

# Autotrol Performa™ Cv

## Conditioner/Filter

Water Control System

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### *Installation, Operation and Maintenance Manual*

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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 <sup>3/4</sup> )
Ba a (C ) @ 25 (1.72 a )	20.0	η (4.5 η <sup>3/4</sup> )
	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	1-3/4	- 12 C-2A, 4

## 1.1.2 Performa Cv Filter Specifications

### Flow Rates (Valve Only)

@ 15 (1.03 a)	25.0	η (5.7 η <sup>3</sup> )
Ba a (F) @ 25 (1.72 a)	25.0	η (4.5 η <sup>3</sup> )
	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
D a L	3/4- , ηa
B L	3/8- , ηa
D ↓ .D.	1.050 - (27 ηη)
D L -	1/2 η 1/2 - (13 ηη η 13 ηη) a 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 <sub>a</sub> 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.
- H. 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.

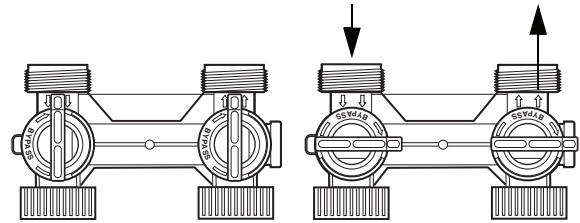
5. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
6. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
7. The water supply line should be installed in a location that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

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.

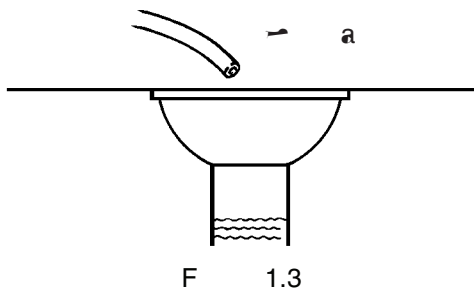
1. The drain line should be installed in a location that is accessible and not subject to freezing temperatures.
2. The drain line should be installed in a location that is accessible and not subject to freezing temperatures.
3. The drain line should be installed in a location that is accessible and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

4. — — a — a — — a  
 a — — a — — a — — a  
 7- — (18- —) — a — — a — — a  
 — — — — a — — a — — a  
 a .

5. — — a — — a — — a  
 , a — — a — — a .

#### IMPORTANT:

a . A a a a a a — — a  
 a — — a a — — a  
 a — — a — — a — — a .



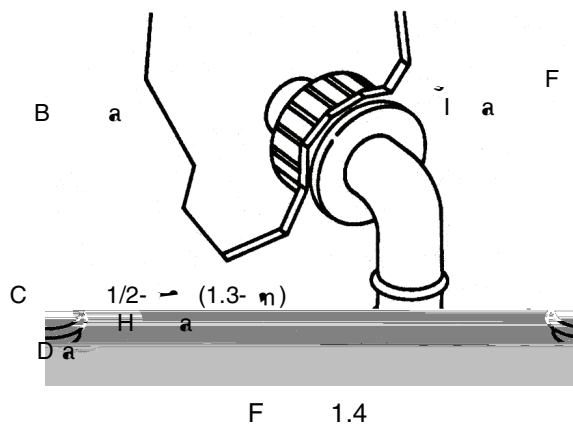
Note: a a — — a a — — a  
 — — . L a — — a — — a

#### Brine Line Connection

I — — a — — a — — a — — a  
 C — — — — a — — a  
 (3/8- — —) .  
 B a — — a — — a — — a .

#### Overflow Line Connection

I — — a — — a a — — a — — a  
 a — — a — — B I E A K E F L  
 I — — a — — a — — a — — a  
 — — a — — a — — a — — a .  
 — — a — — a — — a — — a .  
 I — — a — — a — — a — — a  
 (F 1.4). A a — — 1/2- — (1.3- —) I.D.  
 ( — — ) — — a — — a . D  
 a — — a — — a 3 — — (7.6 —)  
 — — . D — — a — — a  
 — — a — — a — — a — — a  
 a — — a — — a — — a — — a  
 a a a a — — a — — a (F 1.3).



#### Battery Back-Up

A 962 a — — a — — a — — a . A  
 9- — — a — — a — — a — — a — — a  
 / 1075768. — — a — — a A A, E 7/8H  
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 5522). A a a — — a — — a — — a  
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F 1.5

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1. 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 a . | 1/4 , a a  
a a a a

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

COUNTERCLOCKWISE  
REGENERATION COMPLETE

A    ka   la   al   :

a. A    —    al—al                      ka    al  
       ( al                      ka    al )  
         —    kaal                      al—    al . Ba    al  
ka    al    alka    ka    ka    15 ka  
         al . al                      —    al —  
al.

Ca    ka    al—                      al                      al    al  
ka    ka    ka    12                      al    al  
         al                      al    al .

. A    —    al    al                      ka  
al    al                      al    al                      BACKWASH  
**COMPLETE.**

100 VAC, 115 VAC, and 230 VAC units:

12 VAC: C

[illegible]

## Application

— १११ —

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а С       В а \* . |                    а   ,   —  
а —                    ааа   а   а   , а   —  
а   а   .

1. D a

a. : 1.2

- a : 0.8

2. B      a

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       a                          η —                          a  
       —                          .)

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a a a a a a

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a. a (a na 0.1 )

[illegible]

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## 2.2 Programming and Application

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 "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

a An — a a . — a  
 a a An 6 (2.7 an )  
 a ; a 2.2 a .

