

MODEL-SPC/WTC

AQUASOL CONTROLLERS, INC.

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Intertek



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Manufacturer's name: Aquasol Controllers, Inc.
Address: 1707 Townhurst Drive, Houston, TX 77043
Phone number: 713-683-6406
Email contact: sales@aquasol.com
Model number: WTC with or without additional alpha-numeric suffixes or SPC with or without additional alpha-numeric suffixes

Input Ratings: 120 V ac, 12 Amps 60 Hz.
Output ratings: Cl/ORP 120 Vac, 60 HZ, 8Amps;
pH 120 Vac, 60 HZ, 3A.
Maximum External Load: 120 Vac, 60 HZ, 11A
Signal inputs: 5V DC Max. 100 mA Max.

Environmental conditions: For indoor/outdoor use;
b) altitude at or below 2 000 m;
c) ambient temperatures 5 °C to 40 °C;
d) maximum relative humidity 80 % for temperatures up to 31 °C
decreasing linearly to 50 % relative humidity at 40 °C

Operating Ranges: ORP – 200-1,400 mV
pH – 6.0-9.0

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Read the instructions and keep this manual for future reference. Do not use the unit for other than described in this manual.

Lisez les instructions et conservez ce manuel pour référence future. Ne pas utiliser l'appareil pour d'autres que celles décrites dans ce manuel.

WARNINGS

AVERTISSEMENTS



(There are hazardous voltages inside of the screwed in cover (faceplate). Before removing the face panel, disconnect or turn off the power. The only parts that can be replaced by the operator are the fuses and relays. There are no other user replaceable parts, refer service to an authorized service person. After replacing the fuse(s) or relays, replace the screws into the standoffs for replacement of the protective cover and then replace the screws in the face plate before applying power to the unit.)

(Il existe des tensions dangereuses à l'intérieur de l'vissé dans le couvercle (la façade). Avant de retirer le panneau de face, débrancher ou éteindre l'appareil. Les seules parties qui peuvent être remplacés par l'opérateur sont les fusibles et les relais. Il n'y a pas remplaçable par d'autres utilisateurs pièces, se reporter de service à une personne de service agréé. Après avoir remplacé le fusible (s) ou de relais, de remplacer les vis dans les entretoises pour le remplacement du couvercle de protection, puis remplacer les vis dans la plaque de face avant d'alimenter l'appareil.)

Units may be used indoors or outdoors.

Les unités peuvent être utilisées à l'intérieur ou en extérieur.

FIG. 8

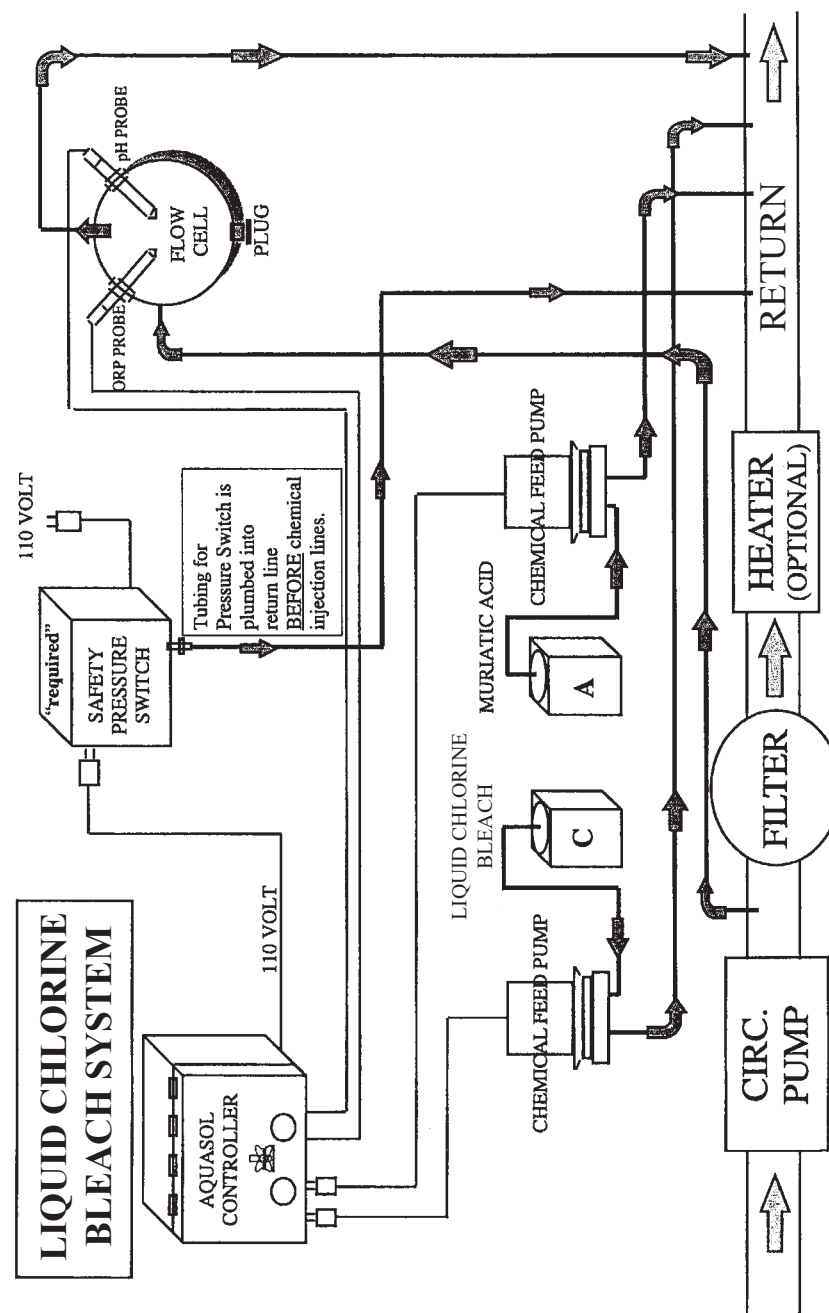
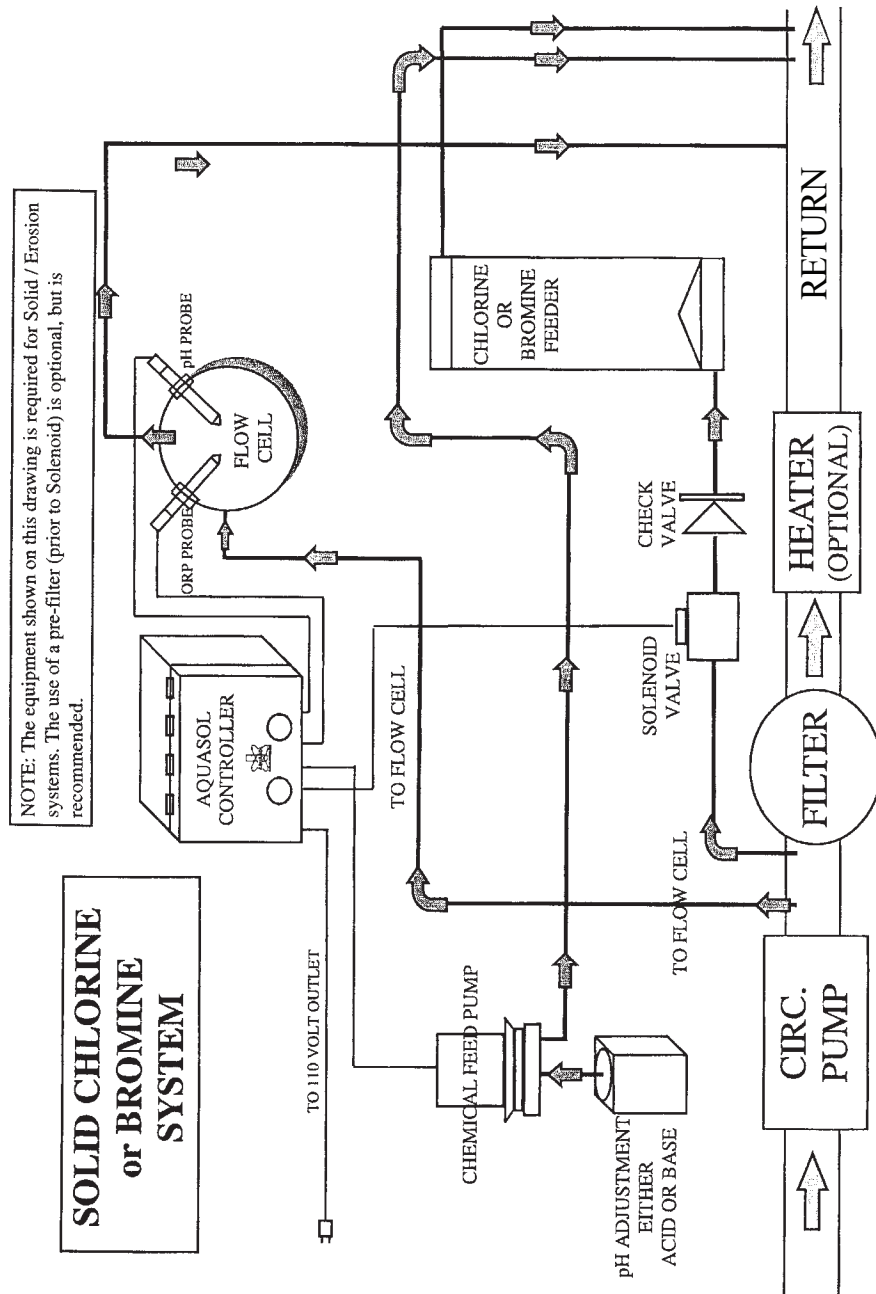


