# Installation, Operation

# & Maintenance Guide

# Clack WS CI

# **Duplex Regenerating Systems**

Including:

Softener

Crystal Right (Iron & Manganese Removal)

Nitrate Removal

Colour Removal (Organic Scavenger)



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Monthly

Yearly

Soda Ash Regeneration (CR100 & CR200 Only)

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Standard hydraulic connections BSP.

#### **Accessories**

5303024075	Bypass (suitable for 1" connections)
5303024084	Auxiliary Micro Switch (for 1" & 1.1/4" valves)
5303020005	Auxiliary Micro Switch (for 1.½" & 2" valves)
5303028632	Service Wrench

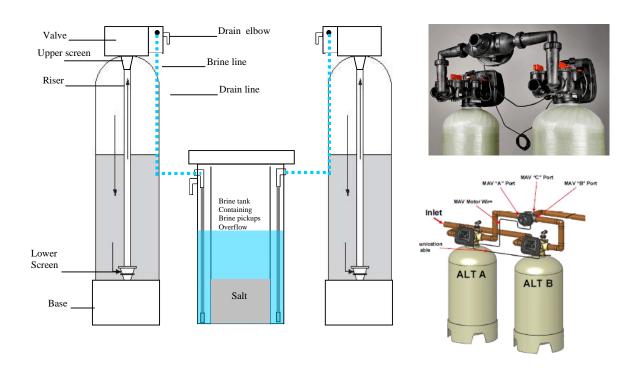
Thank you for purchasing this system. We are sure that it will provide you with trouble free service for many years to come. Please use the following pages to assist you with the assembly and installation of your new system.

# 1. Unpacking

PLEASE USE THE ACCOMPANYING PACKING DOCUMENTS TO CHECK THAT ALL ITEMS ARE PRESENT AND CORRECT.

If any item is missing or damaged your carrier and supplier must be notified within 2 days of receipt if a claim is to be made.

The main parts of the system include:



## 2. Installation

Please observe the local regulations concerning the installation of your system. Check that you have allowed space for access to the unit for possible future maintenance. This installation may require plumbing work and will require an electrical outlet to be fitted near the system. Only attempt this if you have the necessary skills.

#### 2.1 Pre-installation checks

The area needs to be level, frost free, have access to electricity and an open drain. Check the incoming water quality is within any parameters specified for that media (contact your supplier). In addition to this check the incoming water pressure is between 2 and 8 bar (preferably approx. 4 bar) and the water temperature is between 3°C and 45°C.

## 2.2 Fitting the Distribution Systems

Fit the bottom distribution systems into the vessels – the bottom screens should been pre glued to the riser tubes (fig A.1) (smaller systems). Alternatively if the system uses bottom laterals these need to be assembled inside the vessels (fig A.2), Move the vessels to their final positions as they will be difficult to move once the media has been added.







Fig A.1

Fig A.2

Fig A.3

### 2.3 Adding the Media

Block the top of the riser tubes to stop media getting down the tubes.(see fig A.3). Add about 1/3 by volume of water to the vessels so when the media is poured in it doesn't damage the bottom distribution system. If you have been supplied gravel with your kit this should be added first so it covers the bottom distribution systems. Add the media supplied but make sure there is approximately 30%. free space left above the media so when the system is backwashed the media can expand into the space and allow any sediment or contaminants to be backwashed away (there may be media left over). Unblock the riser tubes.

## 2.4 Fitting the Valves

Add a small amount of silicone grease to the valve outer and inner o-rings (fig A.4 & 5).





Fig A.4

Fig A.5

If top screens have been supplied these should be attached next.

Slide the valves onto the riser tubes and gently push it down onto the vessel treads. Screw the valve on until you start to squeeze the main O ring and then finally give the valve a final tighten by tapping the rear side of the valve with the palm of your hand (fig A.6)

Fig A.6



### 2.5 Brine Tank Connections.

Attach the brine line tubing to the brine tank and valves using the connectors fitted to the brine tank (fig A.7), and valve (fig A.8).



Fig A.7



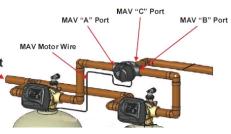
Fig A.8

Sizes may vary depending on the valves used, please note to use the poly insert if provided with your specific valves.

### 2.6 Duplex Hydraulic Connections.

Vertical adapter kits are supplied with softeners using 1" or 1.25" valves with vessels up to 14", these can be used to connect the MAV (Motorised Alternating Valve) to the valves. Larger systems would need to be plumbed Inlet together using BSP connections and standard pipe work.

Meter turbines are internal on 1" & 1.25" valves; for 1.5" and 2" valves the meter turbines should be attached directly to the outlet of the valve.



Representative drawings only.

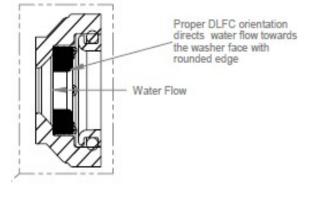
Note: Please make sure that valve A is connected to port A and valve B to port B of the MAV.

## 2.7 DLFC's (drain line flow controls)

This is possibly one of the most important components to check has been installed; this will control the backwash flow rate and ensure the system will continue to function correctly. The DLFC will either be fitted inside the drain line elbow, the 1" adaptor or in an external housing. The larger external DLFC may have more than one flow controls fitted to gain the required flow rate. See below pictures of the drain line housings.



¾" Elbow





1" External Straight



1.1/2" External



Insert

## 2.8 Injectors

The injector is another important item in the functioning of the system, please check that it is fitted in the DN position and that the UP position has been plugged. The injector colour will vary depending on the size of the system, this should be listed on the items list.





#### 2.9 Electrical connections

To connect the power cables you need to firstly remove the covers then remove the drive bracket assemblies by pressing up on the drive brackets release tabs and pulling towards you, the drive bracket including software can now be lifted away to reveal the back plate (fig A.9).

Fig A.9

The power cable should be threaded through the back plate And strain relief as shown in Fig A.9a





Fig A.9a

You can now re install the drive bracket into its original position.

Please make sure that this has been replaced correctly as this can cause problems at a later date.

If fitting a MAV or NHBP locate the knock out on the back plate Fig A.10 then remove the tabs at the bottom of the strain relief on the back side of the back plate fig A.11 thread the cables Fig A.12 and fit the cover Fig A13

fig A.10







Fig A.13

Fig A.11 Fig A.12

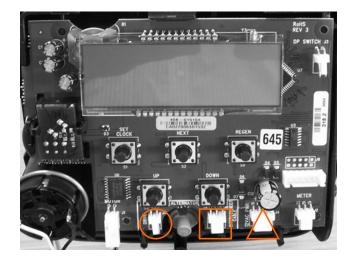
You can now make connections to the PCB board.

Connect MAV here marked Drive.

Connect power here / marked 12V DC

Connect the communication cable to both valves here marked as interconnecting cable.

When all connections have been made the power can be turned on and programming can take place.



#### **Quick Start**

#### 2.10 Programming the Valves.

The valves are pre programmed with the exception of the time of day and the hardness, Nitrate and Colour setting.

All adjustment should be made using the up and down arrows when the setting you wish to adjust is displayed on screen.

Set Time of Day.

Press SET CLOCK.

Adjust the hours and press **NEXT** to adjust the minutes, press **NEXT** to return to the normal **TIME** display.

