



## Fleck SXT Timer

### Service Manual



### TABLE OF CONTENTS

- JOB SPECIFICATION SHEET .....1
- INSTALLATION .....2
- START-UP INSTRUCTIONS .....2
- TIMER FEATURES .....3
- TIMER OPERATION .....4
- MASTER PROGRAMMING MODE CHART .....5
- MASTER PROGRAMMING MODE.....6
- USER PROGRAMMING MODE.....9
- DIAGNOSTIC PROGRAMMING MODE .....10
- CONTROL VALVE ASSEMBLY .....11
- VALVE POWERHEAD ASSEMBLY .....12
- 3/4" TURBINE METER ASSEMBLY .....13
- BYPASS VALVE ASSEMBLY (PLASTIC).....14
- BYPASS VALVE ASSEMBLY (METAL) .....15
- 2300 SAFETY BRINE VALVE.....16
- 2310 SAFETY BRINE VALVE.....17
- TROUBLESHOOTING .....18
- WATER CONDITIONER FLOW DIAGRAMS .....20
- WIRING DIAGRAM .....21
- SERVICE INSTRUCTIONS .....22
- SERVICE ASSEMBLIES .....24

### JOB SPECIFICATION SHEET

Job Number: \_\_\_\_\_

Model Number: \_\_\_\_\_

Water Hardness: \_\_\_\_\_ ppm or gpg

Capacity Per Unit: \_\_\_\_\_

Mineral Tank Size: \_\_\_\_\_ Diameter: \_\_\_\_\_ Height: \_\_\_\_\_

Salt Setting per Regeneration: \_\_\_\_\_

**1. Type of Timer:**

- A. 7 Day or 12 Day
- B. Meter Initiated

**2. Downflow:                      Upflow                      Upflow Variable****3. Meter Size:**

- A. 3/4" Std Range (125 - 2,100 gallon setting)
- B. 3/4" Ext Range (625 - 10,625 gallon setting)
- C. 1" Std Range (310 - 5,270 gallon setting)
- D. 1" Ext Range (1,150 - 26,350 gallon setting)
- E. 1-1/2" Std Range (625 - 10,625 gallon setting)
- F. 1-1/2" Ext Range (3,125 - 53,125 gallon setting)
- G. 2" Std Range (1,250 - 21,250 gallon setting)
- H. 2" Ext Range (6,250 - 106,250 gallon setting)
- I. 3" Std Range (3,750 - 63,750 gallon setting)
- J. 3" Ext Range (18,750 - 318,750 gallon setting)
- K. Electronic \_\_\_\_\_ Pulse Count \_\_\_\_\_ Meter Size \_\_\_\_\_

**4. System Type:**

- A. System #4: 1 Tank, 1 Meter, Immediate, or Delayed Regeneration
- B. System #4: Time Clock
- C. System #4: Twin Tank
- D. System #5: 2-5 Tanks, Interlock Mechanical  
2-4 Tanks, Interlock Electronic  
Meter per unit for Mechanical and Electronic
- E. System #6: 2-5 Tanks, 1 Meter, Series Regeneration, Mechanical  
2-4 Tanks, 1 Meter, Series Regeneration, Electronic
- F. System #7: 2-5 Tanks, 1 Meter, Alternating Regeneration,  
Mechanical  
2 Tanks only, 1 Meter, Alternating Regeneration,  
Electronic
- G. System #9: Electronic Only, 2-4 Tanks, Meter per Valve, Alternating
- H. System #14: Electronic Only, 2-4 Tanks, Meter per Valve. Brings units on and offline based on flow.

**5. Timer Program Settings:**

- A. Backwash: \_\_\_\_\_ Minutes
- B. Brine and Slow Rinse: \_\_\_\_\_ Minutes
- C. Rapid Rinse: \_\_\_\_\_ Minutes
- D. Brine Tank Refill: \_\_\_\_\_ Minutes
- E. Pause Time: \_\_\_\_\_ Minutes
- F. Second Backwash: \_\_\_\_\_ Minutes

**6. Drain Line Flow Control: \_\_\_\_\_ gpm****7. Brine Line Flow Controller: \_\_\_\_\_ gpm****8. Injector Size#: \_\_\_\_\_****9. Piston Type:**

- A. Hard Water Bypass
- B. No Hard Water Bypass

# TIMER FEATURES

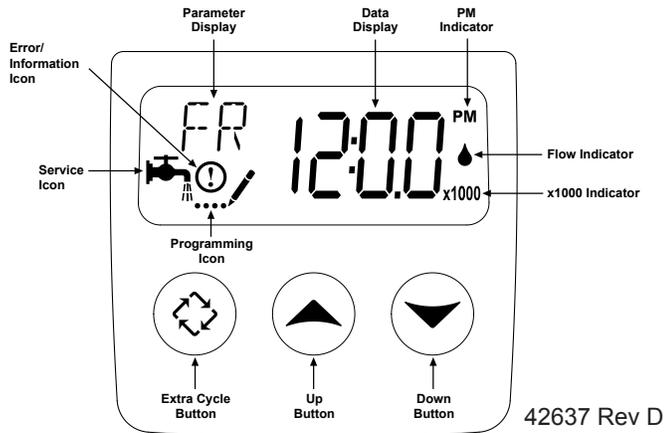


Figure 1

## Features of the SXT:

- Power backup that continues to keep time and the passage of days for a minimum of 48 hours in the event of power failure. During a power outage, the control goes into a power-saving mode. It does not monitor water usage during a power failure, but it does store the volume remaining at the time of power failure.
- Settings for both valve (basic system) and control type (method used to trigger a regeneration).
- Day-of-the-Week controls.
- While in service, the display alternates between time of day, volume remaining or days to regeneration, and tank in service (twin tank systems only).
- The Flow Indicator flashes when outlet flow is detected.
- The Service Icon flashes if a regeneration cycle has been queued.
- A Regeneration can be triggered immediately by pressing the Extra Cycle button for five seconds.
- The Parameter Display displays the current Cycle Step (BW, BF, RR, etc) during regeneration, and the data display counts down the time remaining for that cycle step. While the valve is transferring to a new cycle step, the display will flash. The parameter display will identify the destination cycle step (BW, BF, RR, etc) and the data display will read "----". Once the valve reaches the cycle step, the display will stop flashing and the data display will change to the time remaining. During regeneration, the user can force the control to advance to the next cycle step immediately by pressing the extra cycle button.

## Setting the Time of Day

1. Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads DO.
2. Adjust the displayed time with the Up and Down buttons.
3. When the desired time is set, press the Extra Cycle button to resume normal operation. The unit will also return to normal operation after 5 seconds if no buttons are pressed.



## Queueing a Regeneration

1. Press the Extra Cycle button. The service icon will flash to indicate that a regeneration is queued.
2. To cancel a queued regeneration, press the Extra Cycle button.

## Regenerating Immediately

Press and hold the Extra Cycle button for five seconds.

## TIMER OPERATION

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### Meter Immediate Control

A meter immediate control measures water usage and regenerates the system as soon as the calculated system capacity is depleted. The control calculates the system capacity by dividing the unit capacity (typically expressed in grains/unit volume) by the feedwater hardness and subtracting the reserve. Meter Immediate systems generally do not use a reserve volume. However, in twin tank systems with soft-water regeneration, the reserve capacity should be set to the volume of water used during regeneration to prevent hard water break-through. A Meter Immediate control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

### Meter Delayed Control

A Meter Delayed Control measures water usage and regenerates the system at the programmed regeneration time after the calculated system capacity is depleted. As with Meter Immediate systems, the control calculates the system capacity by dividing the unit capacity by the feedwater hardness and subtracting the reserve. The reserve should be set to insure that the system delivers treated water between the time the system capacity is depleted and the actual regeneration time. A Meter Delayed control will also start a regeneration cycle at the programmed regeneration time if a number of days equal to the regeneration day override pass before water usage depletes the calculated system capacity.

### Time Clock Delayed Control

A Time Clock Delayed Control regenerates the system on a timed interval. The control will initiate a regeneration cycle at the programmed regeneration time when the number of days since the last regeneration equals the regeneration day override value.

### Day of the Week Control

This control regenerates the system on a weekly schedule. The schedule is defined in Master Programming by setting each day to either "off" or "on." The control will initiate a regeneration cycle on days that have been set to "on" at the specified regeneration time.

### Control Operation During Regeneration

During regeneration, the control displays a special regeneration display. In this display, the control shows the current regeneration step number the valve is advancing to, or has reached, and the time remaining in that step. The step number that displays flashes until the valve completes driving to this regeneration step position. Once all regeneration steps are complete the valve returns to service and resumes normal operation.

Pressing the Extra Cycle button during a regeneration cycle immediately advances the valve to the next cycle step position and resumes normal step timing.

### Control Operation During Programming

The control only enters the Program Mode with the valve in service. While in the Program Mode, the control continues to operate normally monitoring water usage and keeping all displays up to date. Control programming is stored in memory permanently, eliminating the need for battery backup power.

### Manually Initiating a Regeneration

1. When timer is in service, press the Extra Cycle button for 5 seconds on the main screen.
2. The timer advances to Regeneration Cycle Step #1 (rapid rinse), and begins programmed time count down.
3. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #2 (backwash).
4. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #3 (brine draw & slow rinse).
5. Press the Extra Cycle button once to advance valve to Regeneration Cycle Step #4 (brine refill).
6. Press the Extra Cycle button once more to advance the valve back to in service.

