TECHNICAL DATA

ANTI-FLOOD DEVICE
MODEL B-1

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

The Model B-1 Anti-flood Device is required when Viking accelerators are installed on dry systems according to Viking Model E-1 Accelerator Trim Charts. In the SET condition, the Model B-1 Anti-flood Device is designed to prevent system pneumatic pressure from entering the intermediate chamber of the dry valve.

In fire conditions, when the accelerator operates, the anti-flood device opens to allow system pneumatic pressure to pass directly into the intermediate chamber of the dry valve, causing it to open. After the dry valve has opened, flooding the system with water, the anti-flood device prevents water from entering the accelerator, where it could foul and plug the restricted orifices.

WARNING: Cancer and Reproductive Harm- www.P65Warnings.ca.gov

2. LISTINGS AND APPROVALS

UL Listed: For use with the Viking Model E-1 Accelerator, Guide No. VJPZ
ULC Listed
FM Approved: For use with Viking Dry Pipe Valves (when used with the Model E-1 Accelerator), Dry Pipe Valves
New York City Department of Buildings: MEA 89-92-E

3. TECHNICAL DATA

Specifications:

Factory Tested
Working water pressure: 175 psi (12.1 bar)
Designed for external installation
Prevents system water from entering and contaminating the accelerator

Viking Technical Data may be found on The Viking Corporation's Web site at http://www.vikinggroupinc.com. The Web site may include a more recent edition of this Technical Data Page.

Material Specifications:

Refer to Figure 1.

Ordering Information:

Shipping Weight: Anti-flood Device only: 3 lb. (1.4 kg)
The Model B-1 Anti-flood Device is available with the E-1 Accelerator Assembly package or separately (P/N 08061 separately or 08116 Package)

4. INSTALLATION

Install the Model B-1 Anti-flood Device in the dry valve trim according to the Model E-1 Accelerator Trim Chart for the model of dry valve used. The external Model B-1 Anti-flood Device is required when the Model E-1 Accelerator is installed on a dry valve.

Air supply should be from an automatic, regulated, and restricted source supplied with clean, dry, oil-free air (or nitrogen).

When corrosive atmospheres and/or contaminated water supplies are present, it is the owner's responsibility to verify compatibility with the Model B-1 Anti-flood Device and associated equipment.

The Model B-1 Anti-flood Device must be installed where shown on the Trim Chart used.

1. Verify that the Model E-1 Accelerator Trim Chart available is for the model of dry valve used.
2. Remove all plastic thread protectors from the openings of the anti-flood device.
3. Apply a small amount of pipe-joint compound or tape to the external threads of all pipe connections required. Take care not to allow any compound, tape, or other foreign matter inside any of the nipples or openings of the anti-flood device.
4. Install the necessary fittings and/or nipples and the ½" (15 mm) NPT anti-flood isolation valve to connect the "system" inlet of the anti-flood device to the 1" (25 mm) NPT opening in the outlet chamber of the dry valve.
5. Install the fittings, nipples, ½" (15 mm) NPT swing check valve, and union required to connect the anti-flood device outlet marked "intermediate chamber" to the opening provided in the trim piping connected to the intermediate chamber of the dry valve.
6. Connect the ½" (15 mm) NPT inlet of anti-flood device air priming chamber to the air supply piping supplying air or nitrogen to the accelerator.

4-A. PLACING THE ANTI- FLOOD DEVICE IN SERVICE

Refer to the Model E-1 Accelerator Trim Chart and Technical Data for the accelerator and dry valve used for additional procedures for placing the system in service.

When the dry pipe system is ready to be placed in service, verify that all equipment is adequately heated and protected to prevent freezing and physical damage.

