

Autotrol Performa™ Cv

Conditioner/Filter

Water Control System

Installation, Operation and Maintenance Manual

— n a :



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1.0 Performa Cv System

1.1 Specifications

1.1.1 Performa Cv Conditioner

Flow Rates (Valve Only)

@ 15 (1.03 a)	25.0	η (5.7 η ^{3/4})
Ba a (C) @ 25 (1.72 a)	20.0	η (4.5 η ^{3/4})
	C = 6.5 (K = 5.58)	
Ba a C	C = 4.0 (K = 3.46)	

Control Configurations

962 Microprocessor Demand System and 962 Electronic Timeclock

Ba a	4	60 η
B	E	a a a
	7	125 η
Fa	2	19 η
E a B a - η F		

Valve Connections/Dimensions

a a	2-1/2	- 8, η a
I l		

1.1.2 Performa Cv Filter Specifications

Flow Rates (Valve Only)

@ 15 (1.03 a)	25.0	η (5.7 η ³)
Ba a (F) @ 25 (1.72 a)	25.0	η (4.5 η ³)
	C = 6.5 (K = 5.58)	
Ba a F	C = 5.0 (K = 5.78)	

Control Operation

942F Mechanical Clock Timer - 7 Day or 12 Day

Ba a	8-30	η
F Fa	9	η

962F Microprocessor Demand

Ba a	4	60	η
Fa	2	19	η

962 FTC Electronic Time Clock

Ba a	4	60	η
Fa	2	19	η

Interval Regeneration.....Da - a

Valve Connections/Dimensions

a - a	2-1/2	- 8, ηa
I ↓	1-3/4	- 12 C-2A, ηa
Da L	3/4-	, ηa
B L	3/8-	, ηa
D ↓ .D.	1.050	(27 ηη)
D L -	1/2 ↓ 1/2	(13 ηη ↓ 13 ηη) a

Operating

a B	Ga -	a
C η	C η	a
- (a - C)	4.5	(2.0)
a η ↓	12	AC 400 ηA (4.6 A)
a η I	115	50/60 Hz, 230 50/60 Hz
	100	50/60 Hz
↓ a	10	120 (1.37 8.27 a)
	Ca a a: 20	100 (1.37 6.89 a)
a η a	34°	100°F (1° 38°C)

Options

B a a , V _a 1265	1-3/4	- 12 C - 2A ηa
B a I ↓ F K :		
C , a A a	1-1/4- , 1- , 3/4- ,	28-ηη, 22-ηη
C C, A a	1- , 3/4- ,	25-ηη
a B A a	1- ηa , 3/4- ηa	
B a B A a	1- ηa , 3/4- ηa	

Flow Meter 962 Control 1- - A

4.1 a a .

1.2 Installation

A. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.

Location Selection

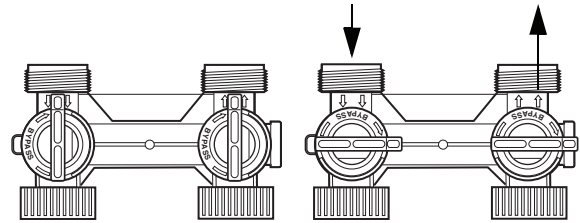
1. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
 2. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
 3. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
 4. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
- If a check valve is installed, make certain the water heating unit is equipped with a properly rated temperature and pressure safety relief valve. Also, be certain that local codes are not violated.

5. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
6. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
7. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.

Water Line Connection

The water supply line should be installed in a location that is accessible and not subject to freezing temperatures. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.

Not in Bypass



F 1.1 - A

1265 B a a

F 1.2 - a G a B a n

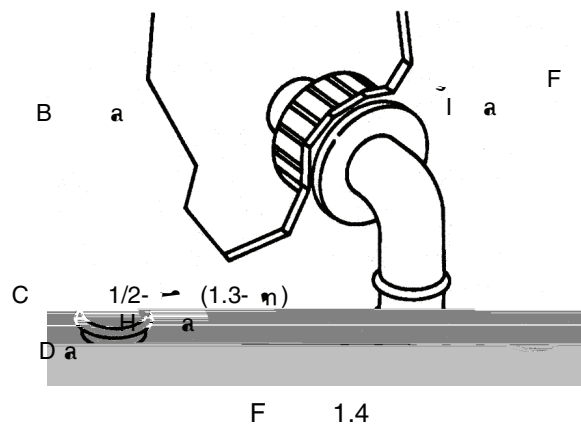
Drain Line Connection

Note: The drain line should be installed in a location that is accessible and not subject to freezing temperatures.

1. The drain line should be installed in a location that is accessible and not subject to freezing temperatures.
2. The drain line should be installed in a location that is accessible and not subject to freezing temperatures.
3. The drain line should be installed in a location that is accessible and not subject to freezing temperatures.

5. $\frac{1}{2} \frac{1}{2} a \eta \quad a \frac{1}{2} a$
 $\quad \quad \quad , a \quad - \quad a \eta \quad .$

PORTANT:



A 962 ၁၈၈ ၁၁၁ ၁၁၁ . A
9- ၁၁၁ ၁၁၁ ၁၁၁ ၈၈၈ ,
/ 1075768. ၁၁၁ A A, E 7/8H
(A H ၈၈ 9 150 ၈AH,
5522). A ၁၁၁ - ၁၁၁ ၁၁၁ ၁
၁ ၁ ၁ ,
F 1.5.

Brine Line Connection

B a a a - .

Overflow Line Connection

I () a a -
 - a - n a a a -
 (F 1.4). A a - 1/2- (1.3- n) I.D.
 () a a . D
 a - - a 3 - (7.6 n)
 n . D a
 n a , a a
 n a , . A a
 a a a a (F 1.3).

A a — a . F — ;
a .
1. a a —
a a — .

Note: —
— a a . V a a
— a a COUNTERCLOCKWISE
a . (,
a a a
a a a .)

2. a a COUNTERCLOCKWISE
— BACKWASH.

3. F a a — a .
a. — a , a — a a ()
— ,
— a a
a a — 1/4 .

IMPORTANT: | a a , a a
a . | — 1/4 , — a
a a a .

3. A () .
 4. A () .
 4 (15) .
 1 (25) .
 5. .
 .
 COUNTERCLOCKWISE
 BRINE REFILL .H
 .D
 . A
 COUNTERCLOCKWISE
 BRINE/SLOW RINSE

A a — a
 COUNTERCLOCKWISE —
 REGENERATION COMPLETE a
 a a a a — a
 a a .

A a a :

a. A a-a a a

(a a a)

 a a-a a Ba a

ka a ka ka 15 ka

 a a a a

a.

Ca ka a a a

ka ka ka 12 a a

 a a a .

. A a a ka

a a a a BACKWASH

COMPLETE.

100 VAC, 115 VAC, and 230 VAC units:

1.4 Disinfection of Water Conditioners

[illegible]

Sodium or Calcium Hypochlorite

Application

- aa aa aa - aa
 , - > , aa

.

5.25% Sodium Hypochlorite

— ၁ ၂ ၃ ၄ ၅ —
 ၁ C B ၁ * . | ၆ , — —
 ၇ — ၈ ၉ ၁၀ ၁၁ , ၁၂ —
 ၁၃ ၁၄

1. D a
a. : 1.2
- a : 0.8

2. B a

a. Ba a — a a —
a a —
— a . (— a — — a
a a — a
— .)
— a a .

Calcium Hypochlorite

Ca ကာ - , 70% အလယ် -
အလယ် - အကျယ် -
- အကျယ်

1. D a

a. a (a na 0.1)

[illegible]

*C B a a a n a - C C n a .

