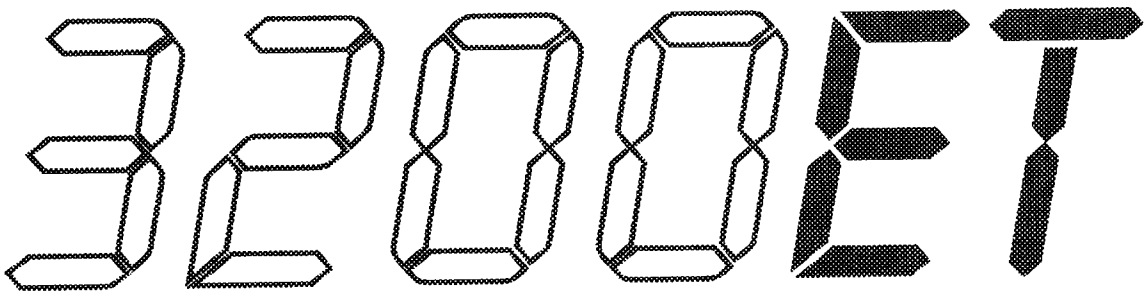
3200ET TIMER

Service Manual



IMPORTANT: Fill in pertinent information on page 2 for future reference.

3200ET Timer

Installation And Start-Up Procedures

Timer Programming

Water Hardness _____

System Capacity _____

Regeneration Time _____

Regeneration Cycle Step Programming

Step #1 _____

Step #2 _____

Step #3 _____

Step #4 _____

Step #5 _____

Notes:

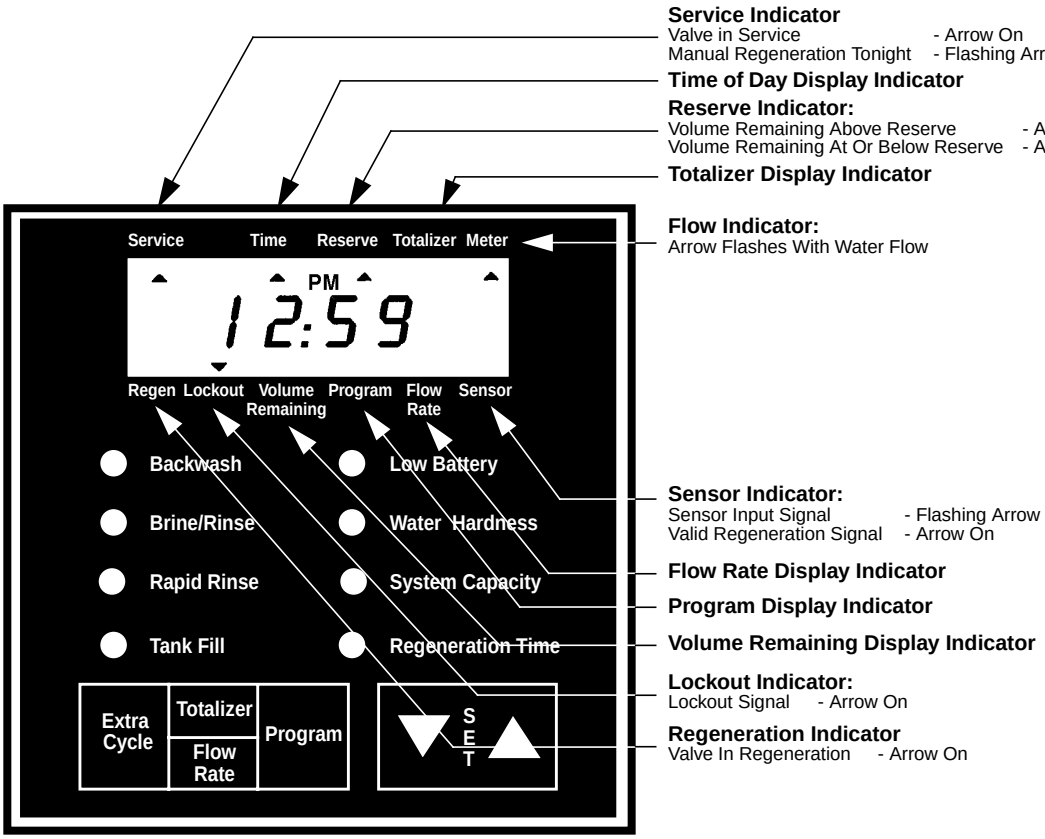
_____

_____

_____

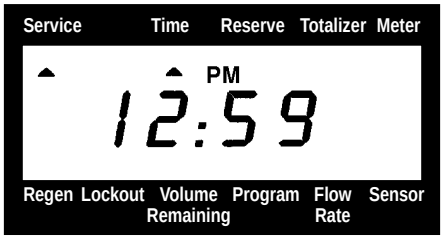
1. Place the conditioner tank where you want to install the unit, making sure the tank is level and on a firm base.
2. During cold weather it is recommended that the installer warm the valve up to room temperature before operating.
3. All plumbing should be done in accordance with local plumbing codes. The pipe size for the drain, distributor size/ length, and Backwash flow rate should be set per specifications found in the valve service manual.
4. Lubricate the distributor O-ring seal and tank O-ring seal. Place the main control valve on tank. Note: Only use silicone lubricant.
5. Solder joints near the drain must be done prior to connecting the Drain Line Flow Control fitting (DLFC). Leave at least 6″ between the DLFC and solder joints when soldering pipes that are connected on the DLFC. Failure to do this could cause interior damage to DLFC.
6. Teflon tape is the only sealant to be used on the drain fitting.
7. Make sure that the floor is clean beneath the salt storage tank and that it is level.
8. Place approximately 1″ of water above the grid plate. If a grid is not utilized, fill to the top of the air check in the salt tank. Do not add salt to the brine tank at this time.
9. On units with a by-pass, place in by-pass position. Turn on the main water supply. Open a cold soft water tap nearby and let run a few minutes or until the system is free from foreign material (usually solder) that may have resulted from the installation. Once clean, close the water tap.
10. Place the by-pass in service position and let water flow into the mineral tank. When water flow stops, slowly open a cold water tap nearby and let run until the air is purged from the unit. Then close tap.
11. Plug the valve into an approved power source. Once the valve is powered it will drive to the Service Position.

Printed in U.S.A.



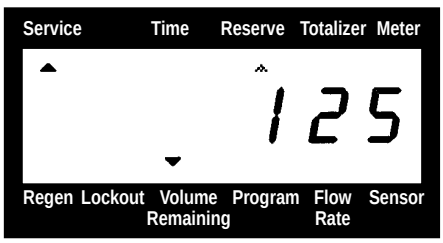
12. Once the valve has reached Service normal operation is resumed. In Normal Operation the Time Of Day and, if flow meter equipped, the Volume Remaining Displays will alternate being viewed. Set the Time Of Day Display by depressing the Up or Down Set Button to the correct time. (See Fig. 1)

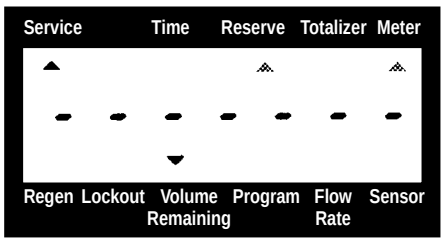
For Example:
12:59 P.M.
(Valve in Service)



13. *Flow Meter Equipped Valves Only:* The Volume Remaining Display is the volume of water (in gallons) remaining prior to regeneration, including any reserve capacity. Without any water usage the Meter Arrow should be either off or on but not changing. Open a soft water tap. The Meter Arrow should begin flashing at a rate that varies with flow rate. Close the tap after 3 - 5 gallons of water flow.

For Example:
25 Gallons Of Water Remaining
(Valve in Service)
(No water flow)
(Volume is below reserve capacity, Reserve arrow flashing)





For Example:
0 Gallons Of Water Remaining
(Valve in Service)
(Water flowing)
(Volume is below reserve capacity, Reserve arrow flashing)

Printed in U.S.A.

Installation And Start-Up Procedures (Cont'd.)

14. Manually initiate a regeneration cycle and allow water to run to drain for 3 to 4 minutes. Next, manually step the valve through a regeneration cycle checking valve operation in each step.

    A. Initiating Regeneration (Depending on the timer regeneration type you have one or two (2) Options):

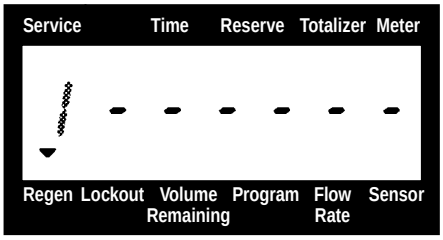
        1. **Press and Release the Extra Cycle Button.** With Immediate Regeneration Timers the control will go into Regeneration immediately. With Delayed Regeneration Timers the Service Arrow will begin to flash immediately and a regeneration will occur at the preset regeneration time (i.e. 2:00 a.m.)

        2. **Press and Hold for 5 seconds the Extra Cycle Button.** The control will go into Regeneration immediately.

    B. Control Operation

        1. During Regeneration: During Regeneration the control will display which regeneration step number the valve is advancing to, or has reached, and the time remaining in that step.

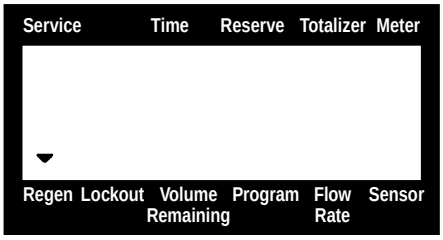
For Example:
(Valve is advancing to Regeneration Step #1)
(#1 flashing)
(Regeneration arrow on)




Backwash

        2. When the first cycle step is reached, a red LED will turn on to indicate the current regeneration cycle step.

For Example:
(Regeneration Step #1 has been reached)
(10.0 minutes remain in Step #1)
(Regeneration arrow on)




Backwash

        3. Pushing the Extra Cycle Button during a regeneration step will immediately advance the valve to the next regeneration step position.

        4. Pushing the Up or Down Set Button during a regeneration step will adjust the time remaining in that current regeneration step. Programmed regeneration step times **will not** be changed.

        5. Once all regeneration cycle steps have been completed the valve will return to Service and resume normal operation.

15. Manually step the valve to the Brine Draw position (see Step #14) and allow the valve to draw water from the brine tank until it stops. Note: The air check will check at approximately the midpoint of the screened intake area.

16. Manually step the valve to the Brine Refill position and allow the valve to return to Service automatically.

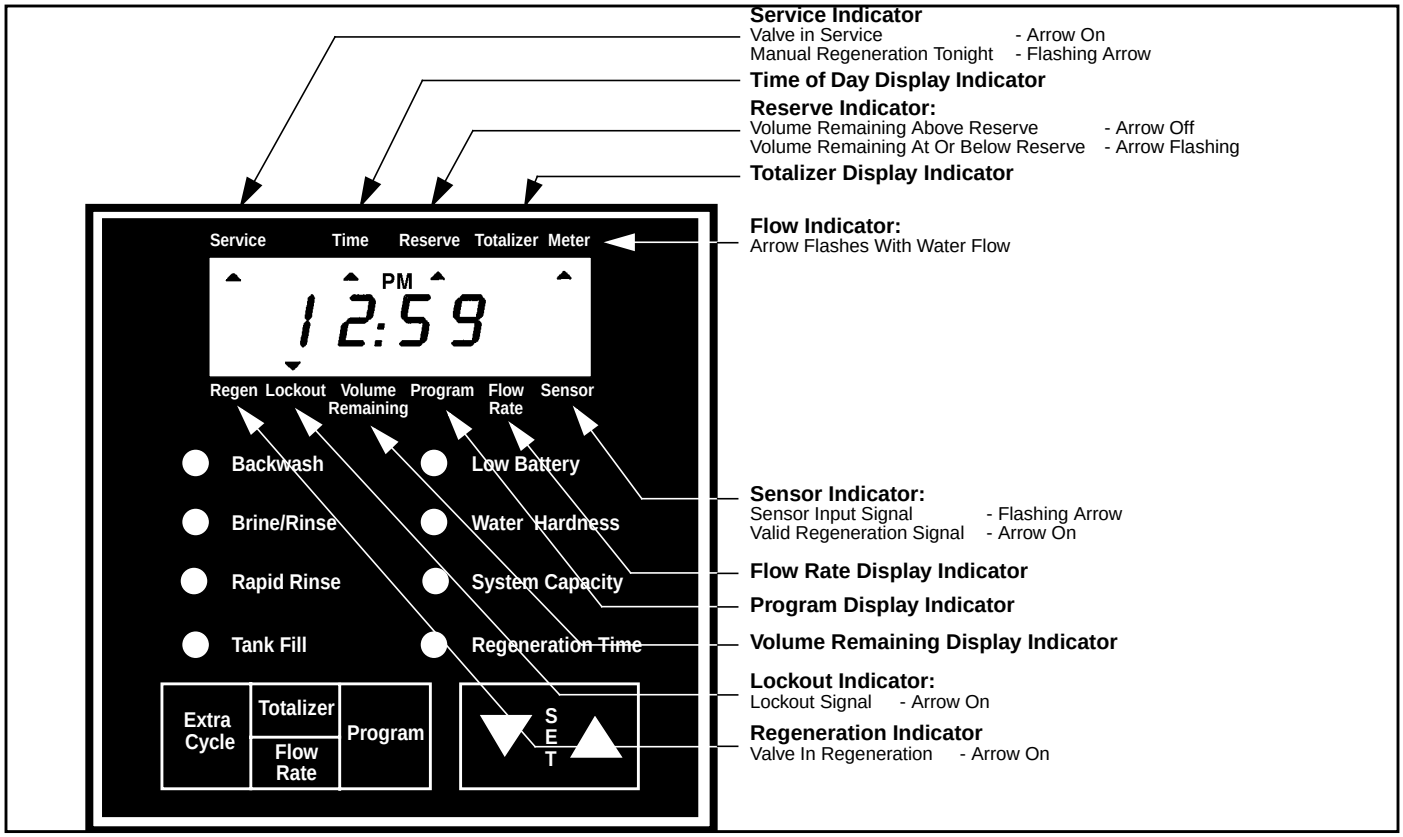
17. Make sure the brine refill time (salt dosage) is set as recommended by the manufacturer.

18. With the valve in Service, check that there is about 1″ of water above the grid in the brine tank, if used.

19. Fill the brine tank with salt.

20. A **9V Alkaline Battery** is recommended to be installed at all times for proper valve operation. The control will indicate when the battery needs to be replaced by turning on the Low Battery LED.

Printed in U.S.A.

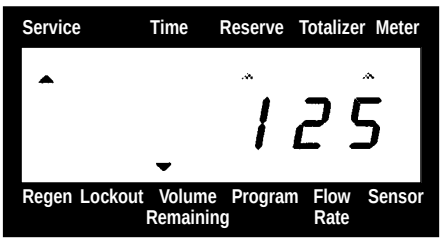


NORMAL CONTROL OPERATION

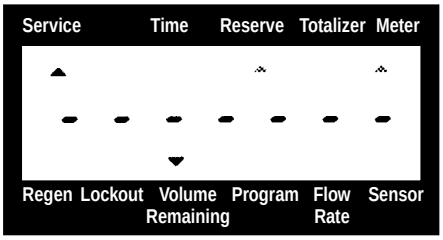
Flow Meter Equipped Delayed Regeneration Valves -

In Normal Operation the Time Of Day Display will alternate being viewed with the Volume Remaining Display. Water flow through the unit is indicated by the Meter Arrow that will flash in a direct relationship to flow rate. As treated water is used, the Volume Remaining Display will count down from a maximum value to the calculated reserve capacity. Once this occurs, the Reserve Arrow will begin to flash as a indication that reserve capacity is being used. At the preset Regeneration Time a regeneration cycle will then be initiated immediately.