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1. With the water supply main control valve CLOSED, drain all water from the dry pipe system. If the system has operated, open all auxiliary drains and the system test valve. Allow enough time to completely drain the system.
2. Verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
3. Reset the dry valve. (See Technical Data for the dry valve used.)
4. Close all auxiliary drains, the system Test Valve, and the Priming Water Level Test Valve in the dry valve trim.
5. Close the ½" (15 mm) NPT anti-flood isolation valve.
6. Observe the air pressure gauge on top of the accelerator. The gauge must read zero before the accelerator will automatically reset. It may be necessary to loosen, remove, and re-install the accelerator air gauge (use the appropriate wrench) to vent trapped air pressure from the upper chamber (even when the gauge indicates zero if the air supply is on while performing this step).
7. Pressurize the system in accordance with recommended settings. See Technical Data for the dry system used. DO NOT exceed 60 psi (4.1 bar).
8. When air pressure on the accelerator air gauge equals the system set pressure, open and secure the ½" (15 mm) NPT Anti-flood Isolation Valve.
9. When the air pressure on the accelerator air gauge equals the system set pressure, perform PRIMING WATER LEVEL TEST described in paragraph 6-B.1 to verify that water is not present above the priming level test valve in the dry valve trim.

If the presence of water is detected, the system may not have been properly drained. To verify that the system has been properly drained, repeat steps 1 through 8 above as required.

NOTE: THIS STEP IS REQUIRED ANY TIME WATER HAS ENTERED THE SPRINKLER PIPING. IF NO WATER HAS BEEN ALLOWED TO ENTER THE SYSTEM SINCE THE PREVIOUS PRIMING WATER LEVEL TEST, THIS STEP MAY NOT BE REQUIRED.

10. Open the main drain valve (located on the inlet of the dry valve).
11. Slowly open the water supply main control valve.
12. When flow is developed from the main drain, close the main drain valve.
13. Fully open and secure the water supply main control valve supplying the dry valve.
14. Verify that the ½" (15 mm) NPT Anti-flood Isolation Valve is open and secure.
15. Secure all valves in their normal operating position.
16. Notify Authorities Having Jurisdiction and those in the affected area that the system is in service.

5. OPERATION (Refer to Figure 1)

In the SET position, system pressure maintained in the air priming chamber of the anti-flood device forces rolling diaphragm (4-5) and piston (9) assembly closed against inlet seat (1). When the accelerator operates, relieving pressure from the air priming chamber, spring (10) forces rolling diaphragm piston (9) off seat (1). Dry system pneumatic pressure passes from the "system" inlet of the anti-flood device through the outlet marked "intermediate chamber" to the intermediate chamber of the dry valve causing the Dry Valve to open. Diaphragms (4) and (5) of the anti-flood device, prevent water in the Dry Valve Trim from entering the Accelerator.

6. INSPECTIONS, TESTS AND MAINTENANCE

Prior to performing any work on the system in which the Model B-1 Anti-flood Device is installed, refer to Technical Data for the dry valve and equipment used.

NOTICE: THE OWNER IS RESPONSIBLE FOR MAINTAINING THE FIRE PROTECTION SYSTEM AND DEVICES IN PROPER OPERATING CONDITION.

The Viking Model B-1 Anti-flood Device must be kept free of foreign matter, freezing conditions, corrosive atmospheres, contaminated water supplies, and any condition that could impair its operation or damage the device.

It is imperative that the system is inspected and tested on a regular basis. The frequency of the inspections may vary due to contaminated water supplies, corrosive water supplies, corrosive atmospheres, as well as the condition of the air supply to the dry system. For minimum maintenance and inspection requirements, refer to NFPA 25. In addition, the Authority Having Jurisdiction may have additional maintenance, testing, and inspection requirements that must be followed.

WARNING: ANY SYSTEM MAINTENANCE THAT INVOLVES PLACING A CONTROL VALVE OR DETECTION SYSTEM OUT OF SERVICE MAY ELIMINATE THE FIRE PROTECTION CAPABILITIES OF THAT SYSTEM. PRIOR TO PROCEEDING, NOTIFY ALL AUTHORITIES HAVING JURISDICTION. CONSIDERATION SHOULD BE GIVEN TO EMPLOYMENT OF A FIRE PATROL IN THE AFFECTED AREAS.

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6-A. INSPECTION

Weekly inspection is recommended.

1. Verify that the ½" (15 mm) NPT Anti-flood Isolation Valve is OPEN.
2. Check for signs of mechanical damage and/or corrosive activity. Perform maintenance as required or, if necessary, replace the device.
3. Verify that accelerator, anti-flood device, and trim are adequately heated and protected to prevent freezing and physical damage.

6-B. TESTS

6-B.1. Priming Water Level, Low-Air Alarm, and Non-flow Accelerator Test for dry valves equipped with an accelerator and Model B-1 Anti-flood Device installed according to Model E-1 Accelerator Trim Charts:

Quarterly testing is recommended to verify that water is not present above the priming level test valve in the dry valve trim.

