STRANTROL® SYSTEM7
MECHANICAL ROOM CONTROLLER

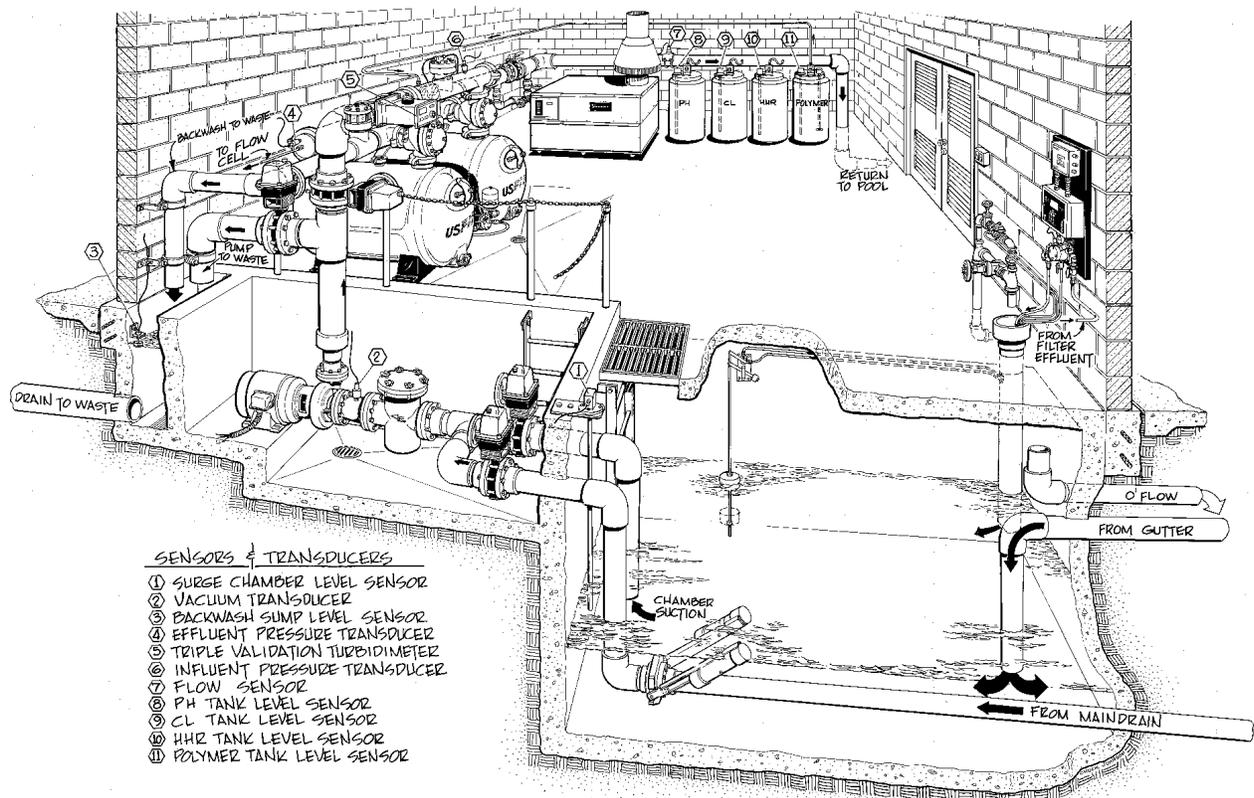## USFilter

INSTALLATION, OPERATION & MAINTENANCE MANUAL

Introduction

The Strantrol® System7 Mechanical Room Controller (MRC) controls the operation of all mechanical, electrical and water chemistry control devices used in the conditioning and treatment of your aquatic facility's water. The MRC can report data in either US (English) or metric units. Along with controlling, the MRC also stores events and readings to be downloaded and graphed by the WinSys™7 software for diagnosing problems or for record keeping. The following is a list of controls and features that the MRC can offer to your facility:

- Main recirculation pump
- Flow and volume instruments
- All filter functions
- pH and disinfection feed
- Chemical storage tanks display
- Surge and balance tanks display
- Backwash sump levels
- Energy saver mode

SENSORS & TRANSDUCERS
① SURGE CHAMBER LEVEL SENSOR
② VACUUM TRANSDUCER
③ BACKWASH SUMP LEVEL SENSOR
④ EFFLUENT PRESSURE TRANSDUCER
⑤ TRIPLE VALIDATION TURBIDIMETER
⑥ INFLUENT PRESSURE TRANSDUCER
⑦ FLOW SENSOR
⑧ PH TANK LEVEL SENSOR
⑨ CL TANK LEVEL SENSOR
⑩ HHR TANK LEVEL SENSOR
⑪ POLYMER TANK LEVEL SENSOR

Mounting the Mechanical Room Control Device (MRC)

The MRC consists of a Strantrol System7 controller, a transformer module, and a flowcell with probes, all of which are mounted to a PVC backplate.

The MRC must be located in a serviceable area within the mechanical room, allowing 36" of clearance in front of the MRC, if possible. The MRC must **not** be installed out-of-doors (protect from weather) or in direct sunlight.

(Figure 1)

Once a location has been found, the PVC panel should be mounted to a wall using the four holes on the corners of the PVC panel. The weight of the controller, transformer, flowcell, wiring, conduit, sample tubing and valves can exceed 20 pounds. Select mounting hardware accordingly. Mounting hardware is not supplied by USFilter Stranco Products.

Select installation location based on accessibility to electrical power and plumbing requirements.

Assembling and Mounting the Flowcell

- Take contents out of bag. (The dashed portion of the flowcell in Figure 2 except for tubing or anything below the ball valves.)

- Threaded pipe fitting connections made in the field are to employ standard practices, i.e., 3 to 5 wraps of Teflon® tape, hand-tighten, followed by 1 to 1.5 turns with a wrench.

- Install the Paddlewheel Flow Switch in the sample stream. Make sure you only wrap the male fitting three times with Teflon® tape so as not to risk breaking the female fitting on the Paddle Wheel Flow Switch.

⚠️ **"Warning" Failure to incorporate a flow switch and flowcell into the sample stream of your USFilter chemical controller can result in injury or harm to swimmers in or around the pool if the recirculation pump should fail or shut down.**

- Fasten-tight tubing connectors are employed, allowing for positive seal without the need for tightening with tools. When installing tubing into fittings, make sure tubing extends at least 1/8" beyond O-Ring. Care should be taken in handling stainless steel retainer; it is razor sharp and can cut you very easily.

- Once you have finished assembling the flowcell, close the valves.
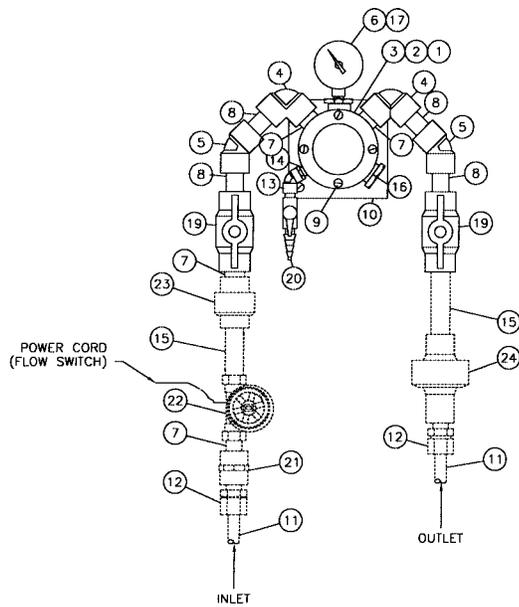
(Figure 2)

Installing the Pressure Transducers

Pressure transducers are used to monitor the influent and effluent pressure of the filter system. The pressure transducers will be installed into the gauge panel spacer block.

Install the pressure transducer by wrapping the threaded fitting with 3 to 5 wraps of Teflon tape, hand-tighten, followed by 1/4 to 1/2 turn with a wrench.

The cord connectors are explained in the Electrical Section, Step 15 of this manual.
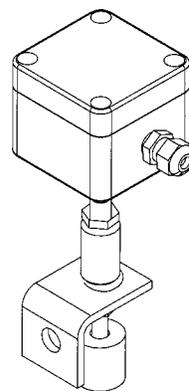

(Figure 3)

(Figure 4)

Installing the Backwash Level Switch

The backwash level switch will have an enclosure with terminals inside for electrical connections plus a metal bracket so the switch can be mounted to the side of the backwash tank. Using appropriate hardware (stainless steel is recommended), mount the level sensor to the backwash tank.

- Unscrew the switch from the mounting apparatus (Figure 6).
- Place the bolt through the hole of the mounting bracket (Figure 7).
- Secure bracket to side of backwash tank. Note: USFilter does not supply mounting hardware.

(Figure 5)

(Figure 6)
Holding the coupling assembly, unscrew the plastic float switch.
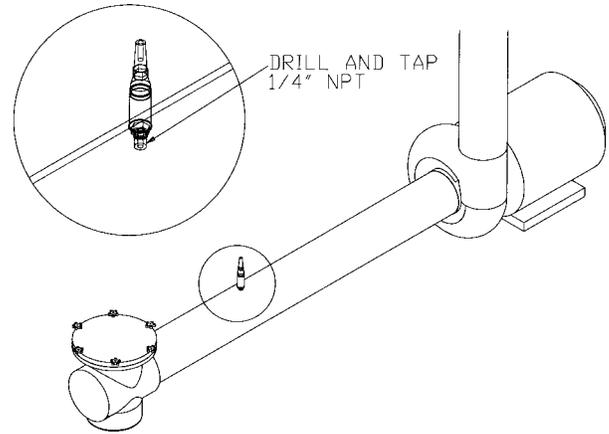

(Figure 7)
With the float switch out of the way, install bolt into bracket then wall anchor. Tighten securely.

- Reassemble level switch – hand-tighten plastic float followed by a ¼ turn with a wrench.

Installing the Vacuum Transducer

The Vacuum Transducer is to be installed between the effluent of the strainer and the influent of the recirculation pump *(See Figure 8)*.

DRILL AND TAP
1/4" NPT

(Figure 8)
Drill and tap ¼" NPT between pump strainer and pump.

Installing the Level Indicator

- The level indicator will come in 8' or 16' lengths. To customize the level indicator to the length that fits your application:
  - Measure the height of the fluid in the tank or pit.
  - The fluid should not rise above the threaded coupling on the bottom of the level indicator.
  - Cut the level indicator *(Figure 9)* to the height of the tank or only as low as you need the level indicator to reach.

(Figure 9)

- Use PVC glue to attach a cap at the end of the level indicator *(Figure 10)*. Make sure you have a tight seal or water will enter the level indicator and cause damage.

(Figure 10)

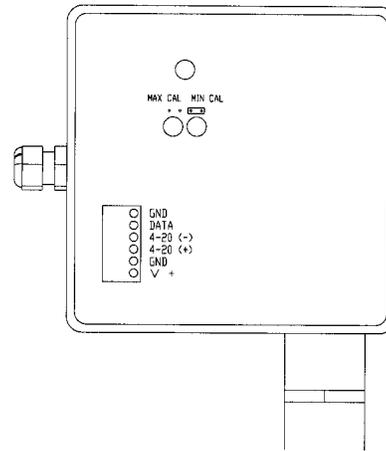- Screw on the flange and insert the level indicator to the tank *(Figures 11 & 12)*.
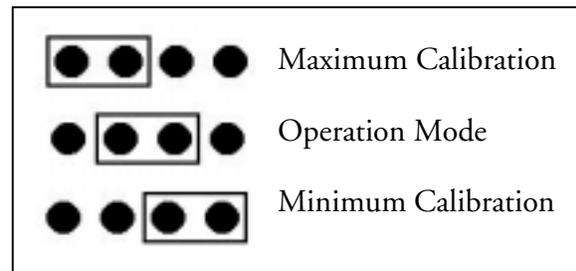

(Figure 11)

(Figure 12)

- If your application is a pit or the level indicator is longer than four feet, use the anchors provided to keep the level indicator steady.

(Figure 13)

The level sensor has three LEDs. One is a power LED that will come on when the unit is powered up and remain on solid as long as the sensor has valid calibration values. The other two LEDs are used to indicate that the sensor is in either a minimum calibration or a maximum calibration mode.

(Figure 14)

Operation Mode:

There is a set of four pins that is used to calibrate the sensor. If the jumper block is placed on the two middle pins the sensor will operate in normal mode, outputting a 4-20mA signal based on the level that is currently sensed *(Figure 14)*.

Minimum Calibration:

If the jumper block is used to shorten the two right-most pins, then the sensor will enter minimum calibration mode *(Figure 14)*. While in this mode, the sensor's current output will be 0mA. Lift the sensor so the liquid is at the lower end of the sensor or as low as you would like the liquid to get to trigger an alarm *(Figure 11)*.

The minimum calibration LED will flash continuously while the calibration is taking place. The calibration process takes two minutes to allow the software filter's time constant to settle and to make sure that a sufficient number of samples have been run through the filter to come up with a good calibration value. If the jumper is removed before the calibration process is complete (while the min cal LED is still flashing), then the calibration will be aborted.

Once the calibration is completed, a check is done to make sure that the sensor has valid calibration values. If a valid calibration has been achieved, then the min cal LED will come on solid and remain on until the jumper block is removed from the min cal position. The sensor will return to normal mode when the jumper block is removed.

If the calibration values are not valid, then the power LED will start flashing and continue to flash until a valid calibration is done. The sensor's current output will be 0mA as long as the sensor does not have valid calibration values, even after the jumper block is removed from the minimum calibration position.

Maximum Calibration:

If the jumper block is used to short the two left-most pins, then the sensor will enter maximum calibration mode *(Figure 14)*. While in this mode, the sensor's current output will be 0mA. Place the sensor so the liquid is at the upper end of the sensor or as high as you would like the liquid to be for 100% *(Figure12)*. The maximum calibration LED will flash continuously while the calibration is taking place. The calibration process takes two minutes to allow the software filter's time constant to settle and to make sure that a sufficient number of samples have been run through the filter to come up with a good calibration value. If the jumper is removed before the calibration process is complete (while the max cal LED is still flashing), then the calibration will be aborted.

Once the calibration is completed, a check is done to make sure that the sensor has valid calibration values.

If a valid calibration has been achieved, then the max cal LED will come on solid and remain on until the jumper block is removed from the max cal position. The sensor will return to normal mode when the jumper block is removed.

If the calibration values are not valid, then the max cal LED will come on solid and the power LED will start flashing and continue to flash until a valid calibration is done. The sensor's current output will be 0mA as long as the sensor does not have valid calibration values, even after the jumper block is removed from the maximum calibration position.

Installing and Checking Flow Sensor
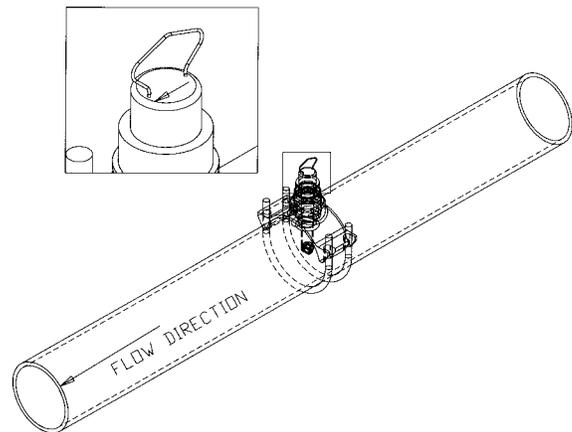
(Figure 15)

Lubricate the sensor O-rings with a silicone lubricant. Do not use petroleum-based lubricant, which will attack the O-rings.

Using an alternating/twisting motion, lower the sensor into the fitting, making sure the installation arrows on the black cap are pointing in the direction of flow *(Figure 15)*.

Engage one thread of the sensor cap, then turn the sensor until the alignment tab is seated in the fitting notch. **Hand-tighten the sensor cap. DO NOT** use any tools on the sensor cap or the cap threads and/or fitting flange threads will be damaged.

FLOW METER SENSOR (System7 Mechanical Room Control unit only)

Periodically inspect the flow meter sensor installed in the saddle assembly in the effluent line to ensure there are no obstructions or wear in the paddle assembly. Obstructions or wear of these parts will indicate lower than normal or no flow reading at the System7 controller.

Note: Before servicing the flow sensor, shut OFF power to the filter controller. Close all valves between the source water and the filter system.

Remove Sensor

- Unscrew the sensor nut clockwise. Pull the sensor/nut assembly out of its pipe saddle adapter. Remove any obstructions. Check the paddle for free rotation movement.

NOTE: If the paddle wheel shows signs of wear or does not rotate freely, replace the paddle wheel, pin and O-rings as follows:

- Gently spread the side paddle wheel supports with a screwdriver to release the pin engagement.
- Replace in the reverse order as disassembly. Refer to manufacturer's parts list for replacement parts.
- Lubricate O-rings and install sensor. Prior to installation, check the paddle wheel of the flow sensor. It should rotate freely when flicked, or by directing a stream of water or air across it to simulate liquid flow.
- Note the flow directional arrow on the top of the sensor head. Position the head into the pipe adapter saddle so that the arrows are pointing in the proper flow direction.
- Lubricate the O-rings of the sensor with a silicone lubricant. Insert the flow sensor into the saddle. Align the bail of the flow sensor parallel to the pipe. Make sure that the flow sensor is fully seated in the saddle fitting slots. The flow sensor fitting will not turn until it is properly installed.
- Hand-tighten the plastic cap to retain the flow sensor. DO NOT USE ANY TOOLS ON THE CAP. HAND TIGHTEN ONLY TO AVOID DAMAGE.