**NOTE: If the unit is a filter or upflow, the cycle step order may change.**

**NOTE: A queued regeneration can be initiated by pressing the Extra Cycle button. To clear a queued regeneration, press the Extra Cycle button again to cancel. If regeneration occurs for any reason prior to the delayed regeneration time, the manual regeneration request shall be cleared.**

### Control Operation During A Power Failure

The SXT includes integral power backup. In the event of power failure, the control shifts into a power-saving mode. The control stops monitoring water usage, and the display and motor shut down, but it continues to keep track of the time and day for a minimum of 48 hours.

The system configuration settings are stored in a non-volatile memory and are stored indefinitely with or without line power. The Time of Day flashes when there has been a power failure. Press any button to stop the Time of Day from flashing.

If power fails while the unit is in regeneration, the control will save the current valve position before it shuts down. When power is restored, the control will resume the regeneration cycle from the point where power failed. Note that if power fails during a regeneration cycle, the valve will remain in its current position until power is restored. The valve system should include all required safety components to prevent overflows resulting from a power failure during regeneration.

The control will not start a new regeneration cycle without line power. If the valve misses a scheduled regeneration due to a power failure, it will queue a regeneration. Once power is restored, the control will initiate a regeneration cycle the next time that the Time of Day equals the programmed regeneration time. Typically, this means that the valve will regenerate one day after it was originally scheduled. If the treated water output is important and power interruptions are expected, the system should be setup with a sufficient reserve capacity to compensate for regeneration delays.

# MASTER PROGRAMMING MODE

## CHART

**Caution: Before entering Master Programming, please contact your local professional water dealer.**

Master Programming Options			
Abbreviation	Parameter	Option Abbreviation	Options
DF	Display Format	GAL	Gallons
		Ltr	Liters
VT	Valve Type	dF1b	Standard Downflow/Upflow Single Backwash
		dF2b	Standard Downflow/Upflow Double Backwash
		Fltr	Filter
		UFbd	Upflow Brine First
		UFtr	Upflow Filter
		Othr	Other
CT	Control Type	Fd	Meter (Flow) Delayed
		FI	Meter (Flow) Immediate
		tc	Time Clock
		dAY	Day of Week
NT	Number of Tanks	1	Single Tank System
		2	Two Tank System
TS	Tank in Service	U1	Tank 1 in Service
		U2	Tank 2 in Service
C	Unit Capacity		Unit Capacity (Grains)
H	Feedwater Hardness		Hardness of Inlet Water
RS	Reserve Selection	SF	Percentage Safety Factor
		rc	Fixed Reserve Capacity
SF	Safety Factor		Percentage of the system capacity to be used as a reserve
RC	Fixed Reserve Capacity		Fixed volume to be used as a reserve
DO	Day Override		The system's day override setting
RT	Regen Time		The time of day the system will regenerate
BW, BD, RR, BF	Regen Cycle Step Times		The time duration for each regeneration step. Adjustable from OFF and 0-199 minutes. <b>NOTE: If "Othr" is chosen under "Valve Type", then R1, R2, R3, etc, will be displayed instead</b>
D1, D2, D3, D4, D5, D6, & D7	Day of Week Settings		Regeneration setting (On or OFF) for each day of the week on day-of-week systems
CD	Current Day		The Current day of the week
FM	Flow Meter Type	t0.7	3/4" Turbine Meter
		P0.7	3/4" Paddle Wheel Meter
		t1.0	1" Turbine Meter
		P1.0	1" Paddle Wheel Meter
		t1.5	1.5" Turbine Meter
		P1.5	1.5" Paddle Wheel Meter
		P2.0	2" Paddle Wheel Meter
		Gen	Generic or Other Meter
K	Meter Pulse Setting		Meter pulses per gallon for generic/other flow meter

**Notes: Some items may not be shown depending on timer configuration. The timer will discard any changes and exit Master Programming Mode if any button is not pressed for sixty seconds.**

# MASTER PROGRAMMING MODE

When the Master Programming Mode is entered, all available option setting displays may be viewed and set as needed. Depending on current option settings, some parameters cannot be viewed or set.

## Setting the Time of Day

1. Press and hold either the Up or Down buttons until the programming icon replaces the service icon and the parameter display reads DO.
2. Adjust the displayed time with the Up and Down buttons.
3. When the desired time is set, press the Extra Cycle button to resume normal operation. The unit will also return to normal operation after 5 seconds if no buttons are pressed.



## Entering Master Programming Mode

Set the Time Of Day display to 12:01 P.M. Press the Extra Cycle button (to exit Setting Time of Day mode). Then press and hold the Up and Down buttons together until the programming icon replaces the service icon and the Display Format screen appears.

## Exiting Master Programming Mode

Press the Extra Cycle button to accept the displayed settings and cycle to the next parameter. Press the Extra Cycle button at the last parameter to save all settings and return to normal operation. The control will automatically disregard any programming changes and return to normal operation if it is left in Master Programming mode for 5 minutes without any keypad input.

## Resets

**Soft Reset:** Press and hold the Extra Cycle and Down buttons for 25 seconds while in normal Service mode. This resets all parameters to the system default values, except the volume remaining in meter immediate or meter delayed systems and days since regeneration in the time clock system.

**Master Reset:** Hold the Extra Cycle button while powering up the unit. This resets all of the parameters in the unit. Check and verify the choices selected in Master Programming Mode.

## 1. Display Format (Display Code DF)

This is the first screen that appears when entering Master Programming Mode. The Display Format setting specifies the unit of measure that will be used for volume and how the control will display the Time of Day. This option setting is identified by "DF" in the upper left hand corner of the screen. There are three possible settings:

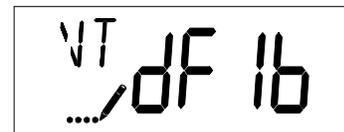
Display Format Setting	Unit of Volume	Time Display
GAL	U.S. Gallons	12-Hour AM/PM
Ltr	Liters	24-Hour



## 2. Valve Type (Display Code VT)

Press the Extra Cycle button. Use this display to set the Valve Type. The Valve Type setting specifies the type of cycle that the valve follows during regeneration. Note that some valve types require that the valve be built with specific subcomponents. Ensure the valve is configured properly before changing the Valve Type setting. This option setting is identified by "VT" in the upper left hand corner of the screen. There are 6 possible settings:

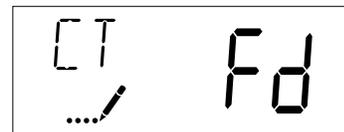
Abbreviation	Parameter
dF1b	Standard Downflow/Upflow, Single Backwash
dF2b	Standard Downflow/Upflow, Double Backwash
Fltr	Filter
UFbd	Upflow Brine First
UFtr	Upflow Filter
Othr	Other



## 3. Control Type (Display Code CT)

Press the Extra Cycle button. Use this display to set the Control Type. This specifies how the control determines when to trigger a regeneration. For details on how the various options function, refer to the "Timer Operation" section of this service manual. This option setting is identified by "CT" in the upper left hand corner of the screen. There are four possible settings:

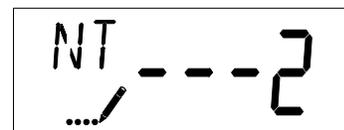
- Meter Delayed: Fd
- Meter Immediate: FI
- Time Clock: tc
- Day of Week: dAY



## 4. Number of Tanks (Display Code NT)

Press the Extra Cycle button. Use this display to set the Number of Tanks in your system. This option setting is identified by "NT" in the upper left hand corner of the screen. There are two possible settings:

- Single Tank System: 1
- Two-Tank System: 2



# MASTER PROGRAMMING MODE

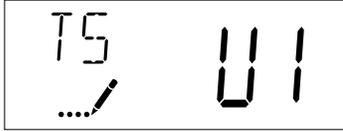
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## 5. Tank in Service (Display Code TS)

Press the Extra Cycle button. Use this display to set whether tank one or tank two is in service. This option setting is identified by "TS" in the upper left hand corner of the screen. This parameter is only available if the number of tanks has been set to 2. There are two possible settings:

Tank One in Service: U1

Tank Two in Service: U2



## 6. Unit Capacity (Display Code C)

Press the Extra Cycle button. Use this display to set the Unit Capacity. This setting specifies the treatment capacity of the system media. Enter the capacity of the media bed in grains of hardness when configuring a softener system, and in the desired volume capacity when configuring a filter system. This option setting is identified by "C" in the upper left hand corner of the screen. The Unit Capacity parameter is only available if the control type has been set to one of the metered options. Use the Up and Down buttons to adjust the value as needed.



Range: 1-999,900 gallons (100-9,999,000 Liters)

## 7. Feedwater Hardness (Display Code H)

Press the Extra Cycle button. Use this display to set the Feedwater Hardness. Enter the feedwater hardness in grains per unit volume for softener systems, or 1 for filter systems. This option setting is identified by "H" in the upper left hand corner of the screen. The feedwater hardness parameter is only available if the control type has been set to one of the metered options. Use the Up and Down buttons to adjust the value as needed.

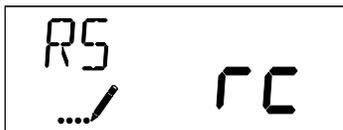


Range: 1-199 hardness

## 8. Reserve Selection (Display Code RS)

Press the Extra Cycle button. Use this display to set the Safety Factor. Use this display to select the type of reserve to be used in your system. This setting is identified by "RS" in the upper left-hand corner of the screen. The reserve selection parameter is only available if the control type has been set to one of the metered options. There are two possible settings.

FS	Safety Factor
rc	Fixed Reserve Capacity



## 9. Safety Factor (Display Code SF)

Press the Extra Cycle button. Use this display to set the Safety Factor. This setting specifies what percentage of the system capacity will be held as a reserve. Since this value is expressed as a percentage, any change to the unit capacity or feedwater hardness that changes the calculated system capacity will result in a corresponding change to the reserve volume. This option setting is identified by "SF" in the upper left hand corner of the screen. Use the Up and Down buttons to adjust the value from 0 to 50% as needed.



