

Autotrol Performa™ Cv

Conditioner/Filter

Water Control System

Installation, Operation and Maintenance Manual

1 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 ^{3/4})
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 ↓	1-3/4	- 12 C-2A,.

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

Operating

a B	Ga - a
C η	C η a
a (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 a - 12 C - 2A ηa
B a I ↓ F K :	
C , a A a	1-1/4- a , 1- a , 3/4- a , 28-ηη, 22-ηη
C C, A a	1- a , 3/4- a , 25-ηη
a B A a	1- a , 3/4- a
B a B A a	1- a , 3/4- a

Flow Meter 962 Control 1- a

4.1 a a .

1.2 Installation

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

Location Selection

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

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

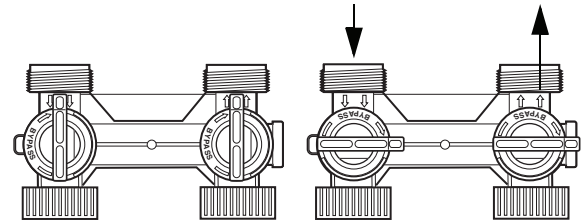
Water Line Connection

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

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

Not in Bypass B

yps6-99 3(s63826ET0.44FE



F 1.1 - A

1265 B a a

F 1.2 - a G a B a n

Drain Line Connection

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

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



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 ကလေးလေး
 အ. , အ. ()

 အ. 1/4 .

IMPORTANT: I _____ a _____ a, n a
 ကာ . 1 - 1/4 , - - a
 a a က - 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 ka
 4 a (15) a . l-
 a-a a a a ka - ka
 a , a a - a ka
 1 - (25 ka) a - a ka.

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

Troubleshooting

COUNTERCLOCKWISE
REGENERATION COMPLETE

Filter

A η a a :

- a. A — a— a
 (a ————— a —————)
 ————— a— a. Ba ———
 a a a a a a 15 a
 a . a ————— a ———
 a.
 Ca ————— a ————— a a
 a a a 12 ————— a a
 a ————— a ——— .
 . A ————— a ————— a
 a a ————— a a 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
 a — a — a a — .

1.4 Disinfection of Water Conditioners

[illegible]

Sodium or Calcium Hypochlorite

Application

— ၈၈ —

5.25% Sodium Hypochlorite

a C B a * . | a a a a , a

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

[illegible]

1. D a

a. a (a na 0.1)

2. B a

a. Ba a — a a —

 aη — — — —

 a . (— a — — a a

 η — — a

— .)

— ηa a .

*C Ba a a na - C C na .

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 (←)
 .1()- -24.2()0341 0 3()-28: 0 3-

Level I Parameters (Table 2.1)

L I a a a
 LED a
 DOWN ARROW (↓)
 L I a a
 Da
 Ha
 a An
 Ca a
 DOWN ARROW (↓)
 Da
 UP ARROW (↑)
 a 2.1 a
 SET
 UP ARROW (↑)
 DOWN ARROW (↓)
 LEFT ARROW (←)
 LEFT ARROW (←)
 Note: I
 UP ARROW (↑)
 DOWN ARROW (↓)
 10
 LEFT ARROW (←)
 .C
 SET
 A a na 30
 Da a
 Ca a

Salt Amount

a A_n $-$ a a $-$ a
 a a A_n 6 $(2.7$ $a_n)$
 a ; a 2.2 a .