For Example:
125 Gallons of Water Remaining
(Valve in Service)
(No water flow)
(Volume is below reserve capacity)



For Example:
0 Gallons of Water Remaining
(Valve in Service)
(Water flowing, Meter arrow flashing)
(Volume is below reserve capacity)



Printed in U.S.A.

Control Operation (Cont'd.)

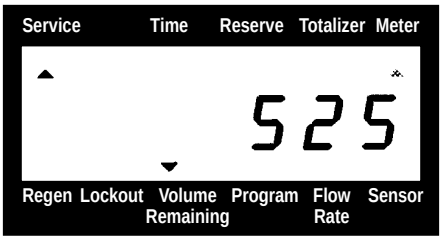
Timeclock Regeneration Valves -

In Normal Operation the Time Of Day Display will be viewed at all times. The control will operate normally until the days since the last regeneration reaches the preset number of days. Once this occurs, a regeneration cycle will then be initiated immediately at the preset Regeneration Time.

Flow Meter Equipped Immediate Regeneration Valves -

In Normal Operation the Time Of Day Display will alternate being viewed with the Volume Remaining Display. Water flow through the unit is indicated by the Meter Arrow that will flash in a direct relationship to flow rate. As treated water is used, the Volume Remaining Display will count down from a maximum value to zero. Once this occurs a regeneration cycle will then be initiated immediately.

For Example:
525 Gallons of Water Remaining
(Valve in Service)
(Water flowing, Meter arrow flashing)



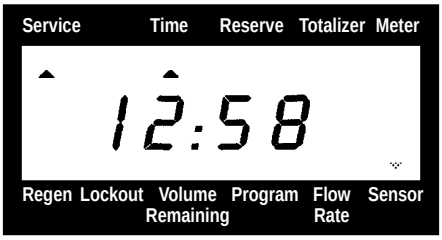
Sensor Immediate Regeneration Valves -

In Normal Operation the Time Of Day Display will be viewed at all times. The control will operate normally until a valid sensor input signal is received. Once this occurs, a regeneration cycle will then be initiated immediately. The Sensor Input Arrow will flash until the signal is determined to be valid.

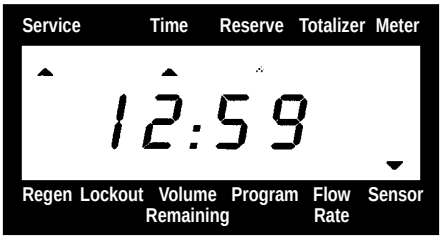
Sensor Delayed Regeneration Valves -

In Normal Operation the Time Of Day Display will be viewed at all times. The control will operate normally until a valid sensor input signal is received. Once this occurs, a regeneration cycle will then be initiated immediately at the preset Regeneration Time. The Sensor Input Arrow will flash until the signal is determined to be valid. Then the Reserve Arrow will begin to flash as a indication that reserve capacity is being used.

For Example:
12:58 A.M. With Invalid Sensor Signal
(Valve in Service)
(Sensor arrow flashing)



For Example:
12:59 A.M. With Valid Sensor Signal
(Valve in Service)
(Sensor arrow on)
(Reserve arrow flashing) (Delayed Regen.)



Immediate Regeneration Valves With Days Between Regeneration Override Set -

When the valve has reached its set Days Since Regeneration Override value a regeneration cycle will be initiated immediately. This event occurs regardless of the Volume Remaining display having reached zero.

Delayed Regeneration Valves With Days Between Regeneration Override Set -

When the valve has reached its set Days Since Regeneration Override value a regeneration cycle will be initiated at the preset Regeneration Time. This event occurs regardless of the Volume Remaining display having reached the calculated reserve capacity.

Printed in U.S.A.

CONTROL OPERATION DURING A POWER FAILURE

During a power failure all control displays will be turned off and regeneration cycles delayed. The control will otherwise continue to operate normally until line power is restored or battery backup power is lost.

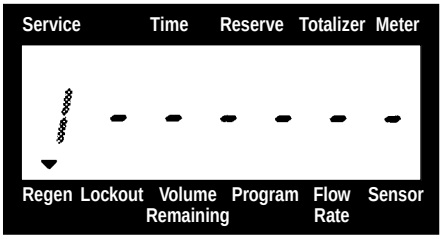
1. If battery backup power is never lost during a power outage, the control will continue to operate normally, without the loss of data, until line power is restored.
2. If battery backup power is lost during a power outage, the control will store the current Time Of Day, Volume Remaining, Regeneration Cycle Status, and various diagnostic displays. These stored displays will then be used upon line power restoration until updated ones are created. To indicate this type of failure, the control will flash the current. Time Of Day Display to indicate that this display and the Volume Remaining Display may not be correct.

CONTROL OPERATION DURING REGENERATION

In regeneration the control will display what regeneration step number the valve is advancing to, or has reached, and the time remaining in that step. Once all regeneration cycle steps have been completed the valve will return to service and resume normal operation.

1. First the Regeneration Arrow turns on. Then the display below is viewed to indicate that the valve is advancing to the first regeneration cycle step.

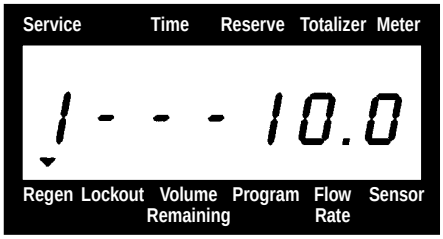
For Example:
(Valve is advancing to Regeneration Step #1)
(#1 Flashing)



Backwash

2. When the first cycle step is reached, the display becomes as shown below. As time passes the control will begin to decrement the step time in tenths of minutes until zero is reached. A red LED will also turn on to indicate the current regeneration cycle step.

For Example:
(Regeneration Step #1 has been reached)
(10.0 minutes remain in Step #1)



Backwash

3. Once the step time reaches zero, the valve drive motor will turn on and the Regeneration Time Remaining Display revert to all dashes until the next regeneration cycle step position is reached. Steps #2 and #3 will then be repeated until all regeneration cycle steps have been completed and the valve has returned to Service.
4. Pushing the Extra Cycle Button during a regeneration cycle will immediately advance the valve to the next cycle step position and resume normal step timing.
5. Pushing the Up or Down Set Button during a regeneration cycle will adjust the time remaining in a regeneration cycle step. Actual regeneration cycle step programming will not be changed.

Printed in U.S.A.

Control Operation (Cont'd.)

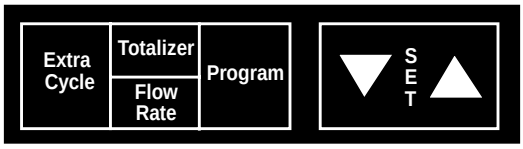
CONTROL OPERATION DURING PROGRAMMING

The control will only enter the Program Mode with the valve in Service and operating on line power. While in the Program Mode the control will continue to operate normally monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently with or without line or battery backup power.

LOCKOUT INPUT OPERATION

The Lockout Arrow will turn on whenever a Lockout Signal is being received by the control. Any requests for regeneration will be delayed until this signal is removed. Regeneration will then proceed normally.

Keypad Operation



Extra Cycle Button

Pushing this button will initiate a regeneration cycle independently of actual valve conditions.

1. With immediate regeneration valves this extra regeneration will occur immediately.
2. With delayed regeneration valves this extra regeneration will occur at the set Regeneration Time. A regeneration cycle can be forced to occur immediately by pushing and holding in for 5 seconds this button.

Totalizer/Flow Rate Button

This button is used to view the Totalizer and Flow Rate Displays. Depressing the button once will display flow rate. Depressing the button again will display the total accumulation of water flow through the valve since it was last reset. Depressing the button once more will return the display to Time Of Day or Volume Remaining. The Totalizer display is reset by depressing and holding for 25 seconds this button. During the 25 seconds, the Totalizer Arrow will flash as an indicator to the operator that the display is being reset properly.

Program Button

This button is used by the installer to program those settings indicated on the front panel by red LEDs.

Up Set Button

This button is used to set the current time of day, adjust time remaining in a regeneration cycle step and in valve programming. The Up Arrow Button will increment a display setting.

Down Set Button

This button is used to set the current time of day, adjust time remaining in a regeneration cycle step and in valve programming. The Down Arrow Button will decrement a display setting.

Low Battery Indicator

When the control is operating on line power, this red LED will turn on whenever the **9V Alkaline Battery** (Not Included) used for memory backup needs to be replaced. The battery is stored against the valve backplate. In the event of a power outage the battery will maintain current operating displays for approx. 24 hours at maximum battery capacity.

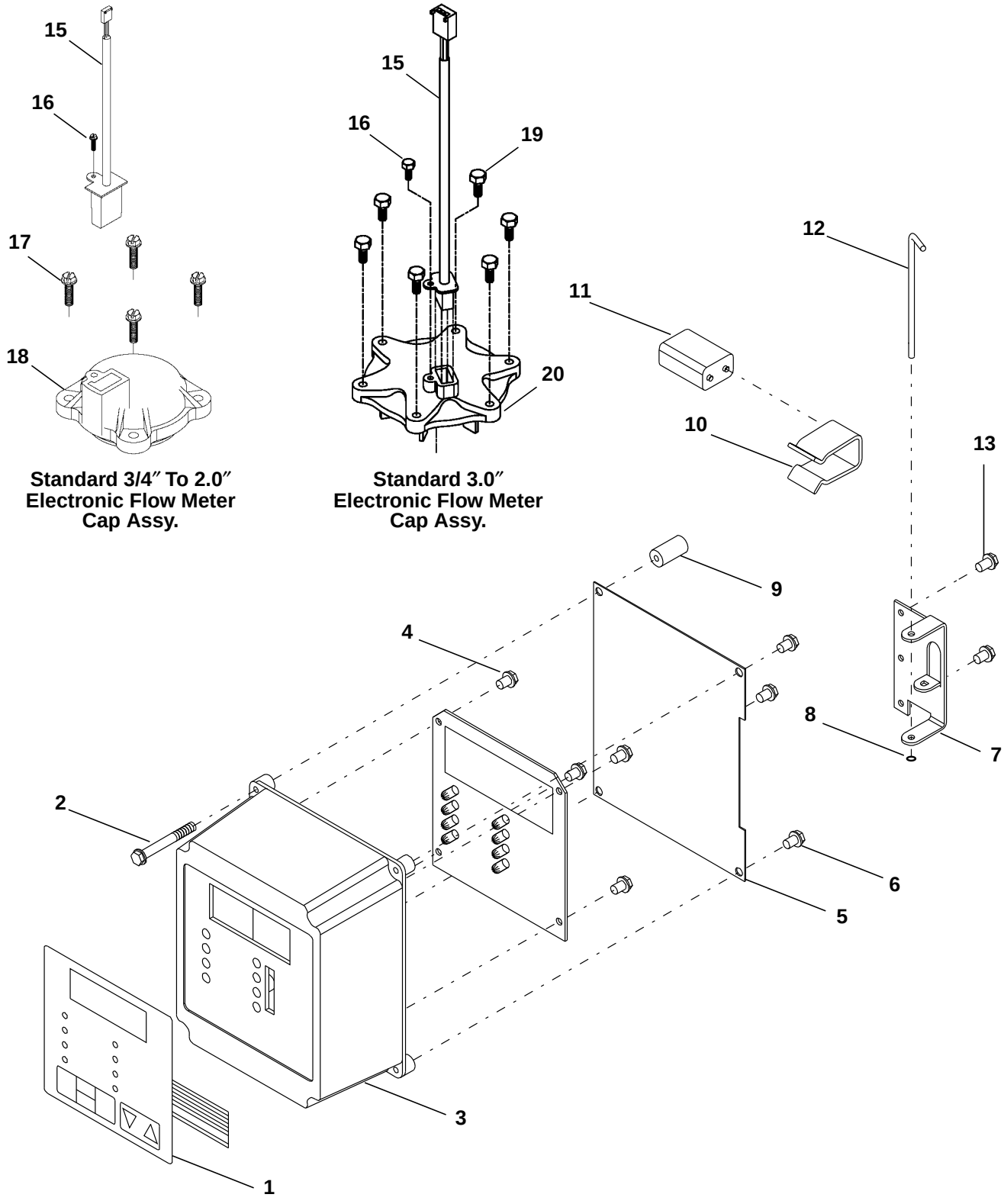
Printed in U.S.A.

Notes

Printed in U.S.A.

3200ET Timer

3200ET Timer Assemblies



Standard 3/4″ To 2.0″ Electronic Flow Meter Cap Assy.

Standard 3.0″ Electronic Flow Meter Cap Assy.

Printed in U.S.A.