Range: 0-50%

## 10. Fixed Reserve Capacity (Display Code RC)

Press the Extra Cycle button. Use this display to set the Reserve Capacity. This setting specifies a fixed volume that will be held as a reserve. The reserve capacity cannot be set to a value greater than one-half of the calculated system capacity. The reserve capacity is a fixed volume and does not change if the unit capacity or feedwater hardness are changed. This option setting is identified by "RC" in the upper left-hand corner of the screen. Use the Up and Down buttons to adjust the value as needed.



Range: 0-half the calculated capacity

## 11. Day Override (Display Code DO)

Press the Extra Cycle button. Use this display to set the Day Override. This setting specifies the maximum number of days between regeneration cycles. If the system is set to a timer-type control, the day override setting determines how often the system will regenerate. A metered system will regenerate regardless of usage if the days since last regeneration cycle equal the day override setting. Setting the day override value to "OFF" disables this function. This option setting is identified by "DO" in the upper left hand corner of the screen. Use the Up and Down buttons to adjust the value as needed.



Range: Off-99 days

# MASTER PROGRAMMING MODE

*continued*

## 12. Regeneration Time

Press the Extra Cycle button. Use this display to set the Regeneration Time. This setting specifies the time of day the control will initiate a delayed, manually queued, or day override triggered regeneration. This option setting is identified by "RT" in the upper left-hand corner of the screen. Use the Up and Down buttons to adjust the value as needed.



## 13. Regeneration Cycle Step Times

Press the Extra Cycle button. Use this display to set the Regeneration Cycle Step Times. The different regeneration cycles are listed in sequence based on the valve type selected for the system, and are identified by an abbreviation in the upper left-hand corner of the screen. The abbreviations used are listed below. If the system has been configured with the "OTHER" valve type, the regeneration cycles will be identified as R1, R2, R3, R4, R5, and R6. Each cycle step time can be set from 0 to 199 minutes. Setting a cycle step time to 0 will cause the control to skip that step during regeneration, but keeps the following steps available. Use the Up and Down buttons to adjust the value as needed. Press the Extra Cycle button to accept the current setting and move to the next parameter.

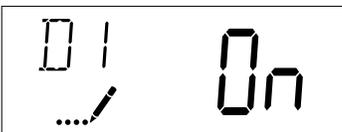
Abbreviation	Cycle Step
BD	Brine Draw
BF	Brine Fill
BW	Backwash
RR	Rapid Rinse
SV	Service



Range: 0-199 minutes

## 14. Day of Week Settings

Press the Extra Cycle button. Use this display to set the regeneration schedule for a system configured as a Day of Week control. The different days of the week are identified as D1, D2, D3, D4, D5, D6, and D7 in the upper left-hand corner of the display. Set the value to "ON" to schedule a regeneration or "OFF" to skip regeneration for each day. Use the Up and Down buttons to adjust the setting as needed. Press the Extra Cycle button to accept the setting and move to the next day. Note that the control requires at least one day to be set to "ON." If all 7 days are set to "OFF", the unit will return to Day One until one or more days are set to "ON."



## 15. Current Day (Display Code CD)

Press the Extra Cycle button. Use this display to set the current day on systems that have been configured as Day of Week controls. This setting is identified by "CD" in the upper left-hand corner of the screen. Use the Up and Down buttons to select from Day 1 through Day 7.



## 16. Flow Meter Type (Display Code FM)

Press the Extra Cycle button. Use this display to set the type of flow meter connected to the control. This option setting is identified by "FM" in the upper left-hand corner of the screen. Use the Up and Down buttons to select one of the 7 available settings.

t0.7	Fleck 3/4" Turbine Meter
P0.7	Fleck 3/4" Paddle Wheel Meter
t1.0	Fleck 1" Turbine Meter
P1.0	Fleck 1" Paddle Wheel Meter
t1.5	Fleck 1 1/2" Turbine Meter
P1.5	Fleck 1 1/2" Paddle Wheel Meter
P2.0	Fleck 2" Paddle Wheel Meter
GEn	Generic/Other Meter



## 17. Meter Pulse Setting (Display Code K)

Press the Extra Cycle button. Use this display to specify the meter pulse setting for a non-standard flow meter. This option setting is identified by "K" in the upper left-hand corner of the screen. Use the Up and Down buttons to enter the meter constant in pulses per unit volume.



## 18. End of Master Programming Mode

Press the Extra Cycle button to save all settings and exit Master Programming Mode.

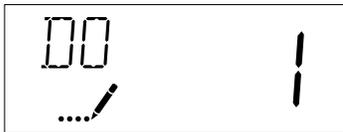
# USER PROGRAMMING MODE

User Programming Mode Options		
Abbreviation	Parameter	Description
DO	Day Override	The timer's day override setting
RT	Regeneration Time	The time of day that the system will regenerate (meter delayed, timeclock, and day-of-week systems)
H	Feed Water Hardness	The hardness of the inlet water - used to calculate system capacity for metered systems
RC or SF	Reserve Capacity	The fixed reserve capacity
CD	Current Day	The current day of week

**NOTE: Some items may not be shown depending on timer configuration. The timer will discard any changes and exit User Mode if any button is not pressed for sixty seconds.**

## User Programming Mode Steps

1. Press the Up and Down buttons for five seconds while in service, and the time of day is NOT set to 12:01 PM.
2. Use this display to adjust the Day Override. This option setting is identified by "DO" in the upper left hand corner of the screen.



3. Press the Extra Cycle button. Use this display to adjust the Regeneration Time. This option setting is identified by "RT" in the upper left hand corner of the screen.



4. Press the Extra Cycle button. Use this display to adjust the Feed Water Hardness. This option setting is identified by "H" in the upper left hand corner of the screen.



Range: 1-199 hardness

5. Press the Extra Cycle button. Use this display to adjust the Fixed Reserve Capacity. This option setting is identified by "RC" or "SF" in the upper left-hand Corner of the screen.



6. Press the Extra Cycle button. Use this display to set the Current Day of the Week. This option setting is identified by "CD" in the upper left hand corner of the screen.



7. Press the Extra Cycle button to end User Programming Mode.

# DIAGNOSTIC PROGRAMMING MODE

Diagnostic Programming Mode Options		
Abbreviation	Parameter	Description
FR	Flow Rate	Displays the current outlet flow rate
PF	Peak Flow Rate	Displays the highest flow rate measured since the last regeneration
HR	Hours in Service	Displays the total hours that the unit has been in service
VU	Volume Used	Displays the total volume of water treated by the unit
RC	Reserve Capacity	Displays the system's reserve capacity calculated from the system capacity, feedwater hardness, and safety factor
SV	Software Version	Displays the software version installed on the controller

**NOTE: Some items may not be shown depending on timer configuration. The timer will exit Diagnostic Mode after 60 seconds if no buttons are pressed. Press the Extra Cycle button to exit Diagnostic Mode at any time.**

## Diagnostic Programming Mode Steps

1. Press the Up and Extra Cycle buttons for five seconds while in service.
2. Use this display to view the current Flow Rate. This option setting is identified by "FR" in the upper left hand corner of the screen.



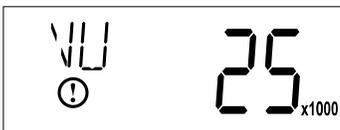
3. Press the Up button. Use this display to view the Peak Flow Rate since the last regeneration cycle. This option setting is identified by "PF" in the upper left hand corner of the screen.



4. Press the Up button. Use this display to view the Hours in Service since the last regeneration cycle. This option setting is identified by "HR" in the upper left hand corner of the screen.



5. Press the Up button. Use this display to view the Volume Used since the last regeneration cycle. This option setting is identified by "VU" in the upper left hand corner of the screen.



6. Press the Up button. Use this display to view the Reserve Capacity. This option setting is identified by "RC" in the upper left hand corner of the screen.

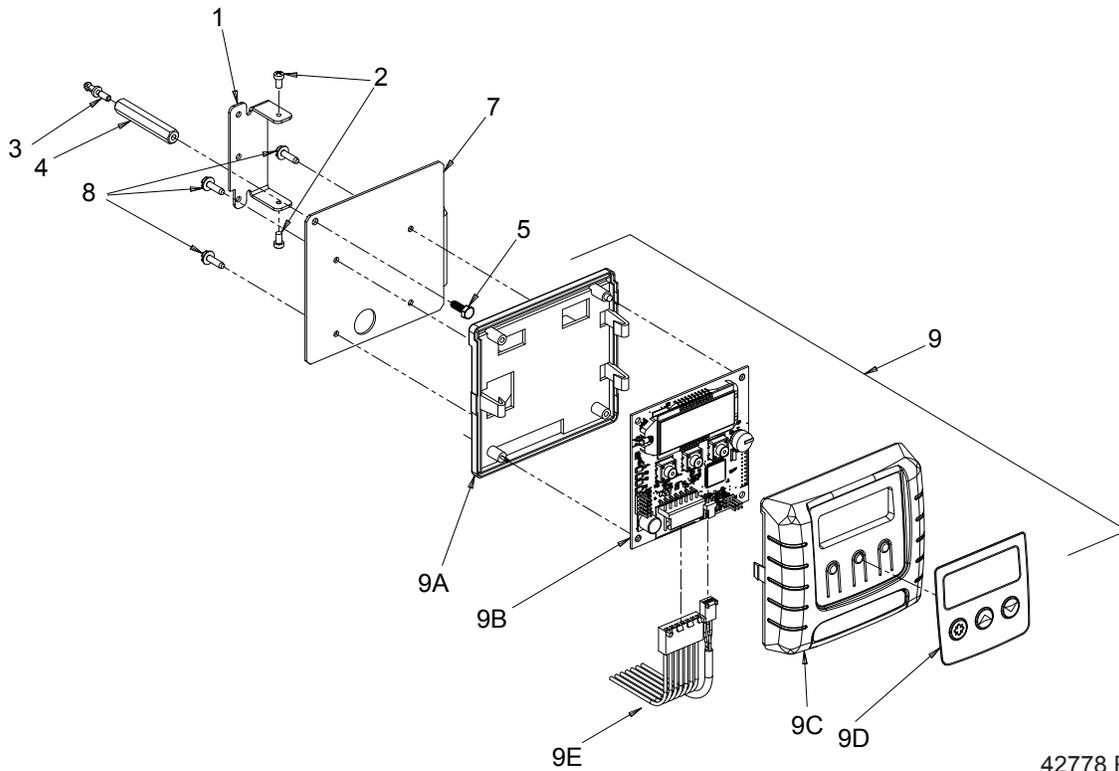


7. Press the Up button. Use this display to view the Software Version. This option setting is identified by "SV" in the upper left hand corner of the screen.



