

Autotrol Performa™ Cv

Conditioner/Filter

Water Control System

Installation, Operation and Maintenance Manual

— n a :



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1.0 Performa Cv System

1.1 Specifications

1.1.1 Performa Cv Conditioner

Flow Rates (Valve Only)

@ 15 (1.03 a)	25.0	η (5.7 η ³)
Ba a (C) @ 25 (1.72 a)	20.0	η (4.5 η 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 η
B	E	a a a
	7	125 η
Fa	2	19 η
E _γ a B a - η F		

Valve Connections/Dimensions

a a	2-1/2	- 8, η a
I l		

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 ₂ Fa	9 η

962F Microprocessor Demand

Ba a	4 60 η
Fa	2 19 η

962 FTC Electronic Time Clock

Ba a	4 60 η
Fa	2 19 η

Interval Regeneration.....Da - a

Valve Connections/Dimensions

a - a	2-1/2 - 8, ηa
I ↓	1-3/4 - 12 C-2A, ηa
Da L	3/4- , ηa
B L	3/8- , ηa
D ↓ .D.	1.050 - (27 ηη)
D L -	1/2 1/2 - (13 ηη 13 ηη) a a

Operating

a B	Ga - a
C η	C η a
- (a - C)	4.5 (2.0)
a η ↓	12 AC 400 ηA (4.6 A)
a η I	115 50/60 H , 230 50/60 H
	100 50/60 H
↓ a	10 120 (1.37 8.27 a)
	Ca a a: 20 100 (1.37 6.89 a)
a η a	34° 100°F (1° 38°C)

Options

B a a , V _a 1265	1-3/4 - 12 C - 2A ηa
B a I ↓ F K :	
C , a A a	1-1/4- , 1- , 3/4- , 28-ηη, 22-ηη
C C, A a	1- , 3/4- , 25-ηη
a B A a	1- ηa , 3/4- ηa
B a B A a	1- ηa , 3/4- ηa

Flow Meter 962 Control 1- - A

4.1 a a .

1.2 Installation

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

Location Selection

1. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
 2. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
 3. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
 4. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
- If a check valve is installed, make certain the water heating unit is equipped with a properly rated temperature and pressure safety relief valve. Also, be certain that local codes are not violated.

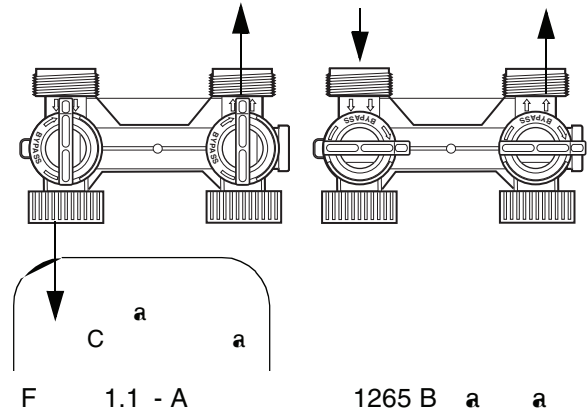
5. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
6. The water supply line should be installed in a location that is accessible and not subject to freezing temperatures.
7. The water supply line should be installed in a location that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

Water Line Connection

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

Not in Bypass

In Bypass



F 1.2 - a G a B a n

Drain Line Connection

Note: The drain line should be installed in a location that is accessible and not subject to freezing temperatures.

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

(18-77)

1.3 Placing Performa Cv Conditioner/Filter into Operation

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

1. η a
- a η

Note: ➤

— **COUNTERCLOCKWISE** (

2. a a COUNTERCLOCKWISE
BACKWASH.

3. F ၈ ၁၁ - ၁၁ .
 ၁. - ၁ , ၁ - ၁ ၁ ()

a y na - 1/4

IMPORTANT: I _____ a _____ a, η a
 ကာ . | - 1/4 _____ , - - a
 a a _____ η a .

Conditioner

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

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

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

Troubleshooting

COUNTERCLOCKWISE
REGENERATION COMPLETE

Filter

A n a y a :

a. A — a-a ၈ a
 (a a a)
 ၈ Ba a
 ၈ a ၈ ၈ ၈ ၁၅ ၈

a.

Ca n a- a a a

n n n 12 a a

a a a

A a a a
 a a a a BACKWASH
 COMPLETE.

Electrical Connection

100 VAC, 115 VAC, and 230 VAC units:

1. B. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840.

12 VAC: C — — a ၈ ()
 a a — ၈a a — a
 ၈ — ၈ — .B a — a ၈
 a — a — a — — .

1.4 Disinfection of Water Conditioners

— ကလ လ — က — လ
— ကလ လ လက လ လ လ . H ,
— ကလ ယ — , လ
လ လ လ — လ လ လ
လ လ လ , —
လ လ လ . | လ , ကလ
, လ ကလ က — လ
ကလ က လ — လ လ က လ

— — လ
လ လ , က
— ကလ , လ လ
— လ ကက .
D — ;
; — လ , လ —
လ လ လ လ , လ လ ကလ လ
က — .

