

Autotrol Performa™ Cv

Conditioner/Filter

Water Control System

Installation, Operation and Maintenance Manual

— F n a F

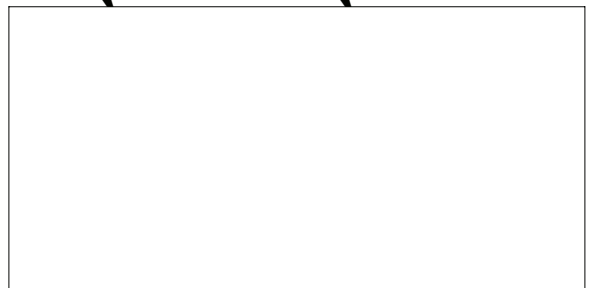


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1.0 Performa Cv System

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 J	.956(2)7.9(-) . J7 . . 95527 . . 1.0076(-) . J6 . 3(50.)8.-7.7 . .0076 (1)2749.7(-)296(2)6 (3(27A.)-19η)19η. 86 . .93763	

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
D a 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 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

Ba a , Va 1265	1-3/4 -	- 12 C - 2A ηa
Ba 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 က ခ ခ က က
 ခ .

Location Selection

- [illegible]

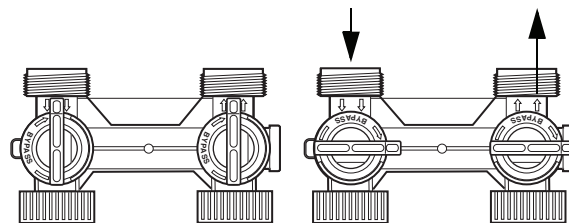
7. If a check valve is installed, make certain the water heating unit is equipped with a properly rated temperature and pressure safety relief valve. Also, be certain that local codes are not violated.

5. D
(
a a
a a
a a
120 F (49 C).
34 F (1 C)
6. D
a a a a a a
a a a a a a
7. a
a a
a a

Water Line Connection

-

Not in Bypass



F 1.1 - A

1265 B= a a

- Drain Line Connection**

Drain Line Connection

Note: α α α α α
 α α α α α

1. I a a ; a a a
 a 20 (6.1 a) a a . F a
 a a , a a a a ,
 1/2- (1.3- a) a a
 a .
2. I- a a a 5 a
 (22.7 L a) a a a 20
 (6.1 a) a a , 3/4- (1.9- a)
 40 (12.2 a). A , a
 a a a 3/4-
 a 3/4- a .
3. I- a a a a a
 a , a a a a 6
 (1.8 a) a a
 15 (4.6 a) a a a
 a a 40 (2.76 a). a a a
 a a 2 (61 a) a a a
 10 (0.69 a).



. A

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E 7/8H

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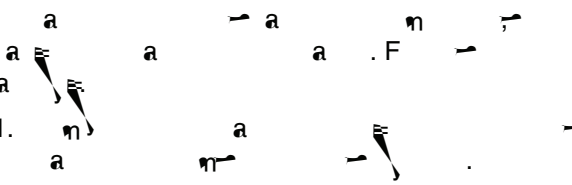
F 1.5

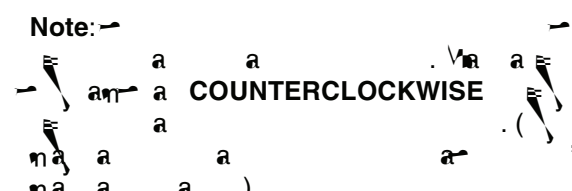
.D

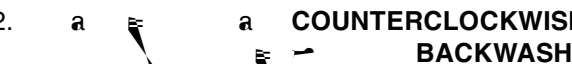
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ล ,

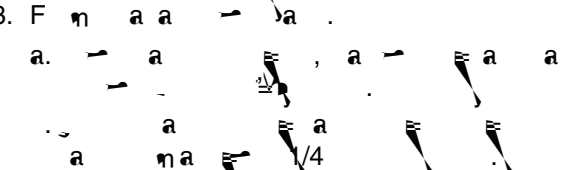
1.3 Placing Performa Cv Conditioner/Filter into Operation

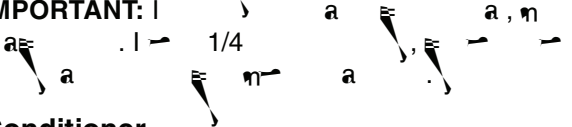
A

1. 

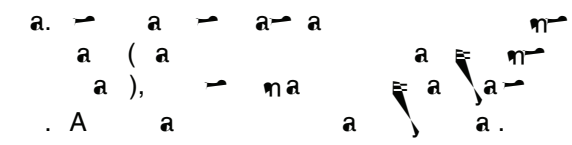
Note: 

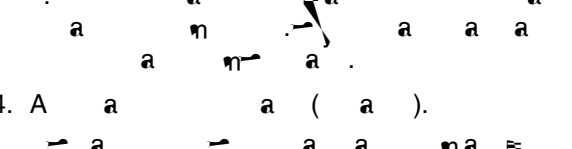
2. 

3. 

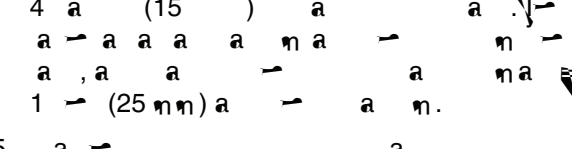
IMPORTANT: 

Conditioner

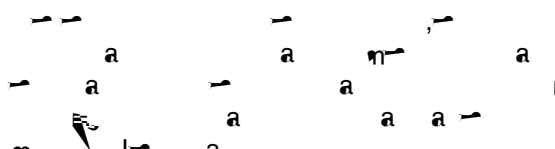
4. 

5. 


COUNTERCLOCKWISE
BRINE REFILL

6. 

COUNTERCLOCKWISE
BRINE/SLOW RINSE

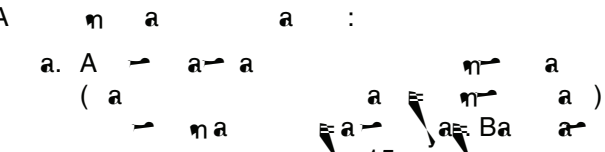
7. 

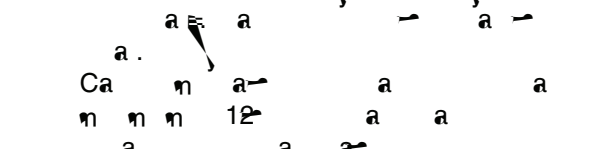
Troubleshooting

8. 

COUNTERCLOCKWISE
REGENERATION COMPLETE

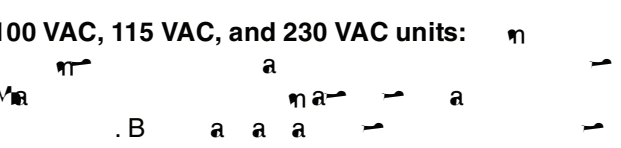
Filter

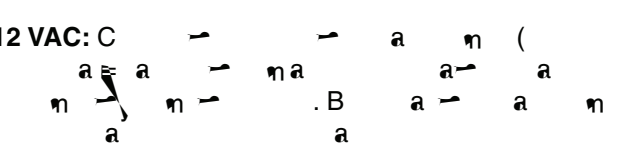
9. 

10. 

BACKWASH
COMPLETE.

Electrical Connection

100 VAC, 115 VAC, and 230 VAC units: 

12 VAC: C 

1.4 Disinfection of Water Conditioners

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— ทล ล ลทล ล ล ล H ,

— ทล — ล , ล

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ล ล ล , —

ล ล ล . | ล , ทล

, ล ทล — ทล — ล

ทล ทล — ล ล ทล — ล

— ล —

ล ล , ทล

— ทล , ล ล

— ล ททล .

D — , —

ล ล ล , ล —

ทล —

Sodium or Calcium Hypochlorite


Application

— ၈၁ —

5.25% Sodium Hypochlorite

[illegible]

1. D a

a.  : 1.2

. - a : 0.8

2. B а

a. Ba а — а а —
аη — — —
— — — . (а — — а
а η — а
— .) .
— — аη а .

Calcium Hypochlorite

Carefully study the following information, 70% of the total marks will be awarded for this section.

1. D a

a. a (a na = 0.1)

2. B a

a. Ba a — a a —
 aη — — —
 a . (A) a — — a a
 η — — —
— .)
 — ηa a .

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

2.2 Programming and Application

— a a a a a — 962

— 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

2.4. I a — a a a — a

— a a . F a a , a a a 12

(a 2.4) . . “0” a a

“1”

Level I Parameters (Table 2.1)

L I a an a a a a a

LED a a a . a a

a a a an a

a, a a a an . I

a, DOWN ARROW (↓)

a L I a an

a Da a

a Ha

a An

Ca a

I a an a Da a an

UP ARROW (↑) DOWN ARROW (↓)

a a a a a a a

a a an a a a a a

SET a a a a a

a a a a a

UP ARROW (↑) DOWN ARROW (↓)

a a a a a

LEFT ARROW (←) LEFT ARROW (←)

Note: I a UP ARROW (↑)

DOWN ARROW (↓)

10

LEFT ARROW (←)

C A a a a 30

Ca a Da a

Note: | a

a a a a a a

Day of Week/Time of Day

SET

Da

UP ARROW (↑)

DOWN ARROW (↓)

LEFT ARROW (←)

Salt Amount

a An — a 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 \ (an). a
 a 2.2 —

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

P5 Capacity Setting		P4 Salt Setting: ()				
K (K)	a (K)	3 ³ (85)	4 ³ (113)	5 ³ (142)	6 ³ (170)	7 ³ (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)	-

[illegible]

6 SET 2.2
 7 SET 2.2
 10
 B Da / 8.

E

Da

LEFT ARROW (←)

DOWN ARROW (↓)

3

1, 2, 3,

0

1.

30

.

#	Description of Parameter	Set as required 0 = No - 1 = yes	Notes
1	α	A	0 = α 1 = $\alpha - 1$
2	β	A	0 = β 1 = $\beta - 1$
3	γ	A	0 = γ 1 = $\gamma - 1$
4	δ	A	0 = δ 1 = $\delta - 1$
5	ϵ	A	0 = ϵ 1 = $\epsilon - 1$
6	F	A	0 = α 1 = $\alpha - 1$
7	α	A	0 = α 1 = $\alpha - 1$

Fixed Reserve

Smart Reserve (water usage pattern)

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*	V ₀	* V ₀ = 14

G 3.2 a a a — aηη a aη — 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 Week	(1-7) 1:00-12:59 A (1-7) 0:00-23:59	(1 day)	Current Day and Time	H	13. F =1, =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF DIGI HE DI LA
2	Time	1:00-12:59 A 00:00-23:59		As required	H	13
3	A			10		
4	Rate	.5-125.0 .2-50.0	.5 .2	Selected from Table 2.2	K	
5	Rate			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	Day	0 = - *V =
15	D			0		
16	D			30		
17		3-4	1	6		6 = 962 C
18	a	0-1	1	0		0 = , 1 = a /Ca 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

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	(1-7) 1:00-12:59 A (1-7) 0:00-23:59	(1 hr)	Current Day and Time	H	13. F =1, V =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF DIGI HE DI LA
2	Time	1:00-12:59 A 00:00-23:59		As required	H	13
3	Filter			10		
4	Filter			100		
5	Filter			0.5		
6	Filter			As required		
7	Filter			200		
9	Ba	7-60	1	14*	V	*V = a a a
10	Filter			8		
11	Fa	9-60	1	9*	V	*V = a a a
12	Filter	0-1	1	0		0 = , 1 = V
13	C	0-1	1	0		0 = 12, 1 = 24
14	I	0-30	1	0		0 = a a - *V = a a a
15	Filter	0-3	1	0		0 = na, 1 = F a a, 2 = na a, 3 = Inna a
16	F	0-70	1	30		2 a 24. a Da = A a
17	a	0-7	1	4		4 = F na C
18	a	0-1	1	0		0 = , 1 = a /Ca a a
19	F	1-4	1	1		1 = 1 a, 3 = D K- a, 2 = 2 a, 4 = D
20	K- a	0.01-255.0	0.01	0.01		E a V K- a
21	Filter	0-254	1	60		na na na a
22	Fa			99		Da CHA GE

G

2.2

a

a a

-

an

a an

-

a

Table 3.2 - Programming Performance Cv 962F Five Cycle Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Progr	ie8(m)-AM0.2(5-0.181r)268(s)14-0PMTD-0.0.0		
G	2.2	a	a a	—	an n	a an	—	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 V V (1-7) 0:00-23:59	(1-7)	Current Day and Time	H V	F ED=4, H =5, F =1, =2, E=3, I=6061 6()-9. -26.C 556 F34,

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

Electronic Time Clock Operation

The image shows two musical staves. The first staff is titled "Interval Backwash" and contains musical notation with notes, rests, and bar lines. The second staff is titled "Day of Week Backwash" and also contains musical notation with notes, rests, and bar lines. Both staves appear to be in a 4/4 time signature.

Application

naC 962 C a — naC

962FF naC a a a , a,

na.

Dual and Triplex Conditioners and Filters

a a na a na

a — na — a — na .

na a a a .

— a — a a a

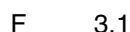
a a a na na a

D a a — na a a —

a — . | a na — na a a a

a na ()-98 23.7(()-7(—24.4()8.8() J *)8.8((

a a .

[illegible]

a C D a a a a
 a a a a a

1. $a - a = a$.

2. $a - a = 0$ () $a - a = 0$ () $a - a = 0$.

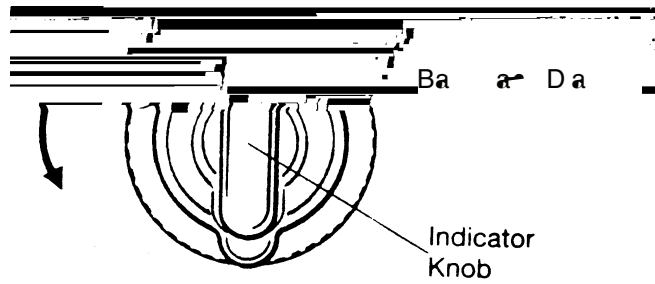
a a a a a
na = 2:00 a.m. Ca a Ca a
na EX DA
a a a a
a a a na = 2:00 a.m.
a a F E

E
COUNTERCLOCKWISE
A

[illegible]

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 a a a
 na a Ba a Da
 a a Ba a Da
 V 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 — 962 .

Number	Description of Program Values	Explanation
--------	-------------------------------	-------------

1 *	n Data	
-----	--------	--

Number	Description of Program Values	Explanation
18	a / a a	A 4a 5 a a
19	F	1 a a 1 a 1 a 1-4. 1=A 1- , 2=A 2- , 3= a a K-a , 4= a K-a a a a a
20	K-a a	000.01 255.00 0.01 .H 12 () a 19 (). 12 a (0= a , 1=) 19 K-a a (3=K-a , 4= a). K-a a a a a a-F a a a a K-a a a a a a K-a a a 12=0, 19=4 a 20=5.00. Ba 5 a a a a a 19=4 (a) a a a a 10 a a a a a a a a a a a
21	a / a a	a a a / a a 1 254 1- a a 60 .A a a a (a) .A a / a a a a a a a a a 0.02 a a a a
22	Fa	DO NOT CHANGE

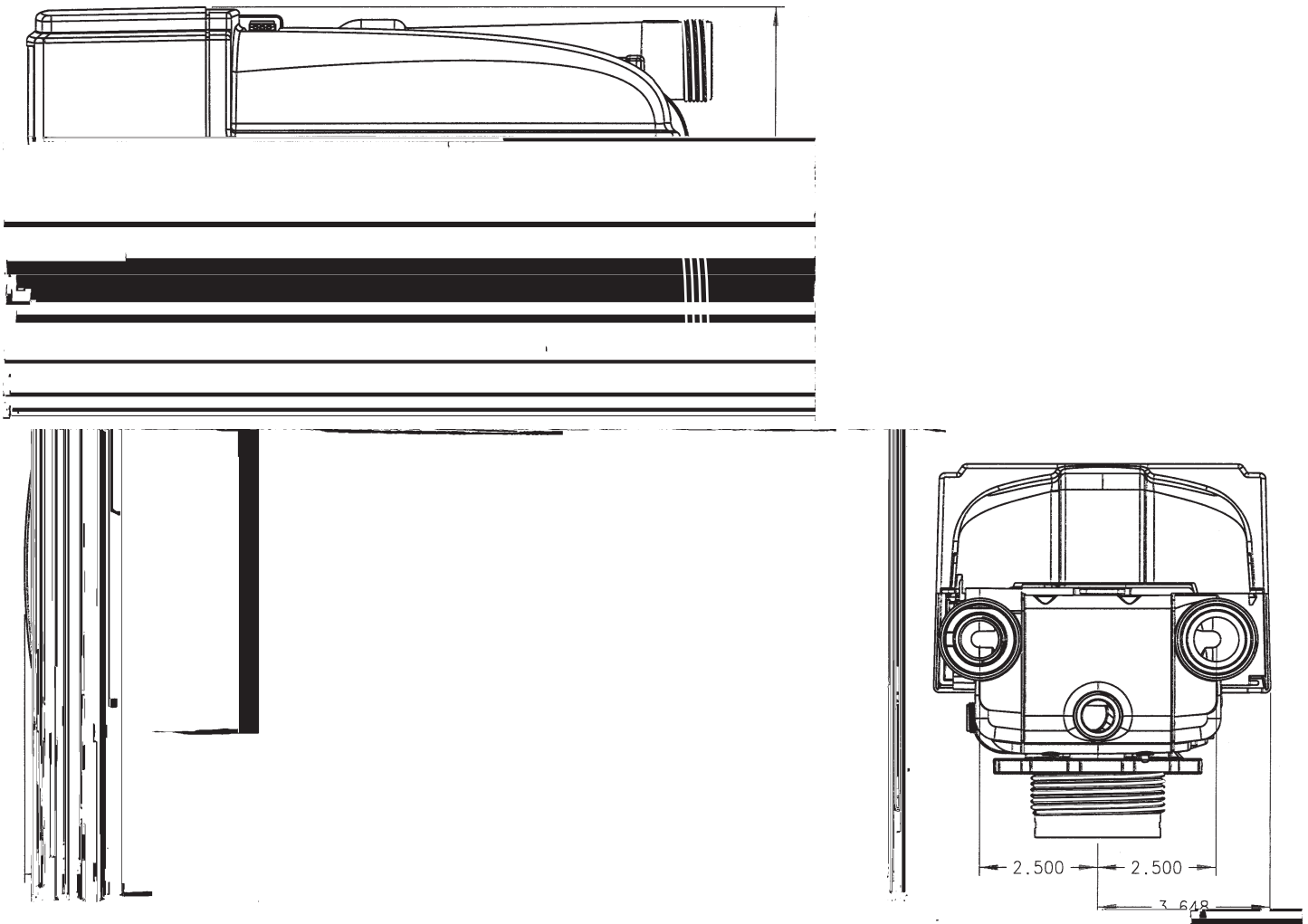
* 962 a 12
24 a a a 13 (a)
1 2 a a
a a

** 962 a a 12 (a) 3 4
a a a a

*** a a a a a
(L7 L13) a A ,
a a E a : 90,000 a 5 10
a 3, 90,000 / 10 = 9,000 a a 9,000 .3
(30% 16) = 2700 a , a L7
L13, a a .F a a
a A - 2700 a 1.2 (120% a
a a) = 3240 a a a
a a a a a

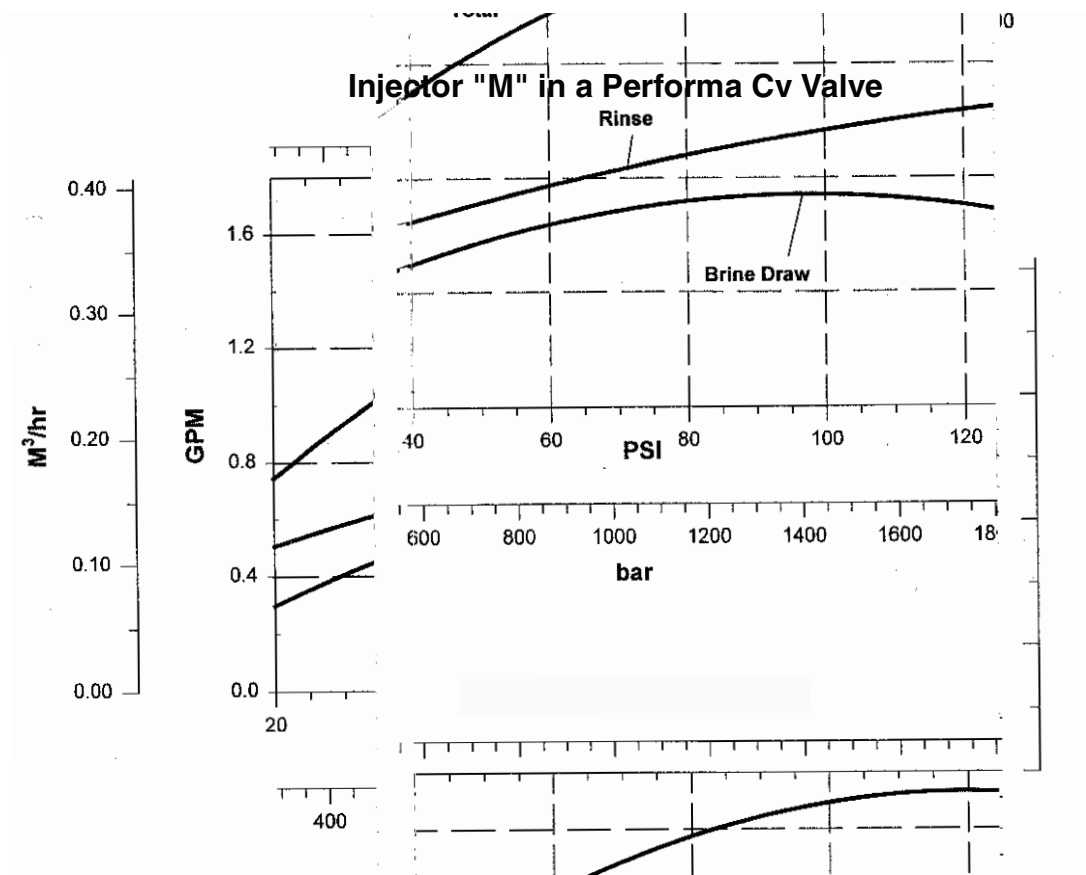
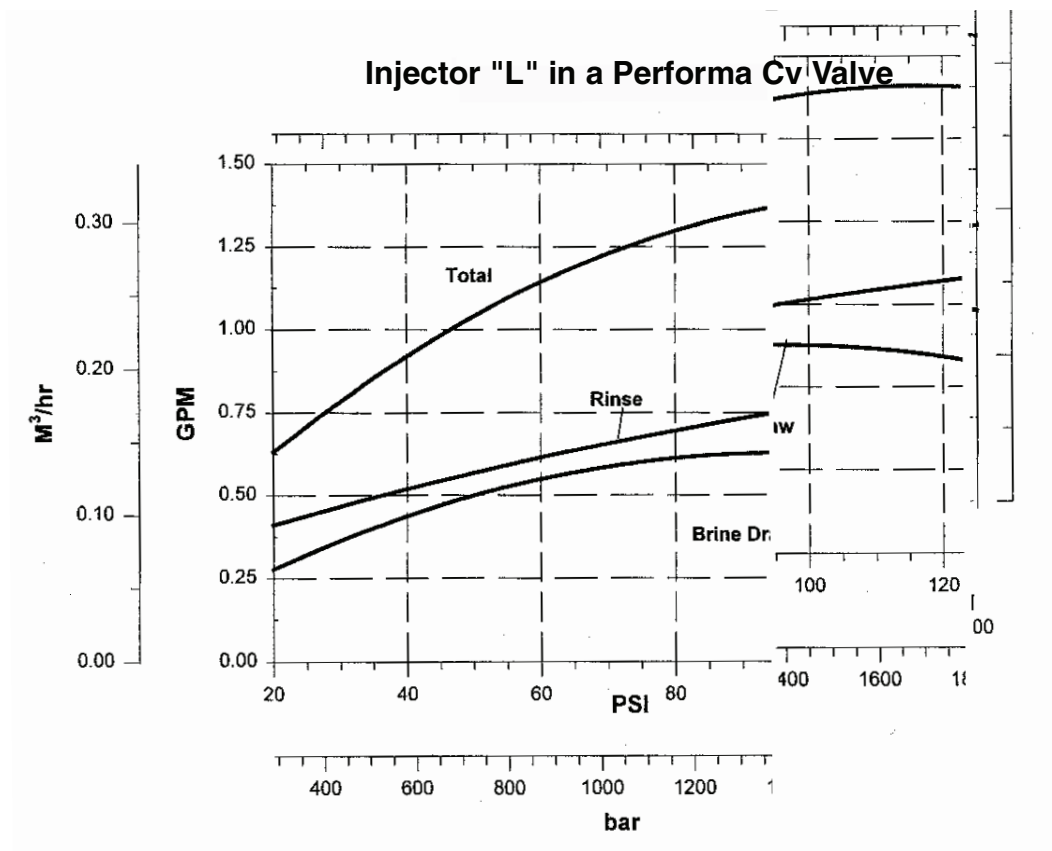
4.0 Performa Cv Performance Charts and Graphs

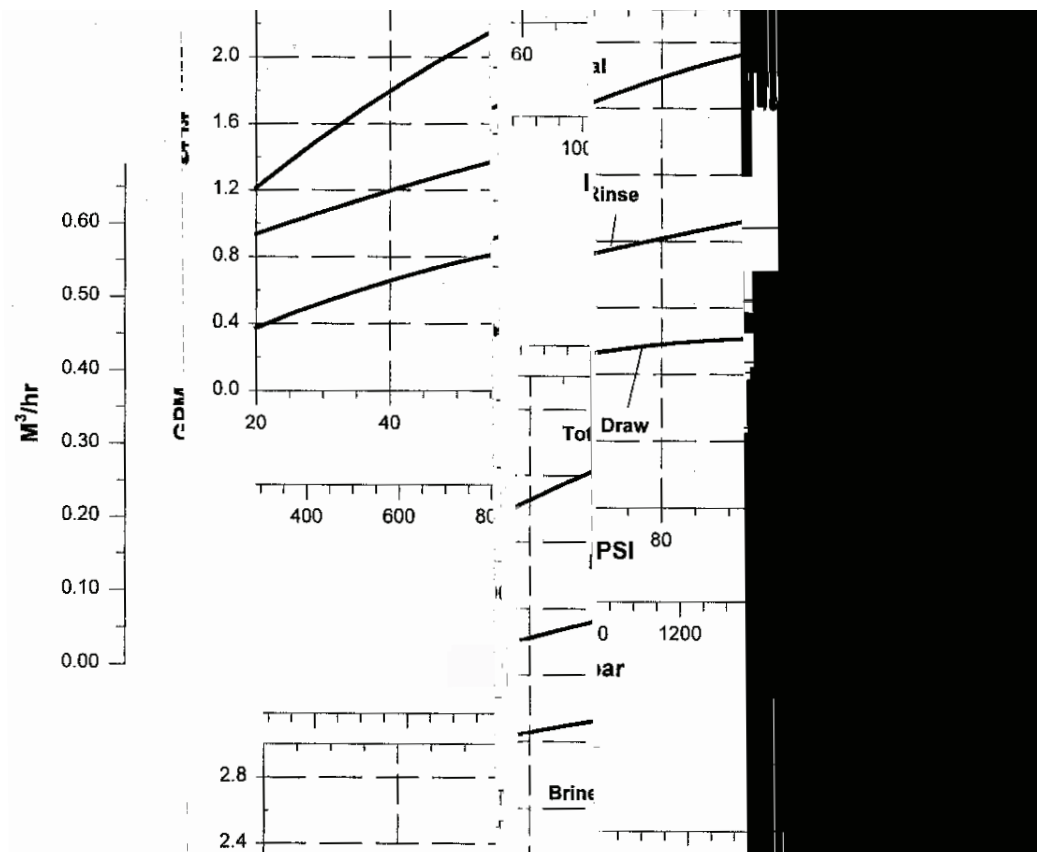
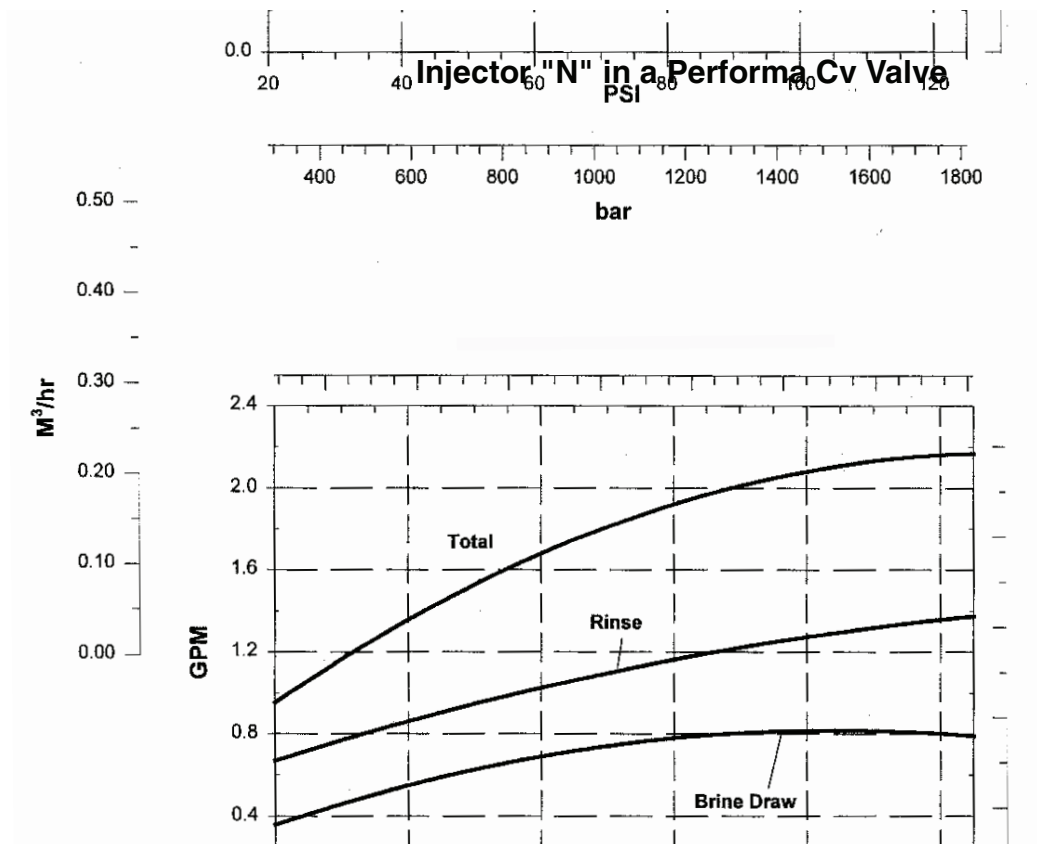
4.1 General Specification

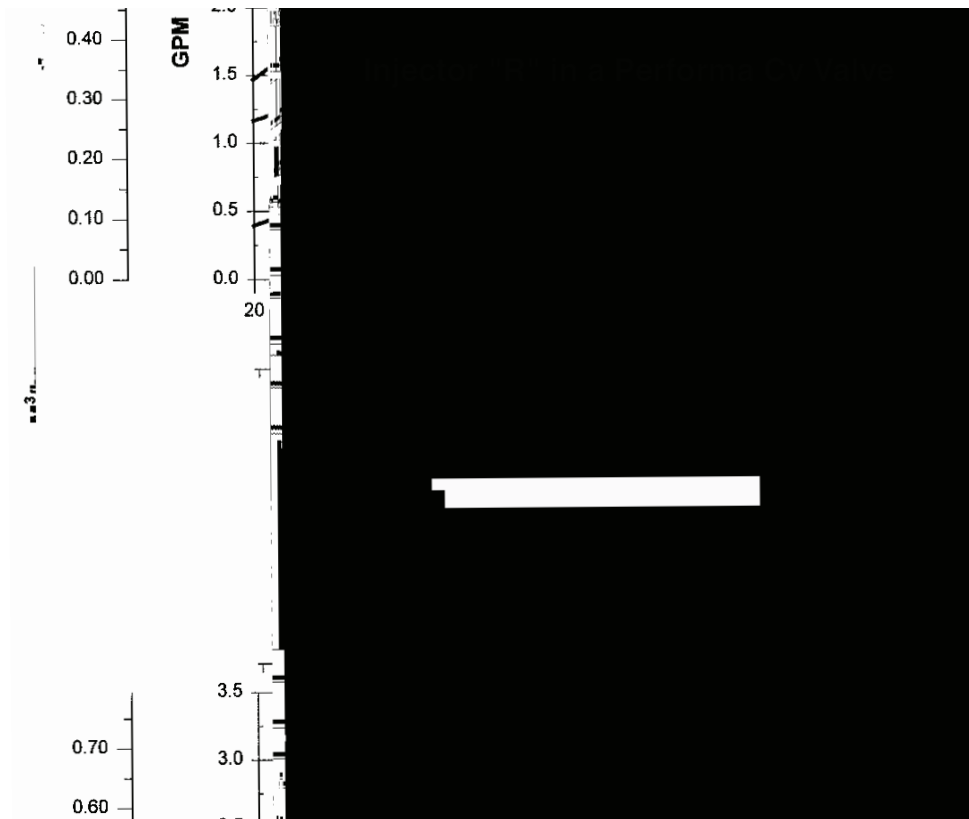


H	a	.....	300	(20.69 a)
a	a	E a a	.....	20-120 (1.38 - 8.27 a)
		942F: 7 a	.....	962: a a n 12 60 H, 12 50 H
E	a	C (a a a )	.....	60- (1.5-n) 3- a n
	a	a	.....	2-1/2- 8na
	D	a n	.....	1.050- D (26.7-nn)
	L	a	.....	1/2 - 1/2 - (13 nn - 13 nn) - a - a
a	a	C	.....	1- (25.4-nn) a a
a	a	C	.....	1-1/4- , 3/4- , 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







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_{max} = 25 1.72 a

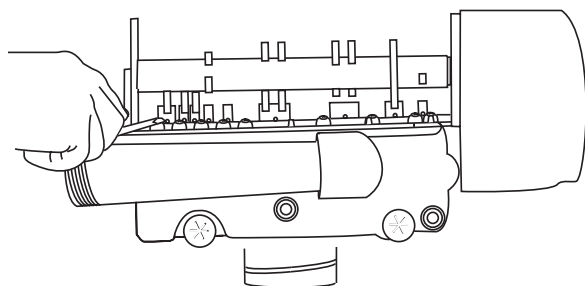
Table 4.6 - Performa Cv Filter Sizing Selection Guide for Dual Unit Filters.

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				

* $V_{mf} = \frac{25}{1.72} \times \frac{A}{A} = \frac{14.5}{1.72} \times \frac{A}{A} = 8.4 \times \frac{A}{A}$

5.3 Removing the Valve Assembly for Servicing

1. Remove the valve cover.
2. Remove the valve cover gasket.
3. Remove the valve assembly (F 5.2).



F 5.2

4. Remove the valve assembly (F 5.3).
5. Remove the valve assembly (F 5.4).
6. Remove the valve assembly (F 5.5).

5.4 Removing the Control

C 70 960

1. Remove the control (F 5.6).
2. Remove the control (F 5.7).
3. Remove the control (F 5.8).

F 5.3

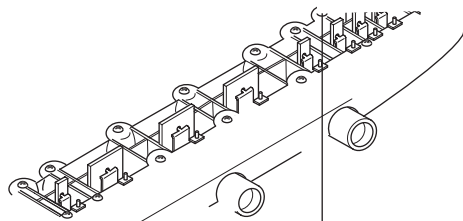
4. Remove the valve assembly (F 5.4).

F 5.4

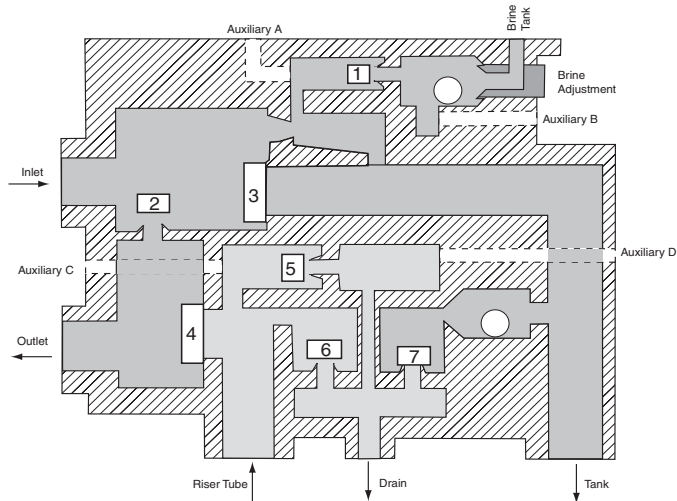
5. Remove the valve assembly (F 5.5).
6. Remove the valve assembly (F 5.6).

F 5.5

5.5 Identification of Control Va

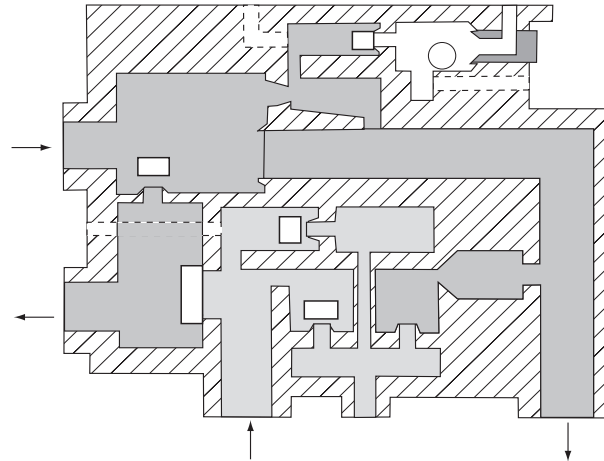


3 Brine/Slow Rinse Position



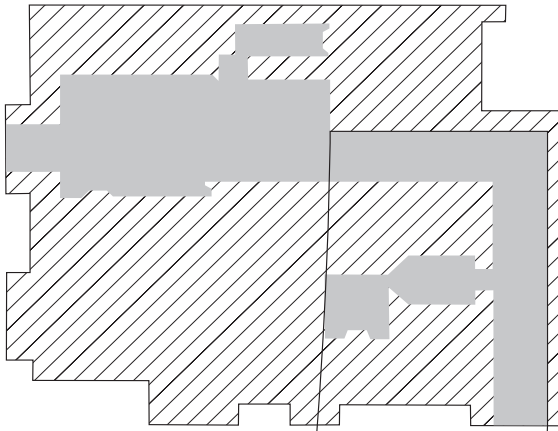
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

4 Fast Rinse Position

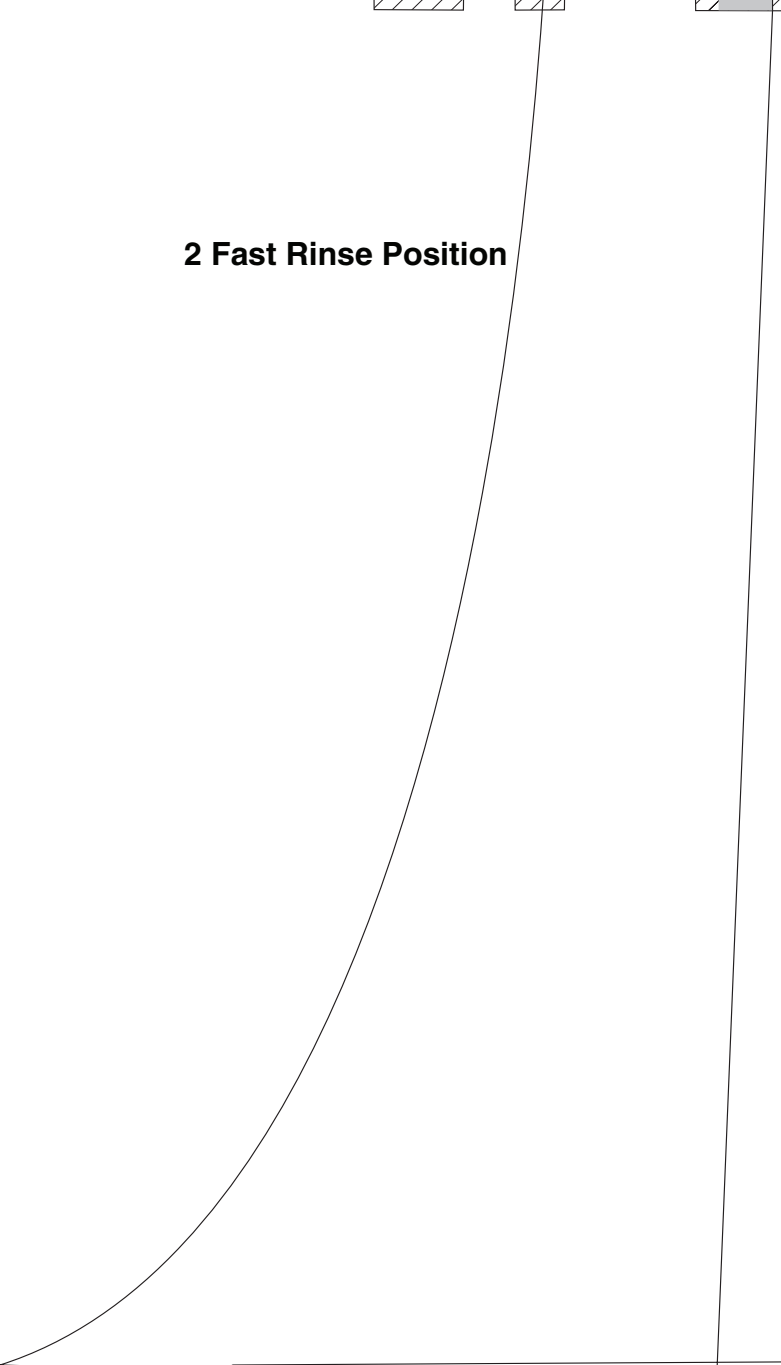


5.8 Performa Cv Filter Flow Diagrams

1 Backwash Position

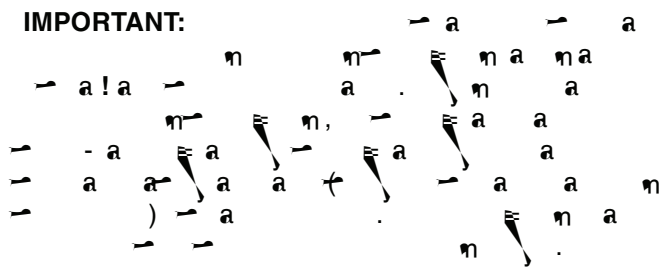
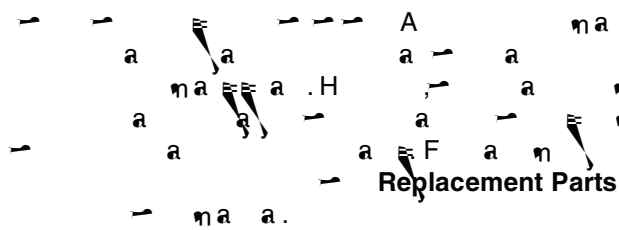


2 Fast Rinse Position



5.9 Troubleshooting

IMPORTANT:



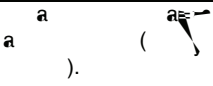
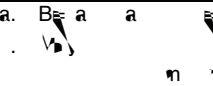
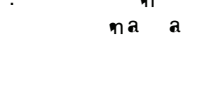
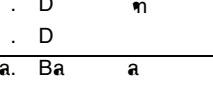

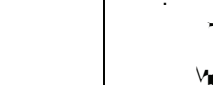

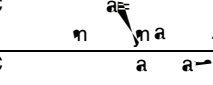
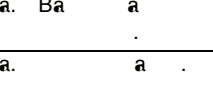

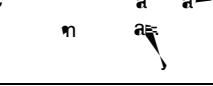
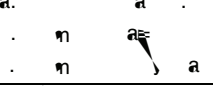


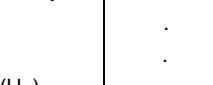



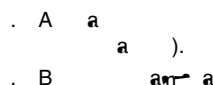


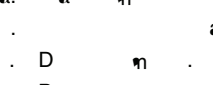
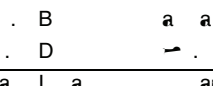
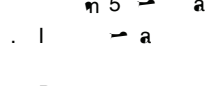
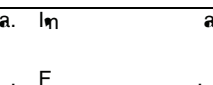
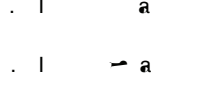
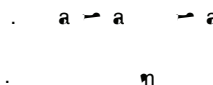
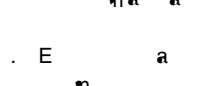
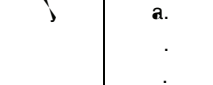
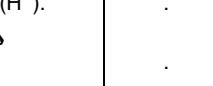

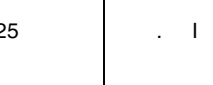
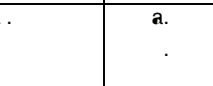
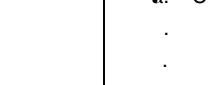

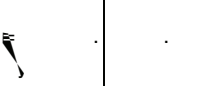

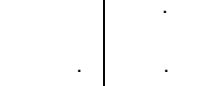
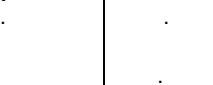
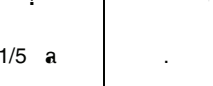
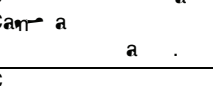
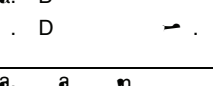
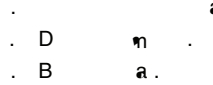

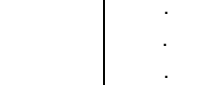
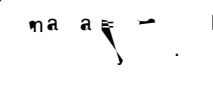
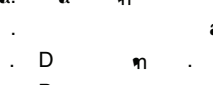
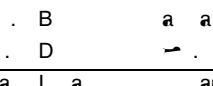
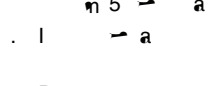
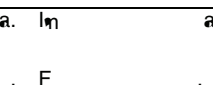
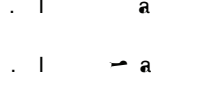
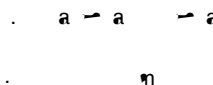
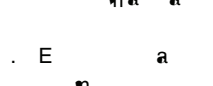
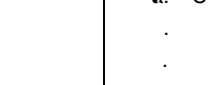

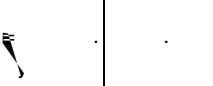

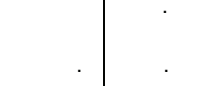
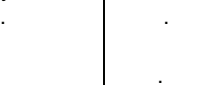
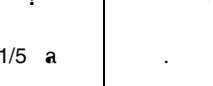
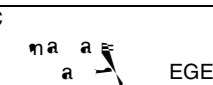
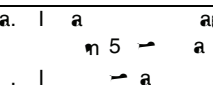
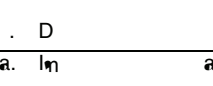

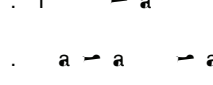
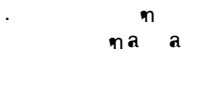
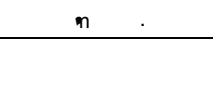
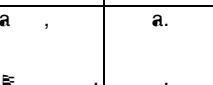

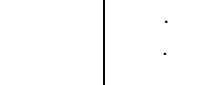
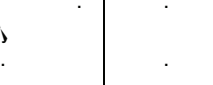
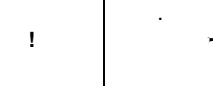

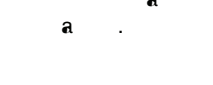

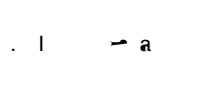
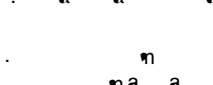
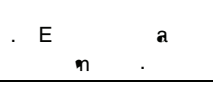



Valve Troubleshooting

Problem	Possible Cause	Solution
1. C	<ul style="list-style-type: none"> L I I a (2a / 4) 	<ul style="list-style-type: none"> 30 C 30 30
2. B	<ul style="list-style-type: none"> Dana B (1) (3 4) A 	<ul style="list-style-type: none"> 30 30 30 30
3.	<ul style="list-style-type: none"> I F 	<ul style="list-style-type: none"> 30 30 30 30
4. I	<ul style="list-style-type: none"> D L D 	<ul style="list-style-type: none"> 30 30 30 30
5.	<ul style="list-style-type: none"> a a a 	<ul style="list-style-type: none"> 30 30 30 30
6. C	<ul style="list-style-type: none"> I F 	<ul style="list-style-type: none"> 30 30 30 30
7. F	<ul style="list-style-type: none"> D (6 7) (1) 	<ul style="list-style-type: none"> 30 30 30 30
8. Ha	<ul style="list-style-type: none"> a a 	<ul style="list-style-type: none"> 30 30 30 30

962 Control Troubleshooting

Alarms

— V 962 962 a

Problem	Possible Cause	Solution
6. 	<p>  </p> <p>  </p> <p>  </p>	<p>  </p> <p>  </p> <p>  </p>
7. C 	<p>  </p>	<p>  </p>
8. C 	<p>  </p> <p>  </p>	<p>  </p> <p>  </p>
9. 	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>
10. C 	<p>  </p> <p>  </p>	<p>  </p> <p>  </p>
11. C 	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>
12. C 	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p>
13. 	<p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p>  </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p> <p> </p>	

6.3 Performa Cv Controls

