

# FIREMATIC

## Alarm Valve Operation

When a sprinkler head or inspectors test valve is opened, pressure on the system side of the clapper is reduced below the pressure on the supply side. The clapper then raises off the grooved seat and permits water from the supply to enter the system for distribution on the fire.

Water now flows through the uncovered groove and into the Retarding Chamber and after filling the retarding chamber, to the alarm devices.

A pressure surge or water hammer in the supply line will increase the pressure on the supply side of the clapper, causing it to lift intermittently which may result in a false alarm. The *Firematic* Model "G" Alarm Valve will prevent such false alarms by two features:

- a. The external By-Pass with check valve allows a pressure surge from the supply to by-pass the Alarm Valve Clapper. This will create an excess system pressure and thus steady the clapper. Should a heavy surge unseat the clapper and allow water to flow into the alarm line, the Model D-1 retarding chamber then comes into action.
- b. The retarding chamber consists of two specially designed inlet and drain orifices, which will allow the chamber to be drained before filling and activating an alarm device. The retarding chamber has a strainer in the intake line to prevent foreign matter from clogging the intake orifice.

Care must be exercised when installing check valves in the trim to be certain that they are located with the arrow on the body pointing in the right direction. The arrow on the body of the  $\frac{3}{4}$ " check valve in the by-pass must point towards the valve. The arrow on the body of the  $\frac{3}{4}$ " check valve in the drain line from the retard chamber must point towards the main drain.

## Alarm Valve Maintenance

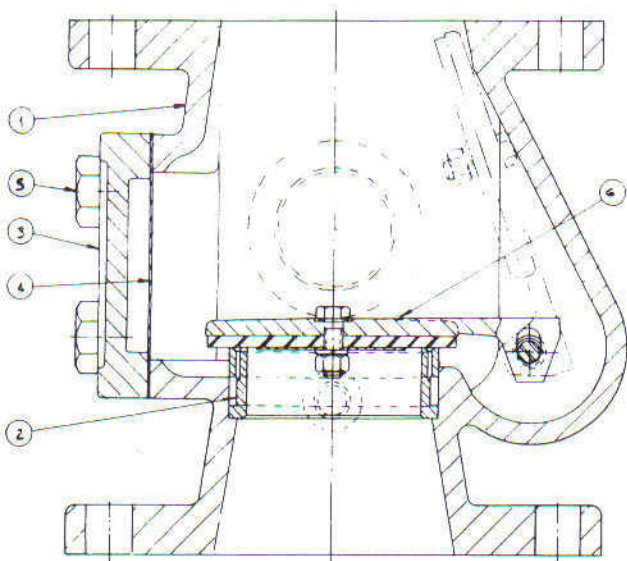
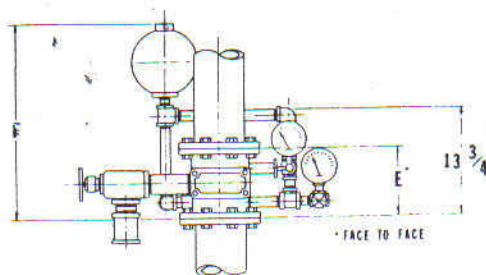
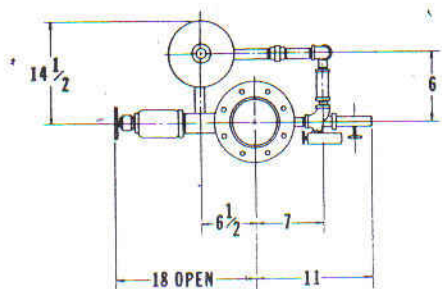
The *Firematic* Model "G" Alarm Valve is so constructed that there is nothing to adjust and under normal water and operating conditions requires very little maintenance.

The two water gauges in the alarm valve trim should indicate different pressure readings. Should these pressure readings be equal, and assuming that no test or drain valves have been recently opened, or any sprinkler heads have operated before the system pressure has had a chance to build up, such a condition indicates a leak is occurring at some point.

