TECHNICAL MEMORANDUM

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TOPIC: Task Master III Programming Guide
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The Task Master III (TM-III) control valve must be programmed before it can be put into service. Also, under some circumstances, it may be necessary to re-program the controller. Use this guide to properly program the controller in a TM-III valve.

Before beginning any programming, determine the valve application. For softeners, there are three basic modes.

1) Single or multiple vessels with TIMED regeneration.
2) Single vessels with DEMAND regeneration.
3) Twin Alternating vessels with DEMAND regeneration.

NOTE: An ERCt "timed" regeneration controller CANNOT be programmed to accept a flow meter and a demand regeneration program. An ERCd controller is required for demand or flow meter operation.

Refer to the wiring diagrams on page 11 and 12 of the TM-III O & M manual (WKI No.: 900401) for proper installation of Shut-Off Kits and flow meter.

TIMED REGENERATION SYSTEMS

1) Set valve type to "150". See page 19 in the TM-III manual. A new un-programmed controller will show one of 4 numbers flashing when it is first plugged in. Use the up/down arrows to scroll to "150" then press the square button to set. Previously programmed controllers will flash the valve type number immediately after being plugged in. To change, press the square set button immediately after plugging in. scroll to the correct number and press the set button again to register the change. New controllers will advance to the next step. Otherwise use the arrow keys to move to the desired setting, and then press the set button to enter the program mode at each step.
2) Refer to the "742" programming guide on page 16 of the manual.
3) Enter the number of cubic feet of resin in the tank. Refer to Table A for your softener model number. (If resin volume is greater than 15, enter 15) Press the set button to record your setting.
4) Set time of day and day of week.
5) Time of regeneration is pre-set at 2:00 AM. This can be changed or skip to next step.
6) Days between regeneration can be set for any number between 0 and 99. This value should be calculated based on your softener capacity, water hardness, and expected flow rate.
7) Set salt to "10".
8) After the last setting is made, the display will return to the time of day after about 30 seconds.

DEMAND REGENERATION SYSTEMS

1) Set valve type to "150" for a single tank or "2150" for Twin Alternating. See page 19 in the TM-III manual. A new un-programmed controller will show one of 4 numbers flashing when it is first plugged in. Use the up/down arrows to scroll to "150" or "2150" then press the square button to set. Previously programmed controllers will flash the valve type number immediately after being plugged in. To change, press the square set button immediately after plugging in. Scroll to the correct number and press the set button again to register the change. New controllers will advance to the next step. Otherwise use the arrow keys to move to desired setting, and then press the set button to enter the program mode at each step.

2) Refer to the "762" programming guide on page 15 of the TM-III manual.

3) Enter the number of cubic feet of resin in the tank. Refer to Table A for your softener model number (If resin volume is greater than 15, enter 15). Press the set button to record your setting.

4) Set time of day and day of week.

5) Time is regeneration is skipped. This cannot be changed.

6) Days override. Leave at "0" entering a number between 0 and 99 will force regeneration on those days.

7) Set salt to "10".

8) Enter the calculated capacity of one tank in Kilograins.

9) Enter the hardness of incoming water in grains/gallon.

10) Refer to Level II programming on page 28 in the TM-III manual.

11) To enter Level II programming, press the down and up arrows together for 5 seconds.

12) Use arrow keys to go to "P18".   Set "P18" to "3".

13) Set P19 to correct K factor for the meter installed in your system, as follows:

$$K_{\frac{3}{4}" \text{ meter}} = 99.99$$
$$K_{1\text{-}1/2" \text{ meter}} = 28.0$$
$$K_{3" \text{ meter}} = 7$$

Table A - Softener Sizing		
WKI Model No.	Capacity (Kgr)	Resin (ft^3)
50	44	1 ½
70	62	2 ¼
100	90	3 ¼
120	117	4
150	138	5
180	176	6
240	221	8
300	264	10
450	389	15
600	535	20
750	658	25
900	753	30
1200	1053	40

Note: Watch the decimal point! Be careful to set it to 28.0 not .280. Also for the ¾" meter it is easier to use the down button and back up to 99.99

Note 2: Also for the ¾" meter, the actual K-factor for this meter is greater than 100, so the tank capacity should be increased by 40%

Approximately 30 seconds after the last setting is made, the display will begin alternating between current flow rate, and gallons until regeneration.
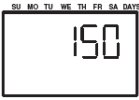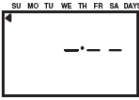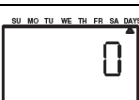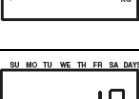
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ALL SYSTEMS

1) Refer to page 30 in TM-III manual.
2) On all systems, set C1, C5, C8 to values below. C2, and C3 will be set by the controller.
3) On systems having resin volume greater than 15 feet, set C2 and C3 to values listed in Table B on next page.