**Note:** — — a an a a  
 a , . l 6  
 a a , — SET a — a —  
 n . l 6 a a , — DOWN  
**ARROW** (↓) .

## Capacity

Ca a — a a a  
 a ( an ). a 2.2 —

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

P5 Capacity Setting K <sub>a</sub> (K <sub>a</sub> )	P4 Salt Setting: ( )				
	3 <sup>3</sup> (85)	4 <sup>3</sup> (113)	5 <sup>3</sup> (142)	6 <sup>3</sup> (170)	7 <sup>3</sup> (198)
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 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 , LEFT ARROW (←)  
a a a a a a  
SET a a a a a  
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 (↓) UP ARROW (↑)  
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

၁၂၈၈ ၆ SET ၁၂၈၉  
 ၁၂၈၈ ၂.၂ ၁၂၈၉  
 ၁၂၈၈ ၇ SET ၁၂၈၉  
 ၁၂၈၈ ၂.၂ ၁၂၈၉  
 ၁၂၈၈ ၁၂၈၉ ၁၂၈၈ ၁၂၈၉  
 ၁၂၈၈ ၁၂၈၈ ၁၂၈၈ ၁၂၈၈  
 ၁၂၈၈ ၁၂၈၈ ( ၁၀ ) ၁၂၈၈  
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 ၁၂၈၈ ၁၂၈၈ ၈.

24( )1(a )-6 ( )15.2( ~~.2~~ )-a)8 ( )-.2( )17.7 ~~2~~ )-2 ( )



## 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 .

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 <sub>a</sub> 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 16 30 — — a a  
 a a a a a 30% — a a a — a  
 a ). — a — a a 15. a a a .

## Fixed Reserve

— a a a 15 a — —  
 — a a — a  
 — a a 2 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 1.2 a — — a  
 a . E a 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 —

## 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	2-200	1	Selected from Table 2.2		
9	Ba	4-60	1	14*		
10						

G                  3.2        ၁              ၁ ၁        -              ၁၅၅        ၁ ၁၅        -        ၁ .



**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 <sub>h</sub> V <sub>h</sub> V <sub>h</sub> (1-7) 0:00-23:59	(1 a) 1 V <sub>h</sub>	Current Day and Time	H V <sub>h</sub>	a 13. F a =1, V <sub>h</sub> =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF V <sub>h</sub> DIGI HE DI LA
2	Time of Day	1:00-12:59 A V <sub>h</sub> V <sub>h</sub> 00:00-23:59		As required	H V <sub>h</sub>	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			10		
6		2-200	1	Selected from Table 2.2		
7	B a a	2-200	1	Selected from Table 2.2		
9	Ba a	4-60	1	14*	V <sub>h</sub>	*V <sub>h</sub> a a a
10		7-125	1	40*	V <sub>h</sub>	*V <sub>h</sub> a a a a a a a
11	Fa a	2-60	1	4*	V <sub>h</sub>	*V <sub>h</sub> a a a
12	a a	0-1	1	0		0 = , 1 = V <sub>h</sub>
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 <sub>h</sub> 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	0-254	1	60		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 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	Time of Day	1:00-12:59 A/V 00:00-23:59		As required	H V	a a 13
3	Filter Cycle Time			10 100	V	
4	Filter Cycle Time			0.5		
5	Filter Cycle Time			As required	V	D a a ( a ) a 100 a 5. D a a ( a ) 10 a a 5.
6	Filter Cycle Time			200		
7	Filter Cycle Time			200		
9	Backwash Time	7-60	1	14*	V	*V a a a
10	Backwash 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	K-a	0.01-255.0	0.01	0.01		
21	Filter Cycle Time	0-254	1	60		na na na a
22	Filter Cycle Time			99		a a a a

G

2.2

a

a a

-

a a a

a 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 Measure
G	2.2	a	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 <sub>h</sub> V <sub>h</sub> V <sub>h</sub> (1-7) 0:00-23:59	(1 a ) 1 V <sub>h</sub>	Current Day and Time	H V <sub>h</sub> F a	a =1, V <sub>h</sub> =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.

The backwash cycle is controlled by the electronic time clock. The clock will start the backwash cycle at a set time, typically 10 to 15 minutes after the system is turned on. 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.

**Interval Backwash.** The electronic time clock will start the backwash cycle at a set time, typically 10 to 15 minutes after the system is turned on. 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.

**Day of Week Backwash.** The electronic time clock will start the backwash cycle at a set time, typically 10 to 15 minutes after the system is turned on. 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.

## Application

The system is designed to operate at a temperature of 96°F to 96°F. The system will automatically start the backwash cycle when the temperature is within this range. 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.

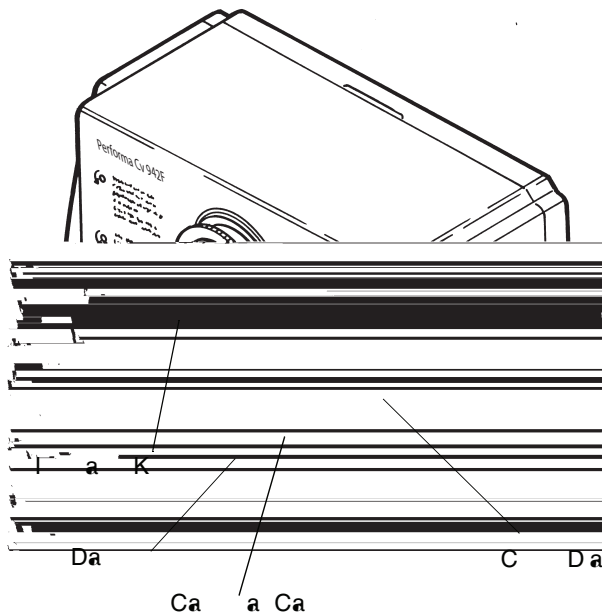
### Dual and Triplex Conditioners and Filters

The system is designed to operate at a temperature of 96°F to 96°F. The system will automatically start the backwash cycle when the temperature is within this range. 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.