3200ET Timer

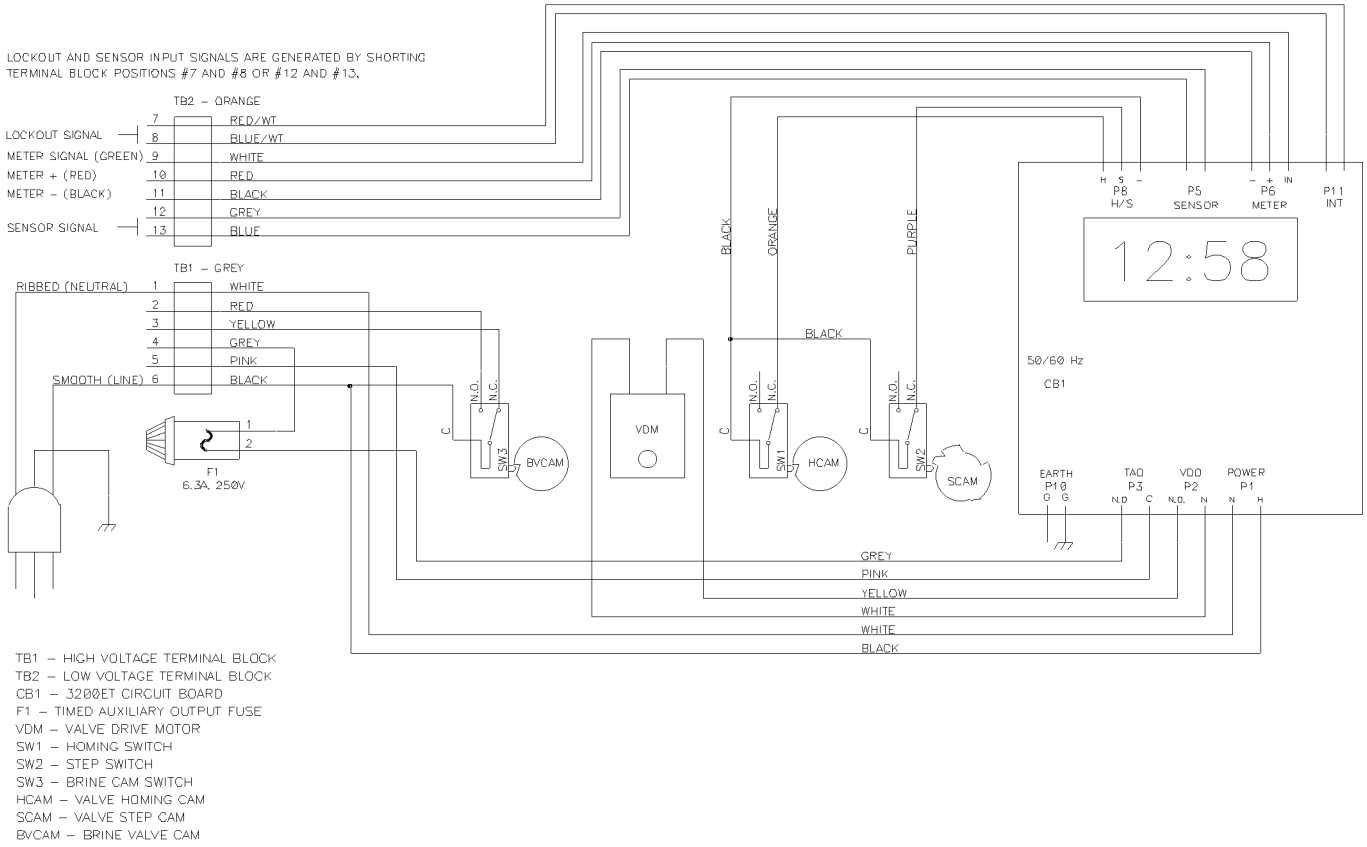
3200ET Timer Assemblies Parts List

Item No.	Quantity	Part No.	Description
1	1	19144-02	Assembly, Switch Pad - Standard Downflow
		19144-06	Assembly, Switch Pad - Upflow Variable Brining
		19144-05	Assembly, Switch Pad - Upflow Brine First
		19144-04	Assembly, Switch Pad - Standard Upflow
2	1	18735	Screw, Hex Wash. #8 x 1 1/2
3	1	18741	Housing, Circuit Board - No Hinge
	1	18741-01	Housing, Circuit Board - Right Hinge
	1	18741-02	Housing, Circuit Board - Left Hinge
4	1	27178-11	24V 3200ET Circuit Board (Version 2.0 Software)
		27178-13	120V 3200ET Circuit Board (Version 2.0 Software)
		27178-14	240V 3200ET Circuit Board (Version 2.0 Software)
5	1	18764	Shield, Circuit Board
6	3	12758	Screw, Hex Washer #10 x 5/8
7	1	18749	Bracket, Hinge (Not Used With 18741)
8	1	15159	O-Ring .005
9	1	18814	Spacer, Elect. Housing (Not Used With 18741)
10	1	17831-01	Battery Clip
11	1		9V Alkaline Battery (Not Included)
12	1	14723	Pin, Timer Hinge
13	2	10300	Screw, Hex Washer #8 x 3/8
		40041-03	Harness Low Voltage 2750 with 3200ET 2510, 2750, 2850, 2900
		40041-04	Harness Low Voltage 3150 w/3200ET, 3150/3900
		40041-06	Harness Low Voltage 9000 w/3200ET, 9000/9500
		40043-01	Harness Power 2750/2900 w/3200ET, 2510/2750/2850/2900
		40043-02	Harness Power 3150/3900 w/3200ET
		40043-03	Harness Power 9000/9500 w/3200ET
		19891	Harness, Battery, All Valves
14	4	17020	Screw, Slot Ind Hex, 6-20 x 3/8

Optional Electronic Flow Meter Cap Parts List

Item No.	Quantity	Part No.	Description
15	1	19121-02	Assy. Mtr. Cable 1.8 ft. 2500/9000/9500 System 4
		19121-03	Assy. Mtr. Cable 8 ft. All Valves Systems 6, 7
		19121-04	Assy. Mtr. Cable 25 ft. All Valves All Systems (Optional)
		19121-05	Assy. Mtr. Cable 2.3 ft. 2750/2850/2900/3150/3900 Systems 4, 5, 9
16	1	17798	Screw, Hex Washer
17	4	12473	Screw, Hex Washer #10-24 x 5/8
18	1	14716	Meter Cap Assy., Electronic
19	6	12112	Screw, Hex Head
20	1	14716-01	Meter Cap Assy., 3.0″ Electronic

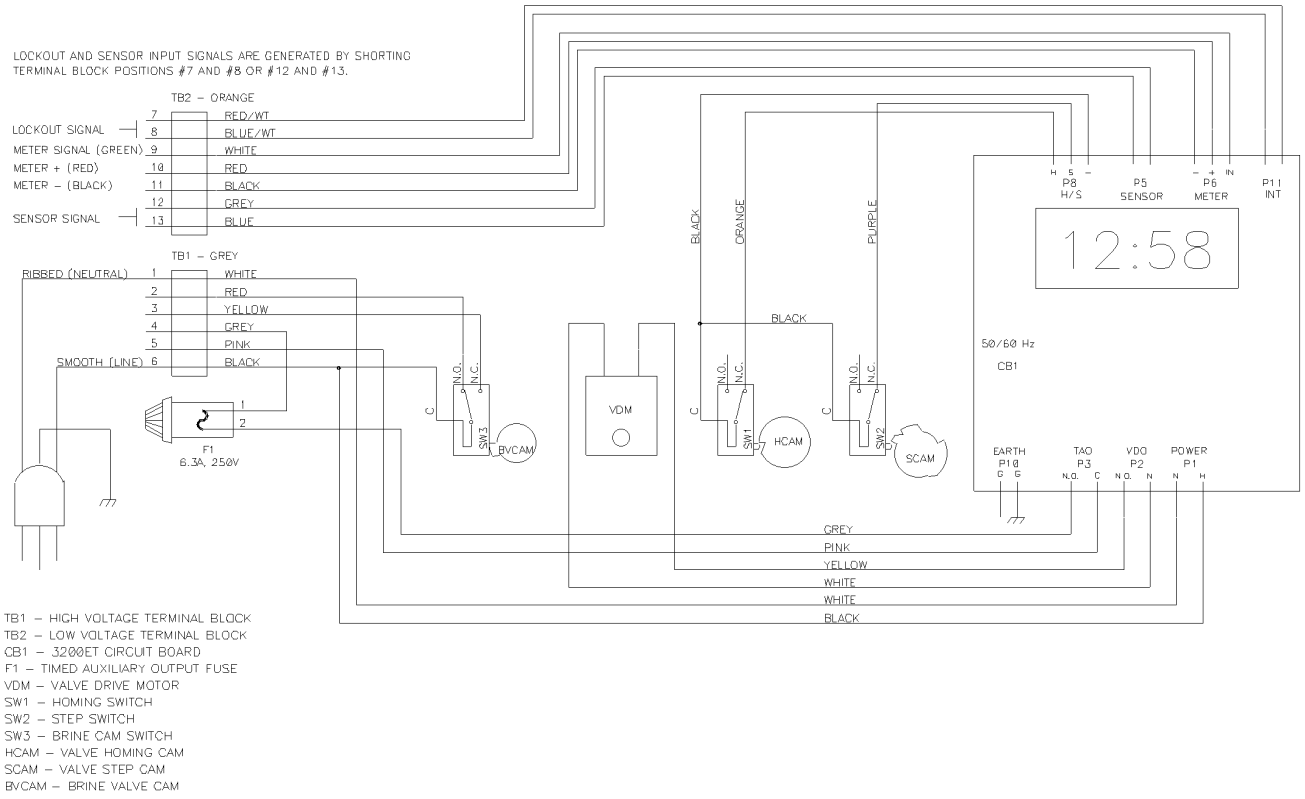
Printed in U.S.A.



TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

System #4 - Single Unit Meter/Timeclock/Sensor Regeneration

Printed in U.S.A.



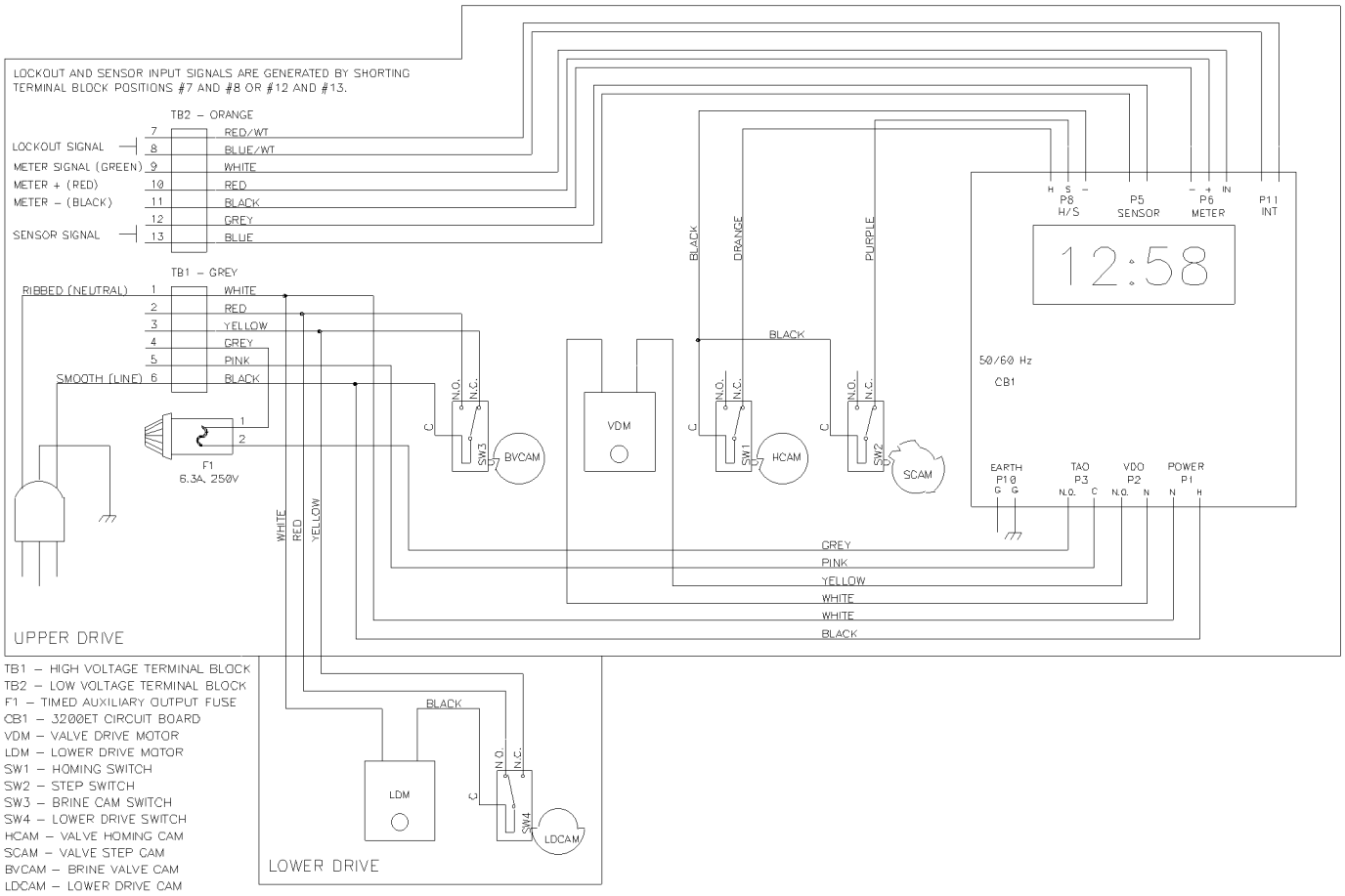
TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

Twin Unit Meter/Timeclock/Sensor Regeneration

Printed in U.S.A.

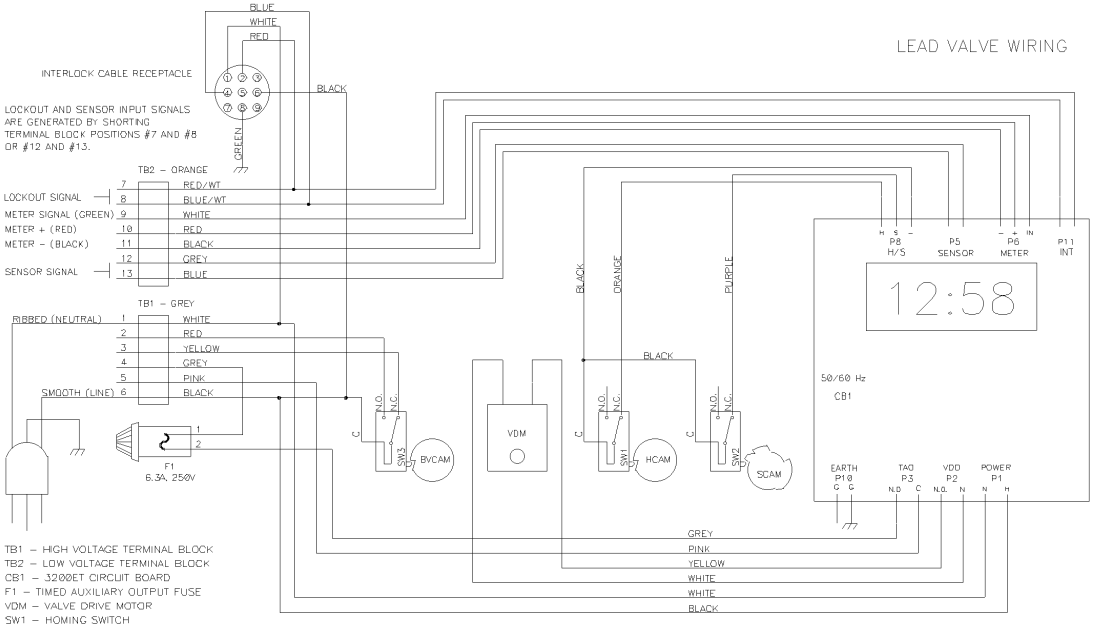
3200ET Timer

3200ET System #4 - 2900/2930/3900



System #4 - Single Unit Meter/Timeclock/Sensor Regeneration

Printed in U.S.A.

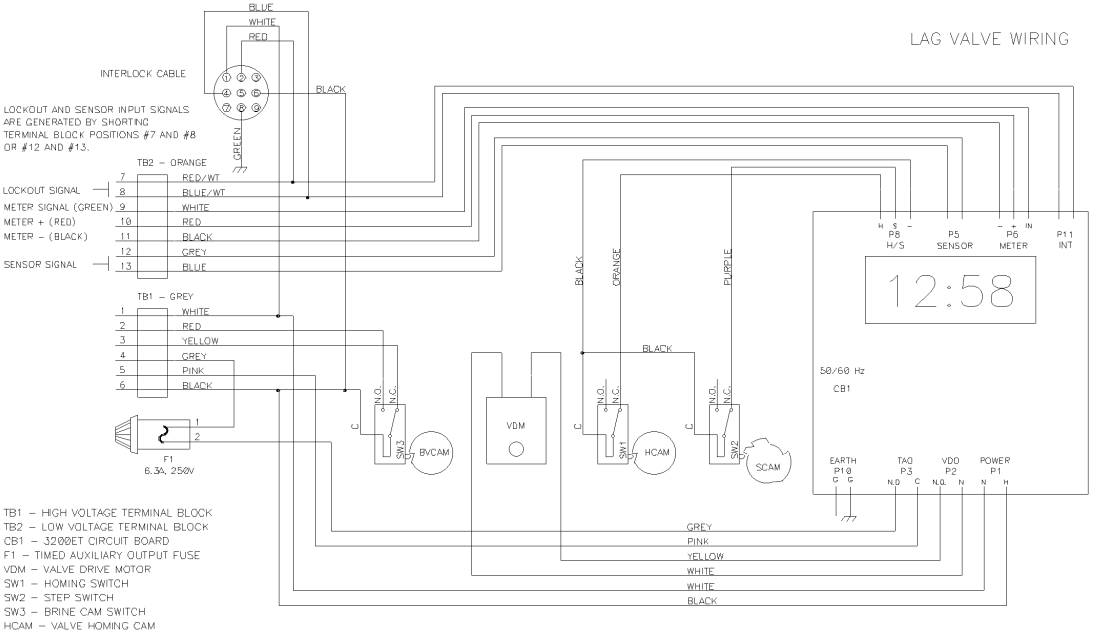


TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

SYSTEM #5 OPERATION – WIRE A FLOW METER/SENSOR INTO EACH VALVE.
SYSTEM #6 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. DO NOT WIRE A LOCKOUT SIGNAL INTO TB2.