> - Hold SET and UP arrows at the same time to enter C-level programming
> - Individual cycle times as calculated below

WKI Model No.	Backwash, C1 (min)	Brine Draw, C2 (min)	Slow Rinse, C3 (min)	Fast Rinse, C5 (min)	Refill Time, C8 (min)	Total Regeneration Time (min)
Table B - Task Master III Regeneration Times						
50	14	35	60	16	0	125
70	14	35	60	16	0	125
100	14	35	60	16	0	125
120	14	35	60	16	0	125
150	14	35	60	16	0	125
240	14	35	60	16	0	125
300	14	35	60	16	0	125
450	14	44	88	16	0	162
600	14	44	88	16	0	162
750	14	44	88	16	0	162
900	14	35	60	16	0	125
1200	14	35	60	16	0	125

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REGENERATION SYSTEMS
PROGRAMMING CHART

LEVEL 1 PROGRAMMING			
Value to Set	**Initial Display**	**Buttons to Press**	**Value to Enter**
Valve Type	SU MO TU WE TH FR SA DAYS 150	*then* ↓ or ↑ *press* ■	**150** or **2150**
Resin Volume	SU MO TU WE TH FR SA DAYS –.– –	*then* ↓ or ↑ *press* ■	**Table A**
Time of Day (12 hr.)	SU MO TU WE TH FR SA DAYS 12:00 PM	*press* ■ *then* ↓ or ↑ *press* ■	**Current Time**
Day of Week	SU MO TU WE TH FR SA DAYS	*press* ■ *then* ↓ or ↑ *press* ■	**Current Day**
Time of Regeneration	SU MO TU WE TH FR SA DAYS 2:00	*press* ■ *then* ↓ or ↑ *press* ■	**Do Not Change**
Days Override	SU MO TU WE TH FR SA DAYS 0	*press* ■ *then* ↓ or ↑ *press* ■	**Do Not Change**
Salt Dosage	SU MO TU WE TH FR SA DAYS 9 Lbs/ft^3	*press* ■ *then* ↓ or ↑ *press* ■	**10**
Capacity	SU MO TU WE TH FR SA DAYS 8b KG	*press* ↓ *to override press* ■ *then* ↓ or ↑ *press* ■	**Table A**
Hardness	SU MO TU WE TH FR SA DAYS 10	*press* ■ *then* ↓ or ↑ *press* ■	**Incoming Water Hardness in Grains**

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- Hold DOWN and UP arrows at the same time to enter level II programming
- Individual cycle times as calculated below

LEVEL 2 PROGRAMMING

Value to Set	Value to Enter
P18 (3)	3
P19 (3)	Step 13 on Page 2
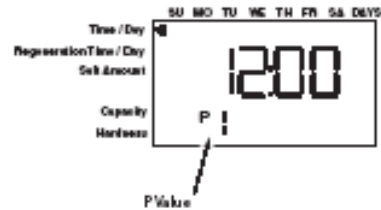
- Hold SET and UP arrows at the same time to enter C-level programming

LEVEL 3 PROGRAMMING

Cycle	Description	Cycle Time to Enter
C1	Backwash	Table B
C2	Draw	Table B
C3	Slow Rinse	Table B
C4	Fast Rinse	Table B
C5	Refill	Table B

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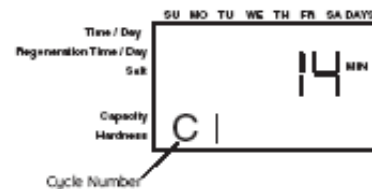
11.0 Level II Programming

The 742/762 features a special programming level for more demanding applications. The home owner/end user should never have to access this level.

To enter Level II programming press and hold 🔺 and 🔻 for 5 seconds. A "P" value is displayed indicating Level II.
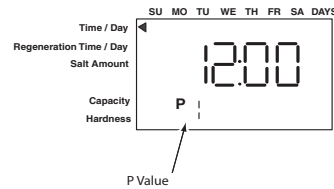
Table 2   Level II Parameters for 742/762