Installing Turbidimeter
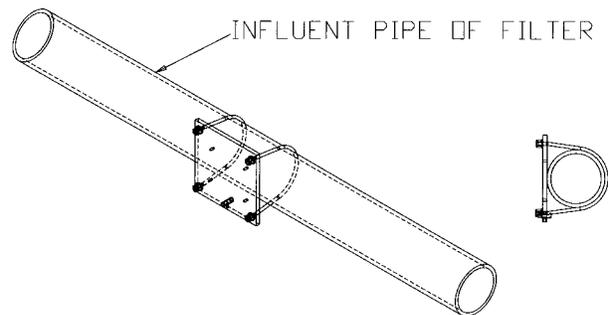
(Figure 16)

The turbidimeter will be mounted to the filter system. The turbidimeter needs to be mounted close to the filter because a long tube run will cause delay in turbidity readings. The turbidimeter can be mounted to the influent manifold, where the filter control console is mounted. The turbidimeter will be packed with two, ½" Polypropylene tubes with 3/8" Nylon all thread inside, straps and four PVC nuts.

- Locate the two, ½" Polypropylene tubes with 3/8" Nylon all thread inside.
- Locate the four PVC nuts.
- Take one of the ½" Polypropylene tubes with 3/8" Nylon all thread inside and one PVC nut.
- Insert one end of the 3/8" Nylon all thread through one of the holes in the panel.
- Fasten the PVC nut onto the 3/8" Nylon all thread until the end of the Nylon all thread and the PVC nut are flush.
- Take the other ½" Polypropylene tube with 3/8" Nylon all thread inside and one PVC nut.
- Insert one end of the 3/8" Nylon all thread through the other hole in the top of the panel.
- Fasten the PVC nut onto the 3/8" Nylon all thread until the end of the Nylon all thread and the PVC nut are flush.
- Mount the backplate to the pipe.
- Hold the backplate to the pipe.
- Wrap the tubes over the pipe and insert the Nylon all thread through the bottom hole.

- Fasten the PVC nut onto the Nylon all thread.
- Tighten the bottom PVC nuts to secure the backplate.
- Do the same for the other side *(Figure 16).*
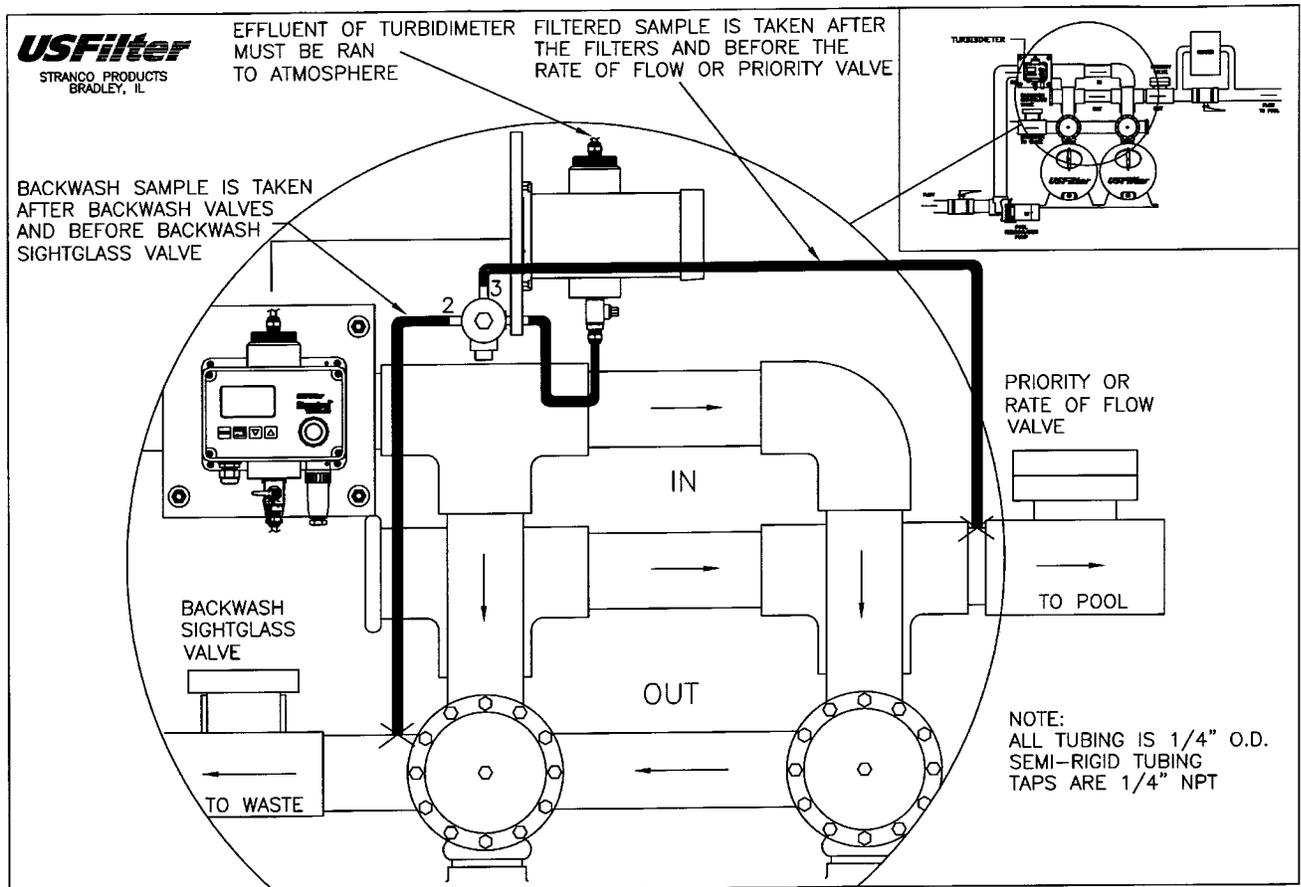
Turbidimeter Influent

Plumbing

Plumbing the Flowcell

- ½" tubing in recommended for sample stream pickup and return. We have included two connector fittings with the flowcell if needed.
- For the sampling point of the flowcell, tap downstream (after) of filter and upstream (before) of heater and chemical injection points.
- For the discharge point of the flowcell, tap upstream (before) of recirculation pump.
- Remove the cap to the pH, HRR and Conductivity sensors. Clean tips with a toothbrush and dish soap and then a light (10 parts of water to 1 part of acid) acid.
- Screw pH, HRR, Temperature and Conductivity sensors into flowcell.

Checking Flowcell

- Open the sample stream valves and check for leaks.
- Make sure the compound pressure gauge is showing a positive and steady pressure.
- Adjust the valves or relocate the sample stream point in the recirculation system to ensure constant positive pressure.
- Allow the sensors to rinse in the sample flowcell while you do the wiring.
- Open wet-test valve and make sure that it generates a vigorous stream.

NOTE: Make sure that sample stream is pressurized and is not operating under vacuum. Vacuum operation will cause sensor failure.
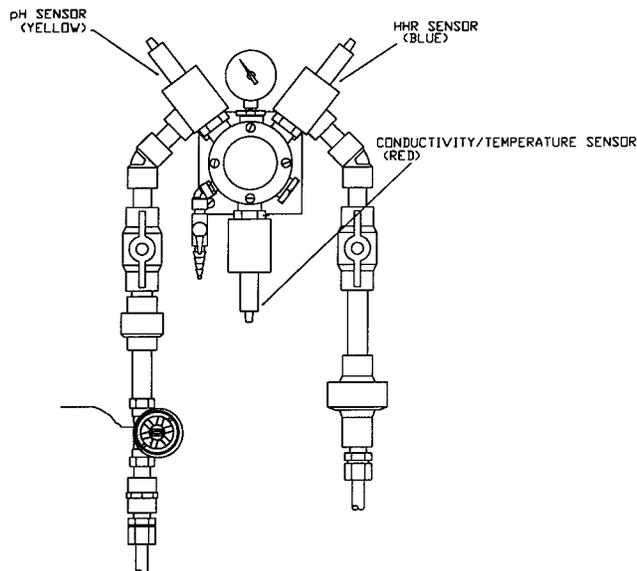
(Figure 17)

Chemical Injection Points

SENSORS & TRANSDUCERS
① SURGE CHAMBER LEVEL SENSOR
② VACUUM TRANSDUCER
③ BACKWASH SUMP LEVEL SENSOR
④ EFFLUENT PRESSURE TRANSDUCER
⑤ TRIPLE VALIDATION TURBIDIMETER
⑥ INFLUENT PRESSURE TRANSDUCER
⑦ FLOW SENSOR
⑧ PH TANK LEVEL SENSOR
⑨ CL TANK LEVEL SENSOR
⑩ HHR TANK LEVEL SENSOR
⑪ POLYMER TANK LEVEL SENSOR
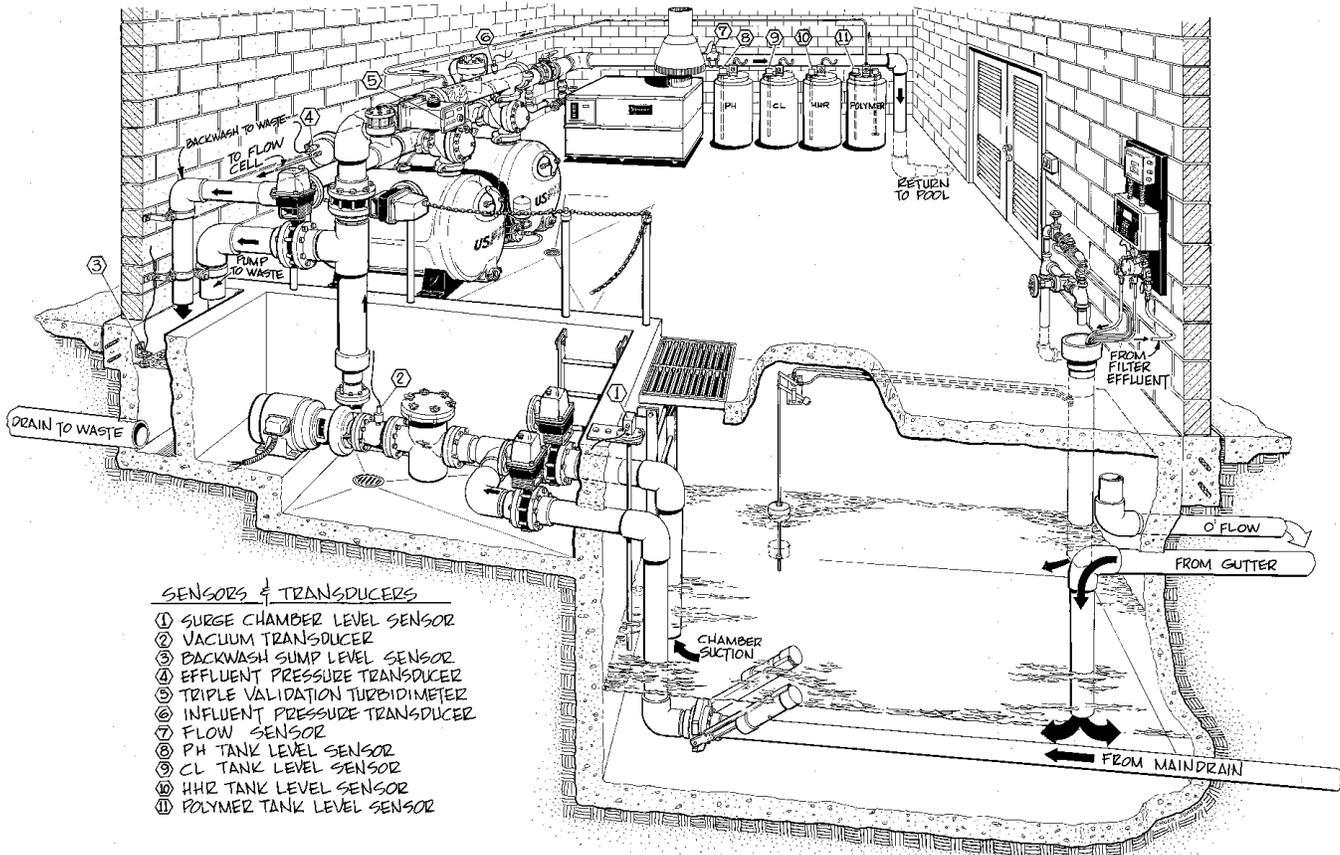
(Figure 18)

Electrical

Step1: Opening the Cover
- You must open the cover to connect power.
- Remove the cover by loosening the six screws with a screwdriver as shown.

Note: The screws do not need to be totally removed, only loosened.

- Once the screws are loosened, carefully lift the top cover off the unit.
- The cover will still be connected to the base by the ribbon cable.
- Set the moisture-absorbent packet found inside to the side for now.

Step2: Disconnecting the Ribbon Cable

You may leave the ribbon cable attached while you wire the unit, but we recommend that you disconnect it.
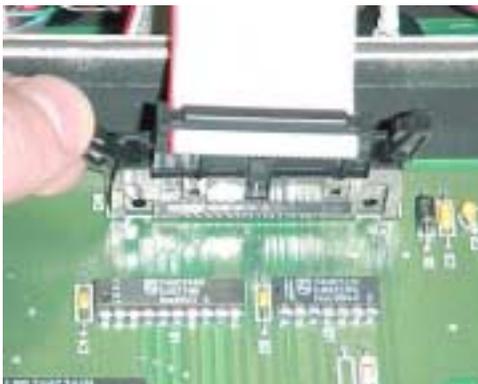
(Figure 19)

- Spread the two holders at the end of the cable attached to the cover *(Figure 19)*.
- Unplug the cable.
- Remove the cover.
- Set the cover aside for now.

NOTE: Be sure to store the cover in a safe, dry place while you wire the unit.

Step 3: Connecting AC Line Power to Relays
TB3 is located in the center and bottom of the Main CPU PC Board.
NOTE: Use a separate power circuit for the Main controller power described as follows in Step13.

- Connect AC Line (main) wire connects to the terminal marked with "Relay Power (L)". In North America, this is a black (Line) wire. In the rest of the world, this wire is color-coded as brown (main) *(Figure 20)*.
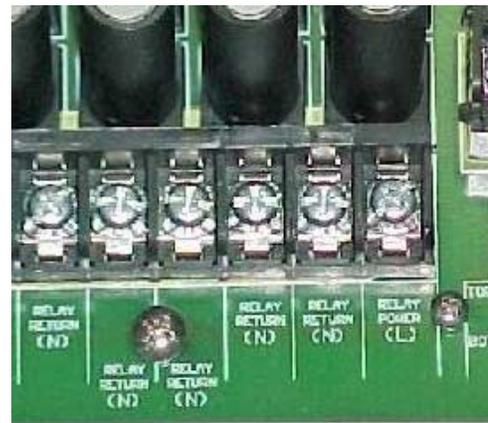
(Figure 20)

- Connect the Neutral (white wire in North America, blue in the rest of the world) to the terminal on the TB3 marked "Relay Return (N)" (just to the left of the Relay Power (L)) *(Figure 21)*.

(Figure 21)

- Connect the green Ground (Earth) wire to any of the terminals on the top or bottom row of **TB4** labeled "Earth".

Step 4: Connecting AC Line Power to System7

TB4 is located at the far right and bottom of the Main CPU PC Board. TB4 has two rows. The bottom row is where you will do your AC Line, Neutral and Ground connections. The top row of TB4 is all Grounds.

(Figure 22)

NOTE: Main power must be on a separate circuit than the Relay Power.

- Connect the AC Line (main) wire to the bottom row terminal marked with "Line" *(Figure 22)*.
- Connect the Neutral wire to the bottom level terminal on the TB4 marked "Neutral" (just to the left of the Line Terminal) *(Figure 22)*.
- Connect the green Ground (Earth) wire to any of the terminals on the top or bottom row labeled "Earth" *(Figure 22)*.
- Refer to drawing *(Figure 24)*.

Step 5: Setting the Line Voltage Switch
Before plugging in the unit, set the Line Voltage Jumpers to either 115 or 220 VAC.

Step 5a: Line Voltage Switch for 115 VAC
- Place a jumper over the left two pins.
- Place a jumper over the right two pins.

