is used, remove the wire from terminal #10. If detergent now feeds, the cell or cell wiring is shorted. Repair or replace as needed. 4. If S-2000 Sensor is used, temporarily remove the brown wire from terminal #15. If feed occurs, the thermistor in the sensor may have failed and the sensor must be replaced. As a backup, the unit can be run in this condition, although temperature compensation will not function. Reset the TITRATION DIP switch according to Section 7.4. 5. If S-2000 Sensor is used, remove the blue and white wires from terminals #13 and #14. Temporarily place a jumper wire across terminals #13 and #14: <ol style="list-style-type: none"> a. If detergent feed occurs, replace the S-2000 sensor. b. If detergent feed does not occur, replace the detergent controller PC board.
<p>9.4 Feeds continuously - Feed Light not on.</p>	<ol style="list-style-type: none"> 1. Turn power off. If detergent continues to feed, repair/replace the solenoid valve. 2. With power on, check for 24 volts at terminals #20 and #23. If 24 volts, replace Detergent Controller P.C. Board.
<p>9.5 Feeds continuously - Feed Light on.</p>	<p>NOTE: First determine if the wash tank concentration is actually increasing. If not, there is no detergent being delivered to the machine, or the detergent is not feeding into the wash tank. Check for: proper water flow to the dispenser; proper operation of the dispenser spray nozzle; flow through the injection point into the machine.</p> <ol style="list-style-type: none"> 1. Try a lower titration setting. If the dispenser stops feeding: <ol style="list-style-type: none"> a. Check the power supply voltage to terminals #20 and #21. If below 19 volts, use an alternate power connection to the dispenser transformer. b. If using the Two Pole Probe, check and/or clean the cell electrodes. Use fine emery paper to remove any film from the electrodes. c. If using the S-2000 Sensor, place a jumper wire across terminals #12 and #14. If detergent does not stop feeding, replace Detergent Controller PC board. If detergent stops feeding, replace the sensor. 2. If the controller does not stop detergent feed when adjusted to the lowest dispenser setting (all TITRATION DIP switch positions off): <ol style="list-style-type: none"> a. Check the power supply voltage to terminals #20 and #21. If below 19 volts, use an alternate power connection to the dispenser transformer. b. If using the Two Pole Probe, place a jumper wire across terminals #10 and #11. If detergent does not stop feeding, replace Detergent Controller PC board. If detergent stops feeding, check/replace the cell or cell wiring.

9.6 Fluctuating titration.

IMPORTANT: Titration can be influenced by many factors outside of the detergent controller PC board and cell/sensor. Some of these factors that should be checked before troubleshooting the controller board and/or cell/sensor include:

- a. Check that scrap trays are properly installed in the wash tank. Missing scrap trays can produce excessive turbulence around the cell/sensor, which can produce varying conductivity readings.
 - b. Check the conductivity level of the incoming supply water. The tank titration will vary directly with varying water quality due to changes in mineral content or varying TDS.
 - c. Ensure the cell/sensor is not too close to heater elements in the wash tank. Excessive AC power noise from the heaters can effect conductivity readings. High temperature from the heaters can damage the cell/sensor or cause the automatic temperature compensation on the detergent controller board to malfunction (S-2000 Only). (See section 7.4)
1. Check the power supply voltage on terminals #20 and #21. If not constantly above 19 volts or below 28 volts, use an alternate power supply to the transformer.
 2. If the S-2000 Sensor is used, temporarily remove the brown wire from terminal #15 and readjust the titration according to section 7.4. If titrations stabilize, use this setting for operation.
 3. Check for signs of moisture contamination on the detergent controller board, such as green discoloration or corrosion on terminal connections or whitish deposits on the board. Ensure the GeoCenter unit is properly installed, the cover is closed and all fittings are tight.

