



PENTAIR

FLECK NXT2 TIMER

SERVICE MANUAL

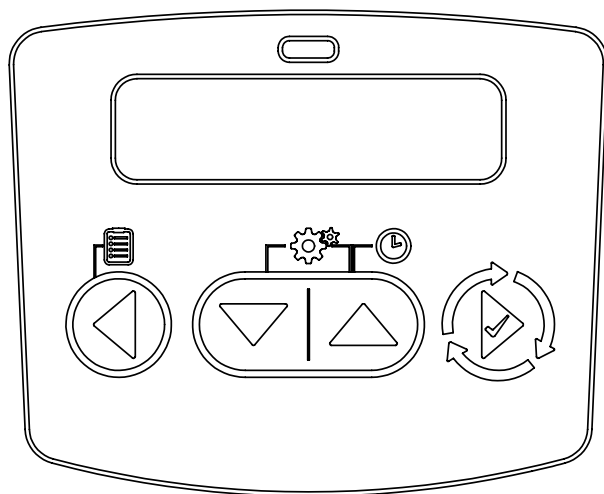


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- The information, specifications and illustrations in this manual are based on the latest information available at the time of release. The manufacturer reserves the right to make changes at any time without notice.
- This manual is intended as a guide for service of the valve only. System installation requires information from a number of suppliers not known at the time of manufacture. This product should be installed by a plumbing professional.
- This unit is designed to be installed on potable water systems only.
- This product must be installed in compliance with all state and municipal plumbing and electrical codes. Permits may be required at the time of installation.
- It is established that when daytime water pressure exceeds 80 psi (5.5 bar), the maximum pressure rating of 125 psi (8.6 bar) can be exceeded. A pressure regulator must be installed on this system or warranty is voided.
- Do not install the unit where temperatures may drop below 32°F (0°C) or above 120°F (52°C).
- Do not place the unit in direct sunlight. Black units will absorb radiant heat, increasing internal temperatures.
- Do not strike the valve or any of the components.
- Warranty of this product extends to manufacturing defects. Misapplication of this product may result in failure to properly condition water, damage to product, or personal injury.
- A prefilter should be used on installations in which free solids are present.
- In some applications local municipalities treat water with Chloramines. High Chloramine levels may damage valve components.
- Correct and constant voltage must be supplied to the controller to maintain proper function.
- The system is intended to treat only potable quality water. It is not intended as the permanent primary treatment of water from a source that is contaminated, such as from radon, pesticides, insecticides, sewage or wastewater.
- This system is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children shall not play with the system.
- Cleaning shall not be made by children without supervision.
- Periodic cleaning and maintenance may be required to function properly.
- All plumbing and electrical should be done in accordance with local codes.
- An uninterrupted power supply is required. The control uses a transformer to supply 24 VDC. Please make sure your voltage supply is compatible with your unit before installation.

CALIFORNIA PROPOSITION 65 WARNING

⚠ WARNING: This product contains chemicals known to the State of California to cause cancer or birth defects or other reproductive harm.