## 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

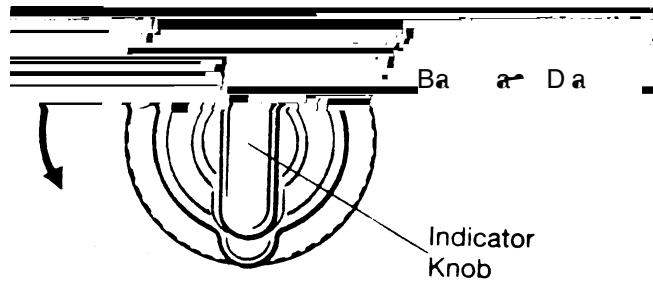
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a a a a a a a a  
a a a a a a a a  
COUNTERCLOCKWISE a A  
a a a a a a a a  
a a a a a a a a  
a a a a a a a a

#### 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 a a 12, a 1 1:00 a. a.  
a a a a 12:00 a. (a a) 12:00  
a. a. (a a) a a a a  
a a 13 a 24, a 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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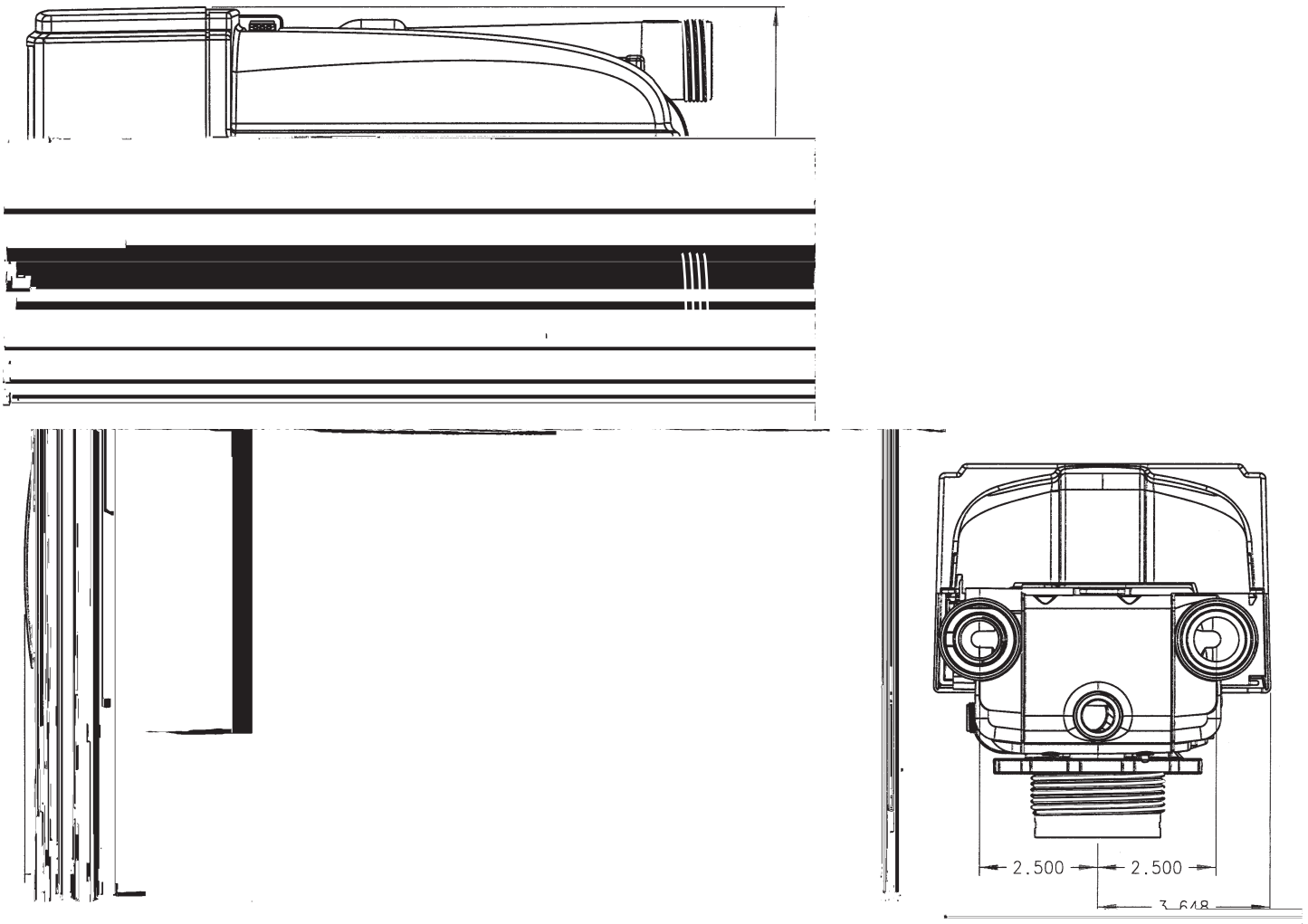






