

DRY PIPE VALVE 4" MODEL E

Groove/Groove



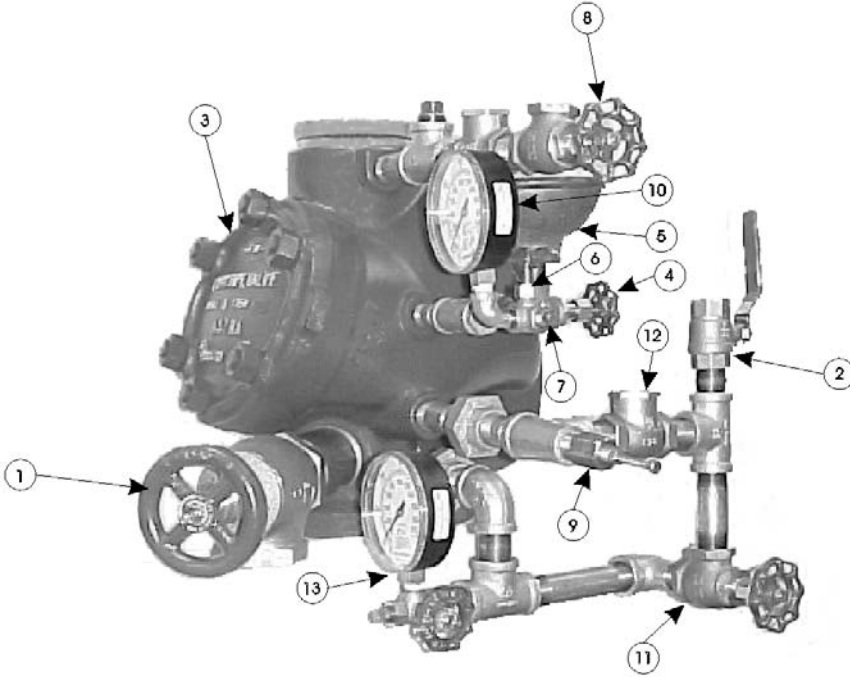
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Approved by: Factory Mutual