Hardness setting / Nitrate/ Colour setting.

Press **NEXT** and **UP** simultaneously for 3 seconds and release.

HARDNESS with 340 should appear on screen.

**Softener:** Adjust as necessary to your incoming supply hardness in ppm CaCO3

this can be obtained by using a purchased hardness test kit or by

contacting your water supplier.

Crystal Right: Adjust as necessary to your incoming supply hardness in ppm CaCO3

+ 2 x Sodium level (ppm) if the Sodium level is unknown add 60 to the

total hardness + 1 x Fe Iron (ppm) & 1 x Mn Manganese (ppm).

**Nitrate:** Adjust as necessary to your incoming supply Nitrate reading in ppm.

**Colour Removal:** Set to regen on a timed basis (default every 2 days).

Press **NEXT** repeatedly until the display returns to the time of day.

### 2.11 Programming the Valves in case of memory loss.

Should the programming have been lost in transit the following instructions in conjunction with the relevant setting sheet will allow you to re set them.

When the power has been connected the valve will display the software number and initialise itself and then display **TIME**; you can then start to program the valve.

Selections are made using the **UP** and **DOWN** buttons until the required setting is displayed: after each setting press **NEXT** to continue.

These settings must be applied to both valves, please Take note of the Alternating settings in step 1.



#### Set Time of Day.

#### Press **SET CLOCK**.

Adjust the hours and press **NEXT** to adjust the minutes, press **NEXT** to return to the normal **TIME** display.

#### Step 1: Cycle Sequence.

Press **NEXT** and **DOWN** simultaneously for 3 seconds and release.

The screen will display SOFTENING flashing!

Press **NEXT** and **DOWN** simultaneously for 3 seconds.

The screen should display SET 25, adjust as necessary (see setting sheet page?) Press **NEXT** after each setting and set each setting accordingly until the display returns to **TIME**. (See notes if fitting a untreated Water Bypass valve)

#### Step 2: System Setup.

Press **NEXT** and **DOWN** simultaneously for 3 seconds and release.

The screen will display SOFTENING flashing. Press NEXT.

The screen should display CYCLE 1, adjust as necessary (see setting sheet that corresponds to your system!) Press **NEXT** and set each setting accordingly until the display returns to **TIME**.

#### Step 3: Display Settings.

Press **NEXT** and **UP** simultaneously for 3 seconds and release.

HARDNESS with 340 should appear on screen. Adjust as necessary (see quick start section. Press **NEXT** and set each setting accordingly. The Regen Time settings, have a factory default of 02:00 am this can be adjusted if required the display will return to the time of day after setting the regen time.

## 3. Your System.

#### 3.1 Identifying your System.

Your System will have an identification label fixed to the control valve, this will look similar to the picture shown here.

The information listed can be read as follows:

4202035013

Sno 03100137

Soft 1354-WS1CI Stock Number:

Manufacturers part number.

Serial No: Serial No.

System type identification code (soft, CR100, CR200 Nitrate or

Configuration:

Id Code:

Vessel size, Valve type & Controller type.

Identify the settings from the chart in the programming section.

## The valves are supplied pre programmed! (excluding settings that need to be done on site)

# The settings are listed in case there is a need to re program the valves.

If you have any concerns or worries following the setting procedure please contact your supplier who will help you through the set up procedures.

Using the above information to identify your system you can then select the relevant setting sheet from the following pages.

#### 3.2 Softener.

Step 1, Cycle Sequence,   Press NEXT and DOWN Simultaneously for 3 seconds and release.   Screen will display SOFT ENING flashing   Press NEXT and DOWN simultaneously for three seconds, the screen should display SET 25, adjust to turbine setting below,   Turbine Size WS1	appry the scaling	s in the fo	llowing sec	luence									
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Windows   Wind													700
WS125C  WS12	modia volumo (iii oo)		00	•			.20				000	000	
WS125C  WS12	Valves	WS1CI	WS1CI	WS1CI	WS1CI	WS1CI	WS1CI	WS1CI	WS1CI	WS1CI			
WSJCI   WSJC													
WSZCI   WSZC				WS15CI	WS15CI	WS15CI	WS15CI						
WS2LCI   W									WS2CI		WS2CI	WS2CI	WS2C
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Turbine Size WS1,5													
Furbine Size WS2	,	32	32										
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Hardness Set on Site Hardness Q 0 (not used) Regen Day Off Set Time Regen Default 2.00am  Step 4, Set time of day, Press SET CLOCK Set hours using the up and down buttons. Set minutes using the up and down buttons, Notes. Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings	ashing shou 14 60 6 6 6 2	uld appear o 14 70 6 7.5	n screen. 14 62 6 9 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 E 6.3 (automatic r	14 84 6 27 10 and 8.8 eserve calc	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Hardness 2 0 (not used) Regen Day Off Set Time Regen Default 2.00am  Step 4, Set time of day, Press SET CLOCK Set hours using the up and down buttons. Set minutes using the up and down buttons, Notes.  Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simulta	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 E 6.3 (automatic r	14 84 6 27 10 and 8.8 eserve calc	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Regen Day Off Set Time Regen Default 2.00am Step 4, Set time of day, Press SET CLOCK Set hours using the up and down buttons. Set minutes using the up and down buttons, Votes. Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simulta- HARDNESS with 340 flass	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 E 6.3 (automatic r	14 84 6 27 10 and 8.8 eserve calco	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Set Time Regen  Default 2.00am  Step 4, Set time of day, Press SET CLOCK Set hours using the up and down buttons. Set minutes using the up and down buttons, Votes.  Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simultate L'ARDNESS with 340 flass Clarchess	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 E 6.3 (automatic r	14 84 6 27 10 and 8.8 eserve calc n 0 Off	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Step 4, Set time of day, Press SET CLOCK Set hours using the up and down buttons. Set minutes using the up and down buttons, Notes. Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Dycle 1 Backwash Dycle 2 Brine dn Dycle 3 Rinse Dycle 4 Fill Kg Dycle 4 Fill Min 2" Only Dycle 5 Dapacity Kg Set Regen Set Salt Step 3, Display Settings Press NEXT & UP simultate HARDNESS with 340 flass Hardness Hardness 2	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 E 6.3 (automatic r	14 84 6 27 10 and 8.8 eserve calc 0 Off	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Press SET CLOCK Set hours using the up and down buttons. Set minutes using the up and down buttons, Notes.  Neset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simulta HARDNESS with 340 flass Hardness Hardness 2 Regen Day	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Set hours using the up and down buttons. Set minutes using the up and down buttons, Notes. Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simultate HARDNESS with 340 flass Hardness 2 Regen Day Set Time Regen	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Set minutes using the up and down buttons,  Notes.  Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simultate HARDNESS with 340 flass Hardness 2 Regen Day Set Time Regen Set Film Regen Set Salt Se	ashing shou 14 60 6 6 2 2	uld appear o  14  70  6  7.5  2.5	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Notes. Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Dycle 1 Backwash Dycle 2 Brine dn Dycle 3 Rinse Dycle 4 Fill Kg Dycle 4 Fill Min 2" Only Dycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simultated HARDNESS with 340 flast Hardness Hardness 2 Regen Day Set Time Regen	ashing should 14 60 6 6 2 2 i.e. aneously foshing should	Ild appear o  14 70 6 7.5  2.5  r three seco	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
Reset: Press & Hold REGEN & NEXT for three seconds.	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simulta HARDNESS with 340 flast Hardness Hardness 2 Regen Day Set Time Regen Set Fire Set ToLOCK Set hours using the up an	ashing should 14 60 6 6 2 2 5. aneously foothing should and down but	uld appear o  14  70  6  7.5  2.5  r three seco d appear on	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Time Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simulta SHARDNESS with 340 flas Stardness Segen Day Set Time Regen Step 4, Set time of day, Press SET CLOCK Set hours using the up an Set minutes using the up	ashing should 14 60 6 6 2 2 5. aneously foothing should and down but	uld appear o  14  70  6  7.5  2.5  r three seco d appear on	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
	Step 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Sycle 1 Backwash Sycle 2 Brine dn Sycle 3 Rinse Sycle 4 Fill Kg Sycle 4 Fill Min 2" Only Sycle 5 Sapacity Kg Set Regen Set Time Regen Set Salt Step 3, Display Settings Press NEXT & UP simultate HARDNESS with 340 flast Hardness 2 Regen Day Set Time Regen Set To CLOCK Set hours using the up an Set minutes using the up Inters.	ashing should for the should form the should f	uld appear o  14  70 6 7.5  2.5  r three second appear on  ttons. buttons,	n screen. 14 62 6 9 3 3	14 64 6 11.25 4	86 6 15 6	14 71 6 18.5 7 6.3 (automatic r 0	14 84 6 27 10 and 8.8 eserve calc n 0 Off on Site t used)	61 6 33.5 12	68 6 33.5 12	66 6 45 16	81 6 75 27	72 6 105 38
otal Reset: (Resets all values) Press & Hold REGEN & NEXT for three seconds, then press and hold the up and down buttons together for three second , If the DP switch is to be used it must be set on both valves and have its own connection.	Riche 2. System Setup, Press NEXT and DOWN SET with SOFTENING fla Cycle 1 Backwash Cycle 2 Brine dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 4 Fill Kg Cycle 4 Fill Min 2" Only Cycle 5 Capacity Kg Set Regen Set Regen Set Regen Set Salt Set Pass NEXT & UP simultate ARDNESS with 340 flast Farchess 2 Regen Cycle 5 Set Time Regen	ashing should 14 60 6 6 2 2 5. aneously football and down but and down	uld appear o  14 70 6 7.5  2.5  r three second appear on  ctons.  cuttons,  CT for three seconds.	n screen.  14 62 6 9 3 3 ands and rel screen,	14 64 6 11.25 4 3.8	86 6 15 6 5 Auto	14 71 6 18.5 7 E 6.3 (automatic r 0 (  Set 0 0 (no	14 84 6 27 10 and 8.8 eserve calcon 0 Off on Site t used) 0 Off	61 6 33.5 12 11.2 ulation)	68 6 33.5 12 11.2	66 6 45 16 15	81 6 75 27 25	72 6 105 38 35