(Figure 23)

Step 5b: Line Voltage Switch for 220 VAC
- Place a jumper over the middle two pins.
- Leave the two outside pins without jumpers.
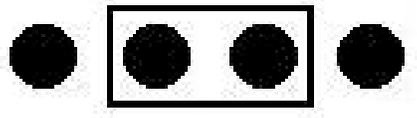
CONNECTIONS BETWEEN TRANSFORMER
MODULE AND MRC ARE WIRED AT THE FACTORY

SYSTEM7

1. pH Feed
2. ORP Feed
3. Recirculation
4. Booster Pump
5. Heater
6. Backwash
7. User Defined
8. User Defined

120VAC(15A)
MICROPROCESSOR
POWER(DEDICATED&PROTECTED)

MICROPROCESSOR
NEUTRAL(DEDICATED)

EARTH GROUND

120VAC(15A)
RELAY POWER(DEDICATED)

NEUTRAL(DEDICATED)
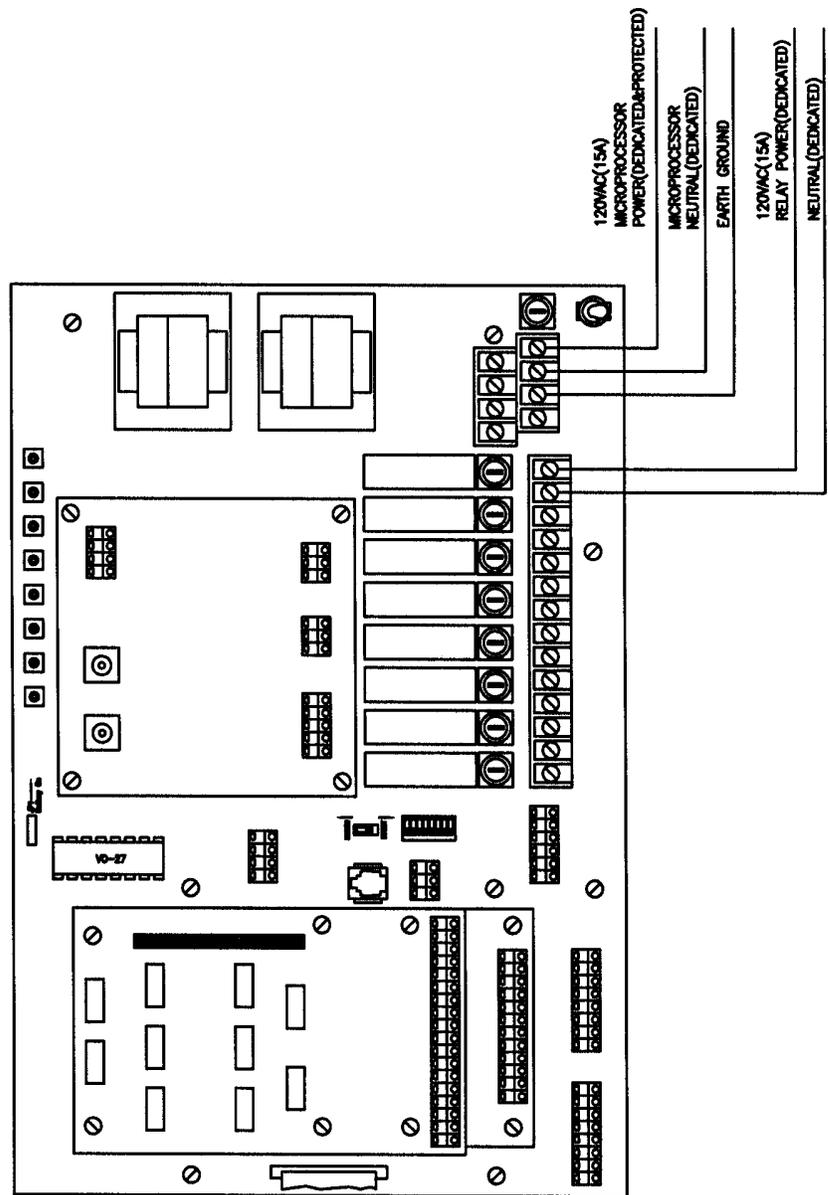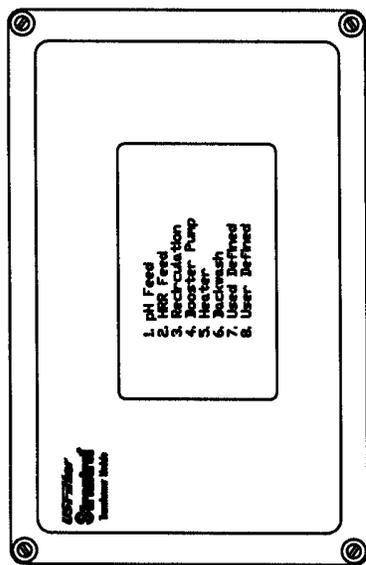
(Figure 24)

Step 6: Connecting Chemical Feed Devices

(Figure 25)

NOTE: Relay 1 is pH control (feed up and feed down) and Relay 2 is HRR control (oxidizer).

Step 6a: Connecting pH Control Feed Device

- Connect 120 VAC out from terminal TB3 labeled "NO1" in the System7, to one side of a set of contacts in a magnetic starter. Connect the other side of the dry contact, in the magnetic starter, to the pump (outlet) *(Figure 27).*
- Connect Neutral from terminal TB3 labeled "Relay Return (N)" in the System7 to the neutral of the pump (outlet). It is recommended that the first "Relay Return (N)" terminal be used (from left to right).
- Connect Ground from terminal TB4 labeled "Earth" in the System7 to the pump ground. It is recommended that the second top row "Earth" terminal be used (from left to right).

Step 6b: Connecting HRR Control Feed Device

- Connect 120 VAC out from terminal TB3 labeled "NO2" in the System7, to one side of a set of contacts in a magnetic starter. Connect the other side of the dry contact, in the magnetic starter, to the pump (outlet) *(Figure 27).*
- Connect Neutral from terminal TB3 labeled "Relay Return (N)" in the System7 to the neutral of the pump (outlet). It is recommended that the first "Relay Return (N)" terminal be used (from left to right).
- Connect Ground from Terminal TB4 labeled "Earth" in the System7 to the pump ground. It

is recommended that the second top row "Earth" terminal be used (from left to right).

Step 7: Connecting Recirculation Pump

- The System7 will control the coil of a magnetic starter because the relay is unable to take the amp draw of the Recirculation Pump *(Figure 27).*
- Connect 120VAC output from terminal TB3 labeled "NO3" to the line side of both the recirculation pump starter coil and the separate magnetic starter coil for the chemical pumps and booster pump.
- Connect neutral output from terminal TB3 labeled "Relay Return (N)" to both the neutral side of the recirculation pump starter coil and the separate magnetic starter coil for the chemical pumps and booster pump. It is recommended that the second "Relay Return (N)" terminal be used (from left to right) *(Figure 27).*
- Connect Ground (green) to terminal TB4 labeled "Earth". It is recommended that the second top row "Earth" terminal be used (from left to right).

Step 8: Connecting the Pressure Amplifier Pump

- The System7 will control the coil of a magnetic starter because the relay is unable to take the amp draw of the Pressure Amplifier Pump *(Figure 27).*
- Connect 120 VAC out from terminal TB3 labeled "NO4" in the System7, to the line side of the magnetic starter coil *(Figure 27).*
- Connect Neutral from terminal TB3 labeled "Relay Return (N)" in the System7 to the neutral side of the magnetic starter coil. It is recommended that the first "Relay Return (N)" terminal be used (from left to right).
- Connect Ground from terminal TB4 labeled "Earth" in the System7 to the pump ground. It is recommended that the second top row "Earth" terminal be used (from left to right).
- Connect 120 VAC from terminal TB3 labeled "Relay Power (L)" to one side of a set of contacts in the magnetic starter. Connect the other side of the dry contact, in the magnetic starter, to the pump.

- Connect Neutral from Terminal TB3 labeled "Relay Return (N)" in the System7 to the neutral of the pump.

Step 9: Connecting the Heater

- The System7 will control the coil of an external relay and you can run the heater signal through the contacts of the relay *(Figure 27)*.
- Connect 120 VAC out from terminal TB3 labeled "NO5" in the System7, to a line of a magnetic starter coil.
- Connect Neutral from terminal TB3 labeled "Relay Return (N)" to the neutral side of a magnetic starter coil. It is recommended that the second "Relay Return (N)" terminal be used (from left to right) *(Figure 25)*.
- Run the heater signal through the dry contacts of the magnetic starter *(Figure 27)*.

Step 10: Connecting the Turbidity Switchover Valve

- The Turbidity Switchover Valve shares the Pressure Amplifier Pump relay "NO4".
- The Turbidity Switchover Valve is a 24 VAC solenoid that is mounted to the Turbidity back panel *(Figure 26)*.
- The 120 VAC going to the Pressure Amplifier Pump magnetic starter will be stepped down to 24 VAC by the transformer supplied by USFilter Stranco Products.
- Locate the DIN connector cable.
- Connect DIN connector to solenoid.
- If needed, use an extension cord to reach 24 VAC transformer.
- Cut the male end off of DIN cable or extension cord to wire into the 24 VAC transformer.
- Connect the two leads of the cable to the transformer.

Step 11: Connecting the Filter Polymer Feed Device

- Connect 120 VAC out from terminal TB3 labeled "NO7" or "NO8"in the System7, to one side of a set of contacts of the feed pump magnetic starter. Connect the other side of the dry contact, in the magnetic starter, to the polymer feed pump *(Figure 27)*.
- Connect Neutral from terminal TB3 labeled "Relay Return (N)" in the System7 to the neutral of the polymer pump. It is recommended that the fourth "Relay Return (N)" terminal be used (from left to right).
- Connect Ground from terminal TB4 labeled "Earth" in the System7 to the ground of the polymer pump. It is recommended that the fourth top row "Earth" terminal be used (from left to right).

Step 12: Wiring other pumps

- The relay outputs that are available for programming are "NO7" and "NO8".
- The two relays are equipped to take a load of 3 amps.
- If "NO7" and NO8" are used for chemical feeds, you will have to interlock them through the recirculation pump *(Figure 27)*.

CONNECTING POWER TO THE
SWITCHOVER SOLENOID AND TURBIDIMETER
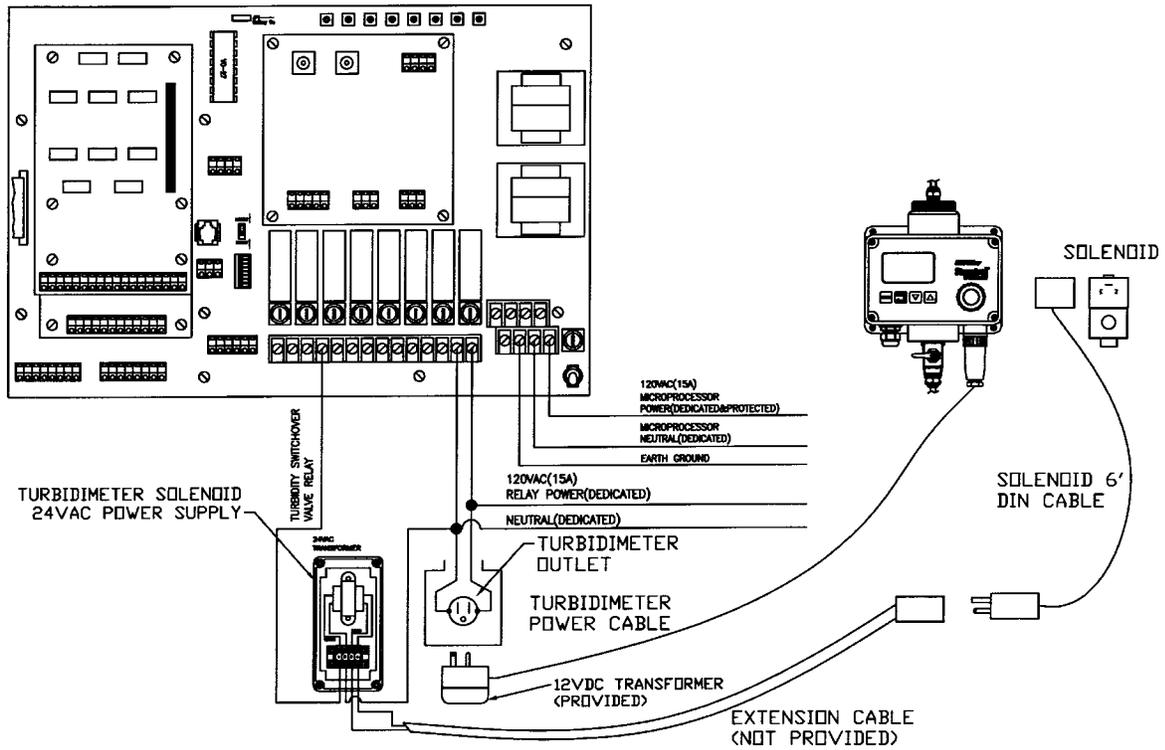
(Figure 26)

INTERLOCK WITH RECIRCULATION PUMP
FOR CONTROL RELAYS
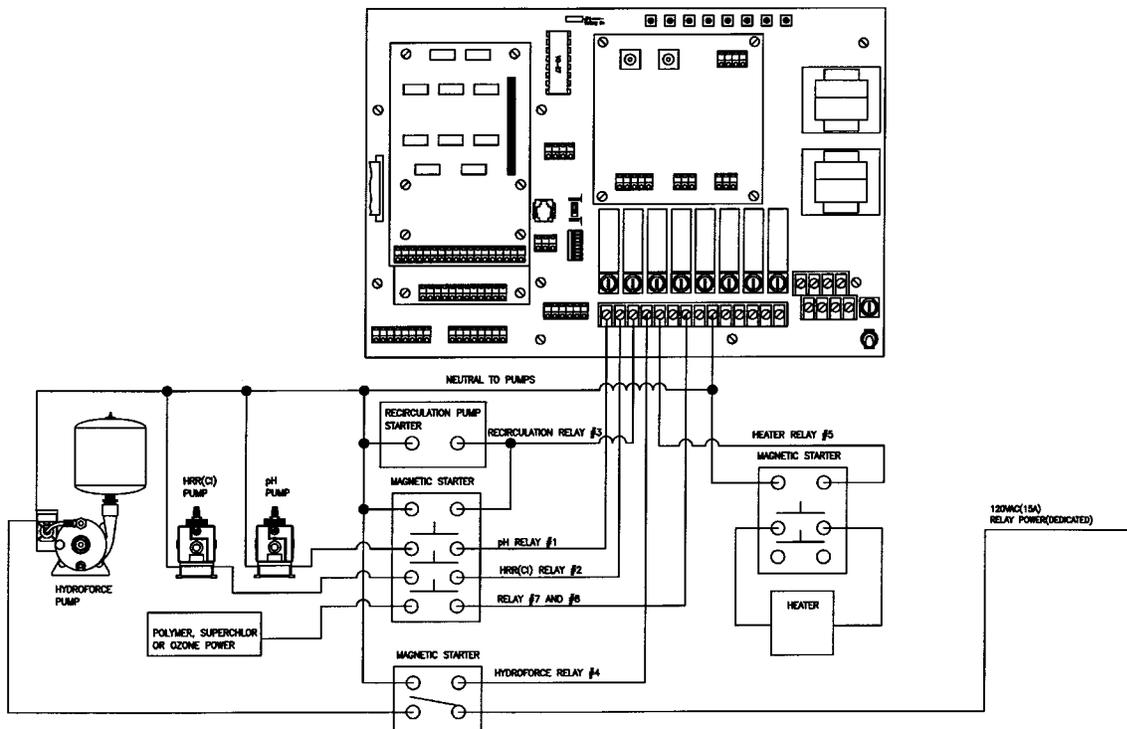
(Figure 27)
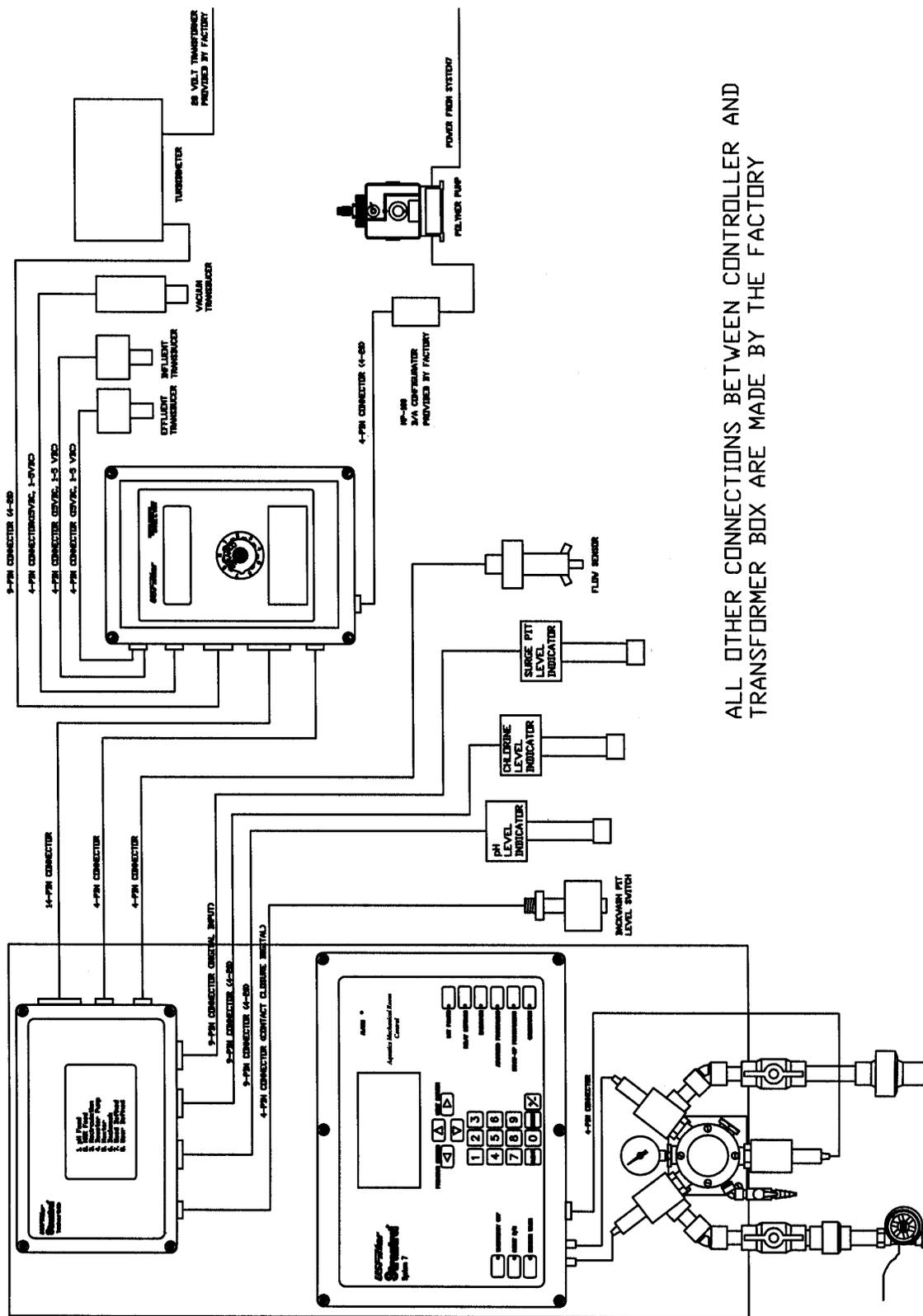
(Figure 28)

Step 13: Connecting the Flow Switch
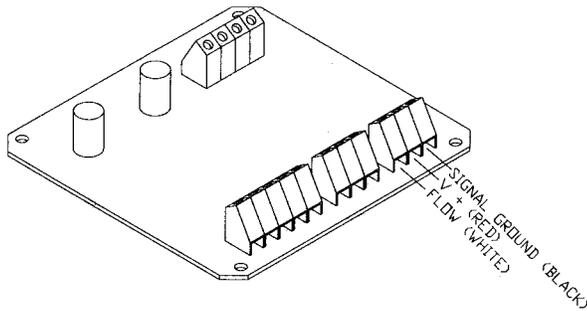
(Figure 29)

CAUTION: Extra care must be taken to assure flow switch connections are correct, as any wiring errors could cause damage to the flow switch.

