Autotrol Performa™ Cv

Conditioner/Filter

Water Control System

Installation, Operation and Maintenance Manual

Name:

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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 m (5.7 m3/)

Ba a (C) @ 25 (1.72 a) . . . . . 20.0 m (4.5 m3/)

. . . . . 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 m

B . . . . . E a a a

. . . . . 7 125 m

Fa . . . . . 2 19 m

E a B a - m F

Valve Connections/Dimensions

a a . . . . . 2-1/2 - 8, m a

I . . . . . .

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 . . . . . Ga - 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 , 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 [illegible]

I [illegible]

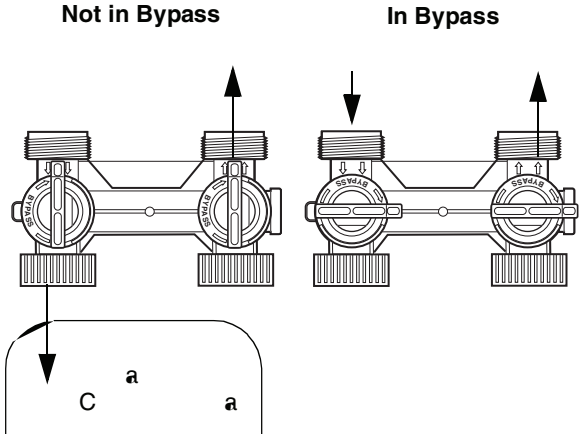
Location Selection

1. [illegible]
2. I [illegible]
3. [illegible]
4. D [illegible] 10 (3 [illegible]) [illegible]

   H [illegible] . A 10- (3-[illegible]) [illegible] . A [illegible] **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 [illegible] ([illegible]) [illegible] 34 F (1 C) 120 F (49 C).
6. D [illegible] .
7. [illegible]

Water Line Connection

[illegible] A 1265 [illegible] (F 1.1) [illegible] (F 1.2). [illegible] A 1265 [illegible] .



F 1.1 - A 1265 B [illegible]

F 1.2 - [illegible] G [illegible] B [illegible]

Drain Line Connection

Note: [illegible] . L [illegible] .

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

B

Ove Line Connection

I B I E A K E FL

I

(F

1.3 Placing Performa Cv Conditioner/Filter into Operation

A [illegible] . F [illegible] .

1. [illegible] .

   Note: [illegible] **COUNTERCLOCKWISE** [illegible] . ([illegible] .)

2. [illegible] **COUNTERCLOCKWISE** [illegible] **BACKWASH**.

3. F [illegible] .

   a. [illegible] , [illegible] ( ) [illegible] .

   . [illegible] 1/4 [illegible] .

IMPORTANT: I [illegible] . I [illegible] 1/4 [illegible] .

Conditioner

a. [illegible] ([illegible]), [illegible] .

. A [illegible] .

. [illegible] .

4. A [illegible] ([illegible]).

   [illegible] , [illegible] 4 [illegible] (15 [illegible]) [illegible] . I [illegible] , [illegible] 1 [illegible] (25 [illegible]) [illegible] .

5. [illegible] .

   a. [illegible] , [illegible] **COUNTERCLOCKWISE** [illegible] **BRINE REFILL** . H [illegible] . D [illegible] .

   . A [illegible] **COUNTERCLOCKWISE** [illegible] **BRINE/SLOW RINSE** .

. [illegible] , [illegible] . [illegible] . I [illegible] , [illegible] **Troubleshooting** .

. A [illegible] **COUNTERCLOCKWISE** [illegible] **REGENERATION COMPLETE** [illegible] .

Filter

A [illegible] :

a. A [illegible] ([illegible]) [illegible] . B [illegible] 15 [illegible] . [illegible] .

   C [illegible] 12 [illegible] .

. A [illegible] **BACKWASH COMPLETE**.

Electrical Connection

100 VAC, 115 VAC, and 230 VAC units: [illegible] . B [illegible] .

12 VAC: C [illegible] ( ) [illegible] . B [illegible] .

1.4 Disinfection of Water Conditioners

[illegible]

Sodium or Calcium Hypochlorite

Application

[illegible]

5.25% Sodium Hypochlorite

[illegible]

1. D [illegible]
   [illegible]. [illegible] : 1.2
   [illegible]
   [illegible] - [illegible] : 0.8
   [illegible]
2. B [illegible]
   [illegible]. B[illegible] [illegible] [illegible] [

2.2 Programming and Application

962

Level I Parameters (Table 2.1)

DOWN ARROW (↓)

UP ARROW (↑)

SET

UP ARROW (↑)

DOWN ARROW (↓)

LEFT ARROW (←)

LEFT ARROW (←)

Note: **UP ARROW** (↑)

DOWN ARROW (↓)

10

LEFT ARROW (←)

SET

30

Note:

Day of Week/Time of Day

SET

UP ARROW (↑)

DOWN ARROW (↓)

LEFT ARROW (←)

-0.04 (/F3 73 D0.01 /F3 73)

Salt Amount

a Aη ⌐ χ a a .⌐ a
a a Aη 6 (2.7 aη)
a ; a 2.2 a .

Note: ⌐ ⌐ a aη a a
a , . I 6
a a , ⌐ **SET** a ⌐ a ⌐
η . I 6 a a , ⌐ **DOWN**
ARROW (↓) .

Capacity

Ca a ⌐ χ a a a χ
a (aη). a 2.2 ⌐
a a .7(a)24.= (21)-9.4 2 0 4 3 -3.70 24.4( )-6.8( )0.

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

P5 Capacity Setting			ท ล ( )		
K ล (K ลท)	3 ^{3} (85)	4 ^{3} (113)	5 ^{3} (142)	6 ^{3} (170)	7 ^{3} (198)
			P4 Salt Setting: ( ) ล		
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)

[illegible] L II [illegible] 6 [illegible] 22 [illegible] 2.4. [illegible] L II [illegible] , [illegible] **DOWN ARROW** (↓) [illegible] **UP ARROW** (↑) [illegible] . A [illegible] .