#### Notes:

# 3.3 Crystal Right 100.

Please apply the settings in the	etting of 100ppn		R100 Cry	stal-Righ	t						
Selections are made using the			il the re	auired se	ettina is c	lisplaved	L				
After each setting press NEXT							,				
/essel Size	1044	1054	1252	1354	1465	1665	1865	2160	2469	3072	3672
Media Volume (litres)	28.3	42.5	56.6	70	99	127	170	198	311	538	679
′alve	WS1	WS1	WS1	WS1	WS1	WS1	WS1	WS1			
	WS125	WS125	WS125	WS125	WS125	WS125	WS125	WS125			
			WS1,5	WS1,5	WS1,5	WS1,5	WS1,5	WS1,5	WS1,5		
			WS2	WS2	WS2	WS2	WS2	WS2	WS2	WS2	WS2
ton 4 Cords Commons			WS2L	WS2L	WS2L	WS2L	WS2L	WS2L	WS2L	WS2L	WS2L
tep 1, Cycle Sequence.  Tress NEXT and DOWN simultar	secuely for 3 sec	ande and	rologeo								
creen will display SOFTENING		orius ariu	release.								
ress NEXT and DOWN simultar		seconds.	the scre	en should	l display 9	SFT 25. a	diust to t	urbine se	ttina bela	ow.	
urbine Size WS1	25	25	25	25	25	25	25	25	ttii ig 20it	, , ,	
urbine Size WS1,25	32	32	32	32	32	32	32	32			
urbine Size WS1,5	- "		38	38	38	38	38	38	38		
urbine Size WS2			50	50	50	50	50	50	50	50	50
urbine Size WS2L			50L	50L	50L	50L	50L	50L	50L	50L	50L
ternating					Alt A and	d Alt B re	spective	ly			
						Off					
ardness						PPM					
et 1 et 2						Backwas	h				
	Brine dn										
							1				
et 3						Rinse	1				
Set 3 Set 4						Rinse Fill	1				
Set 3						Rinse	1				
Set 3 Set 4 Set 5	neously for 3 sec	onds and	release.			Rinse Fill	1				
et 3 set 4 set 5 step 2, System Setup.			release.			Rinse Fill	<b>1</b>				
et 3 let 4 let 5 let 5 letes System Setup. letes NEXT and DOWN simultar lET with SOFTENING flashing sl lycle 1 Backwash	hould appear on 14	screen.	release.	14	14	Rinse Fill	14	14	14	14	14
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn	hould appear on 14 66	screen. 14 52	14 64	57	81	Rinse Fill End	14 75	55	61	49	67
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse	hould appear on 14 66 7	14 52 7	14 64 7	57 7	81 7	Rinse Fill End	14 75 7	55 7	61 7	49 7	67 7
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg	hould appear on 14 66	screen. 14 52	14 64	57	81	Rinse Fill End 14 67 7 15.25	14 75	55	61	49	67 7
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End	hould appear on 14 66 7 4	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12	Rinse Fill End 14 67 7 15.25 End	14 75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg)	hould appear on 14 66 7	14 52 7	14 64 7	57 7	81 7	Rinse Fill End  14 67 7 15.25 End 3.8	14 75 7	55 7	61 7	49 7	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen	hould appear on 14 66 7 4	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12 3	Rinse Fill End  14 67 7 15.25 End 3.8 Auto	14 75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen egen	hould appear on 14 66 7 4	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12 3	Rinse Fill End  14 67 7 15.25 End 3.8	14 75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen	hould appear on 14 66 7 4	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12 3	Rinse Fill End 14 67 7 15.25 End 3.8 Auto ORMAL co	14 75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing si ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg yycle 5 End apacity (Kg) egen egen alt	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12 3	Rinse Fill End 14 67 7 15.25 End 3.8 Auto ORMAL co	14 75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing si ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen egen alt tep 3, Display Settings,	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5	81 7 12 3	Rinse Fill End 14 67 7 15.25 End 3.8 Auto ORMAL co	14 75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen egen alt tep 3, Display Settings, ress NEXT and UP simultaneou ARDNESS with 340 flashing she ardness	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5	81 7 12 3 N	Rinse Fill End 14 67 7 15.25 End 3.8 Auto ORMAL co	14 75 7 20.5 5.1	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 et 6 et 7 es Next and DOWN simultar es NEXT and DOWN simultar es NEXT and DOWN simultar et with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen agen alt et p3, Display Settings, ess NEXT and UP simultaneou ARDNESS with 340 flashing sh archess archess 2	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5 2.2	81 7 12 3 N	Rinse Fill End  14 67 7 15.25 End 3.8 Auto ORMAL c Off  Set on Si O (Not use	14 75 7 20.5 5.1 on 0	55 7 23.75 5.9	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 et 7 est 8 et 9 et 9 est 8 et 9 est 9 est 8 est 9 est 9 est 8 est 9 e	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5 2.2	81 7 12 3 N	Rinse Fill End  14 67 7 15.25 End 3.8 Auto ORMAL c Off  Set on Si O (Not use everride da	14 75 7 20.5 5.1 on 0	55 7 23.75 5.9	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 et 2, System Setup. ess NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen elt ep 3, Display Settings, ess NEXT and UP simultaneou ARDNESS with 340 flashing she archess archess 2 egen Day egen on m3	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5 2.2	81 7 12 3 N	Rinse Fill End  14 67 7 15.25 End 3.8 Auto ORMAL c Off  Set on Si O (Not use	14 75 7 20.5 5.1 on 0	55 7 23.75 5.9	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) egen egen elt tep 3, Display Settings, ress NEXT and UP simultaneou ARDNESS with 340 flashing she archess archess 2 egen Day egen on m3 tep 4. Set time of day,	hould appear on 14 66 7 4 0.7	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5 2.2	81 7 12 3 N	Rinse Fill End  14 67 7 15.25 End 3.8 Auto ORMAL c Off  Set on Si O (Not use everride da	14 75 7 20.5 5.1 on 0	55 7 23.75 5.9	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 tep 2, System Setup. ress NEXT and DOWN simultar ET with SOFTENING flashing sl ycle 1 Backwash ycle 2 Brine Draw dn ycle 3 Rinse ycle 4 Fill Kg ycle 5 End apacity (Kg) regen regen egen elt tep 3, Display Settings, ress NEXT and UP simultaneou ARDNESS with 340 flashing she archess archess 2 regen Day regen on m3 tep 4. Set time of day, ress SET CLOCK	hould appear on 14 66 7 4 0.7 sly for 3 seconds	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5 2.2	81 7 12 3 N	Rinse Fill End  14 67 7 15.25 End 3.8 Auto ORMAL c Off  Set on Si O (Not use everride da	14 75 7 20.5 5.1 on 0	55 7 23.75 5.9	61 7 37.5	49 7 64.5	67 7 81.5
et 3 et 4 et 5 et 2, System Setup. ess NEXT and DOWN simultar ET with SOFTENING flashing sl /cle 1 Backwash /cle 2 Brine Draw dn /cle 3 Rinse /cle 4 Fill Kg /cle 5 End apacity (Kg) egen egen elt etp 3, Display Settings, ress NEXT and UP simultaneou ARDNESS with 340 flashing she archess archess 2 egen Day egen on m3 etp 4. Set time of day,	hould appear on 14 66 7 4 0.7 sly for 3 seconds ould appear on s	screen. 14 52 7 5 1.3	14 64 7 6.75	57 7 8.5 2.2	81 7 12 3 N	Rinse Fill End  14 67 7 15.25 End 3.8 Auto ORMAL c Off  Set on Si O (Not use everride da	14 75 7 20.5 5.1 on 0	55 7 23.75 5.9	61 7 37.5	49 7 64.5	67 7 81.5