Sodium or Calcium Hypochlorite

Application

— 112 —

5.25% Sodium Hypochlorite

— ၁ ၂ ၃ ၄ ၅ ၆ ၇ —
 ၁ C ၂ B ၃ * I ၄ , ၅ , —
 ၁ — ၂ ၃ ၄ ၅ ၆ ၇ ၈ ၉ ၁၀ ၁၁ ၁၂ ၁၃ ၁၄ ၁၅ ၁၆ ၁၇ ၁၈ ၁၉ ၂၀ ၂၁ ၂၂ ၂၃ ၂၄ ၂၅ ၂၆ ၂၇ ၂၈ ၂၉ ၃၀ ၃၁ ၃၂ ၃၃ ၃၄ ၃၅ ၃၆ ၃၇ ၃၈ ၃၉ ၄၀ ၄၁ ၄၂ ၄၃ ၄၄ ၄၅ ၄၆ ၄၇ ၄၈ ၄၉ ၅၀ ၅၁ ၅၂ ၅၃ ၅၄ ၅၅ ၅၆ ၅၇ ၅၈ ၅၉ ၆၀ ၆၁ ၆၂ ၆၃ ၆၄ ၆၅ ၆၆ ၆၇ ၆၈ ၆၉ ၇၀ ၇၁ ၇၂ ၇၃ ၇၄ ၇၅ ၇၆ ၇၇ ၇၈ ၇၉ ၈၀ ၈၁ ၈၂ ၈၃ ၈၄ ၈၅ ၈၆ ၈၇ ၈၈ ၈၉ ၉၀ ၉၁ ၉၂ ၉၃ ၉၄ ၉၅ ၉၆ ၉၇ ၉၈ ၉၉ ၁၀၀

1. D a

a. : 1.2

. - } a : 0.8

2. B a

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

Calcium Hypochlorite

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

1. D a

a. a (a y na 0.1)

2. B a

a. Ba a — a a —

 aη — — —

 a . (— a — — a a

 η — — a

 .)

 — ηa a .

*C_yB a a a n a - C_yC n a .

2.2 Programming and Application

962
 2.4.1
 (a 2.4)
 "1."

Note: I a

Day of Week/Time of Day

SET
 Da
 UP ARROW (↑)
 DOWN ARROW (↓)
 LEFT ARROW (←)
 .5(-0.04 (/F3 73 D0.01 /F3 73)

Level I Parameters (Table 2.1)

L I a a a
 LED a
 DOWN ARROW (↓)
 L I a a
 Da
 Ha
 a An
 Ca a

I DOWN ARROW (↓)
 a a a Da
 UP ARROW (↑)
 a 2.1 a
 a a a a
 SET
 a a a
 UP ARROW (↑)
 DOWN ARROW (↓)
 LEFT ARROW (←)
 LEFT ARROW (←)

Note: I UP ARROW (↑)
 DOWN ARROW (↓)
 a 10
 LEFT ARROW (←)
 a a a
 .C a
 SET
 a a a
 .A a a 30
 a a a a Da a
 Ca a

Salt Amount

a Am $\frac{1}{2}$ a a $\frac{1}{2}$ a
 a a Am $\frac{1}{2}$ (2.7 am)
 a ; a 2.2 a

Note: — — a aη a a
a , — SET a — a —
η . | 6 a a , — DOWN
ARROW (↓) .

Capacity

$$Ca \quad a \quad - \quad \gamma \quad a \quad a \quad a \quad \gamma$$

$$a \quad (\quad a \eta \quad). \quad a \quad 2.2 \quad -$$

$$a \quad a \quad .7(a)24.= \quad (\quad 21 \quad)-9.4 \quad 2 \quad 0.4 \quad 3 \quad -3.70 \quad 24.4(\quad)-6.8(\quad)0.$$

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)	-

L II L a 6 22 a
2.4. a L a a , a a
a DOWN ARROW (\downarrow) UP
ARROW (\uparrow) . A a
a .
a 2.4 a a a
DOWN ARROW (\downarrow) UP ARROW (\uparrow)
a a a a a
a a a a a a
2.1 a a 2.4. a
22, a a 1.
a a a a a
a , LEFT ARROW (\leftarrow)
a a a a a a
SET a a a a a
UP ARROW (\uparrow) DOWN ARROW (\downarrow)
LEFT ARROW (\leftarrow) SET
a a a a a
a a a a 2.4
a a a a a
a a a a a LEFT
ARROW (\leftarrow) UP ARROW (\uparrow)
a (\downarrow) a a a
L II a a a , a a
a DOWN ARROW (\downarrow) UP
ARROW (\uparrow) a 30
a a a a F
a a Ca a
a a a a a
a a a a a
a a a a a

[illegible]