"Warning" Failure to incorporate a flow switch and flowcell into the sample stream of your USFilter chemical controller can result in injury or harm to swimmers in or around the pool if the recirculation pump should fail or shut down.

Note: The overall connection schematic can be seen in Figure 28 (page 19).

Step 14: Connecting the Sensors

(Figure 30)

Step 14a: pH Sensor (yellow sensor)

- Locate the BNCs on the bottom of the System7.
- Locate the BNC with the yellow pH sticker (left BNC).

- Plug the Yellow Sensor onto the BNC on the bottom of the System7.

Step 14b: HRR Sensor (blue sensor)

- Locate the BNCs on the bottom of the System7.
- Locate the BNC with the blue ORP sticker (right BNC).
- Plug the Blue Sensor onto the BNC on the bottom of the System7.

Step 14c: Temperature/Conductivity Sensor (red sensor)

- Locate the 4-pin quick connector on the bottom of the System7, next to the ORP conector.
- Locate the 4-pin quick connector on the Red Sensor.
- Plug the 4-pin from the Red Sensor into the 4-pin on the bottom of the System7.

Step 15: Connecting Influent Pressure Transducer

- Locate the two 4-pin quick connectors on top left side of the Filter Control Console.
- Locate the 4-pin quick connector that is closest to the back of the enclosure. Connect the influent pressure (MP001I) transducer into the connector closest to the back of the enclosure *(Figure 31)*.

(Figure 31)

Step 16: Connecting Effluent Pressure Transducer

- Locate the two quick connectors on top left side of the Filter Control Console.
- Locate the 4-pin quick connector that is closest to front of the enclosure.
- Connect the effluent pressure (MP002E) transducer into the connector closest to the front of the enclosure *(Figure 32)*.

(Figure 32)

Step 17: Connecting Backwash Sump Level Switch

- Locate the 4-pin connector on the bottom left of the transformer module.
- Locate the Backwash Sump Level Switch.
- Connect the 4-pin (LS001) connector into the 4-pin connector on the bottom left of the transformer module *(Figure 33)*.

(Figure 33)

Step 18: Connecting Flow Sensor

- Locate the 4-pin connector on the right side bottom connector on the transformer module.
- Locate the Flow Sensor and 4-pin connector.
- Connect the Flow Sensor (FS001) to the transformer module *(Figure 34)*.

(Figure 34)

Step 19: Connecting Motor for Multiport Valve

- Locate the 4-pin connector on the right side middle connector on the transformer module.
- Locate the 4-pin connector on the left side bottom connector on the filter control console.
- Connect the transformer module and the filter control console with the 4-pin cable with connectors on both sides (PS024V) *(Figures 35 & 36)*.

(Figure 35)

(Figure 36)

Step 20: Connecting Strainer Vacuum Transducer (optional)

- Locate the second from the top 4-pin quick connectors on the left side of the Filter Control Console.
- Connect the strainer vacuum transducer 4-pin (MP003S) connector into the 4-pin connector on the left side of the Filter Control Console *(Figure 37)*.

(Figure 37)

Step 21: Connecting Turbidimeter (optional)

- Locate the third from the top 9-pin quick connectors on the left side of the Filter Control Console.
- Connect the turbidimeter 9-pin (MP004T) connector into the nine pin connector on the left side of the Filter Control Console *(Figure 38)*.

(Figure 38)

Step 22: Connecting Surge Pit Level Indicator (optional)

- Locate the 9-pin receptacle on the bottom right of the transformer module.
- Locate the Surge Pit Level Cable (LS004).
- Connect the 9-pin plug into the 9-pin receptacle on the bottom left *(Figure 39)*.
- Refer to Step 25 for wiring cable to level indicator.

(Figure 39)

Step 23: Connecting pH Level Indicator (optional)

- Locate the 9-pin receptacle on the bottom left of the transformer module.
- Locate the pH Level Cable (LS002).
- Connect the 9-pin plug into the 9-pin receptacle on the bottom right *(Figure 40)*.
- Refer to Step 25 for wiring cable to level indicator.

(Figure 40)

Step 24: Connecting Chlorine Level Indicator (optional)

- Locate the 9-pin receptacle on the bottom middle of the transformer module.
- Locate the Chlorine Level Cable (LS003).
- Connect the 9-pin plug into the 9-pin receptacle on the bottom middle *(Figure 41)*.
- Refer to Step 25 for wiring cable to level indicator.

(Figure 41)

Step 25: Wiring Cable to Level Indicator

- Locate the level indicator cable (LS002, LS003, LS004).
- Color connections are as follows;
  - Red wire to V+ in level indicator
  - Green wire to GND in level indicator
  - Brown wire to 4-20 (+) in level indicator
  - Blue wire to 4-20 (-) in level indicator
- Wires blue and white are not needed.

Step 26: Connecting Main Cable to System7 Transformer Module from Filter Control Console

- Locate the 14-pin connector on the right side, top connector on the transformer module.
- Locate the 14-pin connector on the left side, fourth connector down on the filter control console.
- Connect the 14-pin connectors with the 14-pin connector cable (PS014P) *(Figures 42 & 43)*.

(Figure 42)

(Figure 43)

Step 27: Connecting a Telephone Line (optional)

Note: Telephone line must be analog.

The System7 may be connected to an IBM-compatible PC via the telephone and 33,600 baud modem.

- Locate the modem that is the top board on the left.
- Locate the RJ-11 telephone jack, "CN2".
- Push the connector into the jack.
- Locate the dipswitch on the Main Power board labeled "Modem" or "Direct".
- Set switch in the "Modem" position.
- Locate the eight dipswitches on the Main Power board.
- Set switch 5 in the ON position.

Step 28: Connecting the Computer Interface (RS-232C)

NOTE: Modem/Direct slide switch on the System7 CPU board must be in the Direct position for the RS-232C Connection.

- Locate the modem that is the top board on the left.
- Locate the offset RJ-11 female jack labeled "CN3" *(Figure 44)*.
- The System7 is supplied with a 6' cable, which has an offset RJ-11 plug, and a 9-pin serial connector.
- Connect the cable offset RJ-11 jack into the System7 offset RJ-11.
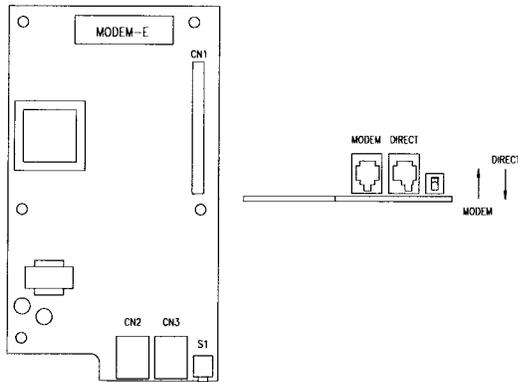
(Figure 44)

Step 29: Reconnecting the Ribbon Cable

- Properly align the pins with the female cable end.
- Gently press the cable into place.
- The two locking arms should close in over the cable to secure it firmly *(Figure 45)*.

NOTE: Never unplug or plug-in the ribbon cable with the power on.

(Figure 45)

Step 30: The Power Switch

- Check the main power for any incorrect wiring.
- Check the relay power for any incorrect wiring.
- Locate the power switch in the bottom right corner *(Figure 46)*.
- Flip toggle switch to the ON position.

(Figure 46)

Step 31: Replacing the Cover

- Place the moisture packet back inside the unit *(Figure 47)*.
- Place the cover back on the unit.
- Tighten the six screws to secure the cover in place.
- All six screws must be tightened to protect the inside from corrosion.

(Figure 47)

NOTE: System7 must have every hole plugged to protect inside from corrosion.

Following are the Relay Assignments:

Relay 1:	pH control (pH feed up or feed down)
Relay 2:	HRR control (oxidizer)/SuperChlor/Alternate HRR
Relay 3:	Recirculation Pump
Relay 4:	Pressure Amplifier Pump/Turbidity Switchover Valve
Relay 5:	Heater
Relay 6:	Filter Backwash Motor
Relay 7:	Sensor Wash/Ozone/Polymer Feed Device/Ozone/Alarm
Relay 8:	Sensor Wash/Ozone/Polymer Feed Device/Ozone/Alarm

SYSTEM7 Programming

NORMAL DISPLAY

The Normal Display consists of two sequential screens that show the pH, HRR, Cond, Temp, ppm, Turbidity, Filter Differential, Strainer Vacuum, Filter Flow Rate, Filter Flow Volume, Last Backwash Time, Last Backwash Started by, Last Backwash Ended by and alarm status.

SPECIAL KEYS

Before you begin operating the Strantrol System7, there are some features that are helpful to know. When your controller is showing one of the three Normal Display screens, if you press a hidden key behind the logo in the upper left corner of the face panel, the screen will 'Lock' on the current screen being displayed. The (Lock) designation will appear on the screen to remind the operator that the screen will not change without pressing the logo key again. None of the other keys will work when the screen is locked.

To jump to the start of the Advanced Programming or Start-up Programming options, just push those buttons. Even if you are currently in the middle of the start-up programming sequence, pressing Start-up Programming will jump back to the beginning of the sequence. Pressing Previous Screen will then revert back to the Normal Display.

Whenever a notation (1 of 2) or (1 of 5) shows up in the lower right half of the display, this indicates there are more screens with choices available by pressing the Next Screen button.

Refer to the Quick Reference Chart for explanations of the other buttons on the face panel of the System7.

START-UP PROGRAMMING

Listed below are the various programming screens and the pages upon which the directions for them can be found. Please consult this list to complete programming.

Please Note: The System7 will automatically exit start-up programming if no key has been pressed for 60 seconds. In the event that you need more time to answer a particular programming question, you may lock the unit to the current screen displayed by pressing the Strantrol logo key in the upper left-hand corner of the unit and selecting lock. When you are ready to unlock the screen, press the logo key again and select unlock.

ORDER OF SCREENS DISPLAYED IN START-UP PROGRAMMING

Start-Up Programming

Initial Startup

Pressing the START-UP PROGRAMMING button on the face panel is an easy way for you to configure the Strantrol System7 for your specific needs. This button activates a sequence of programming screens that will guide you through the initial configuration of the Strantrol System7.

START-UP PROGRAMMING

```
Start-Up             /
1 Date Format        /
2 Current Date       /
3 Current Time       /
4 Units              /
5 pH Setup           /
6 HRR Setup          /
7 ppm Setup          /
8 Conductivity       /
9 Temperature        /
                     | (1 of 2)
```

Date Format

Use the arrow keys to highlight your choice or press either 1 or 2 to change the way the controller displays the date. Choose 2 for North America installations and 1 for all others.

```
Date Format:         |U.S. or European
                     |dating
Change to:           /
1 dd/mm/yyyy         /
2 mm/dd/yyyy         /
```

Current Date

Enter the correct month day and year and then press the ENTER key.

```
Current Date         |Date now
01-01-1993           /
                     /
Change to:           /
    01-15-2001       /
```

Current Time

Enter the current time of day as prompted, then press ENTER key.

```
Current Time         |Time now
    11:36 am         /
                     /
Change to:           /
    11:36 am         /
```

Metric/U.S. Units

The display screen will then change to the U.S. or Metric choice screen on the right. Choose your preference by selecting U.S. or Metric (Using the arrow keys or pressing the corresponding number).

```
Units:               | U.S. or Metric
   Metric            /
Change to:           /
 1 U.S.              /
 2 Metric            /
```

pH Setup

Use the number keypad to choose pH High Alarm, Low Alarm or Calibration.

```
pH Setup             |Contains High and
1 High Alarm         |Low Alarms,
2 Low Alarm          |Setpoint and
3 Calibration        |Calibration.
                     /
```

pH High Alarm

Use the number keypad to choose the point where pH should activate a High Alarm. The values under **Change to:** will show your entry. Press the ENTER key to proceed. 0 can be entered if you would like to disable the alarm. (Range displayed will depend upon alarm settings.)

```
pH Setup             |Alarm is triggered
High Alarm           |when pH reaches or
    8.0              |rises above this
                     |value.
Change to:           /
    08.0             /
                     /
  <7.0 to 14.0>      /
```

pH Low Alarm

Use the number keypad to choose the point where pH should activate a Low Alarm. The values under **Change to:** will show your entry. Press the ENTER key to proceed. 0 can be entered if you would like to disable the alarm. (Range displayed will depend upon alarm settings.)

```
pH Setup            /
Low Alarm           |Alarm is triggered
     7.0            |when pH reaches or
                    |drops below this
Change to:          |value.
     07.0           |
                    |
<0.0 to 7.0>        |
```

pH Calibration

Use the number keypad to choose the low point from your Signal Generator you want to calibrate pH. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
pH Setup            /
Calibrate           |Set the Signal
     6.0            |Generator to a low
                    |point and
Change to:          |standardize unit.
     00.0           |
```

pH Calibration (2nd Pt)

Now choose the high point from your Signal Generator you want to calibrate pH. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
pH Setup            /
Calibrate (2nd Pt) |Set the Signal
     9.0            |Generator to a high
                    |point and
Change to:          |standardize unit.
     00.0           |
```

HRR Setup

Use the number keypad to choose HRR High Alarm, Low Alarm or Calibration.

```
HRR Setup           |Contains High and
1 High Alarm        |Low Alarms, and
2 Low Alarm         |Calibration.
3 Calibration       |
```

HRR High Alarm

Use the number keypad to choose the point where HRR should activate a High Alarm. The values under **Change to:** will show your entry. Press the ENTER key to proceed. -1000 will disable the alarm. (Range displayed will depend upon alarm settings.)

```
HRR Setup           /
High Alarm          |Alarm is triggered
     800 mV         |when HRR reaches
                    |or rises above
Change to:          |this value.
     800 mV         |
```

HRR Low Alarm

Use the number keypad to choose the point where HRR should activate a Low Alarm. The values under **Change to:** will show your entry. Press the ENTER key to proceed. -1000 will disable the alarm. (Range displayed will depend upon alarm settings.)

```
HRR Setup           |Alarm is triggered
Low Alarm           |when HRR reaches
     700 mV         |or drops below
                    |this value.
Change to:          |
     700 mV         |
```

HRR Calibration

Use the number keypad to choose the low point from your Signal Generator you want to calibrate HRR. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
HRR Setup           /
Calibrate           |Set the Signal
     600            |Generator to a low
                    |point and
Change to:          |standardize unit.
     600            |
```

HRR Calibration (2nd Pt)

Now choose the high point from your Signal Generator you want to calibrate HRR. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
HRR Setup          /
Calibrate (2nd Pt) |Set the Signal
     900           |Generator to a high
                   |point and
Change to:         |standardize unit.
   900             /
```

ppm Setup

Use the number keypad to choose ppm High Alarm, Low Alarm or Calibration.

```
ppm Setup          |Contains High and
1 High Alarm       |Low Alarms, and
2 Low Alarm        |Calibration.
3 Calibration      /
```

ppm High Alarm

Use the number keypad to choose the point where ppm should activate a High Alarm. The values under **Change to:** will show your entry. Press the ENTER key to proceed. 0 will disable the alarm. (Range displayed will depend upon alarm settings.)

```
ppm Setup          /
High Alarm         |Alarm is triggered
    5.0 ppm        |when ppm reaches
                   |or rises above
Change to:         |this value.
   5.0 ppm         /
                   /
  <0.0 to 5>       /
```

ppm Low Alarm

Use the number keypad to choose the point where ppm should activate a Low Alarm. The values under **Change to:** will show your entry. Press the ENTER key to proceed. 0 will disable the alarm. (Range displayed will depend upon alarm settings.)

```
ppm Setup          /
Low Alarm          |Alarm is triggered
    0.5 ppm        |when ppm reaches
                   |or drops below
Change to:         |this value.
   0.5 ppm         /
                   /
  <0.0 to 5.0>     /
```

ppm Calibration

Use the number keypad to calibrate ppm to your water test. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
ppm Setup          /
Calibrate          |Calibrate ppm to
   3.0             |water test.
                   /
Change to:         /
   3.0             /
```

Conductivity

Use the number keypad to choose Conductivity High Alarm, Low Alarm or Calibration.

```
Conductivity Setup |Contains High and
1 High Alarm       |Low Alarms, and
2 Low Alarm        |Calibration.
3 Calibration      /
```

Conductivity High Alarm

Use the number keypad to choose the point where Conductivity should activate a High Alarm. The values under **Change to:** will show your entry. 0 will disable the alarm. Press the ENTER key.

```
Conductivity Setup |Set high alarm.
High Alarm         |Alarm is triggered
    3500 µmho      |when Conductivity
                   |reaches or rises
Change to:         |above this value.
   3500            /
                   /
 <0 to 20000>      /
```

Conductivity Low Alarm

Use the number keypad to choose the point where Conductivity should activate a Low Alarm. The values under **Change to:** will show your entry. 0 will disable the alarm. Press the ENTER key.