#### **Notes:**

# 3.4 Crystal Right 200.

Selections are made using the l After each setting press NEXT t		uons un	til the re	quireu se	etting is o	lisplayed	,				
/essel Size	1044	1054	1252	1354	1465	1665	1865	2160	2469	3072	3672
Media Volume (litres)	28.3	42.5	56.6	70	99	127	170	198	311	538	679
/alve	WS1	WS1	WS1	WS1	WS1	WS1	WS1	WS1			
	WS125	WS125		WS125			WS125				
			WS1,5	WS1,5	WS1,5	WS1,5	WS1,5	WS1,5	WS1,5	14/00	14/00
			WS2	WS2	WS2	WS2	WS2	WS2	WS2	WS2	WS2
Step 1, Cycle Sequence.			WS2L	WS2L	WS2L	WS2L	WS2L	WS2L	WS2L	WS2L	WS2L
Press NEXT and DOWN simultan	neously for 3 sec	onds and	release.								
Screen will display SOFTENING f	flashing										
Press NEXT and DOWN simultan									tting belo	ow,	
urbine Size WS1	25 32	25 32	25	25	25	25	25	25			
urbine Size WS1,25	32	32	32 38	32 38	32 38	32 38	32 38	32 38	20		
urbine Size WS1,5 urbine Size WS2			50	50	50	50	50	50	38 50	50	50
urbine Size WS2L			50L		50L	50L	50L	50L			50L
urbine Size vvSzL Itemating			SUL	50L		d Alt B re			50L	50L	50L
DP					AIL A ail	Off	spective	ıy			
lardness						PPM					
et 1						Backwas	h				
Set 2						Brine dr					
Set 3						Rinse	<u>.</u> '				
Set 4						Fill					
	FIII End										
						EHU					
Set 5 Step 2, System Setup. Press NEXT and DOWN simultan	•		release.			Elia					
Step 2, System Setup. Press NEXT and DOWN simultan SET with SOFTENING flashing sh	hould appear on	screen.						.,,			
Step 2, System Setup. Press NEXT and DOWN simultan SET with SOFTENING flashing sh Cycle 1 Backwash	hould appear on 14	screen.	14	14	14	14	14	14	14	14	14
Step 2, System Setup. Press NEXT and DOWN simultan SET with SOFTENING flashing shoycle 1 Backwash Cycle 2 Brine Drawdn	hould appear on 14 66	screen. 14 52	14 64	57	81	14 67	75	55	61	49	67
tep 2, System Setup. Press NEXT and DOWN simultan ET with SOFTENING flashing shoycle 1 Backwash Cycle 2 Brine Draw dn Cycle 3 Rinse	hould appear on 14 66 7	screen. 14 52 7	14 64 7	57 7	81 7	14 67 7	75 7	55 7	61 7	49 7	67 7
Step 2, System Setup. Press NEXT and DOWN simultan SET with SOFTENING flashing shoycle 1 Backwash Cycle 2 Brine Draw dn Cycle 3 Rinse Cycle 4 Fill Kg	hould appear on 14 66	screen. 14 52	14 64	57	81	14 67 7 15.25	75	55	61	49	67 7
tep 2, System Setup. Press NEXT and DOWN simultants ET with SOFTENING flashing shocked 1 Backwash Cycle 2 Brine Draw dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 5 End	hould appear on 14 66 7 4	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12	14 67 7 15.25 End	75 7 20.5	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
Retep 2, System Setup. Press NEXT and DOWN simultant ET with SOFTENING flashing shocked 1 Backwash Cycle 2 Brine Draw dn Cycle 3 Rinse Cycle 4 Fill Kg Cycle 5 End Capacity (Kg)	hould appear on 14 66 7	screen. 14 52 7	14 64 7	57 7	81 7	14 67 7 15.25 End 5.1	75 7	55 7	61 7	49 7	67 7 81.5
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tep 2, System Setup.  Iress NEXT and DOWN simultan  IET with SOFTENING flashing shocke 1 Backwash  Iycle 2 Brine Draw dn  Iycle 3 Rinse  Iycle 4 Fill Kg  Iycle 5 End  Iapacity (Kg)  Iegen  Iegen	hould appear on 14 66 7 4	screen. 14 52 7 5	14 64 7 6.75	57 7 8.5	81 7 12 4	14 67 7 15.25 End 5.1 Auto	75 7 20.5 6.8	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
Retep 2, System Setup. Press NEXT and DOWN simultant RET with SOFTENING flashing shocke 1 Backwash Processor of Systems of Systems of Systems Reterory of Systems of	hould appear on 14 66 7 4 1.2	screen. 14 52 7 5	14 64 7 6.75 2.2	57 7 8.5	81 7 12 4	14 67 7 15.25 End 5.1 Auto	75 7 20.5 6.8	55 7 23.75	61 7 37.5	49 7 64.5	67
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Retep 2, System Setup. Press NEXT and DOWN simultant ET with SOFTENING flashing shocked 1 Backwash Proceed 3 Rinse Proceed 4 Fill Kg Proceed 5 End Regen Regen Regen Regen Retep 3, Display Settings, Press NEXT and UP simultaneous RARDNESS with 340 flashing shocked	hould appear on 14 66 7 4 1.2	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto	75 7 20.5 6.8 on 0	55 7 23.75	61 7 37.5	49 7 64.5	67 7 81.5
Retep 2, System Setup. Press NEXT and DOWN simultant RET with SOFTENING flashing showing 1 Backwash Proceed 2 Brine Draw dn Proceed 3 Rinse Proceed 4 Fill Kg Proced 4 Fill Kg Proced 4 Fill Kg Proced 5 End Regen Regen Regen Retep 3, Display Settings, Press NEXT and UP simultaneous RARDNESS with 340 flashing showing archess Reardness 2	hould appear on 14 66 7 4 1.2	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5 3.1	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto ORMAL c Off	75 7 20.5 6.8 on 0	55 7 23.75 7.9	61 7 37.5	49 7 64.5	67 7 81.5