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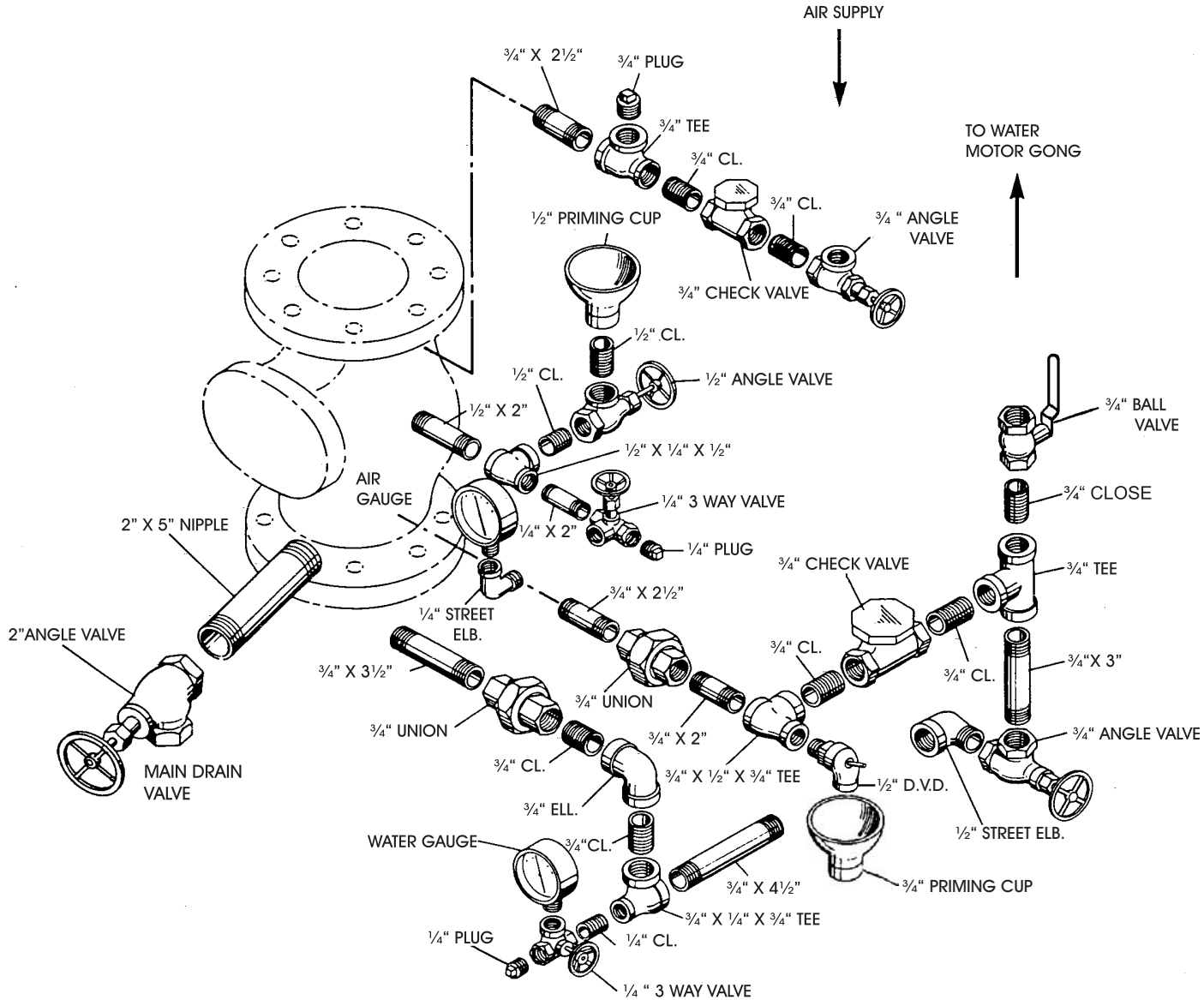
KEY TO TRIMMING



- 1. Drain Valve - for draining of sprinkler system
2" (5.08 cm) Angle Valve.
- 2. Alarm Shut-off - 3/4" (19.05 mm) Ball Valve.
- 3. Cover Plate - for resetting Valve.
- 4. Priming Water Valve - 1/2"(12.7 mm) Angle Valve.
- 5. Priming Cup.
- 6. Gauge Valve.
- 7. Priming Level Test Plug.
- 8. Air Supply Valve - 3/4" (19.05 mm) Angle Valve.
- 9. Automatic Drain Valve (D.V.D.).
- 10. Air Pressure gauge.
- 11. Alarm Test Valve - 3/4" (19.05 mm) Angle Valve.
- 12. 3/4" (19.05 mm) Check Valve.
- 13. Water Pressure Gauge.

Face to face: 15 1/4"

4" DRY PIPE VALVE TRIM



RESETTING THE "ASTRA" 4" DRY PIPE VALVE MODEL E

1. Close main controlling valve or post indicator to shut off water supply to sprinkler system.
2. Open Valve 1 to drain sprinkler system.
3. Gong and electric valve may be shut off by closing valve 2.
4. Vent sprinkler system by opening $\frac{3}{4}$ " (19.05 mm) inspector's test valve which is normally located at the top of the system.
5. After system is thoroughly drained, remove cover plate 3 for resetting dry valve.
6. Raise clapper off seat and scoop out any scale or solid particles found in intermediate chamber, in the bottom of the valve, between the air and water seats. Using a clean piece of cloth wipe the surface of the rubber seats on the swinging clapper, also the tin seats in the valve. Never apply grease, tallow, or any other substance to water or air seat.
7. Let bronze clapper down on its seat making sure that the rubber air ring presses evenly all around the air seat.
8. Put on cover plate 3 making sure that gasket is in good condition. Replace nuts and tighten evenly, a little at a time, all around.
9. Drip valves are found at low points (if any) on sprinkler piping. They would not be drained by previous operation - open these valves for draining after removing plugs and close when water stops running.
10. Close $\frac{3}{4}$ "(19.05 mm) inspector's test valve, previously opened to vent system.
11. Replace sprinklers fused by fire.
12. Prime by opening valve 4 and slowly pour water into priming cup 5 until priming level is even with cup. Remove plug 7 in valve 6 which is normally open; after water stops running replace plug 7 and close valve 4 tightly. Water must not be allowed to stand above the priming water level.
13. Open valve 8 and pump air pressure into system. When ten (10) pounds (4.536 Kg) pressure has been built up, open drip valve again to force water from low points of system. Close drip valves tightly and plug.
14. Pump the correct air pressure into the sprinkler system, then close valve 8 tightly. Make sure there is no leakage of priming water by the rubber air seat into drip cut 10 by observing automatic drain valve 9.
Note: Never allow air pressure to drop below minimum limit, to safeguard against accidental tripping of dry valve.