```
Conductivity Setup |Set low alarm.
Low Alarm          |Alarm is triggered
    500 µmho       |when Conductivity
                   |reaches or drops
Change to:         |below this value.
   500             /
                   /
 <0 to 20000>      /
```

Conductivity Calibration

Use the number keypad to calibrate conductivity to your water test. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
Conductivity Setup  |
Calibrate           |Calibrate
   1500 µmho        |Conductivity to
                    |water test.
 Change to:         |
   1500             |
```

Temperature

Use the number keypad to choose Temperature High Alarm, Low Alarm or Calibration.

```
Temp Setup          |Contains High and
1 High Alarm        |Low Alarms, and
2 Low Alarm         |Calibration.
3 Calibration       |
```

Temperature High Alarm

Use the number keypad to choose the point where Temperature should activate a High alarm. The values under the **Change to:** will show your entry. 32 will disable the alarm. Press the ENTER key.

```
Temperature Setup   |Set high alarm.
High Alarm          |Alarm is triggered
    90ºF            |when Temperature
                    |reaches or rises
Change to:          |above this value.
    090             |
                    |
  <32 to 212>       |
```

Temperature Low Alarm

Use the number keypad to choose the point where Temperature should activate a Low Alarm. The values under the **Change to:** will show your entry. 32 will disable the alarm. Press the ENTER key.

```
Temperature Setup   |Set low alarm.
Low  Alarm          |Alarm is triggered
    40ºF            |when Temperature
                    |reaches or drops
Change to:          |below this value.
    040             |
                    |
  <32 to 212>       |
```

Temperature Calibration

The temperature in this menu is a two-point calibration and you will need a special RTD calibrator. If you want to do a single-point calibration, press the calibration button and calibrate temperature.

```
Temperature Setup |Set RTD calibrator
Calibrate         |to low point and
                  |standardize unit.
    85ºF          |
                  |
 Change to:       |
   085            |
```

Use the number keypad to enter in the number that you have set on your RTD calibrator. This will be a higher value than your first calibration point. The values under **Change to:** will show your entry. Press the ENTER key to proceed.

```
Temperature Setup |Set RTD calibrator
Calibrate (2nd Pt)|to high point and
                  |standardize unit.
    100ºF         |
                  |
 Change to:       |
   100            |
```

Press the Next Screen to view page 2 of the Start-Up Programming Screen.

```
Start-Up          |
1 pH Relay        |
2 HRR Relay       |
3 Heater Relay    |
4 Flow Sensor     |
5 Filter Backwash |
6 Energy Saver    |
7 Calculations    |
8 Assign Relays   |
                  |(2 of 2)
```

pH Relay

Select the type of relay control you want for pH and use the keypad to select the type of relay control desired. *To begin our examples, we'll select1 On/Off control. Complete explanations of the choices are listed below.*

```
pH Relay          |Contains type of
1 pH Control      |control (On/Off,
2 Setpoint        |Time-Base
3 Failsafe        |Proportional)
4 Feed Direction  |
```

pH Control

Select the type of relay control you want for pH and use the keypad to select the type of relay control desired. *To begin our examples, we'll select1 On/Off control. Complete explanations of the choices are listed below.*

```
pH Control          |Contains type of
On/Off              |control (On/Off,
Change to:          |Time-Base
1 On/Off            |Proportional)
2 Time-based Prop.  |
                    '
```

Types of relay control:

On/Off – (Feed down or up) When the signal is above or below setpoint, the chemical feed is off. When the Sensor signal crosses this setpoint value, the chemical feed activates, and feeds continuously until the Sensor returns to a point below or above setpoint.

Time-based Proportional (TBP): (Feed down or up) This type of control will adjust the feed of chemical proportionately based upon how far the sensor is above or below setpoint. This is done by turning on and off feeder power for portions of a one-minute time-base. When the sensor is above or below setpoint, the feeder is held off. When the sensor rises below or above the setpoint, the feeder will turn on for a few seconds, then remain off for the remainder of the one-minute time base. As the sensor rises or falls even further from setpoint, the ratio of on and off times changes to increase the amount of chemical per minute dispensed.

pH On/Off or Time-based Proportional (TBP)

After making the selection, then the screen will change to look like either a screen for on/off control or Time-based Proportioning. Use the keypad to enter the setpoint, bandwidth, Time-base, Failsafe Timer or Feed Direction.

```
pH Relay            |
1 pH Control        |
2 Setpoint          |
3 Bandwidth         | (TBP)
4 Time-base         | (TBP)
5 Failsafe Timer    |
6 Feed Direction    |
```

pH Set Point

Use the keypad to enter the setpoint. This is the sensor reading that you want the Strantrol System7 to maintain. Your entry will be shown in the area under the **Change to:**. Press the ENTER key.

```
On/Off              |Desired water test
Setpoint:           |kit reading.
   7.5              |
                    |
Change to:          |
   07.5             |
```

pH Bandwidth

Use the Keypad to enter the bandwidth. The bandwidth is the range from setpoint that you want the System7 to use TBP control. Your entry will be shown in the area under the **Change to:**. Press the ENTER key.

```
Bandwidth           |The offset from
   0.5              |setpoint that the
                    |time-based
 Change to:         |proportioning will
   00.5             |engage
                    |
```

pH Time-Base

Use the keypad to enter the Time-Base. The on and off times of the feed device will be a fraction of the time-base which is the total time. Your entry will be shown in the area under the **Change to:** Press the ENTER key.

```
Time-Base           |The offset from
   60 sec           |setpoint that the
                    |time-based
 Change to:         |proportioning will
   060              |engage
```

pH Failsafe Time

The Failsafe Time refers to the maximum amount of time you will allow the feeder to attempt to achieve the desired setpoint. This is a safety feature of the Strantrol System7 designed to alert the operator to chemical feed problems, minimize problems associated with chemical feed systems, or to minimize excessive chemical feed when it occurs. The Failsafe timer starts whenever the

channel is feeding, and resets whenever the channel stops feeding. This means the Failsafe timer will only activate if the feeder has run <u>continuously</u> for the selected time period. After this time has elapsed and the controller feed has not turned off, the controller will alarm and disable the feed of chemical (on this relay) until the RESET F/S button is pushed. Press the ENTER key after you select an appropriate time. To disable, set time to 00:00.

```
On/Off              |When the relay is
Failsafe Timer      |on for this period
    04:00 hm        |of time without
                    |achieving setpoint,
Change to:          |a failsafe alarm
    04:00           |engages and the
                    |relay is stopped.
  <0:00 to 18:00>   |
```

pH Feed Direction

The screen below will prompt for the entry of the feed direction. Feed-Up refers to a system which will increase the sensor reading when the relay is activated. Examples of Feed-Up systems would be Caustic feed (pH increases). Examples of Feed-Down systems would be acid-feed (pH decreases).

```
On/Off              |Specifies which
Feed Direction:     |type of pH control
    Feed Down       |(i.e. acid or
Change to:          |caustic soda)
1 Feed Up           |
2 Feed Down         |
```

HRR Relay

Select the type of relay control you want for HRR and use the keypad to select the type of relay control desired. *For this example, we'll select Number 2 Time-based Proportional Control. Complete explanations of the choices are listed in the previous section labeled* "**Types of relay control**".

```
Start-Up Prog.      |Contains type of
HRR Relay           |control (On/Off,
On/Off              |Time-Base
Change to:          |Proportional)
1 HRR Control       |
2 Alternate HRR     |
3 Setpoint          |
4 Failsafe Timer    |
```

Time-Based Proportional Control Options

The following screen examples will assume that the choice for HRR control was Time-Based Proportional, and will progress through the options for Time-Based Proportional control. Any of the Sensor-controlled relays can be configured for Time-Based Proportional control.

HRR Time Based Proportional

After making the selection, then the screen will change to look like this one. Use the Keypad to enter the HRR Control, Alternate HRR, Setpoint, Bandwidth, Time-Base or Failsafe Timer.

```
Time Based Prop.    |Control parameter
Change to:          |
1 HRR Control       |
2 Alternate HRR     |
3 Setpoint          |
4 Bandwidth         |
5 Time-Base         |
6 Failsafe Timer    |
```

Alternate HRR

The Alternate HRR is used in cases when you want to keep the water at a different oxidation rate at other times of the day or days of the week. Press 1 for **4Event 28Day Timer**

```
Alternate HRR       |Select different
1 4Event 28Day Timer|HRR setpoint.
2 Setpoint          |
                    |
```

4Event 28Day Timer

The Alternate HRR Setpoint function works on a 4-week 4-event (28-day) calendar. This allows you to select four different times that you want the System7 to start the Alternate HRR Setpoint function. Make your selection using the number keypad. *For this Example, select* **Event 1.**

```
4Event 28Day Timer|Selection of week
1 Event 1         |and day of function
2 Event 2         |
3 Event 3         |
4 Event 4         |
```

Event 1

This screen allows you to select the week, day, start time and duration of the Alternate HRR Setpoint function. Make your selection using the number keypad. *For this Example, select* **Week(s).**

```
Event 1          |First programmed
1 Week(s)        |event of function.
2 Day(s)         |
3 Start Time     |
4 Duration       |
```

Event 1 Week (1 of 2)

The first of 2 screens shows the selections for the weeks the Alternate HRR Setpoint event(s) should occur during the 4-week cycle. To access the second screen (2 of 2) press the ▶ NEXT SCREEN. That screen is shown below. Make your selection using the number keypad. *For this Example, select* **1st week.**

```
Event 1 Week/Day |Select the week(s)
(Week):          |for which the
    Disabled     |day(s) selected
Change to:       |should engage the
1 1st week       |relay.
2 2nd week       |
3 3rd week       |
4 4th week       |
5 Odd week       |Current week/day:
6 Even week      | 1st/Friday
7 Every week     |(1 of 2)
                 |
```

Event 1 Week (2 of 2)

```
Event 1 Week/Day |Select the week(s)
(Week):          |for which the
    Disabled     |day(s) selected
Change to:       |should engage the
1 Disabled       |relay.
                 |
                 |
                 |
                 |Current week/day:
                 | 1st/Friday
                 |(2 of 2)
                 |
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Day(s).**

```
Event 1          |First programmed
1 Week(s)        |event of function.
2 Day(s)         |
3 Start Time     |
4 Duration       |
```

Event 1 Day (1 of 2)

The screen below will prompt for the entry of the days of the week the event should occur. There is a second screen of choices. Pressing the ▶ NEXT SCREEN button accesses the second screen. That screen is shown below. Use the keypad to select the desired day or every day for the Alternate HRR Setpoint event. *For this Example, select* **Monday.**

```
Event 1 Week/Day |Select the day(s)
(Day):           |for each week
    1st/Friday   |selected which
Change to:       |should engage the
1 Sunday         |relay.
2 Monday         |
3 Tuesday        |
4 Wednesday      |
5 Thursday       |Current week/day:
6 Friday         | 1st/Friday
7 Saturday       |(1 of 2)
```

Event 1 Day (2 of 2)

```
Event 1 Week/Day |Select the day(s)
(Day):           |for each week
    1st/Monday   |selected which
Change to:       |should engage the
1 Every day      |relay.
2 Disabled       |
                 |
                 |
                 |Current week/day:
                 | 1st/Monday
                 |(2 of 2)
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Start Time.**

```
Event 1           |First programmed
1 Week(s)         |event of function.
2 Day(s)          |
3 Start Time      |
4 Duration        |
```

Event 1 Start Time

Select the time of day this event is to start on the day and week selected. Use the number keypad to select the time. *For this Example, select* **12:00.** You may enter up to 4 events.

```
Event 1 Start Time:|Select the start
    12:00 am       |time for the begin-
                   |ning of the cycle
Change to:         |for the week(s)/
    12:00 am       |day(s) selected for
                   |this event.
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Duration.**

```
Event 1           |First programmed
1 Week(s)         |event of function.
2 Day(s)          |
3 Start Time      |
4 Duration        |
```

Event 1 Duration

Select the length of time the event is to be engaged. Use the number keypad to select the length of time. *For this Example, select* **12:00.**

The Alternate HRR Setpoint is set to start on Monday of the 1st week of every 4-week cycle at 12:00 a.m. for 12 hours.

```
Event 1           |Function will be
Duration          |initiated for this
   01:00 hm       |length of time.
                  |
Change to:        |
   12:00          |
                  |
 <0:00 to 18:00>  |
```

Alternate HRR Setpoint

Use the Keypad to enter the setpoint for Alternate HRR control. This is the sensor reading that you want the Strantrol System7 to maintain. Your entry will be shown in the area under the **Change to:**. Press the ENTER key after you select a setpoint.

```
Alternate HRR     |Allows for second
Setpoint          |HRR setpoint for
    750 mV        |different
                  |disinfecting needs.
Change to:        |
    000 mV        |
                  |
```

HRR Setpoint

Use the keypad to enter the Sensor reading you wish to maintain with automatic control. The value under the **Change to:** line will show the numbers entered. Press the ENTER key to proceed.

NOTE: Ranges displayed will vary based upon alarm settings.

```
Time-Based Prop   |Enter primary
HRR Setpoint:     |disinfecting
    800 mV        |setpoint
                  |
Change to:        |
    0800          |
```

HRR Proportional Bandwidth

Proportional control systems need a way to determine the "sensitivity" of the control system, (or how drastically it will react to changes at the Sensor). This we call *Proportional Bandwidth.* Simply, the wider the value entered, the less sensitive the controller is to changes detected by the sensor. Press the ENTER key after you select an appropriate bandwidth.

```
Time-Based Prop.  |The offset from
Bandwidth:        |setpoint that the
    30 mV         |time-based
                  |proportioning will
Change to:        |engage
    0030          |
```

HRR Time-Base

If the System7 is taking too long to sense the chemical change, lengthen the time-base. This allows the System7 to sense longer before starting another feed cycle. Press the ENTER key after you select an appropriate time-base.

```
Time-Based Prop.  |The total time on
Time Base         |and off during the
        60        |proportional mode.
                  |
Change to:        |
     0030         |
                  |
```

HRR Failsafe Time

The Failsafe Time refers to the maximum amount of time you will allow the feeder to attempt to achieve the desired setpoint. This is a safety feature of the Strantrol System7 designed to alert the operator to chemical feed problems, minimize problems associated with chemical feed systems, or to minimize excessive chemical feed when it occurs. The Failsafe timer starts whenever the channel is feeding, and resets whenever the channel stops feeding. This means the Failsafe timer will only activate if the feeder has run continuously for the selected time period. After this time has elapsed and the controller has not turned off, the controller will alarm and disable the feed of chemical (on this relay) until the RESET F/S button is pushed. Press the ENTER key after you select an appropriate time. To disable, set time to 00:00.

```
Time-Based Prop  |When the relay is
Failsafe Timer   |on for this period
    04:00 hm     |of time without
                 |achieving setpoint,
Change to:       |a failsafe alarm
    04:00        |engages and the
                 |relay is stopped.
  <0:00 to 18:00>|
```

Heater Control

After making the selection, then the screen will change to look like this one. Use the Keypad to enter the Alternate Temp, Setpoint, Failsafe Timer, or Fireman Switch.

```
Heater            |Program temperature
1 Alternate Temp  |parameters.
2 Setpoint        |
3 Failsafe Timer  |
4 Fireman Switch  |
```

Alternate Temperature Setpoint

The Alternate Temperature Setpoint is used in cases when you want to keep the water at a different temperature at other times of the day or days of the week. Press 1 for **4Event 28Day Timer**

```
Alternate HRR       |Select different
1 4Event 28Day Timer|Temperature
2 Setpoint          |setpoint
                    |
                    |
```

4Event 28Day Timer

The Alternate Temperature Setpoint function works on a 4-week 4-event (28-day) calendar. This allows you to select four different times that the System7 will start the Alternate Temperature Setpoint function. Make your selection using the number keypad. *For this Example, select Event* **1**.

```
4Event 28Day Timer|Selection of week
1 Event 1         |and day of function
2 Event 2         |
3 Event 3         |
4 Event 4         |
                  |
                  |
```

Event 1

This screen allows you to select the week, day, start time and duration of the Alternate Temperature Setpoint function. Make your selection using the number keypad. *For this Example, select* **Week(s).**

```
Event 1              |First programmed
1 Week(s)            |event of function.
2 Day(s)             |
3 Start Time         |
4 Duration           |
                     |
```

Event 1 Week (1 of 2)

The first of 2 screens shows the selections for the weeks the Alternate Temperature Setpoint event(s) should occur during the 4-week cycle. To access the second screen (2 of 2) press the ▶ NEXT SCREEN. That screen is shown below. Make your selection using the number keypad. *For this Example, select* **1st week.**

```
Event 1 Week/Day     |Select the week(s)
(Week):              |for which the
    Disabled         |day(s) selected
Change to:           |should engage the
1 1st week           |relay.
2 2nd week           |
3 3rd week           |
4 4th week           |
5 Odd week           |Current week/day:
6 Even week          | 1st/Friday
7 Every week         |(1 of 2)
```

Event 1 Week (2 of 2)

```
Event 1 Week/Day     |Select the week(s)
 (Week):             |for which the
    Disabled         |day(s) selected
Change to:           |should engage the
1 Disabled           |relay.
                     |
                     |
                     |
                     |Current week/day:
                     | 1st/Friday
                     |(2 of 2)
                     |
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Day(s).**

```
Event 1              |First programmed
1 Week(s)            |event of function.
2 Day(s)             |
3 Start Time         |
4 Duration           |
                     |
```

Event 1 Day (1 of 2)

The screen below will prompt for the entry of the days of the week the event should occur. There is a second screen of choices. Pressing the ▶ NEXT SCREEN button accesses the second screen. That screen is shown below. Use the keypad to select the desired day or every day for the Alternate Temperature Setpoint event. *For this Example, select* **Monday.**

```
Event 1 Week/Day     |Select the day(s)
(Day):               |for each week
    1st/Friday       |selected which
Change to:           |should engage the
1 Sunday             |relay.
2 Monday             |
3 Tuesday            |
4 Wednesday          |
5 Thursday           |Current week/day:
6 Friday             | 1st/Friday
7 Saturday           |(1 of 2)
```

Event 1 Day (2 of 2)

```
Event 1 Week/Day     |Select the day(s)
(Day):               |for each week
    1st/Monday       |selected which
Change to:           |should engage the
1 Every day          |relay.
2 Disabled           |
                     |
                     |Current week/day:
                     | 1st/Monday
                     |(2 of 2)
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Start Time.**

```
Event 1            |First programmed
1 Week(s)          |event of function
2 Day(s)           |
3 Start Time       |
4 Duration         |
                   |
```

Event 1 Start Time

Select the time of day this event is to start (on the day and week selected). Use the number keypad to select the time. *For this Example , select* **12:00.**

You may enter up to 4 events.