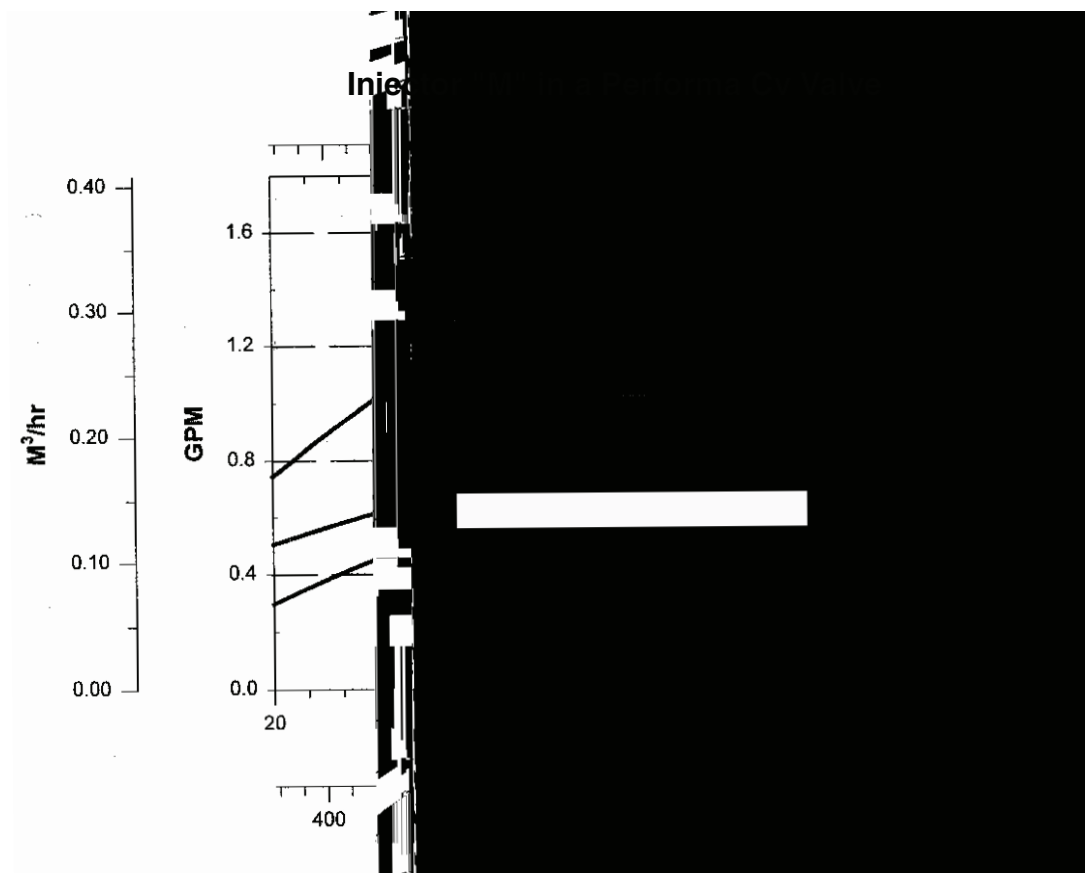
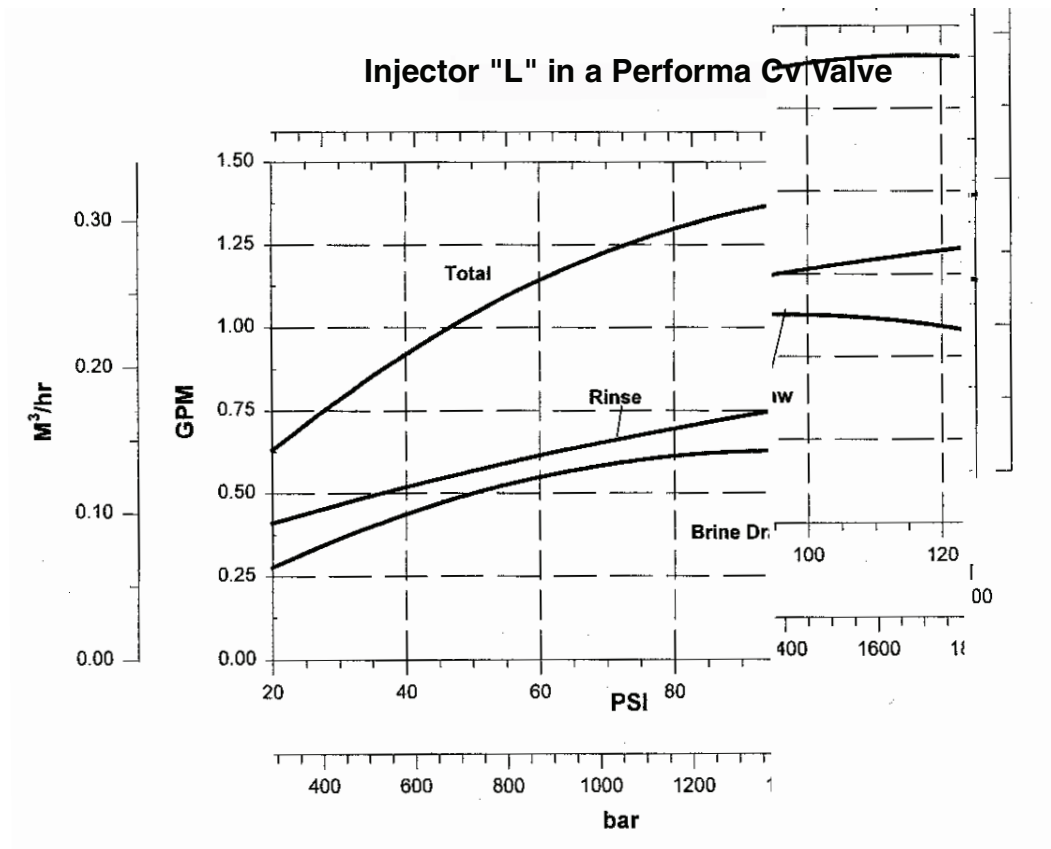
## 4.0 Performa Cv Performance Charts and Graphs