FIG. 7



Connect power to a circuit breaker control panel, with the circuit breaker rated at the proper voltage and 15 amps max.

Branchez l'alimentation à un panneau de contrôle de disjoncteur, avec le disjoncteur nominale à la tension appropriée et 15 ampères max.)

Do not allow the latched cover to remain open other than for setting the controls, re-latch the cover so that it is secured properly.

Ne laissez pas le couvercle verrouillé à rester ouvert autres que pour le réglage du contrôle, re-verrouiller le couvercle de sorte qu'il est fixé correctement.

Do not allow water to get into the uncovered unit, this could cause a shock hazard.

Ne pas laisser l'eau pénétrer dans l'unité à découvert, ce qui pourrait provoquer un risque d'électrocution.

Instructions for the user and authorized service person:

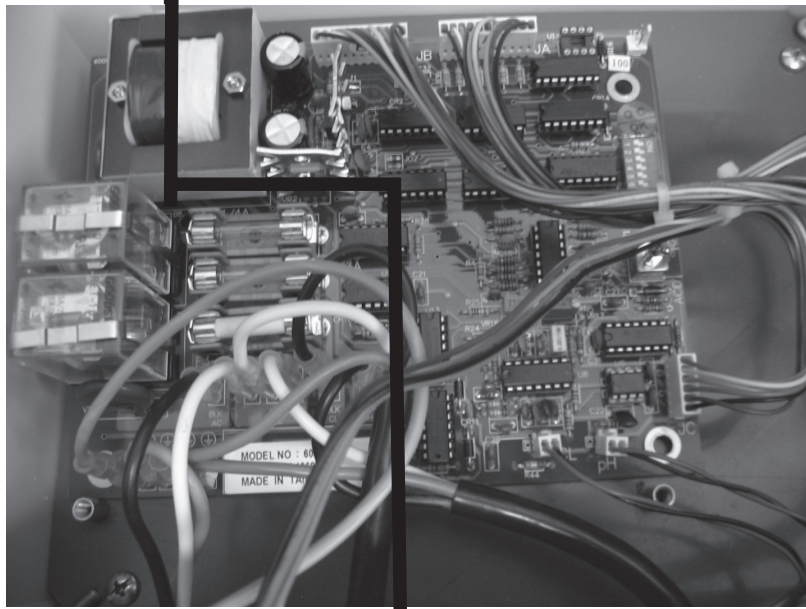
There are hazardous voltages inside of the screwed in cover. Before removing the cover, disconnect or turn off the power, if parts are to be replaced. If any of the grounds are removed verify and make sure that the main ground from the AC input cordset is replaced first; if it has been removed. Then replace the other grounds, including the ground to the door. Note-The main input ground is to be connected to the terminal marked with the grounding symbol and with a circle around it.

Instructions pour l'utilisateur et par personne de service autorisé:

Il ya des tensions dangereuses à l'intérieur de l'unité dans le couvercle. Avant de retirer le couvercle, débranchez ou éteignez-le, si des pièces doivent être remplacées. Si l'un des motifs sont retirés de vérifier et de s'assurer que le principal motif de l'entrée AC cordon est remplacé en premier; si elle a été enlevée. Puis remplacez les autres motifs, y compris le sol de la porte. Notez le terrain d'entrée principale est d'être connecté à la borne marquée avec le symbole de la terre et avec un cercle autour d'elle.