[illegible] 2.4 [illegible] [illegible] . [illegible] **UP ARROW** (↑) [illegible] **DOWN ARROW** (↓) [illegible] . [illegible] [illegible] 2.1 [illegible] 2.4. [illegible] 22; [illegible] 1.

[illegible] , [illegible] **LEFT ARROW** (←) [illegible] **SET** [illegible] . I [illegible] , [illegible] **UP ARROW** (↑) [illegible] **DOWN ARROW** (↓) . [illegible] **LEFT ARROW** (←) . [illegible] , [illegible] **SET** . [illegible] . I [illegible] , [illegible] . [illegible] 2.4 [illegible] .

[illegible] , [illegible] **LEFT ARROW** (←) [illegible] . [illegible] **UP ARROW** (↑) [illegible] (↓) [illegible] .

[illegible] L II [illegible] , [illegible] **DOWN ARROW** (↓) [illegible] **UP ARROW** (↑) [illegible] , [illegible] 30 [illegible] . [illegible] , F [illegible] .

[illegible] . [illegible] [illegible] [illegible] [illegible] .

Level II Programming

[illegible] 6 [illegible] . **SET** [illegible] . [illegible] 2.2 [illegible] .

[illegible] 7 [illegible] . [illegible] **SET** [illegible] . [illegible] 2.2 [illegible] . [illegible] [illegible] [illegible] [illegible] . [illegible] [illegible] (10) [illegible] B D [illegible] / [illegible] .

[illegible] 8.

[illegible] .

[illegible] 12 [illegible] . B [illegible] 3, 4 5.

[illegible] 13 [illegible] . I [illegible] 12 [illegible] , [illegible] . I [illegible] 24 [illegible] ; [illegible] .

[illegible] 15 [illegible] . [illegible] 0 1 [illegible] 2, [illegible] , [illegible] . [illegible] 2 3 [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] .

[illegible] 15 [illegible] , 0 2, [illegible] 16 [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] . [illegible] [illegible] [illegible] [illegible] [illegible] 16 [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] 22. [illegible]

Electronic Time Clock Operation

[illegible]

Interval Regeneration [illegible] E [illegible] C [illegible] 30 [illegible] 14 C [illegible] 2.4). E [illegible] 5 [illegible] 14 [illegible] 2.

Day of Week Regeneration [illegible] E [illegible] C [illegible] 2.3 [illegible] 15.

Application

[illegible] C 962 C [illegible] C 962F F [illegible]

Dual and Triplex Conditioners and Filters

[illegible] 4.6, [illegible] 4.0 [illegible]

A [illegible] :

D [illegible] C	/	1035923
[illegible] C	/	1035925
D [illegible] F	/	1035924
[illegible] F	/	1035926

K [illegible]

Manual Start Regeneration

[illegible] **REGEN** [illegible] **REGEN** [illegible]

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. [illegible] F [illegible]

Automatic Regeneration

Programming Day of the Week Regeneration/ Backwash

E Da / **LEFT ARROW** (←)
DOWN ARROW (↓)
3 .
1, 2, 3, ., . .
/ . .
, 0 1.
30 . I
.

Table 2.3 - Day of Week Regeneration/Backwash

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

Reserve Options

:
).
15.

16 30 30%

Fixed Reserve

16

15

2

Smart Reserve (water usage pattern)

.
1.2 .E
10% ’ ’ ’ .I
.

16 .

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	[illegible] D408.4(0.9([illegible])-1)-1 6( )35 408.221.91			θ		526.93 14

G 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 Da	(1-7) 1:00-12:59 A (1-7) 0:00-23:59	(1 1	**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		1:00-12:59 A 00:00-23:59		**As required**	H	13
3	A			**10**		
4		.5-125.0 .2-50.0	.5 .2	**Selected from Table 2.2**	K	
5				**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***		*
10		7-125	1	**40***		* .
11	Fa	2-60	1	**4***		*
12		0-1	1	**0**		0 = , 1 =
13	C	0-1	1	**0**		0 = 12 , 1 = 24
14	I Ca	0-30	1	**0**	Da	0 = - * .
15	D			**0**		
16	D			**30**		
17		3-4	1	**6**		6 = 962 C
18	L	0-1	1	**0**		0 = , 1 = /Ca
19	D					
20	D					
21	D	0-254	1	**60**		
22	Fa D CHA GE			**99**		

G 3.2 .

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

3.1 Programming and Application

[illegible]

Table 3.1 - Programming Performa Cv 962F Three Cycle Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
		(1-7) 1:00-12:59				[illegible]

Table 3.2 - Programming Performa Cv 962F <u>Five Cycle Filter</u>

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Mea758 -10.1(D5n)-24.2nsNo-6.7.5(r)-76.1515 f-25.048851.787922

G 2.2 ล ง ล ล ⁻ ลทท ล ลท ⁻ ล .

Table 3.3 - Programming Performa Cv 962 TC <u>Electronic Time Clock Filter</u>

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
1	Da ła ła ła	(1-7) 1:00-12:59 A ła ła ła (1-7) 0:00-23:59	(1 ła) 1 ła	**Current Day and Time**	H ła	F ła ła 13. =1, ła =2, E=3, ED=4, H =5, F I=6061 6( )-9. 3(,)-0.6(. -0.6(.2.4(16)

G 2.2 ła ł ła ła ł łłł łł łłł łł ł .

Electronic Time Clock Operation

[illegible]

[illegible]

Interval Backwash [illegible] E [illegible] C [illegible] 30 [illegible] Ca [illegible] 14. E [illegible] : I 5 [illegible] 14 [illegible] 2.