2.2 Programming and Application

962
 2.4.1
 (a 2.4)
 "1."
 "0" a

Note: I a

Day of Week/Time of Day

SET
 Da
 UP ARROW (↑)
 DOWN ARROW (↓)
 LEFT ARROW (←)

Level I Parameters (Table 2.1)

L I a a a
 LED a
 DOWN ARROW (↓)
 L I a a
 Da
 Ha
 a An
 Ca a
 DOWN ARROW (↓)
 Da
 UP ARROW (↑)
 a a a
 SET
 UP ARROW (↑)
 DOWN ARROW (↓)
 LEFT ARROW (←)
 LEFT ARROW (←)
 Note: I
 UP ARROW (↑)
 DOWN ARROW (↓)
 10
 LEFT ARROW (←)
 C
 SET
 A a 30
 Da a
 Ca a

Salt Amount

ΔA_{η} ΔA_{η} 6 (2.7 ΔA_{η})
 Δ ; Δ 2.2 Δ .

Note: ΔA_{η} ΔA_{η} Δ Δ
 Δ , . | 6
 Δ Δ , **SET** Δ Δ Δ
 η . | 6 Δ Δ , **DOWN**
ARROW (↓) .

Capacity

C_a Δ Δ Δ Δ
 Δ (ΔA_{η}). Δ 2.2 Δ
 Δ .7(Δ)24.=0.005.4(2 1 1 J *0)1.3(0 4 3 -3.70 -9.74

Table 2.2 - Suggested Settings for P4, P5, P6, P7

P5 Capacity Setting K a (K aη)	η a ()				
	3 ³ (85)	4 ³ (113)	5 ³ (142)	6 ³ (170)	7 ³ (198)
P4 Salt Setting: () a					
60 (3.9)	18 (8.2)	-	-	-	-
80 (5.2)	-	24 (10.9)	-	-	-
84 (5.4)	30 (13.6)	-	-	-	-
90 (5.8)	45 (20.4)	-	-	-	-
100 (6.4)	-	-	30 (27.2)	-	-
112 (7.2)	-	40 (18.1)	-	-	-
120 (7.7)	-	60 (27.2)	-	36 (16.3)	-
140 (9.0)	-	-	50 (22.7)	-	42 (19)
150 (9.7)	-	-	75 (34)	-	-
168 (10.8)	-	-	-	60 (27.2)	-
180 (11.6)	-	-	-	90 (40.8)	-
196 (12.7)	-	-	-	-	70 (31.8)
210 (13.6)	-	-	-	-	105 (47.6)

2.4. a L a a a a 6 22 a
a a DOWN ARROW (↓) a UP
ARROW (↑) . A. a
a .
a 2.4 a a a a
a a UP ARROW (↑)
DOWN ARROW (↓) a a a a
a a a a a a
2.1 a a 2.4. a
22, a a 1.
a a a a a a
a a LEFT ARROW (←)
a a a a a a
SET a a a a a
a a UP ARROW (↑) DOWN ARROW (↓)
LEFT ARROW (←) a a a
SET a a a a
a a a a a 2.4
a a a a a a
a a a a a LEFT
ARROW (←) a a a a
a (↓) a a a a
a a a a a
L a a a a a a
a a DOWN ARROW (↓) a UP
ARROW (↑) a 30
a a a a a , F
a a Ca a
a a a a a a
a a a a a a
a a a a a a

ລ ລາ 6 ລ ລ ັ
 າ . າ . SET າ າ
 າ . າ 2.2 າ .
 າ ລາ 7 າ າ ັ
 າ າ . SET າ າ ັ
 າ . າ 2.2 າ .
 ັ າ າ ັ າ າ ັ
 າ າ ັ າ າ າ າ າ
 າ ັ າ (10) າ ັ
 າ B D າ / າ .
 ັ າ າ 8.
 ັ າ າ

Programming Day of the Week Regeneration/ Backwash

E Da — a / a a
 a a — LEFT ARROW (←)
 a — DOWN ARROW (↓)
 a a 3 . a a — a
 1, 2, 3, ., — a. — a —
 a / a a — . a a
 — a a, — a — 0 a 1. — a a a
 a 30 . l
 — a — a a
 — a a — a
 — a / a a .

Table 2.3 - Day of Week Regeneration/Backwash

#	Description of Parameter	Set as required 0 = No - 1 = yes	Notes
1	a	A	0 = a a 1 = a a — a
2	V _a a	A	0 = a a 1 = a a — a
3	a	A	0 = a a 1 = a a — a
4	a	A	0 = a a 1 = a a — a
5	— a	A	0 = a a 1 = a a — a
6	F a	A	0 = a a 1 = a a — a
7	a a	A	0 = a a 1 = a a — a

Reserve Options

— a a a a : — a a 16 30 — a a
 a a a a a a 30% — a a a a — a
 a). — a a a a 15. a a a a .

Fixed Reserve

— a a a a 15 a —
 — a a — a a —
 — a a a a 2 a a a , —
 — a a a a a a —
 a a a a — a — .

Smart Reserve (water usage pattern)

— — a — a —
 — a — a a a a
 — a . — a — a
 a a a — a — a a ,
 a a a a 1.2 a — a
 a . E a a a a ,
 a a — a , a a a . l — a
 10% a a , a a a a ,
 — a — a , a a . l a —
 a , a a , — a a a
 — a a .
 — a a a — a — a a ,
 — a a 16 — a a a a
 a a a a a a — .

2.3 Conditioner Programming Tables

Table 2.4 - Level II Programming Performa Cv 962 Parallel Multi Tank or Single Tank Conditioner

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
6		2-200	1	Selected from Table 2.2		
7	B a a	2-200	1	Selected from Table 2.2		
9	Ba a n	4-60	1	14*	W	
10	()-35.1(67()28.)-13 2 2		7 67()	1 31.0606 0	D364 98 0	(14)30.3(*40 J/F3 1 6.9091 0 D-0.0111 0

G 3.2 a a a a a a a a .

Table 2.5 - Programming Performa Cv 962TC Electronic Time Clock Conditioner

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
1	Day of the Week	(1-7) 1:00-12:59 A V V (1-7) 0:00-23:59	(1 a) 1 V	Current Day and Time	H V	13. F a =1, V =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF V DIGI HE DI LA
2	Time of Day	1:00-12:59 A V 00:00-23:59		As required	H V	a 13
3	A			10		
4	a a	.5-125.0 .2-50.0	.5 .2	Selected from Table 2.2	K a	
5	a a a a			10		
6		2-200	1	Selected from Table 2.2		a a a a a a a a a
7	B a a	2-200	1	Selected from Table 2.2		a a a a a a a a a
9	Ba a	4-60	1	14*	V	*V a a a
10	a	7-125	1	40*	V	*V a a a a a a
11	Fa a	2-60	1	4*	V	*V a a a
12	a a	0-1	1	0		0 = , 1 = V
13	C a	0-1	1	0		0 = 12, 1 = 24
14	I a a Ca a	0-30	1	0	Da a	0 = a - *V a a a
15	D a a			0		
16	D a a			30		
17	a	3-4	1	6		6 = 962 C
18	a a L	0-1	1	0		0 = , 1 = a /Ca a a
19	D a a					
20	D a a					
21	a a D a	0-254	1	60		a a a a a a
22	Fa D CHA GE			99		