		Parameter Description	Range of Values	Minimum Increment	Default	Units of Measure	Notes
	P9	Units of measure	0-1	1	(2)		0 = US, 1 = Metric
	P10	Clock mode	0-1	1	(2)		0 = 12 hour clock, 1 = 24 hour clock
	P11	Service Interval	0-250	1	0	months	Uses 30 days for each month.
	P12	Remote Regeneration Switch Delay (Time clock only)	3-250	1	60	seconds	Time remote switch must be active to start regeneration (742 only).
	P13	Skipped					
P14	Conditioner	Refill rate	0-400	1	(1)	gpm x 100	
	Filter	Skipped					
P15	Conditioner	Draw rate	0-400	1	(1)	gpm x 100	
	Filter	Skipped					
	P16 (3)	Reserve Type (demand only)	0-3	1	0		0 = Variable reserve delayed regeneration 1 = Fixed reserve delayed regeneration 2 = Variable reserve immediate regeneration 3 = Fixed reserve immediate regeneration
	P17 (3)	Initial average or fixed reserve (demand only)	0-70	1	30	% of Capacity	Depends on value entered in P16
	P18 (3)	Flow sensor select (demand only)	1-4	1	(1)		1=1" Autotrol turbine, 2=2" Autotrol turbine, 3=User defined K-Factor, 4=User defined Pulse Equivalent,
	P19 (3)	K-Factor or Pulse Equivalent (demand only)	0.01-99.99 1-9999	0.01 1	0.01 1	ppg gpp	K-Factor P18=3; Pulse Equivalent P18-4

Notes: (1) default selected with valve type and resin volume. (2) Factory Default is "0" for North America units and "1" for World Units. (3) P16 through P19 skipped on 742 time clock units.

11.1 Locking/Unlocking Parameters

Level I parameters 1 thru 8 can be locked/unlocked during Level II programming. When the Level I P number is displayed, pushing ♻ will toggle the lock.
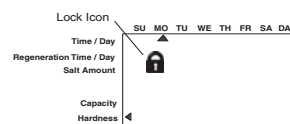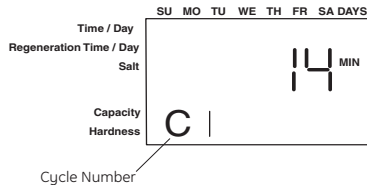
12.0 Cycle Time Programming

The 742 and 762 controls allow users to program all cycle times manually. Use this feature to view or enter user-defined cycle times.

To View Cycle Times:

1. View programmed cycle time by holding ⬆

    AND ■ for 5 seconds.

2. Use ⬆ or ⬇ to display programmed time in each cycle.

Table 3   Cycle Times

Cycle	Default Cycle Time (minutes)	Cycle Time Range (minutes)
C1- Backwash	14	
C2- Draw (1)	(2)	
C3 - Slow Rinse	(3)	0-250
C5 - Fast Rinse	6	
C8- Refill (1)	(4)	

(1) Draw and Refill times are calculated on a conditioner valve using the draw, refill rates and salt setting. Draw and Refill times may be programmed in minutes on the 3 cycle filter valve.

(2) Depends on valve type and resin volume. Time calculated from total salt amount and draw rate.

(3) Depends on valve type, resin volume, and rinse rate. Time calculated for 2.0 bed volumes.

(4) Depends on valve type and resin volume. Time calculated from total salt amount and refill rate.

To Program Individual Cycle Times:

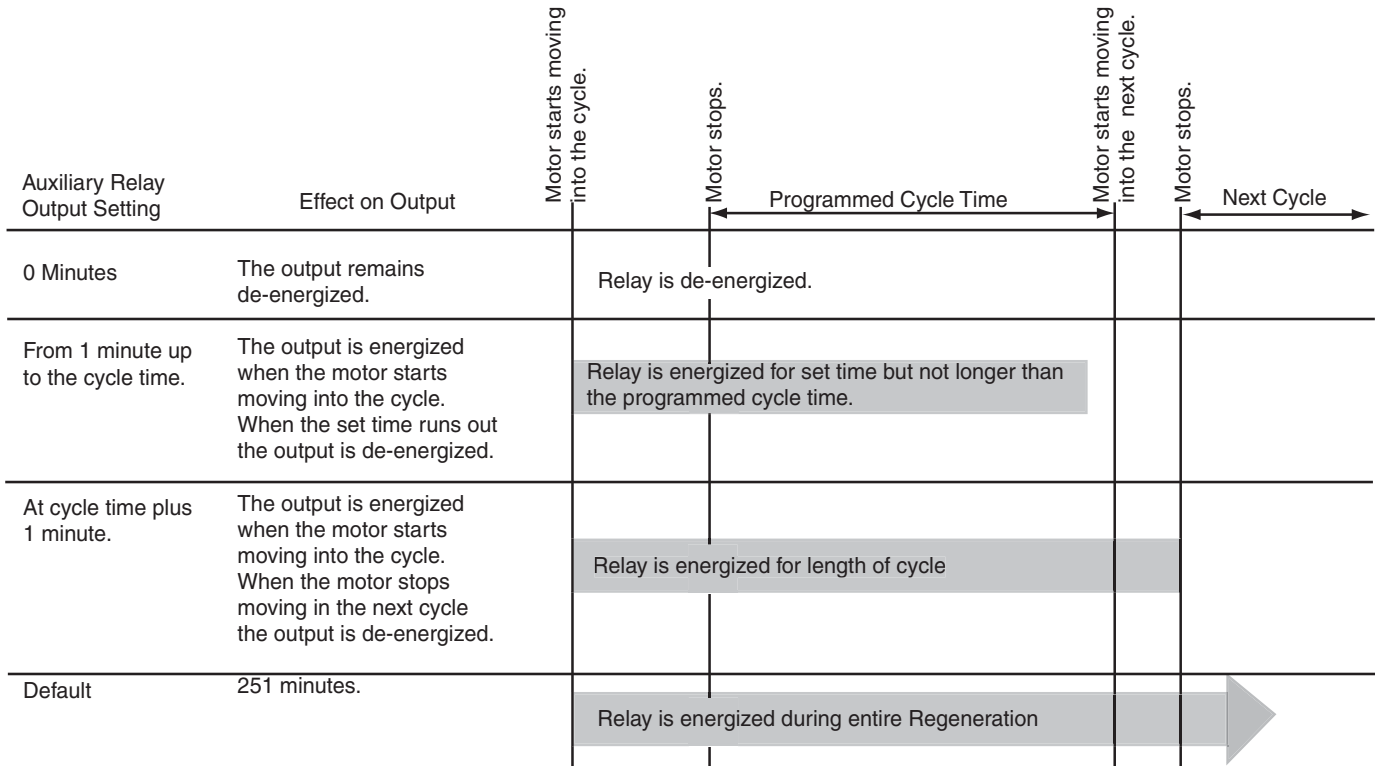1. Hold ⬆ AND ⬛ to enter cycle time programming mode.
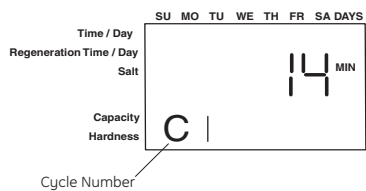
2. Press ⬆ or ⬇ to select cycle to be changed.

3. Press ⬛ while a programmed cycle time is displayed. The cycle time in minutes flashes, indicating it can be changed.

4. Press ⬆ or ⬇ to change the flashing cycle time.

5. Press ⬛ to enter the flashing time displayed for that cycle.

6. Repeat procedure to program other cycle times.

12.1 Auxiliary Relay Programming

Two auxiliary relay outputs "A" and "b" are available and can be programmed to meet user needs. Each auxiliary relay output can be programmed to be energized during all or part of each cycle individually. See Figure 17 for wiring.
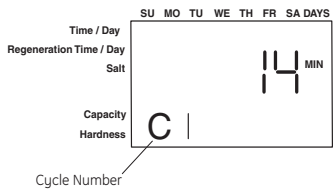
Setting the Auxiliary Outputs

| Auxiliary Relay Output Setting	Effect on Output	Motor starts moving into the cycle.	Motor stops.	Programmed Cycle Time	Motor starts moving into the next cycle.	Motor stops.	Next Cycle
0 Minutes	The output remains de-energized.		Relay is de-energized.				
From 1 minute up to the cycle time.	The output is energized when the motor starts moving into the cycle. When the set time runs out the output is de-energized.		Relay is energized for set time but not longer than the programmed cycle time.				
At cycle time plus 1 minute.	The output is energized when the motor starts moving into the cycle. When the motor stops moving in the next cycle the output is de-energized.		Relay is energized for length of cycle				
Default	251 minutes.		Relay is energized during entire Regeneration				

To View Auxiliary Relay Times:

NOTE: Auxiliary relays are not programmable on twin alternating systems.

1. Enter cycle time programming by holding ▲

    AND ■ for 5 seconds.

2. Press ♺ to enter auxiliary output programming mode. The letter "A" or "b" is shown in the left-most digit of the display, indicating the auxiliary output is being displayed.
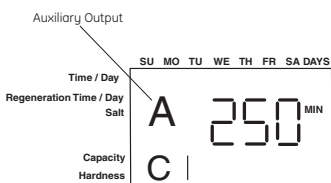
3. Press ▲ or ▼ to display auxiliary output times for each cycle.

4. Press ♺ again to toggle between cycle time programming, auxiliary output "A" programming and auxiliary output "b" programming.

To Program Auxiliary Relay Output Times:

1. Press ■ while the auxiliary relay output time is displayed. The auxiliary output time flashes indicating it can be changed.

2. Press ▲ or ▼ to change the flashing time displayed for that cycle.

3. Press ■ to enter the flashing time displayed for that cycle.

4. Repeat procedure to program other auxiliary relay output times.