9.7 Excessive detergent consumption.

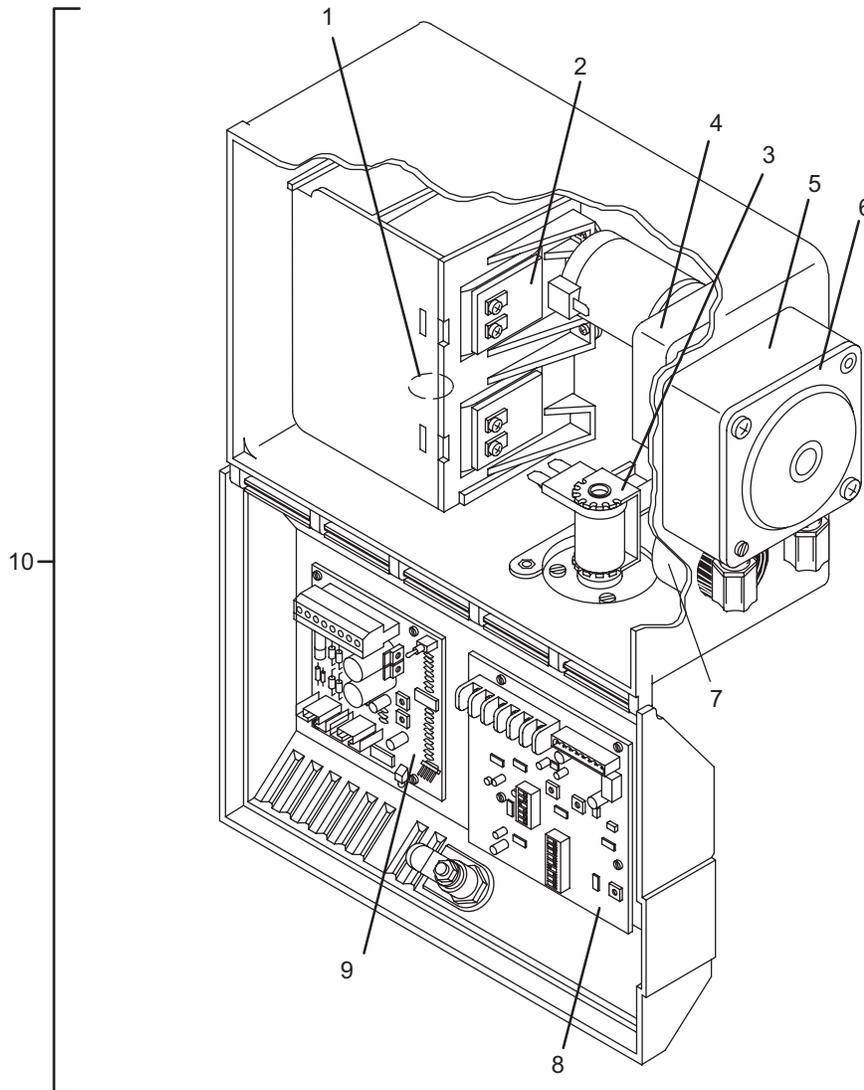
IMPORTANT: Determine if wash tank concentration is remaining constant. If it is, detergent over consumption is due to excessive wash tank dilution (with fresh water), or all of the detergent is not entering the wash tank (being diverted to the overflow, into the rinse or pre-wash tanks, etc.)

A detergent dispenser control can only be responsible for maintaining a consistent detergent concentration. If it causes the wash tank detergent concentration to increase, see appropriate symptom above.

9.8 Rinse Injector does not activate.

1. Check for incoming power of 24 volts AC across terminals 1 and 2 on the Speed Control Board.
 - a. If no 24 volts AC, check high voltage to transformer. If high voltage is OK, replace transformer.
 - b. If no high voltage, check power source and connections.
 - c. If 24 volts at transformer, carefully check all wires and connections to Speed Rinse Control P.C. Board.