G 3.2 a a a a a a a

3.0 Performa Cv Filter Valve and Controls, 962F, 962FTC, 942F

3.1 Programming and Application

Table 3.1 - Programming Performa Cv 962F Three Cycle Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
1	Day of the Week	(1-7) 1:00-12:59 A/V (1-7) 0:00-23:59	(1 a) 1 V	Current Day and Time	H V	13. F a =1, V =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF V DIGI HE DI LA
2	Filter Cycle Time	1:00-12:59 A/V 00:00-23:59		As required	H V	a a 13
3	Filter Cycle Time			10		
4	Filter Cycle Time			100	V	
5	Filter Cycle Time			0.5		
6	Filter Cycle Time			As required		D a a (a) a 100 a 5. D a a (a) 10 a a 5.
7	Filter Cycle Time			200		
8	Filter Cycle Time			200		
9	Filter Cycle Time	7-60	1	14*	V	*V a a a
10	Filter Cycle Time			8		
11	Filter Cycle Time	9-60	1	9*	V	*V a a a
12	Filter Cycle Time	0-1	1	0		0 = , 1 = V
13	Filter Cycle Time	0-1	1	0		0 = 12 1 = 24
14	Filter Cycle Time	0-30	1	0	Da	0 = a - *V a a a
15	Filter Cycle Time	0-3	1	0	F a a a a E a a a a a 2 a 24.	0 = na , 1 = F a a , 2 = na Inna a a , 3 = F a Inna a
16	Filter Cycle Time	0-70	1	30		a Da A a
17	Filter Cycle Time	0-7	1	4		4 = F na C
18	Filter Cycle Time	0-1	1	0		0 = , 1 = a /Ca a a
19	Filter Cycle Time	1-4	1	1		1 = 1 A , 3 = D K-a , 2 = 2 A 4 = D E a na V K-a E a
20	Filter Cycle Time	0.01-255.0	0.01	0.01		
21	Filter Cycle Time	0-254	1	60		na na na a a a a a
22	Filter Cycle Time			99		

G

2.2

a

a a

-

an

a a

-

a

Table 3.2 - Programming Performance Cv 962F Five Cycle Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of
-----------	-------------	-----------------	-------------------	---------------------------	----------

G 2.2 a a a 1 a a a a a .

Table 3.3 - Programming Performa Cv 962 TC Electronic Time Clock Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
1	Day of the Week	(1-7) 1:00-12:59 A V _h V _h V _h (1-7) 0:00-23:59	(1 a) 1 V _h	Current Day and Time	H V _h F a	a =1, V _h =2, E=3, 13.

G 2.2 a a a 1 a a a a 1 a .

Electronic Time Clock Operation

When the system is in the "On" position, the clock will automatically start the backwash cycle. The backwash cycle will run for a set time, typically 10 to 15 minutes, and then stop. The system will then return to the "On" position and the cycle will repeat.

The backwash cycle is controlled by a timer. The timer is set to run for a specific amount of time, typically 10 to 15 minutes. The timer will start the backwash cycle when the system is in the "On" position. The backwash cycle will run for the set time and then stop. The system will then return to the "On" position and the cycle will repeat.

Interval Backwash. The backwash cycle will run at a set interval, typically every 10 to 15 minutes. The interval can be set by the user. The backwash cycle will run for the set time and then stop. The system will then return to the "On" position and the cycle will repeat.

Day of Week Backwash. The backwash cycle will run at a set time of day, typically every 10 to 15 minutes. The time of day can be set by the user. The backwash cycle will run for the set time and then stop. The system will then return to the "On" position and the cycle will repeat.

Application

The backwash cycle is used to clean the filter media. The backwash cycle will run for a set time, typically 10 to 15 minutes, and then stop. The system will then return to the "On" position and the cycle will repeat.

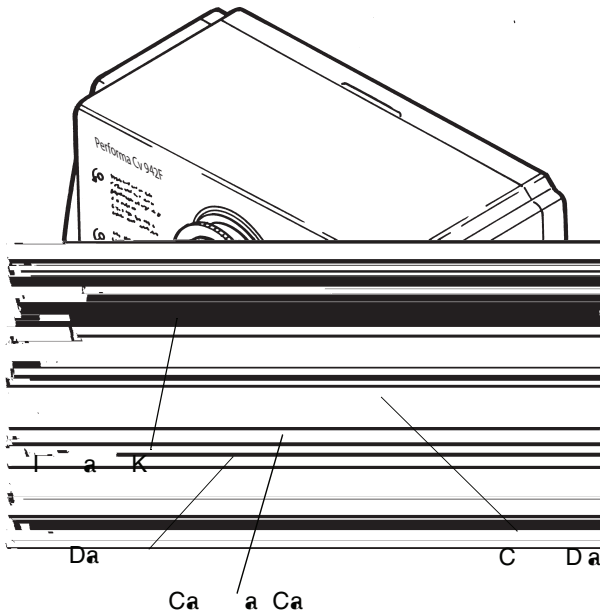
Dual and Triplex Conditioners and Filters

The backwash cycle is used to clean the filter media. The backwash cycle will run for a set time, typically 10 to 15 minutes, and then stop. The system will then return to the "On" position and the cycle will repeat.

3.2 Mechanical

Series 942F Mechanical Control

942F



F 3.1

3.2.1 Settings

Da, Da Ba a a 942F

Setting the Time of Day

a C Da clockwise
a a a a a a a a 2:00
a. a. a a a a a a a a
a a a a a a a a a a
a a a a a a a a a a
4:00 a. a. a C Da 2 a a a
a a a a a a a a a a

Note: Do not rotate the Calendar Cap by hand.

C Da a Ca a Ca a a a a
a Ca a Ca a a C Da
clockwise a a a
Da a a a a
C Da a a a a
a a a a a a a a

Setting the Days of Backwash

a a a a a a
a a a a a a
1. a a a a
2. a a () a () a a
a a

NOTE: EX DA

a a a a a a a a
a a a 2:00 a. a. Ca a Ca
a a a a a a
a a a EX DA
a a a a a a
a a a a a a 2:00 a. a. a a F E

DA

Manual Backwash

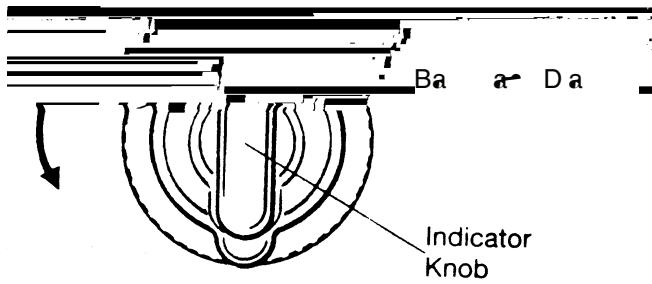
E a a a a a a
a a a a a a a a
a a a a a a a a
COUNTERCLOCKWISE a A
a a a a a a a a
a a a a a a a a
a a a a a a a a
a a a a a a a a

24 Hour Clock

a C 942F a 24
a a a a a a a a
a a a a 12:00 a. a. (a a)
12:00 a. (a a) a a a
a a a 12, 1 1:00 a. a.
a a a 12:00 a. (a a) 12:00
a. a. (a a) a a a a
a 13 24, 13 1:00 a. B
a a a a a a

Adjusting the Backwash Setting

Ba a Da (F 3.2) a a
 n . I a K BACK A H
 C V LE E , a Ba a Da
 a a a a
 .A a a
 a a a a
 a a a a Ba a Da
 na a Ba a Da
 W E a a n .