System #5: 2 Unit Individual Meter/Timeclock/Sensor Interlocked Regeneration. Both Units in Service.

System #6: 2 Unit Single Meter/Timeclock/Sensor Series Regeneration. Both Units in Service.

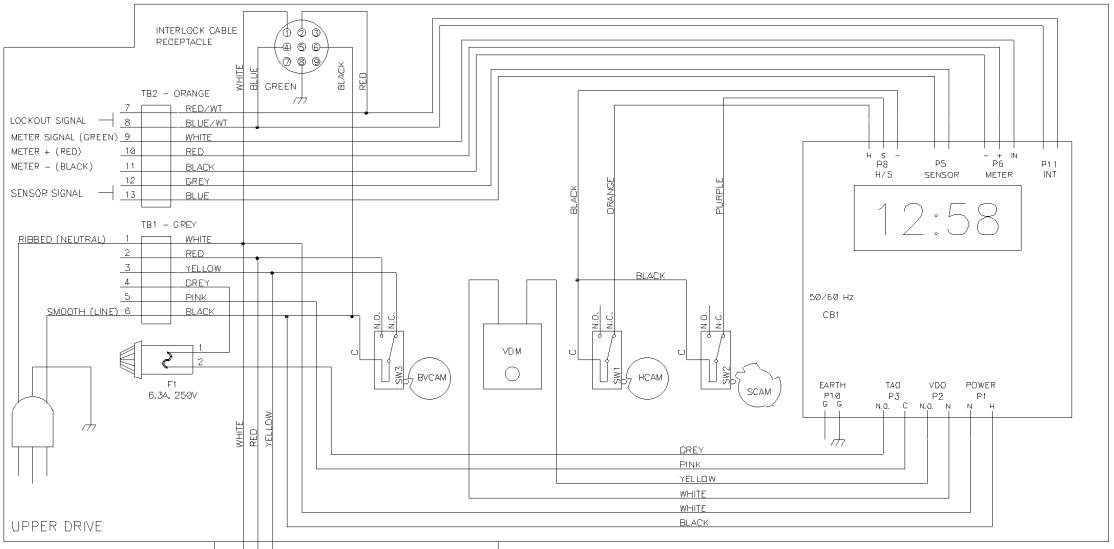


TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

SYSTEM #5 OPERATION – WIRE A FLOW METER/SENSOR INTO EACH VALVE.

SYSTEM #6 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. DO NOT WIRE A LOCKOUT SIGNAL INTO TB2.

Printed in U.S.A.



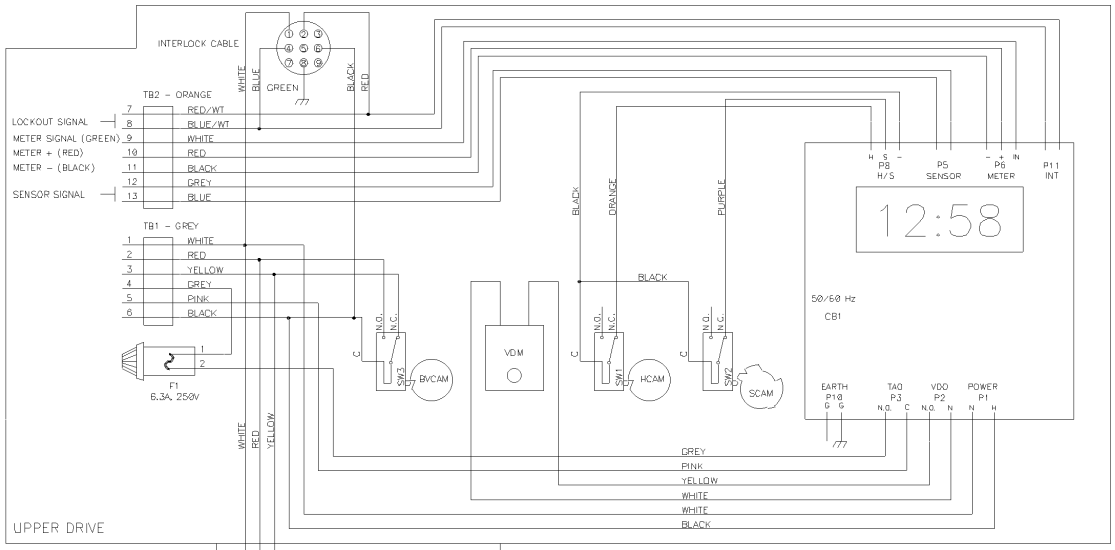
TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
SW4 – LOWER DRIVE SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM – LOWER DRIVE CAM

NOTE: LOCKOUT AND SENSOR INPUT SIGNALS ARE GENERATED BY SHORTING TERMINAL BLOCK POSITIONS #7 AND #8 OR #12 AND #13.
SYSTEM #5 OPERATION – WIRE A FLOW METER/SENSOR INTO EACH VALVE.
SYSTEM #6 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. DO NOT WIRE A LOCKOUT SIGNAL INTO TB2.

LEAD VALVE WIRING

System #5: 2 Unit Individual Meter/Timeclock/Sensor Interlocked Regeneration. Both Units in Service.

System #6: 2 Unit Single Meter/Timeclock/Sensor Series Regeneration. Both Units in Service.



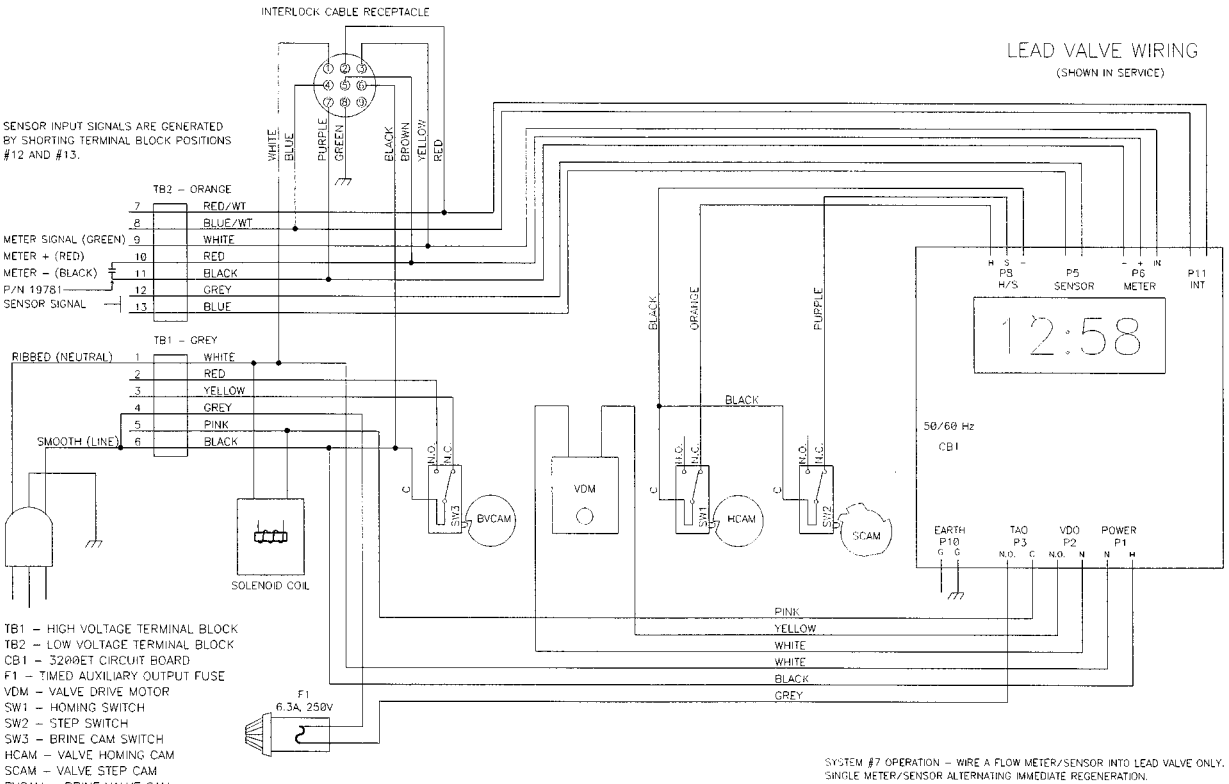
TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
F1 – TIMED AUXILIARY OUTPUT FUSE
CB1 – 3200ET CIRCUIT BOARD
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
SW4 – LOWER DRIVE SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM – LOWER DRIVE CAM

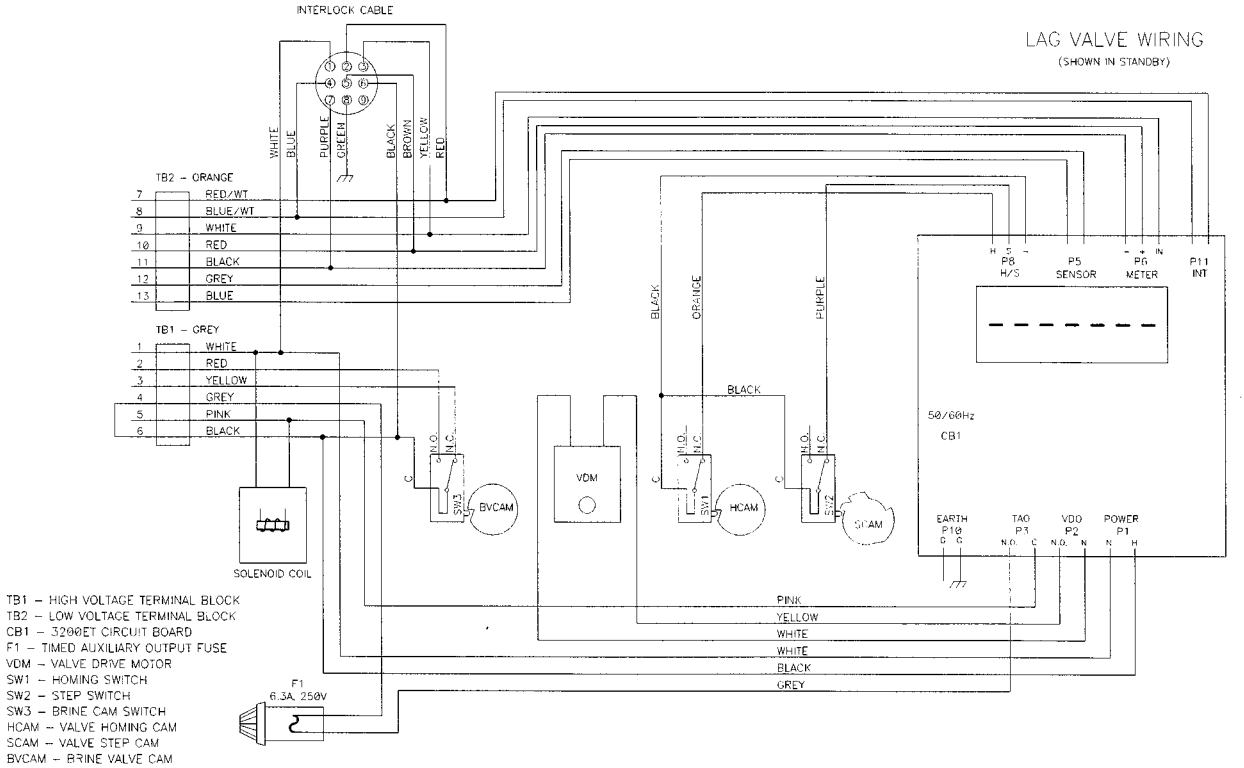
NOTE: LOCKOUT AND SENSOR INPUT SIGNALS ARE GENERATED BY SHORTING TERMINAL BLOCK POSITIONS #7 AND #8 OR #12 AND #13.
SYSTEM #5 OPERATION – WIRE A FLOW METER/SENSOR INTO EACH VALVE.
SYSTEM #6 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. DO NOT WIRE A LOCKOUT SIGNAL INTO TB2.

LAG VALVE WIRING

Printed in U.S.A.

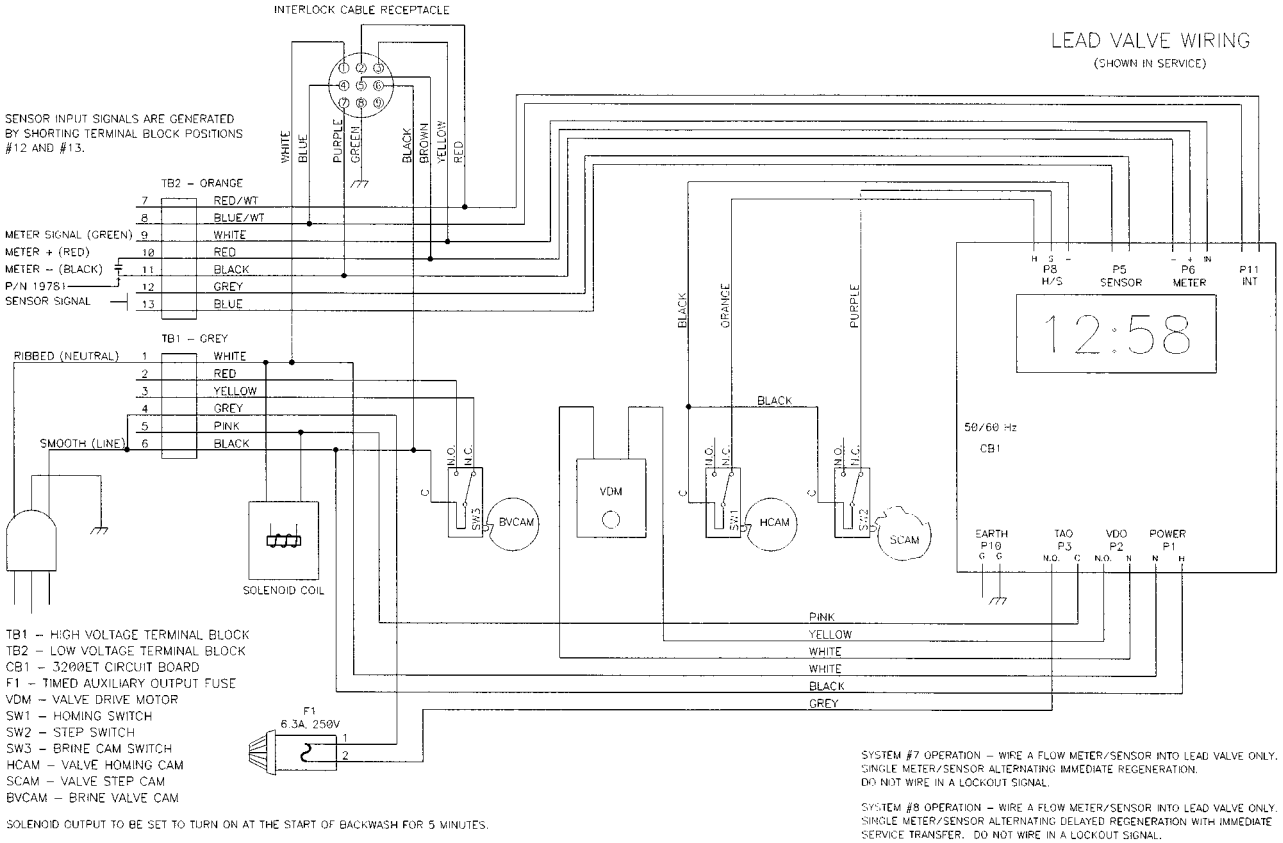
3200ET Systems #7/#8 (3-Way Solenoid Output) - 2750/2850/3130/3150





Printed in U.S.A.