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

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

一、 二、 三、 四、 五、 六、 七、 八、 九、 十、 十一、 十二、 十三、 十四、 十五、 十六、 十七、 十八、 十九、 二十、 二十一、 二十二、 二十三、 二十四、 二十五、 二十六、 二十七、 二十八、 二十九、 三十、 三十一、 三十二、 三十三、 三十四、 三十五、 三十六、 三十七、 三十八、 三十九、 四十、 四十一、 四十二、 四十三、 四十四、 四十五、 四十六、 四十七、 四十八、 四十九、 五十、 五十一、 五十二、 五十三、 五十四、 五十五、 五十六、 五十七、 五十八、 五十九、 六十、 六十一、 六十二、 六十三、 六十四、 六十五、 六十六、 六十七、 六十八、 六十九、 七十、 七十一、 七十二、 七十三、 七十四、 七十五、 七十六、 七十七、 七十八、 七十九、 八十、 八十一、 八十二、 八十三、 八十四、 八十五、 八十六、 八十七、 八十八、 八十九、 九十、 九十一、 九十二、 九十三、 九十四、 九十五、 九十六、 九十七、 九十八、 九十九、 一百。

[illegible][illegible]

2.3 Conditioner Programming Tables

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

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
6		2-200	1	Selected from Table 2.2		
7	B	2-200	1	Selected from Table 2.2		
9	Ba	4-60	1	14*	V _h	
10	a D408.4(0.9()-1)-1 6()35 408.221.91			0		526.93 14

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Table 2.5 - Programming Performa Cv 962TC Electronic Time Clock Conditioner

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
1	Day of the Week	(1-7) 1:00-12:59 A V (1-7) 0:00-23:59	(1 a) 1 V	Current Day and Time	H V	13. F a =1, V =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF V DIGI HE DI LA
2	Time of Day	1:00-12:59 A V 00:00-23:59		As required	H V	a 13
3	A			10		
4	a a	.5-125.0 .2-50.0	.5 .2	Selected from Table 2.2	K a	
5	a a			10		
6		2-200	1	Selected from Table 2.2		
7	B a a	2-200	1	Selected from Table 2.2		
9	Ba a	4-60	1	14*	V	*V a a a
10		7-125	1	40*	V	*V a a a a a a a
11	Fa a	2-60	1	4*	V	*V a a a
12	a a	0-1	1	0		0 = , 1 = V
13	C a	0-1	1	0		0 = 12, 1 = 24
14	I a a Ca a	0-30	1	0	Da a	0 = a - *V a a a
15	D a a			0		
16	D a a			30		
17	a	3-4	1	6		6 = 962 C
18	a a L	0-1	1	0		0 = , 1 = a /Ca a a
19	D a a					
20	D a a					
21	a a	0-254	1	60		a a a a
22	Fa D CHANGE			99		

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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
		(1-7) 1:00-19:59				a 12.5 a 1

Table 3.2 - Programming Performance Cv 962F Five Cycle Filter

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

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Electronic Time Clock Operation

When the unit is powered on, the display will show the current time. Pressing the **TIME** button will allow you to set the time. Pressing the **TIME** button again will exit the time setting mode.

The unit will automatically backwash at the set interval. The backwash time is set by the **Interval Backwash** button. Pressing this button will allow you to set the backwash interval. Pressing the **Interval Backwash** button again will exit the interval setting mode.

Interval Backwash — Press the **Interval Backwash** button. The display will show the current backwash interval. Pressing the **Interval Backwash** button again will allow you to set the backwash interval. Pressing the **Interval Backwash** button again will exit the interval setting mode.

Day of Week Backwash — Press the **Day of Week Backwash** button. The display will show the current day of the week. Pressing the **Day of Week Backwash** button again will allow you to set the day of the week. Pressing the **Day of Week Backwash** button again will exit the day of the week setting mode.

Application

The unit is designed for use in applications where the water temperature is between 96°F and 96.2°C. The unit will automatically backwash at the set interval. The backwash time is set by the **Interval Backwash** button. Pressing this button will allow you to set the backwash interval. Pressing the **Interval Backwash** button again will exit the interval setting mode.

Dual and Triplex Conditioners and Filters

The unit is designed for use in applications where the water temperature is between 96°F and 96.2°C. The unit will automatically backwash at the set interval. The backwash time is set by the **Interval Backwash** button. Pressing this button will allow you to set the backwash interval. Pressing the **Interval Backwash** button again will exit the interval setting mode.

Series 942F Mechanical Control

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2:00 a.m.
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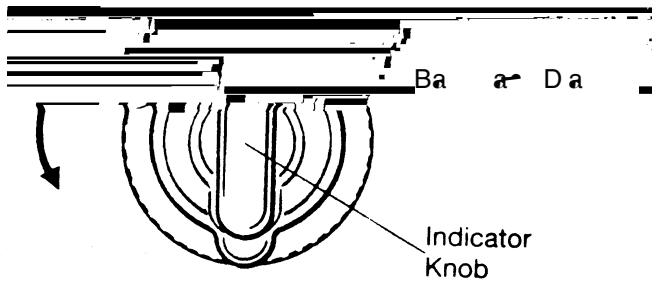
Manual Backwash

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 1 ka a 1 1 a K

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Adjusting the Backwash Setting