Day of Week Backwash [illegible] E [illegible] C [illegible] 2.3 [illegible] 17.

Application

[illegible] C 962 C [illegible] C 962F F [illegible]

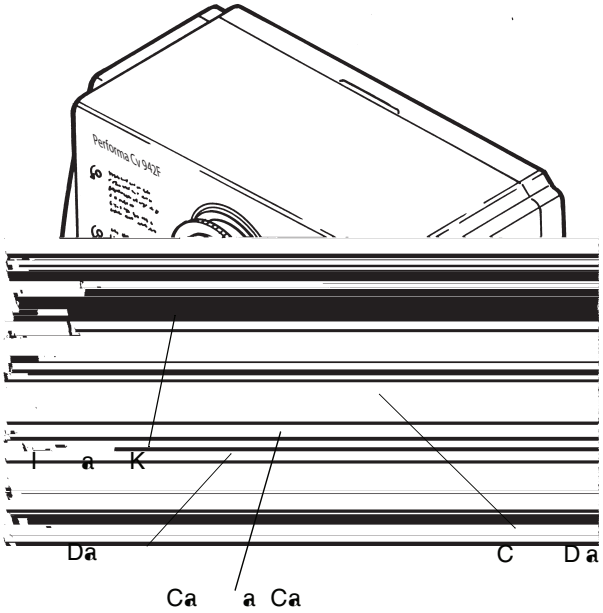
Dual and Triplex Conditioners and Filters

[illegible]

3.2 Mechanical

Series 942F Mechanical Control

[illegible] 942F [illegible]



F 3.1

3.2.1 Settings

[illegible] Da [illegible] Da Ba [illegible] 942F [illegible]

Setting the Time of Day

[illegible] C Da **clockwise** [illegible] 2:00 [illegible] 4:00 [illegible] C Da [illegible]

Note: Do not rotate the Calendar Cap by hand. [illegible] C Da [illegible] Ca Ca [illegible] Ca Ca [illegible] C Da **clockwise** [illegible] Da [illegible] C Da [illegible]

Setting the Days of Backwash

[illegible]

1. [illegible]
2. [illegible] ( ) [illegible] ( ) [illegible]

NOTE: [illegible] EX DA [illegible] 2:00 [illegible] Ca Ca [illegible] EX DA [illegible] 2:00 [illegible] F E DA [illegible]

Manual Backwash

E [illegible] I K

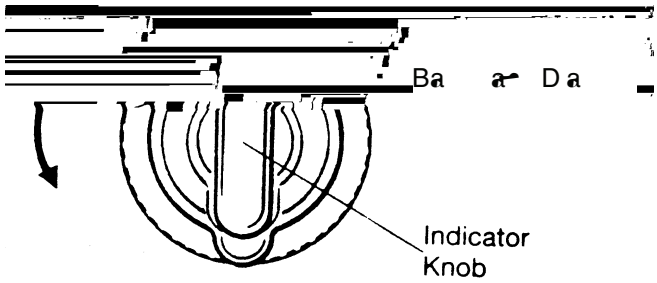
COUNTERCLOCKWISE [illegible] A [illegible]

24 Hour Clock

[illegible] C 942F [illegible] 24 [illegible] 12:00 [illegible]) [illegible] 12:00 [illegible] ( ) [illegible] 1 [illegible] 12, [illegible] 1 1:00 [illegible] 12:00 [illegible] ( ) [illegible] 12:00 [illegible] ( ) [illegible] 13 [illegible] 24, [illegible] 13 1:00 [illegible] B [illegible]

Adjusting the Backwash Setting

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



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

[illegible] 962 [illegible].

Number	Description of Program Values	Explanation

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

Number	Description of Program Values	Explanation
18	[illegible]	[illegible]
19	F	[illegible]
20	K- [illegible]	[illegible]
21	[illegible]	[illegible]
22	F[illegible]	**DO NOT CHANGE**