8. Press the Extra Cycle button to end Diagnostic Programming Mode.

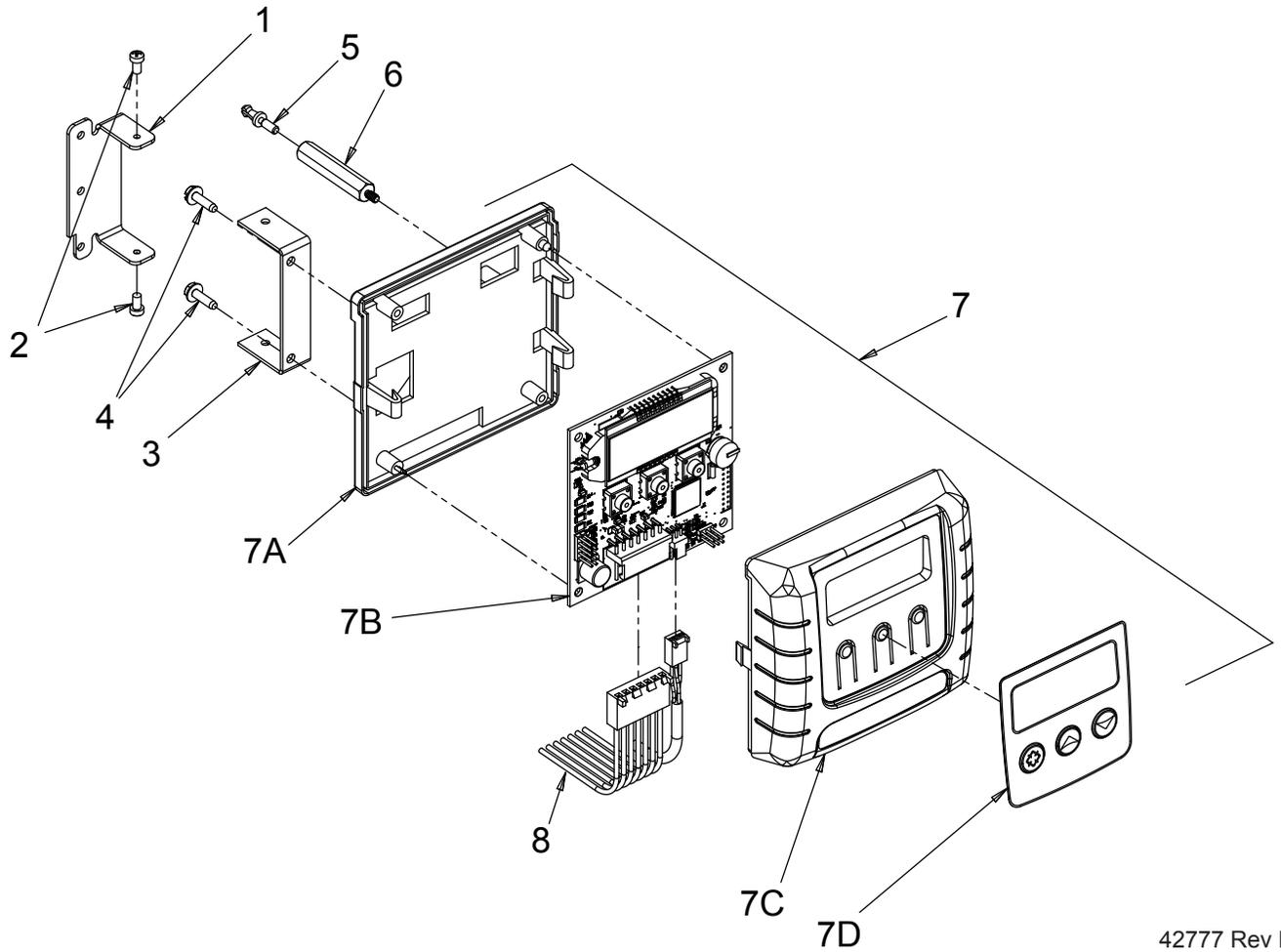
# 2510/2750/2850S TIMER ASSEMBLY



42778 Rev E

Item No.	QTY	Part No.	Description
1.....	1	13881.....	Bracket, Hinge Timer
3.....	1	14265.....	Clip, Spring
4.....	1	27172.....	Stand-off, Timer, 2510SXT, 2750SXT
5.....	1	21363.....	Screw, Hex HD, M4 X 12 MM
7.....	1	27168.....	Bracket, Timer, 2510SE/2750SXT
8.....	3	13296.....	Screw, Hex Washer, 6-20 X 1/2
9.....	1	42778.....	Timer, SXT, 2510/2750, DF
9A.....	1	19889.....	Housing, Circuit Board
9B.....	1	42196.....	Circuit Board, SXT
9C.....	1	42635-01.....	Cover, Front, SXT, Square
9D.....	1	42637.....	Label, Display, SXT
9E.....	1	42864.....	Wire Harness, SXT

# 9000/9100/9500 TWIN TANK TIMER ASSEMBLY

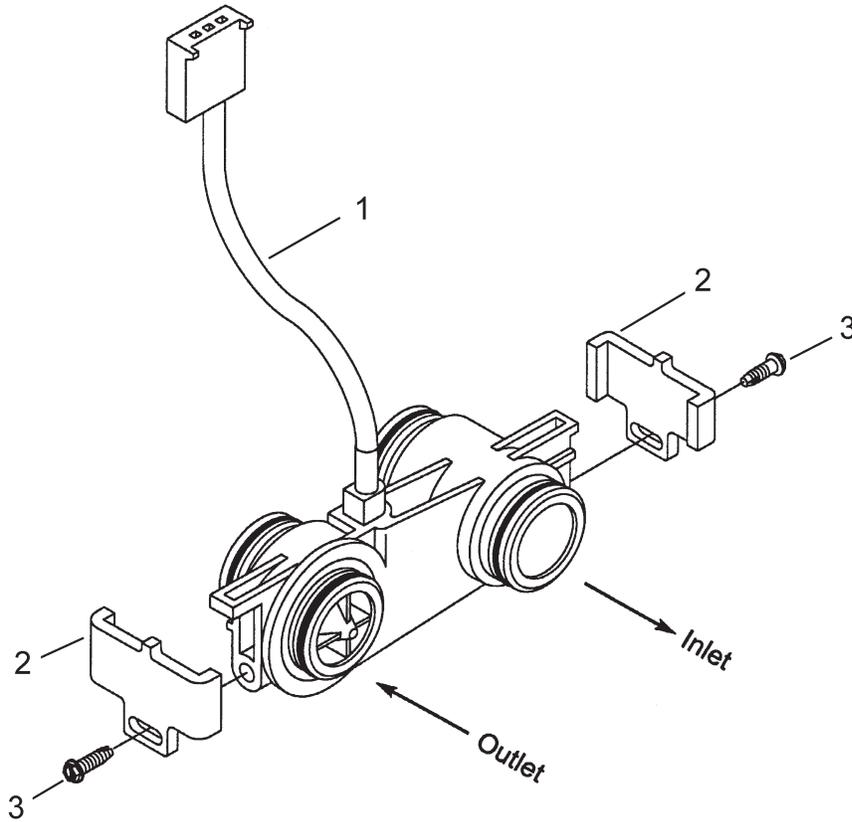


42777 Rev D

Item No.	QTY	Part No.	Description
1.....	1	13881.....	Bracket, Hinge Timer
2.....	2	11384.....	Screw, Phillips, 6-32 X 1/4
3.....	1	42732.....	Bracket, Timer, 9000SXT
4.....	2	13296.....	Screw, Hex Washer Hd, 6-20 X 1/2
5.....	1	14265.....	Clip, Spring
6.....	1	42733.....	Stand-off, Timer, 9000SXT
7.....	1	42777.....	Timer, SXT, D/F, 9000/9100/9500
7A.....	1	19889.....	Housing, Circuit Board
7B.....	1	42196.....	Circuit Board, SXT
7C.....	1	42635-01.....	Cover, Front, SXT, Square
7D.....	1	42637.....	Label, Display, SXT
8.....	1	19474-01.....	Harness, SXT