tep 2, System Setup.  Iress NEXT and DOWN simultan  IET with SOFTENING flashing shocke 1 Backwash  Iycle 2 Brine Draw dn  Iycle 3 Rinse  Iycle 4 Fill Kg  Iycle 5 End  Idapacity (Kg)  Idegen	hould appear on 14 66 7 4 1.2	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5 3.1	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto ORMAL o Off	75 7 20.5 6.8 on 0	55 7 23.75 7.9	61 7 37.5	49 7 64.5	67 7 81.5
tep 2, System Setup.  Iress NEXT and DOWN simultan  IET with SOFTENING flashing shocke 1 Backwash  Iycle 2 Brine Draw dn  Iycle 3 Rinse  Iycle 4 Fill Kg  Iycle 5 End  Iapacity (Kg)  Idegen  Idegen  Idegen  Idegen  Idegen  Ider 3, Display Settings,  Iress NEXT and UP simultaneous  IARDNESS with 340 flashing shocker  Ider Shockers  Iardness  Iardness 2  Idegen Day  Idegen On m3	hould appear on 14 66 7 4 1.2	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5 3.1	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto ORMAL c Off	75 7 20.5 6.8 on 0	55 7 23.75 7.9	61 7 37.5	49 7 64.5	67 7 81.5
tep 2, System Setup.  Iress NEXT and DOWN simultanters NEXT and DOWN simultanters with SOFTENING flashing strongler 1 Backwash tycle 1 Backwash tycle 2 Brine Draw dnowled 3 Rinse tycle 4 Fill Kg tycle 5 End tapacity (Kg) tegen t	hould appear on 14 66 7 4 1.2	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5 3.1	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto ORMAL o Off	75 7 20.5 6.8 on 0	55 7 23.75 7.9	61 7 37.5	49 7 64.5	67 7 81.5
tep 2, System Setup.  Iress NEXT and DOWN simultanters NEXT and DOWN simultanters with SOFTENING flashing shocke 1 Backwash bycle 2 Brine Draw dnowcle 3 Rinse bycle 4 Fill Kg bycle 5 End	hould appear on 14 66 7 4 1.2 sly for 3 seconds	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5 3.1	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto ORMAL o Off	75 7 20.5 6.8 on 0	55 7 23.75 7.9	61 7 37.5	49 7 64.5	67 7 81.5
Retep 2, System Setup. Press NEXT and DOWN simultant ET with SOFTENING flashing shocked 1 Backwash Proceed 3 Rinse Proceed 4 Fill Kg Proceed 5 End Regen Regen Regen Regen Retep 3, Display Settings, Press NEXT and UP simultaneous RARDNESS with 340 flashing shocked	hould appear on 14 66 7 4 1.2 sly for 3 seconds ould appear on s	screen. 14 52 7 5 2.1	14 64 7 6.75 2.2	57 7 8.5 3.1	81 7 12 4 N	14 67 7 15.25 End 5.1 Auto ORMAL o Off	75 7 20.5 6.8 on 0	55 7 23.75 7.9	61 7 37.5	49 7 64.5	67 7 81.5

### Notes:

### 3.5 Nitrate Removal.

Please apply the settin							_				
Selections are made us After each setting pres			buttons ur	ntil the requ	uired settin	ng isdispla	yed,				
Capacities based on 20g	,		,								
Vessel Size	S735	S835	S935	S1035	1044	1054	1248/52	1354	1465	1665	1865
Media Volume (litres)	18	25	30	35	35	42	50	75	100	125	175
√alves	WS1CI WS125CI	WS1CI WS125CI	WS1CI WS125CI	WS1CI WS125CI	WS1CI WS125CI	WS1CI WS125CI	WS1CI WS125CI WS15CI WS2CI WS2LCI	WS1CI WS125CI WS15CI WS2CI WS2LCI	WS1CI WS125CI WS15CI WS2CI WS2LCI	WS1CI WS125CI WS15CI WS2CI WS2LCI	WS1CI WS1250 WS15C WS2CI WS2LC
Step 1, Cycle Sequence	е,										
Press NEXT and DOWN		ously for 3 s	econds and	d release.							
Screen will display SOF											
Press NEXT and DOWN										25	0.5
Turbine Size WS1	25 32	25 32	25 32	25 32	25 32	25 32	25	25	25	25	25
Turbine Size WS1,25	32	32	32	32	3∠	32	32	32	32	32	32
Turbine Size WS1,5 Turbine Size WS2							38 50	38 50	38 50	38 50	38 50
Turbine Size WS2L							50L	50L	50L	50L	50L
Set (Alternating)					Δlt Δar	nd Alt B res		SUL	SUL	JUL	JUL
SET dp					All A al	Off	pecuvery				
Hardness / Nitrate						PPM					
Set 1						Backwash	1				
Set 2						Brine Draw	dn				
Set 3						Rinse					
Set 4					Fi	ll (Salt requi	red)				
Set 5						End					
Step 2. System Setup,											
Press NEXT and DOWN				d release.							
SET with SOFTENING f	•			-	-	-	-	-	_	-	_
Cycle 1 Backwash	5	5	5 ~~	5	5	5	5	5	5	5	5
Cycle 2 Brine dn	64 6	59	63 6	63	60	70 6	62 6	64 6	86	71 6	84
Cycle 3 Rinse Cycle 4 Fill Kg	3.05	6 4.3	5.05	6 5.05	6 6.05	7.3	8.55	12.8	6 17.05	21.55	6 29.55
Cycle 4 Fill Min 2" Only	3.03	4.5	3.03	3.03	0.00	7.3	3	4	6	7	10
Cycle 5							J	End	Ū		10
Set Capacity Kg	0.36	0.5	0.6	0.7	0.7	0.84	1	1.5	2	2.5	3.5
Set Regen	0.00	0.0	0.0			natic reserv	· ·		_	0	0.0
Set Time Regen						NORMAL or		,			
Set Salt					(:	Salt Alarm C	Off)				
Step 3, Display Setting	s.										
Press NEXT & UP simul				elease.							
HARDNESS with 340 fla	shing shoul	d appear or	n screen,								
Hardness / Nitrate				Set	on site usir	ng the Nitrat		ppm			
Hardness 2						0 (not used	d)				
Regen Day					_	Off					
Cat Time a Da					L	Default 2.00a	arn				
Set Time Regen	,										
Step 4, Set time of day	- · · · · · · · · · · · · · · · · · · ·										
Step 4, Set time of day Press SET CLOCK	nd dawn bu	ttone									
Step 4, Set time of day											