FEATURES

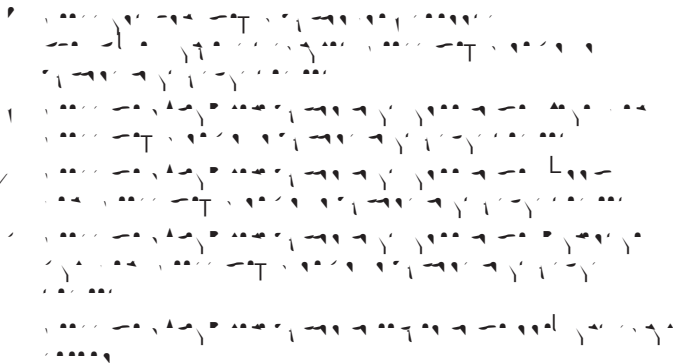
A handwritten musical score for the song 'The Rose Tree'. The score is written on ten staves. The first staff begins with a treble clef, a key signature of one sharp (F#), and a 2/4 time signature. The melody is written in a simple, folk-like style with many beamed eighth and sixteenth notes. The lyrics 'The Rose Tree' are written below the first staff. The second staff continues the melody with the lyrics 'The Rose Tree'. The third staff continues the melody with the lyrics 'The Rose Tree'. The fourth staff continues the melody with the lyrics 'The Rose Tree'. The fifth staff continues the melody with the lyrics 'The Rose Tree'. The sixth staff continues the melody with the lyrics 'The Rose Tree'. The seventh staff continues the melody with the lyrics 'The Rose Tree'. The eighth staff continues the melody with the lyrics 'The Rose Tree'. The ninth staff continues the melody with the lyrics 'The Rose Tree'. The tenth staff continues the melody with the lyrics 'The Rose Tree'. The score is written in ink on aged, slightly yellowed paper. The handwriting is clear and legible. The overall style is that of a personal or working manuscript.

Handwritten musical score for "The Rose Tree" in G major, 2/4 time. The score is written on ten staves. The first staff is the treble clef, and the second is the bass clef. The melody is in the treble clef, and the bass line is in the bass clef. The key signature has one sharp (F#), and the time signature is 2/4. The score includes various musical notations such as eighth notes, quarter notes, and rests. The lyrics "The Rose Tree" are written below the staves.

TIMER OPERATION

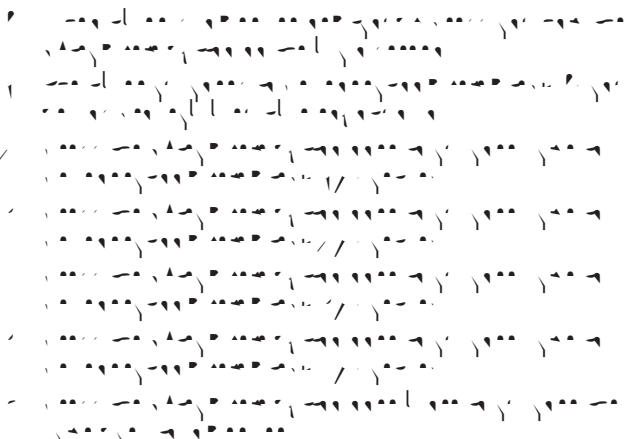
Setting the Time of Day

NOTE: Set Time of Day on any unit and the rest of the units in the system will update the Time of Day automatically.



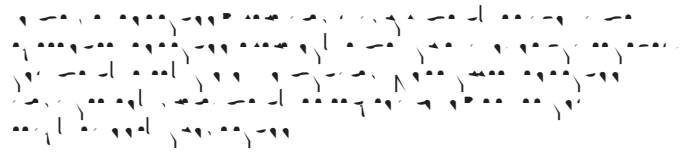
NOTE: Press and hold the Left button to exit without saving.

Manually Initiating a Regeneration



NOTE: A manually initiated or queued regeneration can be cleared by pressing and holding the Back button. A system queued regeneration can only be cleared by stepping through a manual regeneration. If regeneration occurs for any reason prior to the delayed regeneration time, the manual regeneration request shall be cleared. Pressing the Extra Cycle button while in regeneration will cause the upper drive to advance to the next step immediately.

Timer Operation During Regeneration



CYCLE 1/5
BACKWASH 00:10:00

CYCLE 2/5
DRAW 00:60:00

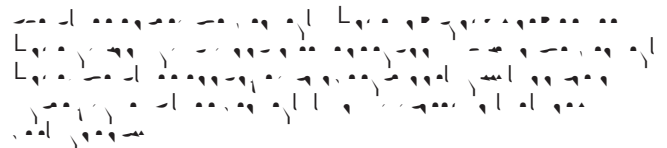
CYCLE 3/5
RAPID RINSE 00:10:00

CYCLE 4/5
TANK REFILL 00:12:00

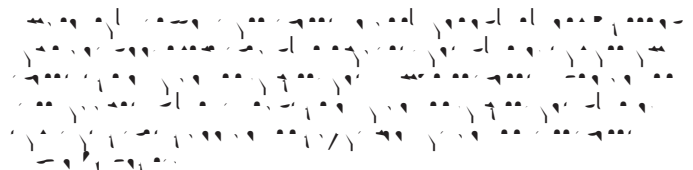


Press the Extra Cycle button during a system queued Regeneration Cycle to immediately advance the valve to the next cycle step position and resume normal step timing.