```
Event 1 Start Time:|Select the start
    12:00 am       |time for the begin-
                   |ning of the cycle
Change to:         |for the week(s)/
    12:00 am       |day(s) selected for
                   |this event.
                   |
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Duration.**

```
Event 1            |First programmed
1 Week(s)          |event of function.
2 Day(s)           |
3 Start Time       |
4 Duration         |
                   |
```

Event 1 Duration

Select the length of time the event is to be engaged. Use the number keypad to select the length of time. *For this Example, select* **12:00.**

The Alternate Temperature Setpoint is set to start on Monday of the 1st week of every cycle at 12:00 a.m. for 12 hours.

```
Event 1            |Function will be
Duration           |initiated for this
    01:00 hm       |length of time.
                   |
Change to:         |
    12:00          |
                   |
  <0:00 to 18:00>  |
                   |
```

Alternate Temperature Setpoint

Use the Keypad to enter the setpoint for Alternate Temperature control. This is the sensor reading that you want the Strantrol System7 to maintain. Your entry will be shown in the area under the **Change to:.** Press the ENTER key after you select a setpoint.

```
Alternate Temp     |Second Temperature
Setpoint           |Setpoint
    32°F           |
                   |
Change to:         |
    000            |
                   |
  <32 to 104>      |
                   |
```

Temperature Setpoint

Use the keypad to enter the temperature reading you wish to maintain with automatic control. The value under the **Change to:** line will show the numbers entered.

Press the ENTER key to proceed.

```
Temperature        |Enter primary
Setpoint:          |temperature
    50°F           |setpoint
                   |
Change to:         |
    050            |
                   |
  <32 to 104>      |
```

NOTE: Ranges displayed will vary based upon alarm settings.

Temperature Failsafe Time

The Failsafe Time refers to the maximum amount of time you will allow the feeder to attempt to achieve the desired setpoint. This is a safety feature of the Strantrol System7 designed to alert the operator to chemical feed problems, minimize problems associated with chemical feed systems, or to minimize excessive chemical feed when it occurs. The Failsafe timer starts whenever the channel is feeding, and resets whenever the channel stops feeding. This means the Failsafe timer will only activate if the feeder has run <u>continuously</u> for the selected time period. After this time has elapsed and the controller has not turned off, the controller will alarm and disable the heat (on this relay) until the RESET F/S button is pushed. Press the ENTER key after you select an appropriate time. To disable, set time to 00:00.

```
Temperature       |When the relay is
Failsafe Timer    |on for this period
   04:00 hm       |of time without
                  |achieving setpoint,
Change to:        |a failsafe alarm
   04:00          |engages and the
                  |relay is stopped.
 <0:00 to 18:00>  |
                  |
```

Fireman Switch

The Fireman Switch is designed to shut down your heater before a backwash to let it cool down for a designated length of time. If this is not done, your heater will be damaged.

```
Heater            |Time the
Fireman Switch    |Recirculation Pump
   20:00 min/sec  |will shut off after
                  |the heater shuts
Change to:        |down.
   20:00          |
                  |
 <0:00 to 60:00>  |
```

Flow Sensor

The System7 will backwash your filter on the Flow Rate of the Recirculation System. Flow will not show K Factor or Buffer Max until "sensor installed" is changed to yes.

```
Start-Up Prog.     |Flow Sensor
Flow Sensor        |Parameters
1 Sensor Installed?|
2 K Factor         |
3 Buffer Max       |
```

K Factor

Enter in the K Factor for your pipe size.

```
Flow Sensor        |Enter flow sensor K
K Factor           |factor for pipe
   8.00            |size
                   |
Change to:         |
   08.00           |
                   |
 <0.50 to 15.00>   |
```

Buffer Max

The Buffer Max slows down the read out of the Flow Sensor. Each number is equal to 12 seconds of buffer. 1 = 12 seconds.

```
Flow Sensor        |Enter number of 12
Buffer Max         |second count
   1               |buffers to average
                   |together. Larger
Change to:         |number = slower
   01              |response to changes
                   |in flow rate.
```

Filter Backwash

Backwash the available filters to your programmed specifications.

```
Filter Backwash     |System7 will
1 Available Filters |backwash available
2 Filter Timing     |filters to your
3 Turbidity Settings|programmed
4 Timer Settings    |specifications
5 Pressure Settings |
6 Flow Rate Settings|
7 Flow Vol Settings |
8 FFS Duration      |
9 Motor Dwell Count |
10 Inhibit BW Start |
```

Screen 2

```
Filter Backwash     |System7 will
1 Motor Dwell Count |backwash available
2 Inhibit BW Start  |filters to your
                    |programmed
                    |specifications
                    |
```

Filter Backwash Available Filters
The System7 will backwash up to eight filters. Enter the number of filter tanks in your system and press the ENTER key.

```
Filter Backwash   |Select the number
Available Filters |of filters you wish
    8             |to backwash
                  |
Change to:        |
    0             |
```

Filter Timing
Each filter to be backwashed has its own backwash on time and dwell time. *For this Example, press 1 for* **Filter 1.**

```
Filter Timing     |Lists filter(s) to
1 Filter 1        |be programmed
2 Filter 2        |
3 Filter 3        |
4 Filter 4        |
5 Filter 5        |
6 Filter 6        |
7 Filter 7        |
8 Filter 8        |
```

Filter 1
We will program the times for Filter 1. Press 1 for **On Time.**

```
Filter 1          |Program on time and
1 On Time         |dwell time
2 Dwell Time      |
                  |
```

On Time
The On Time for the backwash is in seconds. Currently, this Filter is backwashing for 60 seconds or 1 minute. Press the ENTER key after you select an appropriate time.

```
Filter 1          |Backwash time for
On Time           |this filter
    60 sec        |
Change to:        |
    000           |
```

Dwell Time
The Dwell Time after the backwash is in seconds. The Dwell Time is the time that it takes your Backwash Sump to drain before starting another backwash. Currently, this Dwell Time is for 60 seconds or 1 minute. Press the ENTER key after you select an appropriate time.

```
Filter 1          |The time between
Dwell Time        |filter backwashes.
    60 sec        |
Change to:        |
    000           |
```

You have set Filter 1 to backwash for 60 seconds or 1 minute and the time it takes for the Backwash Sump to drain before another tank is backwashed is 60 seconds or 1 minute.

Turbidity Settings
The System7 will allow you to start and stop backwashing your filters on the turbidity of your water.

```
Filter Backwash    |Program Turbidity
Turbidity Settings |Control
1 Start BW Enable  |
2 BW Start Setpoint|
3 BW Start Delay   |
4 End BW Enable    |
                   |
```

Backwash Start Turbidity
Enable starting Turbidity Backwash Setpoint

```
Turbidity Settings|Enable or disable
Start BW Active   |turbidity to trigger
    No            |backwash
Change to:        |
1 Yes             |
2 No              |
```

Backwash Start Turbidity Setpoint
Select a turbidity you wish to start the backwash cycle.

```
Turbidity Settings|Desired turbidity
BW Start Setpoint |reading to trigger
    0.70 NTU      |backwash.
                  |
Change to:        |
    00.70         |
  <0.00 to 1.00>  |
```

Turbidity Delay
This will delay the backwash for the selected amount of time before activating a backwash.

```
Turbidity Settings |Time Turbidity
BW Start Delay     |reading must remain
    2:00 min/sec   |above setpoint
Change to:         |before it can
    2:00           |trigger a backwash
                   |
  <0:00 to 15:00>  |
```

Backwash End Turbidity
Activate Ending Turbidity Backwash Setpoint.

```
Turbidity Settings |Program Turbidity
End BW Active      |Control
     No            |
Change to:         |
1 Yes              |
2 No               |
```

Timer Settings
The System7 will allow you to backwash your filters during certain times of the day. Press 1 for **Active.**

```
Timer Settings     |Select Backwash to
1 Active           |run off time
2 4Event28Day Timer|
                   |
                   |
                   |
```

Active
You will need to activate this option for the System7. Default is No. Press 1 for **Yes.**

```
Timer Settings     |Activates or
Active             |Deactivates Timed
   No              |Backwash
Change to:         |
1 Yes              |
2 No               |
                   |
```

4Event 28Day Timer
The Timed Backwash function works on a 4-week 4-event (28-day) calendar. This allows you select four different times that you want the System7 to start Backwashing. Make your selection using the number keypad. *For this Example, select* **Event 1.**

```
4Event 28Day Timer |Function can be
1 Event 1          |programmed for
2 Event 2          |four
3 Event 3          |separate, day
4 Event 4          |specific events.
                   |
```

Event 1
This screen allows you to select the week, day and start time of the Backwash. Make your selection using the number keypad. *For this Example, select* **Week(s).**

```
Event 1            |First programmed
1 Week(s)          |event of function.
2 Day(s)           |
3 Start Time       |
                   |
```

Event 1 Week (1 of 2)
The first of 2 screens shows the selections for the weeks the Backwash event(s) should occur during the 4-week cycle. To access the second screen (2 of 2) press the ▶ NEXT SCREEN. That screen is shown below. Make your selection using the number keypad. *For this Example, select* **1st week.**

```
Event 1 Week/Day   |Select the week(s)
(Week):            |for which the
    Disabled       |day(s) selected
Change to:         |should engage the
1 1st week         |relay.
2 2nd week         |
3 3rd week         |
4 4th week         |
5 Odd week         |Current week/day:
6 Even week        | 1st/Friday
7 Every week       |(1 of 2)
                   |
```

Event 1 Week (2 of 2)

```
Event 1 Week/Day   |Select the week(s)
(Week):            |for which the
    Disabled       |day(s) selected
Change to:         |should engage the
1 Disabled         |relay.
                   |
                   |
                   |Current week/day:
                   | 1st/Friday
                   |(2 of 2)
```

Event 1

The screen at right will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Day(s).**

```
Event 1            |First programmed
1 Week(s)          |event of function.
2 Day(s)           |
3 Start Time       |
```

Event 1 Day (1 of 2)

The screen below will prompt for the entry of the days of the week the event should occur. There is a second screen of choices. Pressing the ▶ NEXT SCREEN button accesses the second screen. That screen is shown below. Use the keypad to select the desired day or every day for the Backwash event. *For this Example, select* **Monday.**

```
Event 1 Week/Day   |Select the day(s)
(Day):             |for each week
    1st/Friday     |selected which
Change to:         |should engage the
1 Sunday           |relay.
2 Monday           |
3 Tuesday          |
4 Wednesday        |
5 Thursday         |Current week/day:
6 Friday           | 1st/Friday
7 Saturday         |(1 of 2)
```

Event 1 Day (2 of 2)

```
Event 1 Week/Day   |Select the day(s)
(Day):             |for each week
    1st/Monday     |selected which
Change to:         |should engage the
1 Every day        |relay.
2 Disabled         |
                   |
                   |Current week/day:
                   | 1st/Monday
                   |(2 of 2)
```

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Start Time.**

```
Event 1            |First programmed
1 Week(s)          |event of function.
2 Day(s)           |
3 Start Time       |
                   |
                   |
```

Event 1 Start Time

Select the time of day this event is to start (on the day and week selected). Use the number keypad to select the time. *For this Example, select* **12:00.**

You may enter up to 4 events.

```
Event 1 Start Time:|Select the start
    12:00 am       |time for the begin-
                   |ning of the cycle
Change to:         |for the week(s)/
    12:00 am       |day(s) selected for
                   |this event.
                   |
```

You have just programmed backwash to start the 1st Monday of every cycle at 12:00 a.m.

Differential Pressure
Pressure Settings
The System7 will allow you to backwash your filters off of differential pressure. Press 1 for **Active.**

```
Pressure Settings  |Select Backwash of
1 Active           |Filter to be
2 Setpoint         |initiated off
                   |differential
                   |pressure
```

Active

You will need to activate this option for the System7. Default is No. Press 1 for **Yes.**

```
Pressure Settings  |Activates or
Active             |Deactivates Timed
    No             |Backwash
Change to:         |
1 Yes              |
2 No               |
```

Setpoint

Select a pressure differential setpoint for the System7 to initiate a backwash. Press the ENTER key after you select an appropriate pressure differential.

```
Pressure Settings |Select Differential
Setpoint          |pressure setpoint
   15 psi         |to activate
                  |backwash
Change to:        /
   0000           /
                  /
```

Flow Rate Settings

The System7 will allow you to backwash off flow rate. Press 1 for active.

```
Filter Backwash    |Configures
Flow Rate Settings |triggering backwash
1 Active           |off of flow rate
2 Setpoint         /
                   /
```

Flow Rate Activate

Activate the Flow Rate backwash option.

```
Flow Rate Settings|Activate or
Active            |deactivate rate
    No           |initiation
Change to:       /
1 Yes            /
2 No             /
                 /
```

Flow Rate Setpoint

Select a flow rate setpoint for the System7 to initiate a backwash. Press the ENTER key after you select an appropriate flow rate.

```
Flow Rate Settings|Select flow rate
Setpoint          |setpoint to
    300.0 gpm     |activate backwash
Change to:        /
   0350.0         /
                  /
 <0.0 to 1500.0>  /
```

Flow Volume Settings

The System7 will allow you to backwash off flow volume. Press 1 to activate.

```
Filter Backwash    |Select Backwash
Flow Rate Settings |Filter to be
1 Active           |initiated off flow
2 Flow Vol Incrmnt |volume
                   /
```

Flow Volume Activate

Activate the Flow Rate backwash option.

```
Flow Volume Settings|Activate or
Active              |deactivate volume
    No              |initiation
Change to:          /
1 Yes               /
2 No                /
                    /
```

Flow Volume Setpoint

Select a flow volume setpoint for the System7 to initiate a backwash. Press the ENTER key after you select appropriate flow volume.

```
Flow Vol Settings  |Enter Volume
Flow Vol Incrmnt   |increment to
   100.000 k-gals  |trigger backwash
                   /
Change to:         /
   0350.0          /
                   /
```

Backwash Frequency Failsafe (BFFS) Duration

The Sytem7 will backwash the filters, but in the event the System7 calls for another backwash, the BFFS Duration will not allow another backwash to occur before the time period specified. Press the ENTER key after you have set the BFFS.

```
Filter Backwash    |Backwash Frequency
BFFS Duration      |Failsafe
   00:02 hm         /
                    /
 Change to:         /
   00:02            /
                    /
 <0:00 to 4:00>     /
                    /
```

Motor Dwell Count

The System7 will allow you to change the time that the motor stops for the dwell position. In most cases, the Motor Dwell Count should be 14. The Motor Dwell Count is ¼ of the time that is entered. Example: At the default of 14, the number of seconds will be 14/4 = 3.5 seconds. **In most cases this value will be 0.**

```
Filter Backwash    |Enter the number
Motor Dwell Count  |of ¼ seconds to
     14            |delay stopping
                   |motor while
Change to:         |moving to dwell
    00000          |position.
                   |
```

Press the ▶ NEXT SCREEN button to see the Inhibit option.

```
Start-Up Prog.     |System7 will
Filter Backwash    |backwash available
1 Inhibit BW Start |filters to your
                   |specifications
                   |
```

Inhibit Backwash Start

The Inhibit Backwash Start function allows you to program the System7 to only backwash during a certain window of the day. To see all the options, you must enable this option. Press #1 to enable.

```
Filter Backwash    |Enable/Disable
Inhibit Start      |backwash available
1 Enable/Disable   |filters to your
2 Start Time       |specifications
3 End Time         |
```

Inhibit Backwash Start Time

Select the time of day you wish to start your window of backwash.

```
Inhibit Start BW   |Inhibit backwash
Start Time         |start time.
    8:00 AM        |
                   |
Change to:         |
    08:00 AM       |
  +/- toggles AM/PM|
```

Inhibit Backwash End Time

Select the time of day you wish to end your window of backwash.

```
Inhibit Start BW   |Inhibit backwash
End Time           |end time.
    5:00 PM        |
                   |
Change to:         |
    05:00 PM       |
  +/- toggles AM/PM|
```

Energy Saver

The System7 will allow you to shut down the system for a period of time, when everything has been satisfied. The System7 will start everything after a certain amount of time and check all the parameters then shut down again. The System7 won't start-up and shut down until the Energy Saver time has stopped.

```
Energy Saver       |
1 4Event 28Day Timer|
2 Enable           |
3 Sleep Duration   |
4 Sampling Delay   |
                   |
```

Enable Energy Saver

This will allow you to enable or disable the Energy Saver option.

```
Energy Saver       |
Enable EnergySaver |
      No           |
Change to:         |
1 Yes              |
2 No               |
```