3200ET Systems #7/#8 (4-Way Solenoid Output) - 2750/2850/3130/3150

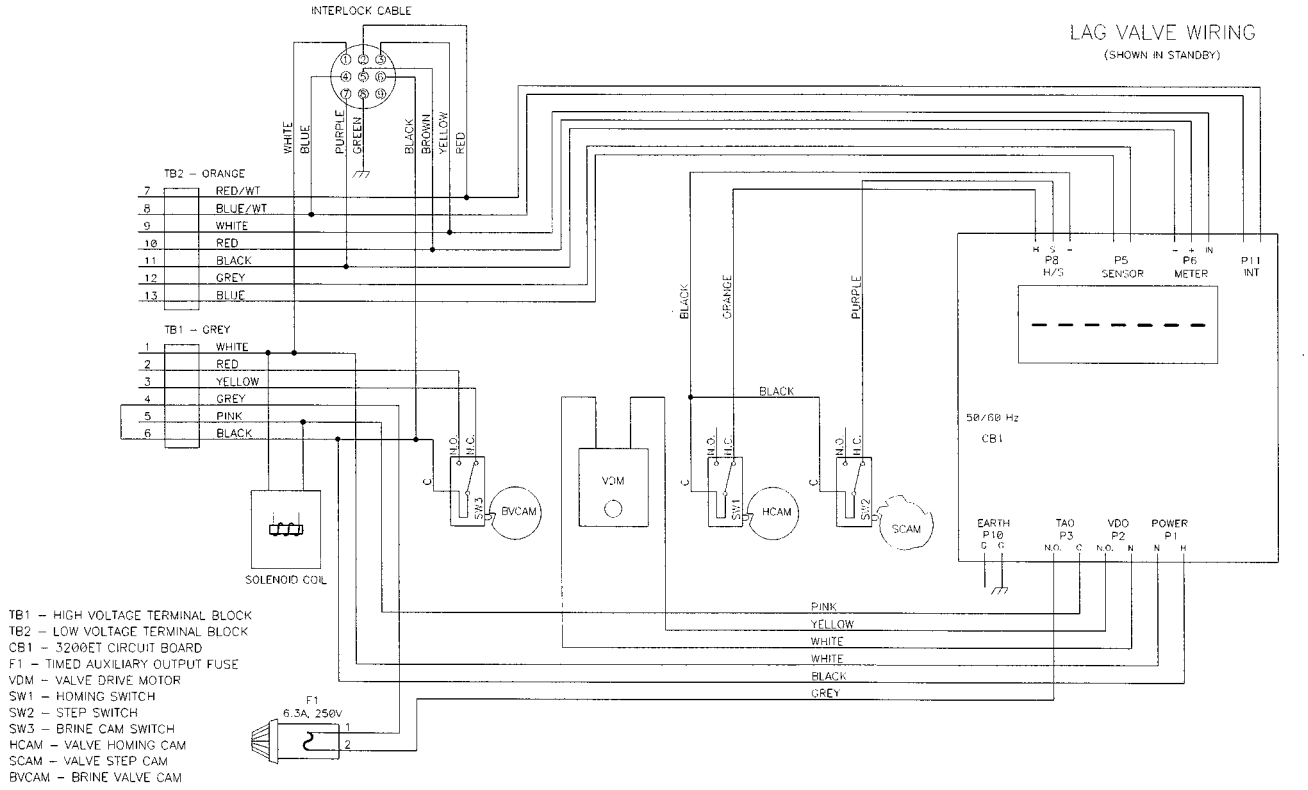


TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

SOLENOID OUTPUT TO BE SET TO TURN ON AT THE START OF BACKWASH FOR 5 MINUTES.

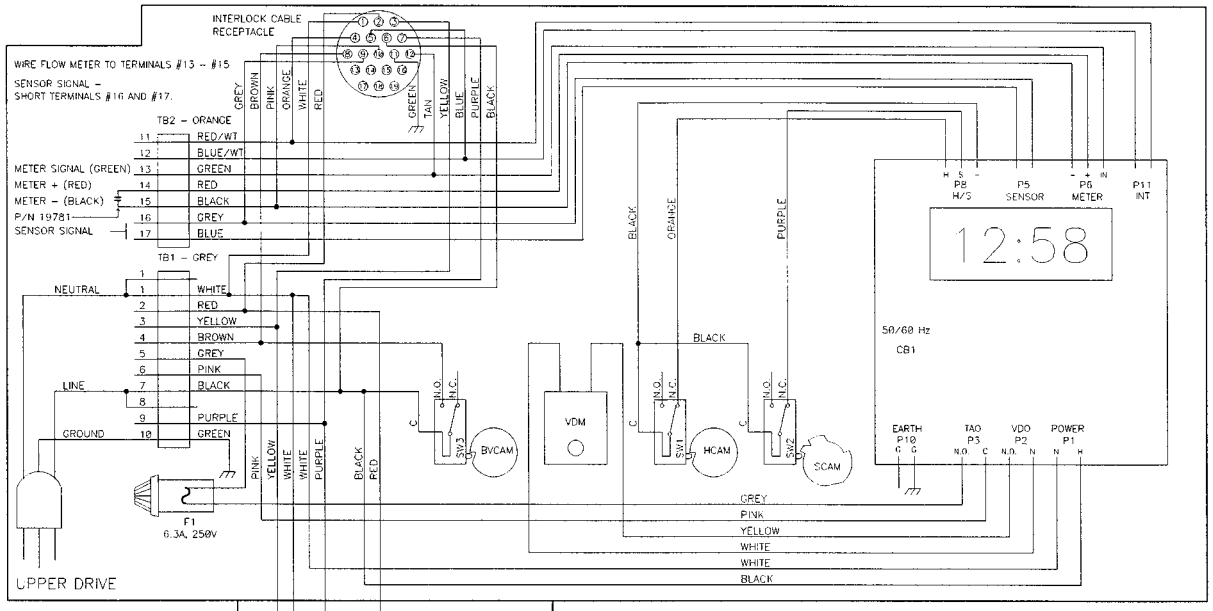
SYSTEM #7 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. SINGLE METER/SENSOR ALTERNATING IMMEDIATE REGENERATION. DO NOT WIRE IN A LOCKOUT SIGNAL.

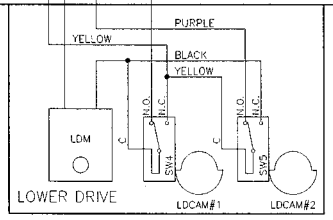
SYSTEM #8 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. SINGLE METER/SENSOR ALTERNATING DELAYED REGENERATION WITH IMMEDIATE SERVICE TRANSFER. DO NOT WIRE IN A LOCKOUT SIGNAL.



TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM

Printed in U.S.A.



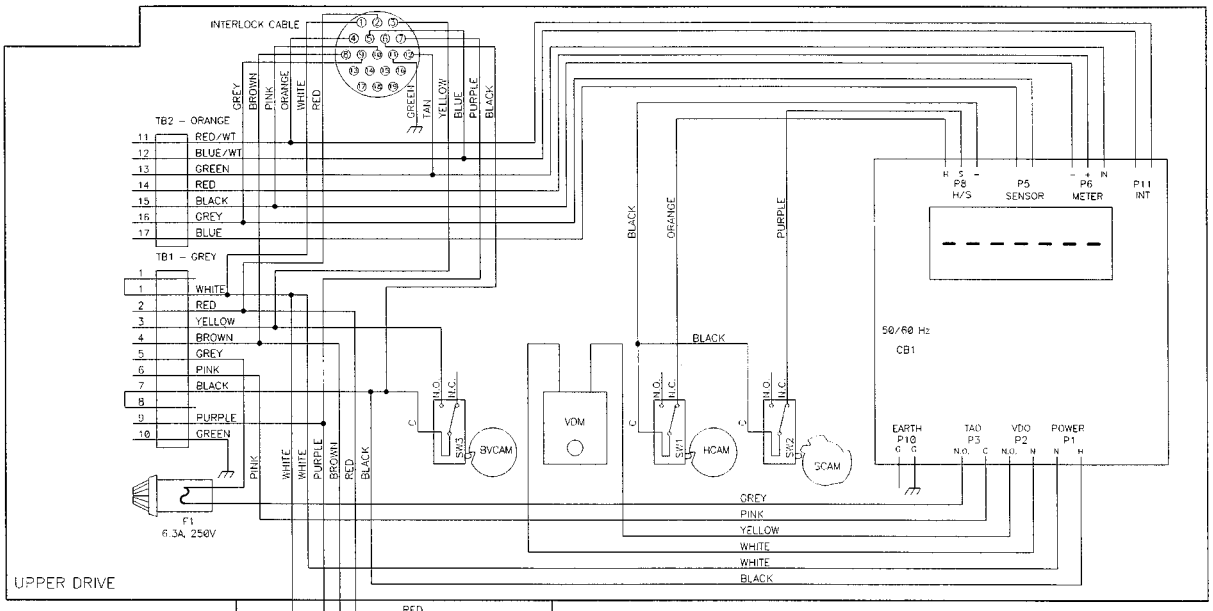


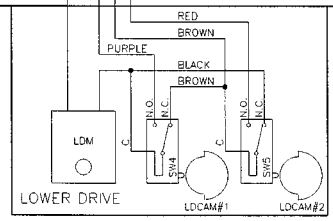
TB1, 2 – HIGH/LOW VOLTAGE TERMINAL BLK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
SW4 – LOWER DRIVE SWITCH (INSIDE)
SW5 – LOWER DRIVE SWITCH (OUTSIDE)
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM#1 – LOWER DRIVE CAM (INSIDE)
LDCAM#2 – LOWER DRIVE CAM (OUTSIDE)

LEAD VALVE WIRING
(SHOWN IN SERVICE)

SYSTEM #7 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. SINGLE METER/SENSOR ALTERNATING IMMEDIATE REGENERATION. DO NOT WIRE IN A LOCKOUT SIGNAL.

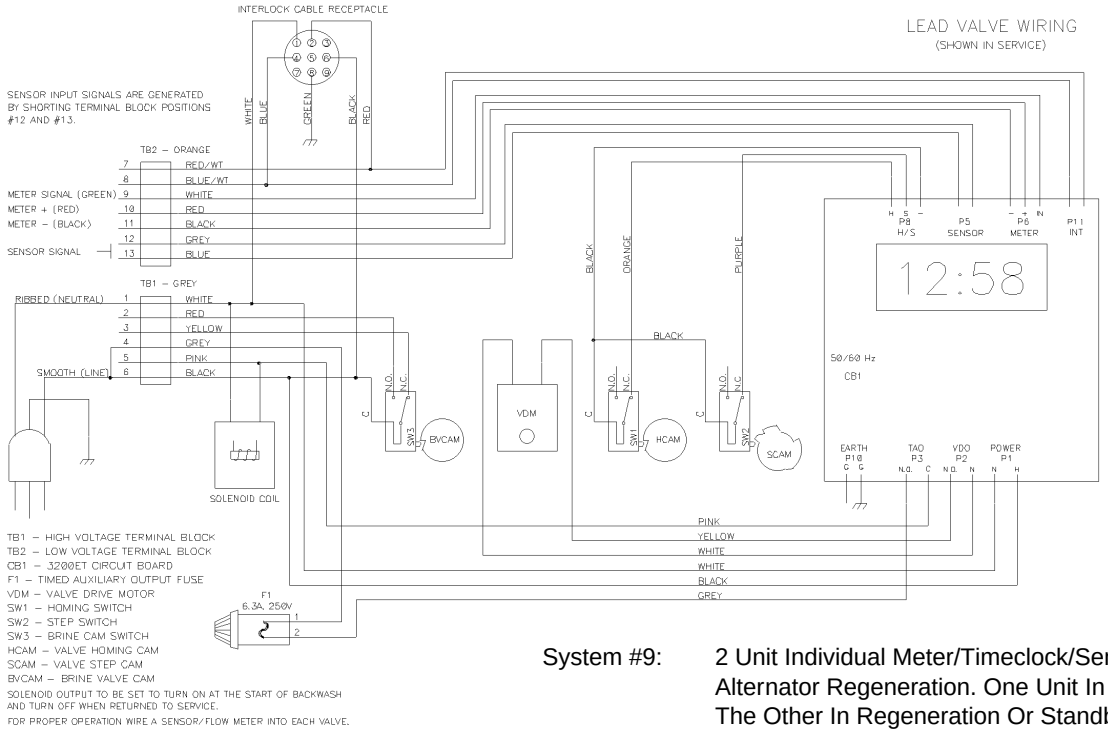
SYSTEM #8 OPERATION – WIRE A FLOW METER/SENSOR INTO LEAD VALVE ONLY. SINGLE METER/SENSOR ALTERNATING DELAYED REGENERATION WITH IMMEDIATE SERVICE TRANSFER. DO NOT WIRE IN A LOCKOUT SIGNAL.



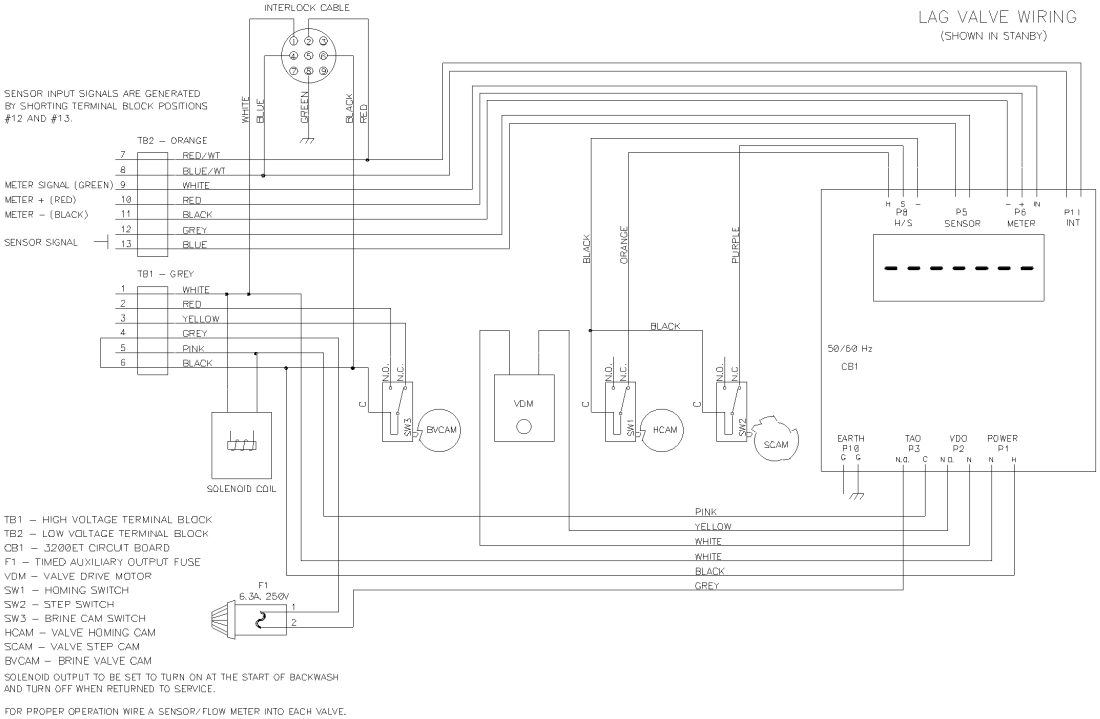


TB1, 2 – HIGH/LOW VOLTAGE TERMINAL BLK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
SW4 – LOWER DRIVE SWITCH (INSIDE)
SW5 – LOWER DRIVE SWITCH (OUTSIDE)
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM#1 – LOWER DRIVE CAM (INSIDE)
LDCAM#2 – LOWER DRIVE CAM (OUTSIDE)