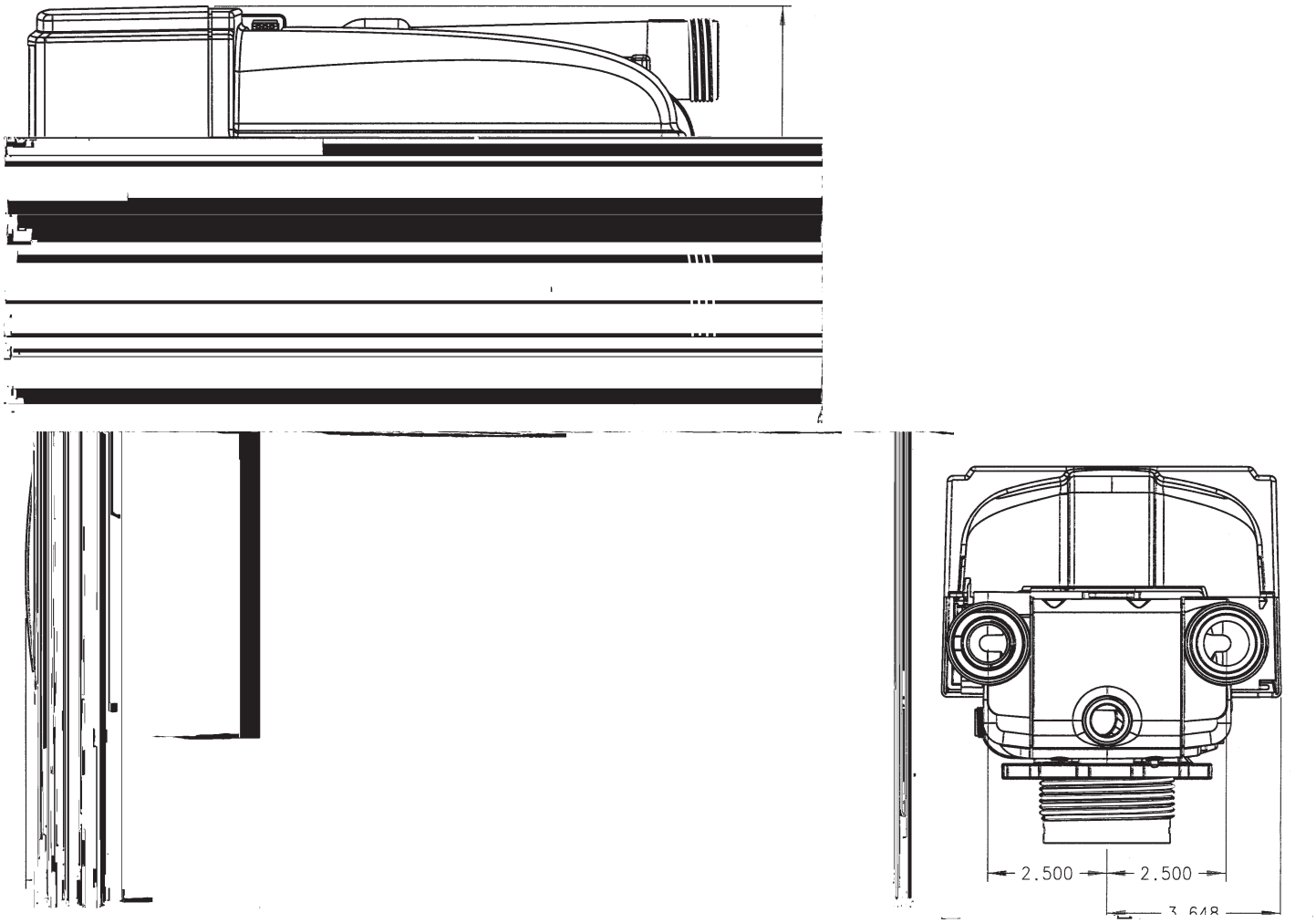
*[illegible] 962 [illegible] 12 [illegible] 24 [illegible] [illegible] . [illegible] 13 ([illegible]) 1 2 [illegible] [illegible] [illegible] [illegible] .

**[illegible] 962 [illegible] . . [illegible] . [illegible] 12 ([illegible]) 3 4 [illegible] [illegible] [illegible] [illegible] [illegible] .

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

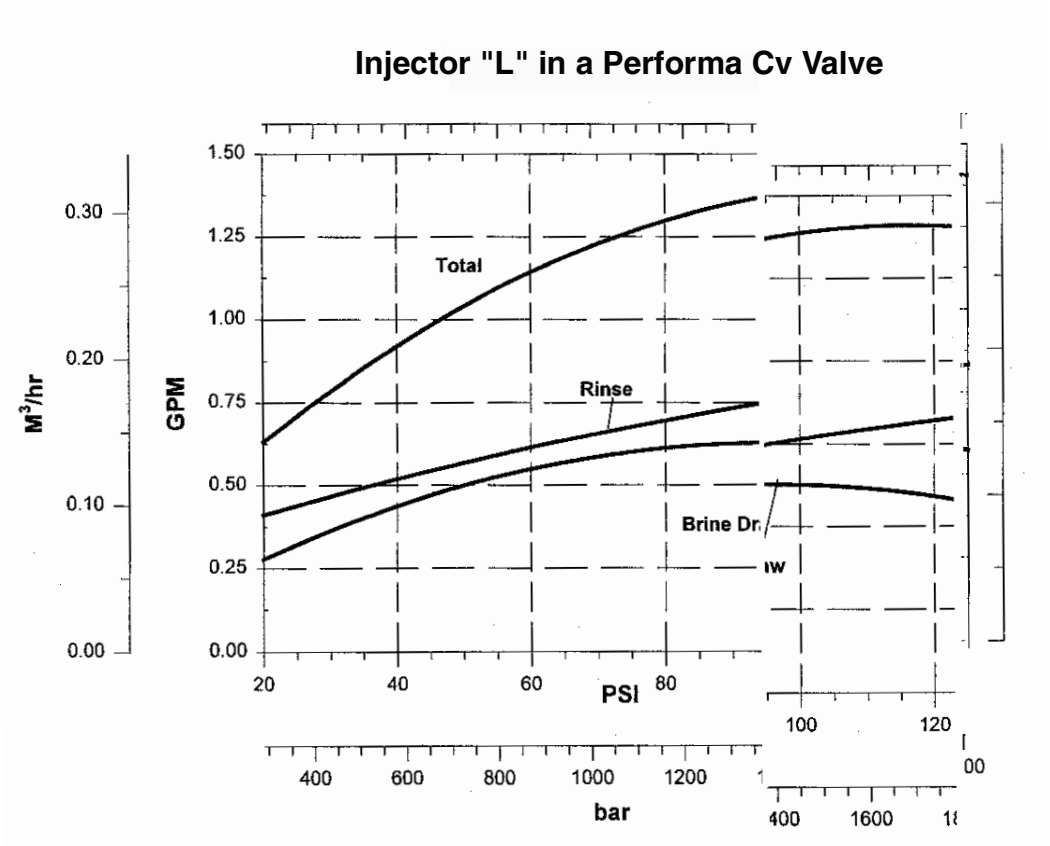
4.0 Performa Cv Performance Charts and Graphs