Timer Operation During Programming

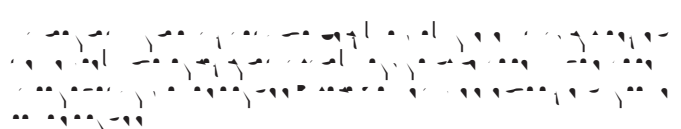


Timer Operation During A Power Failure



NOTE: The time of day on the main display screen will flash for 5 minutes when there has been a power outage. The flashing of the time of day can be stopped by pressing any button on the display.

Flow Meter Equipped Timer



TIMER FEATURES

Remote Lock

When the unit is in the Service screen, the Remote Lock feature can be used to lock the unit. This feature is used to prevent the unit from being reset or the timer from being changed. The unit will be locked for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Regeneration Day Override Feature

The Regeneration Day Override feature allows the user to override the default regeneration day. The user can select a day of the week for regeneration. The unit will regenerate on the selected day.

Lock Settings (access to Master Programming)

The Lock Settings feature allows the user to select the lock settings for the unit. The user can select the lock settings for the unit. The unit will be locked for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Time Based
Delayed
Enter Code

Capacitive Buttons

The capacitive buttons are used to navigate through the unit's menu. The buttons are located on the front of the unit. The buttons are used to select the desired option and return to the Service screen.

LED Status indicator

The LED status indicator is used to indicate the status of the unit. The indicator is located on the front of the unit. The indicator is used to indicate the status of the unit.

Power Loss Backup

The Power Loss Backup feature allows the user to backup the unit's settings. The user can select the backup settings for the unit. The unit will be backed up for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Continuous Flow Detect

The Continuous Flow Detect feature allows the user to detect continuous flow. The user can select the detect settings for the unit. The unit will detect continuous flow for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Remote Regeneration

The Remote Regeneration feature allows the user to regenerate the unit remotely. The user can select the regenerate settings for the unit. The unit will regenerate for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Regeneration Types

Softener/Filter Meter Delayed

The Softener/Filter Meter Delayed feature allows the user to delay the regeneration. The user can select the delay settings for the unit. The unit will regenerate for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Softener/Filter Meter Immediate

The Softener/Filter Meter Immediate feature allows the user to regenerate immediately. The user can select the immediate settings for the unit. The unit will regenerate for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Time Clock

The Time Clock feature allows the user to set the time for regeneration. The user can select the time settings for the unit. The unit will regenerate for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Day of the Week

The Day of the Week feature allows the user to select the day of the week for regeneration. The user can select the day settings for the unit. The unit will regenerate for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Remote Regeneration

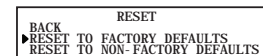
The Remote Regeneration feature allows the user to regenerate the unit remotely. The user can select the regenerate settings for the unit. The unit will regenerate for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Reset to Factory Defaults

The Reset to Factory Defaults feature allows the user to reset the unit to factory defaults. The user can select the reset settings for the unit. The unit will be reset for 24 hours. The unit will be unlocked at the end of the 24-hour period.



PRESS & HOLD



END

Power on the unit.
When Pentair logo appears,
press and hold the Extra Cycle button.
The Reset menu appears.

Use the up/down buttons to select.

Press the Extra Cycle button to set the
desired option and return to the
Service screen.