F 3.2 Ba a C n

Table 3.4 - Cycle Times for 942F Control

Cycle	Time (Minutes)
Ba a	8 - 30
	9

3.3 Explanation of Parameter Values for the 962 Single and Parallel Tank Controls

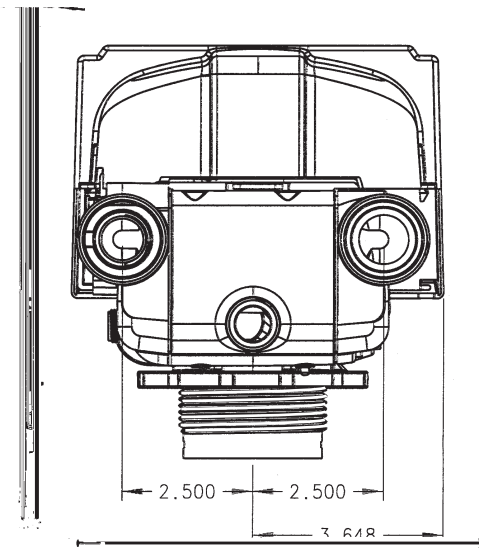
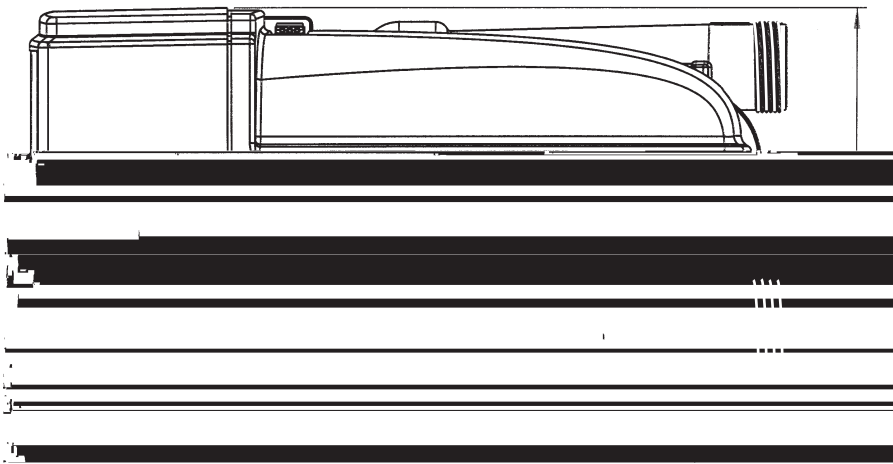
— a a a a a — a a a a a a — 962 .

Number	Description of Program Values	Explanation
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Number	Description of Program Values	Explanation
5 a 12	Ca a	E ມາດຕະຖານ ມາດຕະຖານ, ມາດຕະຖານ (ມາດຕະຖານ). F ມາດຕະຖານ, ມາດຕະຖານ ມາດຕະຖານ 25,000 ມາດຕະຖານ (1620 ມາດຕະຖານ) ³ , 75 ມາດຕະຖານ. (25,000 ມາດຕະຖານ / ³) (3 ³) = 75,000 ມາດຕະຖານ = 75 ມາດຕະຖານ. (1620 ມາດຕະຖານ / ³) (3 ³) = 4860 ມາດຕະຖານ = 4.86 ມາດຕະຖານ. : 15 / ມາດຕະຖານ 30,000 ມາດຕະຖານ / 10 / ມາດຕະຖານ 25,000 ມາດຕະຖານ / 6 / ມາດຕະຖານ 20,000 ມາດຕະຖານ / 1 ມາດຕະຖານ (1000 ມາດຕະຖານ) = 0.0648 ມາດຕະຖານ (64.8 ມາດຕະຖານ)
6 a 12		E ມາດຕະຖານ ມາດຕະຖານ 2.1 - ມາດຕະຖານ ມາດຕະຖານ 100, ມາດຕະຖານ 1.3 ມາດຕະຖານ. F ມາດຕະຖານ, ມາດຕະຖານ 16- ມາດຕະຖານ; ມາດຕະຖານ ມາດຕະຖານ E 130 (1.3 ມາດຕະຖານ 100 = 130).
7 a 12	B ມາດຕະຖານ	E ມາດຕະຖານ ມາດຕະຖານ 2.1 - ມາດຕະຖານ ມາດຕະຖານ 100, ມາດຕະຖານ F ມາດຕະຖານ, ມາດຕະຖານ 16- ມາດຕະຖານ; ມາດຕະຖານ ມາດຕະຖານ 0.8 ມາດຕະຖານ. E 80 (0.8 ມາດຕະຖານ 100 = 80).
8		8
9	Ba ມາດຕະຖານ	ມາດຕະຖານ ມາດຕະຖານ. G ມາດຕະຖານ, 5 15 ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ
10		ມາດຕະຖານ, ມາດຕະຖານ, ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ 4.0 ມາດຕະຖານ ມາດຕະຖານ. F ມາດຕະຖານ, ມາດຕະຖານ 4 ມາດຕະຖານ ມາດຕະຖານ 16 65, 50 ມາດຕະຖານ 10. (4 ມາດຕະຖານ) (7.5 ມາດຕະຖານ / ມາດຕະຖານ) 2 (ມາດຕະຖານ) = 60 ມາດຕະຖານ ມາດຕະຖານ. A ມາດຕະຖານ ມາດຕະຖານ 16- ມາດຕະຖານ. F ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ 1.4 ມາດຕະຖານ. 60 ມາດຕະຖານ 1.4 ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ 42.8 ມາດຕະຖານ. 43 ມາດຕະຖານ ມາດຕະຖານ 10.
11	Fa	ມາດຕະຖານ, ມາດຕະຖານ, ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ. F ມາດຕະຖານ, ມາດຕະຖານ (I ມາດຕະຖານ C-249), ມາດຕະຖານ 30 ມາດຕະຖານ (0.11 ມາດຕະຖານ ³) ມາດຕະຖານ. A ມາດຕະຖານ 3 ³ 90 ມາດຕະຖານ (0.34 ມາດຕະຖານ ³) ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ. (30 ມາດຕະຖານ / ³ 3 ³) = 90 ມາດຕະຖານ. (0.11 ມາດຕະຖານ ³ / ³ 3 ³ = 0.34 ມາດຕະຖານ ³). ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ. F ມາດຕະຖານ, ມາດຕະຖານ 5 ມາດຕະຖານ (1.14 ມາດຕະຖານ ³) ມາດຕະຖານ. E 18 ມາດຕະຖານ 10. (90 ມາດຕະຖານ / 5 ມາດຕະຖານ) = 18 ມາດຕະຖານ (0.34 ມາດຕະຖານ ³ / 1.14 ມາດຕະຖານ ³ = 0.3 / 60 ມາດຕະຖານ = 18 ມາດຕະຖານ).
12	ມາດຕະຖານ	ມາດຕະຖານ ມາດຕະຖານ. E 0 ມາດຕະຖານ, 1 ມາດຕະຖານ.
13	C ມາດຕະຖານ	ມາດຕະຖານ ມາດຕະຖານ. E 0 12 ມາດຕະຖານ, 1 24 ມາດຕະຖານ.
14	Ca ມາດຕະຖານ	0 = ມາດຕະຖານ ມາດຕະຖານ. 1 - 30 = ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ ມາດຕະຖານ / ມາດຕະຖານ ມາດຕະຖານ.
15	ມາດຕະຖານ ມາດຕະຖານ	2. A ມາດຕະຖານ ມາດຕະຖານ.
16 ***	F ມາດຕະຖານ	I 15 ມາດຕະຖານ 1 3, ມາດຕະຖານ ມາດຕະຖານ (ມາດຕະຖານ) (ມາດຕະຖານ ³) ມາດຕະຖານ ມາດຕະຖານ 2 ມາດຕະຖານ 15 ມາດຕະຖານ. A ມາດຕະຖານ ມາດຕະຖານ.
17	ມາດຕະຖານ	ມາດຕະຖານ ມາດຕະຖານ. 3 = ມາດຕະຖານ C ມາດຕະຖານ; 4 = ມາດຕະຖານ F.