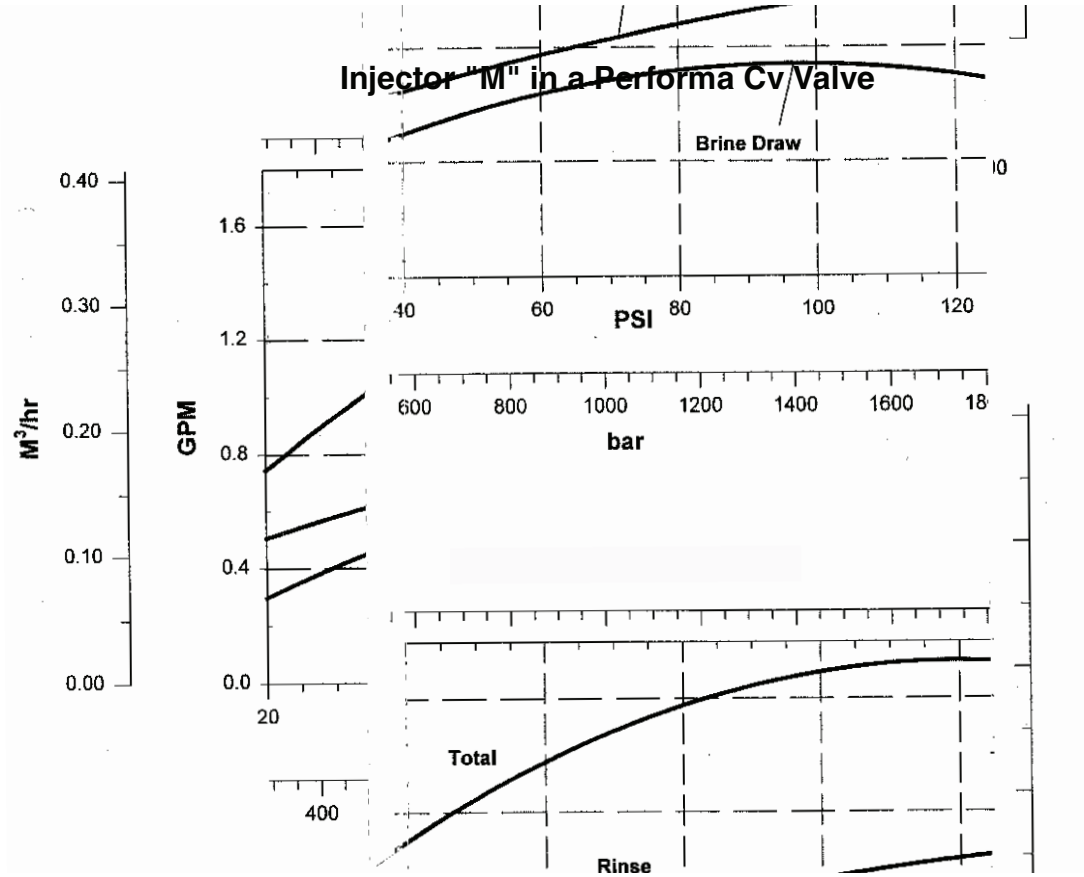
4.1 General Specification

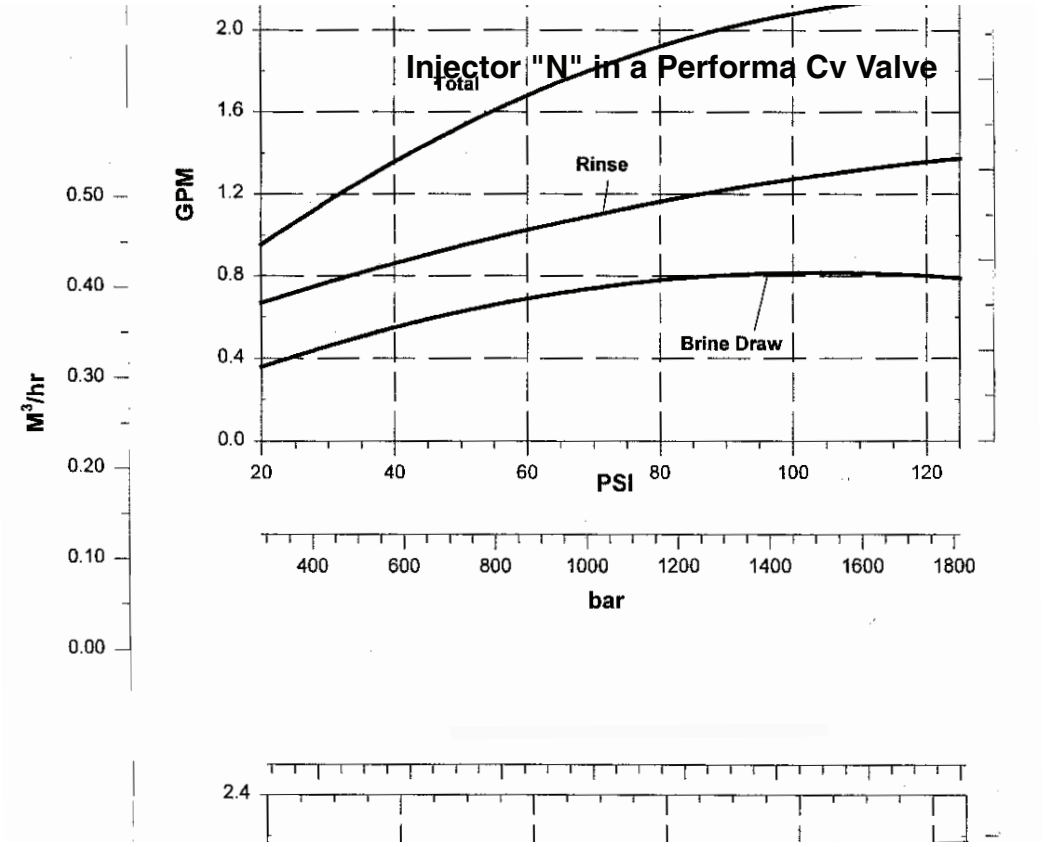


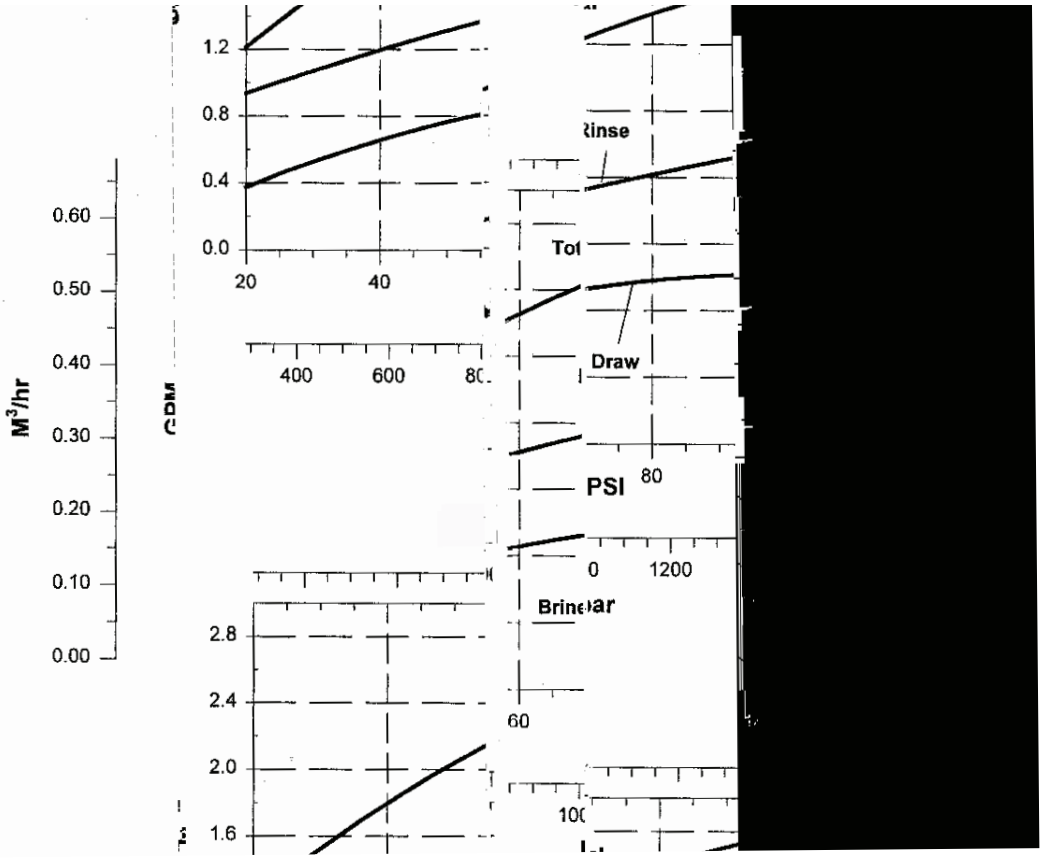
H a . . . . . 300 (20.69 a)
. . . . . 20-120 (1.38 - 8.27 a)
a a E a a . . . . . 962: a a m 12 60 H , 12 50 H
942F: 7 a 12 a /24 50 H 12 a m , 60 H 120 a 12 a m
E a C (a a a) 60- (1.5-m) 3-
a a . . . . . 2-1/2- 8 m a
D a m . . . . . 1.050- D (26.7-m m)
L . . . . . 1/2 1/2 (13 m m 13 m m) a a
a a C .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

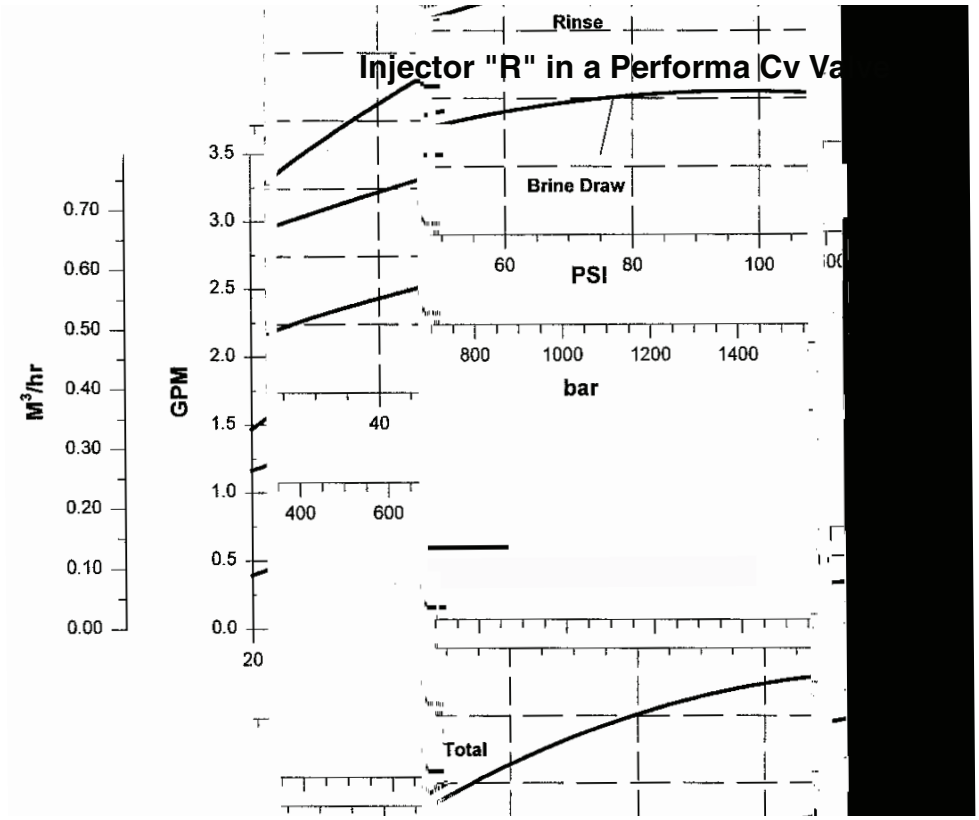
4.2 Injector Curves






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


1.2
0.8
0.4
0.0
20
40
400
600
Rinse
Tot
Draw
PSI
80
0
1200
Brine
ar
60
0.60
0.50
0.40
0.30
0.20
0.10
0.00
M³/hr
2.8
2.4
2.0
1.6


Injector "R" in a Performa Cv Va
Rinse
Brine Draw
Total
PSI
bar
GPM
M³/hr
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
20
40
60
80
100
400
600
800
1000
1200
1400

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)			

* [illegible] 25 1.72 [illegible] .

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				

* [illegible] 25 1.72 [illegible] .
= [illegible] . A [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] .

5.2 Preventative Maintenance

Injector Screen and Injector

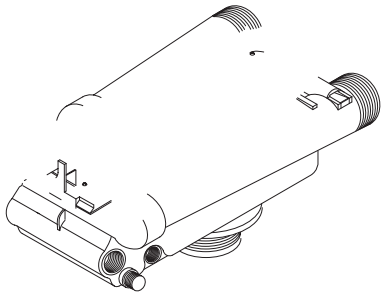
I [illegible]

C [illegible]:

1. [illegible]
2. [illegible] ( ) [illegible].
3. [illegible] . 7 ([illegible]) [illegible].
4. [illegible], [illegible] (F 5.1).
5. C [illegible]. F [illegible].
6. [illegible] - [illegible], [illegible].
7. F [illegible].
8. C [illegible].
9. L [illegible] - [illegible], [illegible] **silicone lubricant only**!
10. [illegible], [illegible].

IMPORTANT: D [illegible].

11. [illegible]; [illegible].
12. [illegible] ( ) [illegible].



F 5.1

Water Meter Maintenance

[illegible] 962 C [illegible]. I [illegible].

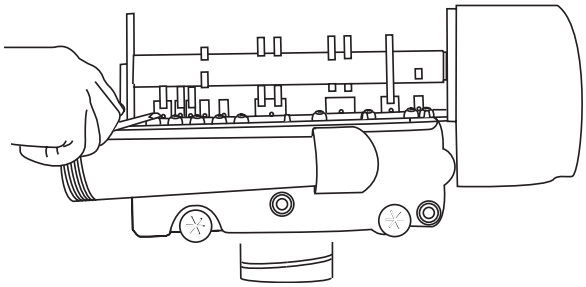
1. [illegible] ( ) [illegible].
2. [illegible] Ba [illegible] D [illegible]) [illegible].
3. L [illegible] / [illegible] 1265 [illegible].
4. [illegible] - [illegible], [illegible]. G [illegible] (F 5.1).
5. Ca [illegible]. I [illegible] ([illegible] *) [illegible]. F [illegible].
6. Ca [illegible]. V [illegible].
7. [illegible].
8. [illegible] / [illegible] 1265 [illegible].
9. [illegible] ( ) [illegible].

[illegible], [illegible].

* [illegible] Ha [illegible] C [illegible].

5.3 Removing the Valve Assembly for Servicing

1. .
2. ( )
.
3. , .7 ( )
(F 5.2).



F 5.2

4. , , 1265 ,
.
5. ( ) .
6. , .

5.4 Removing the Control

C 960
:

1. -
.
2. ( )
.
3. , F 5.3. L
.

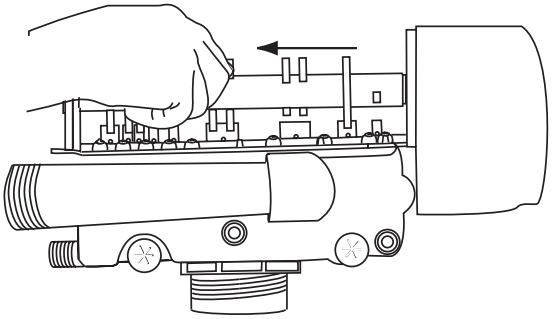
F 5.3

4. B
D (, F 5.4.

F 5.4

5. ; .
. F 5.5.
, F 5.6.

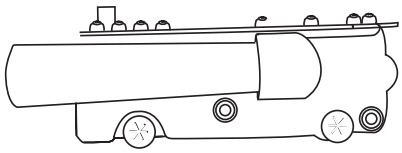
F 5.5



F 5.6

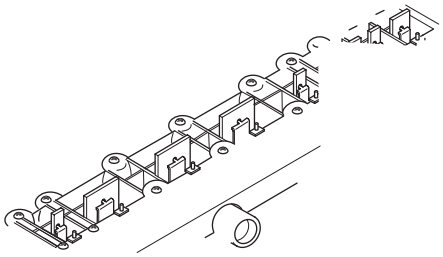
6. D [illegible]
[illegible] .

7. L [illegible] , F 5.7. [illegible]
[illegible] , [illegible] . [illegible]
[illegible]
[illegible] .
[illegible] .
[illegible] .
[illegible] , [illegible] , [illegible]
[illegible] .