### Notes:

# 3.6 Colour Removal (Organic Scavenger).

Please apply the settings in	_	•									
Selections are made using		N buttons	until the re	quired sett	ing is displ	ayed.					
After each setting press NE	XT to continue.										
/essel Size	1054	1248	1354	1465	1665	1865	2160	2160	2469	3072	3672
Media Volume (litres)	50	60	75	100	125	175	225	225	300	500	700
/alves	WS1CI	WS1CI	WS1CI	WS1CI	MC4CI	WS1CI	WS1CI	WS1CI			
/alves	WS125CI	WS125CI	WS125CI		WS1CI WS125CI	WS125CI		WS125CI			
	WS15CI	WS15CI	WS15CI	WS15CI	WS15CI	WS15CI	WS15CI	WS15CI			
		WS2CI	WS2CI	WS2CI	WS2CI	WS2CI	WS2CI	WS2CI	WS2CI	WS2CI	WS2C
		WS2LCI	WS2LCI	WS2LCI	WS2LCI	WS2LCI	WS2LCI	WS2LCI	WS2LCI	WS2LCI	WS2LC
Step 1, Cycle Sequence,											
Press NEXT and DOWN simi	ultaneously for 3 s	econds and	release.								
Screen will display SOFTENII											
Press NEXT and DOWN simi											
Turbine Size WS1 Turbine Size WS1,25	25 32	25 32	25 32	25 32	25 32	25 32	25 32	25 32			
Furbine Size WS1,25	32 38	32	32 38	38	32 38	38	32 38	32			
Furbine Size WS2	55	50	50	50	50	50	50	50	50	50	50
Turbine Size WS2L		50L	50L	50L	50L	50L	50L	50L	50L	50L	50L
Alternating					Alt A ar	nd Alt B resp	eectively.				
)P						Off					
Hardness Set Cycle 1						Off Backwash					
Set Cycle 2						Brine Draw	-				
Set Cycle 3						Fast Rins					
Set Cycle 4						Fill					
Set Cycle 5						End					
Step 2, System Setup. Press NEXT and DOWN simi	ultaneously for 3 s	econde and	Irologeo								
SET with SOFTENING flashing			i i cicase.								
Cycle 1 Backwash	14	14	14	14	14	14	14	14	14	14	14
Cycle 2 Brine draw dn	74	74	78	104	110	77					
Cycle 3 Fast Rinse	6	6	6	6	6	6	6	6	6	6	6
Cycle 4 Fill Kg Cycle 5	13	15.6	19.5	26	32.5	45.5 End	58.5	58.5	78	130	182
Capacity Kg	2.5	3	3.8	5	6.3	8.8	11.2	11.2	15	25	35
Regen	2.0	, ,	0.0		0.0	Auto					00
Regen						NORMAL					
Salt						Off					
Step 3, Display Settings,		مامد لممامد									
Press NEXT and UP simultar HARDNESS with 340 flashing			ase.								
łardness	g should appear of	1 3010011.				Na					
lardness 2						Na					
Regen Day					Init	ial setting 2	Days				
Regen on m3						Na					
Step 4. Set time of day,											
Proce SET CLOCK	own buttons.										
Press SET CLOCK Set hours using the up and do											
Press SET CLOCK Set hours using the up and do Set minutes using the up ar	nd down buttons	,									
Set hours using the up and do	nd down buttons	,									

25/05/2011

#### Notes:

## 4. Commissioning the System

#### 4.1 Introduction.

With the system fully plumbed and the valves programmed commissioning can start.

## 4.2 Regeneration.

When the system is fully functional the regeneration will happen when capacity or period has expired. However, running a manual regeneration during commissioning is the best way of removing air from the system, bedding in the resin and flushing the system through.

Make sure the water inlet and outlet are closed. Press and hold the regeneration button for 3 seconds. The piston will move to the backwash position. Slowly half open the water inlet to the system, and then slowly open the outlet to allow the air to be purged from the system. Once this has been done you can fully open the inlet and outlet and allow the system to continue through the regeneration cycle, this will allow you to check for leaks and also purge any remaining air from the system. After a backwash the system will move through a brine draw routine, rinse and fill before stopping in the service position.

#### This will need to be done on both valves.

For new systems or after a media change it maybe necessary to run two regenerations to fully charge the media (check the water at the end of the backwash is running clear).

To initiate a delayed regeneration press the regeneration button once quickly this will start flashing Regen Today in the bottom left corner of the screen and the system will regenerate at the pre-set regeneration time. If you wish to cancel this just press the regeneration button again and the display will disappear.

To initiate an immediate regeneration press and hold the regeneration button until the valve motor starts to turn.

If during a regeneration cycle you need to skip through the cycle this can be done in the following way. To skip to the next stage quickly press the regeneration button and this will take it to the next stage of the regeneration, this can be repeated to get to the end of the regeneration cycle.

#### 4.3 Service.

Water flows into the valve at the top, down through the media and then up through the 'riser' tube in the middle of the vessel. As the water travels through the media the ion exchange takes place. The controllers are set to automatically regenerate on capacity.

The display on the control can show either of the following; Time, current flow in litres per minute or remaining capacity, this can be changed by pressing the NEXT button.

#### 5. Routine Maintenance

Your system is designed to run with the minimum of maintenance and does not normally require much adjustment.

#### Weekly

Check the salt level (this may need to be done more regularly dependant on consumption) **The salt level should always be above the water level.** 

Check there is no sign of damage or leaks,

Check the quality of the treated water.

#### **Monthly**

Check the quality of the incoming water to see if it has changed significantly.

#### Yearly

Check for leaks or damage.
Soda Ash Regeneration CR100 & CR200 units only)

#### Soda Ash Regeneration (CR100 & CR200 Only)

# GUIDELINES FOR THE USE OF SODA ASH AS A REGENERANT IN CRYSTAL – RIGHT INSTALLATIONS

Crystal Right is a well proven iron and manganese reduction media. Provided that the guidelines are followed with regard to the water analysis and selecting the correct grade and volume of media, then problems are rare. However there can be certain ground conditions where dissolved gases in the raw water may lead to a reduction in operating capacity.