AQUASOL SAMPLE CELL FIG. 6

. This diagram shows the high voltage side and the low voltage section of the PC board:
High voltage side

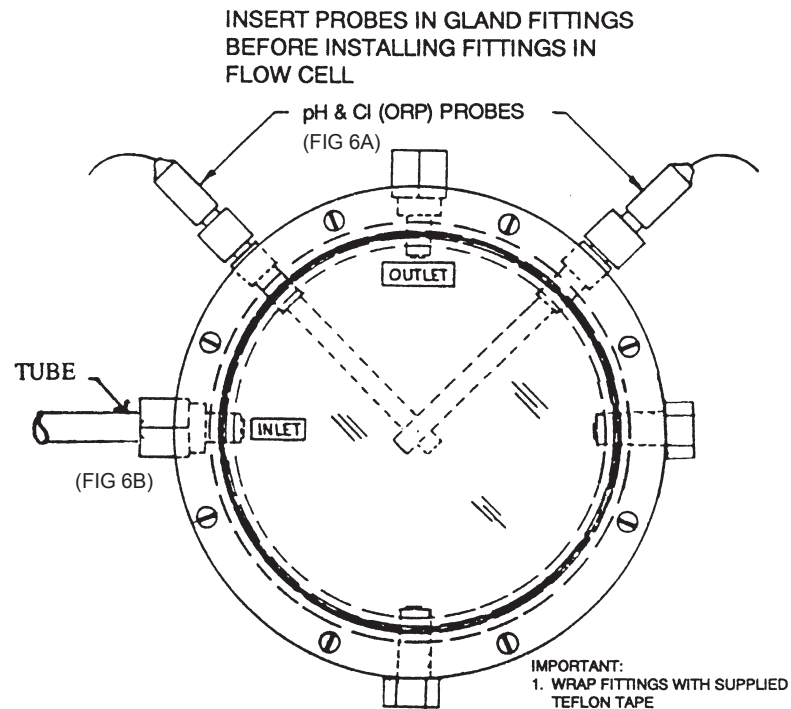


Low voltage side

FIGURE 1

1. The Aquasol SPC/WTC Controllers

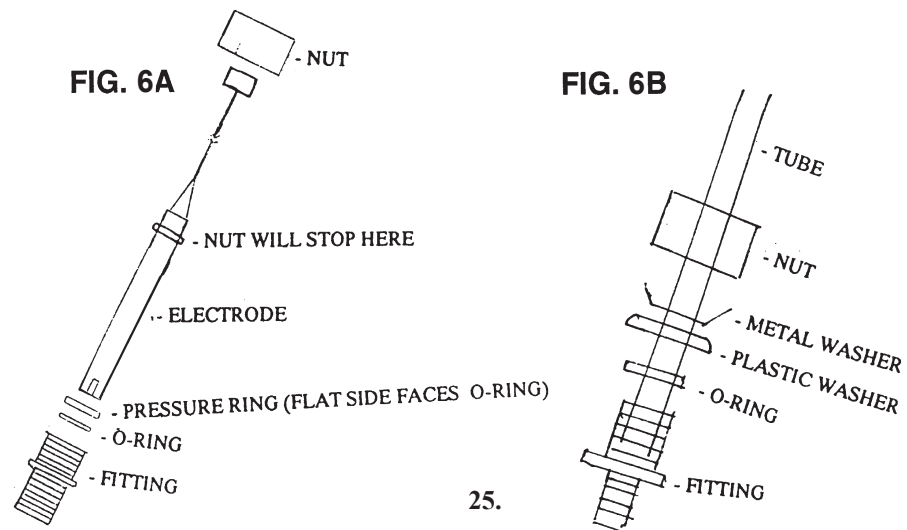
Your Aquasol Controller is a highly engineered electronic instrument that automatically



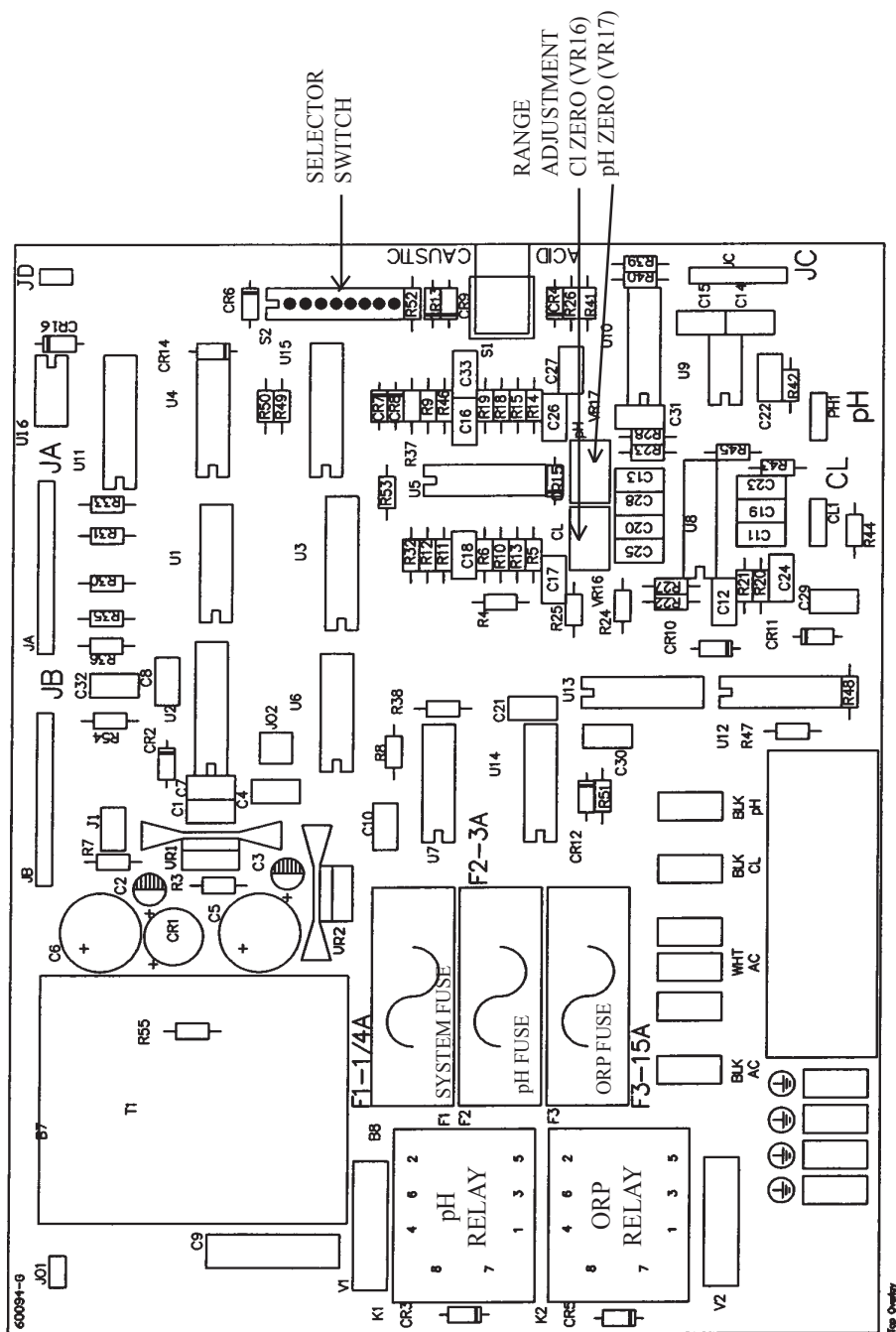
This nut should slide down the length of the cable where it will set on the shoulder of the electrode, as indicated.