9.8 Rinse Injector does not activate (continued).	<ol style="list-style-type: none"> 2. Check fuse on the board - replace if necessary (1 amp slow-blow fuse). 3. Check that time delay potentiometer is fully counter clockwise.
9.9 Rinse Injector runs, no rinse additive being injected.	<ol style="list-style-type: none"> 1. Check Rinse Dispenser - Service as necessary. 2. Remove discharge tube from injection fitting. Activate final rinse. <ol style="list-style-type: none"> a. If product dispensed. Replace check valve. b. If no product dispensed. Replace peristaltic tubing. 3. Check injection fitting for obstruction, clean and replace as needed. 4. Check squeeze tube for wear and replace if in doubt.
9.10 Rinse Injector runs continuously	<ol style="list-style-type: none"> 1. Check final rinse - if running continuously, correct the problem.
9.11 Rinse Injector will not prime.	<ol style="list-style-type: none"> 1. Check tubing connections for air leaks. 2. Check for high rinse pressure - optimum is 15-20 psig (1-1.4 BAR) and cannot be over 35 psig (2.4 BAR). 3. Check squeeze tube for wear and cracks etc.
9.12 Excessive squeeze tube wear.	<ol style="list-style-type: none"> 1. Lubricate, use only silicon grease lubricate. 2. Replace roller assembly.
9.13 Fuse on Speed Rinse P.C. board is blowing repeatedly.	<ol style="list-style-type: none"> 1. Remove squeeze tube - if fuse does not blow, replace roller assembly. 2. If fuse blows, disconnect pump motor leads from terminals 3 and 4 activate Rinse Speed Control P.C Board. <ol style="list-style-type: none"> a. If fuse blows, replace Speed Rinse Control P.C. Board. b. If fuse does not blow, replace pump motor.



REF. NO.	PART NO.	DESCRIPTION
1	8319-9570	1/2 PLUG
2	9210-1203	REPLACEMENT TRANSFORMER - 220/120 - 24 VOLT
3	8526-0545	SOLENOID VALVE W/CABINET MOUNT PLATE
4	8374-0357	24 VOLT DC MOTOR
5	8460-5005	PUMP HEAD W/1/2 CC TUBE
6	8480-4491	PUMP FACE PLATE
	8480-4483	PUMP ROLLER ASSEMBLY
7	8366-9101	SONALERT
8	9212-1045	DETERGENT CONTROL BOARD
9	9200-1023	RINSE INJECTOR CONTROL BOARD
10	9223-1091	GEOCENTER W/CELL PKD

REF. NO.	PART NO.	DESCRIPTION
	•9217-0042	1/4 TO 1/8 REDUCING TUBE - 1.5"
	•9217-0125	SQUEEZE TUBE, 1/8 cc
	•9218-0884	SQUEEZE TUBE, 1/4 cc
	•9218-0892	SQUEEZE TUBE, 1/2 cc (standard)
	•9218-0900	SQUEEZE TUBE, 1 cc
	•9218-0850	SQUEEZE TUBE, 1-1/2 cc
	•9218-0876	SQUEEZE TUBE, 2 cc
	•8310-0537	1/4 TWIN TAB ADAPTER
	•9223-2594	NAMEPLATE GEOCENTER
	•9230-2264	NAMEPLATE ECOCENTER
	•9230-2439	TWO POLE PROBE (Optional)
	•9212-2308	S2000 SENSOR WITH 12 FT CA (Standard)

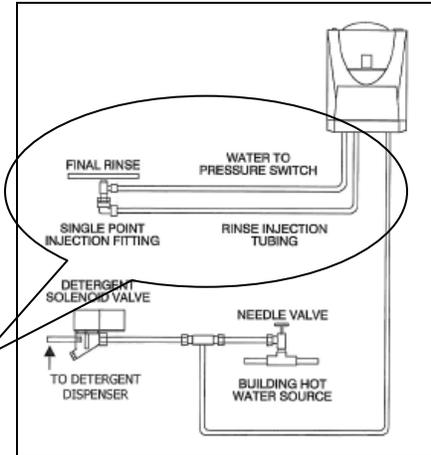
• PART NOT SHOWN

NOTE - REFER TO REPAIR PARTS MANUAL FOR OPTIONAL TRANSFORMERS, RINSE INJECTOR CHECK VALVE ASSEMBLY/PARTS, AND DETERGENT CONTROL CONDUCTIVITY CELLS.