4.0 Performa Cv Performance Charts and Graphs

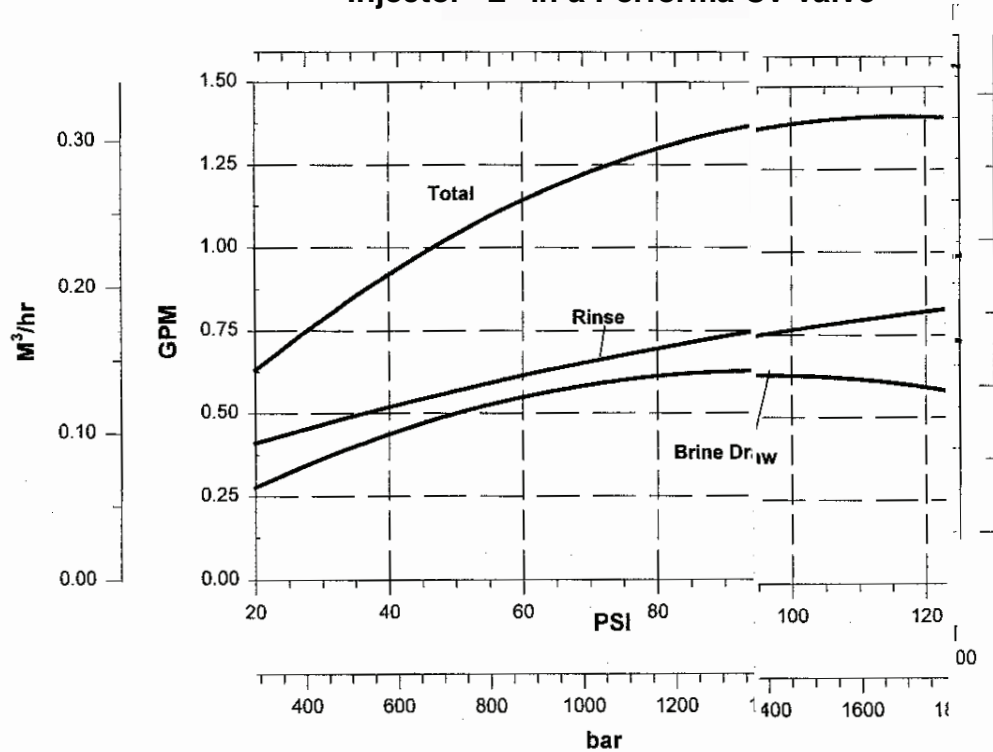
4.1 General Specification



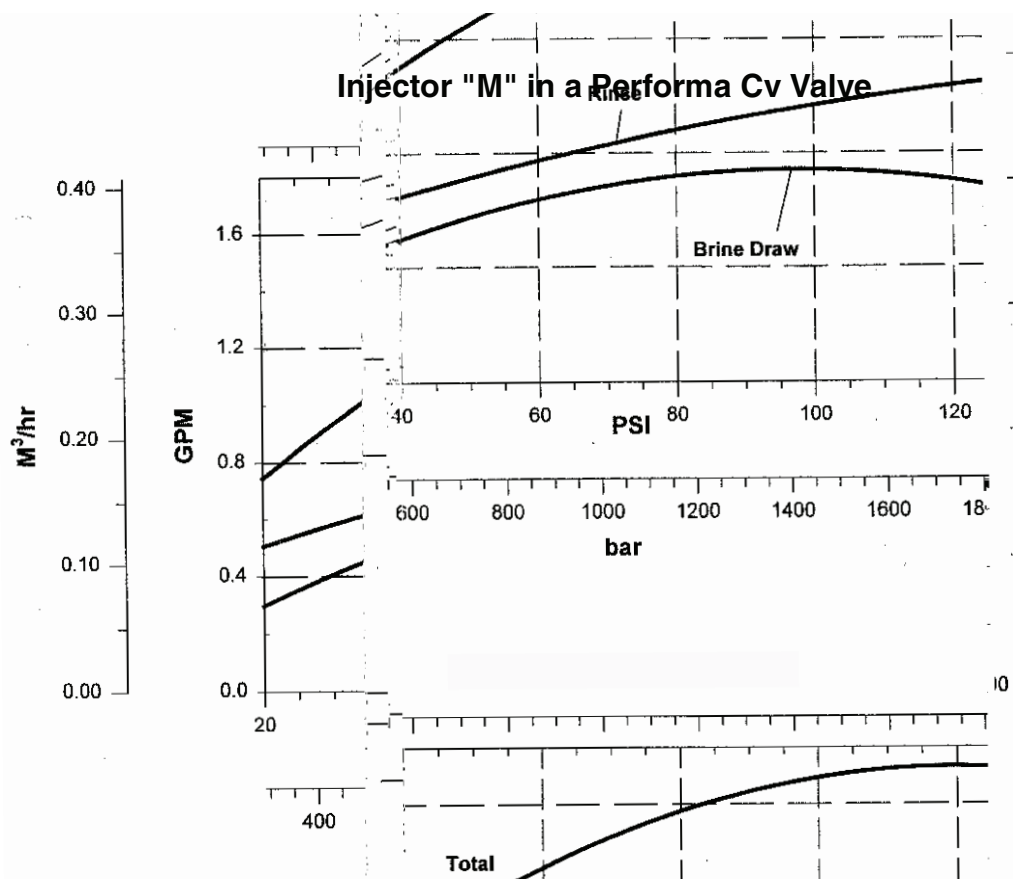
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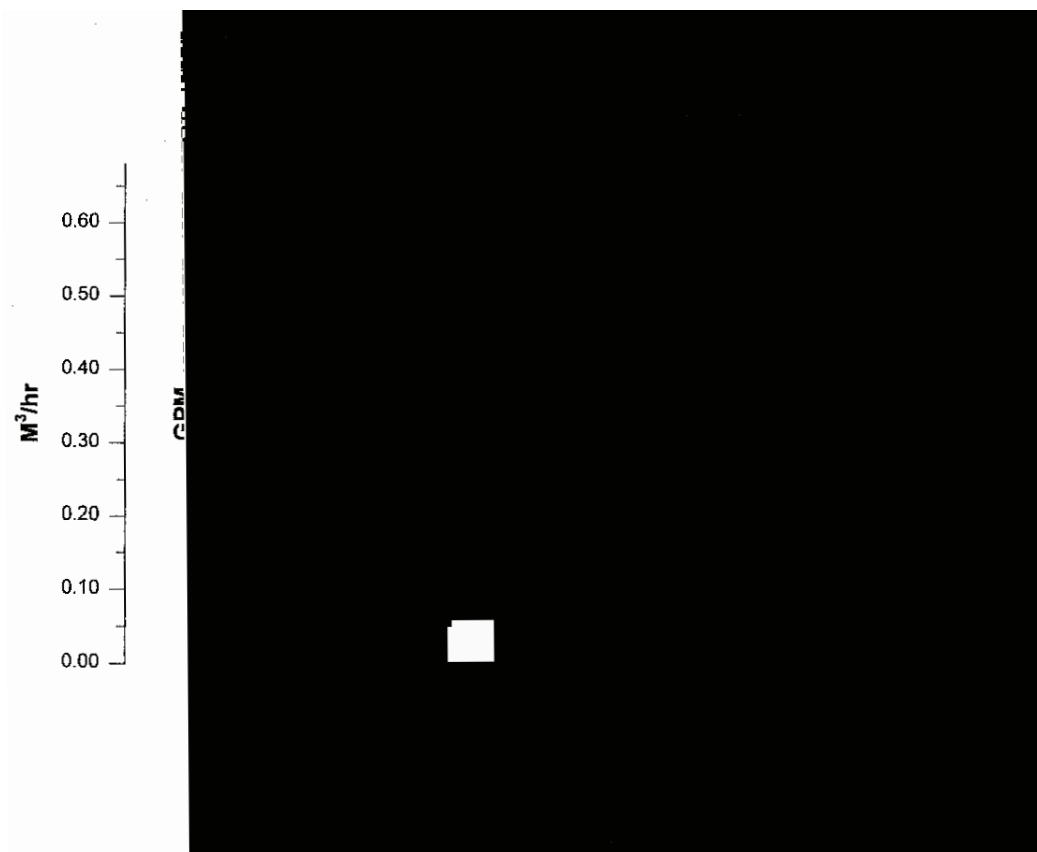
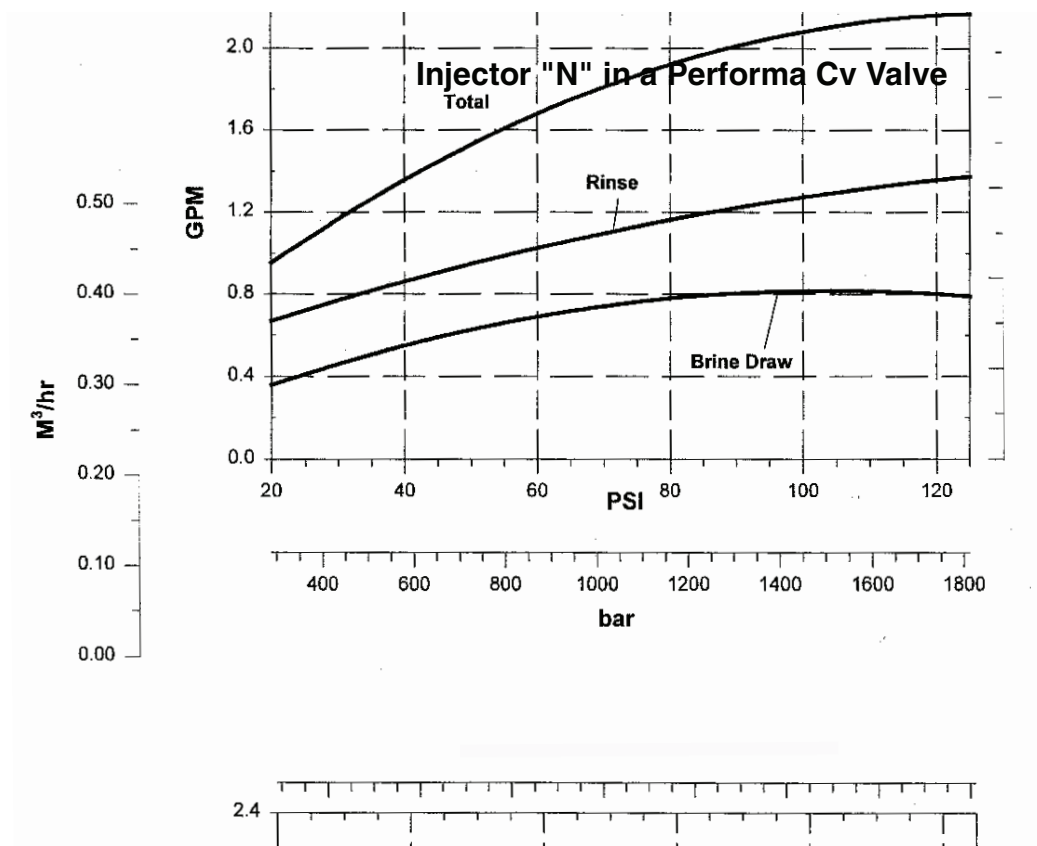
4.2 Injector Curves