IMPORTANT:
1. WRAP FITTINGS WITH SUPPLIED
TEFLON TAPE
2. TIGHTEN FITTINGS SECURELY

CAUTION:
DO NOT OVERTIGHTEN



SPC, WTC CIRCUIT MODULE FIG. 5



maintains pH and sanitizer balance in re-circulating bodies of water. It will operate with all types of chlorine and bromine systems in any size body of water.

Aquasol Controllers have been maintaining accurate control of water chemistry since 1975. Your Aquasol Controller will give you many years of service with minimum maintenance.

We recommend your water be tested at least once a day with a DPD test kit.

2. Your Aquasol Controller contains the following items:

- A. Controller (SPC or WTC)
- B. Flow Cell
- C. ORP/ Chlorine electrode (red color)
- D. pH electrode (blue color)
- E. 2 electrode fittings
- F. 4 water flow fittings
- G. 2 plugs
- H. Teflon tape
- I. 20 feet of 3/8" tubing
- J. Warranty card
- K. Operating manual

3. Controller features

A. Face Panel: The face panel is modular in design and is easily disconnected from the enclosure. (FIG.1, FIG. 2, FIG.3)



There are hazardous voltages inside of the screwed in cover (faceplate). Before removing the faceplate, disconnect or turn off the power. The only parts that can be replaced by the operator are the fuses and relays. There are no other user replaceable parts, refer service to an authorized service person. . If parts are to be replaced under the protective cover; remove the two screws that hold the protective cover in place, remove the cover and replace the fuses and/or relays that need replacement. Make sure that the mains ground is firmly connected to the ground symbol with the circle around it. Make sure that the other grounds are firmly connected. Replace the cover and secure it in place with the two screws into the standoffs. Replace all of the screws in the cover before applying power to the unit.

Il ya des tensions dangereuses à l'intérieur de l'vissé dans le couvercle (la façade). Avant de retirer la façade, débrancher ou éteindre l'appareil. Les seules parties qui peuvent être remplacés par l'opérateur sont les fusibles et les relais. Il n'ya aucune pièce remplaçable pard'autres utilisateurs, se référer à une personne du service d'entretien agréé. . Si des pièces sont à remplacer sous le capot de protection, enlever les deux vis qui maintiennent le couvercle de protection en place, retirez le couvercle et remplacer les fusibles et / ou relais qui doivent être remplacés. Assurez-vous que le sol du secteur est bien branché sur le symbole du sol avec le cercle autour d'elle. Assurez-vous que les autres motifs sont bien connectés. Remplacez le couvercle et le fixer en place avec les deux vis dans les entretoises. Remplacer toutes les visdans le couvercle avant d'appliquer la puissance de l'appareil.



NOTE:

These adjustments can be made with power on and the protective cover in place. Use care not to remove the protective cover with power on.

Ces ajustements peuvent être faits avec le pouvoir et que le capot de protection en place. Faites attention de ne pas enlever le couvercle de protection sous tension.

1. Set instructions: Gives basic calibration instructions for the controller. (printed on face panel)

2. pH control knob: Adjusting this knob will at some point activate the "pH feed" LED and the pH power outlet. It allows you to match the controller to the actual pH of the water. pH is a measure of quality not quantity. Turning the control knob to "LOWER" indicates your desire to lower the pH while turning the knob towards "HIGHER" means you want to raise the pH.

If you cannot activate the "pH feed" LED, or if the "pH alert" or "feed limit" LEDs are lit, refer to section 7 (Calibration).

3. Cl/ORP control knob: Adjusting this knob will at some point activate the "Cl/ORP feed" LED and the Cl/ORP power outlet. It allows you to match the

controller to the current level of sanitizer in the water. Turning the knob towards "LOWER" indicates you want less sanitizer in the water while turning towards "HIGHER" means you want a higher level of sanitizer.

If you cannot activate the "Cl/ORP feed" LED, or if the "Cl/ORP alert" or "Feed limit" LEDs are lit then refer to section 7 (Calibration). Also read about DIP switch 4 in section 4.