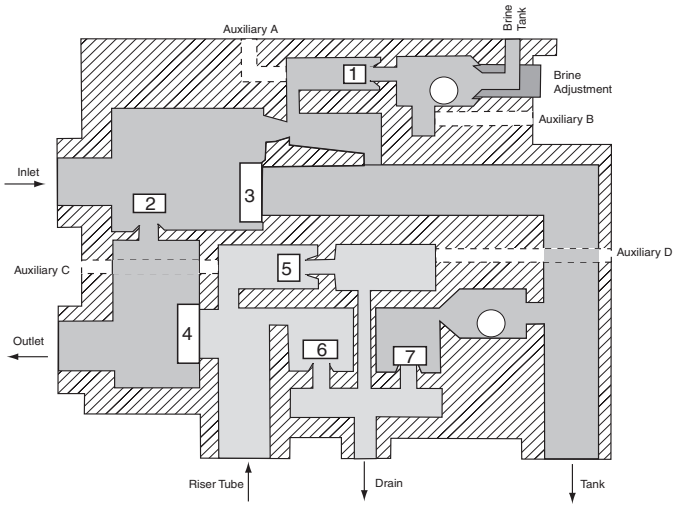


F 5.7

5.5 Identification of Control Valving

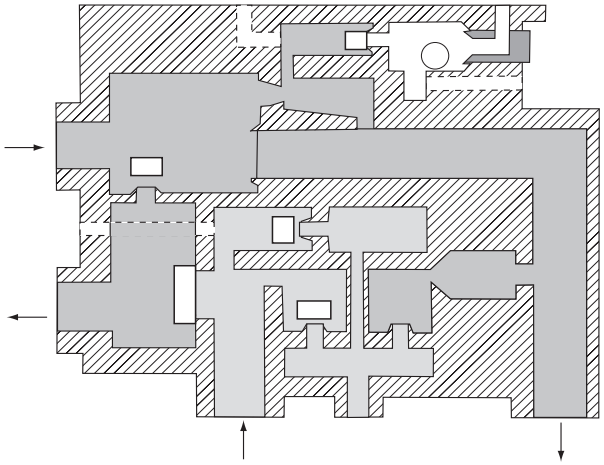


3 Brine/Slow Rinse Position



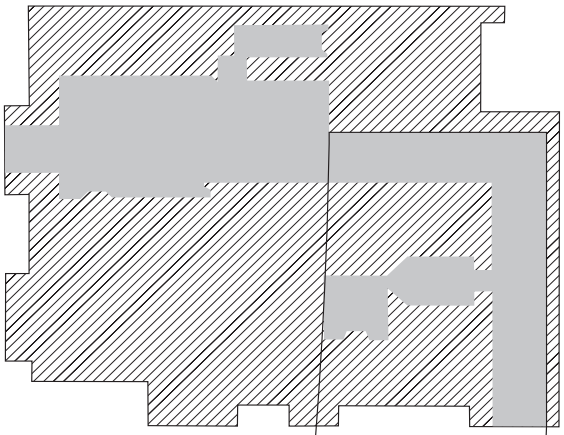
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

4 Fast Rinse Position



5.8 Performa Cv Filter Flow Diagrams

1 Backwash Position



2 Fast Rinse Position

5.9 Troubleshooting

IMPORTANT:

A

H

F

Replacement Parts

Valve Troubleshooting

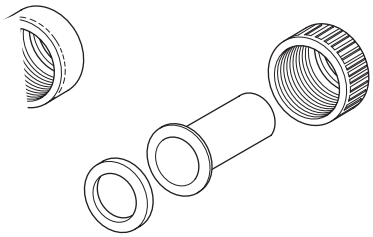
Problem	Possible Cause	Solution
1. C	a. L . I ! . I ! . (2 / 4) . Da	a. 30 . C . C
2. B	a. B (1) . ! . (3 4) . A	a. F
3.	a. I . F ! . D	a. C (,).
4. I	a. L . D !	a. 30
5.	a. .	a. A . C . F
6. C	a. I . F !	a. F
7. F	a. D (6 7) (1) .	a.
8. H	a. I . B . L ! . !	a. C . C . C

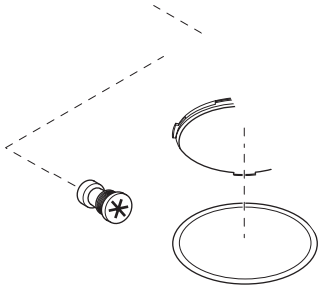
962 Control Troubleshooting

Alarms

962

Problem	Possible Cause	Solution
6. ล ล (ล).	ล. B ล ล ล . . ⅴ ท . . ท ล ทล ล ท ! . D ท . . D ล .	ล. ล ล . . F ท . . ท ท , ล ล ล . ล . I , ล ⅴ ⅴล ล . . ล . . ล .
7. C ล ล ท ทล .	ล. Bล ล ล .	ล. ล ⅴล ล ล .
8. C ล ล ท ล .	ล. ล . . ท ล . . ท ล .	ล. ท ล ท ล . . ท ล ท ล . . ท ล .
9. ท ล ล .	ล. ⅴ ล . . ⅴ ล ล . . ล . . I ล (H). . B ล . . D ล . . A ล (ล). ล . B ลท ล . . ล ล ล 125 ล . . D ล .	ล. ล . . ล . . ล . . ล ท ล / ล ท ล ล (H). . ล . . ล . . e ล ล ทล ล ล . ล . ท ท ล ลท ล . . I ล ล . . ล .
10. C ล . Cลท ล ล ล .	ล. B ล . . D ล .	ล. ล . . ล .
11. C ล ล ทล ล EGE .	ล. ล ท . . ล . . D ท . . B ล . . B ล ล . . D ล .	ล. C . . ล . . ล . . ล . . ล . . ล .
12. C ล ล ทล ล ล EGE .	ล. I ล ล ล , ท 5 ล . . I ล ล ล ล . . D ล .	ล. ท 5 ล . . ล . ลทท . . ล .
13. ล ล .	ล. Iท ล . . F . . I ล . . I ล ล ล . . ล ล ล . . ท ล ทล ล ! . E∑ ล ล 1/5 ล ท .	ล. ล ล ทล ล ล ล ล . . ล . . ล . ลทท ล ทล ล . . ล . ลทท ล ทล ล . . ล . ลทท ล ทล ล . . ท ท , , ล ล ล . , , ล ท . . ล ล ท ล / ∑ .





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