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F 3.2 Ba a C n

Table 3.4 - Cycle Times for 942F Control

Cycle	Time (Minutes)
Ba a	8 - 30
	9

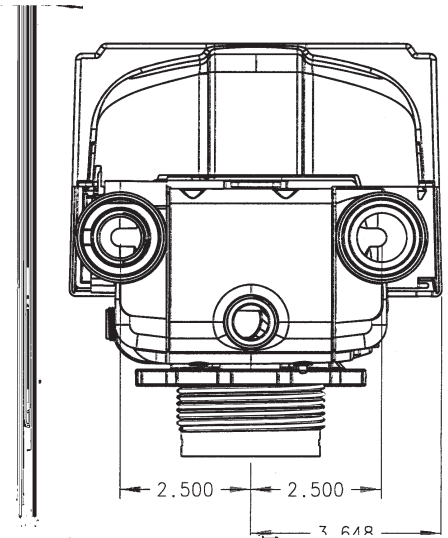
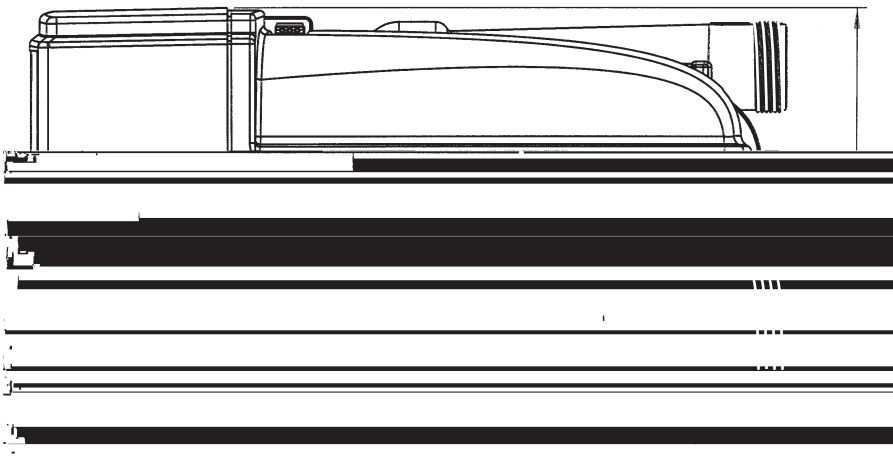
3.3 Explanation of Parameter Values for the 962 Single and Parallel Tank Controls

— a a a γ a a — an n a an — 962 .

Number	Description of Program Values	Explanation
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4.0 Performa Cv Performance Charts and Graphs