4Event 28Day Timer

The Energy Saver function works on a 4-week 4-event (28-day) calendar. This allows you to select four different times that you want the System7 to start Energy Saver. Make your selection using the number keypad. *For this Example, select* **Event 1.**

```
4Event 28Day Timer |Function can be
1 Event 1          |programmed for
2 Event 2          |four separate,
3 Event 3          |day-specific
4 Event 4          |events.
                   |
```

Event 1

This screen allows you to select the week, day and start time of the Energy Saver. Make your selection using the number keypad. *For this Example, select* **Week(s).**

```
Event 1            |First programmed
1 Week(s)          |event of
2 Day(s)           |function.
3 Start Time       |
                   |
```

Event 1 Week (1 of 2)

The first of 2 screens shows the selections for the weeks the Energy Saver event(s) should occur during the 4-week cycle. To access the second screen (2 of 2) press the ▶ NEXT SCREEN. That screen is shown below. Make your selection using the number keypad. *For this Example, select* **Every week.**

```
Event 1 Week/Day   |Select the week(s)
(Week):            |for which the
    Disabled       |day(s) selected
Change to:         |should engage the
1 1st week         |relay.
2 2nd week         |
3 3rd week         |
4 4th week         |
5 Odd week         |Current week/day:
6 Even week        | 1st/Friday
7 Every week       |(1 of 2)
                   |
```

Event 1 Week (2 of 2)

```
Event 1 Week/Day   |Select the week(s)
(Week):            |for which the
    Disabled       |day(s) selected
Change to:         |should engage the
1 Disabled         |relay.
                   |
                   |
                   |
                   |Current week/day:
                   | 1st/Friday
                   |(2 of 2)
                   |
```

Event 1

The screen below will prompt for the entry of the next selection. Make your selection using the number keypad. *For this Example, select* **Day(s).**

```
Event 1            |First programmed
1 Week(s)          |event of function.
2 Day(s)           |
3 Start Time       |
                   |
```

Event 1 Day (1 of 2)

The screen below will prompt for the entry of the days of the week the event should occur. There is a second screen of choices. The second screen is accessed by pressing the ▶ NEXT SCREEN button. That screen is shown below. Use the keypad to select the desired day or every day for the Energy Saver event. *For this Example, select* **Every day.**

```
Event 1 Week/Day   |Select the day(s)
(Day):             |for each week
    1st/Friday     |selected which
Change to:         |should engage the
1 Sunday           |relay.
2 Monday           |
3 Tuesday          |
4 Wednesday        |
5 Thursday         |Current week/day:
6 Friday           | 1st/Friday
7 Saturday         |(1 of 2)
                   |
```

Event 1 Day (2 of 2)

```
Event 1 Week/Day  |Select the day(s)
(Day):            |for each week
   1st/Monday     |selected which
Change to:        |should engage the
1 Every day       |relay.
2 Disabled        |
                  |
                  |
                  |Current week/day:
                  |  1st/Monday
                  |(2 of 2)
```

Event 1

The screen below will prompt for the entry of the next selection. Using the number keypad, make your selection. *For this Example, select* **Start Time**.

```
Event 1            |First programmed
1 Week(s)          |event of function.
2 Day(s)           |
3 Start Time       |
                   |
```

Event 1 Start Time

Select the time of day this event is to start (on the day and week selected). Use the number keypad to select the time. *For this Example, select* **08:00**.

You may enter up to 4 events.

```
Event 1 Start Time:|Select the start
   12:00 am        |time for the
                   |beginning of the
  Change to:       |cycle for the
  08:00 p.m.       |week(s)/day(s)
                   |selected for this
                   |event.
```

Sleep Duration

This is the time that the Energy Saver will shut down before starting up again to check the water and other parameters. Sleep Duration is in minutes. Press the ENTER key after you have set the Sleep Duration Time.

```
Energy Saver      |Length of the
Sleep Duration    |energy saver
   0160 min       |sleep cycle
                  |
Change to:        |
   0000           |
                  |
```

Sampling Delay

When the Energy Saver starts the recirculation system up again, the System7 will delay its sensing for a period of time before trying to correct any of the parameters.

```
Energy Saver      |Time to wait
Sampling Delay    |before reacting
   600 sec        |to sensor inputs
Change to:        |after waking up
   0000           |
                  |
```

You have just programmed the System7 to sleep every day at 08:00 p.m.

Calculations

The System7 will calculate the LSI, Ryznar and Dosage for your pool to be balanced to prevent scaling or corrosion on pipes.

```
Calculations      |LSI, Ryznar and
1 LSI             |Dosage
2 Dosage          |
                  |
```

Enter Parameters

To calculate the LSI and Ryznar, you need to select Enter Parameters. You can wish to use a TDS if desired. The TDS will be taken from the Conductivity sensor. The Enter Parameters selection will allow you to enter your alkalinity and calcium.

```
Calculations
LSI
1 Based on mm/dd/yy01/01/2000
2 Calculated LSI    0.3
3 Calculated Ryznar6.5
4 Use TDS?          No
5 Enter Parameters
```

Dosage Setup

The Dosage needs a volume of your pool. Recommendations will be given once the parameters are given to calculate the LSI and Ryznar.

```
Calculations      |Volume of pool
Dosage            |
1 Volume of Pool  |
2 Recommendations |
```

Assign Relays

You can assign Relays 7 and 8 to any of these selections. There are two ways to assign a relay:

1. Assign a feature to an unassigned relay
2. Assign a feature to an assigned relay

```
Assign Relay to   |
Change to:        |
1 Sensor Wash     |
2 Polymer feed    |
3 SuperChlor      |
4 Ozone           |
5 Alarm           |
```

The first thing you want to do is press the Relay Settings button. Then write down what feature is assigned to Relay 7 and Relay 8.

Unassigned relay (Example: Ozone)

The path you want to take is Start-Up Programming/Assigning Relays/Ozone. Select which relay you want to assign the feature or in this case ozone. If you see only Relay 7 or Relay 8 displayed, that means the missing relay has already been assigned.

```
Assign Relay for  |Volume of pool
Ozone             |
Change to:        |
1 Relay 7         |
2 Relay 8         |
3 Disable Function|
```

Assigned Relay (Example: Ozone)

The path you want to take is Start-Up Programming/Assigning Relays/Ozone. If you see the screen to your right, then Relays 7 and 8 are already taken.

```
Assign Relay for  |Volume of pool
Ozone             |
Change to:        |
1 Disable Function|
```

To unassign a relay, select the feature that is assigned to either Relay 7 or Relay 8 and then select disable function.

```
Assign Relay for  |Volume of pool
Sensor Wash       |
Change to:        |
1 Relay 7         |
2 Disable Function|
```

This concludes the Start-up Programming for the System7.

ADVANCED PROGRAMMING

Listed below are the various programming screens and the pages upon which the directions for them can be found. Please consult this list to complete programming.

Please Note:

The System7 will automatically exit start-up programming if no key has been pressed for 60 seconds. In the event that you need more time to answer a particular programming question, you may lock the unit to the current screen displayed by pressing the Strantrol logo key in the upper left-hand corner of the unit and selecting lock. When you are ready to unlock the screen, press the logo key again and select unlock.

ORDER OF SCREENS DISPLAYED IN START-UP PROGRAMMING

Advanced Programming

Pressing the ADVANCED PROGRAMMING button on the face panel is an easy way for you to configure the Strantrol System7 for your specific needs. This button activates a sequence of programming screens that will guide you through the advanced configuration of the Strantrol System7.

ADVANCED PROGRAMMING

```
Main Menu            /
1 Preamp Inputs      /
2 Other Inputs       /
3 Relay Outputs      /
4 Calculations       /
5 System Config.     /
6 Access Menu        /
```

Preamp Inputs

Use the arrow keys to point to your choice or press 1 through 6 for your choice.

```
Preamp Inputs       |Contains High and
1 pH Setup          |Low Alarms, and
2 HRR Setup         |Calibration for:
3 ppm Setup         |pH, HRR,
4 Conductivity      |Temperature, and
5 Temperature       |Conductivity
6 Show Cl/Br        /
```

pH Setup

Refer to Page 28 in Start-up Programming. Selection 4 Lockout: enables the user to choose what type of chlorine lockout they wish to utilize. Full Lockout (lockout on both high and low pH alarm), Feed direction (lockout on one alarm depending on feed direction) or disable (chlorine does not lockout).

```
pH Setup            |Contains High and
1 High Alarm        |Low Alarms,
2 Low Alarm         |Setpoint and
3 Calibration       |Calibration.
4 Lockout           /
```

HRR Setup

Refer to Page 22 in Start-up Programming

```
 HRR Setup          |Contains High and
1 High Alarm        |Low Alarms, and
2 Low Alarm         |Calibration.
3 Calibration       /
```

ppm Setup

Refer to Page 30 in Start-up Programming

```
 ppm Setup          |Contains High and
1 High Alarm        |Low Alarms, and
2 Low Alarm         |Calibration.
3 Calibration       /
                    /
```

Conductivity Setup

Refer to Page 30 in Start-up Programming

```
Conductivity Setup  |Contains High and
1 High Alarm        |Low Alarms, and
2 Low Alarm         |Calibration.
3 Calibration       /
```

Temperature Setup

Refer to Page 31 in Start-up Programming

```
Temperature Setup   |Contains High and
1 High Alarm        |Low Alarms, and
2 Low Alarm         |Calibration.
3 Calibration       /
                    /
```

Show Cl/Br

Use the number keypad to choose ppm display or not. Choose "Yes" or "No" then press the ENTER key to proceed.

```
Sensor Inputs       |Enable or Disable
Show Cl/Br          |displaying Cl/Br
    No              |concentrations
Change to:          /
1 Yes               /
2 No                /
                    /
```

When you are finished, press the Previous Screen to view the Main Menu Screen and select the next option.

```
Main Menu            /
1 Preamp Inputs      /
2 Other Inputs       /
3 Relay Outputs      /
4 Calculations       /
5 System Config.     /
6 Access Menu        /
                     /
```

Other Inputs
Use the arrow keys to point to your choice or press 1 through 7 for your choice.

```
Other Inputs        |Set the
1 Filter Pressure   |Calibration, High
2 Strainer Out      |and Low alarms
3 Turbidity         |for differential
4 pH Inv.           |pressures and
5 Chlorine Inv.     |levels
6 Surge Pit Level   |
7 Flow Sensor       |
```

Filter Pressure
After installing the Influent and Effluent pressure transducers, you can calibrate them to the readings on the pressure gauges on the Multiport Valve Panel. Press 1 for **Cal. Filter In**

```
Filter Press        /
1 Cal. Filter In    /
2 Cal. Filter Out   /
3 Diff Pressr Alarm /
                    /
                    /
```

Calibrate Filter Influent
Calibrate the Filter Influent to the Gauge on the Multiport Valve Panel. Press the ENTER key after you have calibrated Filter Influent.

```
Filter Press Setup/
Cal. Filter In    /
     13.0 psi     /
                  /
 Change to:       /
     00.0         /
```

Calibrate Filter Effluent
Calibrate the Filter Effluent to the Gauge on the Multiport Valve Panel. Press the ENTER key after you have calibrated Filter Effluent.

```
Filter Press Setup/
Cal. Filter Out   /
     10.0 psi     /
                  /
 Change to:       /
     00.0         /
                  /
```

Differential Pressure Alarm
The System7 will Alarm when a backwash has not satisfied the Differential Pressure. Press the ENTER key after you have selected a Differential Pressure Alarm.

```
Filter Press Setup|Pressure across the
Diff Press Alarm  |Filters.
     15.0 psi     /
                  /
 Change to:       /
     00.0         /
```

Strainer Out
After installing the Strainer vacuum transducer, you can set the High Alarm and Calibrate if needed. Press 1 for **High Alarm**.

```
Other Inputs        /
Strainer Out        /
1 Sensor Installed? /
2 High Vac Alarm    /
                    /
```

Strainer Out High Alarm
The System7 will Alarm when the Strainer Vacuum has reached the Alarm **and will shut down the recirculation pump**. Press the ENTER key after you have selected a Strainer High Alarm.

```
Strainer Out        /
High Alarm          /
     20 "Vac        /
                    /
 Change to:         /
     20             /
                    /
 <0 to 30>          /
```

Turbidity
After installing the Turbidimeter, you can set the High Alarm and Calibrate if needed. Press 1 for **High Alarm**.

```
Other Inputs        |Turbidity High
Turbidity           |Alarm and
1 Sensor Installed? |Calibration
2 High Alarm        /
3 Calibrate         /
```

Turbidity High Alarm

The System7 will Alarm when the Turbidity alarm has been reached. Press the ENTER key after you have selected a Turbidity High Alarm.

```
Turbidity        |Alarm is triggered
High Alarm       |when Turbidity
   1.00 NTU      |reaches or rises
                 |above this value.
Change to:       /
    01.00        /
                 /
 <0.00 to 20.00> /
```

Turbidity Calibration

This calibration is a two-point calibration and is done with a 4-20mA transmitter. Before a two-point calibration, set your input range. If you have a 4-20mA transmitter, select calibrate and set transmitter to 4mA. Enter 00.00 into the MRC , then press enter. Set transmitter to 20mA and enter the input range that you set the MRC to earlier. Press the ENTER key after you have selected a Turbidity Calibration.

```
Turbidity        /
Calibrate        /
   0.00 NTU      /
                 /
Change to:       /
    00.00        /
                 /
 <0.00 to 20.00> /
                 /
```

Input Range

The input range is the highest point the MRC will display. The input range is also the number that is 20mA from your transmitter.

pH Inv.

The System7 will track pH inventory.
Press 1 for **Sensor Type**.

```
Other Inputs     |pH Inv. Sensor type
pH Inv.          |and alarms
1 Sensor Type    /
                 /
                 /
                 /
```

pH Inv.

The System7 has two types of sensing. 4-20mA is a continuous reading with an alarm at the low alarm and the Contact Switch will display an alarm when switch is closed. Select a **Sensor Type**.

```
pH Inv.          |Type of Sensor
Sensor Type      |Installed
   Not Installed |
Change to:       /
1 4-20mA Inputs  /
2 Contact Switch /
3 Not Installed  /
                 /
```

pH Inv. 4-20mA

The System7 4-20mA needs to be programmed.

```
Other Inputs     |pH Inv. Sensor type
pH Inv.          |and alarms
1 Sensor Type    /
2 Level or Weight /
3 4-20mA Low Alarm/
4 Calibrate 4-20mA/
                 /
```

pH Inv. 4-20mA

Select type of measurement.

```
pH Inv.          /
Level or Weight  /
    Level        /
Change to:       /
1 Level          /
2 Weight         /
                 /
```

pH Inv. 4-20mA

Select Low Alarm.

```
pH Inv.          /
4-20mA Low Alarm /
   0.0 ft        /
Change to:       /
   00.0          /
                 /
<0.0 to 50.0>    /
```

pH Inv. 4-20mA Calibration (Low)

Calibrate 4-20mA. The Calibration is a two-point calibration. First be sure to calibrate level sensor before calibrating MRC. Take the Level Indicator out of the liquid and wait for 30 seconds. Enter 0.0 then press enter. Press the ENTER key after you have Calibrated low point.

```
pH Inv.            /
Calibrate          /
     0.0 ft        /
Change to:         /
     00.0          /
                   /
<0.0 to 50.0>      /
                   /
```

pH Inv. 4-20mA Calibration (High)

Calibrate 4-20mA. The Calibration is a 2-point calibration. Submerge level indicator to the level where the liquid will be full. Enter the distance in feet. Press the ENTER key after you have Calibrated high point.

```
pH Inv.              /
Calibrate (2nd pt)   /
     0.0 ft          /
Change to:           /
     00.0            /
                     /
<0.0 to 50.0>        /
```

Chlorine Inv.

The System7 will track Chlorine inventory. Press 1 for **Sensor Type**.

```
Other Inputs     |Chlorine High and
Chlorine Inv.    |Low alarms
1 Sensor Type    /
                 /
                 /
                 /
```

Chlorine Inv.