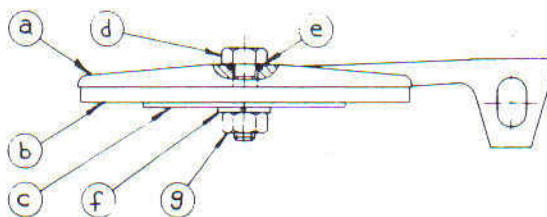
In this event check all valves in the trimming installation, as well as all test and drain valves on the system, making positive that all have been tightly closed and no leakage is occurring. Inspect the system carefully for broken fittings or similar damage to the overhead pipe. If this inspection reveals that no leakage is occurring, it is likely that the rubber clapper facing within the alarm valve needs replacing. A defective rubber facing is also a major cause of false alarms and renewal will tend to correct this condition. Such replacement may be found necessary from time to time and a new rubber facing should be obtained from the valve manufacturer. When this change is necessary it is done as follows:

- Notify your insurance carrier that the system is to be temporarily out of service.
- Close main control valve (OS&Y or post indicator valve located outside building) to shut off water supply a man should be stationed at the valve until service is restored.
- Open 2" drain valve to drain the system.
- Vent sprinkler system by opening Inspectors Test Valve which is normally located at the top of the system.
- After system is completely drained, the cover plate can be removed permitting inspection of the alarm valve clapper assembly, seat and interior.
- Raise clapper off seat and scoop out any scale or solid particles around the valve seat. Wipe the surface of the valve seat with a clean cloth.
- Renew clapper facing.
- Clapper assembly may be removed from the alarm valve by removing the two clapper pin plugs, which permits the removal of the clapper pin.
- Replace cover plate making sure cover plate gasket is in good condition.
- Tightly close all drain and test valves making sure to replace any sprinkler heads which may have been removed. Leave inspectors test valve open.
- To prevent alarms from sounding when service is being restored, close the two  $\frac{1}{2}$ " ball valves in the alarm valve trim.
- Carefully open the main control valve to allow the system to fill slowly. This will prevent any foreign matter in the supply main from being washed into the alarm valve. During this time the clapper assembly will be open and will automatically reseat when sufficient water has entered the system piping.
- Allow inspectors test valve to remain open until a steady flow of water is maintained and then close tightly. This vents as much entrapped air in the sprinkler system as possible.
- When full pressure is built up in the sprinkler system and the upper gauge on the alarm valve trim reads higher than the lower gauge, open the main control valve fully and seal.
- Open the  $\frac{1}{2}$ " ball valve on the alarm line only, and seal. Failure to do so will prevent an alarm from sounding in the event of system operation.
- To test the alarm, open the  $\frac{1}{2}$ " ball valve in the external by-pass trim. This takes water from below the clapper and permits testing of alarm without raising clapper off the seat.

# INSTALLATION DIMENSIONS



VALVE SIZE	*E	F
3"	10-7/8	24
4"	8-7/8	24
6"	10-3/8	24-3/4



## SPARE PARTS

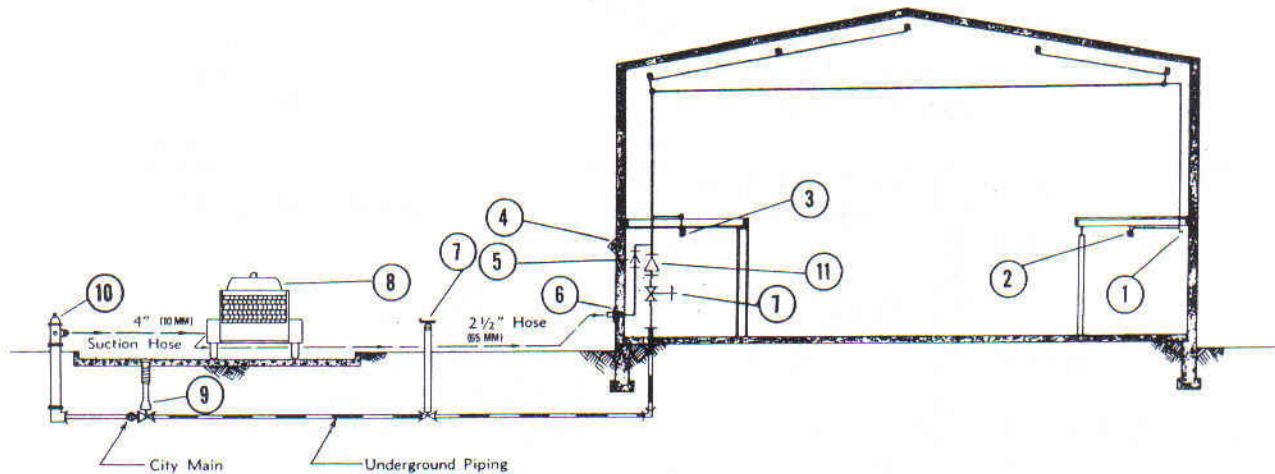
Replacement Parts 3", 4", 6" Model G & H Alarm Valves