FIG. 4

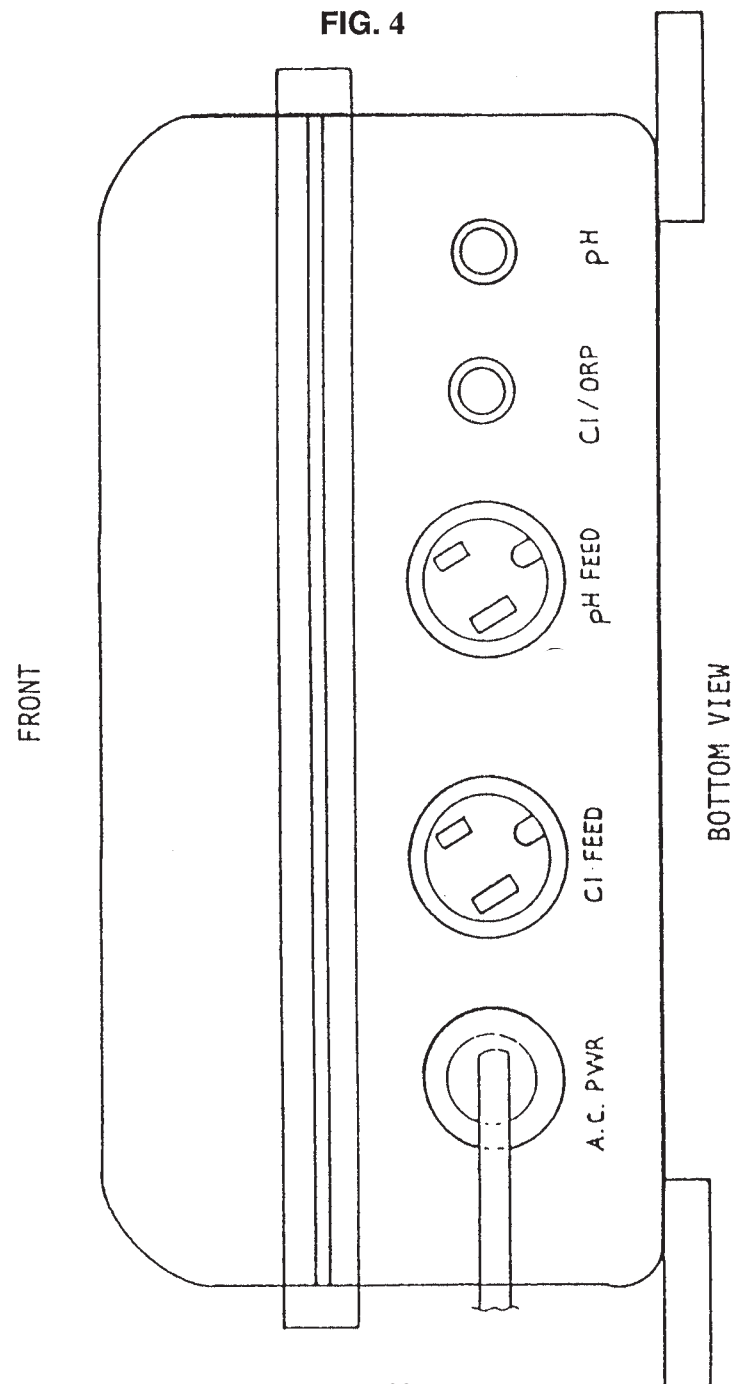




FIG. 2 - WTC

4. "Power" LED: When lit, this LED indicates that you have power to the controller.
5. "pH feed" LED: When lit, the controller is calling for additional chemical to adjust the pH of the water.
6. "CI/ORP feed" LED: When lit, the controller is calling for additional sanitizer to be added to the water.
7. "pH alert" LED: When lit, the controller is indicating that the signal coming from the pH electrode is out of the range of the pH control knob. The pH alert overrides the pH feed system. The controller cannot make pH adjustments when in pH alert. The pH alert light will be lit when pH from electrode is more than .50 pH units +/- the setpoint. It is not user adjustable.
8. "CI/ORP alert" LED: When lit, the controller is indicating that the signal coming from the ORP electrode is out of the range of the CI/ORP control knob. The CI/ORP alert overrides the CI/ORP feed system. The controller cannot make sanitizer adjustments when in CI/ORP alert. The CI/ORP alert light will be lit when ORP from electrode is more than 75 mV +/- the setpoint. It is not user adjustable.
9. "pH test": This is a spring loaded switch that allows you to confirm that you can get power to the pH feed system. If the "pH alert" or "feed limit" LEDs are lit, this switch will not operate.
10. "CI/ORP test": This is a spring-loaded switch that allows you to confirm that you are getting power to the CI/ORP feed system. If the "CI/ORP alert" or "feed limit" LED's are lit, this switch will not operate. This switch will also not operate if DIP switch 4 is in the "ON" position **and** the "pH feed" LED is lit. See DIP Switch 4 in Section 4 (DIP switches).
11. "Feed limit" LED: This is an optional feature of your controller. When lit, the controller is informing you that one of the feed systems ran for four (4) hours continuously. It is normally an indication of a problem with the feed system or that an electrode failed. The controller will cease to operate until manually restarted, which is accomplished by unplugging the controller from its power source and plugging it back in.
12. "pH set" button: This is used, in conjunction with the pH control knob, to calibrate when you are using the pH timed monitoring feature. See DIP switch 1 in Section 4 (DIP switches).
13. Meters (Model WTC): Two individual LCD meters continuously display ORP and pH readings. The ORP display is a millivolt reading.
14. "CAL" (Model WTC): This small adjustment screw allows you to

calibrate the pH meter only. **It has a very limited range.** The controller must be properly calibrated before adjusting the pH meter. Section 7 (Calibration)



The unit must be powered up to make the adjustments. When removing the faceplate, care must be taken not to remove the protective cover, if the switch changes and adjustments are to be done. There is a shock hazard present if this protective cover is removed. If fuses and relays are to be replaced power must be disconnected. Only then can the protective cover be removed that covers the fuses and relays. Remove the two screws that mount the protective cover, remove the cover and replace the fuses and/or relays with the same parts and ratings of parts. See Figure 1 for the high and low voltage areas.

L'appareil doit être alimenté pour faire les ajustements. Lors du retrait de la façade, il faut prendre soin de ne pas enlever le couvercle de protection, si les changements switch et des ajustements sont à faire. Il ya un risque de choc actuelle si cette housse de protection est enlevée. Si les fusibles et les relais doivent être remplacés d'alimentation doit être débranché. C'est seulement alors que le couvercle de protection sera enlevé, qui couvre les fusibles et les relais. Retirez les deux vis qui fixent le couvercle protective, retirez le couvercle et remplacer les fusibles et / ou relais avec les mêmes pièces et les cotes des pièces.

B. Circuit module: The circuit module is easily exchanged by removing all slip on connectors and the four mounting posts or screws. All solid state circuitry on the module carries a functional lifetime warranty. Read your warranty card for details.

(FIG. 5) See the instructions on replacing the fuses and relays in section number 3.

1. Fuses: All fuses are electronic slo-blo. The top fuse is 1/8 amp and powers the controller. The middle fuse is 3 amp and powers the pH feed system. The bottom fuse is 15 amp and powers the sanitizer feed system.

2. Relays: Transfer power to the pH and sanitizer feed systems. Relays plug into the circuit board and are easily replaced.



Warning -Replace the protective cover using the two screws before powering up the unit to do the other adjustments. Securing the unit after parts replacements and or adjustments have been made will make the unit safe.

Avertissement-Remplacez le couvercle de protection en utilisant les deux vis avant d'allumer l'appareil à faire les ajustements d'autres. Sécurisation de l'unité après les remplacements de pièces et ou des ajustements ont été faits fera l'unité sécuritaire.