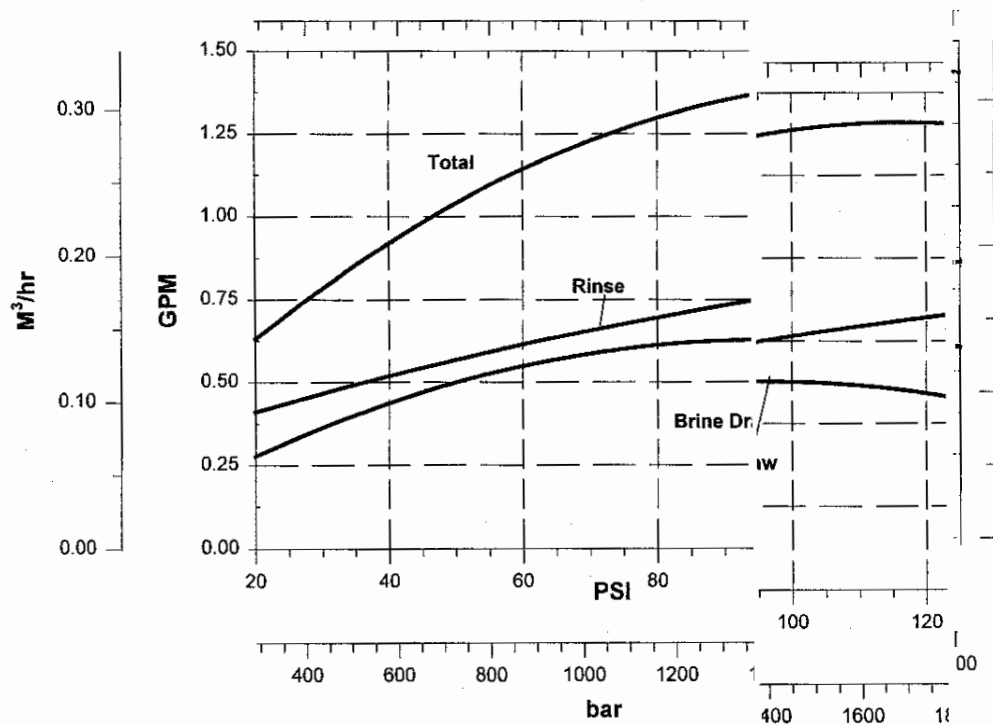
4.1 General Specification



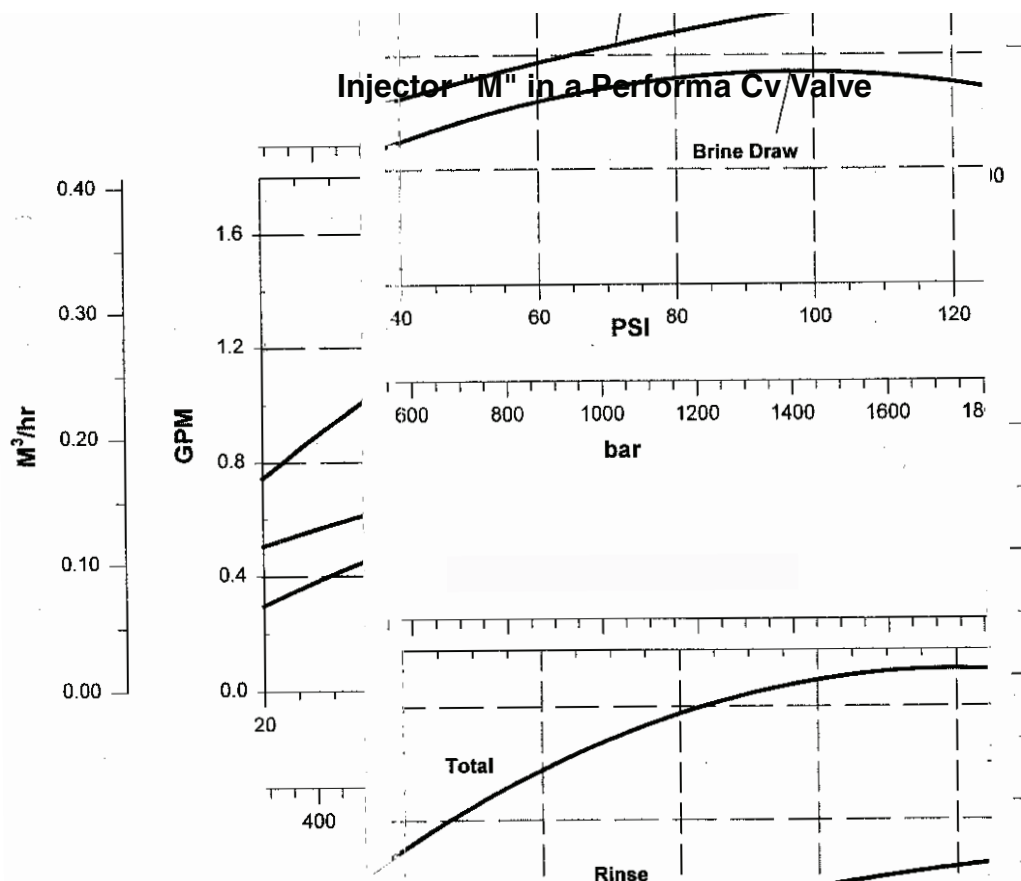
H	a	300	(20.69 a)
a	a	E a a	.....	20-120 (1.38 - 8.27 a)
		942F: 7 a 12 a /24 50 H 12 a n , 60 H 120 a 12 a n		
E	a	C (a a a )	.....	.60- (1.5-n) 3-
	a	a	.....	2-1/2- 8na
	D	an	.....	1.050- D (26.7-nn)
	L	.....	1/2 1/2 (13nn 13nn)	a
a	a	C	.....	1- (25.4-nn) a a
a	a	C	.....	1-1/4- , 3/4- , 22-nn, a 28-nn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

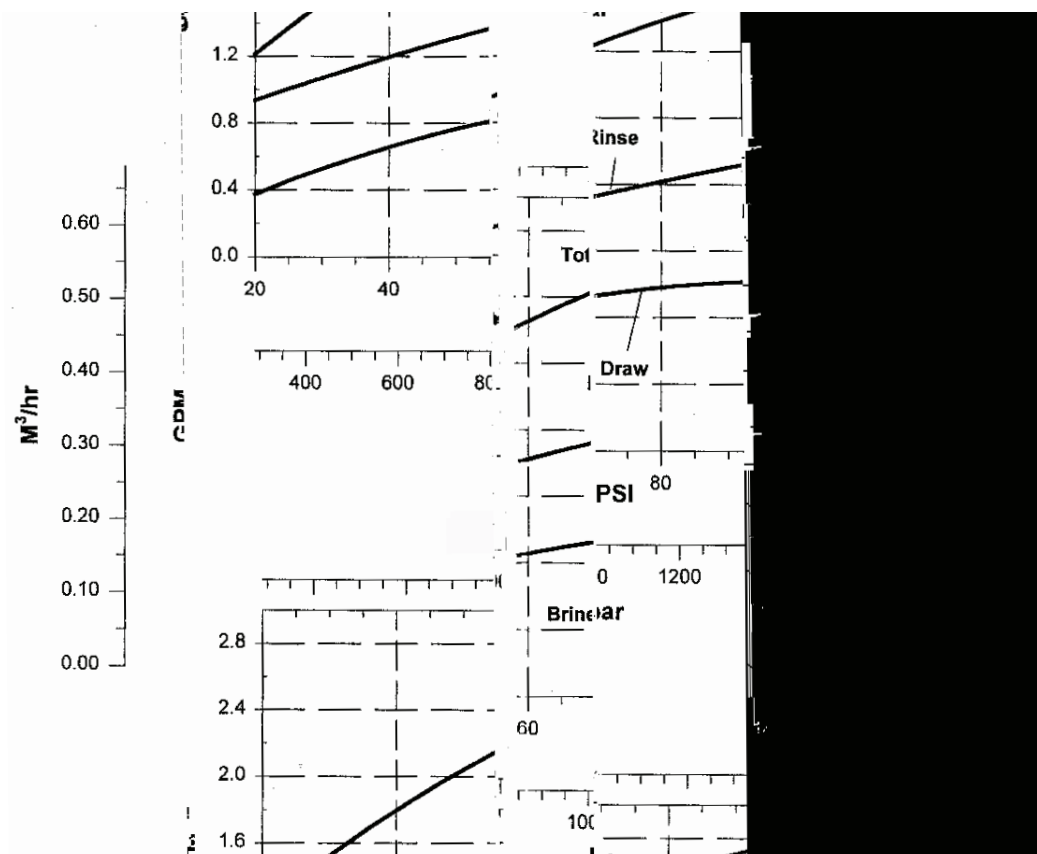
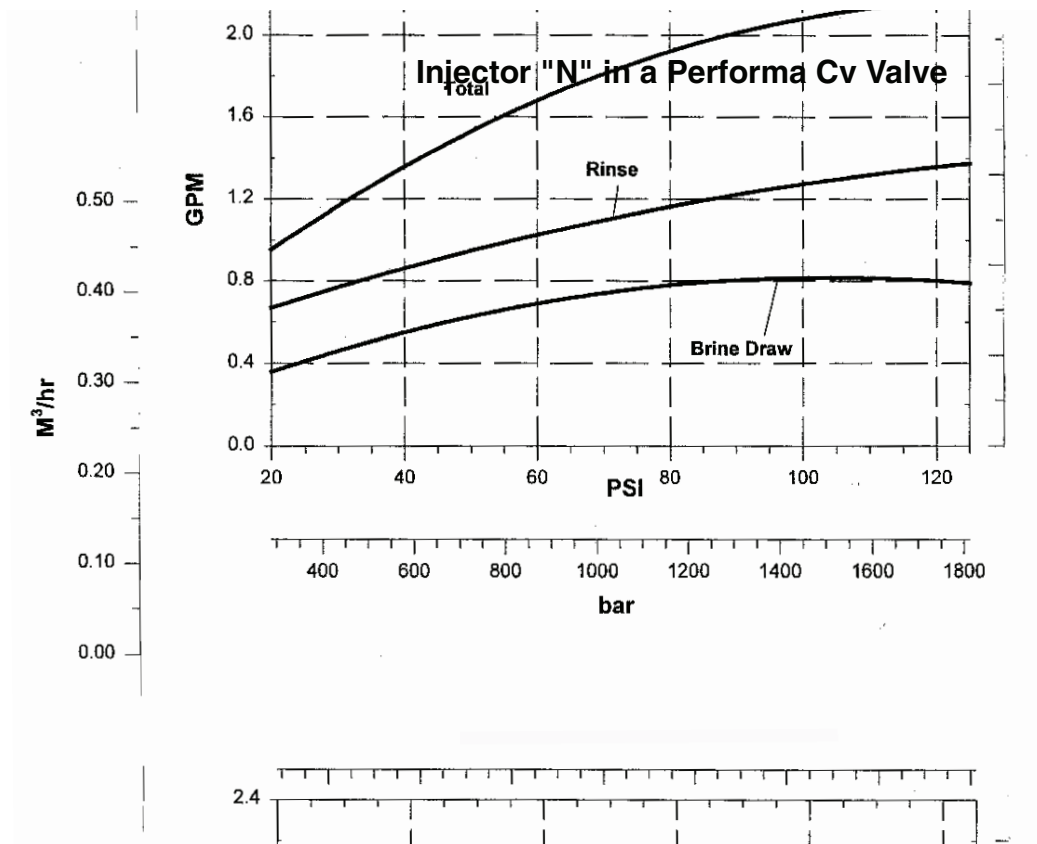
4.2 Injector Curves

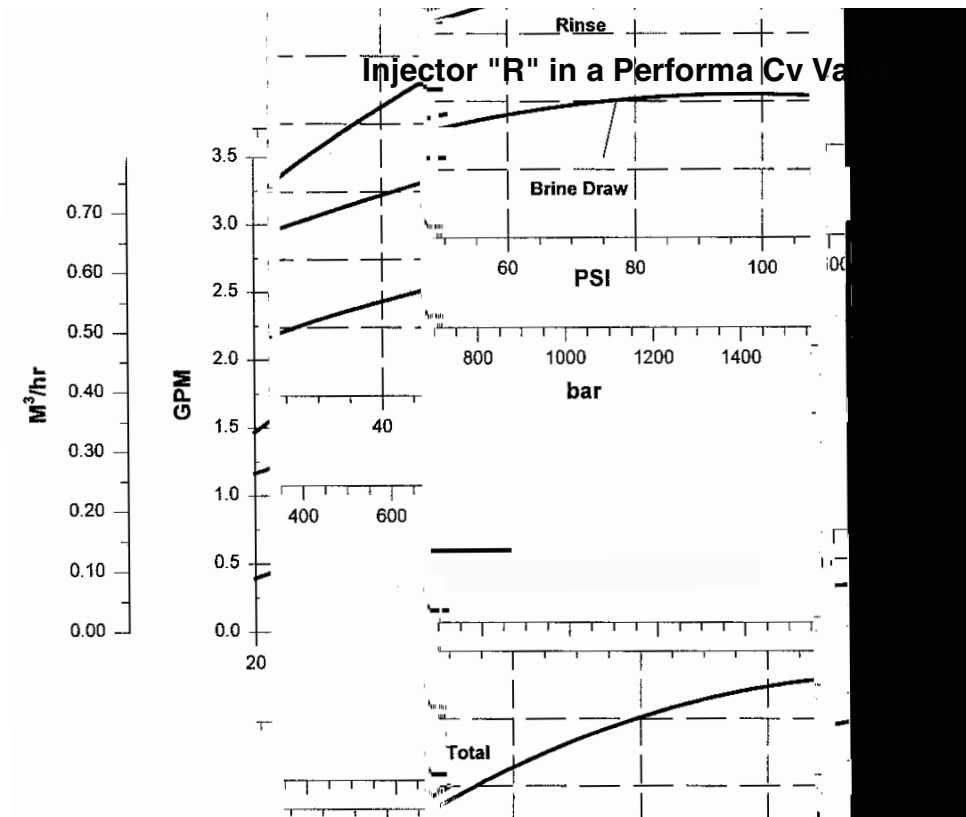
Injector "L" in a Performa Cv Valve



Injector "M" in a Performa Cv Valve







4.3 Performa Cv Conditioner Performance Data

Table 4.1 - Performa Cv Injector Performance Chart

Injectors L - R Flow Rate Charts (gpm)										
PSI	L		M		N		Q		R	
	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse
20	0.26	0.4	0.3	0.5	0.4	0.65	0.4	0.9	0.45	1.2
30	0.3	0.45	0.4	0.55	0.45	0.75	0.5	0.95	0.5	1.3
60	0.5	0.6	0.6	0.8	0.75	1	0.82	1.4	0.9	1.75
80	0.6	0.65	0.7	0.85	0.8	1.1	0.9	1.6	1	2
100	0.6	0.76	0.7	0.9	0.8	1.6	0.95	1.8	1.1	2.2
Injectors L - R Flow Rate Charts (Lpm)										
Bar	L		M		N		Q		R	
	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse	Draw	Rinse
1.4	0.98	1.5	1.1	1.9	1.5	2.5	1.5	3.4	1.7	4.5
2.1	1.1	1.7	1.5	2.1	1.7	2.8	1.9	3.6	1.9	4.9
4.2	1.9	2.3	2.3	6	2.8	3.8	3.1	5.3	3.4	6.6
5.6	2.3	2.5	2.6	3.2	3	4.2	3.4	6	3.8	7.6
7	2.3	2.9	2.6	3.4	3	4.9	3.6	6.8	4.2	8.3

Table 4.2 - Service and Backwash Flow Performance Data

Flow vs Pressure Drop (gpm)			Flow vs Pressure Drop (Lpm)		
PSI	Service (Cv 6.5)	Backwash (Cv 4.0)	Bar	Service (Cv 6.5)	Backwash Cv 4.0)
5	15	9	0.35	56	34
10	20	13	0.7	76	49
15	25	16	1	95	61
20	29	18	1.4	109	68
25	32	20	1.7	121	76
30	35	22	2.1	132	83

Table 4.3 - Recommended Drain Flow Controls (Backwash Anion and Cation Resin @ 55°F (12.7°C) Water Temperature

Tank Diameter Inches (mm)	Bed Area sq. ft.	Anion Resin @ 3 gpm/sq ft (m 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)			

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

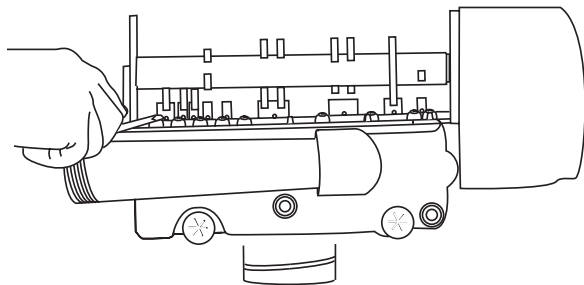
Table 4.6 - Performa Cv Filter Sizing Selection Guide for Dual Unit Filters.

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

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

5.3 Removing the Valve Assembly for Servicing

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



F 5.2

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

5.4 Removing the Control

- C 700
1. Turn the engine off.
 2. Remove the air filter ()
 3. Turn the air filter (F 5.3. L)

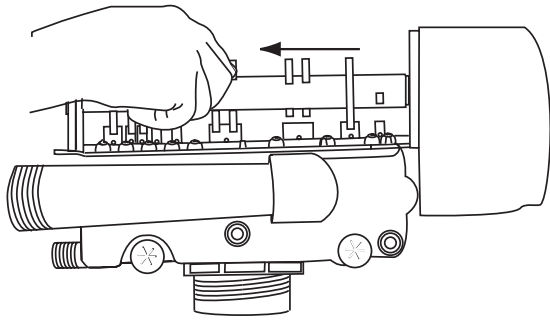
F 5.3

4. Turn the air filter (F 5.4).

F 5.4

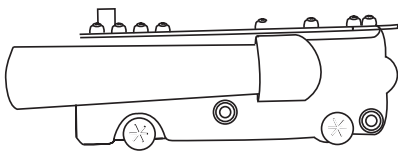
5. Turn the air filter (F 5.5).
6. Turn the air filter (F 5.6).