Quarterly testing of low-air alarms is recommended.

Semi-annual testing of accelerators is recommended. Conduct Non-Flow Test when Partial Flow Test or Full Flow Test is not required.

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.
2. Close the water supply main control valve supplying the dry valve.
3. Open the main drain valve (located on the inlet of the dry valve).

NOTE: PERFORMING STEPS 4 OR 5 OF THIS TEST WILL CAUSE THE ACCELERATOR TO OPERATE. A BURST OF AIR FROM THE VENT IN THE BOTTOM OF THE ACCELERATOR WILL INDICATE OPERATION OF THE ACCELERATOR. HOWEVER, WITH THE WATER SUPPLY MAIN CONTROL VALVE CLOSED, AND THE MAIN DRAIN VALVE OPEN, OPERATION OF THE ACCELERATOR SHOULD NOT TRIP THE DRY VALVE.

4. Dry Valve Priming Water Level Test:
   a. Verify that the water supply main control valve is closed and the main drain valve is open.
   b. Fully open the priming level test valve in the dry valve trim to check for the presence of water. If the presence of water is detected, the system may not have been properly drained. Perform steps 1 through 9 of PLACING ANTI- FLOOD DEVICE IN SERVICE paragraph 4-A.
   c. When the test is complete (if/when no water is detected), continue to step 6.
5. Low-Air Alarm Test, and Non-Flow Accelerator Test:
   a. Verify that the water supply main control valve is closed and the main drain valve is open.
   b. Gradually open the priming level test valve in the trim of the dry valve to simulate operation of the dry system
      aa. Observe and record the pressure at which the low air alarm operates.
      ab. Observe the vent in the bottom of the accelerator. A burst of air from the vent in the bottom of the accelerator indicates that the accelerator has operated. No water should flow from the vent. A spurt of water from the vent may indicate that the air supply is not being dried adequately or that the spring-loaded check valve (located between the accelerator and the air inlet to the dry valve) is leaking. Make repairs or replace equipment as required.
   c. When the test is complete, continue to step 6.
6. Close the priming level test valve.
7. Close the ½" (15 mm) NPT anti-flood isolation valve.

NOTE: AIR WILL CONTINUE TO FLOW FROM THE ACCELERATOR AFTER IT HAS OPERATED UNTIL STEP 8 IS PERFORMED.

8. Loosen (use the appropriate wrench), and remove the accelerator air gauge to release pressure from the upper chamber of the accelerator, allowing it to reset.
9. Re-install, (using the appropriate wrench) and tighten the accelerator air gauge.
10. Allow pressure to be restored to the dry pipe system and accelerator.
11. When air pressure on the accelerator air gauge equals the system set pressure, verify that the intermediate chamber of the dry valve is free of water. No water should flow from the drip check when the plunger is pushed.
12. Open and secure the ½" (15 mm) NPT Anti-flood isolation valve.
13. When testing is complete, return the system being tested to service. Perform steps 10 through 16 of paragraph 4-A PLACING THE ANTI-FLOOD DEVICE IN SERVICE.

6-B.2. Flow Testing on dry valves for dry valves equipped with an accelerator and Model B-1 Anti-flood Device installed according to Model E-1 Accelerator Trim Charts:

Partial Flow Tests are conducted with the water supply main control valve (supplying the dry valve being tested) partially closed to minimize the amount of water entering the system during the test. The water supply control valve is closed immediately after the dry valve operates to keep water from filling the system piping. A Partial Flow Test may verify operation of equipment and devices, but it does not simulate operation of the system in fire conditions.

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Full Flow Tests are conducted with the water supply main control valve fully open. The dry valve is operated by opening the system test valve to simulate the opening of a sprinkler in fire conditions.

Conduct a Partial Flow Test during warm weather at least annually. Conduct a Full Flow Test during warm weather at least once every three years. More frequent testing may be required by the Authority Having Jurisdiction:

1. Notify the Authority Having Jurisdiction and those in the area affected by the test.

CAUTION: PERFORMING STEP 2 OF THIS TEST PROCEDURE WILL CAUSE THE DRY VALVE TO OPEN. THE ACCELERATOR WILL OPERATE, THE DRY VALVE WILL TRIP, AND WATER WILL ENTER THE SPRINKLER SYSTEM PIPING.