LAG VALVE WIRING
(SHOWN IN STANDBY)



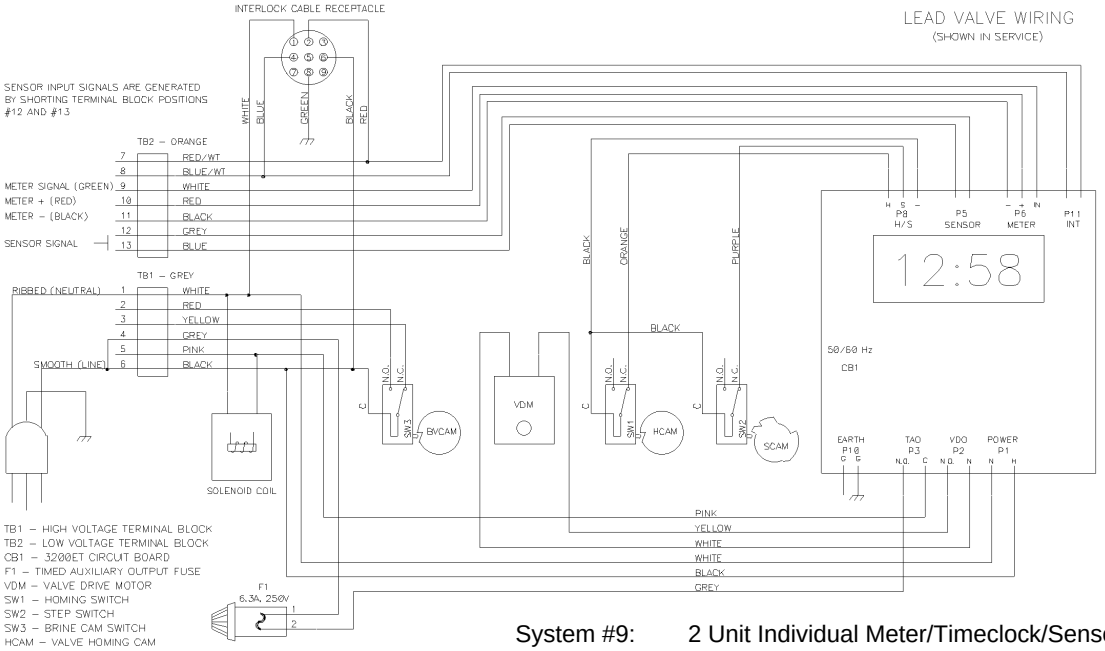
System #9: 2 Unit Individual Meter/Timeclock/Sensor Alternator Regeneration. One Unit In Service, The Other In Regeneration Or Standby



Printed in U.S.A.

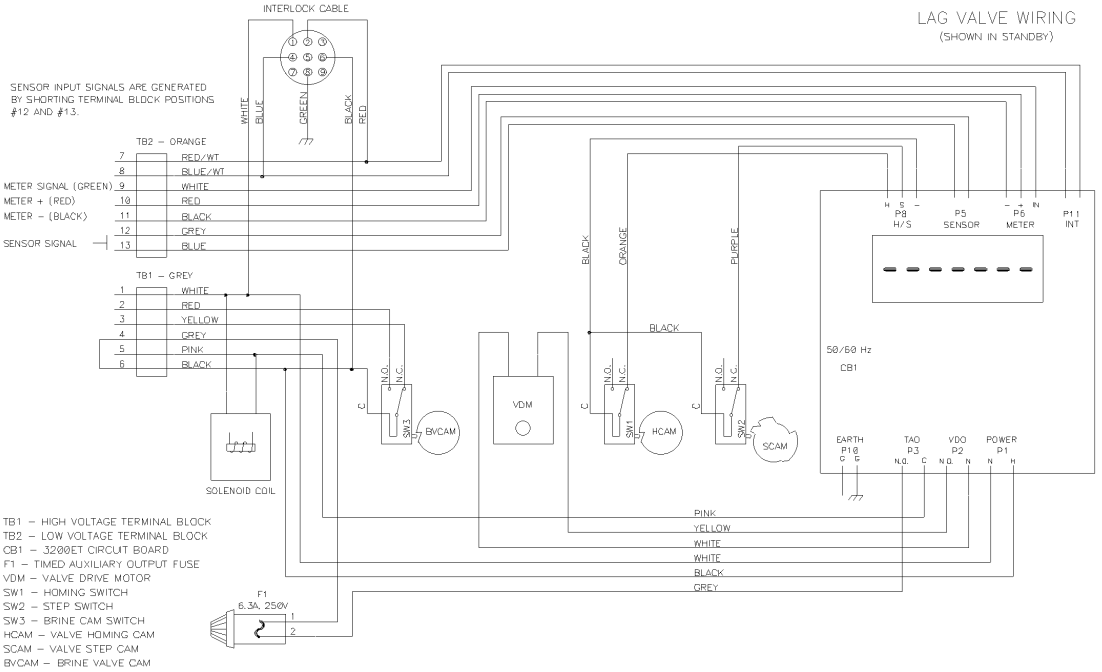
3200ET Timer

3200ET System #9 (4-Way Solenoid Output) - 2750/2850/3130/3150



TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
SOLENOID OUTPUT TO BE SET TO TURN ON AT THE START OF BACKWASH FOR 1 MINUTE.
FOR PROPER OPERATION WIRE A SENSOR/FLOW METER INTO EACH VALVE.

System #9: 2 Unit Individual Meter/Timeclock/Sensor Alternator Regeneration. One Unit In Service, The Other In Regeneration Or Standby

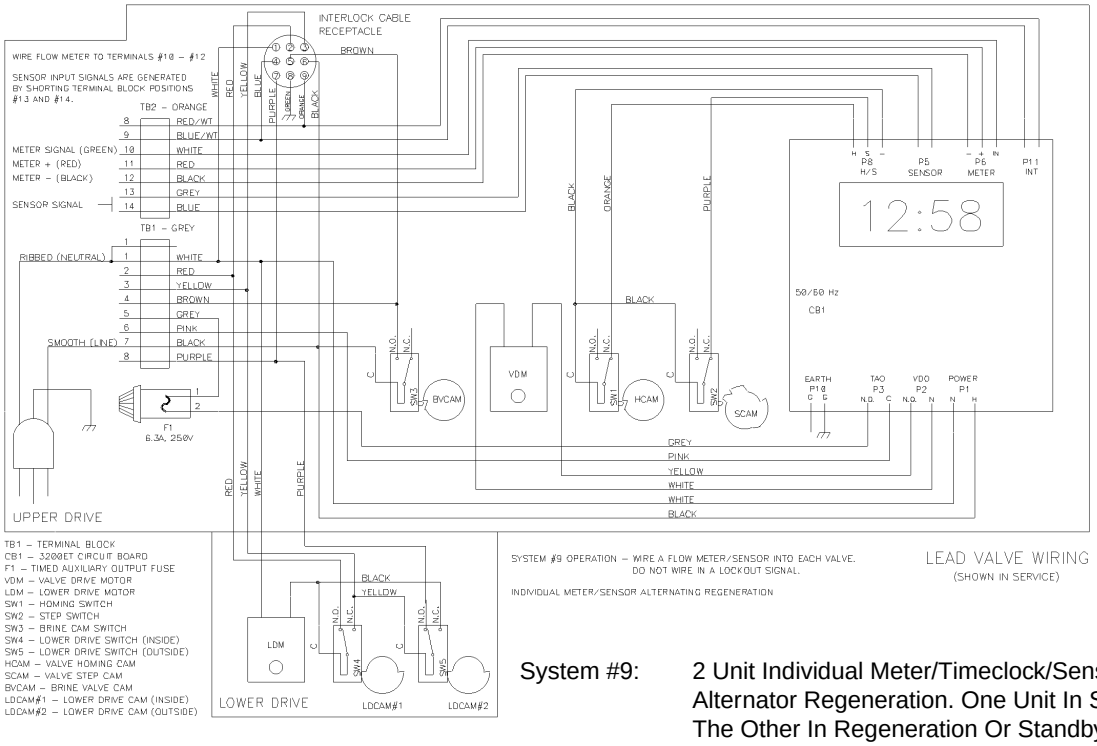


TB1 – HIGH VOLTAGE TERMINAL BLOCK
TB2 – LOW VOLTAGE TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
SOLENOID OUTPUT TO BE SET TO TURN ON AT THE START OF BACKWASH FOR 1 MINUTE.
FOR PROPER OPERATION WIRE A SENSOR/FLOW METER INTO EACH VALVE.

Printed in U.S.A.

3200ET Timer

3200ET System #9 - 2900/2930/3900



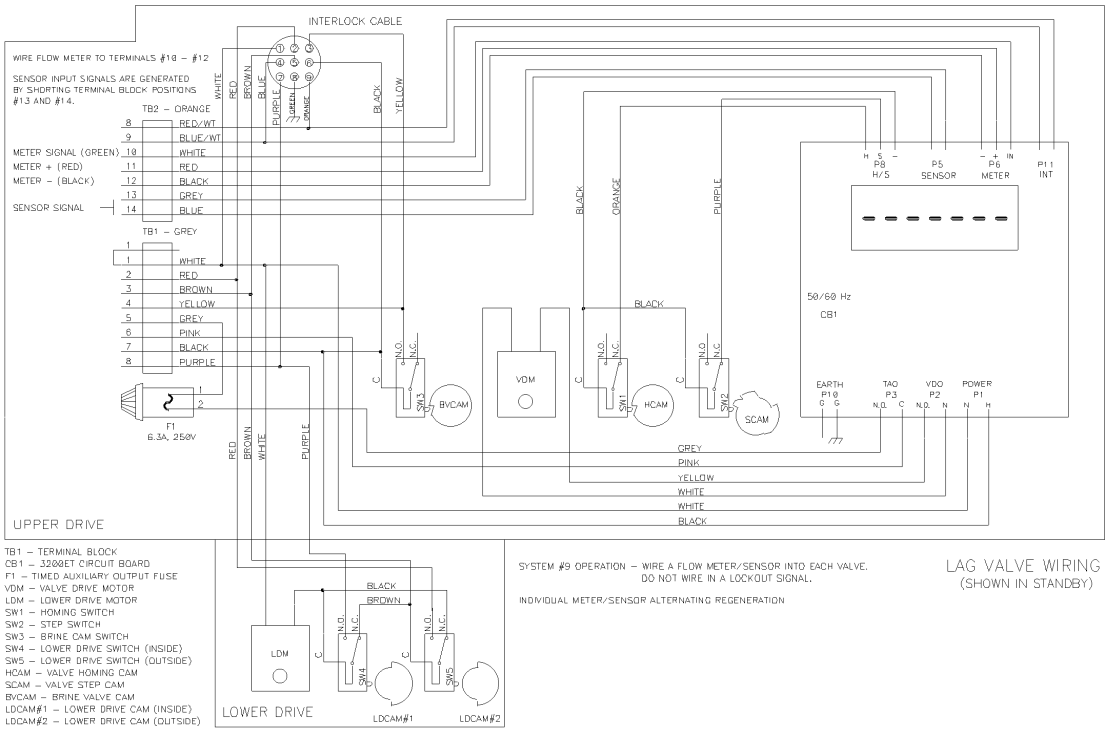
TB1 – TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
SW4 – LOWER DRIVE SWITCH (INSIDE)
SW5 – LOWER DRIVE SWITCH (OUTSIDE)
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM#1 – LOWER DRIVE CAM (INSIDE)
LDCAM#2 – LOWER DRIVE CAM (OUTSIDE)

SYSTEM #9 OPERATION – WIRE A FLOW METER/SENSOR INTO EACH VALVE. DO NOT WIRE IN A LOCKOUT SIGNAL.

INDIVIDUAL METER/SENSOR ALTERNATING REGENERATION

LEAD VALVE WIRING
(SHOWN IN SERVICE)

System #9: 2 Unit Individual Meter/Timeclock/Sensor Alternator Regeneration. One Unit In Service, The Other In Regeneration Or Standby



TB1 – TERMINAL BLOCK
CB1 – 3200ET CIRCUIT BOARD
F1 – TIMED AUXILIARY OUTPUT FUSE
VDM – VALVE DRIVE MOTOR
LDM – LOWER DRIVE MOTOR
SW1 – HOMING SWITCH
SW2 – STEP SWITCH
SW3 – BRINE CAM SWITCH
SW4 – LOWER DRIVE SWITCH (INSIDE)
SW5 – LOWER DRIVE SWITCH (OUTSIDE)
HCAM – VALVE HOMING CAM
SCAM – VALVE STEP CAM
BVCAM – BRINE VALVE CAM
LDCAM#1 – LOWER DRIVE CAM (INSIDE)
LDCAM#2 – LOWER DRIVE CAM (OUTSIDE)

SYSTEM #9 OPERATION – WIRE A FLOW METER/SENSOR INTO EACH VALVE. DO NOT WIRE IN A LOCKOUT SIGNAL.

INDIVIDUAL METER/SENSOR ALTERNATING REGENERATION

LAG VALVE WIRING
(SHOWN IN STANDBY)

Printed in U.S.A.

Notes

Printed in U.S.A.

3200ET Timer - V2.0

Option Setting Level #1 Programming Chart For Standard Valves

Level #1

Note:

1. Push Program Button Once Per Display.
2. Option settings may be changed by pushing either the Up or Down Arrow Button.
3. Depending on current valve programming certain displays will not be able to be viewed or set.

To Enter Push And Held Program Button For 5 Seconds

Water Hardness Set In Grains per Gallon
Example: 25 Grains [25]

Water Hardness After Mixing Valve
Example: 10 French Degrees Of Hardness [P - - - 10]
Note: This Display Only Viewed With Metric Display Formats U2 & U4

System Capacity
Example: 20,000 Grain Capacity [20]

Regeneration Time
Example: 2:00 A.M. [2:00]

Regeneration Cycle Step #1 - Backwash
Example: (Backwash for 10 Minutes) [1 - - - 10.0]

Regeneration Cycle Step #2- Brine Draw / Slow Rinse
Example: (Brine Draw and Slow Rinse for 60 Minutes) [2 - - - 60.0]

Regeneration Cycle Step #3 - Rapid Rinse
Example: (Rapid Rinse for 10 Minutes) [3 - - - 10.0]

Regeneration Cycle Step #4 - Brine Tank Refill
Example: (Brine Tank Refill for 12 Minutes) [4 - - - 12.0]

Regeneration Cycle Step #5 - Typically Not Used
Example: Cancelled [5 - - - OFF]

Option Level #1 Is Exited
Normal Operation is resumed

Printed in U.S.A.

3200ET Timer - V2.0

Option Setting Level #1 Programming Chart For Variable Brining Valves

Level #1

Note:

1. Push Program Button Once Per Display.
2. Option settings may be changed by pushing either the Up or Down Arrow Button.
3. Depending on current valve programming certain displays will not be able to be viewed or set.