The System7 has two types of sensing. 4-20mA is a continuous reading with an alarm at the low alarm and the Contact Switch will display an alarm when switch is closed. Select a **Sensor Type**.

```
Chlorine Inv.     |Type of Sensor
Sensor Type       |Installed
   Not Installed  /
Change to:        /
1 4-20mA Inputs   /
2 Contact Switch  /
3 Not Installed   /
                  /
```

Chlorine Inv. 4-20mA

The System7 4-20mA needs to be programmed.

```
Other Inputs        |Chlorine Inv. Sensor
Chlorine Inv.        |type and alarms
1 Sensor Type        /
2 Level or Weight    /
3 4-20mA Low Alarm   /
4 Calibrate 4-20mA   /
```

Chlorine Inv. 4-20mA

Select type of measurement.

```
Chlorine Inv.      /
Level or Weight    /
     Level         /
Change to:         /
1 Level            /
2 Weight           /
                   /
```

Chlorine Inv. 4-20mA

Select Low Alarm.

```
Chlorine Inv.       /
4-20mA Low Alarm    /
     0.0 ft         /
Change to:          /
     00.0           /
                    /
<0.0 to 50.0>       /
```

Chlorine Inv. 4-20mA Calibration (Low)

Calibrate 4-20mA. The Calibration is a two-point calibration. Take the Level Indicator out of the liquid and wait for 30 seconds. Enter 0.0 then press enter. Press the ENTER key after you have Calibrated low point.

```
Chlorine Inv.       /
Calibrate           /
    0.0 ft          /
Change to:          /
    OO.O            /
                    /
<0.0 to 50.0>       /
                    /
```

Chlorine Inv. 4-20mA Calibration (High)

Calibrate 4-20mA. The Calibration is a two-point calibration. Submerge level indicator to the level where the liquid will be full. Enter the distance in feet. Press the ENTER key after you have Calibrated high point.

```
Chlorine Inv.       /
Calibrate (2nd pt)  /
    0.0 ft          /
Change to:          /
    OO.O            /
                    /
<0.0 to 50.0>       /
                    /
```

Surge Pit Level

The System7 will track Surge Pit Level. Press 1 for **Sensor Type**.

```
Other Inputs        |High and
Surge Pit Level     |Low alarms
1 Sensor Type       /
                    /
                    /
                    /
```

Surge Pit Level

The System7 has two types of sensing. 4-20mA is a continuous reading with an alarm at the low alarm and the Contact Switch will display an alarm when switch is closed. Select a **Sensor Type**.

```
Surge Pit Level     |Type of Sensor
Sensor Type         |Installed
    Not Installed   /
Change to:          /
1 4-20mA Inputs     /
2 Contact Switch    /
3 Not Installed     /
                    /
```

Surge Pit Level 4-20mA

The System7 4-20mA needs to be programmed.

```
Other Inputs        |Alarms and
Surge Pit Level     |Calibration
1 Sensor Type       /
2 Level or Weight   /
3 4-20mA Low Alarm  /
4 Calibrate 4-20mA  /
                    /
```

Surge Pit Level 4-20mA

Select type of measurement.

```
Surge Pit Level     /
Level or Weight     /
    Level           /
Change to:          /
1 Level             /
2 Weight            /
                    /
```

Surge Pit Level 4-20mA

Select Low Alarm.

```
Surge Pit Level     /
4-20mA Low Alarm    /
    0.0 ft          /
Change to:          /
    OO.O            /
                    /
<0.0 to 50.0>       /
                    /
```

Surge Pit Level 4-20mA Calibration (Low)
Calibrate 4-20mA. The Calibration is a two-point calibration. Take the Level Indicator out of the liquid and wait for 30 seconds. Enter 0.0 then press enter. Press the ENTER key after you have Calibrated low point.

```
Surge Pit Level    |
Calibrate          |
     0.0 ft        |
Change to:         |
    00.0           |
                   |
<0.0 to 50.0>      |
```

Surge Pit Level 4-20mA Calibration (High)
Calibrate 4-20mA. The Calibration is a two-point calibration. Submerge level indicator to the level where the liquid will be full. Enter the distance in feet. Press the ENTER key after you have Calibrated high point.

```
Surge Pit Level    |
Calibrate (2nd pt) |
     0.0 ft        |
Change to:         |
    00.0           |
                   |
<0.0 to 50.0>      |
```

Relay Outputs
Use the arrow keys to point to your choice or press 1 through 6 for your choice.

```
Relay Outputs      |Set the
1 pH Relay         |Calibration, High
2 HRR Relay        |and Low alarms
3 Heater           |for differential
4 Polymer Control  |pressures and
5 Filter Backwash  |levels
6 Energy Saver     |
                   |
```

pH Relay
Refer to pH relay in the Start-up Programming section in this manual.

HRR Relay
Refer to HRR relay in the Start-up Programming section in this manual.

Heater
Refer to Heater Relay in the Start-up Programming section in this manual.

Polymer Control
The System7 will control polymer feed to the filter with a 10-minute cycle timer.

```
Relay Outputs       |System7 will add
Polymer Control     |Polymer to filter
1 High Setpoint     |for better
2 Low Setpoint      |filtration
3 On Time           |
4 Trigger Delay Time|
5 Failsafe Timer    |
                    |
```

Polymer High Setpoint
Use the number keypad to choose the turbidity point where polymer should start feeding. The values under the **Change to:** will show your entry. Press the ENTER key.

```
Polymer Control    |Turbidity reading
High Setpoint      |which will trigger
   0.50 NTU        |Polymer feed cycle
                   |
Change to:         |
   00.50           |
                   |
  <0.00 to 1.00>   |
                   |
```

Polymer Low Setpoint

Use the number keypad to choose the turbidity point where polymer should stop feeding. The values under the **Change to:** will show your entry. Press the ENTER key.

```
Polymer Control    |Turbidity reading
Low Setpoint       |which will end
   0.20 NTU        |Polymer feed cycle
                   |
Change to:         |
   00.20           |
                   |
                   |
   <0.00 to 1.00>  |
```

On Time

Use the number keypad to choose how much "on" time you want out of a 10-minute cycle. The values under the **Change to:** will show your entry. Press the ENTER key.

```
Polymer Control    |Length of on time
On Time            |during each 10
   05:00 min/sec   |minute cycle
                   |
Change to:         |
   05:00           |
                   |
                   |
   <0:00 to 10:00> |
```

Trigger Delay Time

Use the number keypad to choose how much time you want the System7 to delay polymer feed after the high setpoint has been reached. The values under the **Change to:** will show your entry. Press the ENTER key.

```
Polymer Control    |Time turbidity
Trigger Delay Time |reading must remain
   05:00 min/sec   |above setpoint
                   |before it starts
Change to:         |polymer feed.
   05:00           |
                   |
   <0:00 to 30:00> |
                   |
```

Failsafe Timer

Use the number keypad to choose how much "on" time the polymer has to feed without achieving setpoint. The values under the **Change to:** will show your entry. Press the ENTER key.

```
Polymer Control    |When the relay is
Failsafe Timer     |on for this period
   00:30 hm        |of time without
                   |achieving setpoint,
Change to:         |a failsafe alarm
   00:30           |engages and the
                   |relay is locked out
   <0:00 to 2:00>  |
```

Filter Backwash

Refer to Filter Backwash in the Start-up Programming section in this manual.

Energy Saver

Refer to Energy Saver in the Start-up Programming section in this manual.

Assign Relays

Refer to Assigned Relays in the Start-up Programming section in this manual.

Calculations

Refer to Calculations in the Start-up Programming section in this manual.

System Config.

The System7 will communicate and datalog information. You can configure your System7 to datalog and communicate to fit your needs.

```
System Config.       |Baud Rates,
1 Communication      |Datalogging, Units,
2 Datalogging        |Date Format, User
3 Date, Time & Units |Setup, Call-Out,
4 Name and Location  |Factory Defaults
5 User Setup         |
6 Factory Defaults   |
                     |
```

Communication

This is where you can set your communication rate for a direct or a modem connection. You can also setup for the System7 to call-out in the event of an alarm.

```
Communication    |Direct and Modem
1 Direct Baud Rate|Baud Rate. Speed of
2 Modem Baud Rate |Communication
3 Call-Out Setup  |
                  |
                  |
```

Baud Rates

Select the type of communication and then select the speed you wish to communicate with the System7.

Call-Out Setup

The MRC will call a telephone, pager and fax machine in the event of an alarm. The MRC will stay in its call-out mode until someone enters an access code either through WinSys7 or at the MRC.

Call-Out Active will enable or disable feature.

Call Start Time is the time of the day you want the System7 to start calling-out.

Call End Time is the time of day you want the System7 to stop calling-out.

Pre-Delay #1 is how long you want the System7 to be in alarm before calling-out.

Phone #1 is the first number you want the System7 to call-out.

Pre-Delay #2 - #6 is how long you want the System7 to wait before calling the next number.

Phone #2 - #6 are the numbers you want the System7 to call out if previous numbers do not stop call-out.

```
System Config.       |
Call-Out Setup       |
1 Call Out Active    |
2 Call Start Time    |
3 Call End Time      |
4 Pre-Delay #1       |
5 Phone #1           |
6 Pre-Delay #2       |
7 Phone #2           |
8 Pre-Delay #3       |
9 Phone #3           |(1 of 2)
```

```
System Config.    |
Call-Out Setup    |
1 Pre-Delay #4    |
2 Phone #4        |
3 Pre-Delay #5    |
4 Phone #5        |
5 Pre-Delay #6    |
6 Phone #6        |
                  |
                  |
                  |(2 of 2)
```

Datalogging

The System7 will save information into the memory. You can change the time frequency that the System7 saves the parameters. Remember, the more frequently you save, the more often you will have to download, because the memory is used up faster.

```
System Config.       |Datalog Frequency
Datalogging          |
1 Datalog Frequency  |
                     |
                     |
```

Date, Time & Units

Current Date
Refer to Page 20 in Start-up Programming.

Current Time
Refer to Page 20 in Start-up Programming.

Units
Refer to Page 15 in Start-up Programming.

Name, Location and System ID

Enter the customer name. Enter the location of the MRC. Enter the System ID. This may be the MRC serial number or anything that distinguishes the MRC from another. If you have more than one MRC, you can use this number at the end of the phone number when calling a pager so you know which MRC is calling.

```
Name and Location |
1 Customer Name   |
2 Location        |
3 System ID       |
```

User Setup

The System7 will save information that is specific to this site, such as, Customer Name, Location, Operator and Manager Access Codes.

```
System Config.     |Date, Time,
User Setup         |Customer Name,
1 Current Date     |Location, Operator
2 Current Time     |Access, Manager
3 Customer Name    |Access,
4 Location         |Representative
5 Oper. Access Codes|Access Codes
6 Mgrs Access Codes |
7 Rep Access Codes  |
```

User Setup

This screen will allow you to enter the access codes to be used by the operators, managers and representatives. If you only enter 3 of the 6 operator codes and leave the other access codes at 000, 000 will be an access code. Therefore, it is recommended that you change the access codes that aren't being used to a number that is only known by you.

Operator Access Codes

6 operator codes are available for 6 different operators to enter in their individual code.

```
User Setup         |Select Operator
Oper. Access Codes |
1 Op 1             |
2 Op 2             |
3 Op 3             |
4 Op 4             |
5 Op 5             |
6 Op 6             |
```

Manager Access Codes

2 manager codes are available for 2 different managers to enter in their individual code.

```
User Setup         |Select Manager
Mgrs Access Codes  |
1 Mgr 1            |
2 Mgr 2            |
                   |
```

Rep Access Code

Once the rep code is entered, this feature will not show up unless the user is in the rep code. To enter the rep access code screen, the user must press 9 then rep access code.

```
User Setup         |Three-digit number
Rep Access Codes   |
   ***             |
                   |
Change to:         |
   100             |
                   |
```

Factory Defaults

The System7 will reset the parameters to original settings from the factory.

```
System Config.     |Reset System7 to
Factory Defaults   |Original parameters
Change to:         |
1 Preamp Inputs    |
2 Other Inputs     |
3 ChemFeed & Heater |
4 Polymer & Backwash|
5 Relay Config     |
6 Energy Saver     |
7 System Config.   |
8 All Settings     |
```

Access Menu

Enter your access code to gain the ability to change certain parameters. Access code must be entered in the User Setup section for access lockouts to occur.

If the rep wants to gain access and no other access codes have been entered, the Access Menu option must be selected and then press 9 to enter the rep code.

```
Access Menu        |
1 Oper Access Code |
2 Mgr Access Code  |
                   |
```

QUICK KEYS

The System7 allows you to change certain parameters by pressing the Quick Keys: SET POINTS RELAY SETTINGS BACKWASH CALIBRATION EMERGENCY OFF FAILSAFE

SETPOINTS

This Quick Key will allow you to change the setpoints of pH, HRR, Alternate HRR, Temp, Alternate Temp, Polymer High and Polymer Low.

```
Set Points
1 pH              7.5
2 HRR             750 mV
3 Alternate HRR   750 mV
4 Temp            50 °F
5 Alternate Temp  32 °F
6 Polymer High    0.5 NTU
7 Polymer Low     0.2 NTU
```

RELAY SETTINGS

This Quick Key will allow you to change your relays to Auto, Off, or Manual of pH, HRR, Recirc Pump, Temp, or Polymer. This Quick Key will also give you the status of the relay ON/OFF.

```
Relay Settings
1 r1 pH              Auto       Off
2 r2 HRR             Auto       Off
3 r3 Recirc Pump     Auto       On
  r4 Pres Amp Pump              Off
4 r5 Temp            Auto       Off
  r6 BW Motor                   Off
5 r8 Polymer         Auto       Off
```

BACKWASH

This Quick Key will allow you to start or stop a backwash manually.

```
Backwash Operation
1 Start
2 Stop
```

CALIBRATION

This Quick Key will allow you to do a single-point calibration of pH, HRR, Conductivity, Temperature, Filter In, Filter Out, and Strainer Out, plus give you current readings.

```
Single-point Calibration
1 pH              7.5
2 HRR             755 mV
3 Conductivity    1500 μmho
4 Temperature     83 °F
5 Filter In       25 psi
6 Filter Out      20 psi
7 Strainer Out    20 "Vac
```

EMERGENCY OFF

This Quick Key allows you to shut every relay off by just pressing the EMERGENCY OFF key. To enable the relays, just press the EMERGENCY OFF key again.

FAILSAFE

This Quick Key allows you to reset any Failsafes. Press 1 to reset and the System7 will reset the Failsafes.

```
Failsafe Operation
1 Reset
```

Cleaning the Sensors

1. Isolate the Flowcell, then remove the sensors.
2. Clean the tips with HRR Cleaning Solution (or liquid dish soap) and a toothbrush.
3. If HRR cleaning solution is used, skip to Step 5. Otherwise proceed to Step 4.
4. Rinse sensors with water.
5. Use a toothbrush and clean sensor with a 10-to-1 acid-to-water solution.
6. Check Teflon sealing tape on threads.
7. Shake sensor down, like a thermometer. Push liquid down to Teflon junction.
8. Reinstall sensor.
9. Open valves and let sensors rinse 10 to 15 minutes in sample stream water before making any adjustments.

Note: If the sample stream is shut down for more than a short time (particularly in freezing temperatures), remove the sensors from the flowcell and unplug the System7. Store the sensors in a heated, secure area, with the sensor caps in place or with the tips immersed in any small container of water to prevent them from drying out.

Control Panel
    System7 (MRC) 6389923
    ECS System7 (MRC) 6389924
    Full Filter Control Console (FFCC) 9589107

PCB Board
    Pre-Amp Board... 6967001
    1-5 Input Board.. 6489017
    4-20 Input Board.. 6489016

Pre-Amp Fuses
    1 Amp 4429007
    3/10 Amp... 4429011

Conductivity/Temp Probe 7044009

Transducers
    Filter Influent..K2870003I
    Filter Effluent...K2870003E
    Strainer Vacuum..7830006

Liquid Level Sensor for Surge, Chlorine and pH tanks 7829002

Turbidimeter...7830003
    Turbidity free calibrating solution 8109007
    Turbidity 10 NTU calibrating solution 8109008
    Power Supply for turbidimeter...6920014
    Mounting Straps...RM7609061
    Fiberglass nuts 6020291

Flow Sensor
    Flow Sensor .5"-4"..7830002
    Flow Sensor 5"-8"..7830005
    Flow Sensor 10" and up..7830004
    Iron Saddle .5"-4" 7741012
    Iron Saddle 6" 7741013
    Iron Saddle 8" 7741014
    Iron Saddle 10" 7741015
    Iron Saddle 12" 7741016
    Iron Saddle 14" 7741017
    Iron Saddle 16" 7741018
    Iron Saddle 18" 7741019

Cables
    Backwash Pit (LS001)..1989024
    Strainer Vacuum (MP003S) 1980025
    24-Volt (PS024V) 1989026
    Polymer (PS001S) 1989027
    Flow Sensor (FS001) 1989028
    Surge Tank (LS004) 1989029
    pH Tank (LS002)...1989030
    Chlorine Tank (LS003) 1989031
    Turbidimeter (MP004T)..1989032
    Main (PS014P)..1989033

Extension Cables (50 ft)
    Backwash Level Switch (LS001/PS024V) 1989034
    24 volt (LS001/PS024V) 1989034
    Main Signal (PS014PX)...1989036
    Strainer Vacuum (MP003S) 1980025
    Level sensors (LS002/LS003/LS004) 1980035
    Polymer (PS001S) 1989027

USFilter Stranco Products Series Filter System
Limited Warranty

FULL ONE- (1) YEAR WARRANTY

What is Covered?
Any defect in workmanship or materials in your USFilter Stranco Products filter system.
For How Long?
One (1) year from the date of the original installation.
What Will USFilter Stranco Do?
Repair, or if repair is not possible, replace the defective part or parts of your Stranco filter system.
To Qualify for fifteen (15) year warranty: A warranty registration form must be completed by a factory-authorized service technician and USFilter Stranco Products must receive the registration form.

LIMITED WARRANTY ON PARTS FOR THE SECOND THROUGH FIFTEENTH YEAR

What is Covered?
Any defect in workmanship or materials in your USFilter Stranco Products filter system.
For How Long?
From the start of the 2nd year, after date of original installation, until the end of the 15th year.
What Will Stranco Do?
Provide on a Pro-Rata cost basis, at the factory, replacement parts, but not labor to install parts.

PRO-RATING SCHEDULE

A discount will be given based on a percentage of the current published trade price of the faulty part. The discount will be given only for the purchase of a new replacement part for the original filter system.

If Your Stranco Filter Experiences a Failure Due to a Manufacturing Defect During the:	Stranco will Discount as Follows:
2nd year	70%
3rd year	65%
4th year	60%
5th year	55%
6th year	50%
7th year	45%
8th year	40%
9th year	35%
10th year	30%
11th year	25%
12th year	20%
13th year	15%
14th year	10%
15th year	5%

How to Get Service: Contact USFilter Stranco Products, P. O. Box 389, Bradley, Illinois 60915

Your Rights Under State Law: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. USFilter Stranco Products disclaims all liability for damage during transportation, for consequential damage of whatever nature, for damage due to handling, installation, or improper operation, or damage from other causes beyond USFilter Stranco Products' control. USFilter Stranco Products makes no warranties either expressed or implied, including any warranty of merchantability or fitness for particular purpose, other than these stated. No representative has authority to change or modify this warranty in any respect.

STRANTROL SYSTEM7
Mechanical Room Controller

Installation, Operations & Maintenance Manual

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USFilter

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