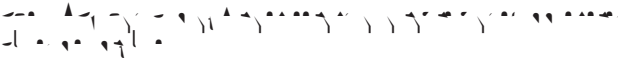
Lock Window

The Lock Window feature allows the user to lock the unit. The user can select the lock settings for the unit. The unit will be locked for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Settings Review

The Settings Review feature allows the user to review the unit's settings. The user can select the review settings for the unit. The unit will be reviewed for 24 hours. The unit will be unlocked at the end of the 24-hour period.

Auxiliary Relays



AUX. 1: CYCLE BASED						
SP	BW	BD	RR	RF	SB	
x	x	✓	x	x	x	

Activates during selected cycle step

AUX. 1: TIME BASED-START TIME #1	
1	M

Activates upon selected start time
(Range: 0-91 minutes)

AUX. 1: TIME BASED-END TIME #1	
5	M

Deactivates upon selected end time
(Range: Start Time plus 1 minute)

AUX. 1: VOLUME BASED - VOLUME-G	
00100	

Activates when selected volume (gallon)
is reached (Range: 0-99999)

AUX. 1: VOLUME BASED - DURATION-S	
0010	

Selected Duration in Seconds
(Range: 0-9999 seconds)

SYSTEM DEFINITIONS

System 4 - Single Unit

System 5 (2-8 Units) Parallel Interlock)



System 6 (2-8 Units) Parallel Series Regeneration

System 7 (2 Units) Alternating Immediate

System 8 (2 Units) Alternating Delayed

System 9 (2-8 Units) Alternating with Standby Units

System 14 (2-8 Units) Demand Recall

 	<div>SETTINGS REVIEW</div> <div>ON</div> <div>OFF</div>	<div>On: View settings without the ability to alter settings.</div> <div>Off: User has ability to alter settings.</div>
	<div>LANGUAGE</div> <div>PORTUGUES</div> <div>ENGLISH</div> <div>FRANCAIS</div>	<div>English, Francais, Duetsch, Italiano, Espanol, Nederlandse, Portugues</div>
	<div>ASSISTANCE NAME 1</div> <div></div>	<div>12 characters maximum.</div>
	<div>ASSISTANCE NAME 2</div> <div></div>	<div>12 characters maximum.</div>
	<div>ASSISTANCE PHONE</div> <div></div>	<div>14 characters maximum.</div>
	<div>SYSTEM</div> <div>SYSTEM 4</div> <div>SYSTEM 5</div> <div>SYSTEM 6</div>	<div>4, 5, 6, 7, 8, 9, 14</div>
	<div>VALVE</div> <div>2815</div> <div>2850</div> <div>2900</div>	<div>2510, 2750, 2815, 2900, 3150, 3900</div>
	<div>REGEN. FLOW</div> <div>UPFLOW</div> <div>DOWNFLOW</div> <div>FILTER</div>	<div>Upflow</div> <div>Downflow</div> <div>Filter</div>
	<div>REGEN. TYPE</div> <div>SOFTENER METER DEL</div> <div>SOFTENER METER IMM</div> <div>TIME CLOCK</div>	<div>Softener Meter Delayed</div> <div>Softener Meter Immediate</div> <div>Time Clock</div> <div>Day of the Week.</div>
	<div>UNITS</div> <div>METRIC</div> <div>US</div>	<div>Metric</div> <div>US</div>
	<div>CAPACITY - GRAINS</div> <div>0023828</div>	<div>Range: 0-9,999,999 grains</div>
		<div>Range: 0-199 GPG</div>
	<div>RESERVE</div> <div>FIXED VOLUME</div> <div>WEEKLY RESERVE</div> <div>VARIABLE RESERVE</div>	<div>Fixed Volume</div> <div>Weekly Reserve</div> <div>Variable Reserve</div> <div>Fixed %</div>
	<div>REMOTE REGENERATION</div> <div>DELAYED</div> <div>OFF</div> <div>IMMEDIATE</div>	<div>Off, Immediate, Delayed</div>
	<div>REMOTE SIGNAL DURATION</div> <div>1 S</div>	<div>Range:</div> <div>1-90 seconds (Service)</div> <div>60-300 seconds (Standby)</div>
	<div>DAY OVERRIDE/TIME-DRIVEN</div> <div>10 D</div>	<div>Range: Off - 99 Days</div>
	<div>REGEN. TIME</div> <div>02: 00HR</div>	<div>Range: 0 - 23 Hours 59 Minutes.</div>