# 3/4" PLASTIC TURBINE METER ASSEMBLY

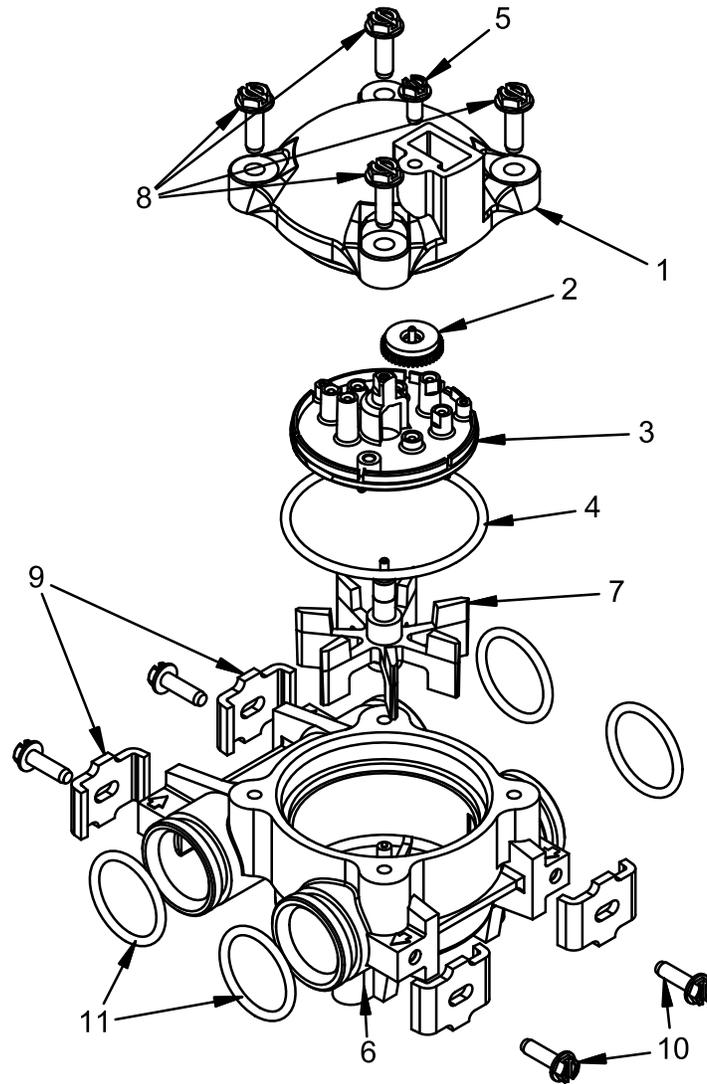
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19797 Rev A

Item No.	QTY	Part No.	Description
1.....	1 .....	19791-01.....	Meter Cable Assy, Turbine/SXT
2.....	2 .....	19569.....	Clip, Flow Meter
3.....	2 .....	13314.....	Screw, Slot Ind Hex, 8-18 x .60

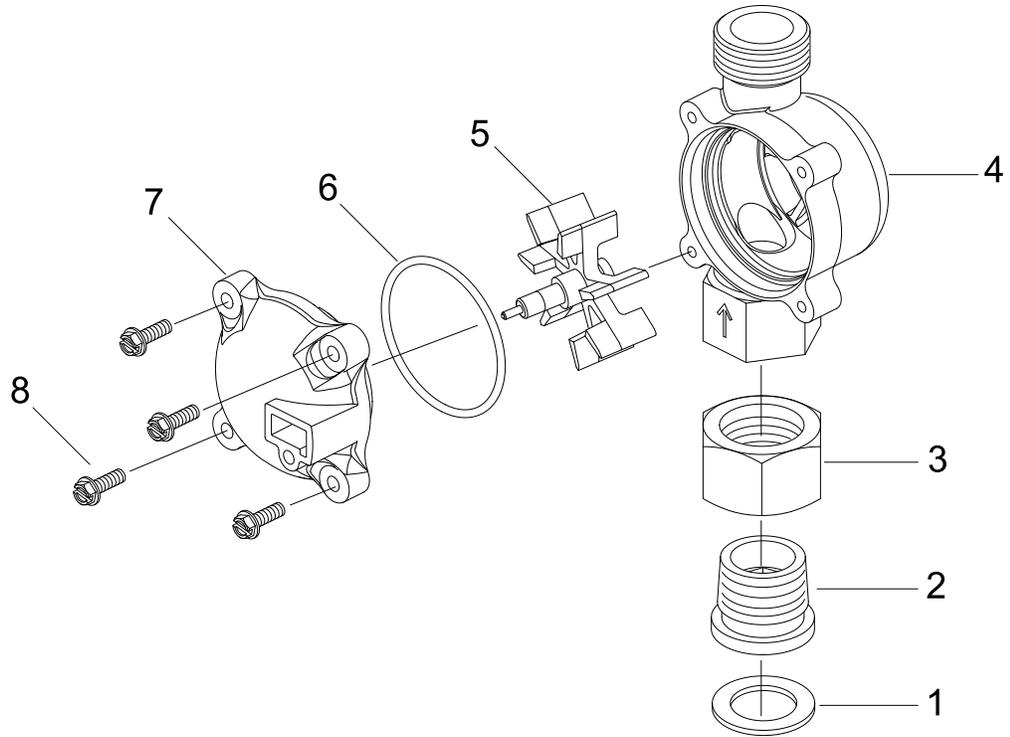
# METER ASSEMBLY



60086 Rev D

Item No.	QTY	Part No.	Description
1.....	1 .....	13874.....	Body, Meter, 5600
2.....	1 .....	14715.....	Gear Assy, Electronic Meter Cap
3.....	1 .....	41055.....	Plate, Intermediate
4.....	1 .....	13847.....	O-ring, -137, Std, Meter
5.....	5 .....	17798.....	Screw, Slot Hex Washer Head
6.....	1 .....	13821.....	Body, Meter, 5600
7.....	1 .....	13509.....	Impeller, Meter
8.....	4 .....	12473.....	Screw, Hex Wsh, 10-24 x 5/8
9.....	4 .....	13255.....	Clip, Mounting
10.....	1 .....	13314.....	Screw, Slot Ind Hex, 8-18 x .60
11.....	1 .....	13305.....	O-ring, -119
12.....	1 .....	14613.....	Flow Straightener

# 3/4" BRASS PADDLE METER ASSEMBLY



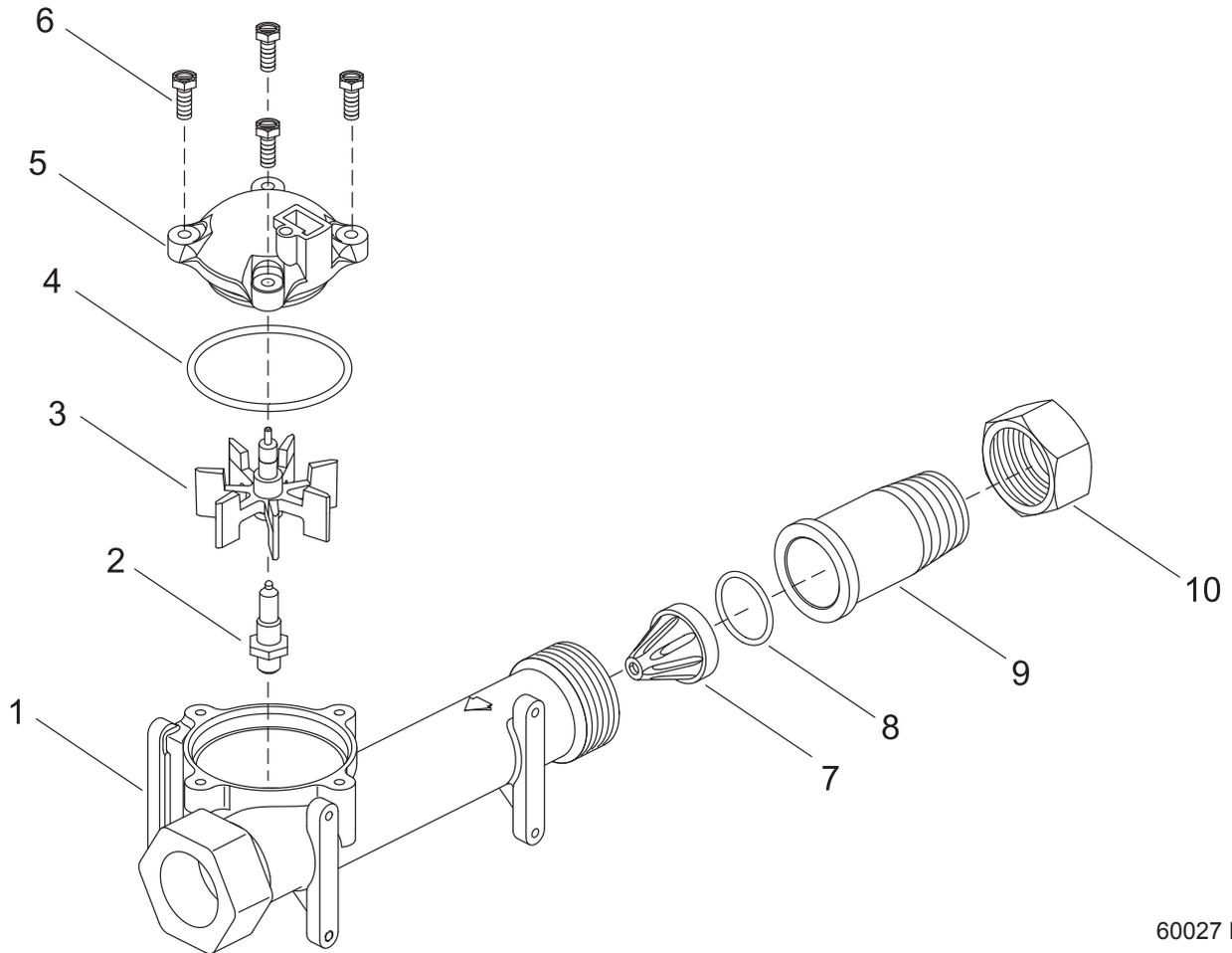
60618 Rev B

Item No.	QTY	Part No.	Description
1.....	1 .....	11206 .....	Gasket, Fitting
2.....	1 .....	13942 .....	Retainer, Nut
3.....	1 .....	11207 .....	Nut, Special, Quick Connect
4.....	1 .....	13906 .....	Body, Meter, 3/4"
5.....	1 .....	13509 .....	Impeller, Meter
		13509-01 .....	Impeller, Celcon
6.....	1 .....	13847 .....	O-ring, -137 Std/560CD, Meter
7.....	1 .....	14716 .....	Meter Cap Assy, ET/NT
8.....	1 .....	12473 .....	Screw, Hex Wsh, 10-24 x 5/8