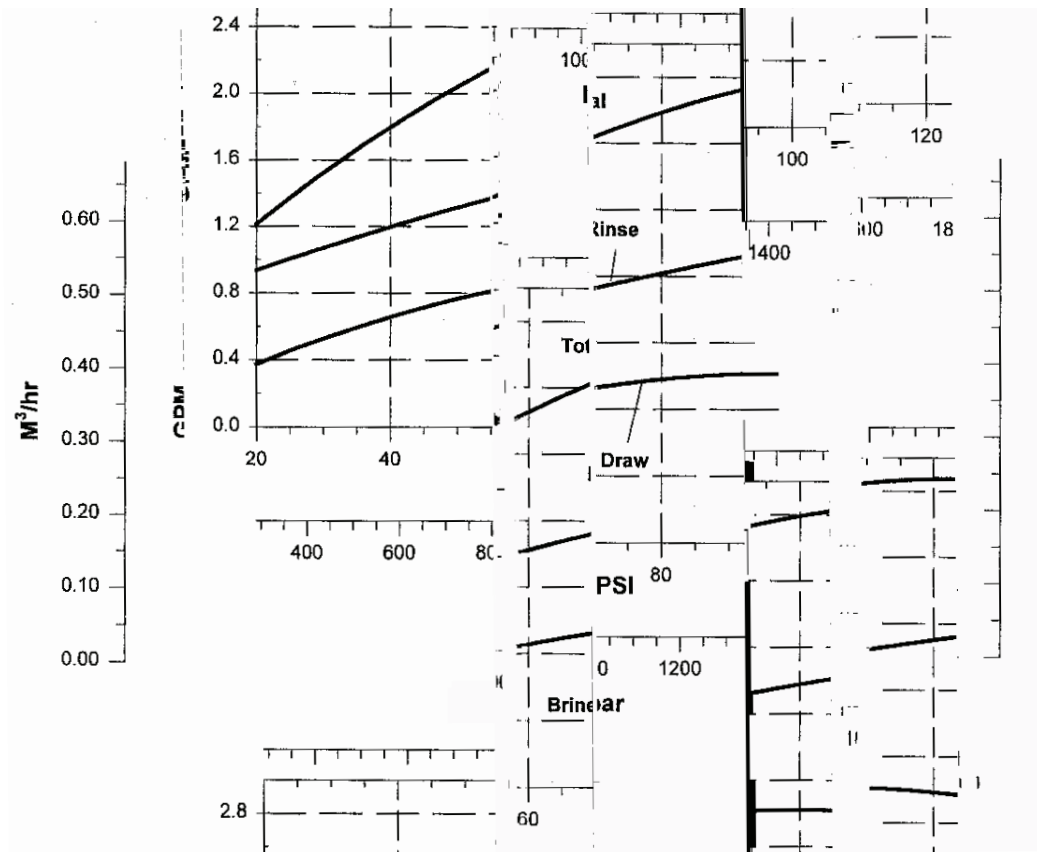
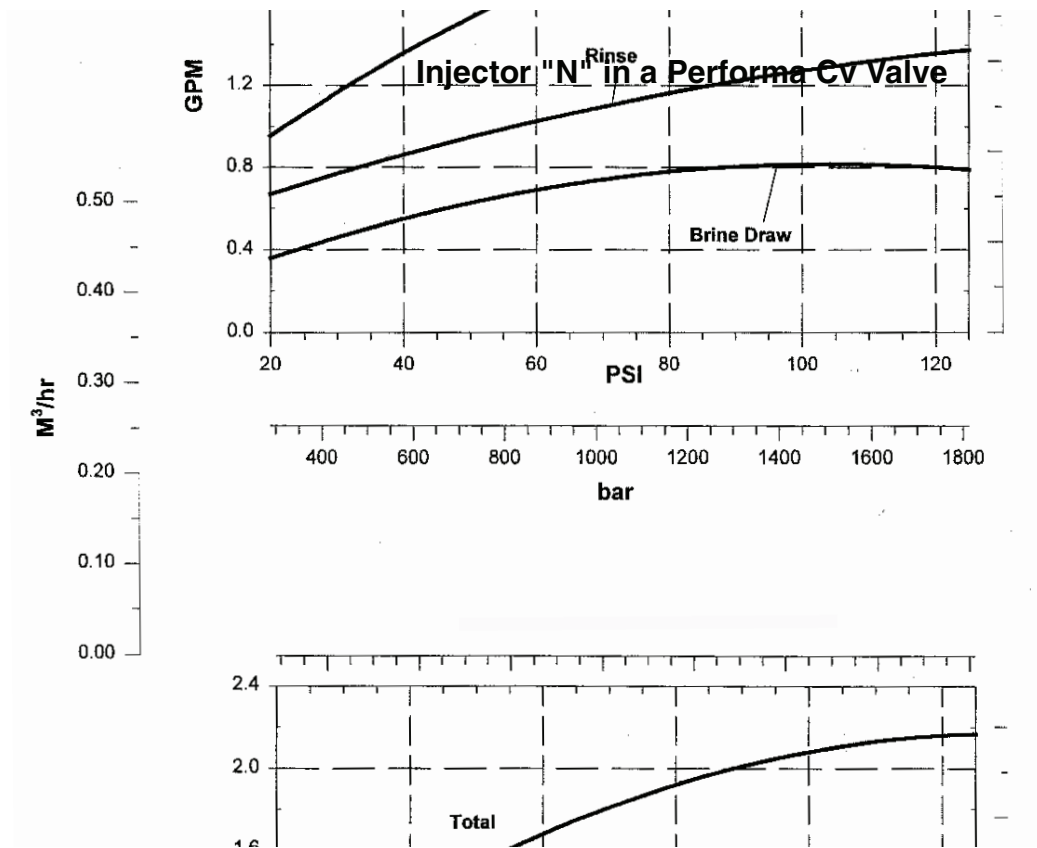
### 4.1 General Specification