During the normal service run gases present in ground water will be absorbed by the Crystal Right, and most of these gases are released during the standard brine regeneration. However some gases [especially CO2] may not be and stay retained in the crystals. This leads to a small reduction in Crystal-Right's exchange capacity per cycle which after a while can lead to a significant decrease in the exchange capacity of the unit.

To reverse the loss of capacity we have to carry out a regeneration that will release the remaining elements retained by the crystals that have not been removed by the standard brine regenerations. The way we can achieve this is to do regeneration with Sodium Carbonate [Na2CO3] which is also known as Soda Ash.

To reverse capacity loss we would suggest 'shock treatment' regeneration with Soda Ash followed by further routine regenerations at set intervals to prevent a further build up of problem elements on the crystals. It can also be beneficial to periodically regenerate Crystal-Right units that are working satisfactorily with Soda Ash purely as a preventative measure; it will be beneficial to the crystals.

#### Soda Ash Regeneration Procedure As a Routine Maintenance

Soda Ash is a powder which needs to be dissolved in water to make a liquid that can be drawn into the unit during a regeneration cycle, warm water will dissolve the Soda Ash faster, stirring the mixture also helps to dissolve it. Once the measured amount has been dissolved it is added to the brine solution in the brine tank and regeneration is initiated, during the injection cycle the mixture of brine and liquid soda ash will be drawn into the Crystal-Right bed in the normal way. If the brine tank is fitted with a brine well you can ensure the liquid soda ash makes direct contact with the brine by introducing it via the top of the brine well.

#### **Soda Ash Shock Treatment**

The Soda Ash is prepared in the same way and to the same strength as the routine procedure, the difference being during the shock procedure it is drawn direct from the container it is prepared in. The easiest way to do this is to disconnect the regular brine draw tube from the brine elbow, re-connect a piece of flexible tube to the elbow the other end of which is put into the Soda Ash solution.

- I. The first stage of the shock treatment is to backwash the unit for the standard length of time
- II. After the backwash the liquid soda ash is drawn into the bed as per the above guidelines, <u>immediately</u> all the soda ash solution has been drawn into the valve the original brine line is re attached to the brine elbow and the brine draw initiated and the standard regeneration cycle allowed to run its course.
- III. <u>Important</u> When using the shock method monitor the pH of the rinse water going to drain, if CO2 is being released from the Crystal-Right the pH of the rinse water will drop, the lower the pH the more gas is being released from the crystals.

#### What Concentration and how much Soda Ash

The correct solution strength is made by dissolving 200 grams of Soda Ash in 1 litre of water. Each cubic foot of Crystal Right will require 2 Litres of Soda Ash solution for regeneration.

CF	RYSTAL RIGHT SODA AS	H REGENERATION CHA	RT
Vessel	Crystal Right	Soda Ash	Dissolved
Size	Volume	In Water	
1044	1.0 CU,FT	400 Gramms	2 Ltrs
1054	1.5 CU,FT	600 Gramms	3 Ltrs
1252	2.0 CU,FT	800 Gramms	4 Ltrs
1354	2.5 CU,FT	1.0 KG	5 Ltrs
1465	3.5 CU,FT	1.4 KG	7 Ltrs
1665	4.5 CU,FT 1.8 KG		9 Ltrs
1865	6.0 CU,FT	2.4 KG	12 Ltrs
2160	7.0 CU,FT	2.8 KG	14 ltrs
2469	11 CU,FT 4.4 KG		22 Ltrs
3072	19 CU,FT	7.6 KG	38 Ltrs
3672	26 CU,FT	52 Ltrs	
Mixing th	e Soda Ash with warm wat	er will dissolve the granua	ls quicker

# 6. Troubleshooting

On the following pages you will find a guide as to the most common problems that may arise; please consult this section before contacting your supplying dealer as most problems are easily cured using the troubleshooting information.

# Troubleshooting TC control valves do not have meters so shaded ares are not applicable for TC control valves

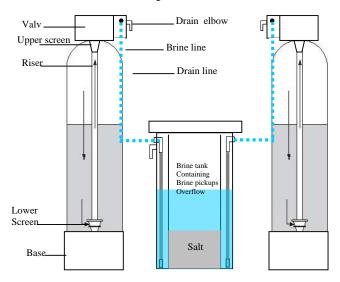
	ave meters so snaded ares are not applicable			
Problem	Possible Cause	Solution		
	a. No power at electric outlet     b. Control valve Power Adapter not plugged into outlet or power cord end not connected to PC board connection	a. Repair outlet or use working outlet b. Plug Power Adapter into outlet or connect power cord end to PC Board connection		
1. No Display on PC Board	c. Improper power supply	c. Verify proper voltage is being delivered to PC Board		
	d. Defective Power Adapter	d. Replace Power Adapter		
	e. Defective PC Board	e. Replace PC Board		
	a. Power Adapter plugged into electric outlet controlled by light switch	a. Use uninterrupted outlet		
	b. Tripped breaker switch and/or tripped GFI	b. Reset breaker switch and/ or GFI switch		
2. PC Board does not display correct time of day	c. Power outage	c. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.		
	d. Defective PC Board	d. Replace PC Board		
	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position		
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board		
3. Display does not indicate that water is flowing.  Refer to user instructions for how the display	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material		
indicates water is flowing	d. Meter wire not installed securely into three pin connector	d. Verify meter cable wires are installed securely into three pin connector labeled METER		
	e. Defective meter	e. Replace meter		
	f. Defective PC Board	f. Replace PC Board		
	a. Power outage	Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.		
40.11	b. Time of day not set correctly	b. Reset to correct time of day		
4. Control valve regenerates at wrong time of day	c. Time of regeneration set incorrectly	c. Reset regeneration time		
	d. Control valve set at "on 0" (immediate regeneration)	d. Check programming setting and reset to NORMAL (for a delayed regen time)		
	e. Control valve set at "NORMAL + on 0" (delayed and/ or immediate)	e. Check programming setting and reset to NORMAL (for a delayed regen time)		
5. Time of day flashes on and off	a. Power outage	Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.		
6. Control valve does not regenerate automatically	a. Broken drive gear or drive cap assembly	a. Replace drive gear or drive cap assembly		
when the correct button(s) is depressed and held. For TC valves the buttons are $\blacktriangle\&\Psi$ . For all other valves	b. Broken Piston Rod	b. Replace piston rod		
the button is REGEN	c. Defective PC Board	c. Defective PC Board		
	a. Bypass valve in bypass position	a. Turn bypass handles to place bypass in service position		
	b. Meter is not connected to meter connection on PC Board	b. Connect meter to three pin connection labeled METER on PC Board		
7. Control valve does not regenerate automatically but does when the correct button(s) is depressed and	c. Restricted/ stalled meter turbine	c. Remove meter and check for rotation or foreign material		
held. For TC valves the buttons are ▲&▼. For all	d. Incorrect programming	d. Check for programming error		
other valves the button is REGEN	e. Meter wire not installed securely into three pin connector	e. Verify meter cable wires are installed securely into three pin connector labeled METER		
	f. Defective meter	f. Replace meter		
		g. Replace PC Board		