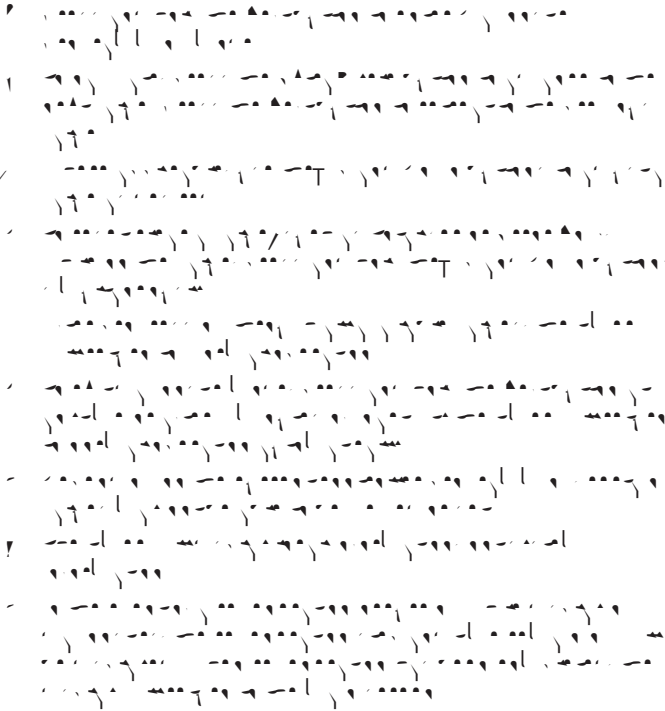
MASTER PROGRAMMING MODE

FLOW CHART



DIAGNOSTIC PROGRAMMING MODE FLOW CHART

Diagnostic Programming Mode



ERROR LOG
ERROR LOG EMPTY

Record of error events chronologically.



SUN-AVERAGE USAGE
29.7 G

Average usage from past Sunday.



SUN-DAILY USAGE
2017-10-10 0 G
2017-01-02 0 G
2017-12-26 0 G

Average usage from past 3 Sundays.



MON-AVERAGE USAGE
29.7 G

Average usage from past Monday.



MON-DAILY USAGE
2016-10-10 0 G
2017-01-02 0 G
2016-12-26 0 G

Average usage from past 3 Mondays.



TUE-AVERAGE USAGE
29.7 G

Average usage from last Tuesday.



TUE-DAILY USAGE
2016-10-10 0 G
2017-01-02 0 G
2016-12-26 0 G

Average usage from past 3 Tuesdays.



WED-AVERAGE USAGE
29.7 G

Average usage from last Wednesday.



WED-DAILY USAGE
2016-10-10 0 G
2017-01-02 0 G
2016-12-26 0 G

Average usage from past 3 Wednesdays.



THU-AVERAGE USAGE
29.7 G

Average usage from last Thursday.



THU-DAILY USAGE
2016-10-10 0 G
2017-01-02 0 G
2016-12-26 0 G

Average usage from past 3 Thursdays.



FRI-AVERAGE USAGE
29.7 G

Average usage from last Friday.



FRI-DAILY USAGE
2016-10-10 0 G
2017-01-02 0 G
2016-12-26 0 G

Average usage from past 3 Fridays.



SAT-AVERAGE USAGE
29.7 G

Average usage from last Saturdays



SAT-DAILY USAGE
2016-10-10 0 G
2017-01-02 0 G
2016-12-26 0 G

Average usage from past 3 Saturdays.