**Not Shown**

- ..... 19121-08..... Meter Cable Assy, NT, 35" w/  
Connector
- ..... 19121-09..... Meter Cable Assy, NT, 99.5" w/  
Connector
- ..... 19121-10..... Meter Cable Assy, NT, 303.5" w/  
Connector

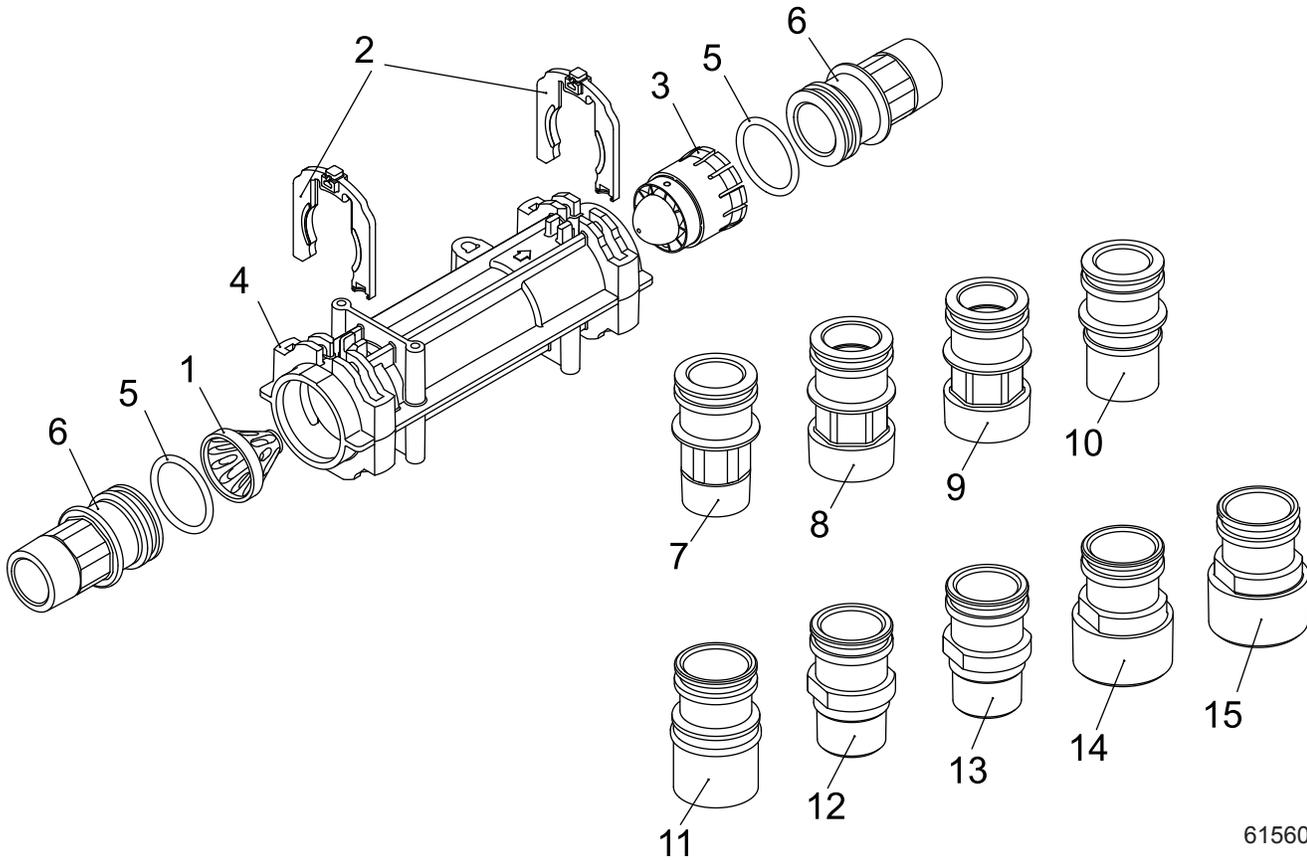
# 1" BRASS PADDLE METER ASSEMBLY



60027 Rev D

Item No.	QTY	Part No.	Description
1.....	1	14959.....	Body, Meter, 2750
2.....	1	13882.....	Post, Meter Impeller
3.....	1	13509.....	Impeller, Meter
4.....	1	13847.....	O-ring, -137, Std/560CD, Meter
5.....	1	14716.....	Meter Cap Assy, ET/NT
6.....	4	12112.....	Screw, Hex Hd Mach, 10-24 x 1/2
7.....	1	14960.....	Flow Straightener, 1"
8.....	1	13287.....	O-ring, -123
9.....	1	14961.....	Fitting, 1" Quick Connect
10.....	1	14962.....	Nut, 1" Meter, Quick Connect

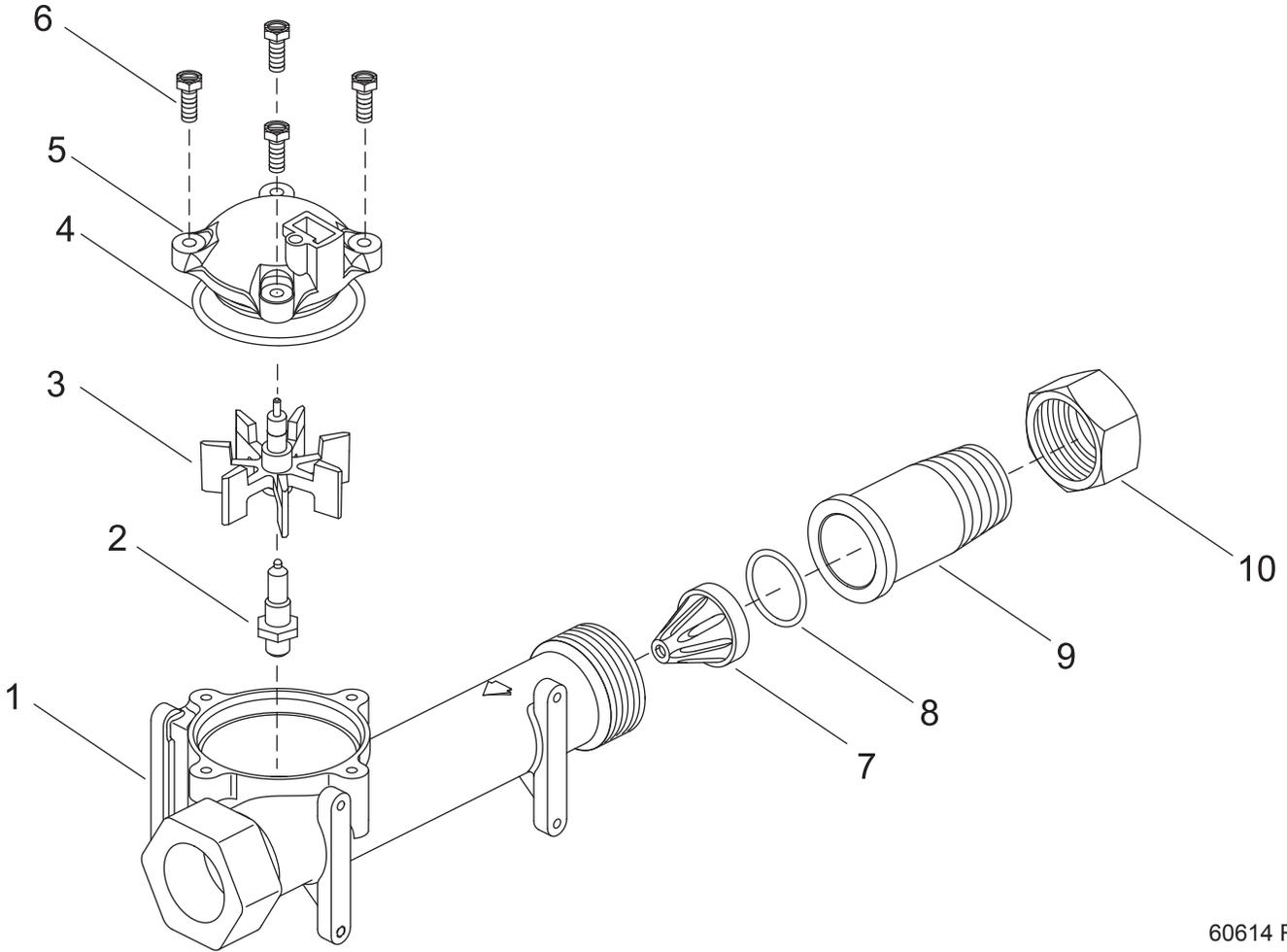
# INLINE PLASTIC TURBINE METER ASSEMBLY



61560 Rev D

Item No.	QTY	Part No.	Description
1.....	1 .....	17542.....	Flow Straightener
2.....	2 .....	40576.....	Clip, H, Plastic, 7000
3.....	1 .....	40577.....	Turbine Meter Assy, 7000
4.....	1 .....	41555.....	Body, Remote Meter
5.....	2 .....	40951.....	O-ring, -220
6.....	2 .....	40563.....	Connector, 1" NPT, 7000
7.....	2 .....	40563-10.....	Connector, 1" BSP, 7000
8.....	2 .....	40565.....	Connector, 1-1/4" NPT, 7000
9.....	2 .....	40565-10.....	Connector, 1-1/4" BSP, 7000
10.....	2 .....	41242.....	Connector, 1" & 1-1/4" Sweat
11.....	2 .....	41243.....	Connector, 1-1/4 & 1-1/2" Sweat
12.....	2 .....	41596.....	Connector, Brass, 1" NPT
13.....	2 .....	41596-10.....	Connector, Brass, 1" BSP
14.....	2 .....	41597.....	Connector, Brass, 1-1/2" NPT
15.....	2 .....	41597-10.....	Connector, Brass, 1-1/2" BSP