Note: ➤

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

Capacity

Ca a — a a a
a (aη). 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 aη)	η 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)

L II a aη a 6 22 a
2.4. a L II a aη , η a
a — DOWN ARROW (↓) a UP
ARROW (↑) . A, = η
a .
a 2.4 — a aη a a —
a, = η . UP ARROW (↑)
DOWN ARROW (↓) η η a aη
— a — a — — = η
a 2.1 a a 2.4. — a
22; η a 1.
— a aη η a — a
a , LEFT ARROW (←)
a — a a a — a a aη . —
SET a a — η — a
a a . I a — a — η ,
UP ARROW (↑) DOWN ARROW (↓)
— η — — a , —
LEFT ARROW (←) . — η
— SET . — η a a
— a — . I a
— a a a . a 2.4
a a a — a a aη .
— a — a aη , — LEFT
ARROW (←) — a — a — =
η — UP ARROW (↑)
a (↓) η — a aη η
— a .
— L II a aη η , η a
a — DOWN ARROW (↓) a UP
ARROW (↑) — , a 30
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a a — a a , F
a a Ca a .
a a aη a — a
— a — a a a
a a a a — a
— η a a

၁၂၈၈ ၆ SET ၁၂၉၁
 ၁၂၉၂ ၂.၂ ၁၂၉၃
 ၁၂၉၈ ၇ SET ၁၂၉၉
 ၁၂၉၈ ၂.၂ ၁၂၉၉
 ၁၂၉၈ ၁၂၉၉ ၁၂၉၉ ၁၂၉၉
 ၁၂၉၈ ၁၂၉၈ ၁၂၉၈ ၁၂၉၈
 ၁၂၉၈ ၁၂၉၈ (၁၀) ၁၂၉၈
 ၁၂၉၈ B D ၁၂၉၈ / ၁၂၉၈
 ၁၂၉၈ ၁၂၉၈ ၈.

20 20 19 = 3 4.
 K-
 21
 1

Programming Day of the Week Regeneration/ Backwash

E Da — a / a a
 a a a — LEFT ARROW (←)
 a — DOWN ARROW (↓)
 a a 3 . a a — a
 1, 2, 3, ., — a. — a —
 a / a a — . a a
 — a a, — a — 0 a 1. — a a a a
 a 30 . l
 — a — 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	V _a 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 16 30 — a a
 a a a a a a 30% — a a a a — a
 a). — a a a a 15. a a a a .

Fixed Reserve

— a a a a 15 a —
 — a a — a a
 — a a a a 2 a a a , —
 — a a a a a a —
 a a a a — a —

Smart Reserve (water usage pattern)

— — 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 a a a . l — a
 10% a a ' a a a a a
 — a — a ' a a a . l 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 16 — 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		
7	B	2-200	1	Selected from Table 2.2		
9	Ba	4-60	1	14*		
10		1-85.3(468)-157	043-30./F1 1	31.0606 01.636.0198	0	(14)30.40*

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 the Week	(1-7) 1:00-12:59 A V V (1-7) 0:00-23:59	(1 a) 1 V	Current Day and Time	H V	13. F 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		

G 3.2 a a a a a a a

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

3.1 Programming and Application

Table 3.1 - Programming Performa Cv 962F Three Cycle Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of Measure	Notes
1	Day of Week	(1-7) 1:00-12:59 A/V (1-7) 0:00-23:59	(1 a) 1 V	Current Day and Time	H V	13. F a =1, V =2, E=3, ED=4, H =5, F I=6, A =7, HI I HE LEF V DIGI HE DI LA
2	Time of Day	1:00-12:59 A/V 00:00-23:59		As required	H V	a a 13
3	Filter Cycle Time			10 100	V	
4	Filter Cycle Time			0.5		
5	Filter Cycle Time			As required	V	D a a (a) a 100 a 5. D a a (a) 10 a a 5.
6	Filter Cycle Time			200		
7	Filter Cycle Time			200		
9	Backwash Time	7-60	1	14*	V	*V a a a
10	Backwash Time			8		
11	Filter Cycle Time	9-60	1	9*	V	*V a a a
12	Filter Cycle Time	0-1	1	0		0 = , 1 = V
13	Filter Cycle Time	0-1	1	0		0 = 12 1 = 24
14	Filter Cycle Time	0-30	1	0	Da	0 = a - *V a a a
15	Filter Cycle Time	0-3	1	0	F a a a a E a a a a a = F 2 a 24.	0 = na , 1 = F , 2 = na Inna a a , 3 = a a Inna a
16	Filter Cycle Time	0-70	1	30		a Da A a
17	Filter Cycle Time	0-7	1	4		4 = F na C
18	Filter Cycle Time	0-1	1	0		0 = , 1 = a /Ca a a
19	Filter Cycle Time	1-4	1	1		1 = 1=A , 3 = D K- a , 2 = 2=A , 4 = D E a
20	K-a E a	0.01-255.0	0.01	0.01		na V K- a E a
21	Filter Cycle Time	0-254	1	60		na na na a
22	Filter Cycle Time			99		a a a a