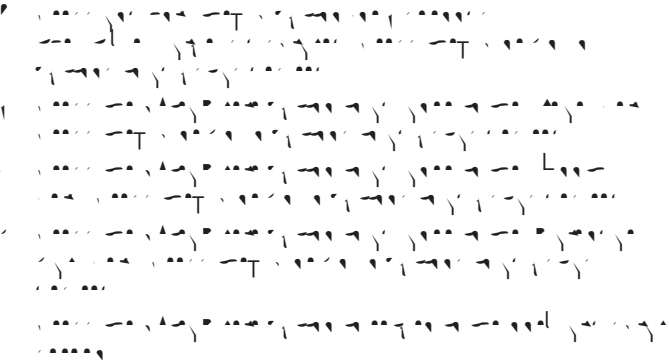
END

TIME OF DAY PROGRAMMING MODE

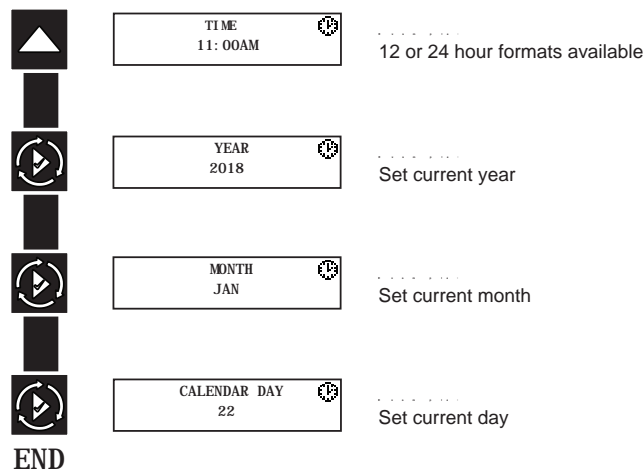
FLOW CHART

Setting the Time of Day

NOTE: Set Time of Day on any unit and the rest of the units in the system will update the Time of Day automatically.



NOTE: Press and hold the Left button to exit without saving.



NXT2 TIMER ASSEMBLY
(2510, 2750, 2850, 2900, 3150, 3900 VALVES)