Air pressure required for sprinkler system should be calculated at approximately one (1) P.S.I. of air for every six (6) P.S.I. of water pressure. The air pressure should be maintained at approximately twenty (20) P.S.I. above calculated air pressure per N.F.P.A.-13.

15. Partly close valve 1- then open main controlling valve slowly, until water is heard flowing through drain valve 1 - then close tightly, and open controlling valve fully and seal.
Note: This flushes the seat in valve 1 and prevent the clapper from raising, by opening main controlling valve too suddenly.
16. To check water seat inside the dry pipe valve, look at the automatic drain valve 9, and make sure that no water is leaking into drip cup 10.
17. Open automatic drain valve 9 to be sure no water remains in pipe to alarm devices, then close.
18. Valve 2 should now be opened.

DESCRIPTION AND OPERATION

The "ASTRA"4" Dry Pipe Valve model E is essentially a differential check valve. The bronze clapper carries two rubber gaskets. The larger (air) gasket is rubber and seats against pure tin. The smaller (water) gasket is a specially designed rubber disc, which also seats on pure tin. These seats are proportioned so that one pound (.454 kg) of air pressure will hold back approximately six pounds (2.722 kg) of water pressure.

When the air pressure on the surface of the priming water is relieved by the opening of a sprinkler, the upward pressure of the water underneath the water gasket causes the clapper to lift, the intermediate chamber instantly fills, sounds the alarm, and the water pressure, acting on the entire surface of the clapper, pushed it over to the wide open position and thus leaves a passage for the water to the sprinkler system.

INSPECTION AND MAINTENANCE

A minimum of two people should be familiar with the sprinkler system but at least one should be held responsible for its proper maintenance.

