

# Autotrol Performa™ Cv

## Conditioner/Filter

Water Control System

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### *Installation, Operation and Maintenance Manual*

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— 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 <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 ↓	1-3/4	- 12 C-2A, D .a. -270.9(

## 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
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 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 H , 230 50/60 H
	100 50/60 H
↓ 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.

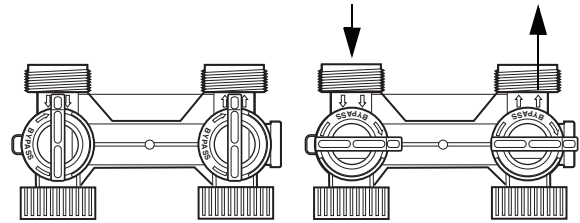
5. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
6. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
7. The water supply line should be installed in a location that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

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:**



1

I                      a          a-                      a          aa  
C                      -                      -          a  
(3/8- - ).

## Overflow Line Connection

F 1.5

$$a \quad a \quad a \quad a \quad (F \quad 1.3).$$


A 962 an a a a a a . A  
9- a a a a a a a a a a a ,  
/ 1075768. a a A A, E 7/8H  
(A H a 9 150 a AH, .  
5522). A a a - a a a a a  
a a a a ,  
F 1.5.

### 1.3 Placing Performa Cv Conditioner/Filter into Operation

A    a                  - a                  n                  r  
    a                  a                  a       . F       -  
    a                  .

1.      $\eta$                   $a$
- $a$                   $\eta$                   $-$

**Note: ➤**

— **COUNTERCLOCKWISE** . (

2. a a COUNTERCLOCKWISE  
BACKWASH.
3. F m a a a .  
a. a , a a a ( )

$$\begin{array}{ccc} & a & a \\ a & na & -1/4 \end{array}$$

**IMPORTANT:** I \_\_\_\_\_ a \_\_\_\_\_ a, n \_\_\_\_\_  
na \_\_\_\_\_ . I - 1/4 \_\_\_\_\_ , \_\_\_\_\_ a  
a a \_\_\_\_\_ na \_\_\_\_\_ a \_\_\_\_\_

## Conditioner

1. 一 二 一 二 一 二 三  
 二 ( 二 二 二 三 三  
 二 ), 一 二 二 二 二 .  
 . A 二 二 二 .  
 . 二 二 二 二 二  
 二 二 二 二 二 二 二  
 二 二 二 二 .

4. A      a      (      a      ).  
     — a      — , a      a      ka  
 4 a      (15      )      a      a . | —  
 a — a a a a      ka a      —      ka —  
 a , a      a      —      a      ka  
 1 — (25 ka) a      —      a      ka.

- 5.
- a .
- a .
- a .
- COUNTERCLOCKWISE  
BRINE REFILL
- H
- D
- A
- COUNTERCLOCKWISE  
BRINE/SLOW RINSE

## Troubleshooting

COUNTERCLOCKWISE  
REGENERATION COMPLETE

## Filter

A    η    a    a    :

- a. A — a— a  
 ( a ————— a ————— )  
 ————— a— a. Ba ———  
 a a a a a a 15 a  
 a . a ————— a ———  
 a.  
 Ca ————— a ————— a a  
 a a a 12 ————— a a  
 a ————— a ——— .  
 . A ————— a ————— a  
 a a a a a BACKWASH  
**COMPLETE.**

## Electrical Connection

**100 VAC, 115 VAC, and 230 VAC units:** ๓

[illegible]

12 VAC: C      —      —      າ      າ      (      )  
 າ      າ      —      າ າ      າ —      າ  
 າ —      າ —      . B      າ —      າ າ  
 າ      າ  
 າ — າ      າ າ — .

## 1.4 Disinfection of Water Conditioners

— နာရီ အ  
အ အ — ,  
— နာရီ အ အ အ . H ,  
— နာရီ — , အ  
အ အ အ — အ အ  
အ အ အ , —  
အ အ အ . | အ , နာရီ  
, အ နာရီ နာရီ — အ  
နာရီ နာရီ — အ အ နာရီ အ  
  
— — အ  
အ အ , နာရီ  
— နာရီ , အ အ အ  
— အ နာရီ .  
D — ;  
; — အ , အ —  
အ အ အ အ , အ အ နာရီ အ  
ဏှံ

## Sodium or Calcium Hypochlorite

## Application

— १११ ११, — ११, ११

### 5.25% Sodium Hypochlorite

—                      ၁    ၂    ၃                      ၄    ၅                      —  
 ၁ C       B ၁ \* . I                      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 —  
       aη    —                          —  
       —                          a . (—                          a —                          — a  
       a                          η —                          a  
       —                          .)