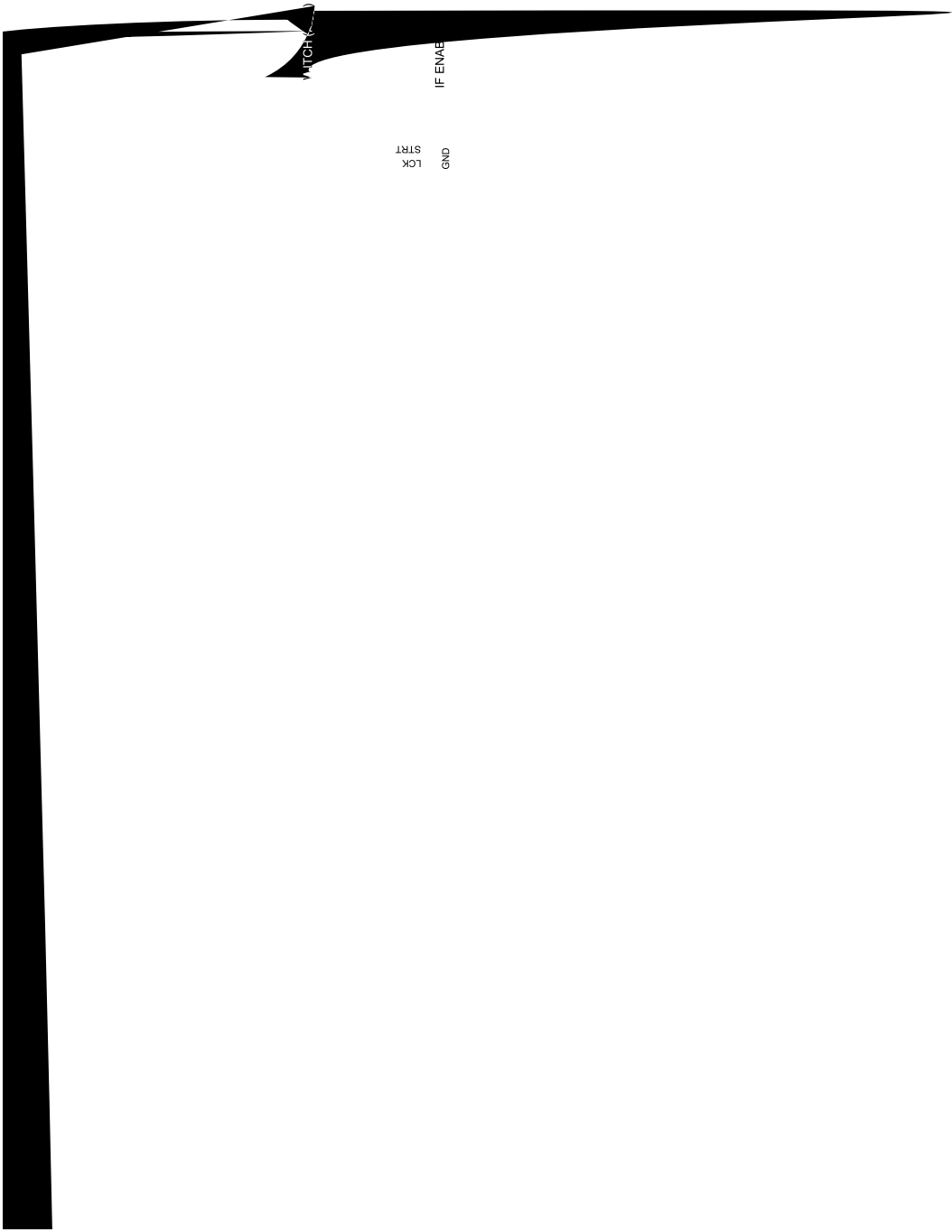
Item No.	QTY	Part No.	Description
1	1	2510	2510 Valve Assembly
Service Assemblies			
1	1	2510	2510 Valve Assembly
1	1	2510	2510 Valve Assembly

NXT TO NXT2 CONVERSION KITS

Item No.	QTY	Part No.	Description
	1	41111	Power Supply
	1	41112	Wiring Harness
	1	41113	Motor
	1	41114	Sensor

NOTE: Conversion Kits do not include wiring harness; save and reuse existing NXT wiring harness.
Region-specific power supply is included.

NXT2 WIRING DIAGRAM



PLY CON

er Supply:
cludes a harm
it board, see
el

es:

3150/3900 Valves:

Communication Cables

Hinge Mount Mount per valve model noted

ERROR CODES AND TROUBLESHOOTING

Detected Errors

- ▲ **Flow meter error** (E001) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter calibration error** (E002) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter communication error** (E003) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor error** (E004) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor calibration error** (E005) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor communication error** (E006) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor sensor error** (E007) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor sensor calibration error** (E008) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor sensor communication error** (E009) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.
- ▲ **Flow meter sensor sensor sensor error** (E010) - The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.

NOTE: During the error condition, the control continues to monitor the flow meter and update the volume remaining. Once the error condition is corrected, all units return to the operating status they were in prior to the error. Regeneration queue is rebuilt according to the normal system operation. Or, if more than one unit has been queued for regeneration, then the queue is rebuilt according to which one communicates first.

Message Displayed	Cause For Error	Correction
Flow meter error (E001)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter calibration error (E002)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter communication error (E003)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor error (E004)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor calibration error (E005)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor communication error (E006)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor sensor error (E007)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor sensor calibration error (E008)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor sensor communication error (E009)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.
Flow meter sensor sensor sensor error (E010)	The flow meter has detected an error. The control will attempt to restart the flow meter. If the error persists, the control will display the error code on the LCD.	Check the flow meter for proper operation. If the error persists, contact the manufacturer.



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