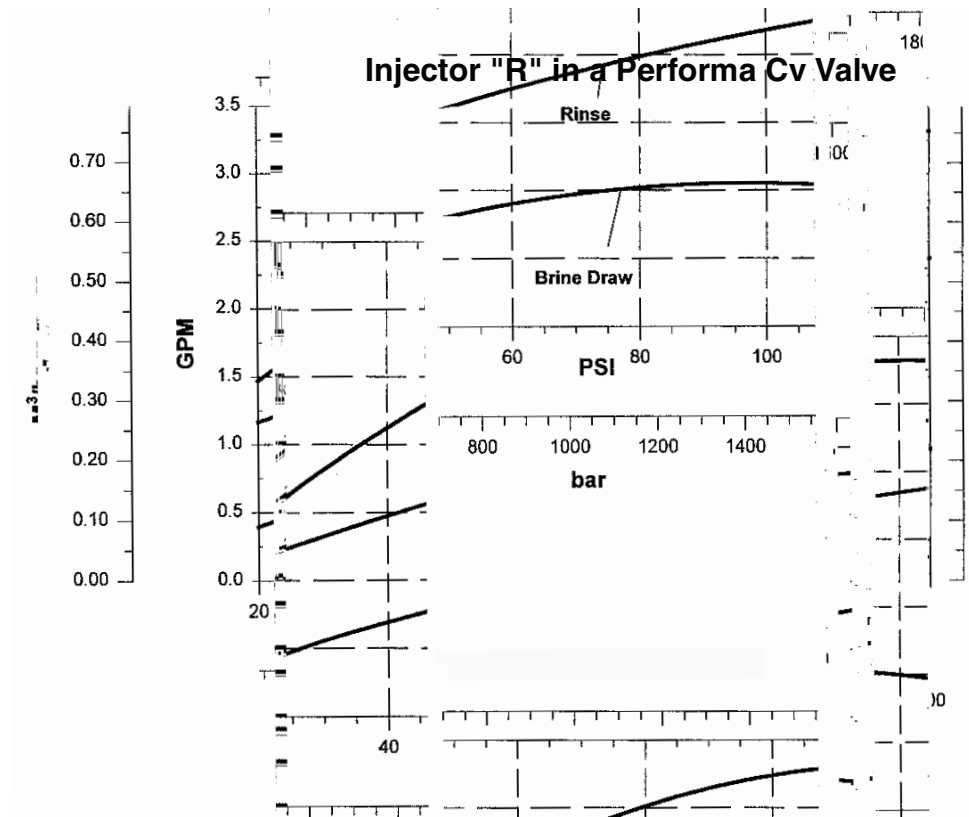


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## 4.2 Injector Curves







## 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 <sup>3</sup> /h/sq ft)	Cation Resin @ 5 gpm/ sq ft (m <sup>3</sup> /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)			

\*  $V_{\text{max}} = 25 \text{ ft}^3/\text{min}$  at  $1.72 \text{ gpm/sq ft}$



**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				

\*  $V_{\text{backwash}} = \frac{Q_{\text{backwash}} \times A_{\text{bed}}}{60}$

$Q_{\text{backwash}} = \frac{V_{\text{backwash}} \times 60}{A_{\text{bed}}}$

$Q_{\text{backwash}} = \frac{25 \times 60}{1.72} = 872 \text{ Lpm}$



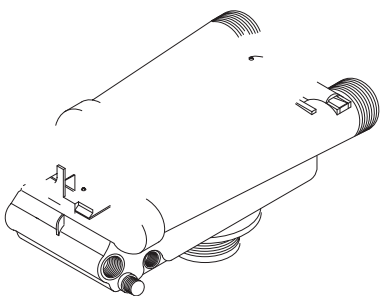
## 5.2 Preventative Maintenance

### 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. Reinstall the injector screen and injector.

#### IMPORTANT: D

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



F 5.1

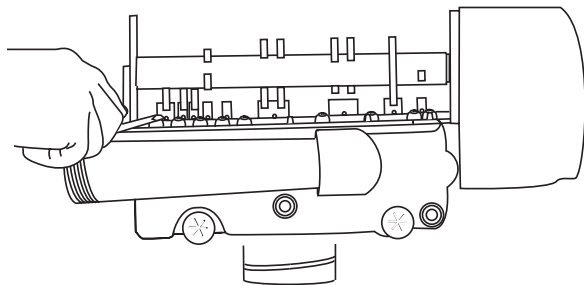
## Water Meter Maintenance

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

\* Check the water meter cover.

### 5.3 Removing the Valve Assembly for Servicing

1. Turn the engine off.
2. Remove the air filter ( )
3. Turn the air filter (F 5.2).



F 5.2

4. Turn the air filter (F 5.3).
5. Turn the air filter (F 5.4).
6. Turn the air filter (F 5.5).

### 5.4 Removing the Control

- C 960
1. Turn the engine off.
  2. Remove the air filter ( )
  3. Turn the air filter (F 5.3. L)