.                          — —                          η a                          a .

## Calcium Hypochlorite

Ca 70% a a a ,  
a a a a a a a  
a a a a a a a  
a a a a a a a

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 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 a (K aη )	η a ( )				
	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)
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  
22, a 2.1 a a 2.4. a  
a a 1.  
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 UP ARROW (↑)  
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

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  
 ၁၂၈၈ D ၁၂၈၈ ၁၂၈၈  
 ၁၂၈၈ ၁၂၈၈ ၈.



E Da — a / a a  
 a a — LEFT ARROW (←)  
 a — DOWN ARROW (↓)  
 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 .  
 a a a  
 a a a  
 a / a a

#	Description of Parameter	Set as required 0 = No - 1 = yes	Notes
1	a	A	0 = a a 1 = a a - a
2	V <sub>1</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

1. **Fixed Reserve**

[illegible]

## 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*	Vb	* Vb



**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 =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	13
3	A			10		
4	Temperature	.5-125.0 .2-50.0	.5 .2	Selected from Table 2.2	K	
5	Temperature			10		
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*	V	*V
10		7-125	1	40*	V	*V
11	Fa	2-60	1	4*	V	*V
12		0-1	1	0		0 = , 1 = V
13	C	0-1	1	0		0 = 12, 1 = 24
14	I Ca	0-30	1	0	Da a	0 = - *V a a
15	D			0		
16	D			30		
17		3-4	1	6		6 = 962 C
18	a e a L	0-1	1	0		0 = , 1 = a /Ca a a
19	D					
20	D					
21		0-254	1	60		
22	Fa D CHA GE			99		

G 3.2 a a a a a 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 = a , 1 = F a , 2 = a a a , 3 = F a a a a
16	Filter Cycle Time	0-70	1	30		a Da A a
17	Filter Cycle Time	0-7	1	4		4 = F a 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 a , 4 = D
20	K-a	0.01-255.0	0.01	0.01		E a a a V K-a E a
21	Filter Cycle Time	0-254	1	60		a a a a
22	Filter Cycle Time			99		

G

2.2

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
-----------	-------------	-----------------	-------------------	---------------------------	----------

G 2.2 a a a 1 a a a 1 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

a a a na a a — —  
 a — na — — na na  
 a a na a — Ba a

၁၈၈၈      ၁၈၈၈      ၁၈၈၈ :  
 ၁၈၈၈      ၁၈၈၈      ၁၈၈၈      ၁၈၈၈  
 ၁၈၈၈      ၁၈၈၈      ၁၈၈၈      ၁၈၈၈  
 ၁၈၈၈      ၁၈၈၈      ၁၈၈၈      ၁၈၈၈

## Interval Backwash

Interval Backwash — E n C na  
a a a 30  
a a a Ca a  
l a a 14. E an : l 5 an an  
14 — n a a a a  
— n an 2.

## Day of Week Backwash

Day of Week Backwash 1 E 7 C

## Application

962F      naC      962C      a      naC  
             na      a      a      a      ,      a ,  
             n.

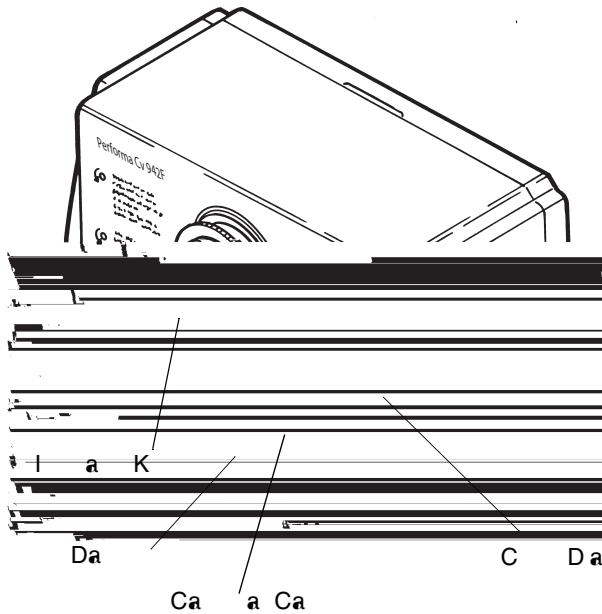
## Dual and Triplex Conditioners and Filters

[illegible]

## 3.2 Mechanical

### Series 942F Mechanical Control

942F



F 3.1

### 3.2.1 Settings

Da, Da Ba 942F

#### Setting the Time of Day

a C Da clockwise  
a  
a a a a a 2:00  
a. | a a a a a  
a a a a a a a  
a .F a a a a a  
4:00 a., C Da 2 a a  
a a a a.

**Note: Do not rotate the Calendar Cap by hand.**

C Da Ca a Ca a. a a  
Ca a Ca, a C Da  
clockwise a  
Da a  
C Da a a  
a a. a a.

### Setting the Days of Backwash

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

**NOTE:** EX DA

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

DA

#### Manual Backwash

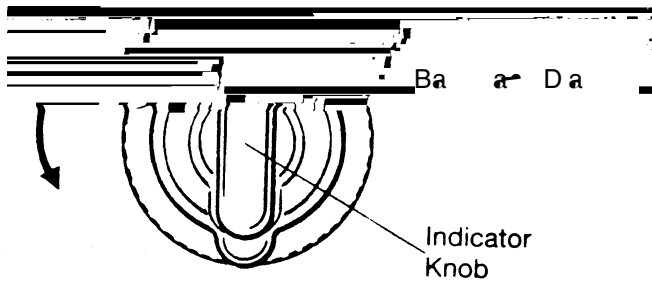
E a a a  
a a a a a a  
a a a a a K  
**COUNTERCLOCKWISE** A  
a a a a a  
a a a a a  
a a a a a  
a a a a a

#### 24 Hour Clock

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

## Adjusting the Backwash Setting

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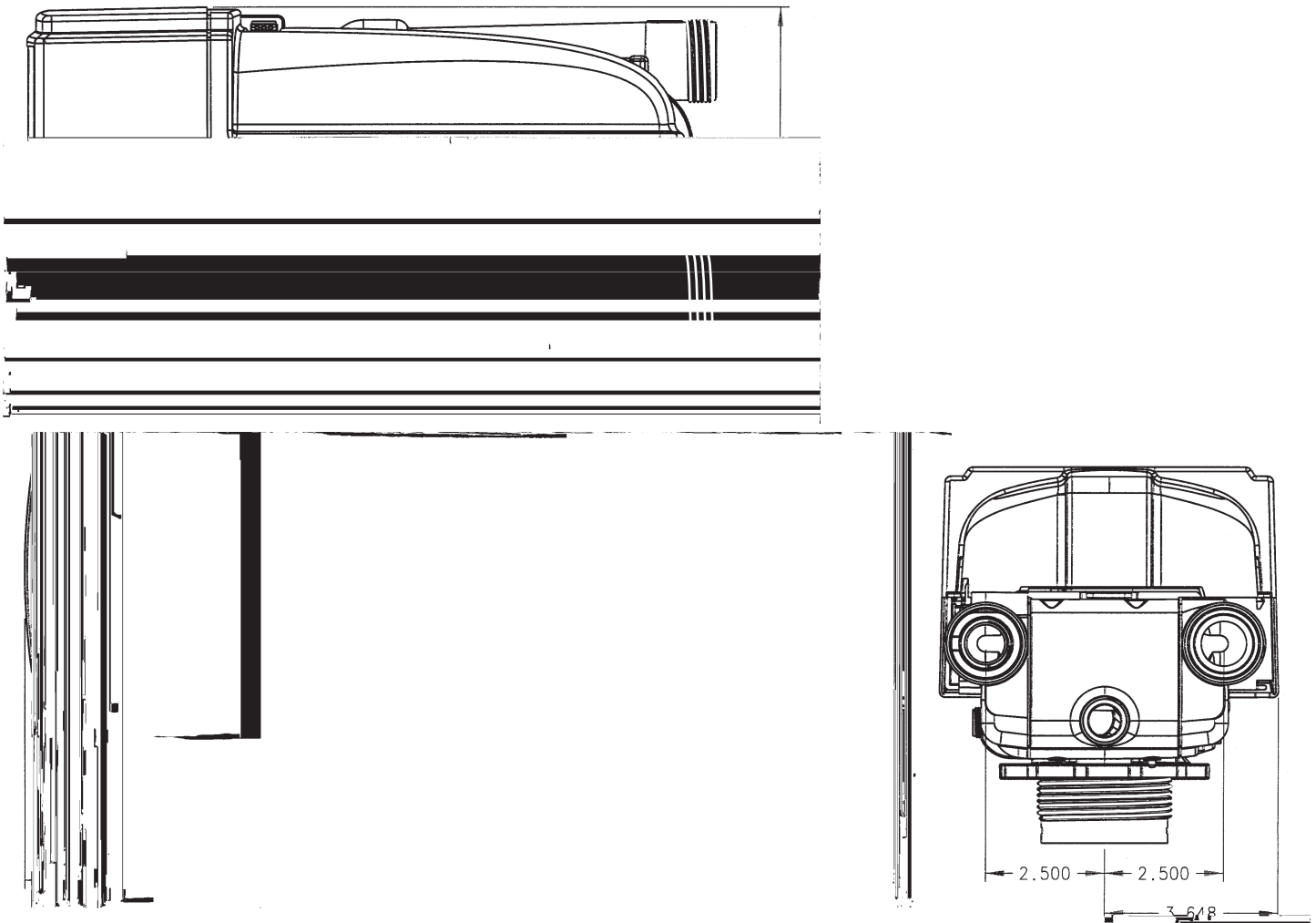






## 4.0 Performa Cv Performance Charts and Graphs

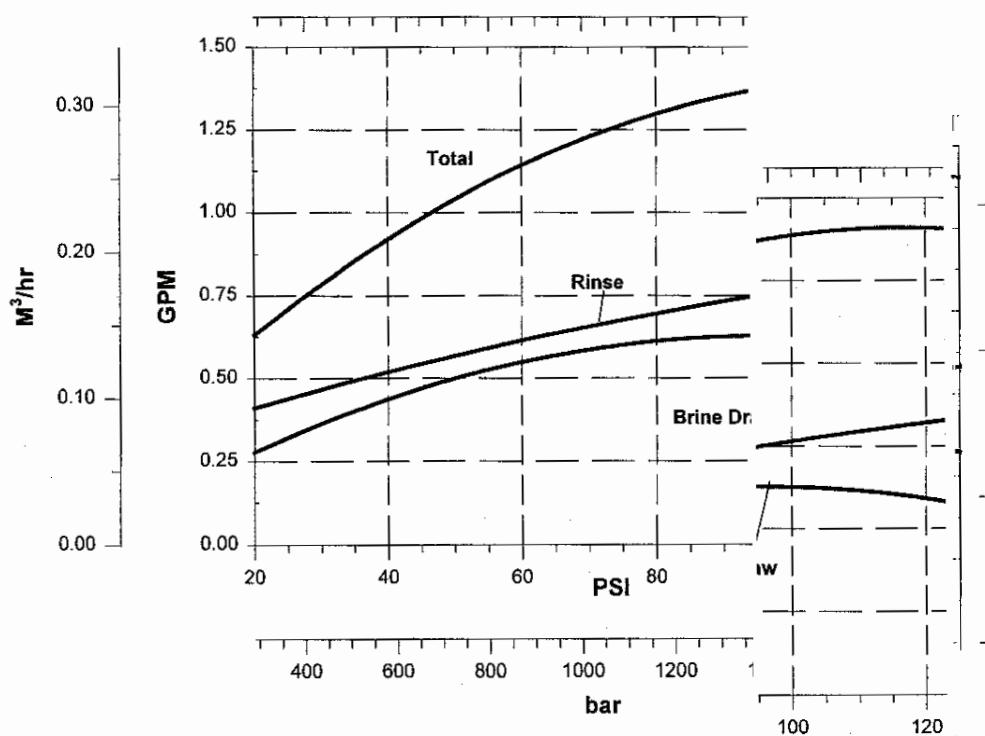
### 4.1 General Specification



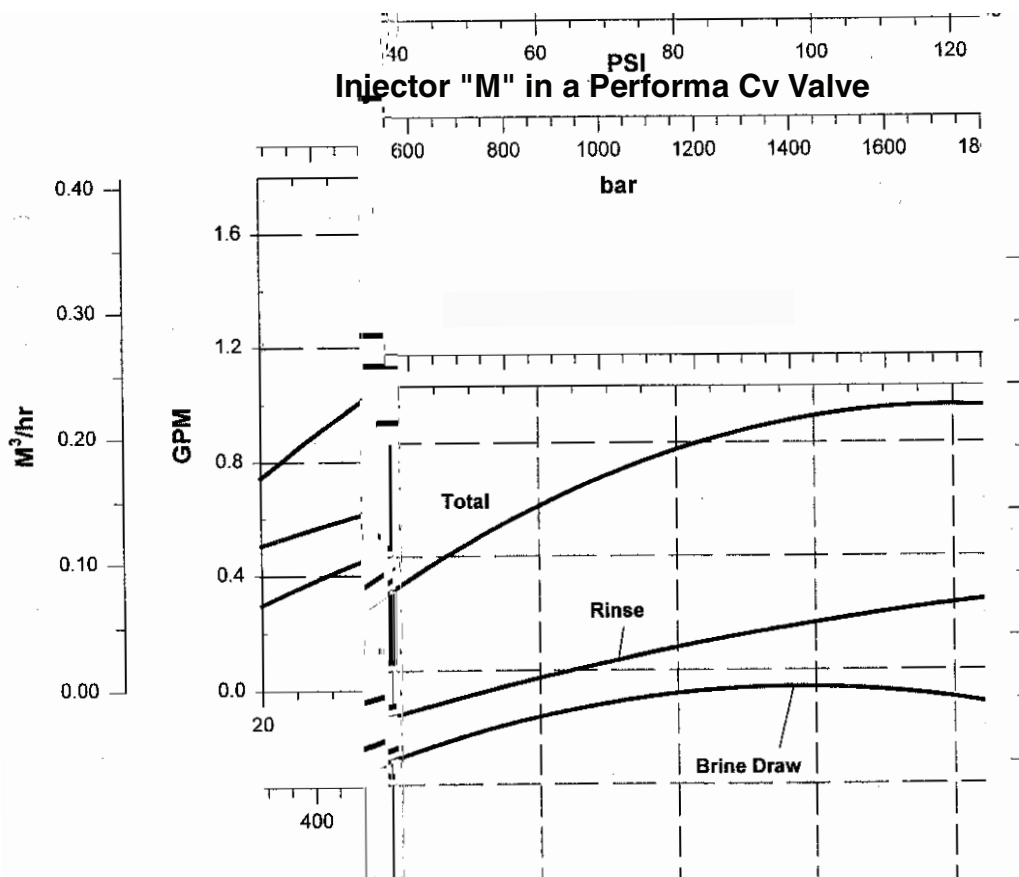
H	a	.....	300	(20.69 a)
a	a	E a a	.....	20-120 (1.38 - 8.27 a)
		942F: 7 a 12 a /24 50 H 12 a n , 60 H 120 a 12 a n		
E	a	C ( a a a )	.....	.60- (1.5-n) 3-
	a	a	.....	2-1/2- 8na
	D	a n	.....	1.050- D (26.7-nn)
	L	a	.....	1/2 1/2 (13nn 13nn) a
a	a	C	.....	1- (25.4-nn) a a
a	a	C	.....	1-1/4- , 3/4- , 22-nn, a 28-nn a a
		3/4- B , 1- B , 1- a		a a
		3/4- , 1- , 1-1/4- , 25-nn C C		a a
B	L	C	.....	3/8- na
D	a	L C	.....	3/4- na
a	B	a a	.....	a a , 1- , a
C	V	a A a	.....	a
	G	.....	C n	a
a	n	C ( n )	942F: A a a 7- 12- a E , G na , F , la a , a , Ja a	
		962, 962F, 962 C, 962F C: A a a E , G na , F , la a , a , Ja a		
B	C	.....	0.74 a	1.3 G V
E	a	Ba a C	.....	5, 7, 10, 12, 15, 20 G V B 20 G V n

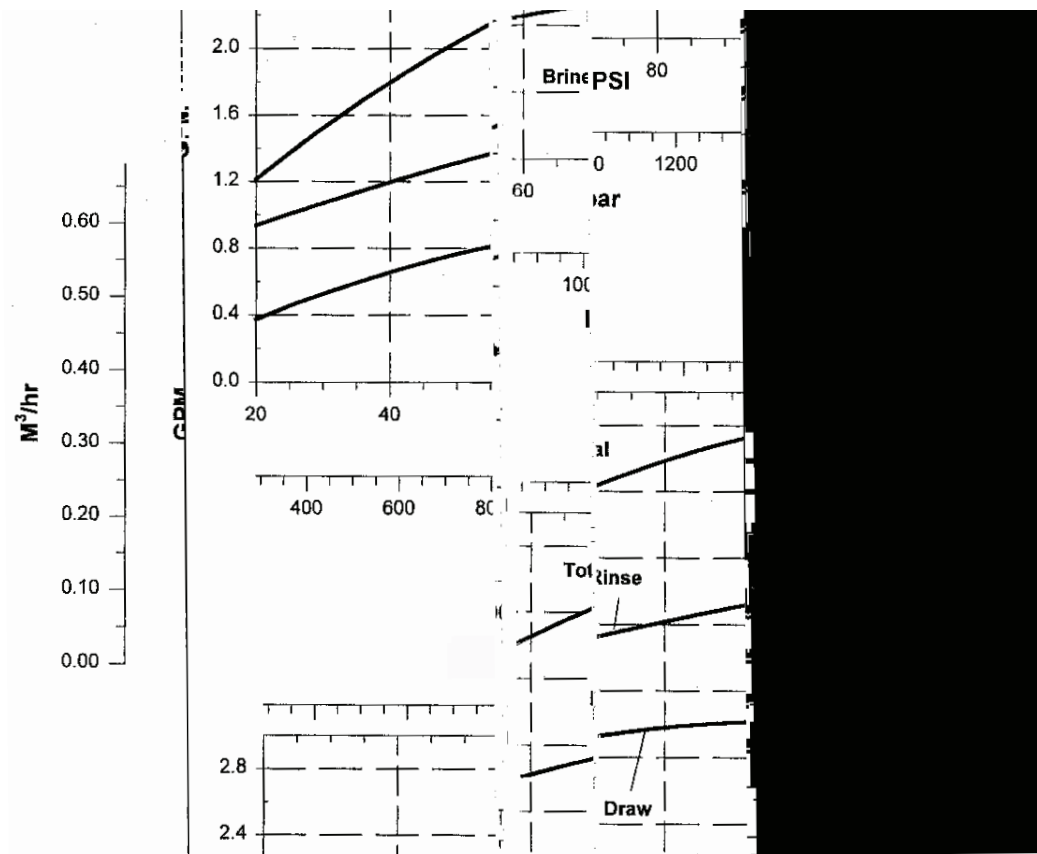
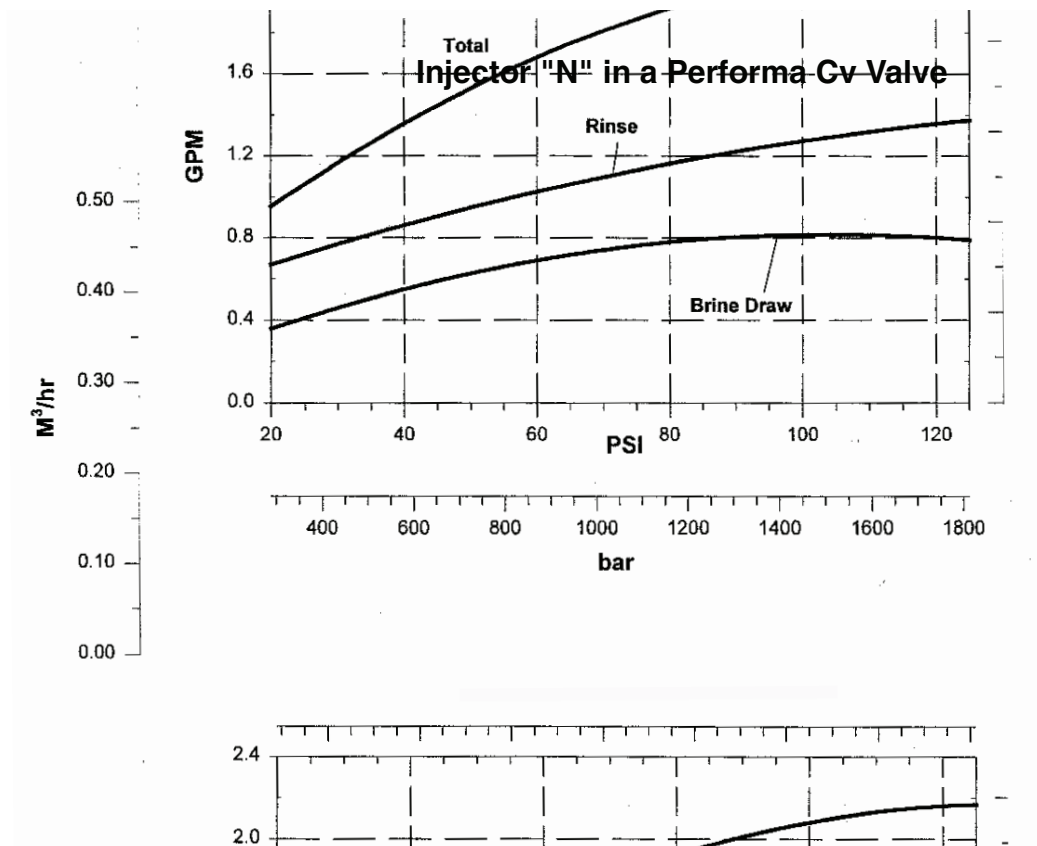
## 4.2 Injector Curves

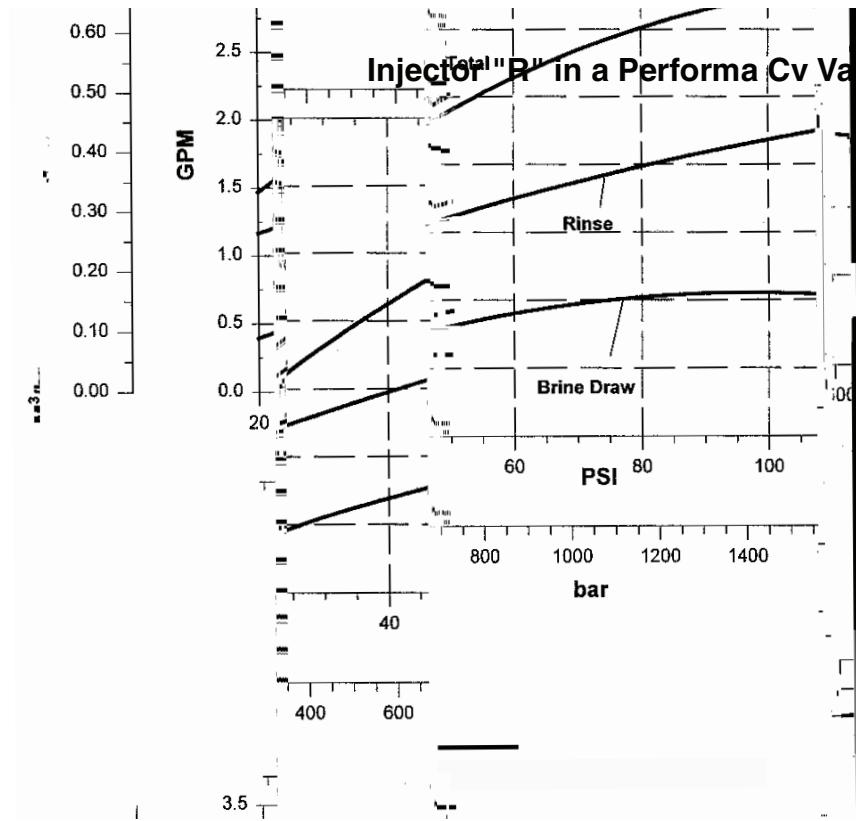
Injector "L" in a Performa Cv Valve



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 <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)			

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



**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				


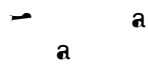
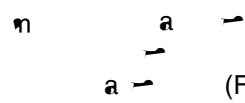
\*  $V_{\text{backwash}} = \frac{A \times \text{Flow Rate}}{60}$

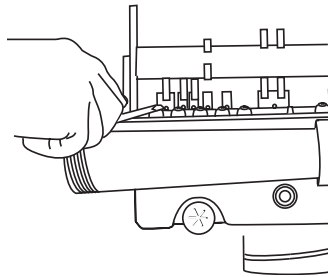
$V_{\text{backwash}} = \frac{1.76 \times 14}{60} = 4.03 \text{ gpm}$



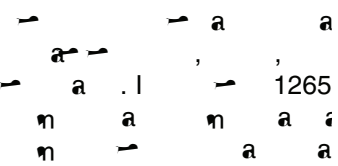
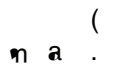



### 5.3 Removing the Valve Servicing

1. 
2. 
3. 



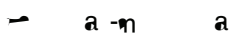
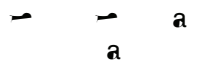
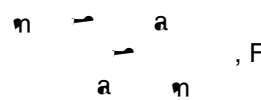
F 5.

4. 
5. 
6. 

### 5.4 Removing the Control

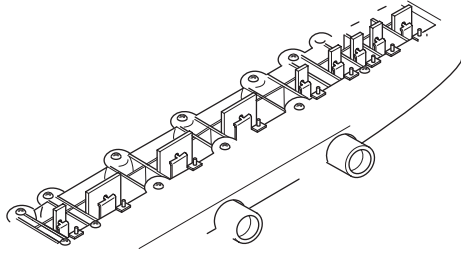
C 7. 

:

1. 
2. 
3. 

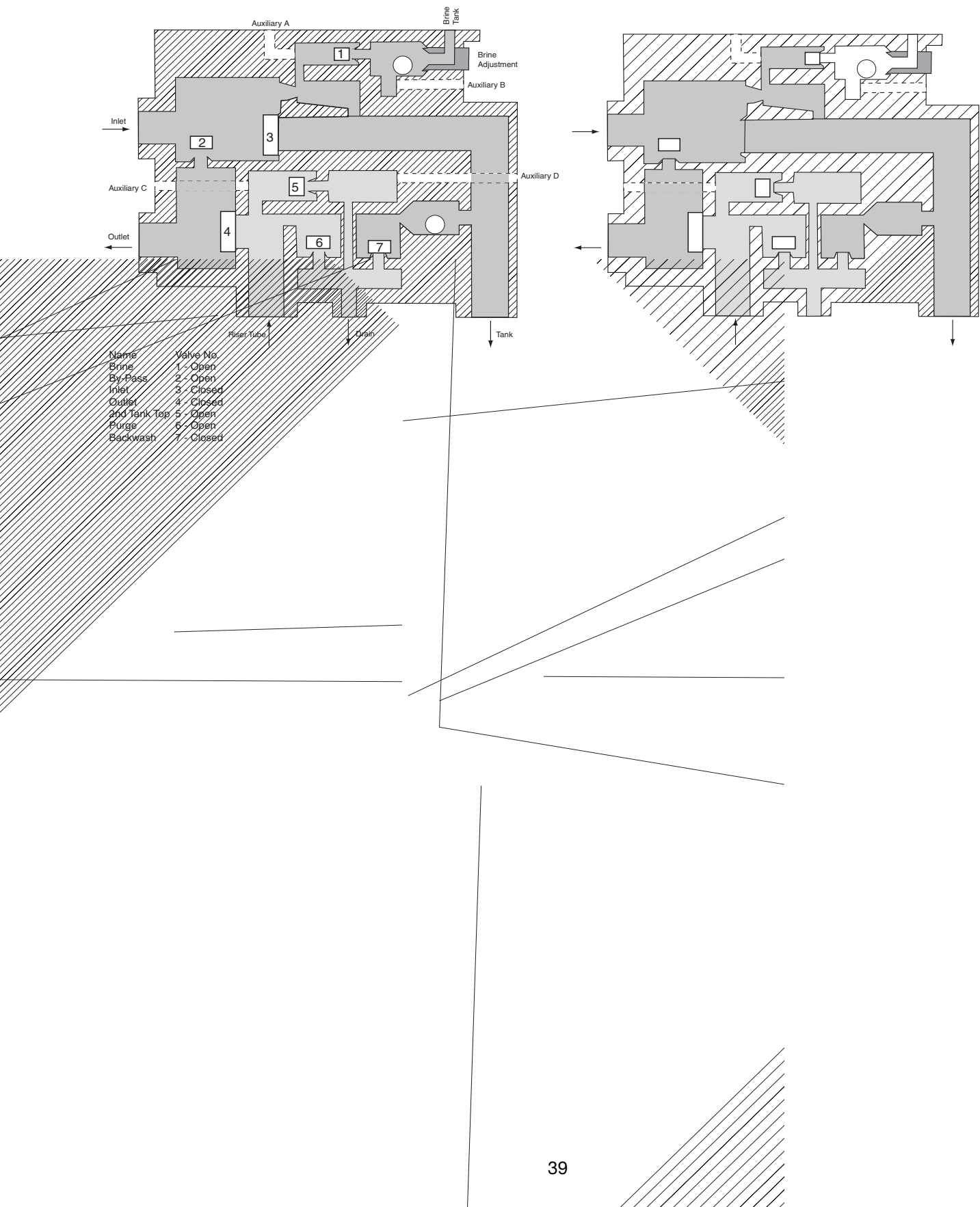


## 5.5 Identification of Control Valving



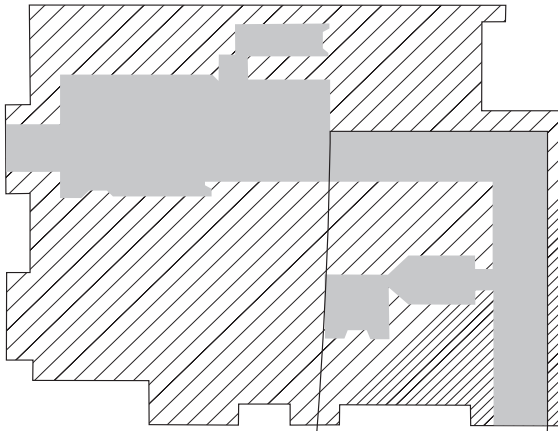
3 Brine/Slow Rinse Position

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 level. If the fuel level is low, add fuel. If the fuel level is full, check the fuel filter. If the fuel filter is clogged, replace it. If the fuel filter is not clogged, check the fuel pump. If the fuel pump is not working, replace it.

2. If the engine is running but not idling properly, check the air filter. If the air filter is clogged, replace it. If the air filter is not clogged, check the throttle cable. If the throttle cable is not working, replace it.

3. If the engine is running but not producing power, check the spark plug. If the spark plug is not working, replace it. If the spark plug is working, check the ignition coil. If the ignition coil is not working, replace it.

4. If the engine is running but not producing power, check the battery. If the battery is not working, replace it. If the battery is working, check the alternator. If the alternator is not working, replace it.

5. If the engine is running but not producing power, check the oil level. If the oil level is low, add oil. If the oil level is full, check the oil filter. If the oil filter is clogged, replace it.

6. If the engine is running but not producing power, check the water pump. If the water pump is not working, replace it.

7. If the engine is running but not producing power, check the timing belt. If the timing belt is not working, replace it.

8. If the engine is running but not producing power, check the water pump. If the water pump is not working, replace it.

## Valve Troubleshooting

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

962 Control Troubleshooting

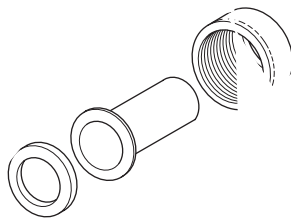
Alarms

— V 962 n a



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## 6.3 Performa Cv Controls