ITEM NO.	3" VALVE PART NO.	4" VALVE PART NO.	6" VALVE PART NO.	DESCRIPTION	REQ.	MATERIAL
1	301-009	301-013	901-002	*Body	1	Cast Iron
2	301-010	301-010	301-015	*Seat	1	Bronze
3	301-011	301-011	301-011	Cover	1	Cast Iron
4	101-052	101-052	101-052	Cover Seal	1	Rubber
5	101-053	101-053	101-053	Cover Bolts	4	Steel
6	101-054	101-054	101-066	Clapper Ass'y	1	-----
<b>CLAPPER DETAILS</b>						
6a	101-055	101-055	301-017	Clapper	1	Bronze
b	101-056	101-056	101-067	Clapper Seal	1	Rubber
c	101-057	101-057	101-068	Disk	1	Brass
d	101-058	101-058	101-058	Bolt	1	Stainless
e	101-061	101-061	101-061	O Ring	1	Rubber
f	101-060	101-060	101-060	Lockwasher	1	Stainless
g	101-059	101-059	101-059	Nut	1	Stainless
7	101-062	101-062	101-062	**Clapper Pin	1	Stainless
8	101-063	101-063	101-063	Bushing	2	Brass
9	101-064	101-064	101-064	Plug	2	Steel
10	-----	101-065	101-069	**Grooved Collar	1	Steel

\*Not Replacement \*\*Not Illustrated

## WET PIPE SPRINKLER SYSTEM

- 1 — Valve and plug required if more than 5 sprinklers are trapped.
- 2 — Sprinklers on lines may be turned pendent.
- 3 — Sprinklers may be installed pendent on drops.
- 4 — Water motor alarm.
- 5 — Check valve.
- 6 — Fire department connection.
- 7 — Post indicator valve or control valve.
- 8 — Fire department pumper truck — takes water from city main (thru hydrant) and pumps it into the sprinkler system (thru fire department connection) at increased pressures.
- 9 — Water works valve with roadway box.
- 10 — Fire hydrant.
- 11 — Alarm valve — provides alarm connection and prevents water being pumped into the fire department connection from going back into the underground piping.



### NORMAL CONDITIONS

1. Water works valve in roadway must be completely open.
2. Post indicator valve or control valve must be completely open and sealed.
3. Alarm line shut-off valve must be completely open (along handle line) and sealed.
4. Gauge valves must be open with side outlets plugged.
5. Pressure on system gauge should be equal to or greater than supply gauge.
6. Alarm test valve must be closed.
7. There must be power at pressure signal switch.
8. Main drain valve is closed.

### TESTING

Weekly — Open alarm test valve, pressure on lower and upper gauge should not change. Water motor should ring and/or electric alarm should function.

Observe system and supply pressure gauges. Pressure should not drop on either gauge.

Semi-annually — Observe supply pressure gauge. Open main drain valve fully. Alarms should sound as in weekly test. Supply pressure drop should not exceed drop when valve was installed.