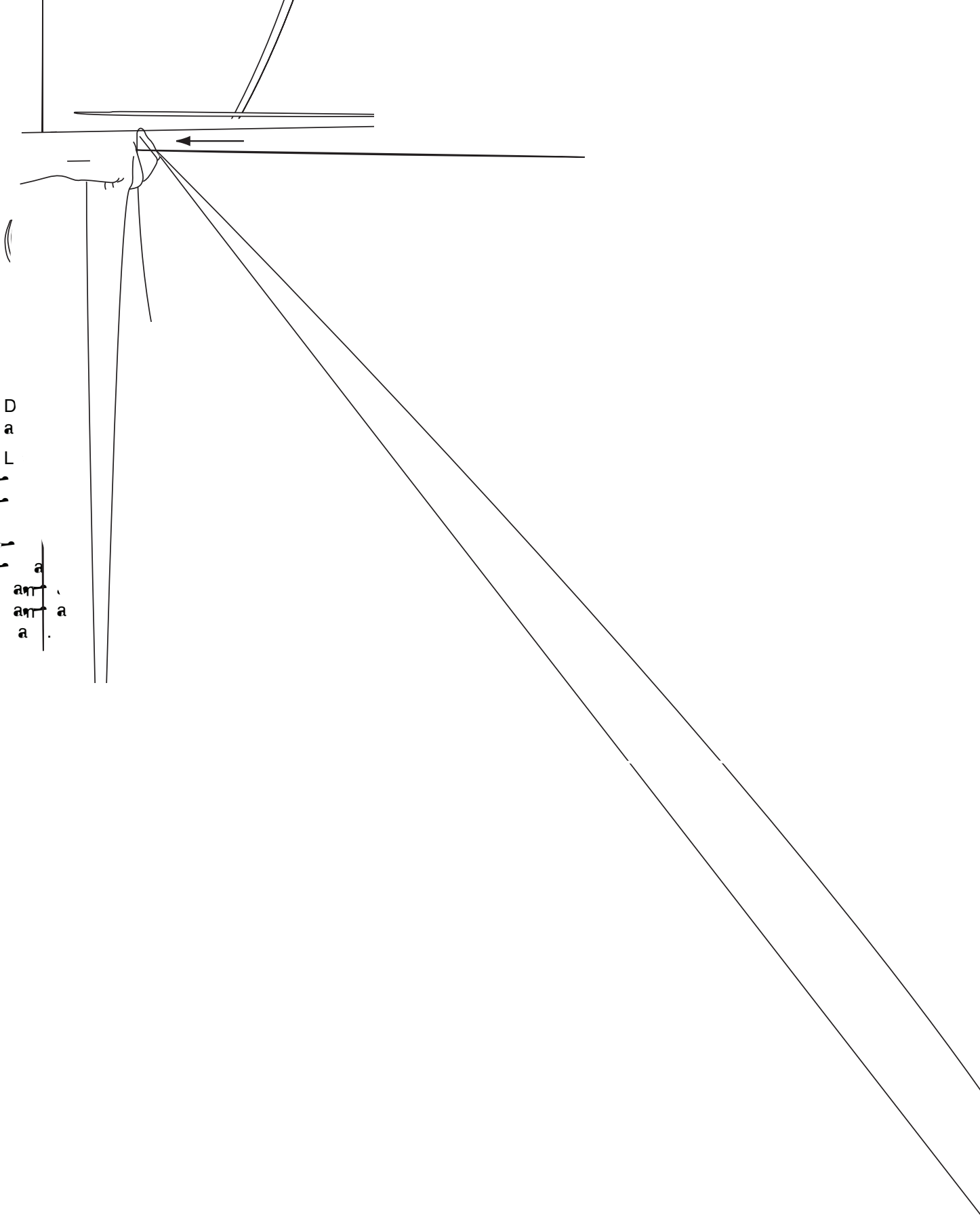
F 5.3

4. Turn the air filter (F 5.4).

F 5.4

5. Turn the air filter (F 5.5).
6. Turn the air filter (F 5.6).

F 5.5



6. D

a

7. L

1 1

1 1

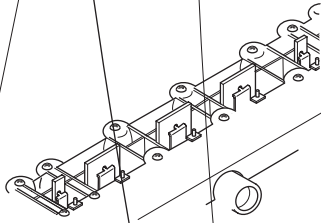
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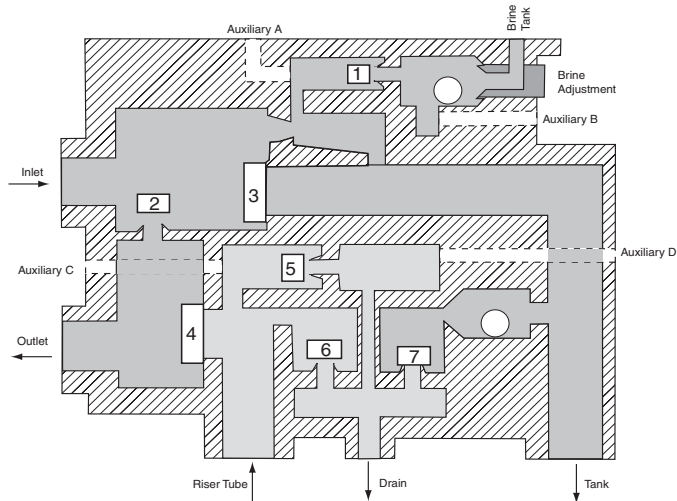
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## 5.5 Identification of Control Valving