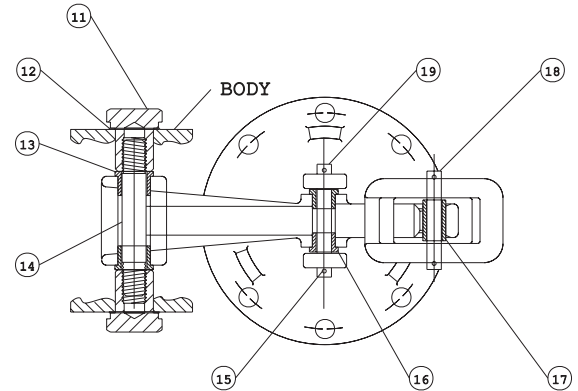
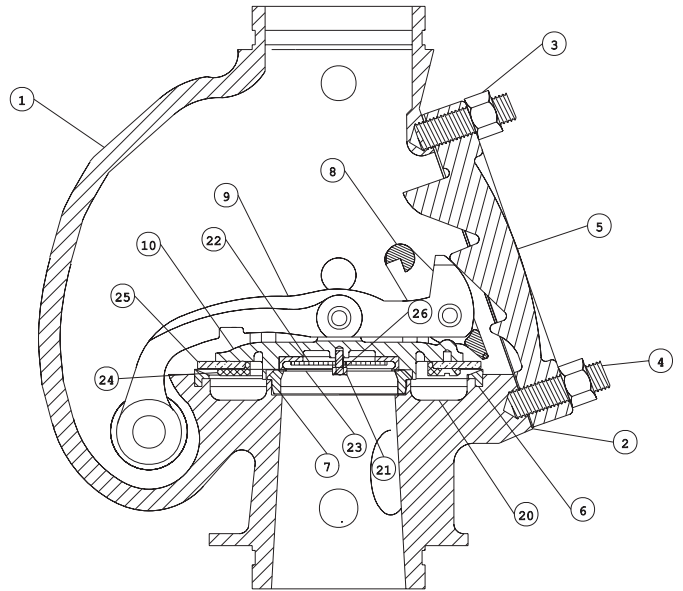
1. Test main riser for water to make sure dry pipe valve is not water columned. Water should be up to but not above the level of valve 6.
2. Close main control valve. Open main drain valve 1.
3. Close valve 6 and remove plug 7. Open 6 to drain water which is above the level of this valve. Replace plug 7 and open valve 6. Check air pressure according to N.F.P.A. -13. Close drain valve 1 and the open main control valve.
4. Air pressure must be maintained and checked weekly, under normal conditions. During freezing weather it should be checked daily. Check valve 8 in the fall before freezing weather sets in to assure a tight seat.
5. Alarm devices may be tested occasionally without tripping the dry pipe valve by opening valve 11 if weather permits.
6. Drip valves or drum drips should be drained before freezing weather sets in and occasionally during winter.

Note: We also recommend at least an annual inspection by qualified inspectors of the complete fire protection system. Many times defects may be detected during inspection and repairs made before they develop into major troubles which might mean the protection would be off in your plant for several days.

4" DRY PIPE VALVE MODEL E

Parts list

| ITEM | PART No. | DWG No. | DESCRIPTION |
|------|------------|-----------|-----------------------|
| 1 | | DPVE 4004 | BODY |
| 2 | D-2 | DPV 4031 | COVER GASKET |
| 3 | ON-12A | DPV 4033 | HEAVY HEX. NUT |
| 4 | D-268 | DPV 4032 | COVER PLATE STUD 3/4" |
| 5 | D-47 | DPV 4007 | COVER |
| 6 | | DPV 4012 | AIR SEAT |
| 7 | | DPV 4040 | WATER SEAT |
| 8 | D-34 | DPV 4024 | LATCH |
| 9 | D-29 | DPV 4009 | CLAPPER ARM ASSEMBLY |
| 10 | D-2274 | DPV 4019 | CLAPPER ASSEMBLY |
| 11 | D-33 | DPV 4021 | ARM HINGE PIN PLUG |
| 12 | | DPV 4022 | ASBESTOS GASKET |
| 13 | | DPV 4025 | ARM PIN BUSHING |
| 14 | D-30 | DPV 4020 | ARM HINGE PIN |
| 15 | OPC-3-10A | DPV 4030 | COTTER PIN BRASS |
| 16 | | DPV 4026 | CLAPPER PIN BUSHING |
| 17 | | DPV 4027 | LATCH PIN BUSHING |
| 18 | D-31 | DPV 4029 | LATCH PIN |
| 19 | D-32 | DPV 4028 | CLAPPER HINGE PIN |
| 20 | OMS-16-10A | DPV 4018 | MACHINE SCREW |
| 21 | | DPV 4016 | HEX. CAP SCREW |
| 22 | D-2272 | DPV 4013 | WATER SEAT DISC |
| 23 | D-2273 | DPV 4015 | WATER SEAT GASKET |
| 24 | D-38 | DPV 4035 | AIR SEAT RETAINER |
| 25 | D-40 | DPV 4014 | AIR SEAT GASKET |
| 26 | | DPV 4017 | LOCK WASHER |



| 4" Dry Pipe Valve Model E | |
|---------------------------|---------|
| Face to face | 15 1/4" |
| Weight | 112 lbs |

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