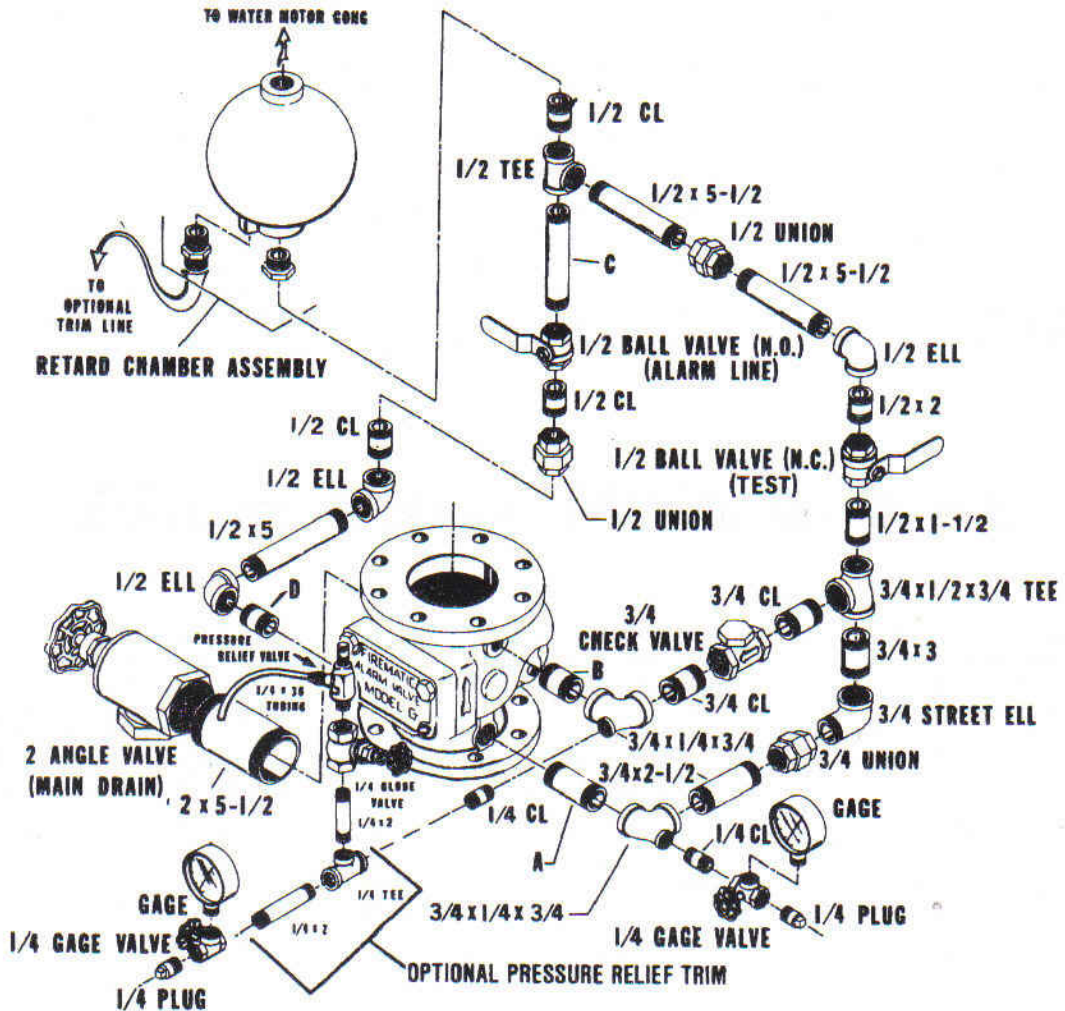
### DIFFICULTIES

1. Gauges drop on alarm test or flow test — immediately check roadway box and post indicator or control valve. If both are open, immediately call your Firematic representative since a line obstruction is indicated.
2. Intermittent alarms — bleed air from high points of system. This entrapped air is compressed by surges in water pressure which momentarily opens the clapper. If this is not successful, call your Firematic representative.
3. Alarm sounds immediately on alarm test — remove drain plug from retarding chamber, clean and reassemble.
4. Alarm fails to sound on test — make sure alarm line valve is open. Clean strainers in alarm line and water motor. If alarm still fails, call your Firematic representative.

Do not, under any circumstances, turn off the water supply to make above repairs. Fire may occur during impairment. Also, serious complications arise with insurance companies when water is turned off.

## Model "G" & "L" Alarm Valve Trimmings

valve size	A	B	C	D
3" & 4"	3/4 X 4	3/4 X 3	1/2 X 4	1/2 X 1-1/2
6"	3/4 X 2-1/2	3/4 X 2	1/2 X 3-1/2	1/2 CL