3. Cl and pH potentiometers: These are used to calibrate the face panel control knobs. Section 7 (Calibration)

FIG. 1 - SPC

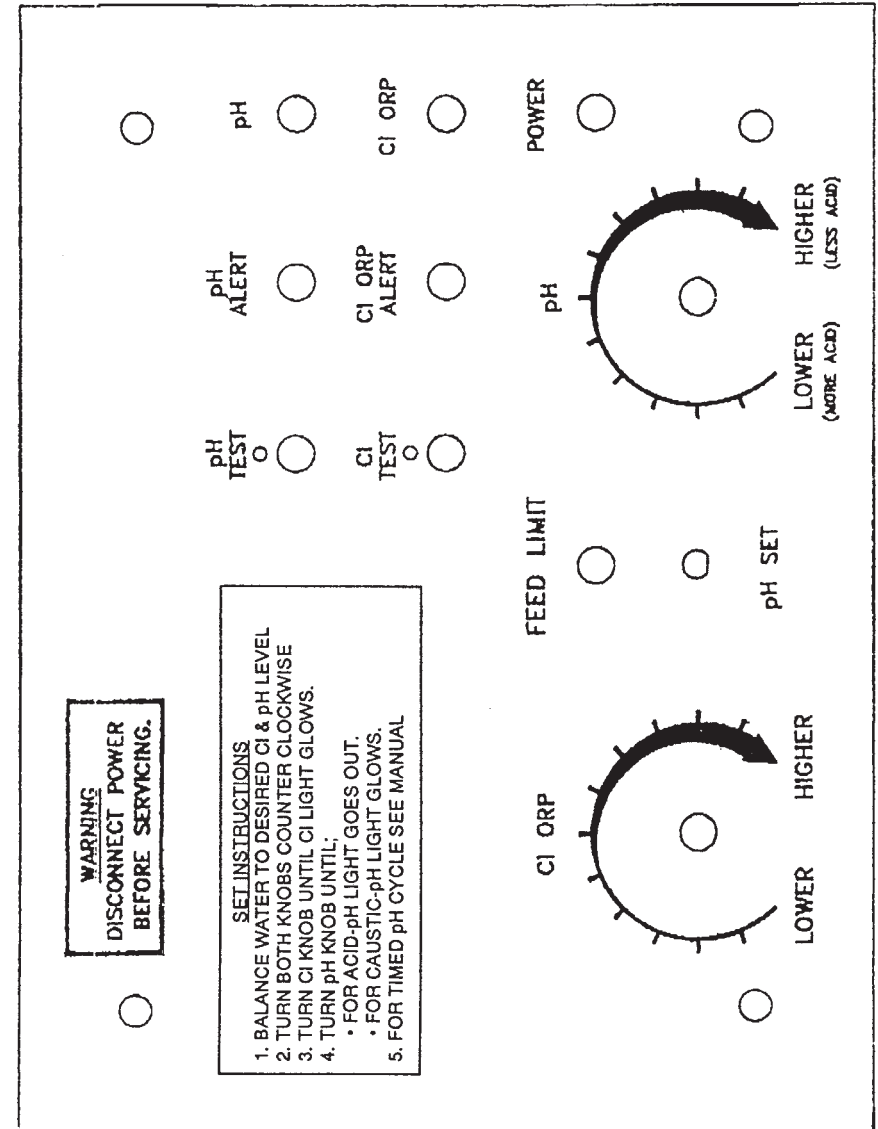


Fig 2	WTC Front Panel
Fig 3	SPC-M Front Panel
Fig 4	Bottom view of Controllers
Fig 5	SPC, SPC-M and WTC Circuit Module
Fig 6	Flow Cell
Fig 6A	Electrode and Fitting
Fig 6B	Water Flow Fitting and Tubing
Fig 7	Solid Chlorine/ Bromine tablet installation
Fig 8	Liquid Chlorine installation

4. DIP switches: Allow you to choose optional features for operating your controller. See Section 4 for explanation of each switch (DIP switches).

5. Acid/Caustic switch: The position of this switch is determined by what chemical you use for your pH. Place in "Acid" position if your chemical lowers pH. Place in "Caustic" position if your chemical raises pH.

Instructions for the user and authorized service person:

There are hazardous voltages inside of the screwed in faceplate cover. Before removing the cover, disconnect or turn off the power. If any of the grounds are removed verify and make sure that the main ground from the AC input cordset is replace first if it has been removed. Then replace the other grounds, including the ground to the door. Note-The main input ground is to be connected to the terminal marked with the grounding symbol and with a circle around it.

Instructions pour l'utilisateur et par personne de service autorisé:

Il ya des tensions dangereuses à l'intérieur de l'vissé dans le couvercle façade. Avant de retirerle couvercle, débranchez ou éteignez-le. Si l'un des motifs sont retirés de vérifier et de s'assurer que le principal motif de la Cordon entrée CA est de remplacer d'abord si elle a été supprimée. Puis remplacez les autres motifs, y compris le sol de la porte. Notez le terrain d'entrée principale est d'être connecté à la borne marquée avec le symbole de la terre et avec un cercle autour d'elle.

4. DIP switches

Located on the top right of the circuit board. It is red in color and has 8 white switches on it. They offer optional features for you to use:

DIP switch	OFF position	ON position
1.	pH continuous monitoring	pH timed monitoring
2.	2 minute pH feed	1 minute pH feed
3.	low chlorine alert inactive	low chlorine alert active
4.	continuous chlorine feed	pH feed overrides chlorine feed
5.	feed limit active	feed limit inactive
6.	high pH alert inactive	high pH alert active
7.	high pH alert doesn't deactivate	high pH alert deactivates chlorine

8. chlorine feed feed
Open

Switch 1 and 2

These switches are turned OFF when feeding acid or caustic into the return line. Timed monitoring of the pH is used on bodies of water that require acid for pH adjustment but consume only small amounts. When switch one is ON, the controller will treat the water once every 30 minutes **if** acid is needed. The acid is ejected from your acid pump into the flow cell, which helps to clean the electrodes every time the pH is adjusted.

If you need to set the pH control knob on the face panel, You must hold in the "pH set" button while adjusting the pH control knob.

Switch 2 is active only if switch 1 is ON. Switch 2 in the OFF position will feed for 2 minutes when acid is called for. Switch 2 in the ON position will feed for 1 minute.

Switch 3

Switch 3 in the OFF position removes the low chlorine alert. This switch is used when chlorine may be consumed faster than the controller can react to the changes in the water. Removing the low alert will allow the controller to bring the water chemistry back to its proper level without going into an alert mode.



Caution: you are removing a safety feature of the controller when you have switch 3 in the OFF position. If turned OFF, NSF certification to NSF/ANSI St. 50 is voided.

Attention: vous supprimez un élément de sécurité du contrôleur lorsque vous avez commutateur 3 en position OFF. Si désactivé, la certification NSF à la norme NSF/ANSI St. 50 est annulé Saint.

Switch 4

Switch 4 in the ON position will not allow both the Cl/ORP and pH feeders to run at the same time. When switch 4 is ON, the pH feed will always override the Cl/ORP feed. Because ORP is pH sensitive, correcting the pH first may satisfy the demand for chlorine to be added to the water. **Remember:** If switch 4 is on **and** the pH feed LED is lit, you cannot calibrate the Cl/ORP.

Switch 5

Switch 5 controls the "feed limit" LED on the face panel. With switch 5 in the OFF

Feed light on no matter where control knob is set

- A. Test electrode
- B. Calibrate circuit board

Feed light off no matter where control knob is set

- A. Test electrode
- B. Calibrate circuit board

Cl/ORP or pH alert light on

- A. Test respective electrode
- B. Calibrate circuit board (remember to unplug controller and plug back in before calibrating pH)
- C. Electrode not connected to controller
- D. Electrodes are connected but reversed

13. Troubleshooting (cont.)

Power light not on

- A. Blown fuse on circuit board
- B. Pressure switch has cut power
- C. Controller not plugged in to power source

Chemical feeder running but feed LED is not lit

- A. Replace relay on circuit board
- B. Feeder is plugged into another power source
- C. Feeders are plugged into controller but are reversed

Feed LED is lit but feeder is not on

- A. Feeder is not plugged into controller
- B. Feeders are plugged into controller but are reversed
- C. Blown fuse on circuit board
- D. Replace relay on circuit board
- E. If feeder has its own ON/OFF switch, make sure it is on.

Feed limit LED is lit

- A. Test electrodes
- B. Check chemical feeders for failure
- C. Make sure you have not run out of chemicals.

14. Flow cell accessories

There are two additional 1/4" NPT holes in your flow cell. These can be used to:

- A. Inject acid into the flow cell when using timed monitoring of pH option.
- B. Install a grounding electrode (Available from Aquasol)
- C. Install a water sampling valve (Available from Aquasol)

Illustrations

Fig 1 SPC Front Panel

does stock and provide most types of chemical feed equipment.

All chemical feeders should be installed so that the chemical injection occurs in the return line to the water **after** all equipment.



If you are using a dry calcium hypochlorite feeder (PPG, Pulsar, or Vantage) consult your Aquasol representative for special instructions.