# 1-1/2" BRASS PADDLE METER ASSEMBLY

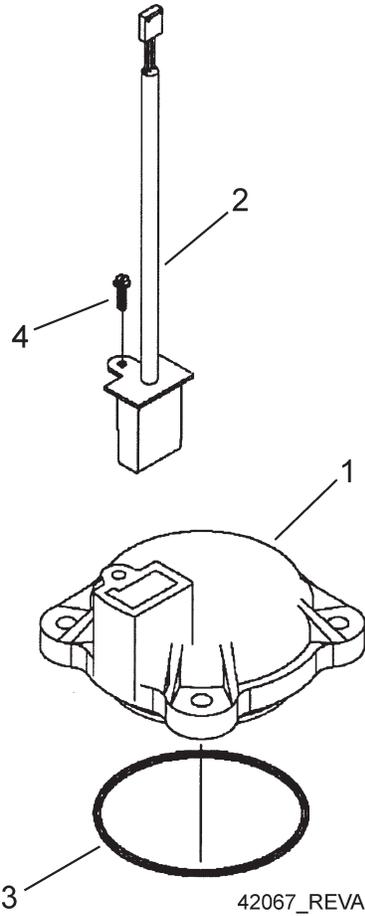


60614 Rev B

Item No.	QTY	Part No.	Description
1.....	1	17569.....	Body, Meter, 2850/9500
2.....	1	13882.....	Post, Meter Impeller
3.....	1	13509.....	Impeller, Meter
4.....	1	13847.....	O-ring, -137, Std/560CD, Meter
5.....	1	14716.....	Meter Cap Assy, NT
6.....	4	12112.....	Screw, Hex Hd Mach, 10-24 x 1/2
7.....	1	17542.....	Flow Straightener, 1-1/2"
8.....	1	12733.....	O-ring, -132
9.....	1	17544.....	Fitting, 1-1/2" Quick Connect
10.....	1	17543.....	Nut, 1-1/2", Quick Connect

**3/4", 1" or 1-1/2" PADDLE WHEEL  
METER CAP ASSEMBLY**

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Item No.	QTY	Part No.	Description
1.....	1 .....	14716.....	Meter Cap Assy, NT
2.....	1 .....	19121-01.....	Meter Cable Assy, SXT, Paddle 6700XTR
3.....	1 .....	13847.....	O-ring, -137, Std/560CD, Meter
4.....	1 .....	17798.....	Screw, Slot Hex Wsh Hd

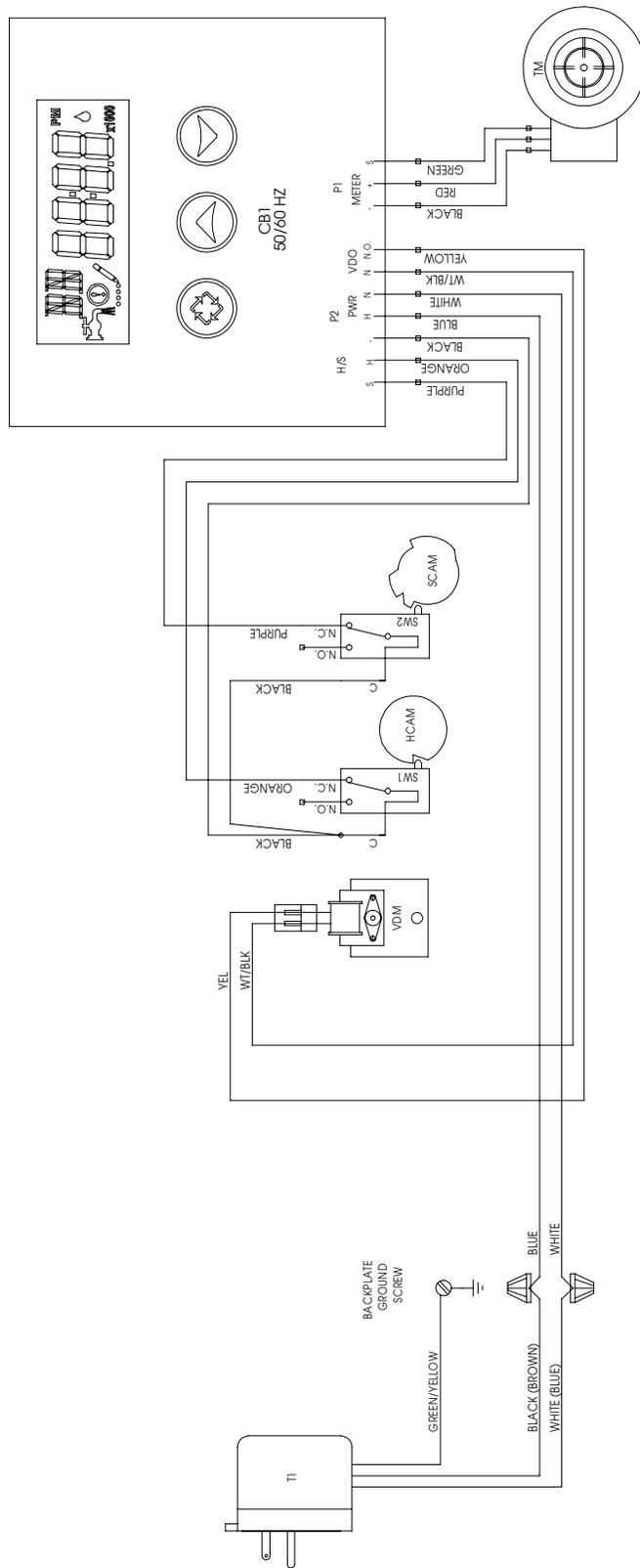
# TROUBLESHOOTING

## Error Codes

**NOTE: Error codes appear on the In Service display.**

Error Code	Error Type	Cause	Reset and Recovery
0	Cam Sense Error	The valve drive took longer than 6 minutes to advance to the next regeneration position	<p>Unplug the unit and examine the powerhead. Verify that all cam switches are connected to the circuit board and functioning properly. Verify that the motor and drive train components are in good condition and assembled properly. Check the valve and verify that the piston travels freely. Replace/reassemble the various components as necessary.</p> <p>Plug the unit back in and observe its behavior. The unit should cycle to the next valve position and stop. If the error re-occurs, unplug the unit and contact technical support.</p>
1	Cycle Step Error	The control experienced an unexpected cycle input	<p>Unplug the unit and examine the powerhead. Verify that all cam switches are connected to the circuit board and functioning properly. Enter Master Programming mode and verify that the valve type and system type are set correctly with regard to the unit itself.</p> <p>Step the unit through a manual regeneration and verify that it functions correctly. If the error re-occurs unplug the unit and contact technical support.</p>
2	Regen Failure	The system has not regenerated for more than 99 days (or 7 days if the Control Type has been set to Day-of-Week)	<p>Perform a Manual Regeneration to reset the error code.</p> <p>If the system is metered, verify that it is measuring flow by running service water and watching for the flow indicator on the display. If the unit does not measure flow, verify that the meter cable is connected properly and that the meter is functioning properly.</p> <p>Enter a Master Programming Mode and verify that the unit is configured properly. As appropriate for the valve configuration, check that the correct system capacity has been selected, that the day override is set properly, and that meter is identified correctly. If the unit is configured as a Day-of-Week system, verify that at least one day is set ON. Correct the settings as necessary.</p>
3	Memory Error	Control board memory failure	Perform a Master Reset and reconfigure the system via Master Programming Mode. After reconfiguring the system, step the valve through a manual regeneration. If the error re-occurs unplug the unit and contact technical support.
UD	Upper Drive Sync	Power failure install programming change	Valve will automatically recover.