Final rinse “pressure switches” have been deleted from rinse injector installation kits, and are now only available as an optional part

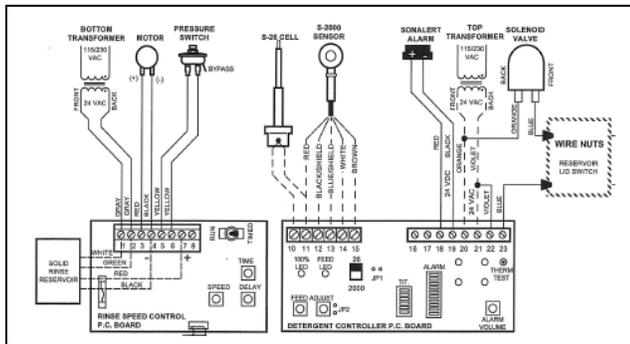
Rinse Injector Pressure Switch Installation

Most dishmachines on the market today feature a separate power source for activating rinse injectors. These terminals are only activated when power is applied to the final rinse cycle. Because some “conveyor” and “flite” type dishmachines do not feature a separate rinse “signal”, it may be necessary to install a “rinse pressure switch” to electrically activate the rinse injector. On these machines, a constant power source (L1 & L2) is applied to the injector transformer, and a rinse “pressure switch” will have to be installed. The rinse injector will then be activated when the switch “closes” (from the pressure created from the final rinse water). It will be necessary to install ¼” tubing from the dishmachine’s final rinse pipe to the pressure switch (see photo at right). Use the enclosed fitting to complete the connection.

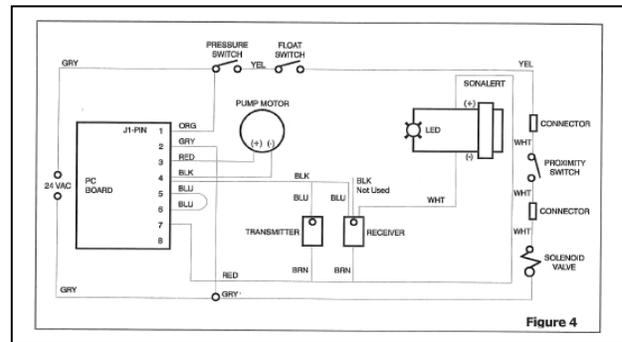


Rinse Injector Pressure Switch Wiring Guide

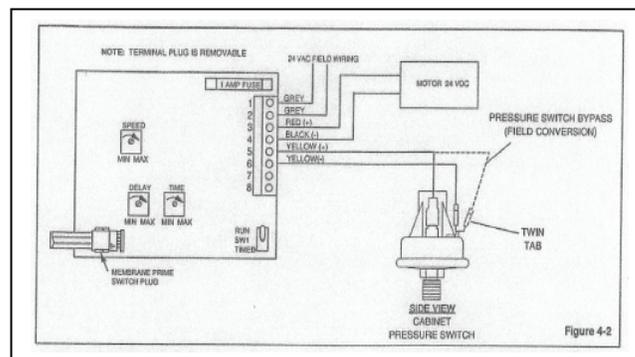
Properly wiring the pressure switch to a rinse injector’s control board varies from the type of injector in use. The wiring guide below highlights the schematic per each injector.



Soil-A-Way, Geo Center



Rinse Max II, Geo II Solid Rinse



Vanguard Dry Max