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Table 3.2 - Programming Performance Cv 962F Five Cycle Filter

Parameter	Description	Range of Values	Minimum Increment	Recommended Program Value	Units of
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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 F a	a =1, V _h =2, E=3, 13.

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

Electronic Time Clock Operation

When the unit is in the "On" position, the digital display will show the time. The time is set by the "Time" button. Pressing the "Time" button will allow the user to set the time. The time is set by the "Time" button. Pressing the "Time" button will allow the user to set the time.

The "Time" button is used to set the time. The "Time" button is used to set the time. The "Time" button is used to set the time. The "Time" button is used to set the time.

Interval Backwash — E The unit will backwash at a set interval. The interval is set by the "Interval" button. The interval is set by the "Interval" button. The interval is set by the "Interval" button.

Day of Week Backwash — E The unit will backwash on a set day of the week. The day of the week is set by the "Day of Week" button. The day of the week is set by the "Day of Week" button. The day of the week is set by the "Day of Week" button.

Application

The unit is used for applications where a digital display is required. The unit is used for applications where a digital display is required. The unit is used for applications where a digital display is required.

Dual and Triplex Conditioners and Filters

The unit is used for applications where a digital display is required. The unit is used for applications where a digital display is required. The unit is used for applications where a digital display is required.

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na a a a 942F

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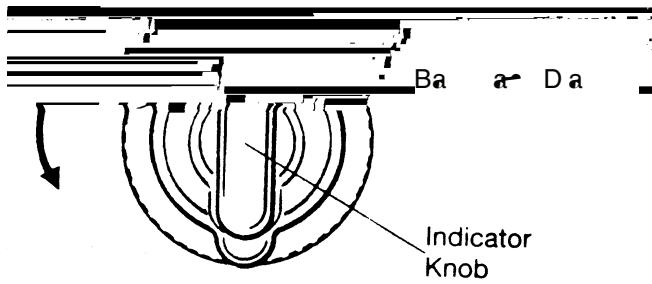
DA $\frac{1}{2}$

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Adjusting the Backwash Setting

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Table 3.4 - Cycle Times for 942F Control