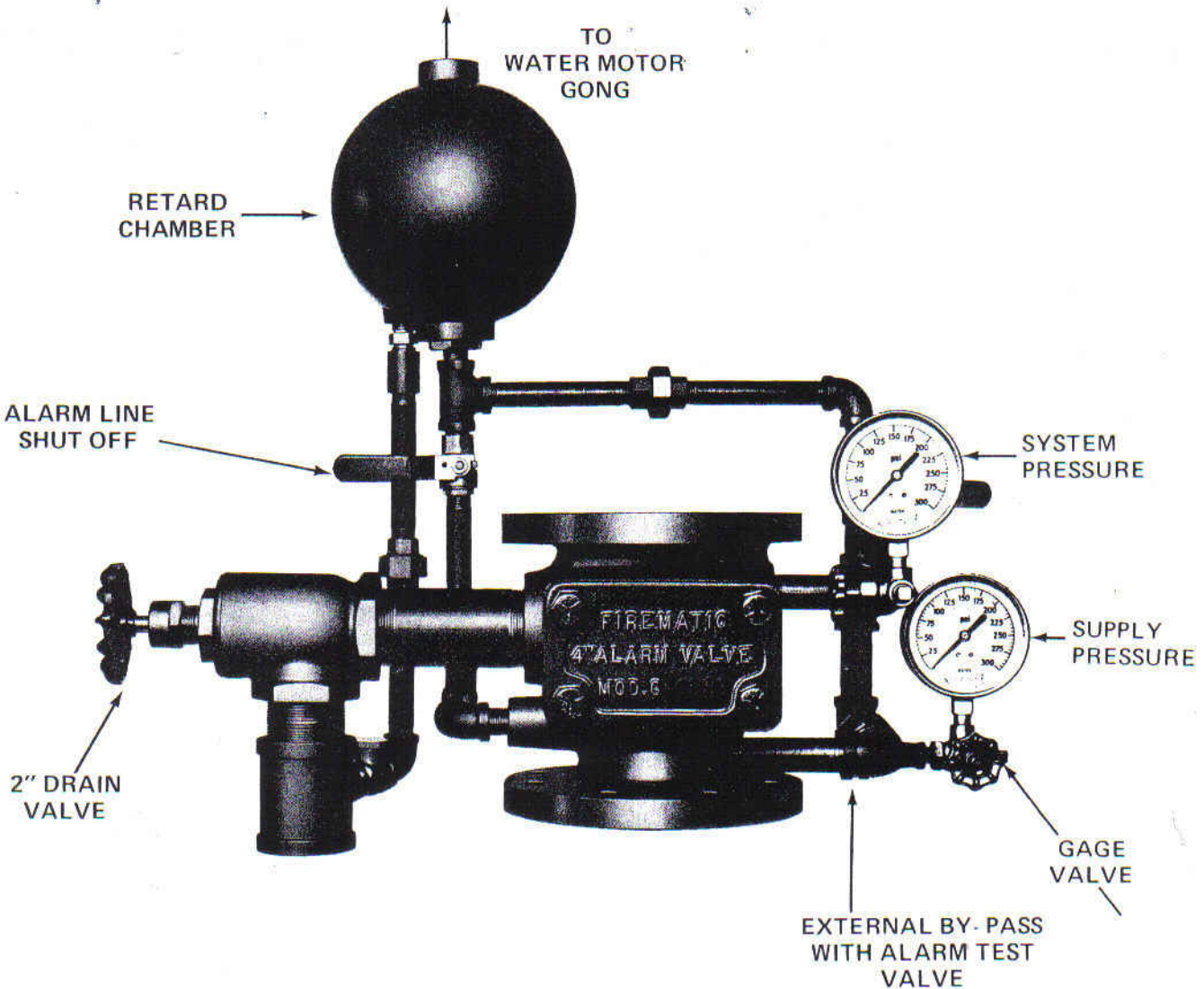


\*on 3" valves, substitute 1-1/2" fittings in place of 2" fittings shown.

## TREATMENT OF SPRINKLERS

- Make sure sprinkler head cabinet contain replacement sprinklers.
- Use only the special sprinkler wrench provided by the Manufacturer of this sprinkler for screwing the sprinkler into the fitting. Use of other types of wrenches may damage the sprinkler.
- Never install sprinklers which have been dropped upon the floor or injured in any way. These sprinklers should be returned to the factory for examination.
- Never disturb position of levers or tamper with any of sprinkler parts.
- Use upright spray sprinklers (marked SSU on deflector) in UPRIGHT POSITION ONLY and pendent spray sprinklers (marked SSP on deflector) in PENDENT POSITION ONLY.
- Factory "wax coated" or "lead plated" sprinklers should be used in all rooms where they are exposed to corrosive fumes from acids, chemicals, etc.

# EMERGENCY INSTRUCTIONS



## EMERGENCY FIRE INSTRUCTIONS

- 1) Make sure fire is OUT! Make complete inspection of all areas covered by this system including areas not involved in fire. Place fire watch in entire area until system is back in service.
- 2) Turn off system water supply valve. Post man at main supply valve ready to turn on in case fire rekindles.
- 3) Replace fused sprinklers with the same type and temperature rating as were removed. (Open the main drain if necessary).
- 4) Open the inspectors test connection or auxiliary drain farthest and highest from the alarm valve.
- 5) Close the alarm line shut-off valve.
- 6) Close the main drain.
- 7) Open system water supply valve slowly.
- 8) When water runs from inspectors test or auxiliary drain, close immediately.
- 9) Open system water supply valve fully and seal.
- 10) Open alarm line shut-off valve and seal.
- 11) Perform semi-annual test.
- 12) Fire can damage piping and supports so call your FIREMATIC representative for a complete inspection and additional replacement sprinklers.