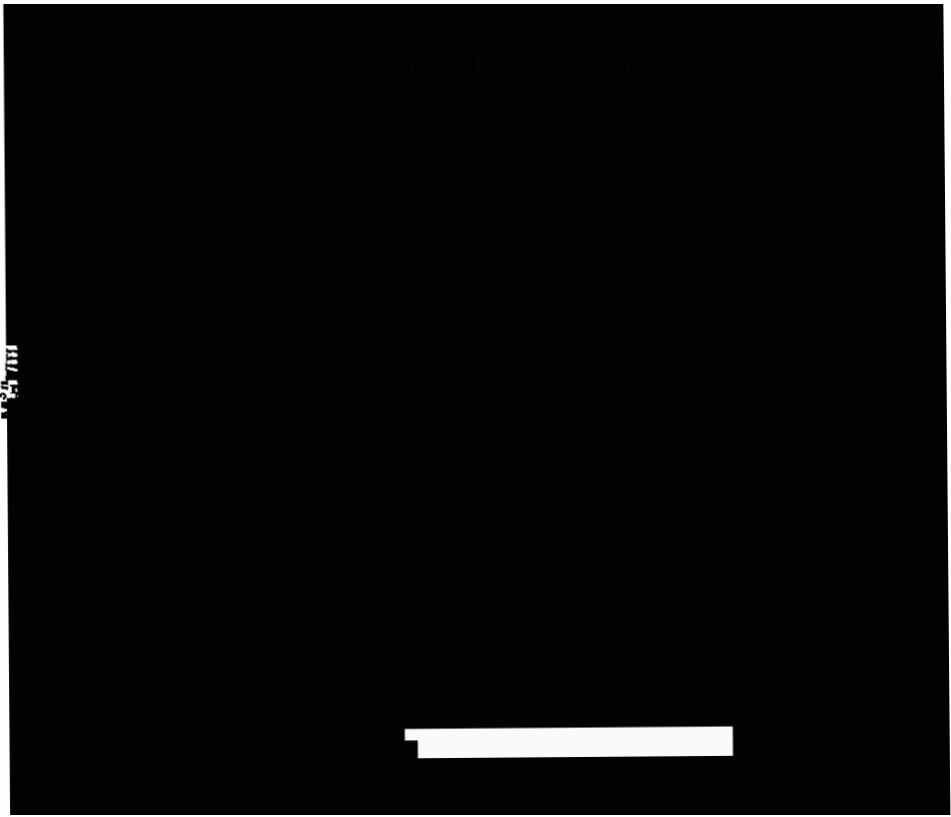
Injector "L" in a Performa Cv Valve



Injector "M" in a Performa Cv Valve







4.3 Performa Cv Conditioner Performance Data

Table 4.1 - Performa Cv Injector Performance Chart

Injectors L - R Flow Rate Charts (gpm)										
PSI	L		M		N		Q		R	
	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse
20	0.26	0.4	0.3	0.5	0.4	0.65	0.4	0.9	0.45	1.2
30	0.3	0.45	0.4	0.55	0.45	0.75	0.5	0.95	0.5	1.3
60	0.5	0.6	0.6	0.8	0.75	1	0.82	1.4	0.9	1.75
80	0.6	0.65	0.7	0.85	0.8	1.1	0.9	1.6	1	2
100	0.6	0.76	0.7	0.9	0.8	1.6	0.95	1.8	1.1	2.2
Injectors L - R Flow Rate Charts (Lpm)										
Bar	L		M		N		Q		R	
	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse
1.4	0.98	1.5	1.1	1.9	1.5	2.5	1.5	3.4	1.7	4.5
2.1	1.1	1.7	1.5	2.1	1.7	2.8	1.9	3.6	1.9	4.9
4.2	1.9	2.3	2.3	6	2.8	3.8	3.1	5.3	3.4	6.6
5.6	2.3	2.5	2.6	3.2	3	4.2	3.4	6	3.8	7.6
7	2.3	2.9	2.6	3.4	3	4.9	3.6	6.8	4.2	8.3