To Enter Push And Held Program Button For 5 Seconds

Water Hardness Set In Grains per Gallon
Example: 25 Grains [25]

Water Hardness After Mixing Valve (P)
Example: 10 French Degrees Of Hardness [P - - - 10]
Note: This Display Only Viewed With Metric Display Formats U2 & U4

System Capacity
Example: 20,000 Grain Capacity [20]

Regeneration Time
Example: 2:00 A.M. [2:00]

Regeneration Cycle Step Time Programming
Regeneration Cycle Step #1 - Not Viewed or Set
Regeneration Cycle Step #2 - Brine Making
Example: (Brine Making for 15 Minutes) [2 - - - 15.0]

Regeneration Cycle Step #3- Brine Draw / Slow Rinse
Example: (Brine Draw and Slow Rinse for 60 Minutes) [3 - - - 60.0]

Regeneration Cycle Step #4- Backwash
Example: (Backwash for 10 Minutes) [4 - - - 10.0]

Regeneration Cycle Step #5 - Rapid Rinse
Example: (Rapid Rinse for 10 Minutes) [5 - - - 10.0]

Regeneration Cycle Step #6
Example: Cancelled [6 - - - OFF]

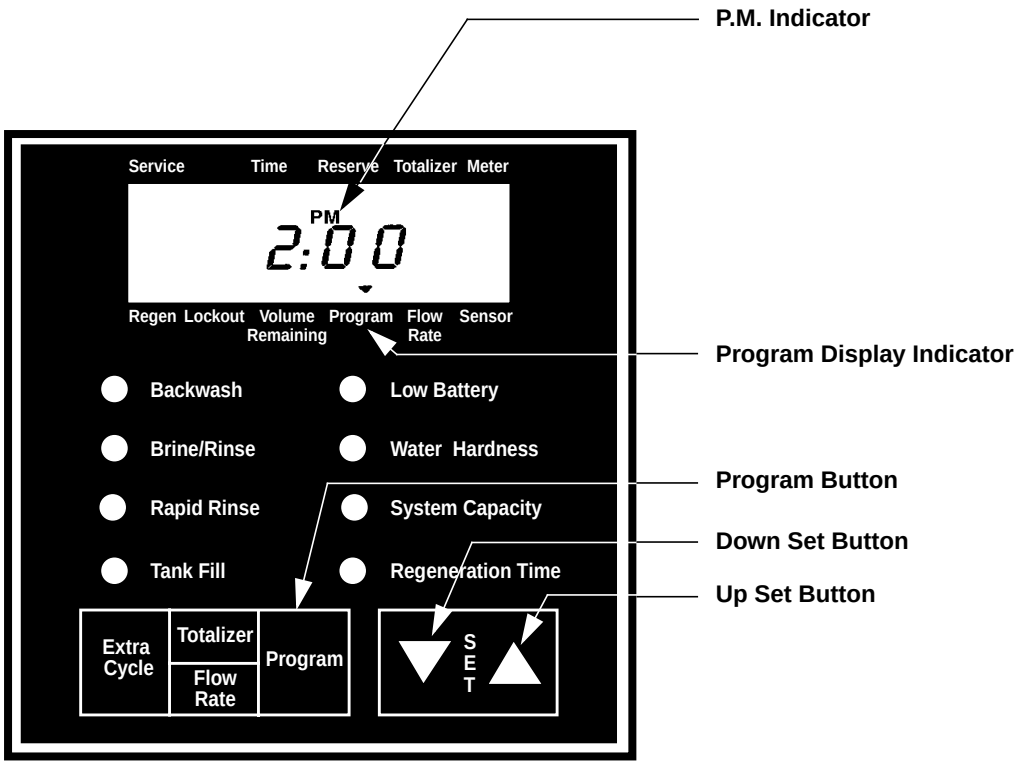
Option Level #1 Is Exited
Normal Operation is resumed

Printed in U.S.A.

3200ET Timer

Option Setting Level #1 - Installer Programming

This level includes the functioning parameters of the softener, related to site conditions. If the Chemical Pump Output feature is active, first remove the flow meter harness from the meter cap before entering any program level.



Entering Option Level #1

Depress the Program Button for five seconds. The Program Arrow will turn on and the first display viewed is used to set the Inlet Water Hardness. Depending on current programming, certain displays or option settings will not be viewed.

1. **Water Hardness**

   The unit of measure used for this setting is grains/French degrees/P.P.M./German degrees. This option setting is identified by the red LED next to the Water Hardness label.

   Example: 25 grains **[25]**

   The **UP** and **DOWN Set Buttons** will adjust this value.

2. **Water Hardness After Mixing Valve (P)**

   Depress the Program Button. The next display viewed is the option setting for water hardness after the mixing valve. This option setting is identified by the letter P only. The unit of measure used for this setting is French degrees or P.P.M. This display will only be able to be viewed with US/metric Display Format set to U-2 or U-4 (metric formats).

   Example: 10 French degrees of hardness **[P - - - - 10]**

   The **UP** and **DOWN Set Buttons** will adjust this value.

Printed in U.S.A.

Option Setting Level #1 - Installer Programming (Cont'd.)

3. System Capacity

Depress the Program Button. The next display viewed is the option setting for Capacity. This option setting is identified by the red LED on next to the label System Capacity. The unit of measurement used for this setting is kilograms/French degree x m3/grams/German degree x m^3. The total capacity of the softener is set with this display. If required, the control will calculate a reserve automatically.

Example: 20,000 grain capacity - **[20]**

The **UP** and **DOWN Set Buttons** will adjust this value.

4. Regeneration Cycle Step Programming (1) (2) (3) (4) (5) (6)

Depress the Program Button. The next 2 to 6 displays viewed are used to program the Regeneration Cycle. Up to 6 steps can be programmed. Each display is used to set the duration time in minutes of that specific step in a regeneration cycle. A red LED will turn on for the regeneration cycle step being programmed (except steps #5 & #6).

Examples: Regeneration Cycle Step #1 - 8.0 minutes - **[1 - - - - 8.0]**
Regeneration Cycle Step #5 - 8 1/2 minutes - **[5 - - - - 8.5]**

Depress the Program Button once per display to advance through Regeneration Cycle Step Programming. Steps are cancelled by setting the display to 0. Remaining regeneration cycle is cancelled by setting display to OFF. The 6700 control has a separate brine tank fill cycle. Your desired salt setting must be calculated, using the blue (.25 gpm) or black (.5 gpm) rate of refill (in gpm) times your timer setting. Then using one gallon of fresh water dissolving approximately 3 lbs. of salt, calculate your refill time. Valves equipped for Variable Brining will not require a Brine Tank Refill setting. Brine Making time is typically set for 15 minutes for a gridless brine tank.

Example: lbs. salt ÷ 3 ÷ B.L.F.C. Size = refill time in minutes, 10 lbs. salt ÷ 3 ÷ .25 = 13.3 minute refill time

The **UP** and **DOWN Set Buttons** adjust these settings.

5. Regeneration Time

Depress the Program Button. The next display viewed is the option setting for Regeneration Time. It is identified by the red LED next to the label Regeneration Time as well as a non-flashing colon.

Example: 2 o'clock A.M. regeneration time - **[2:00]**

The **UP** and **DOWN Set Buttons** will adjust this value.

Exiting This Option Setting Level

Depress the Program Button once per display until all option setting displays have been viewed.

Installer Notes:

1. Control Calculations - With Delayed Regeneration Valves, the control is designed to automatically calculate its reserve capacity based on daily water usage. There is no need to program in a reserve capacity.
2. The System Capacity Option Setting should always be set to the resin bed manufacturers capacity recommendations for a given amount of salt to be used during regeneration.
3. System Capacity and Water Hardness displays will not be able to be viewed or set with non-metered systems.
4. Regeneration Time will not be able to be viewed or set with immediate regeneration valves.
5. Acceptable Voltage Ranges For Reliable Control Operation:
6. 24 Vac Valves + or - 10% 50/60Hz
   120/240 Vac Valves + 10% or - 25% 50/60Hz

Printed in U.S.A.

3200ET Timer - V2.0

Option Setting Level #2 Programming Chart

Level #2

Note:

1. Push Program Button Once Per Display.
2. Option settings may be changed by pushing either the Up or Down Arrow Button.
3. Depending on current valve programming certain displays will not be able to be viewed or set.

To Enter Push And Hold Program Button For 5 Seconds

Then Push And Hold Extra Cycle Button For 5 Seconds

Flow Rate Display
Example: 5.8 Gallons Per Minute [Fr - - - 5.8]

Days Since Last Regeneration Display
Example: 5 Days [d - - - - - 5]

Prior Service Volume Used Display
Example: 858 Gallons [E - - - 858]

Reserve Capacity Display
Example: 158 Gallons [rc - - 158]

Previous Days Water Usage Display
Example: 258 Gallons [Pd - - 258]

Cycle Step Location For Chlorination Indicator
Example: Indicator On During Brine Draw/Slow Rinse [J- - - - - 3]
Indicator Turned Off [J- - - OFF]

Timed Auxiliary Output Window #1 Start Time Setting
Examples: 1. Turn On At Start Of Backwash [y - - - - - 0]
2. Cancel setting [y - - - OFF]

Timed Auxiliary Output Window #1 End Time Setting
Examples: 1. Turn Off After 10 Minutes [10.0]
2. Turn Off When Returned To Service [S]

Continued On Next Page

Printed in U.S.A.

Option Setting Level #2 Programming Chart (Cont'd.)

Level #2 - Continued

Note:

1. Push Program Button Once Per Display.
2. Option settings may be changed by pushing either the Up or Down Arrow Button.
3. Depending on current valve programming certain displays will not be able to be viewed or set.

Timed Auxiliary Output Window #2 Start Time Setting
Examples: 1. Turn On At Start Of Brine/Rinse [r - - - 10.0]
2. Cancel setting [r - - - OFF]
Note: Setting Not Viewed On Standard 6700 or if window #1 Is Cancelled

Timed Auxiliary Output Window #2 End Time Setting
Examples: 1. Turn Off After 60 Minutes [70.0]
2. Turn Off When Returned To Service [S]

Chemical Pump Output On Time Setting
Examples: 1. Turn On In Service For 1 Minute [n - - - - 1.0]
2. Cancel setting [n - - - OFF]
Note: Setting Not Viewed On Valves Without Meters

Chemical Pump Output Volume Count Setting
Example: Turn On In Service Every 100 Gallons [100]

Regeneration Day Override
Example: Override Every 7 Days [A - - - - - 7]

Volume Override
Example: Regenerate Every 850 Gallons [b - - - 850]
Note: Water Hardness and System Capacity Settings Not Used or Viewed

US/metric Display Format
Examples: US Format [U - - - - - 1]
European Format [U - - - - - 2]
Standard Metric Format [U - - - - - 3]
Cubic Meter Metric Format [U - - - - - 4]
Japanese Metric Format [U - - - - - 5]

Valve Type
Examples: Option Typically Not Used [o - - - - - 1]
6700 Valve [o - - - - - 2]
Option Typically Not Used [o - - - - - 3]
Option Typically Not Useds [o - - - - - 4]
Option Typically Not Used [o - - - - - 5]

Regeneration Type
Examples: Timeclock Regeneration [7 - - - - - 1]
Meter Immediate Regeneration [7 - - - - - 2]
Meter Delayed Regeneration (Standard Setting) [7 - - - - - 3]
Meter Delayed Variable Brining (Inc. 3 Settings) [7 - - - - - 4]
Resin Bed Volume Setting - Example: 1.0 Ft^3 [7 r - - 1.0]
Salt Dosage Setting - Example: 8 lbs per Ft^3 [7 d - - - -8]
BLFC Setting - Example: 0.25 gpm [7 b - - -.25]
Sensor Immediate Regeneration [7 - - - - - 5]
Minimum Signal On Time Setting: 5 Minutes [7-5 - - 5.0]
Sensor Delayed Regeneration [7 - - - - - 6]
Minimum Signal On Time Setting: 8 Minutes [7-5 - - 8.0]
Option Not Typically Used [7 - - - - - 7]
Option Not Available [7 - - - - - 8]

Continued On Next Page

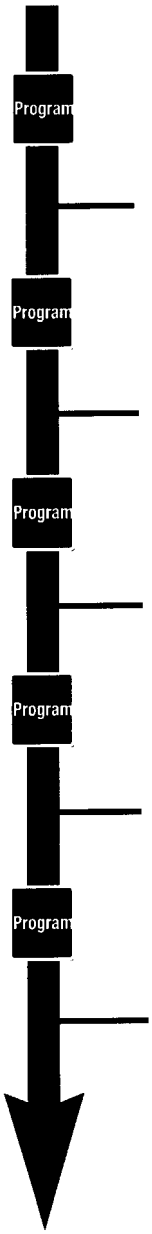
Printed in U.S.A.

Option Setting Level #2 Programming Chart (Cont'd.)

Level #2 - Continued

Note:

1. Push Program Button Once Per Display.
2. Option settings may be changed by pushing either the Up or Down Arrow Button.
3. Depending on current valve programming certain displays will not be able to be viewed or set.



Flow Meter Size

Examples:	Option Not Typically Used	[F - - - - - 0]
	Standard 3/4″ Flow Meter	[F - - - - - 1]
	Option Not Typically Used	[F - - - - - 2]
	Option Not Typically Used	[F - - - - - 3]
	Option Not Typically Used	[F - - - - - 4]
	Option Not Typically Used	[F - - - - - 5]
	Option Not Typically Used	[F - - - - - 6]

Mixing Valve Location

Examples:	No Mixing Valve	[8 - - - - - 1]
	Mixing Valve Before Flow Meter	[8 - - - - - 2]
	Mixing Valve After Flow Meter	[8 - - - - - 3]

Note: This Display Only Viewed WIth Metric Display Formats U2 & U4

System Type

Examples:	Single Valve System #4 Operation	[9 - - - - - 4]
	Option Not Currently Offered	[9 - - - - - 5]
	Option Not Currently Offered	[9 - - - - - 6]
	Option Not Currently Offered	[9 - - - - - 7]
	Option Not Currently Offered	[9 - - - - - 8]
	Option Not Currently Offered	[9 - - - - - 9]

Program Lock

Examples:	Lock Cancelled	[PL - - - OFF]
	Lock Active	[PL - - - - On]

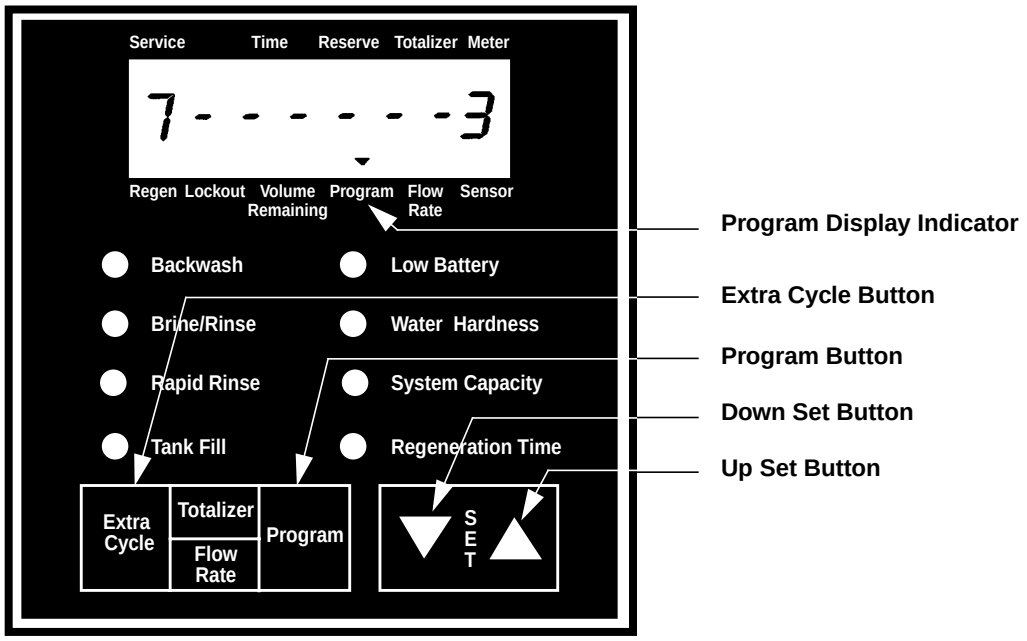
Option Level #2 Is Exited
Normal Operation is resumed

Printed in U.S.A.