Cycle	Time (Minutes)
Ba a	8 - 30
	9

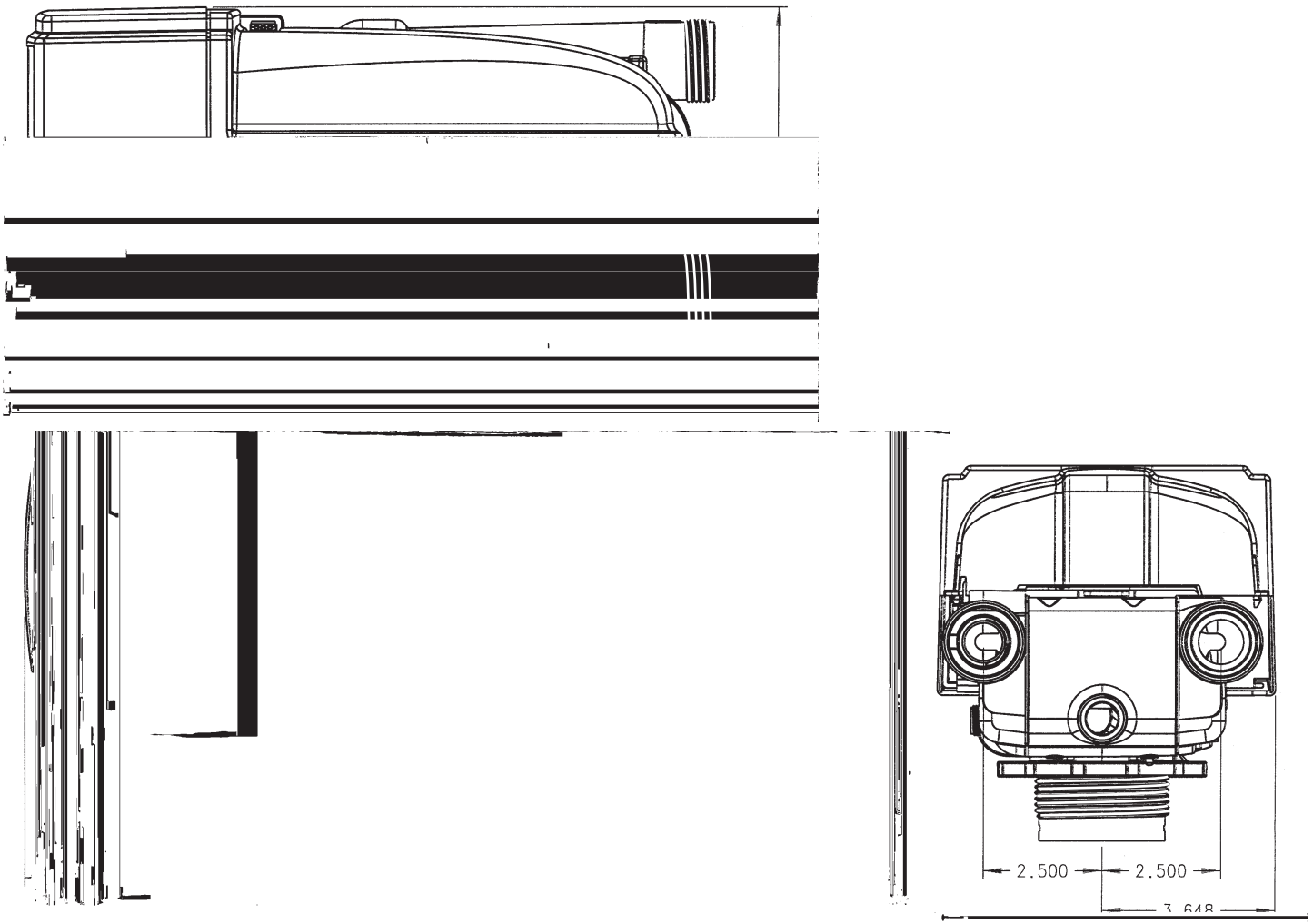
3.3 Explanation of Parameter Values for the 962 Single and Parallel Tank Controls

— a a a a a — a a a a a — 962 .