Si vous utilisez un chargeur d'hypochlorite de calcium sec (PPG, Pulsar, ou Vantage) consulter votre représentant Aquasol des instructions spéciales.

10. Warranty

Every controller purchased from Aquasol comes with its own warranty card. Read it for further details.

11. Service and parts

Contact your dealer or Aquasol (phone: 800-444-0675) for service and parts. Service to the electronic circuitry must be performed by a factory technician. Modification of the circuitry will void warranty coverage and could cause the product to malfunction or have a shock hazard.

Modification du circuit annulera la garantie et pourrait causer au produit d'un dysfonctionnement ou un risque de choc .

Electrode Replacement Information

ORP – Part #S010, Output Signal 0 to 1,000 mV (min.)

pH – Part #S020, Output Signal -100 to +100 mV (min.)

12. Winter Storage

If your water circulation system is shut down during the winter, the flow cell must be drained and the electrodes removed and stored to prevent freeze damage. (See Section 8A)

The electrodes must be kept wet. Put them in a container of water with the tips immersed or use the storage bottle that came with the electrode.

13. Troubleshooting

The recommendations below assume that your water chemistry is in balance and that there is circulation through the flow cell.

position, if either feeder runs four hours nonstop, the controller will shut down. This is a safety feature. This alert requires manual restart of the controller. Unplug the controller from its power source and plug it back in.

If a feeder is properly sized it should not have to run for over 4 hours continuously. You may have a faulty electrode, a failure with a chemical feeder or you could be out of chemical(s). Switch 5 in the ON position will remove the "feed limit" feature. If switch 5 is in ON position, NSF certification to NSF/ANSI St. 50 is voided.



Caution: you are removing a safety feature if you put switch 5 in the ON position. Attention: vous supprimez un élément de sécurité si vous mettez le commutateur 5 en position ON.

Switch 6

Switch 6 in the ON position activates the "high pH alert". If your controller is set for acid feed, we recommend putting switch 6 in the OFF position. If turned OFF, NSF certification to NSF/ANSI St. 50 is voided.

Switch 7

Switch 7 in the ON position will deactivate the Cl/ORP feed if the controller is in "high pH alert". Switch 6 must be ON in order for switch 7 to operate.

5. Items required for installation

- A. Electric drill with 7/16" drill bit
- B. 1/4" NPT tap
- C. Screws to mount controller and flow cell to wall
- D. Screwdriver

6. Installation

Your Aquasol Controller is designed to be easily installed on the circulation system. It may be installed indoors or outdoors so long as the cover is secured and the controller is not accessible to the public. Connect power to a circuit breaker control panel, with the circuit breaker rated at the proper voltage and 15 amps max.

Votre contrôleur Aquasol est conçu pour être facilement installé sur le système de circulation. Il peut être installé à l'intérieur ou à l'extérieur aussi longtemps que le couvercle est sécurisé et le contrôleur n'est pas accessible au public. Branchez l'alimentation à un panneau de commande de disjoncteur, avec le disjoncteur nominale à la tension appropriée et 15 ampères max.

Step 1 (Fig. 7 or 8)

Turn off the water circulation pump. Identify the line from the pump to the filter and the return line to the water after the filter and heater (if present).

Step 2 (Fig. 6)

Wrap all fittings with at least three wraps of Teflon tape. Install the water flow fittings in the flow cell into the holes labeled INLET and OUTLET. **Hand tighten only! Applying**

a wrench to the fittings can cause damage to the flow cell ! Install the electrode fittings into their respective holes in the flow cell. If you are not using any auxiliary equipment or you are not using the timed monitoring of pH feature then the 2 plugs may be installed in the remaining holes.

Step 3 (Fig 7 or 8)

Mount the Controller and Flow Cell on a convenient wall. The Controller should be located close to a properly grounded 120 VAC outlet. Do not use extension cords unless necessary.

The Flow Cell must be mounted within 9 feet of the Controller. The Flow Cell must be mounted vertically so the water OUTLET fitting is on top.

Step 4

Drill a 7/16" hole in the circulation line between the pump and filter and another in the return line to the water as noted in Step 1. Tap both holes with a 1/4" NPT tap. **Do not over tap!** Install a Teflon wrapped water flow fitting into each hole. **Hand tighten only!**

Step 5 (Fig 7 or 8)

Cut a proper length of 3/8" tubing to run from the fitting between the pump and filter to the INLET fitting on the flow cell. Refer to Fig. 6B to connect tubing to the fitting. Install another piece of tubing from the OUTLET fitting to the fitting in the return line to the water.

Step 6 (Fig 6 & 6A)

Carefully remove the storage bottle from each electrode. Save the bottles for storage purposes. **Electrodes are fragile. Damage to electrodes by mishandling is not covered by warranty.**

Dip each electrode in some muriatic acid (if available) to help clean off the storage solution.

The electrodes provided are the finest available. Electrodes are fragile and are subject to damage by freezing, bending, crushing or dropping on a hard service. Damaged electrodes cannot be repaired, they must be replaced. Damaged electrodes are not covered by warranty.

The tip of the electrode must be kept wet. If not in service or if you are storing them for the winter, they can be stored in a glass with the tips immersed in water, or add some water to the storage bottle (if available) and slide on the electrode tip.

Electrodes should be cleaned every 1 to 2 months. Carefully remove the electrode from the flow cell. First swirl the tip in a soapy water solution for 5 to 10 seconds. Then rinse thoroughly. Next swirl the tip in muriatic acid for 5 to 10 seconds. Rinse and return to flow cell. After returning the electrode to the flow cell, do not attempt any calibration of the controller until the electrodes have been flushed with water for at least 15 minutes.



B. Electrode test procedure NOTE- extreme care must be used when handling the acids and other chemicals.

B. Procédure de test de l'électrode REMARQUE-extrêmes précautions doivent être utilisés lors de la manipulation des acides et autres produits chimiques.

Connect electrode to a high impedance millivolt meter or, if you have an Aquasol with meters, to the ORP side of the controller.

Get two cups (about 8 oz.) of water. Add several drops of muriatic acid to one cup.

The ORP electrode should read somewhere between 500 mv and 800 mv when put in water. When moved to the "acid" water the millivolt reading should increase at least 200 mv.

The pH electrode should read -25 to -100 mv in the water. When put in the "acid" water the millivolt reading will change about 100 mv or more to the positive.

Example: Water reading is -40 mv, "acid" water reading should be +60 mv or more.

Note: If you are using the pH timed monitoring feature of your controller and you are injecting acid into the flow cell, the electrode test procedure can be accomplished by using the "pH test" switch on the face panel of the controller.

9. Chemical feeders and pumps

Chemical feeders and pumps are not supplied as part of the controller. However, Aquasol

IF:

You are in "high" alert or, the "Cl/ORP alert" and "Cl/ORP feed" LEDs are not lit, adjust the Cl potentiometer (VR16) COUNTERCLOCKWISE until the "Cl/ORP feed" LED is lit.