2. Operate the accelerator by performing the steps indicated below for the test procedure desired.
   a. For Full Flow Test:
      aa. With the water supply main control valve open, fully open the main drain. Allow the flow to continue long enough to flush any foreign material from the water supply piping.
      ab. Close the main drain.
      ac. Open the system test valve to simulate operation of a sprinkler.
      ad. Close the water supply main control valve after the accelerator operates and test is complete. Proceed to step 4.
   b. For Partial Flow Test:
      ba. With the water supply main control valve fully open, open the main drain. Allow the full flow to continue long enough to flush any foreign material from the water supply piping.
      bb. With the main drain fully open, slowly close the water supply main control valve until flow from the main drain is reduced as far as possible while maintaining the full flow from the main drain.
      bc. Close the main drain.
      bd. Fully open the priming level test valve to simulate operation of a sprinkler.
      be. Close the water supply main control valve IMMEDIATELY after the accelerator operates and the dry valve trips.
4. Record operating times as required by the Authority Having Jurisdiction.
5. When operation time testing is complete, return the system being tested to service. Perform steps 1 through 16 of PLACING THE ANTI-FLOOD DEVICE IN SERVICE paragraph 4-A and Technical Data for the dry valve and equipment used.

6-B.3. ANTI-FLOOD DEVICE MAINTENANCE

(See Figure 1.)

To remove the Model B-1 Anti-flood Device for inspection and/or maintenance, refer to the Trim Chart and Technical Data for the accelerator and dry valve used.

1. Close the water supply main control valve and open the main drain (located on the inlet of the dry valve), placing the system out of service.
2. Close the ½" anti-flood isolation valve.
3. Turn off the air supply to the accelerator and remove the pressure from the piping in which the accelerator and anti-flood device are installed.
4. Remove accelerator, trim piping, and fittings as required to remove the anti-flood device from the system.

NOTE: AIR SUPPLY MAY BE RESTORED TO PLACE THE DRY SYSTEM BACK IN SERVICE WITHOUT THE ACCELERATOR AND ANTI-FLOOD DEVICE. PLUG AND/OR CAP OPENINGS CREATED IN TRIM PIPING BY REMOVAL OF THE ACCELERATOR AND ANTI-FLOOD DEVICE.

DO NOT install the Viking Model E-1 Accelerator without the Model B-1 Anti-flood Device.

Notify all Authorities Having Jurisdiction if the dry system is temporarily returned to service with the accelerator removed. To place the dry system in service without the accelerator, refer to technical data for the dry valve used.

Disassembly (Refer to Figure 1)

1. Using a 5/16" (8 mm) wrench, loosen the three #10-24 hex head screws (6). Hold the cover (7) down to overcome the internal spring pressure to remove the screws.
2. With the cover (7) removed, the upper diaphragm (5), spacer (8), piston (9), lower diaphragm (4), spring pad (3), and spring (10) can be removed for inspection and cleaning.
3. Check the sealing surface of the brass seat (1). If foreign matter, pitting, or roughness is present, clean or replace the seat as required.
4. If it is necessary to remove the seat:
   a. Place the body (2) in a vice.
   b. Use a wrench applied to the 1-1/2" (38 mm) hex flats of the seat (1) to turn the seat (1) counterclockwise to remove it from the body (2).

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Reassembly (Refer to Figure 1)