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

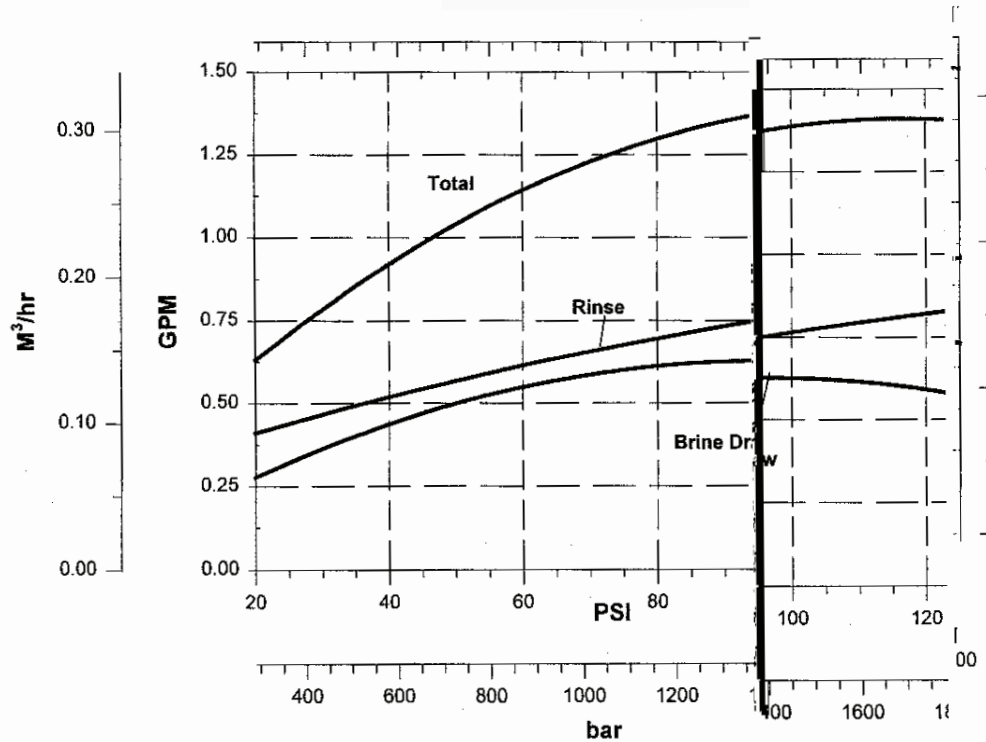