Bypass valve is open or faulty  Media is exhausted due to high water usage  Meter not registering	a. Fully close bypass valve or replace     b. Check program settings or diagnostics for abnormal water usage     c. Remove meter and check for rotation or
	abnormal water usage
Meter not registering	c. Remove meter and check for rotation or
	foreign material
Water quality fluctuation	d. Test water and adjust program values accordingly
No regenerant or low level of regenerant in regenerant tank	e. Add proper regenerant to tank
Control fails to draw in regenerant	f. Refer to Trouble Shooting Guide number 12
Insufficient regenerant level in regenerant tank	g. Check refill setting in programming. Check refill flow control for restrictions or debris and clean or replace
Damaged seal/stack assembly	h. Replace seal/stack assembly
Control valve body type and piston type mix matched	i. Verify proper control valve body type and piston type match
Fouled media bed	j. Replace media bed
Improper refill setting	a. Check refill setting
Improper program settings	b. Check program setting to make sure they are specific to the water quality and application needs
Control valve regenerates frequently	c. Check for leaking fixtures that may be exhausting capacity or system is undersized
Low water pressure	a. Check incoming water pressure – water pressure must remain at minimum of 25 psi
Incorrect injector size	b. Replace injector with correct size for the application
Restricted drain line	c. Check drain line for restrictions or debris and clean
Improper program settings	a. Check refill setting
Plugged injector	b. Remove injector and clean or replace
Drive cap assembly not tightened in properly	c. Re-tighten the drive cap assembly
Damaged seal/ stack assembly	d. Replace seal/ stack
Restricted or kinked drain line	e. Check drain line for restrictions or debris and or un-kink drain line
Plugged backwash flow controller	f. Remove backwash flow controller and clean or replace
Missing refill flow controller	g. Replace refill flow controller
Injector is plugged	a. Remove injector and clean or replace
Faulty regenerant piston	b. Replace regenerant piston
Regenerant line connection leak	c. Inspect regenerant line for air leak
Drain line restriction or debris cause excess back pressure	d. Inspect drain line and clean to correct restriction
Drain line too long or too high	e. Shorten length and or height
Low water pressure	f. Check incoming water pressure – water pressure must remain at minimum of 25 psi
	Water quality fluctuation  No regenerant or low level of regenerant in regenerant tank  Control fails to draw in regenerant  Insufficient regenerant level in regenerant tank  Damaged seal/stack assembly  Control valve body type and piston type mix matched  Fouled media bed  Improper refill setting  Improper program settings  Control valve regenerates frequently  Low water pressure  Incorrect injector size  Restricted drain line  Improper program settings  Plugged injector  Drive cap assembly not tightened in properly  Damaged seal/ stack assembly  Restricted or kinked drain line  Plugged backwash flow controller  Missing refill flow controller  Injector is plugged  Faulty regenerant piston  Regenerant line connection leak  Drain line restriction or debris cause excess back pressure  Drain line too long or too high

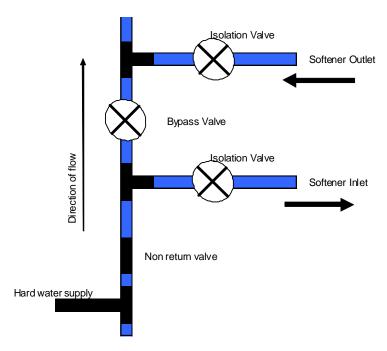
Problem	Possible Cause	Solution
13. Water running to drain	a. Power outage during regeneration	a. Upon power being restored control will finish the remaining regeneration time. Reset time of day. If PC Board has battery back up present the battery may be depleted. See Front Cover and Drive Assembly drawing for instructions.
	b. Damaged seal/ stack assembly	b. Replace seal/ stack assembly
	c. Piston assembly failure	c. Replace piston assembly
	d. Drive cap assembly not tightened in properly	d. Re-tighten the drive cap assembly
14. E1, Err – 1001, Err – 101 = Control unable to sense motor movement	a. Motor not inserted full to engage pinion, motor wires broken or disconnected	Disconnect power, make sure motor is fully engaged, check for broken wires, make sure two pin connector on motor is connected to the two pin connection on the PC Board labeled MOTOR. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
sease motor movement	b. PC Board not properly snapped into drive bracket	b. Properly snap PC Board into drive bracket and then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Missing reduction gears	c. Replace missing gears
	a. Foreign material is lodged in control valve	Open up control valve and pull out piston assembly and seal/ stack assembly for inspection. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
15. E2, Err – 1002, Err – 102 = Control valve motor ran too short and was unable to find the next cycle position and stalled	b. Mechanical binding	b. Check piston and seal/ stack assembly, check reduction gears, check drive bracket and main drive gear interface. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Main drive gear too tight	c. Loosen main drive gear. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Improper voltage being delivered to PC Board	d. Verify that proper voltage is being supplied. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

Problem	Possible Cause	Solution
	a. Motor failure during a regeneration	Check motor connections then Press NEXT and REGEN buttons for 3 s seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
16. E3, Err – 1003, Err – 103 = Control valve motor ran too long and was unable to find the next cycle position	b. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	c. Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	c. Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
17. E4, Err – 1004, Err – 104 = Control valve motor ran too long and timed out trying to reach home position	Drive bracket not snapped in properly and out enough that reduction gears and drive gear do not interface	Snap drive bracket in properly then Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	a. Control valve programmed for ALT A or b, nHbP, SEPS, or AUX MAV with out having a MAV or NHBP valve attached to operate that function	Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect. Then re-program valve to proper setting
18. Err -1006, Err - 106, Err - 116 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too long and unable to find the proper park position  Motorized Alternating Valve = MAV	b. MAV/ NHBP motor wire not connected to PC Board	b. Connect MAV/ NHBP motor to PC Board two pin connection labeled DRIVE. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
Separate Source = SEPS  No Hard Water Bypass = NHBP  Auxiliary MAV = AUX MAV	c. MAV/ NHBP motor not fully engaged with reduction gears	c. Properly insert motor into casing, do not force into casing Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
	d. Foreign matter built up on piston and stack assemblies creating friction and drag enough to time out motor	d. Replace piston and stack assemblies. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
19. Err – 1007, Err – 107, Err – 117 = MAV/ SEPS/ NHBP/ AUX MAV valve motor ran too short (stalled) while looking for proper park position	a. Foreign material is lodged in MAV/ NHBP valve	Open up MAV/ NHBP valve and check piston and seal/ stack assembly for foreign material. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.
Motorized Alternating Valve = MAV  Separate Source = SEPS  No Hard Water Bypass = NHBP  Auxiliary MAV = AUX MAV	b. Mechanical binding	b. Check piston and seal/stack assembly, check reduction gears, drive gear interface, and check MAV/ NHBP black drive pinion on motor for being jammed into motor body. Press NEXT and REGEN buttons for 3 seconds to resynchronize software with piston position or disconnect power supply from PC Board for 5 seconds and then reconnect.

## **Typical Installation Layout.**



# Typical bypass setup using three isolation valves plus a non return valve.



# Standard Hydraulic Connections (BSP).

Valve	WS1 CI	WS1.25 CI	WS1.5 CI	WS2 CI
Inlet	1"	1.25"	1.5"	2"
Outlet	1"	1.25"	1.5"	2"
Drain	.75"	.75"	.75"	1.5"

Notes: