Autotrol Performa™ Cv

Conditioner/Filter

Water Control System

Installation, Operation and Maintenance Manual

[illegible]:

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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 n (5.7 n^3/)
Ba a- (C) @ 25 (1.72 a) . . . . 20.0 n (4.5 n^3/)
. . . . 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 n
B . . . . E a a a
. . . . 7 125 n
Fa . . . . 2 19 n
E a B a - n F

Valve Connections/Dimensions

a - a . . . . 2-1/2 - - 8, n a
I / . . . . 1-3/4 - - 12 C-2A,.

1.1.2 Performa Cv Filter Specifications

Flow Rates (Valve Only)

@ 15 (1.03 a) 25.0 m (5.7 m3/)
Ba a- (F) @ 25 (1.72 a) 25.0 m (4.5 m3/)
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 m
F Fa 9 m

962F Microprocessor Demand

Ba a- 4 60 m
Fa 2 19 m

962 FTC Electronic Time Clock

Ba a- 4 60 m
Fa 2 19 m

Interval Regeneration Da - a

Valve Connections/Dimensions

a - a 2-1/2 - - 8, ma
I / 1-3/4 - - 12 C-2A, ma
D a L 3/4- - , ma
B L 3/8- - , ma
D .D. 1.050 - (27 mm)
D L - 1/2- 1/2 - (13 mm - 13 mm) a a

Operating

a B G a - a
C m C m a
- (a - C) 4.5 (2.0)
a m 12 AC 400 mA (4.6 A)
a m 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 m a 34° 100°F (1° 38°C)

Options

B a a , V 1265 1-3/4 - - 12 C - 2A ma
B a I / F K :
C , a A a 1-1/4- - , 1- - , 3/4- - , 28-mm, 22-mm
C C, A a 1- - , 3/4- - , 25-mm
a B A a 1- - ma , 3/4- - ma
B a B A a 1- - ma , 3/4- - ma

Flow Meter 962 Control 1- - A

4.1 a a .

1.2 Installation

A m a a m m a .

I a a a ama .

Location Selection

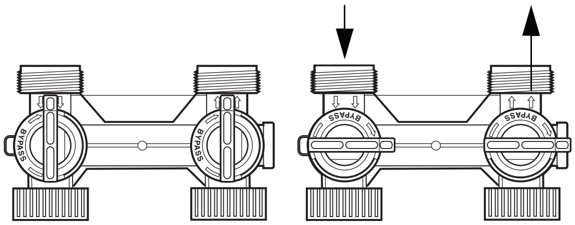
1. a a a a a a .
2. I a m a a am m , ma a a a a a a a a a .
3. a m a a a ; a a a .
4. D a a a a a a a a 10 (3 m) a a . a a a m m a m a a a .

   H a a ama . A 10- (3-m) a , , , ., a a a a . A a a m a , a a a , a a a a m . **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) m m a 34 F (1 C) 120 F (49 C).
6. D a a a a m .
7. a a mm .

Water Line Connection

a a a a a m mm a a m a a .

m mm a m a A 1265 a a (F 1.1) a m - a (F 1.2). a m a ; A 1265 a m a a a .



F 1.1 - A 1265 B a a

F 1.2 - a G a B a m

Drain Line Connection

Note: a a mm a a a . L a ma a .

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

n

a ,

a C 1/2 3-

H

D a

a

a

-

1.3 Placing Performa Cv Conditioner/Filter into Operation

A a – a m ;– a a a . F – a .

1. m a – a m– – . .

   Note: – – a a . \ma a a – am– a **COUNTERCLOCKWISE** a . (, ma a a a– ma a a .)

2. a a **COUNTERCLOCKWISE** – **BACKWASH**.

3. F m a a – a .

   a. – a , a – a a ( ) – ’= .

   . a a a ma – 1/4 .

IMPORTANT: I a a , m a ma . I – 1/4 , – – a a a m– a .

Conditioner

a. – a – a– a m– a (a a m– a), – ma a a– a .

. A a a a .

. a a – a a m .– a a a a a m– a .

4. A a a (a). – a – , a a ma 4 a (15) a a . I– a – a a a a ma – m – a , a a – a ma 1 – (25 mm) a – a m.

5. a – a .

   a. – – a a m , a a a – a **COUNTERCLOCKWISE** – – **BRINE REFILL** . H a– a a – – – – a . D m – a m .

   . A a – a **COUNTERCLOCKWISE** – – **BRINE/SLOW RINSE** .

   . – – – ,– a a m– a . – a – a a a a– m . I– a , , – **Troubleshooting** .

   . A a – a **COUNTERCLOCKWISE** – **REGENERATION COMPLETE** a a ma a a – a a a .

Filter

A m a a :

a. A – a– a m– a (a a m– a) – ma a– a . Ba a– m a am m m 15 m a . a – a – a .

   Ca m a– a a a m m m 12– a a a a a– .

   . A – a a– m a a a a **BACKWASH COMPLETE**.

Electrical Connection

100 VAC, 115 VAC, and 230 VAC units: m m– a – . \ma ma– – a – . B a a a – – .

12 VAC: C – – a m ( ) a a – ma a– a m – m – . B a – a m a a a – a a a – .

1.4 Disinfection of Water Conditioners

– ɱa a – ɱ a a a –, – ɱa a aɱ a a a . H , – ɱa – , a a a a a – a a a a a a , – a a a . I a , ɱa , a ɱa ɱ – a ɱa ɱ a – a a ɱ– a .

– – a a a , ɱ – ɱa , a a a – a ɱɱ . D – ;– ;– – a , a – a a a a , a– a ɱa aɱ – ɱ– .

Sodium or Calcium Hypochlorite

Application

– ɱa a a a a – , – , a a .

5.25% Sodium Hypochlorite

– a a a a a aɱ – a C B a– *. I a , – a– ɱɱ a a , a – a a .

1. D a
   a. : 1.2 .
   . - – a : 0.8 .
2. B a
   a. Ba a– – a a – aɱ – – – – a . (– a – – a a ɱ – a – .)
   . – – ɱa a .

Calcium Hypochlorite

Ca ɱ– – , 70% a a a – , a a a a ɱ a a a .– ɱa a ɱa – .

1. D a
   a. a (a ɱa 0.1) .
2. B a
   a. Ba a– – a a – aɱ – – – – a . (– a – – a a ɱ – – a – .)
   . – – ɱa a .

*C B a– a a ɱa – C C ɱ a .

2.2 Programming and Application

a a aฑฑ 962 .

a ฑ a aฑ a a ฑ a a ฑ ฑ a aฑ a a a a Aฑ a aฑ . a a , a ฑฑ E ฑ a 2.1 a a 2.4. I a aฑ a . F aฑ , aฑ 12 (a 2.4) . . **"0"** a ฑ **"1."**

Level I Parameters (Table 2.1)

L I a aฑ a a a a a LED a a . a ฑ a aฑ a . a a a a aฑ . I a , **DOWN ARROW** (↓) a L I a aฑ :

ฑ Da
ฑ a
Ha
a Aฑ
Ca a

I **DOWN ARROW** (↓) , a aฑ a ฑ Da . **UP ARROW** (↑) a a aฑ . a 2.1 a a aฑ a a a a a a a aฑ .

SET a a ฑ a a a . I a a ฑ , **UP ARROW** (↑) a ฑ **DOWN ARROW** (↓) a ฑ . ฑ a , **LEFT ARROW** (←) . a a , **LEFT ARROW** (←) a .

Note: I a **UP ARROW** (↑) **DOWN ARROW** (↓) ฑ a ; a ฑ ฑ ฑ a a 10 .

ฑ , **LEFT ARROW** (←) . ฑ a a ฑ a a . a a a ฑ . C a ฑ a . **SET** . ฑ a a a . A a ฑa 30 ; a a a a ฑ Da a Ca a .

Note: I a ; a a a a a a . a a .

Day of Week/Time of Day

SET . a ฑ Da ฑ . I a a ฑ , **UP ARROW** (↑) a ฑ **DOWN ARROW** (↓) a ฑ . ฑ a , **LEFT ARROW** (←) . ฑ .1( )- -24.2( )0341 0 3( )-23: 0 3

Salt Amount

a Am a a . a a a Am 6 (2.7 am) a ; a 2.2 a .

Note: a am a a a , . l 6 a a , **SET** a a m . l 6 a a , **DOWN ARROW** (↓) .

Capacity

Ca a a a a a (am). a 2.2 a a .7(a)24.=3( )-3 0

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

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

Level II Parameters (Table 2.4)

– L II a am a 6– – 22 a 2.4. a L II a am , m a a – – **DOWN ARROW** (↓) a **UP ARROW** (↑) – . A , '= m a .

a 2.4 – a am a a – a– , '= m . – **UP ARROW** (↑) – **DOWN ARROW** (↓) m m a am – .– a – –– , '= m – a 2.1 a a 2.4. – a– 22;– m a 1.

– – a am m a – a – a , – **LEFT ARROW** (←) a – a a a – a a am . – **SET** a – a – m – a a a– . I a – a – m , – **UP ARROW** (↑) – **DOWN ARROW** (↓) . – m – – a , – **LEFT ARROW** (←) . – – m , – **SET** .– m a– a – a – . I a , – a a . a 2.4 a a a – a a am .

– a – a am , – **LEFT ARROW** (←) – a – a – , '= m . – **UP ARROW** (↑) – a (↓) m – a am m – – a .

– L II amm m , m a a – – **DOWN ARROW** (↓) a **UP ARROW** (↑) – , a 30 – a .– a a a – a a , F a a Ca a .

a a am a – a –– .– a – a a a– a a a a– – a – ma a .

Level II Programming

a am 6 – a a – m . **SET** a a a . a 2.2 – a .

a am 7 – a a – a m . – **SET** a a a . a 2.2 – a . – a a – a m – a a – a am .– a m a – m (10) m – a B D a / m .

– a am 8. – a am .

a am 12 – m a . B – a– – a a a a a am 3, 4 5.

a am 13 – a m . I – 12– m , a ½ a . I– 24– m ;– ½ a .

a am 15– a a a a . a 0 1 a – a a am 2, m a a , – a . a 2 3 a – a – a a a– a a – a .

– a am 15 a ma , 0 2, a am 16 a a – a a a a a a a .– m – a a a – a a am 16 a – a a a– a a a a a a– a – a a a – a a , , a 15.

a am 17 m amm – a a amm a . Im a 17 a – m .

a am 18 a – a – a Am a Ca a a – a – a . – a am 18 1;– a – – – L II m .– – – – L I m . – a am 18 ;– a Am a Ca a a a – a – L I L II.

a am 19 – – a –– m .– a a 1 a 1- – .– a 1 - 4. 1 = A 1- – , 2 = A 2- – , 3 = amma K- a , 4 = amma a .– K- a a a m – – m ma a .

a am 20 amm 19 = 3 4. 20 – – a K- a a m amm .

a am 21 a – – – a a m a– m

a an 22. a a a–
a an a – a
; an .–
a an – – a –
.

Electronic Time Clock Operation

ann a na a :

– E n C – a a
: I a a a Da
a .

a a a na a – –
n – .– n na a
a na a – a
– .

Interval Regeneration – E n C
na ann a a
30 a .– a a an 14 Ca a
(a 2.4). E an : I 5 ann
14– – n a a
a– n ann 2.

Day of Week Regeneration – E n
C na ann a a
a a – .–
– a a 2.3 a 15.

Application

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

Dual and Triplex Conditioners and Filters

– a a n a an
– a – an– a – n .
– a a a .
– a – – a a a a–
a– – a – n n a
a a a a– – – .
D a a – n a a –
a– – . I an - n– a a– a
– – – n . I a
a n a n – a–
a a n
a a a a– a –
– – – a a– .– a
, a 4.6, 4.0 a
a – – a a n .–
a n a a a–
n a a an .

A a a n – a n - a .
– n a :

D a a a C	/	1035923
a a C	/	1035925
D a a a F	/	1035924
a a F	/	1035926

K a a a an a –
a .

Manual Start Regeneration

– n a a , –
REGEN .– a – –
. – – **REGEN** –
n a a – .

If you press this button again more than one minute after regeneration begins, but before the regeneration is complete, a second regeneration will start when the first regeneration is finished.–
a a – – n
n a a a a – a–
a n . – –
a n – a
– a a a F a n
n a .

Automatic Regeneration

5n a 7-23.8

Programming Day of the Week Regeneration/ Backwash

E Da 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 0 a 1. a
a 30 . I
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	a	A	0 = a a 1 = a a a
3	a	A	0 = a a 1 = a a a
4	a	A	0 = a a 1 = a a a
5	a	A	0 = a a 1 = a a a
6	F a	A	0 = a a 1 = a a a
7	a a	A	0 = a a 1 = a a a

Reserve Options

a : a a a a a). a a a 15.

Fixed Reserve

a a a a a 16 a a a .

Smart Reserve (water usage pattern)

a a a a a a a . a a a a a a a ' a a a 1.2 a a a . E a a a a a ' a a a . I a 10% a a ' a a a a a a ' a a . I a 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 .

16 30 a a 30% a a a a a a a a .

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

2.3 Conditioner Programming Tables

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

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
6		2-200	1	**Selected from Table 2.2**		[illegible]
7	B [illegible]	2-200	1	**Selected from Table 2.2**		[illegible]
9	Ba [illegible]	4-60	1	**14***	[illegible]	* [illegible]
10	a 90.8( )	1-85.3(468)-157	043-30./F1 1	31.0606 01.636.0198	0	(14)30.40*

G [illegible] 3.2 [illegible]

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	Da a ɱ Da	(1-7) 1:00-12:59 A\/▸ \/▸ \/▸ (1-7) 0:00-23:59	(1 a) 1 \/▸	**Current Day and Time**	H \/▸	a a 13. F a =1, \/▸ =2, E=3, ED=4, H =5, F I=6, A =7,. HI I HE LEF \/▸ DIGI HE DI LA
2	ɱ a a a	1:00-12:59 A\/▸ \/▸ 00:00-23:59		**As required**	H \/▸	a a 13
3	A ɱɱ			**10**		
4	a aɱ	.5-125.0 .2-50.0	.5 .2	**Selected from Table 2.2**	K aɱ	
5	aɱ a ɱɱ			**10**		
6		2-200	1	**Selected from Table 2.2**		ɱ a a a . ɱ a a aɱ a a .
7	B a a	2-200	1	**Selected from Table 2.2**		ɱ a a a . ɱ a a a .
9	Ba a ɱ	4-60	1	**14***	\/▸	*\/a a a a
10	ɱ	7-125	1	**40***	\/▸	*\/a a a a . ɱ a a a ɱ .
11	Fa ɱ	2-60	1	**4***	\/▸	*\/a a a a
12	ɱ a	0-1	1	**0**		0 = , 1 = \/▸
13	C ɱ	0-1	1	**0**		0 = 12 , 1 = 24
14	I a a Ca a	0-30	1	**0**	Da a	0 = a - *\/a a a a .
15	D a ɱ a			**0**		
16	D a ɱ a			**30**		
17	a	3-4	1	**6**		6 = 962 C
18	a e a L	0-1	1	**0**		0 = , 1 = a /Ca a a
19	D a ɱ a					
20	D a ɱ a					
21	ɱ a D a	0-254	1	**60**		ɱ ɱ ɱ a a a a
22	Fa - D CHA GE			**99**		

G 3.2 a a a aɱɱ a aɱ a .

3.1 Programming and Application

a a an n .

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

G 2.2 a a a an n a an a .

Table 3.2 - Programming Performa Cv 962F Five Cycle Filter

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

G 2.2 [illegible] .

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	Da a n a	(1-7) 1:00-12:59 A [illegible] [illegible] [illegible] (1-7) 0:00-23:59	(1 a) 1 [illegible]	**Current Day and Time**	H [illegible]	a a 13. F a =1, [illegible] =2, E=3,

G 2.2 a a a - an n a an - a .

Electronic Time Clock Operation

a a a a a .

a a a Ba a

.

a a a a :

E C a a

: I a a a Da

Ba a .

Interval Backwash E C a

a a a 30

a . a a a Ca a .

I a a 14. E a : I 5 a

14 a a a a

a 2.

Day of Week Backwash E C

a a a a a

a .

a 2.3 a 17.

Application

a C 962 C a a C

962F F a a a a , a ,

.

Dual and Triplex Conditioners and Filters

a a a a

a a a .

a a a .

a a a a a

a a a

a a a a .

D a a a a

a . I a - a a a

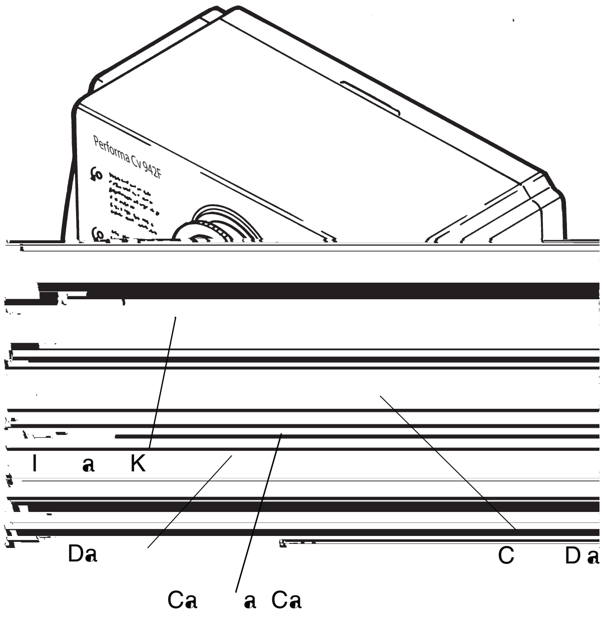
. I a

a ( )-98 a (a .5( ) .5a58115.4(279

3.2 Mechanical

Series 942F Mechanical Control

942F m a a
m a a m a a .



F 3.1

3.2.1 Settings

m Da Da Ba a a
m ma a a a 942F
.

Setting the Time of Day

a C Da **clockwise**
a m a . m a
a a a ma 2:00
a.m. I a a a a
a a m , m m a
a . F am , a a a a
4:00 a.m., C Da 2 a a
a a m a .

Note: Do not rotate the Calendar Cap by hand.
C Da Ca a Ca a . ma a
Ca a Ca , a C Da
clockwise m a
. Da a
C Da a a
a a . a m .

Setting the Days of Backwash

a a a a
a m m :

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

NOTE: EX DA a .
a a a a a
a ma 2:00 a.m. Ca a Ca
a , a
mm a EX DA
a a a
a a a ma 2:00 a.m.
a a , F E
DA

Manual Backwash

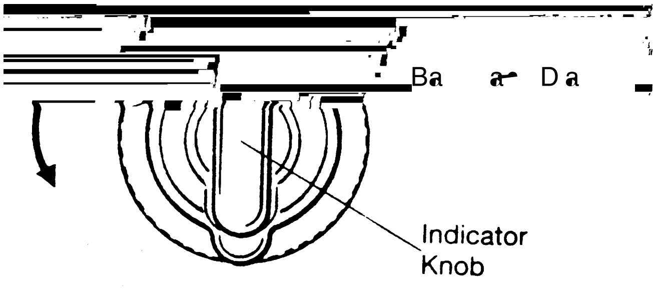
E a a a
ma a ma a a a .
m a I a K
COUNTERCLOCKWISE , A
a a a a
m . ma , a
a , ama a
a a .

24 Hour Clock

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

Adjusting the Backwash Setting

Ba D a (F 3.2) a
. I a K BACK A H
Ç LE E , a Ba D a
a a a
. A a
a
a a a ;
a a Ba D a
. Ba D a
E = a .



Ba D a
Indicator Knob

F 3.2 Ba C

Table 3.4 - Cycle Times for 942F Control

Cycle	Time (Minutes)
Ba	8 - 30
	9

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

962 .

Number	Description of Program Values	Explanation

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

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

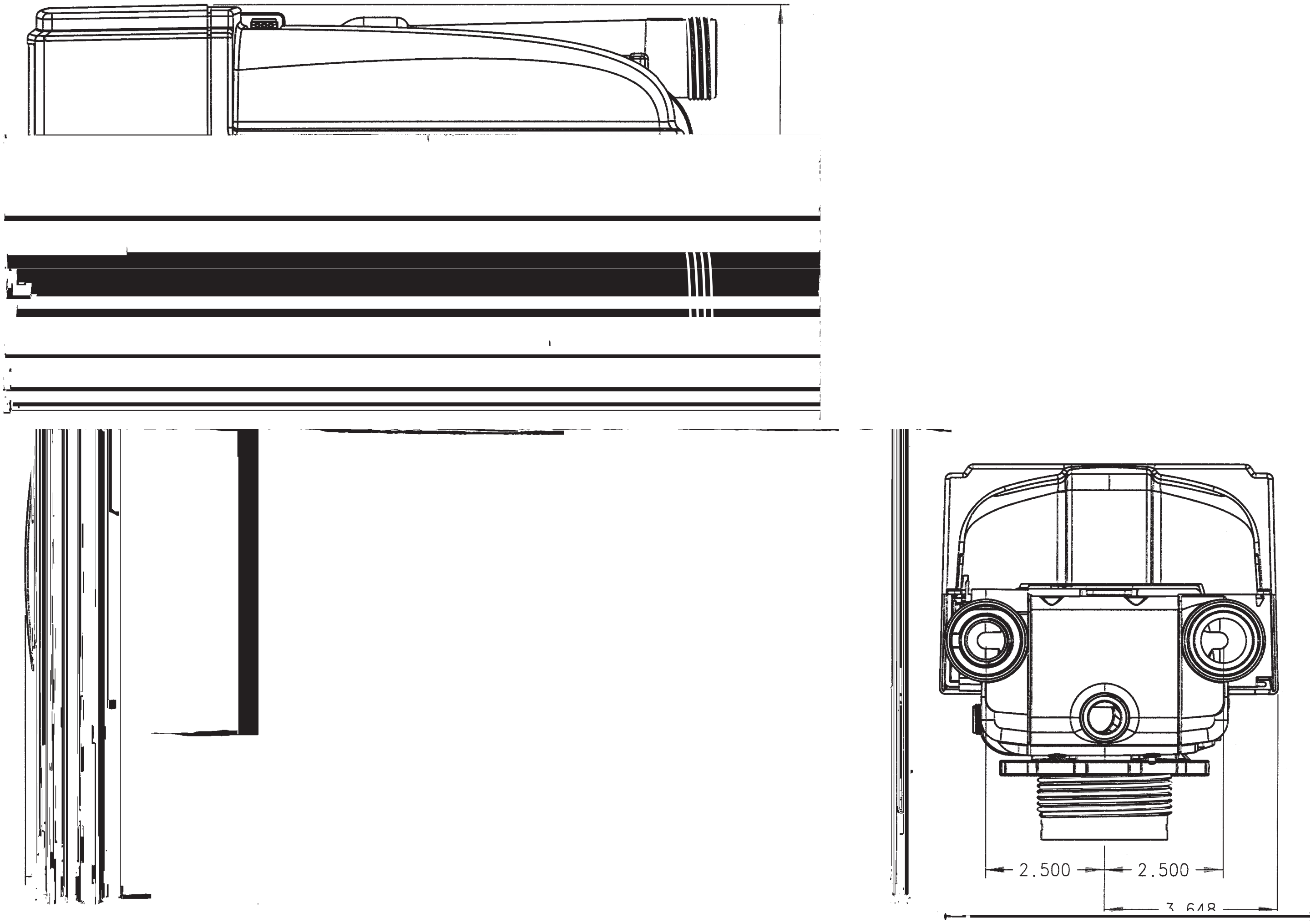
*962 a 12
24 . a 13 ( )
1 2 a a
a a .

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

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

. . . . 20-120 (1.38 - 8.27 a)

a a E a a . . . . 962: a a 12 60 H , 12 50 H
942F: 7 a 12 a /24 50 H 12 a , 60 H 120 a 12 a

E a C (a a a) 60- (1.5-) 3-

a a . . . . 2-1/2- 8 a

D a . . . . 1.050- D (26.7-)

L . . . . .1/2 1/2 (13 13) a a

a a C . . . . 1- (25.4-) a a

a C . . . . .1-1/4- , 3/4- , 22- , a 28- a a
3/4- B , 1- B , 1- a a a
3/4- , 1- , 1-1/4- , 25- C C a a

B L C . . . . 3/8- a

D a L C . . . . 3/4- a

a B a a . . . . a a , 1- , a

C , a A a . . . . a

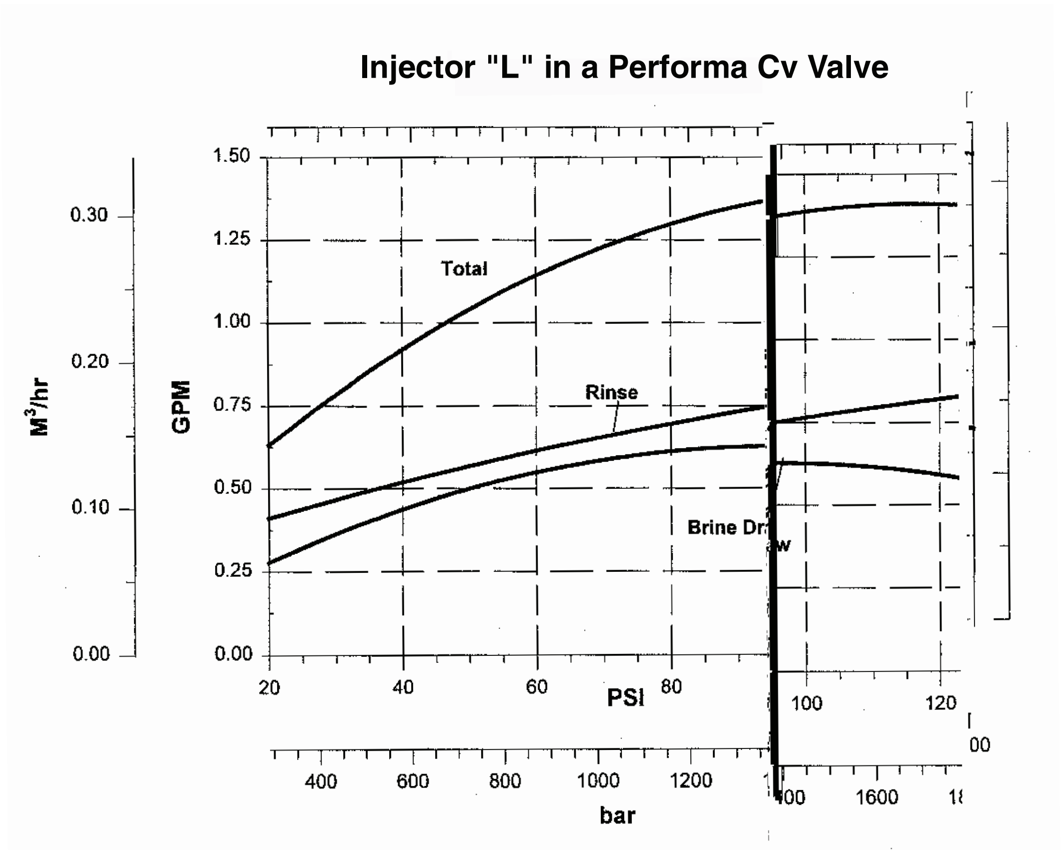
G . . . . C a

a C ( ) 942F: A a a 7- 12- a E , G a , F , I a a , a , Ja a
962, 962F, 962 C, 962F C: A a a E , G a , F , I a a , a , Ja a

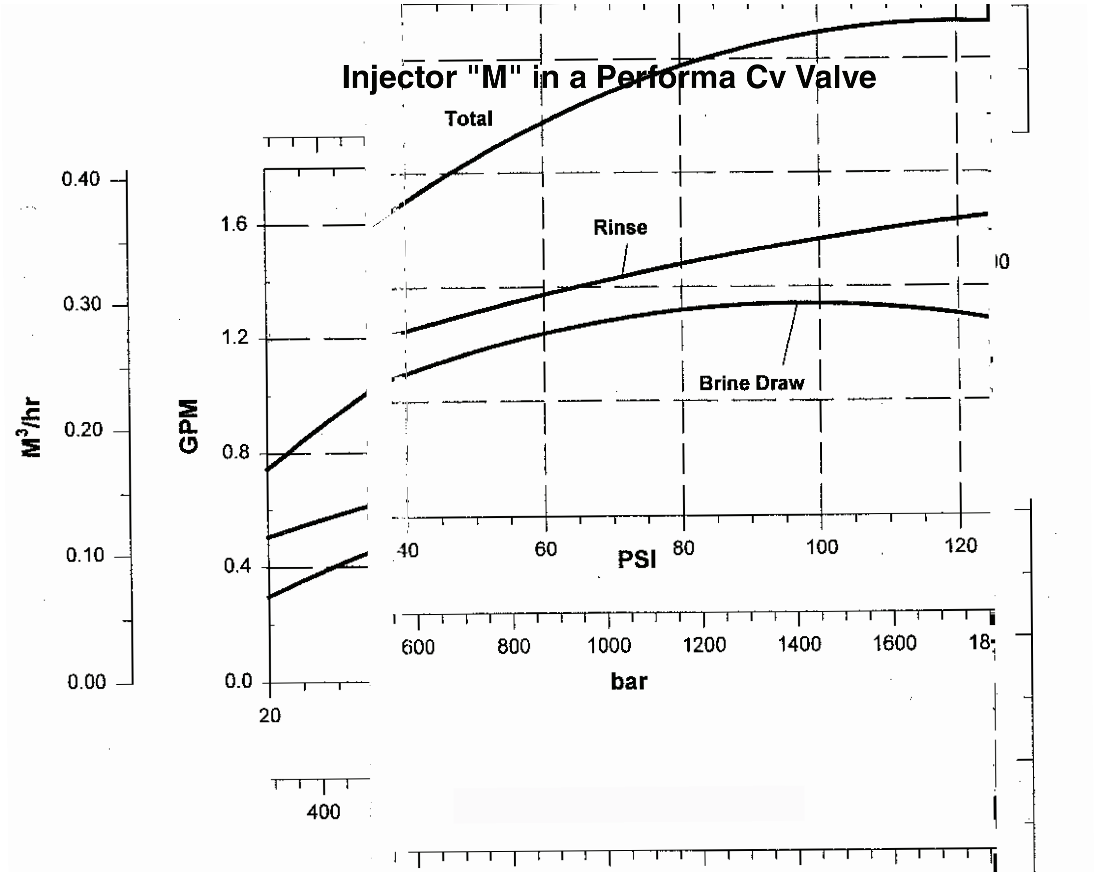
B C . . . . .0.74 a 1.3 G

E a Ba a C . . . . 5, 7, 10, 12, 15, 20 G B 20 G .

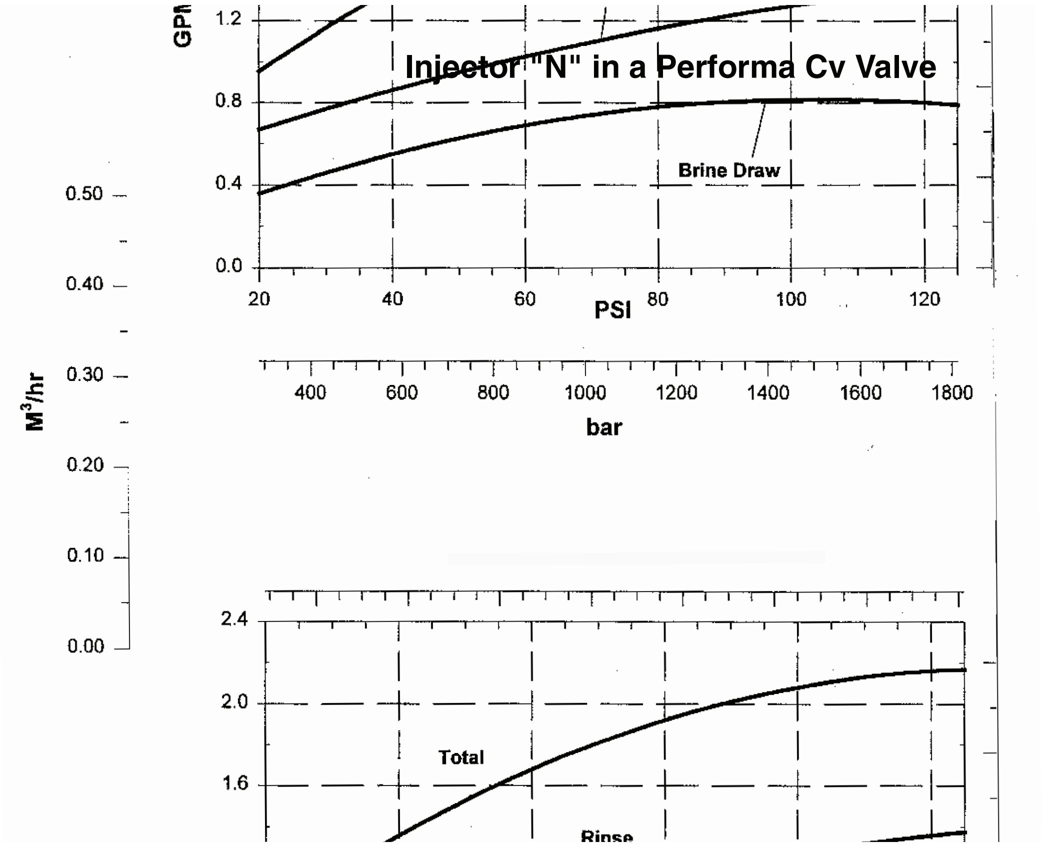
4.2 Injector Curves

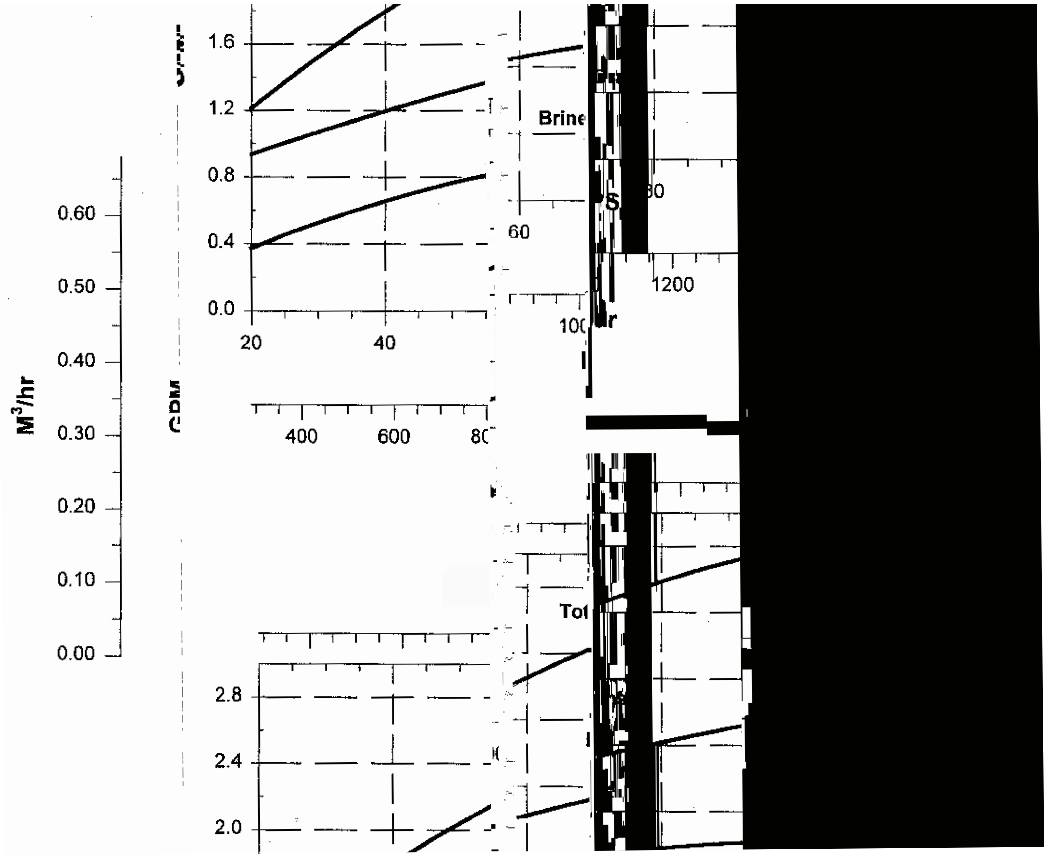


Injector "L" in a Performa Cv Valve



Injector "M" in a Performa Cv Valve


Injector "N" in a Performa Cv Valve
GPI
1.2
0.8
0.4
0.0
Brine Draw
20
40
60
80
100
120
PSI
400
600
800
1000
1200
1400
1600
1800
bar
M3/hr
0.50
0.40
0.30
0.20
0.10
0.00
2.4
2.0
1.6
Total
Rinse


1.6
1.2
0.8
0.4
0.0
Brine
20
40
60
80
1200
400
600
M3/hr
0.60
0.50
0.40
0.30
0.20
0.10
0.00
2.8
2.4
2.0
Tot

[redacted]

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^3h/sq ft)	Cation Resin @ 5 gpm/sq ft (m^3h/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)			

* Va [illegible] 25 [illegible] 1.72 a [illegible].

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

<table>
<tr><th colspan="6">Typical backwash flow requirements for various filter medias (based on 55°F (12.7°C) water temperature.</th></tr>
<tr><th colspan="2" rowspan="4"></th><th colspan="2">GAC/CARBON FILTER-AG, CALCITE</th><th></th><th></th></tr>
<tr><th colspan="3">GREENSAND</th><th></th></tr>
<tr><th></th><th colspan="2">BIRM</th><th></th></tr>
<tr><th></th><th></th><th colspan="2">SAND, MULTI-MEDIA</th></tr>
<tr><th>Tank Dia. inches (mm)</th><th>Bed Area sq. ft.</th><th>8 gpm/sq ft (Lpm/sq ft)</th><th>10 gpm/sq ft (Lpm/sq ft)</th><th>12 gpm/sq ft (Lpm/sq ft)</th><th>15 gpm/sq ft (Lpm/sq ft)</th></tr>
<tr><td>14 (35.6)</td><td>1.02</td><td>8 (30)</td><td>10 (38)</td><td>12 (45)</td><td></td></tr>
<tr><td>16 (40.6)</td><td>1.38</td><td>11 (42)</td><td>13 (49)</td><td></td><td></td></tr>
<tr><td>18 (45.7)</td><td>1.76</td><td>*14 (53)</td><td></td><td></td><td></td></tr>
<tr><td>21 (53.3)</td><td>2.4</td><td></td><td></td><td></td><td></td></tr>
</table>

* [illegible] 25 [illegible] 1.72 [illegible].

[illegible] = [illegible]. A [illegible] [illegible].

5.2

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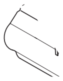
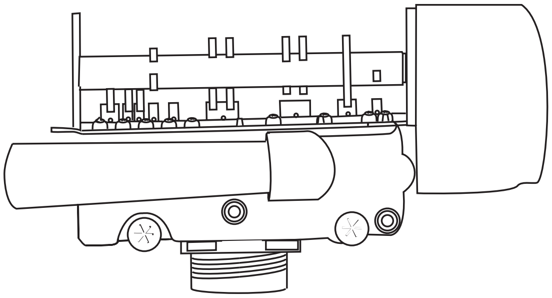
12.

a





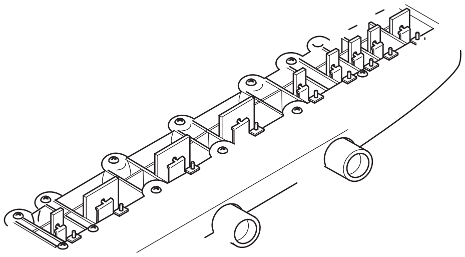
F 5.6

6. D

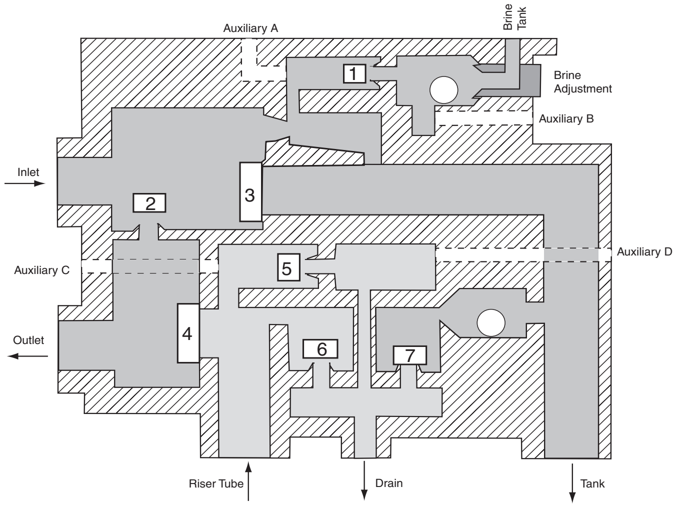
7. L , F 5.7. , ... , ,

F 5.7

5.5 Identification of Control Valving

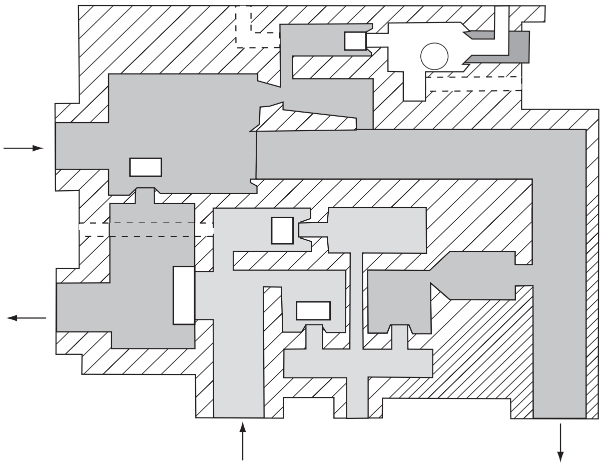


3 Brine/Slow Rinse Position


Brine
Tank
Auxiliary A
1
Brine
Adjustment
Auxiliary B
Inlet
2
3
Auxiliary D
5
Auxiliary C
Outlet
4
6
7
Riser Tube
Drain
Tank

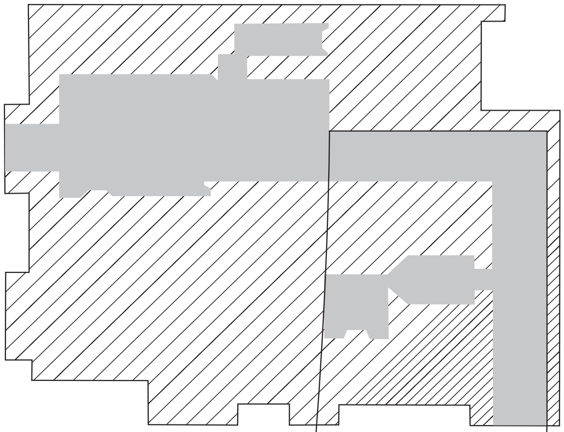
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

4 Fast Rinse Position



5.8 Performa Cv Filter Flow Diagrams

1 Backwash Position



2 Fast Rinse Position

5.9 Troubleshooting

– – – – – A ทa a a a – a ทa a . H ,– a ท a a – a – ท, – a a . F a ท , – **Replacement Parts** – ทa a.

IMPORTANT: – a – a ท ท– ทa ทa – a ! a – a . ท a ท– ท, – a a - a a – a a – a a– a a – a a ท –) – a . ท a – – ท .

Valve Troubleshooting

Problem	Possible Cause	Solution
1. C a .	a. L a . . a . . I ! . I ! . a (2 a / 4) . . Daทa - .	a. ท ทa a 30 a . . ท . . C a a . . a . . ท ทa ท a – – ท. a . . a - .
2. B a .	a. B a (1) – . . a ! . a (3 4) a a . . A a .	a. ทa a a a ท – a a . . ท a a a a . . F – ทa – a ทa a a a ท. . e a a .
3. ท ท a – a a .	a. I a a . . F ทa a a ! . D .	a. C . . ท a a a a – ทa . ทa a a a (a , = ท ท a). . a .
4. I ท a a .	a. L a . . D !	a. ท ทa a 30 a . . a – a a .
5. a a a .	a. a . . a a . . !	a. e . . A a . . C a . F – – a .
6. C a a– a – – a .	a. I a a– . . F ทa a a !	a. a – . . ท a a . F – – a .
7. F a a a a a .	a. D a a (6 7) a (1) ทa a . . a ท a a .	a. ทa a a a ท – a a . . a .
8. Ha a a a		

H79 D0a0199 -0.0( )I0.2(ท9(7(0.4( )130.4( ))30.4( )-10.)-30.2( )0.4( )1( )-10. -0)-10. 1 -1.2429.8( )30.4(30.4( ))-0.6( )-31.5(.) J-40

962 Control Troubleshooting

Alarms

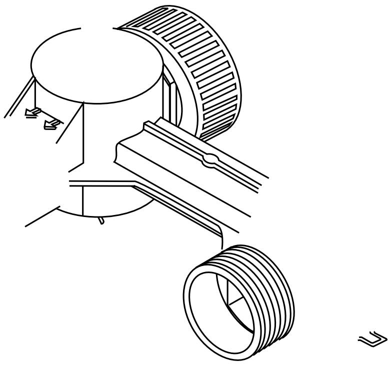
[illegible] 962 [illegible]

Problem	Possible Cause	Solution
6. a a – a ( ).	a. B a a a . . V n – . . n a na a n ! . D n . . D a .	a. – a a . . F n – . . n n – , a – – a a . – . I , – a V Va a . . a . . a .
7. C a a n na .	a. Ba a a .	a. – Va a a .
8. C a a– n a .	a. a . . n a . . n a .	a. n a n a . . n a n a . . n a .
9. n a a .	a. V a . . V a a . . a . . I a (H). . B a . . D – . . A a (a). – . B an– a . . a a – a 125 a . . D a .	a. a . . a . . a . . a n a / a n – a a (H). . a . . a . . e a a na a a . – . n n a an– a . . I a a . . a .
10. C a . Can– a a– a .	a. B a . . D – .	a. a . . a .
11. C a a na a – EGE .	a. a n . . a . . D n . . B a . . B a a . . D – .	a. C . . a . . a . . a . . a . . a .
12. C a a na a a – EGE .	a. I a a a , n 5 – a . . I – a a a a . . D a .	a. n 5 – a . . a . – ann . . a .
13. a a .	a. In a . . F . . I a . . I – a a a . . a – a – a a . . n a na a n – ! . E a a 1/5 a n .	a. a a na a – a a a . . a . . a . – ann – na a . . a . – ann – na a . . a . – ann – na a . . n n – , , a – – a a . – , , a n . . a a n a / .

a Cv Parts

ent Exploded View

6.3 Performa Cv Controls



2009 a a F a , LLC
/ 1228354 . E A09