4.1 General Specification



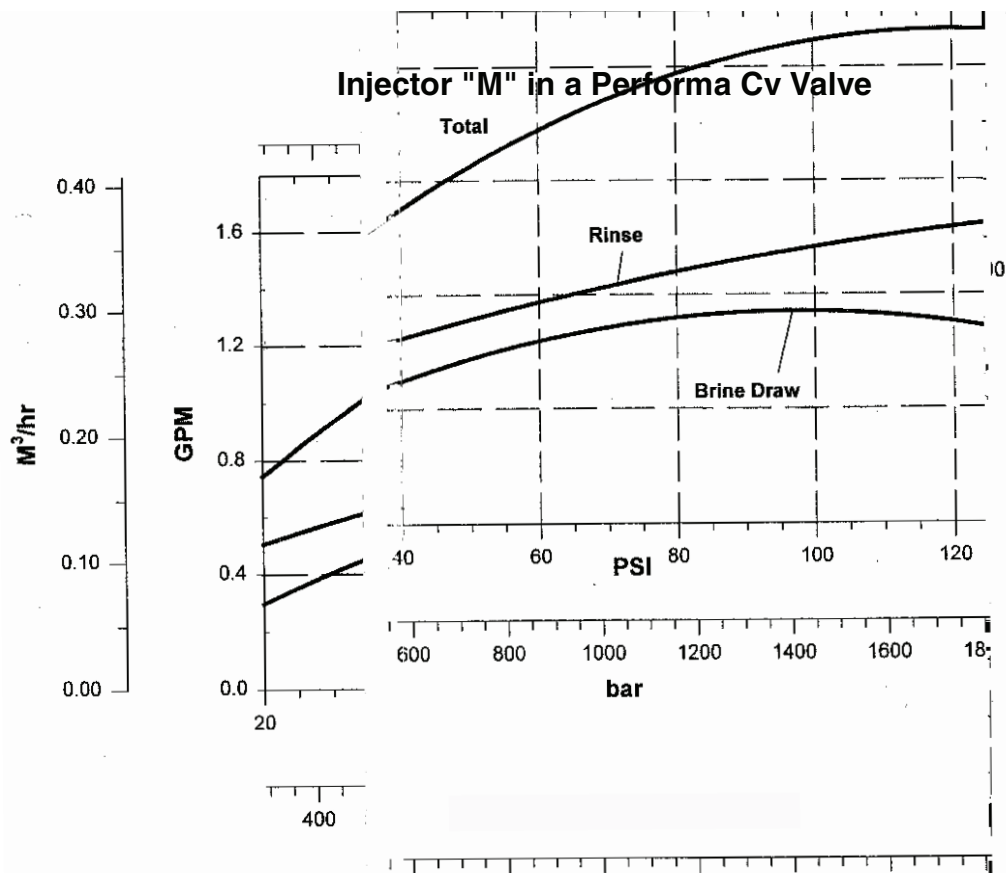
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