IF:

You are in "low" alert or the "Cl/ORP feed" LED is lit, adjust the Cl potentiometer (VR16) on the circuit board CLOCKWISE until the "Cl/ORP feed" LED goes out. Note: If you started with the "Cl/ORP Alert" LED lit, as you adjust the potentiometer the alert LED will go off and the feed LED will come on. Continue adjusting until the feed LED goes off.

Meters (WTC Model Only)

There is no calibration for the ORP meter. It is showing a direct reading from the ORP electrode.

To calibrate the pH meter, the controller must be calibrated first. If the "set point" for the pH control knob is not between 10 o'clock and 2 o'clock, you must calibrate the circuit board. Once the controller is properly calibrated, the pH meter will read very close to the actual pH of the water. At this time you may adjust the calibration screw by the pH meter to match your test kit. The pH meter calibration screw has a limited range of about 180 degrees. Do not force it past its stop point!

8. Electrodes

A. Electrode care and handling

Insert each electrode all the way into the fitting per Fig. 6A. Note that the nut for the fitting slides down the length of the electrode cable. Hand tighten the nut to hold the electrode in place.

Step 7

Connect each electrode to the proper BNC connector on the bottom of the controller. Slide the rubber boot on the electrode cable over the BNC to protect it from corrosion. Secure and protect the electrode cables from accidental damage.

Step 8 (Fig 8)



The chemical control system must be electrically interlocked with the circulation system so that it is only powered on when the circulation pump is powered on. Additionally, a Safety Pressure Switch is recommended for all installations. The power cord of the controller should be plugged into the Safety Pressure Switch and the Safety Pressure Switch should be plugged into an outlet that is only powered on when the circulation pump is powered on. Please see Safety Pressure Switch instruction manual for further information on proper installation and calibration of Safety Pressure Switch. Chemical feed must be stopped during backwash cycles and periods of no flow as these conditions may introduce the potential for chemical overdosing. Not doing so may result in elevated chemical concentrations and hazardous gas introduction into the water.

Le système de contrôle des produits chimiques doit être verrouillé électriquement avec le système de circulation afin qu'il ne soit allumé que lorsque la pompe de circulation est sous tension. De plus, un pressostat de sécurité est recommandé pour toutes les installations. Le cordon d'alimentation du contrôleur doit être branché sur le pressostat de sécurité et le pressostat de sécurité doit être branché sur une prise alimentée uniquement lorsque la pompe de circulation est sous tension. Veuillez consulter le manuel d'instructions du pressostat de sécurité pour plus d'informations sur l'installation et l'étalonnage du pressostat de sécurité. L'alimentation en produits chimiques doit être arrêtée pendant les cycles de lavage à contre-courant et les périodes d'absence de débit, car ces conditions peuvent entraîner un risque de surdosage chimique. Ne pas le faire peut entraîner des concentrations élevées de produits chimiques et une introduction dangereuse de gaz dans l'eau.

Step 9

Turn on the circulation pump. Check for leaks in the Flow Cell water lines. If you are using a pressure switch, check to make sure it is operating properly by referring to the instructions that came with the pressure switch.

Step 10

Manually balance your water to your or your health department's desired levels of chlorine/bromine, pH, and total alkalinity.

Step 11

Allow the circulation system to run for 30 minutes before calibrating. This will allow the electrodes to acclimate to your water. Do not plug chemical feeders into the controller during this period.

7. Calibration

Note: Unplug chemical feeders from your controller when calibrating.

Note: If the "feed limit" LED on the controller face panel is lit, unplug the controller from its power source and plug back in.

pH:

If the "pH Alert" LED is lit, unplug the controller from its power source and plug back in. This resets the timer for the pH alert. (If you do not turn off the "pH Alert" LED, you cannot calibrate the pH). Turn the pH control knob to the point where the "pH feed" LED comes on and off. If this "set point" is between the 10 o'clock and 2 o'clock positions, then leave the pH control knob set where the pH feed light is just off.

If the "set point" is not within the 10 o'clock to 2 o'clock range, you will need to do an internal calibration.

For internal calibration, remove the four screws holding the face panel. Set the panel in the lid of the controller. Do not disconnect the face panel from the circuit board.



Warning: The left side of the circuit board carries 120 volts of electricity. Do not stick fingers or tools near fuses, relays or other electrical components. (FIG. 5)

Attention: Le côté gauche de la carte de circuit porte 120 volts d'électricité. Ne pas coller les doigts ou des outils proches de fusibles, des relais ou des autres composants électriques. (Figure 5)

Set the pH control knob on the face panel to the 12 o'clock position. If DIP switch 1 is "ON", put it temporarily in the "OFF" position. If you are feeding caustic, temporarily put the unit in "acid" mode.

IF:

a. "pH feed" LED is on, adjust pH potentiometer VR17 on the circuit board CLOCKWISE until it turns off.

b. "pH feed" LED is off, adjust pH potentiometer VR17 on the circuit board

COUNTERCLOCKWISE until it turns on.

Note: If the "pH alert" LED comes on during calibration, unplug the controller and plug back in. This will give you one more minute to finish calibrating.

When you are finished calibrating the pH, if you turned off DIP Switch 1, remember to turn it on again. If you are feeding caustic, remember to put the "acid/caustic" switch in caustic mode.

ORP/ Chlorine:

If the "Cl/ORP Alert" LED is lit, read further for instructions about internal calibration of the controller. If the "Feed limit" LED is lit, unplug the controller from its power source and plug back in.

Adjust the Cl/ORP control knob on the face panel of the controller to the point where you get the "Cl/ORP feed" LED to come on and off.

If this "set point" is between the 10 o'clock and 2 o'clock position, leave the knob set to where the "Cl/ORP feed" LED is just off. If the "set point" is outside the 10 o'clock to 2 o'clock range, the controller will require internal calibration.

For internal calibration, remove the four screws holding the face panel. Set the panel in the lid of the controller. Do not disconnect the face panel from the circuit board.



Warning: The left side of the circuit board carries 120 volts of electricity. Do not stick fingers or tools near fuses, relays or other electrical components. (FIG. 5) Do not remove the protective cover unless replacing fuses and relays. The adjustments can be made without removing the protective cover over the fuses and relays.

Attention: Le côté gauche de la carte de circuit transporte 120 volts d'électricité. Ne pas coller les doigts ou des outils de proximité fusibles, des relais ou autres composants électriques. (Figure 5) Ne pas retirer le couvercle de protection, sauf les fusibles et les relais remplaçant. Les ajustements peuvent être faits sans enlever le couvercle de protection sur les fusibles et les relais.

If the "Cl/ORP alert" LED is lit, turn DIP switch 3 to the "OFF" position. If the controller goes from "alert" to "feed", you are in "low alert". If the "Cl/ORP alert" remains lit, you are in "high alert".

If you turned DIP switch 3 to "OFF" set it back to "ON" at this time.

Set the Cl/ORP control knob on the face panel to the 12 o'clock position.