3200ET Timer

Option Setting Level #2 - Softener Manufacturer Programming

Setting up the valve during manufacturing of the softener requires access to the second level of option programming. This level includes the functioning parameters of the softener, related to actual system configuration.



Entering Option Level #2

Depress the Program Button for 5 seconds. The Program Arrow will turn on and the first display viewed is used to set the Inlet Water Hardness. Next, depress the Extra Cycle Button for 5 seconds. Depending on current programming, certain displays or option settings will not be viewed.

1. **Flow Rate Display (Fr)**

   The first display viewed is the current flow rate of treated water through the softener. The unit of measurement used is gallons/liters per minute.

   Example: 8.5 Gallons Per Minute **[Fr - - - 8.5]**

2. **Days Since Last Regeneration Display (d)**

   Depress the Program Button. The next display viewed is not an option setting. This display is used as an aid to the service person in diagnosing a valve malfunction. The number of days since the last regeneration is recorded in this display by the control. This display is identified by the letter d in the first digit.

   Example: 4 days **[d - - - - - 4]**

3. **Prior Service Volume Used Display (E)**

   Depress the Program Button. The next display viewed is not a option setting. This display is used as an aid to the service person in diagnosing a valve malfunction. The amount a water used the last time the softener was in service is recorded in this display by the control. The unit of measurement used is gallons/liters/cubic meters.

   Example: 850 Gallons - **[E - - - 850]**

Printed in U.S.A.

Option Setting Level #2 - Softener Mfg. Programming (Cont'd.)

4. Reserve Capacity Display (rc)

Depress the Program Button. The next display viewed is not a option setting. This display is used as an aid to the service person in diagnosing a valve malfunction. The calculated reserve capacity (in gallons/liters/cubic meters) for the present day is recorded in this display by the control.

Example: 277 gallons - **[r c - - 277]**

5. Previous Days Water Usage Display (Pd)

Depress the Program Button. The next display viewed is not an option setting. This display is used as an aid to the service person in diagnosing a valve malfunction. The previous days water usage (in gallons/liters/cubic meters) is recorded in this display by the control.

Example: 200 gallons - **[P d - - 200]**

7. Cycle Step Location For Chlorination Indicator (J)

Depress the Program Button. The next display viewed is an option setting. This display is used to set the desired regeneration cycle step where the chlorinator indicator (C) will turn on in the regeneration display. Actual control of power to a chlorinator is handled independently of this setting using a microswitch or Timed Auxiliary Output.

Examples: No Chlorinator Installed - **[J - - - OFF]**
Chlorinator To Turn On During Step #2 - **[J - - - - - 2]**

The **UP and DOWN Set Button**s adjust this value.

8. Timed Auxiliary Output Programming (y) (r) (n)

Depress the Program Button. The next 3 displays viewed are part of a series of option settings used to program the optional relay output. These displays will not be viewed if the optional relay output is not installed. The first two settings (**y** and **r**) turn the output on / off during Regeneration only. The third (**n**) turns the output on during Service only, when a set volume of water used has accumulated. This setting will not be viewed on non-metered systems.

Note:

When more than one of these settings is used, it will be up to the operator to supply the switching logic necessary to operate two or three separate pieces of equipment at a time from a single relay output.

9. Timed Auxiliary Output Window #1 Setting (y)

This option setting consists of two displays. The first display is used to set the turn on time of the output, referenced to the start of Backwash. The second display is used to set the output turn off time, referenced again to the start of Backwash. An OFF setting cancels this setting. A set on time with a set off time of S will turn the output off at the start of Service. All settings are in minutes and output timing is synchronized with regeneration cycle timing.

Examples: Activate output at start of Step #1/Deactivate after 10 minutes - **[y - - - - - 0]** (Start Time Display)
[10.0] (Stop Time Display)
Cancel setting - **[y - - -OFF]**

The **UP** and **DOWN Set Buttons** adjust these settings.

Printed in U.S.A.

Option Setting Level #2 - Softener Mfg. Programming (Cont'd.)

10. Timed Auxiliary Output Window #2 Setting (r)

Depress the Program Button. This option setting consists of two displays. The first display is used to set the turn on time of the output, referenced to the start of Backwash. The second display is used to set the output turn off time, referenced again to the start of Backwash. A OFF setting cancels this setting. A set on time with a set off time of S will turn the output off at the start of Service. All settings are in minutes and output timing is synchronized with regeneration cycle timing.

Examples: Activate output 15 mm. after the start of Step #1/Deactivate when in Service - **[r - - - 15.0]**
[- - - - - - S]
Cancel setting - **[r - - -OFF]**

The **UP** and **DOWN Set Buttons** adjust these settings.

11. Chemical Pump Output (in)

Depress the Program Button. This option setting consists of two displays. The first display is used to set the turn on time (in minutes) of the output. The second display is used to set the volume of water flow at which the output will turn on.

Examples: Activate output 1.0 mm. after every 200 gallons - **[n - - - - 1.0]**
[200]
Activate output 1 second after every 200 gallons - **[n - - - - - -P]** (Pulse Mode)
[500]
Cancel setting- **[n - - - OFF]**

The **UP** and **DOWN Set Buttons** adjust these settings.

12. Regeneration Day Override (A)

Depress the Program Button. The next display is used to set the Regeneration Day Override Option Setting. The Regeneration Day Override Option Setting sets the maximum amount of days that the conditioner can be in service without a regeneration, regardless of water usage or the lack of a sensor signal. Regeneration begins at the set regeneration time or at the previous regen time. A OFF setting will cancel this option with all regeneration types except Timeclock Regeneration. A day override setting is required for timeclock regeneration valves.

Examples: Override every 7 days - **[A - - - - - 7]**
Cancel setting - **[A - - -OFF]**

The **UP and DOWN Set Button**s adjust this value.

13. Volume Override (b)

Depress the Program Button. The next display viewed is used to set the maximum amount of water that can be used before a regeneration cycle is called for. When this feature is used with delayed regeneration systems, it will be up to the programmer to determine a reserve capacity. The control will no longer keep track of the reserve capacity. This option is typically used to bypass standard reserve or capacity calculations made by the control.

Examples: Override every 700 gallons - **[b - - - 700]**
Override cancelled - **[b - - OFF]**

The **UP and DOWN Set Button**s adjust this value.

Printed in U.S.A.

Option Setting Level #2 - Softener Mfg. Programming (Cont'd.)

14. US/Metric Display Format (U)

Depress the Program Button. This display is used to set the desired display format for the timer to use. There are five possible settings:

The U.S. Format uses gallons for volume and gallons per minute for flow rate related data / displays with a 12 hour timekeeping format. Water Hardness units will be grains per gallon and Capacity in kilograms. Option settings P and 8 as well as Regeneration Types #7 and #8 will not be displayed.

Example: **[U - - - - - 1]**

The European Metric Format uses liters for volume and liters per minute for flow rate related data / displays with a 24 hour timekeeping format. Water Hardness units will be French Degrees and Capacity in French Degree x m^3.

Example: **[U - - - - - 2]**

The Standard Metric Format uses liters for volume and liters per minute for flow rate related data / displays with a 24 hour timekeeping format. Water Hardness units will be French Degrees and Capacity in French Degree x m^3. Option settings P and 8 as well as Regeneration Types #7-8 will not be displayed.

Example: **[U - - - - - 3]**

The Cubic Meter Metric Format uses m^3 for volume and liters per minute for flow rate related data / displays with a 24 hour timekeeping format. Water Hardness units will be P.P.M. (mg/liter or g/m^3) and Capacity in grams. Regeneration Types #7 and #8 will not be displayed.

Example: **[U - - - - - 4]**

The Japanese Metric Format uses liters for volume and liters per minute for flow rate related data / displays with a 24 hour timekeeping format. Water Hardness units will be German Degrees and Capacity in German Degree x m^3. Option settings P and 8 as well as Regeneration Types #7-8 will not be displayed.

Example: **[U - - - - - 5]**

The **UP and DOWN Set Button**s adjust this value.

15. Valve Type (0)

Depress the Program Button. The next display viewed is a option setting. This display is used to set the type of valve used with the control. There are four possible selections with #2 being the required setting:

Example: **[o - - - - - 1]** Option Typically Not Used.

6700 Valve. When #2 is selected the control will operate properly and all LEDs will be used. The Volume Remaining Display will not be able to count down until the regeneration cycle is complete.

Example: **[o - - - - - 3]** 6700 Operation

The **UP and DOWN Set Button**s adjust this value.

16. Regeneration Type (7)

Depress the Program Button. This display is used to set the type of regeneration initiation. There are eight possible settings:

Timeclock Delayed. The timer will determine that regeneration is required based on the set regeneration time and regeneration day override settings.

Example: **[7 - - - - - 1]**

Printed in U.S.A.

Option Setting Level #2 - Softener Mfg. Programming (Cont'd.)

Meter Immediate. The timer will determine that regeneration is required based on when the available volume of treated water drops to or below zero. Regeneration to begin immediately.

Example: **[7 - - - - - 2]**

Meter Delayed. The control will determine that a regeneration is required based on when the available volume of treated water drops to or below the reserve capacity. Regeneration is to begin immediately at the set Regeneration Time only when service flow has not been detected. Regeneration is to be to delayed, in two 10 minute sections, for up to an additional 20 minutes, with service flow. Regeneration then to begin immediately There will not be a delay if the Volume Remaining is zero.

Example: **[7 - - - - - 3]**

Meter Delayed Variable Brining. The control will determine that a regeneration is required based on when the available volume of softened water drops to or below the reserve capacity. Regeneration is to begin immediately at the set Regeneration Time only when service flow has not been detected. Regeneration is to be to delayed, in two 10 minute sections, for up to an additional 20 minutes, with service flow. Regeneration then to begin immediately. there will not be any regeneration delay if the Volume Remaining Display is zero. The timer will automatically program Regeneration Cycle Step #1 (Brine Fill) Time, therefore this option setting display will not be viewed. This value will be determined by the remaining unused softening capacity and the precise amount of brine (salt) required to return the softener to full capacity.

Example: **[7 - - - - - 4]** (This option is not typically used with downflow regeneration valves)
[7 - - - - 1.0] 1.0 Cubic Feet or Liters Of Resin In Softener
[7 - - - - - 8] 8 Pounds Per Cubic Feet Or Grams Per Liter Salt Dosage
[7 - - - - .25] .25 g.p.m. BLFC Size

17. Flow Meter Size (F)

Depress the Program Button. This display is used to set the size of the valve flow meter. This setting will not be viewed on non-metered valves.

Examples: **[F - - - - - 0]** Option Not Typically Used
[F - - - - - 1] Standard 3/4″ Flow Meter
[F - - - - - 2] Standard 1.0″ Flow Meter
[F - - - - - 3] Standard 1.5″ Flow Meter
[F - - - - - 4] Standard 2.0″ Flow Meter
[F - - - - - 5] Standard 3.0″ Flow Meter
[F - - - - - 6] Non-Standard Flow Meter, Enter Pulses Per Gallon/Liter

The **UP and DOWN Set Button**s adjust this value.

18. Mixing Valve Location (8)

Depress the Program Button. This next display is used to set where the mixing valve is located, if any. It is viewed only with the U.S./metric Display Format set to U-2 or U-4. There are three possible settings:

Examples: **[8 - - - - - 1]** No Mixing Valve
[8 - - - - - 2] Mixing Valve Before Flow Meter
[8 - - - - - 3] Mixing Valve After Flow Meter

The **UP and DOWN Set Button**s adjust this value.

Printed in U.S.A.

19. System Type (9)

Depress the Program Button. The next display viewed is an option setting. This display is used to set the type of system the valve is operating in. There are four settings available:

Single Valve/9000-9500 Regeneration - When this option is selected, the control will operate as a stand alone unit. The control can initiate a regeneration whenever needed. When a Lockout Signal is received, the control will delay the start of regeneration until that signal is removed.

Example: **[9 - - - - - 4]** Single Valve System #4 Operation

Two Valve Meter or Sensor Interlocked Regeneration - When this option is selected, the control will operate as part of a two valve interlocked system. Each control in the system will generate a Lockout Signal whenever it is in regeneration. A control will delay the start of regeneration until the Lockout Signal is removed.

Example: **[9 - - - - - 5]** Two To Five Valve System #5 Operation

Dual Valve Meter or Sensor Series Regeneration - When this option is selected, the control will operate as part of a dual tank series regeneration system. The lead valve control will initiate a regeneration cycle as needed. During regeneration lead valve control will generate a Lockout Signal. Once the valve reaches Service the control will deactivate this signal. This action will signal the lag valve control to initiate a regeneration immediately. During regeneration the lag valve will also generate a Lockout Signal. This signal will delay a lead valve regeneration until the signal is removed. Only one valve will be in regeneration at a time. Lag valve controls will not display any volume or flow rate related option settings or displays.

Example: **[9 - - - - - 6]** Two Valve System #6 Operation
[9 - 6 LEAd] Lead Valve Selection Display
[9 - - - LAg] Lag Valve Selection Display

Dual Valve Meter or Sensor Alternator Regeneration - When this option is selected, System Types #7 and #9, the control will operate as part of a two tank alternator regeneration system. During normal operation each control will be in one of 3 states: Service, Regeneration, or Standby. While in Service a control will count flow meter input pulses but not generate a Lockout Signal. During Regeneration, a control will not count flow meter input pulses but generate a Lockout Signal. When a regeneration cycle is complete, the control enters Standby State. In this state the control continues to ignore the flow meter input and monitors the Lockout Input for a valid signal from the other control to return to Service. Once this signal is received, the control in the Standby State will proceed immediately to the Service State. When a Lockout Signal is received by the control in Service, it will delay the start of regeneration until that signal is removed.

With System Type #8 (Delayed Regeneration Only) the reserve capacity calculations will not be used, instead the control in Standby will advance to Service then the other valve in Service (with zero Volume Remaining) will advance to Standby. Regeneration of this new Standby unit will then begin at the set Regeneration Time.

Example: **[9 - - - - - 7]** Two Valve System # 7 Operation - Single Immediate Remote Meter
[9 - - - - - 8] Two Valve System # 8 Operation - Single Delayed Remote Meter
[9 - - - - - 9] Two Valve System # 9 Operation - Individual Immediate Remote Meter

The Timed Auxiliary Output can be set to turn on during Regeneration and Standby:

1. For the full time period that the control is in the Regeneration and Standby States by setting option y to:

Example: **[y - - - - - .0] [- - - - - - S]**

2. For the first 5 minutes that the valve is in Regeneration Step #1 by setting option y to:

Example: **[y - - - - - .0] [- - - - - 5.0]**

Printed in U.S.A.

Option Setting Level #2 - Softener Mfg. Programming (Cont'd.)

20. Program Lock (PL)

Depress the Program Button. This display is used to prevent certain displays from being viewed or set. There are two possible settings:

Examples: **[PL - - OFF]** Lock Cancelled
[PL - - - ON] Lock Active

Settings Able To Be Reset With Lock Active -
Water Hardness
Water Hardness After Mixing Valve
Regeneration Time
Time Of Day

Displays Able To Be Viewed With Lock Active -
Flow Rate Display
Days Since Regeneration Display
Prior Service Volume Used Display
Reserve Capacity Display
Previous Days Water Usage Display

Unlocking Programming -

The only way to deactivate this feature is to push and hold the Program Button for 25 seconds. This procedure will unlock the control and permit all valid program settings to be viewed and reset as needed.

The **UP and DOWN Set Button**s adjust this value.

Exiting This Option Setting Level

Push the Program Button once per display until all have been viewed.

Resetting Permanent Programming Memory -

Push and hold the Program Button for 50 seconds. This procedure will erase this and **all** previous display settings and reset them to default values. Control programming will then have to be reset as necessary.

Printed in U.S.A.