Table 4.2 - Service and Backwash Flow Performance Data

Flow vs Pressure Drop (gpm)			Flow vs Pressure Drop (Lpm)		
PSI	Service (Cv 6.5)	Backwash (Cv 4.0)	Bar	Service (Cv 6.5)	Backwash Cv 4.0)
5	15	9	0.35	56	34
10	20	13	0.7	76	49
15	25	16	1	95	61
20	29	18	1.4	109	68
25	32	20	1.7	121	76
30	35	22	2.1	132	83

Table 4.3 - Recommended Drain Flow Controls (Backwash Anion and Cation Resin @ 55°F (12.7°C) Water Temperature

Tank Diameter Inches (mm)	Bed Area sq. ft.	Anion Resin @ 3 gpm/sq ft (m ³ /h/sq ft)	Cation Resin @ 5 gpm/ sq ft (m ³ /h/sq ft)
14 (35.6)	1.02	3 (.7)	5 (1.1)
16 (40.6)	1.38	4 (.9)	7 (1.5)
18 (45.7)	1.76	5 (1.1)	8 (1.8)
21 (53.3)	2.4	7 (1.5)	12 (2.7)

Table 4.4 - Performa Filter

Pressure Loss vs Flow (gpm)		
PSI	Service (Cv 6.5)	Backwash (Cv 5.0)
5	15	11
10	20	16
15	25	19
20	29	22
25	32	25
30	35	27
Pressure Loss vs Flow (Lpm)		
Bar	Service (Kv 5.6)	Backwash (Kv 5.8)
0.35	56	42
0.7	76	61
1	95	72
1.4	109	83
1.7	121	95
2.1	132	102

Table 4.5 - Typical Backwash Flow Requirements for Various Filter Medias (based on 55°F (12.7°C) water temperature)

		GAC/CARBON FILTER-AG, CALCITE			
		GREENSAND			
		BIRM			
		SAND, MULTI-MEDIA			
Tank Dia. inches (mm)	Bed Area sq. ft.	8 gpm/sq ft (Lpm/sq ft)	10 gpm/sq ft (Lpm/sq ft)	12 gpm/sq ft (Lpm/sq ft)	15 gpm/sq ft (Lpm/sq ft)
14 (35.6)	1.02	8 (30)	10 (38)	12 (45)	15 (57)
16 (40.6)	1.38	11 (42)	13 (49)	16 (61)	20 (76)
18 (45.7)	1.76	14 (53)	17 (64)	21 (79)	*26 (98)
21 (53.3)	2.4	19 (72)	24 (91)	*29 (98)	
24 (60.9)	3.14	25 (95)			

* $V = \frac{Q}{A} = \frac{25 \text{ gpm}}{1.72 \text{ sq. ft.}} = 14.5 \text{ gpm/sq. ft.}$

Table 4.6 - Performa Cv Filter Sizing Selection Guide for Dual Unit Filters.

Typical backwash flow requirements for various filter medias (based on 55°F (12.7°C) water temperature.					
		GAC/CARBON FILTER-AG, CALCITE			
		GREENSAND			
			BIRM		
				SAND, MULTI-MEDIA	
Tank Dia. inches (mm)	Bed Area sq. ft.	8 gpm/sq ft (Lpm/sq ft)	10 gpm/sq ft (Lpm/sq ft)	12 gpm/sq ft (Lpm/sq ft)	15 gpm/sq ft (Lpm/sq ft)
14 (35.6)	1.02	8 (30)	10 (38)	12 (45)	
16 (40.6)	1.38	11 (42)	13 (49)		
18 (45.7)	1.76	*14 (53)			
21 (53.3)	2.4				

* $V_{\text{backwash}} = \frac{A \times \text{Flow Rate}}{60}$

$\text{Flow Rate} = \frac{V_{\text{backwash}} \times 60}{A}$

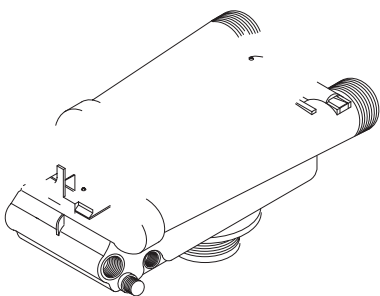
5.2 Preventative Maintenance

Injector Screen and Injector

1. Remove the injector screen and injector.
2. Clean the injector screen and injector.
3. (If necessary) replace the injector screen.
4. Reinstall the injector screen and injector.
5. Check the injector screen and injector.
6. Check the injector screen and injector.
7. Check the injector screen and injector.
8. Check the injector screen and injector.
9. Lube the injector screen and injector with silicone lubricant only!
10. Check the injector screen and injector.

IMPORTANT: D

11. Check the injector screen and injector.
12. Check the injector screen and injector.



F 5.1

Water Meter Maintenance

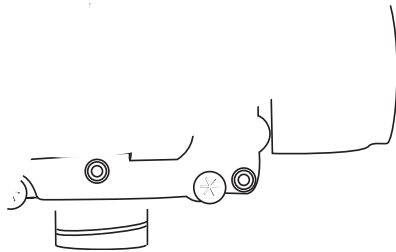
1. Remove the water meter cover.
2. Check the water meter for leaks.
3. Lube the water meter with 1265.
4. Check the water meter for leaks.
5. Check the water meter for leaks.
6. Check the water meter for leaks.
7. Check the water meter for leaks.
8. Check the water meter for leaks.
9. Check the water meter for leaks.

* Check the water meter for leaks.

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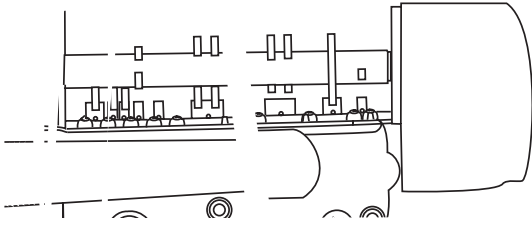
5.4 Removing the Control

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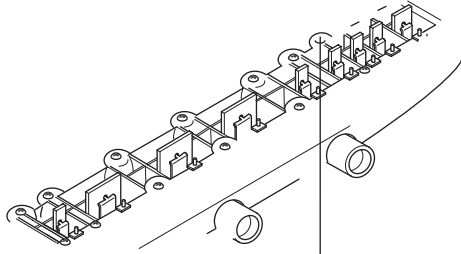
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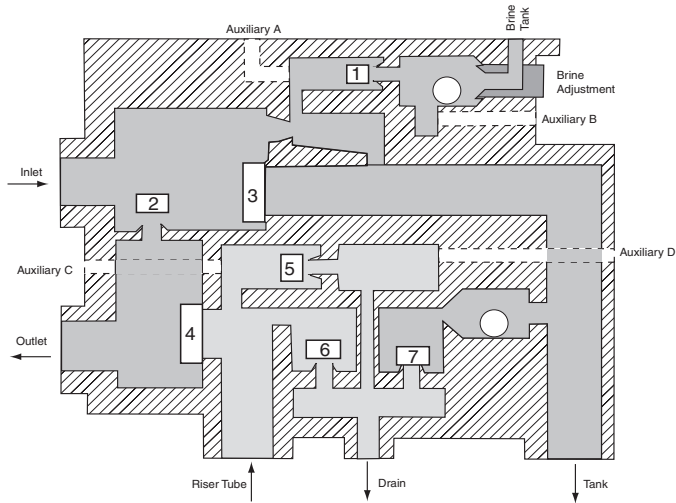
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5.5 Identification of Control Valving