1. Re-install the spring (10), sliding it over the internal waterway of the brass seat (1).
2. Drop the three screws (6) into the screw openings in the cover (7) and turn the cover (with screws) upside-down on a smooth surface.
3. Locate the upper diaphragm (5). Position the surface of the upper diaphragm (5) (containing the small 1/8” (3 mm) diameter projection in the center) down (toward threaded opening of cover) on the inverted cover (7), taking care to align the screw openings over the screws (6).
4. Place the piston (9) into the 1-5/16” (33.3 mm) diameter depression molded into the surface of upper diaphragm (5). [After completing step 3 above, this surface is facing up, away from the threaded opening of inverted cover (7)].
5. Align the screw openings of the spacer (8) over the screws and slide the spacer down against the upper diaphragm (5).
6. Locate the lower diaphragm (4). Position the surface with the 1-5/16” (33.3 mm) diameter depression, onto the piston (9), taking care to align the screw openings over the screws (6).
7. Place the spring pad (3) over the 9/16” (14.3 mm) diameter boss on the lower diaphragm (4) with the burr (rough edge) away from the lower diaphragm (4).
8. While holding the pieces assembled in steps 2 through 7 together, invert the assembly, aligning the screws (6) with the screw openings in the body (2).
9. Using a 5/16” (8 mm) wrench, tighten the three #10-24 hex head screws (6). DO NOT over-tighten.
10. To replace the seat (1) into the body (2):
    a. Place the body (2) in a vice.
    b. Apply a small amount of pipe dope to the external threads of the seat.
    c. Thread the seat (1) into the internal threads of the body (2) finger tight.
    d. Using a wrench applied to the 1-1/2” (38 mm) hex flats of the seat (1), turn the seat (1) clockwise until tight (2). DO NOT over-tighten.

7. AVAILABILITY

The Viking Anti-Flood Device is available through a network of domestic and international distributors. See the Viking Corp. Web site for closest distributor or contact The Viking Corporation.

8. GUARANTEES

For details of warranty, refer to Viking’s current list price schedule or contact Viking directly.

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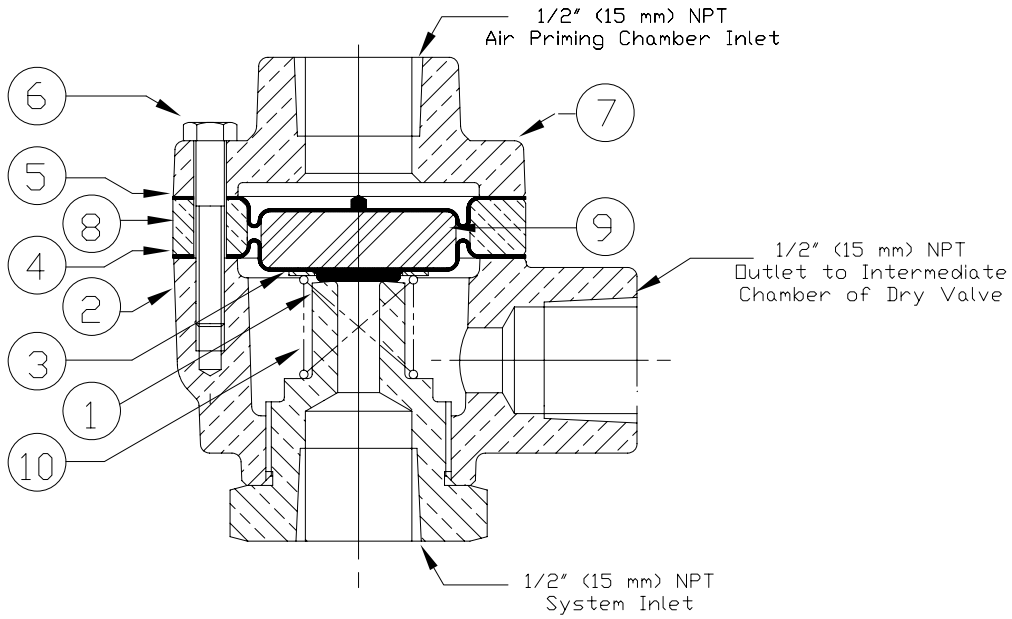

Figure 1

ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	NO. REQUIRED
1	08062	Seat	Brass, UNS-C36000	1
2	--	Body	Brass, UNS-C84400	1
3	04739A	Spring Pad	Stainless Steel, UNS-S30200 / UNS-S30400	1
4	04861A	Lower Diaphragm	Polyester / EPDM Fabric	1
5	04735A	Upper Diaphragm	Polyester / NBR Fabric	1
6	12470	Screw - M.H.H. #10-24 x 1-1/4" (32 mm)	Steel, Zinc Plated	3
7	--	Cover	Brass: UNS-C84400	1
8	--	Spacer	Brass: UNS-C84400	1
9	04736A	Piston	Polycarbonate	1
10	04741A	Spring	Stainless Steel, UNS-S30200	1
-- Indicates replacement part is not available				
SUB-ASSEMBLY				
3-6, 9-10	12528	Repair Kit		