F 5.5



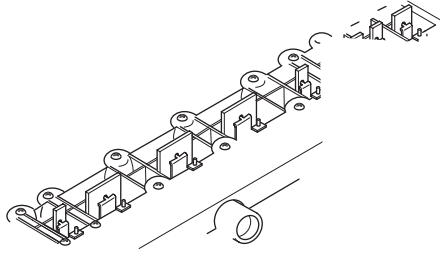
F 5.6

6. D ฅ
- ฅ ฅ .
7. L ฅ , F 5.7. ฅ
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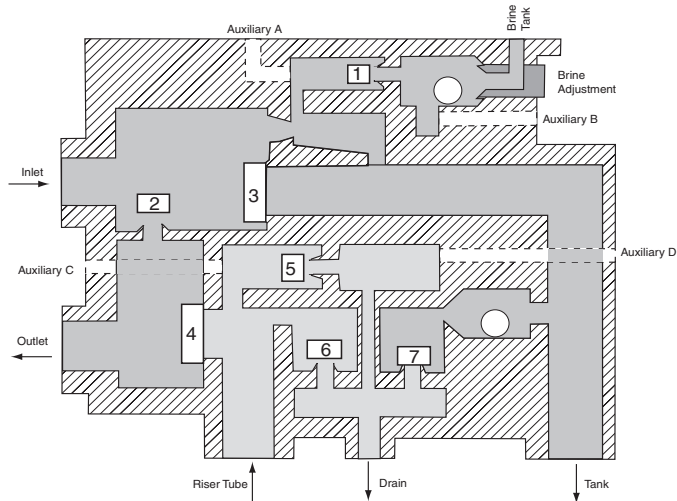


F 5.7

5.5 Identification of Control Valving

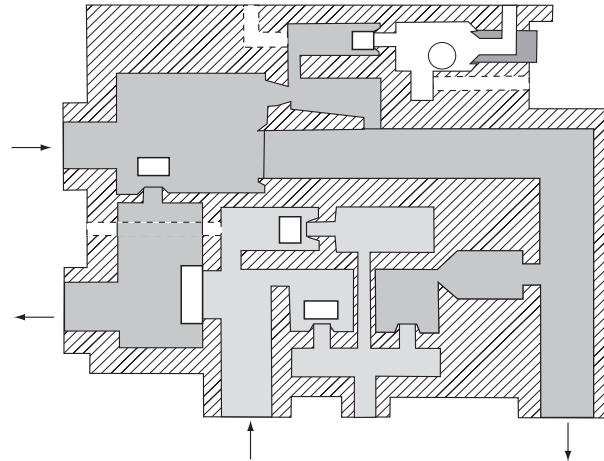


3 Brine/Slow Rinse Position



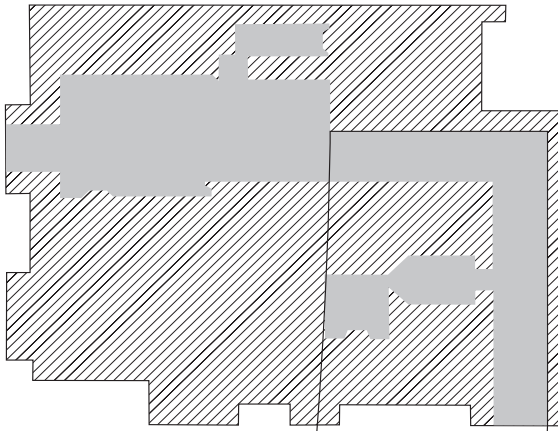
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

4 Fast Rinse Position



5.8 Performa Cv Filter Flow Diagrams

1 Backwash Position



2 Fast Rinse Position

5.9 Troubleshooting

IMPORTANT:

5.9 Troubleshooting

Valve Troubleshooting

[illegible]

962 Control Troubleshooting

Alarms

— V 962 n a

Problem	Possible Cause	Solution
6. $\frac{1}{2} \frac{1}{2} \frac{1}{2}$ a) ()	a. B a a a V a a a a a a a a ! D a D a a	a. $\frac{1}{2} \frac{1}{2} \frac{1}{2}$ F a a a a a a a a a a a a a a a a a a a
7. C a a a a a a	a. B a a a	a. $\frac{1}{2} \frac{1}{2} \frac{1}{2}$ a a a
8. C 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
9. a a a	a. V a a V a a a a a a I a (H). B a D a A a a () B a a a a a a a 125 a a D a a	a. a a a a a a a a a / a a a a a (H). a I a a a a a a a
10. C a a a C a a a	a. B a a D a	a. a a a a
11. C a a a a EGE	a. a a a D a a B a B a a D a	a. C a a a a a a a a a
12. C a a a a EGE	a. I a a a a , a 5 a a I a a a a D a a	a. a 5 a a a a a a a a a a a
13. a a a a	a. I a a a F a I a a I a a a a a a a a a a a a a a a a a a a ! E a a a 1/5 a a	a. a / a