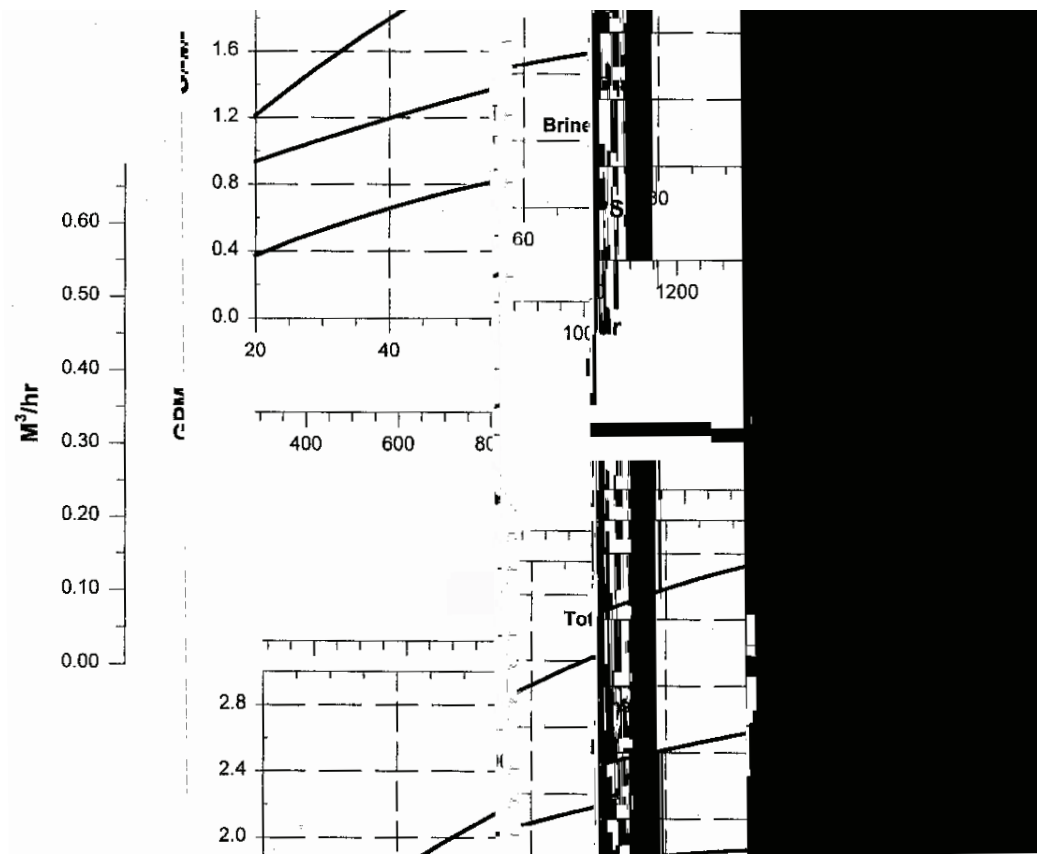
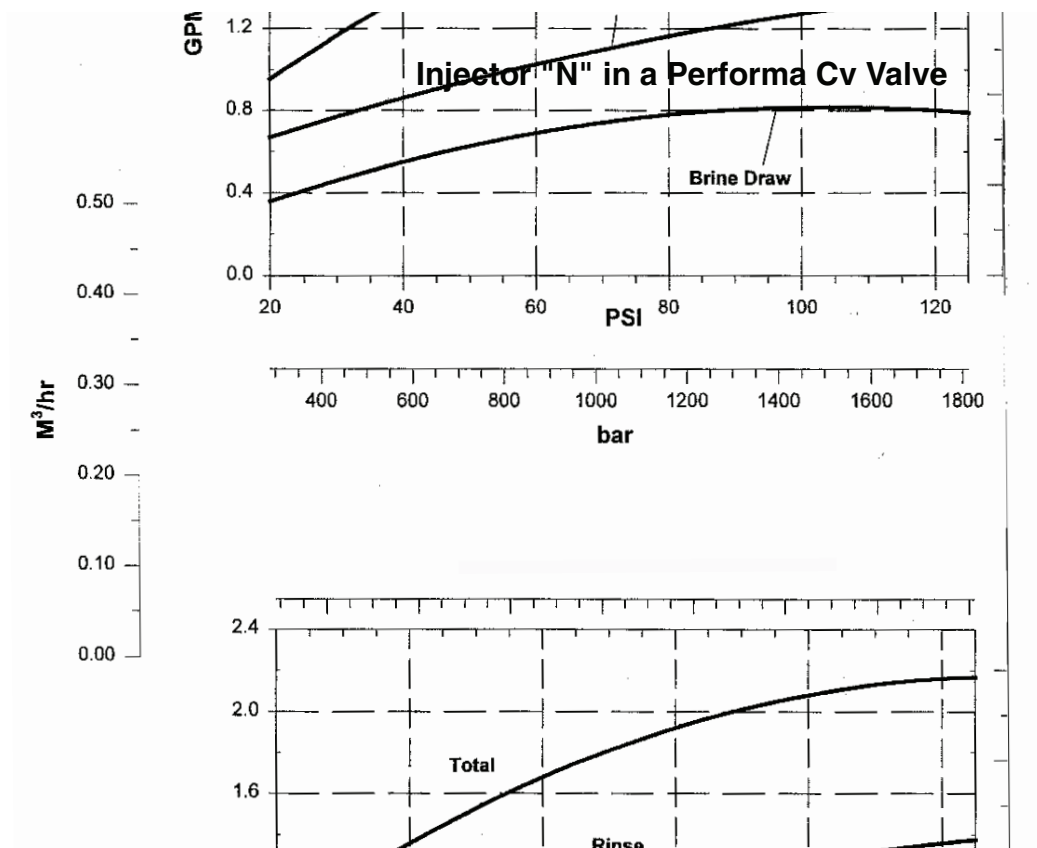
4.2 Injector Curves