# 2510SXT WIRING DIAGRAM

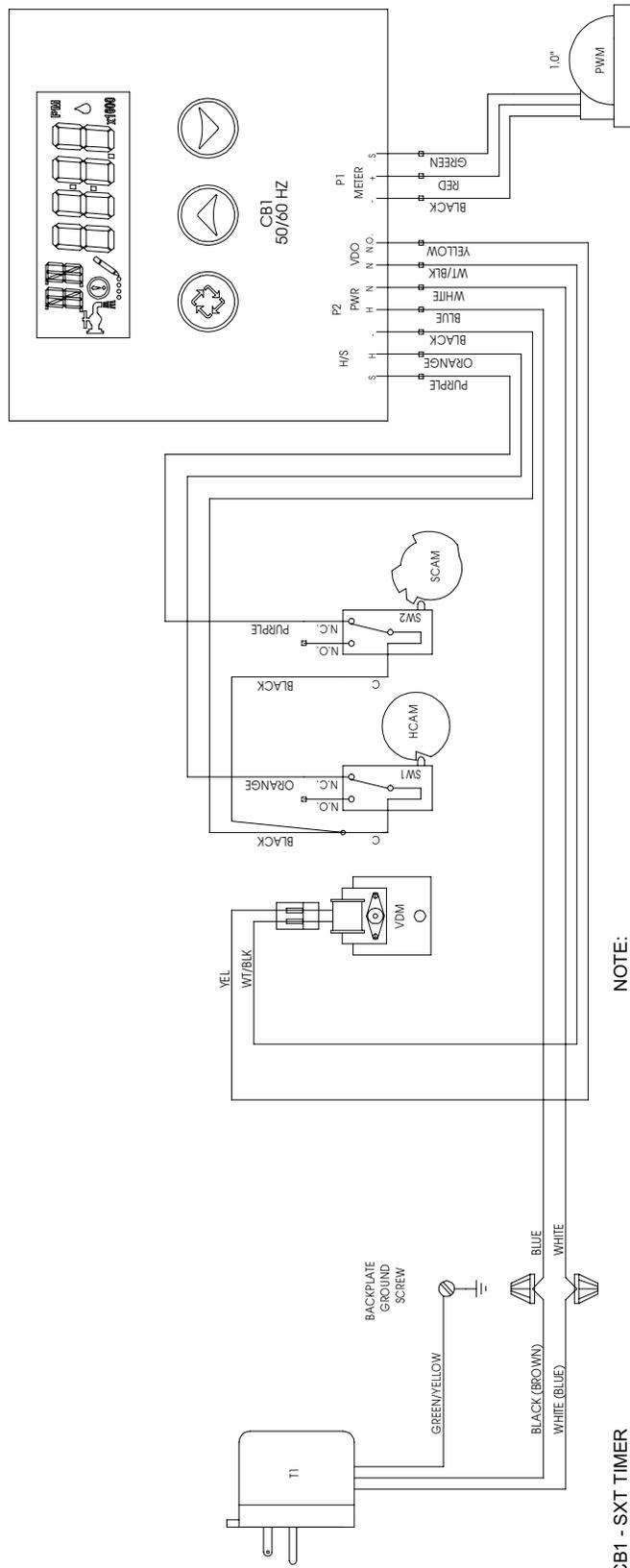


NOTE:  
 1. DEPENDING ON APPLICATION, VALVE STEP CAM APPEARANCE WILL VARY.  
 2. REGARDLESS OF CAM TYPE USED, WIRING TO SWITCHES SW1 AND SW2  
 WILL REMAIN AS SHOWN.  
 3. VALVE SHOWN IN SERVICE POSITION.

- CB1 - SXT TIMER
- T1 - 24VAC TRANSFORMER
- K1 - 24VAC VALVE DRIVE RELAY
- TM - 3/4" TURBINE FLOW METER (OPTIONAL)
- VDM - VALVE DRIVE MOTOR
- SW1 - VALVE HOMING SWITCH
- SW2 - VALVE STEP SWITCH
- HCAM - VALVE HOMING CAM
- SCAM - VALVE STEP CAM

42741 Rev B

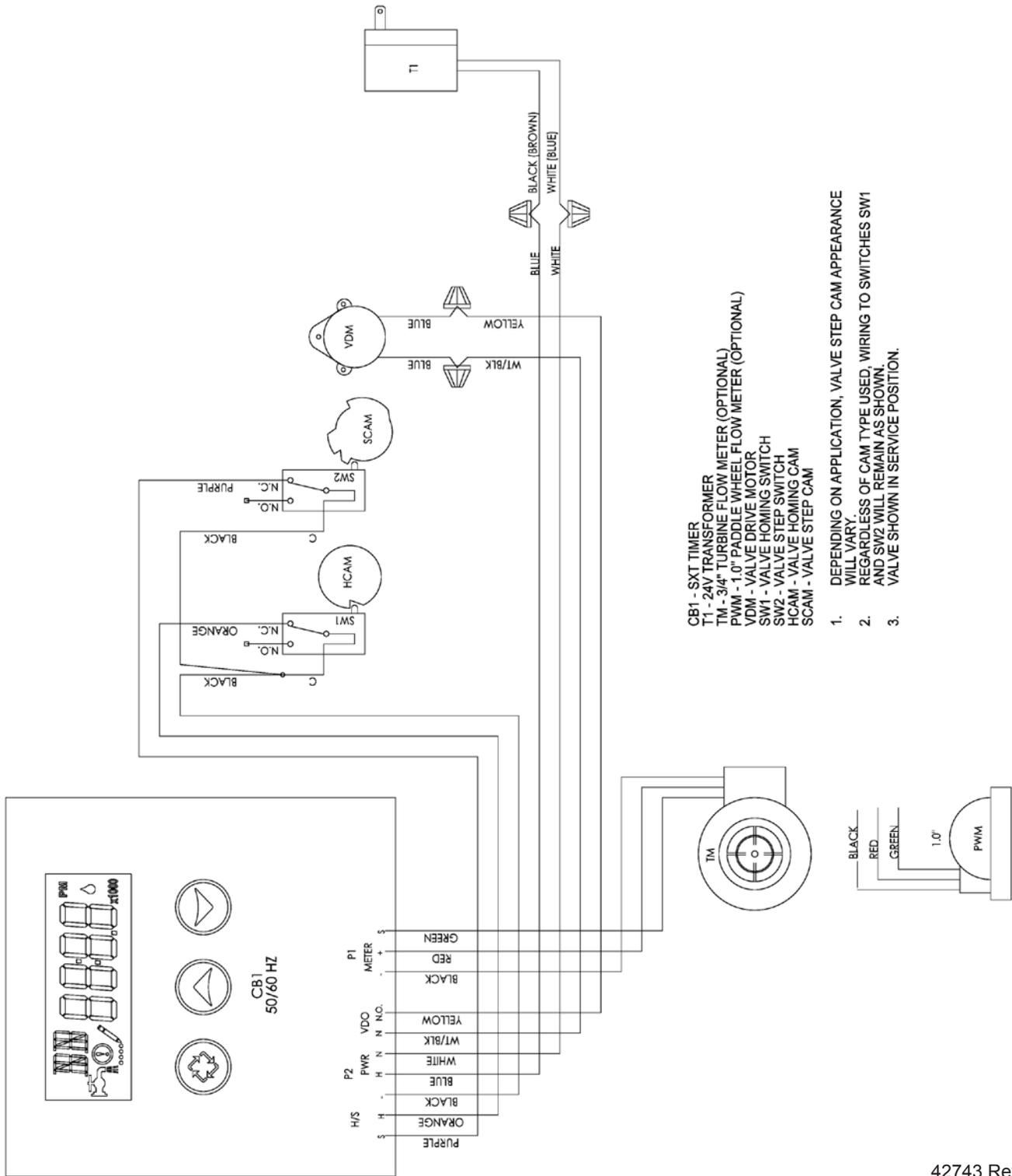
# 2750SXT/2850SXT WIRING DIAGRAM



**NOTE:**  
 1. DEPENDING ON APPLICATION, VALVE STEP CAM APPEARANCE WILL VARY.  
 2. REGARDLESS OF CAM TYPE USED, WIRING TO SWITCHES SW1 AND SW2 WILL REMAIN AS SHOWN.  
 3. VALVE SHOWN IN SERVICE POSITION.

- CB1 - SXT TIMER
- T1 - 24VAC TRANSFORMER
- K1 - 24VAC VALVE DRIVE RELAY
- PWM - 1.0" OR 1.5" PADDLE WHEEL FLOW METER (OPTIONAL)
- VDM - VALVE DRIVE MOTOR
- SW1 - VALVE HOMING SWITCH
- SW2 - VALVE STEP SWITCH
- HCAM - VALVE HOMING CAM
- SCAM - VALVE STEP CAM

# 9000SXT/9100SXT/9500SXT WIRING DIAGRAM



42743 Rev A

## SERVICE ASSEMBLIES

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### Meter

60086-50 .....	Meter Assy, 3/4", Electronic 2510/6600/6700
60613.....	Meter Assy, 2750 Electronic 1"
60613-20 .....	Meter Assy, 2750, Electronic 1" BSP/ Metric
60613NP.....	Meter Assy, 2750, Electronic 1" Nickel Plated
60614.....	Meter Assy, 2850/9500, Electronic 1-1/2" Meter
60614NP.....	Meter Assy, 2850/9500, Electronic 1-1/2" Meter, NP
60618.....	Meter Assy, Electronic, 3/4"
60619-20 .....	Meter Assy, 1-1/2" Electronic BSP/Metric
60626.....	Meter Assy, Turbine, Electronic 3/4" with Clips and Screws
60626-01 .....	Meter Assy, Turbine, 3/4" w/Clips, Screws, Mtr/Cable
61560-01 .....	Meter Assy, In-Line, w/1" NPT Plastic Connector
61560-02 .....	Meter Assy, In-Line, w/1" BSP Plastic Connector
61560-07 .....	Meter Assy, In-Line, w/1" NPT Brass Connector
61560-08 .....	Meter Assy, In-Line, w/1" BSP Brass Connector
61560-05 .....	Meter Assy, In-Line, w/1" I.D. & 1-1/4" O.D. Sweat Connector
61560-09 .....	Meter Assy, In-Line, w/ 1-1/2" NPT Brass Connector
61560-10 .....	Meter Assy, In-Line, w/ 1-1/2" BSP Brass Connector