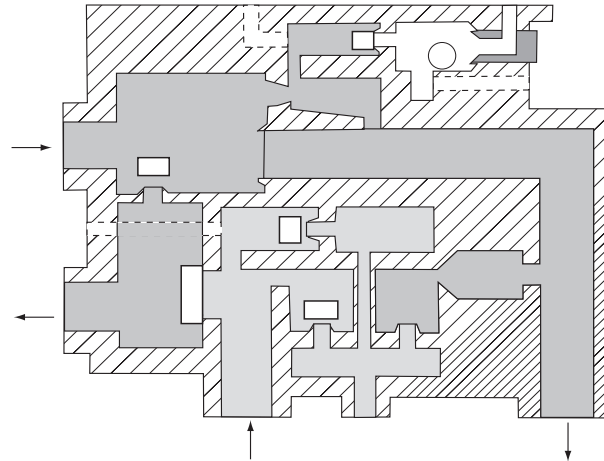


### 3 Brine/Slow Rinse Position



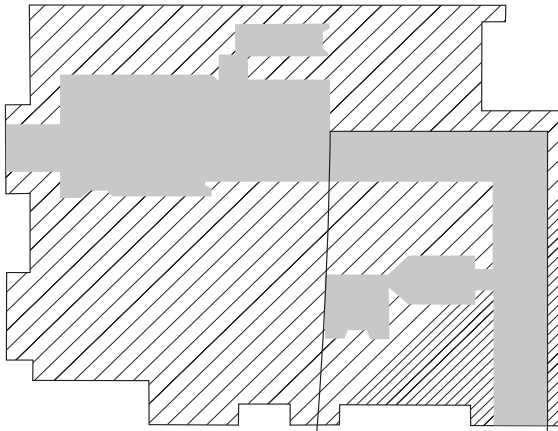
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

### 4 Fast Rinse Position

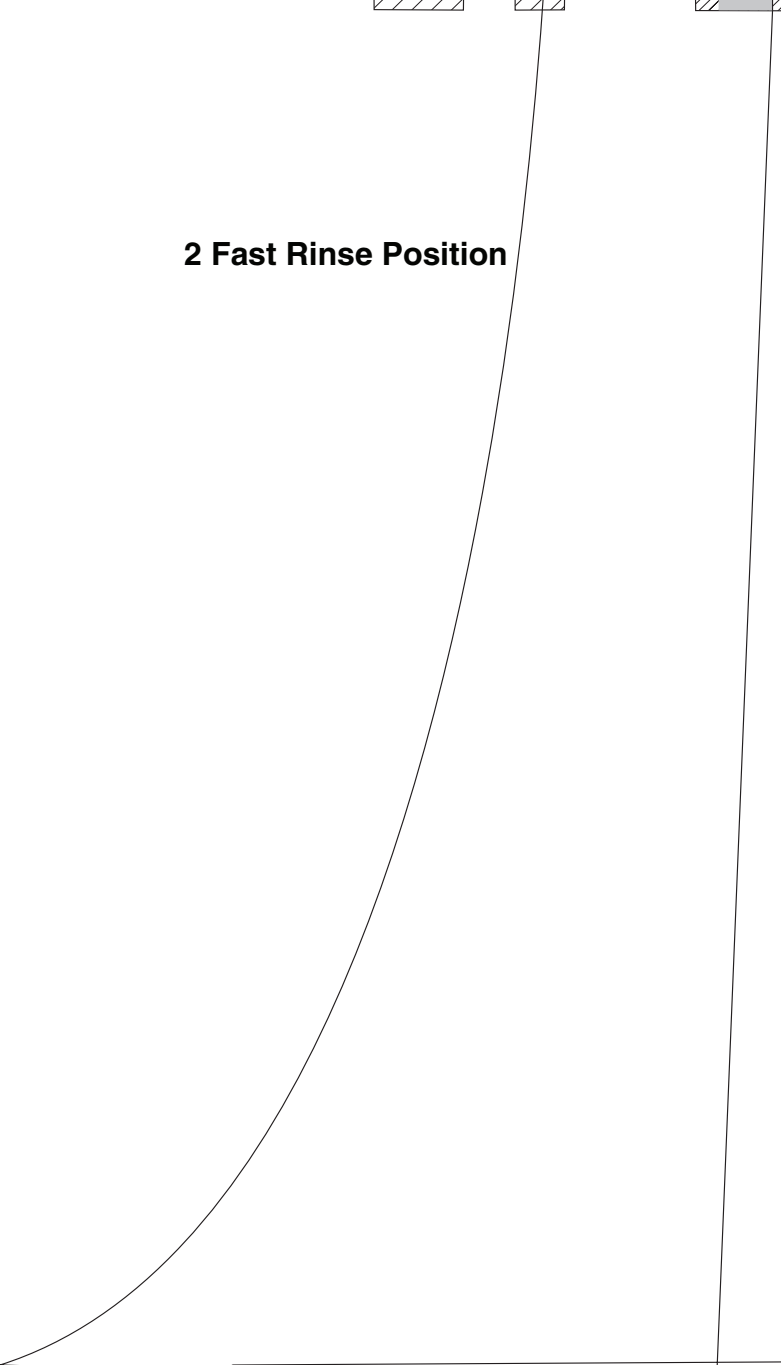


## 5.8 Performa Cv Filter Flow Diagrams

### 1 Backwash Position



### 2 Fast Rinse Position





## 5.9 Troubleshooting

**IMPORTANT:**

**Replacement Parts**

## Valve Troubleshooting

Problem	Possible Cause	Solution
1. C a	a. L a b. I ! c. I ! d. a (2 a / 4)	a. 30 a b. C a a c. a d. a a a a a
2. B a	a. B a (1) b. a (3 4) c. A a	a. a a a a a b. F a a a a a c. a a a a a
3. a a	a. I a a b. F a a ! c. D d. L a e. D !	a. C b. a a a a a c. a a a a a d. a a a a a e. a a a a a
4. I a a	a. L a b. D !	a. 30 a b. a a a a a
5. a a	a. a a b. a a c. !	a. a b. A a c. C a F a a
6. C a a a	a. I a a b. F a a !	a. a a a a a b. a a a a a
7. F a a a	a. D a a (6 7) a (1) b. a a a a a	a. a a a a a b. a a a a a
8. Ha a a a		

962 Control Troubleshooting

Alarms

— V 962 n a







## 6.3 Performa Cv Controls