Injector "L" in a Performa Cv Valve



Injector "M" in a Performa Cv Valve





Inspector's Personal Remarks:

[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 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)			

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

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

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

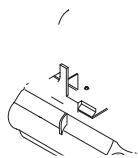
* $V_{\text{max}} = \frac{A \cdot \text{Flow Rate}}{D^2}$

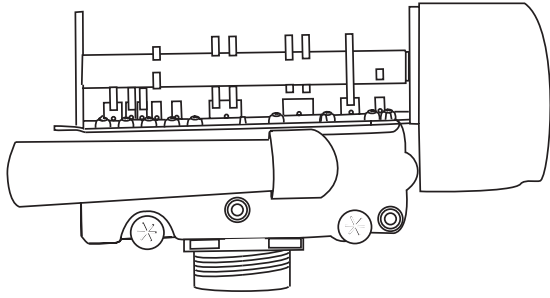
$V_{\text{max}} = \frac{1.72 \text{ ft}^2 \cdot 15 \text{ gpm/sq ft}}{(21 \text{ inches})^2} = 0.06 \text{ ft}^2$

11.

12.

a ()



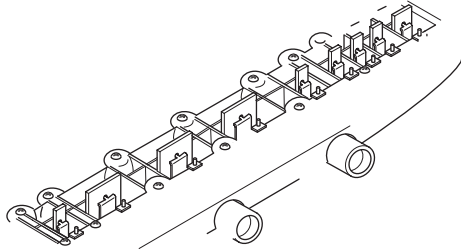


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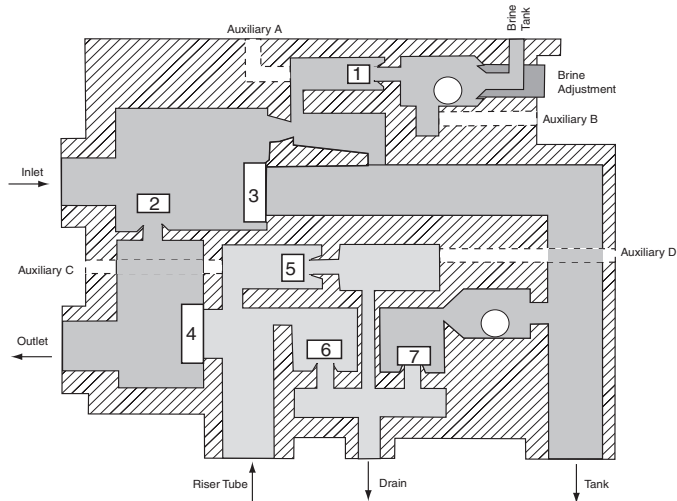
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5.5 Identification of Control Valving

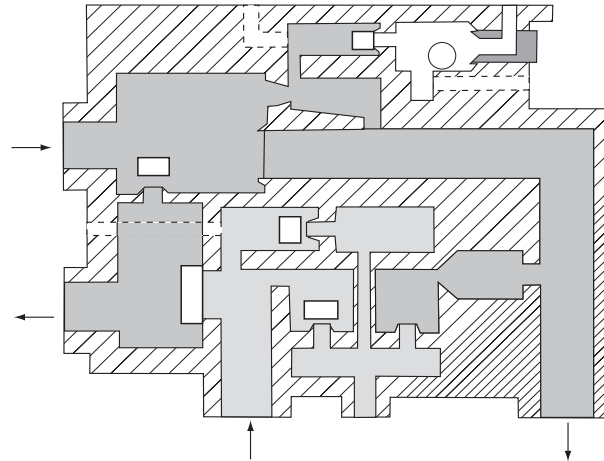


3 Brine/Slow Rinse Position



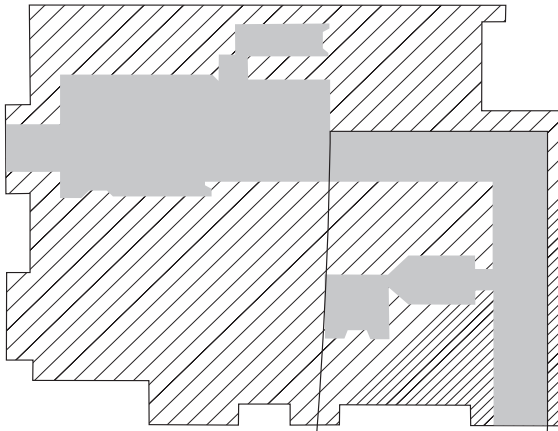
Name	Valve No.
Brine	1 - Open
By-Pass	2 - Open
Inlet	3 - Closed
Outlet	4 - Closed
2nd Tank Top	5 - Open
Purge	6 - Open
Backwash	7 - Closed

4 Fast Rinse Position



5.8 Performa Cv Filter Flow Diagrams

1 Backwash Position



2 Fast Rinse Position

5.9 Troubleshooting

IMPORTANT:

1. Check the air filter. If it is dirty, replace it.
 2. Check the oil level. If it is low, add oil.
 3. Check the spark plug. If it is fouled, clean or replace it.
 4. Check the timing. If it is incorrect, adjust it.
 5. Check the valve clearance. If it is incorrect, adjust it.
 6. Check the belt tension. If it is too loose, tighten it.
 7. Check the belt condition. If it is worn, replace it.
 8. Check the belt alignment. If it is off, adjust it.
 9. Check the belt speed. If it is too slow, increase it.
 10. Check the belt load. If it is too heavy, reduce it.

Valve Troubleshooting

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

962 Control Troubleshooting

Alarms

— V 962 n a

Cv Parts

nt Exploded View



6.3 Performa Cv Controls