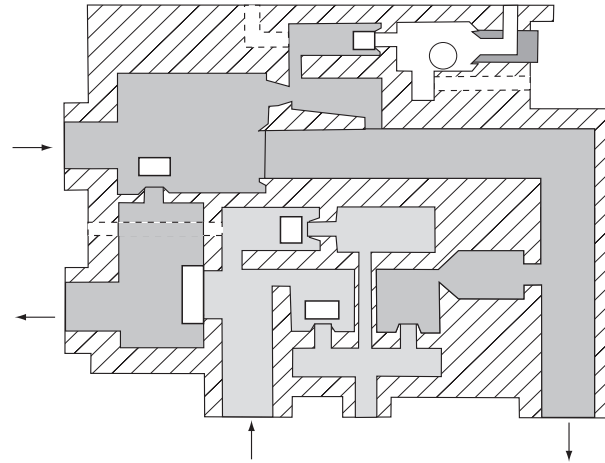


3 Brine/Slow Rinse Position



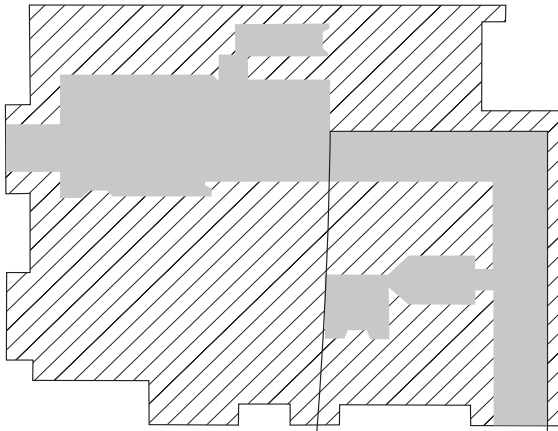
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

4 Fast Rinse Position

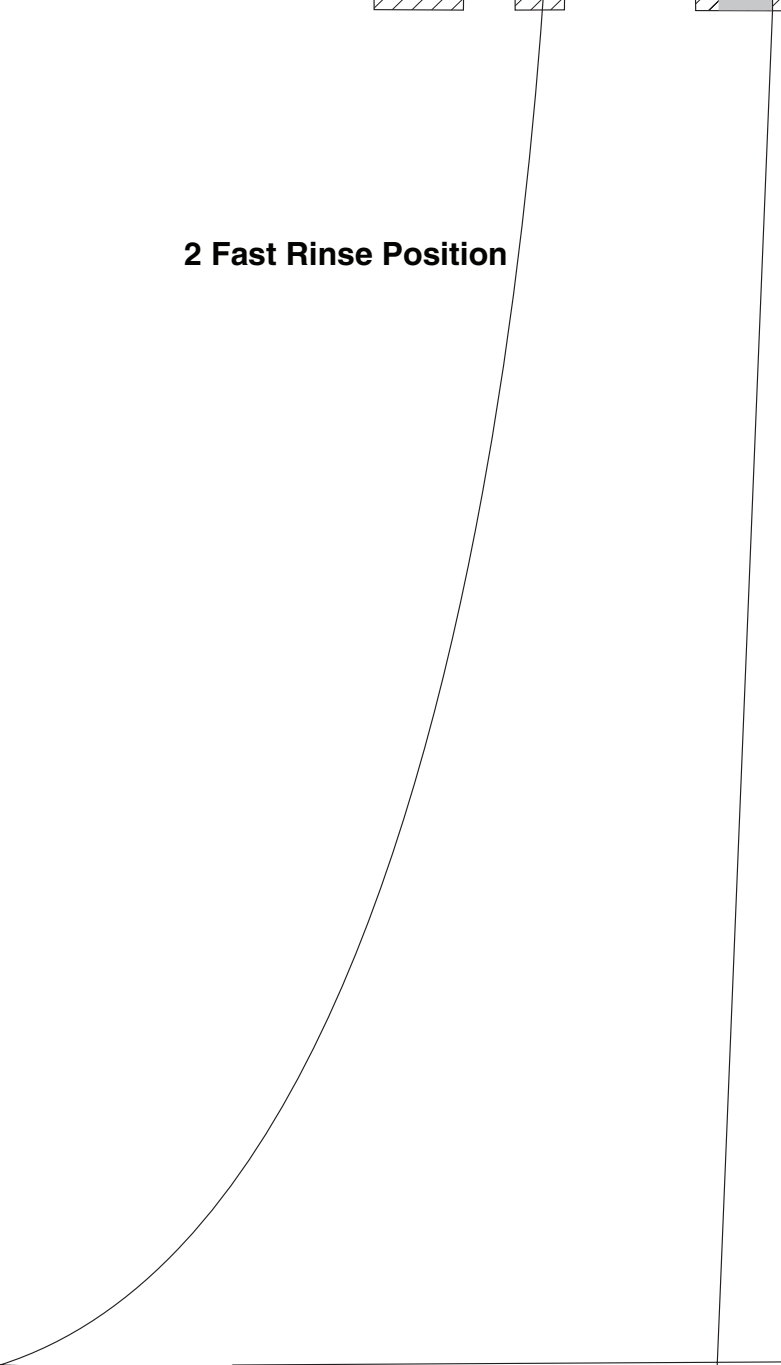


5.8 Performa Cv Filter Flow Diagrams

1 Backwash Position



2 Fast Rinse Position



5.9 Troubleshooting

IMPORTANT:

1. If the engine is not running, check the fuel system. The fuel filter should be replaced if it is dirty. The fuel pump should be checked for proper operation. The fuel lines should be checked for leaks and proper routing. The fuel valve should be checked for proper operation. The fuel system should be bled if it is airlocked.

2. If the engine is running but not idling properly, check the air filter. The air filter should be replaced if it is dirty. The throttle cable should be checked for proper adjustment. The throttle valve should be checked for proper operation. The idle speed should be adjusted if it is too high or too low.

3. If the engine is running but not producing enough power, check the oil level. The oil level should be checked and topped up if it is low. The oil should be changed if it is dirty. The spark plugs should be checked for proper gap and replaced if they are worn. The timing should be checked and adjusted if it is incorrect.

4. If the engine is running but not producing enough heat, check the water pump. The water pump should be checked for proper operation. The water pump belt should be checked for proper tension. The thermostat should be checked for proper operation. The radiator should be checked for proper operation. The cooling fan should be checked for proper operation.

5. If the engine is running but not producing enough electricity, check the battery. The battery should be checked for proper charge and replaced if it is old. The alternator should be checked for proper operation. The voltage regulator should be checked for proper operation. The wiring should be checked for proper connections.

6. If the engine is running but not producing enough light, check the headlight bulb. The headlight bulb should be replaced if it is burned out. The headlight switch should be checked for proper operation. The wiring should be checked for proper connections.

7. If the engine is running but not producing enough sound, check the muffler. The muffler should be checked for proper operation. The muffler should be replaced if it is clogged. The exhaust system should be checked for proper operation.

8. If the engine is running but not producing enough smoke, check the oil level. The oil level should be checked and topped up if it is low. The oil should be changed if it is dirty. The spark plugs should be checked for proper gap and replaced if they are worn. The timing should be checked and adjusted if it is incorrect.

Valve Troubleshooting

Problem	Possible Cause	Solution
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3. ท ท a	a. I a ล . . F ทล a !	a. C . ท ลล a ล - ทล . V a ล ล (ล , ท ท ล).
4. I ท a	a. L a . . D !	a. ท ทลล 30 ล . . ล - ล .
5. a a	a. a . . a !	a. E . A a . . C a . F - a .
6. C a a	a. I a a . F ทล a a !	a. ล - . ท ล ล . F - a .
7. F a a	a. D a ล (6 7) a (1) ทล a . . ล ท a .	a. V a ล ล ท - a ล . ล .
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962 Control Troubleshooting

Alarms

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6.3 Performa Cv Controls

