Air Maintenance Device

For Dry Pipe Sprinkler Systems, Air Supervised Preaction Systems, & Dry Pilot Actuated Deluge Systems

UL Listed and FM Approved

Manufactured by: General Air Products, Inc.
118 Summit Drive, Exton, PA 19341

Call

1-800-345-8207

for assistance

or visit our website for information on these and all of our products

www.GENERALAIRPRODUCTS.com

Product Description

The enclosed Automatic Air Maintenance Device is a UL Listed and FM Approved assembly of valves, nipples, fittings, and actuators to automatically control the air pressure in the piping of dry pipe sprinkler systems, preaction sprinkler systems, or dry pilot actuated deluge systems.

The Air Maintenance Device is designed to automatically feed air into the system piping at the required volume and pressure from an air source such as:

1. An air compressor
2. An air receiver tank
3. A plant air system (owner's air)

When an air receiver tank or plant air is utilized as the air supply source, the pressure regulator in the Air Maintenance Device AMD-1 and AMD-1ALT automatically regulates the air pressure to the designated level. The outlet pressure of the regulator is field adjustable.

When an electrically-driven air compressor is utilized as the air supply source, the pressure switch in the Air Maintenance Device AMD-2, AMD-2ALT and AMD-3 automatically causes the air compressor to cut-in or cut-out at the minimum and maximum air pressures desired, respectively. The cut-in and cut-out pressures are field adjustable.

The automatic air supply is directed through a restricted orifice in the air maintenance device so that upon activation of a sprinkler, the air supply will not interfere with the operation of the dry pipe valve, by continuing to supply high volumes of pressurized air to the piping system.

It is a recommended safeguard that a low pressure switch and alarm be installed on dry pipe systems or other air supervised piping systems. This will cause an alarm to sound if the pressure falls below a predetermined level.

Operation

The Air Maintenance Device provides a continuous but restricted air supply to the piping system.

The activation of only one sprinkler in a dry pipe system, will cause the system pressure to diminish to the point where the dry pipe valve will “trip”, thereby filling the system piping with water.

Small piping system air leaks will be compensated for by the automatic air feed provided the air leaks do not exceed the restricted air supply.

Technical Data

Model: AMD-1, AMD-1ALT; AMD-2, AMD-2ALT; AMD-3
Style: With Air Regulator (AMD-1, AMD-1ALT)
With Air Pressure Switch (AMD-2, AMD-2ALT, AMD3)
Approvals: UL, FM
Factory Operation Test:
100% at 35 psi air (AMD-1, AMD-1ALT)
100% at 35 & 40 psi air (AMD-2, AMD-2ALT, AMD-3)

Ordering Information

Mfgr. Source: General Air Products, Inc.
Weight: 7 lbs. (AMD-1, AMD-1ALT)
11 lbs. (AMD-2, AMD-2ALT, AMD-3)
When placing an order, indicate the full product name. Please specify the quantity, model and style.

Guarantee

General Air Products, Inc. will repair and/or replace any products found to be defective in material or workmanship within a period of one year from the date of shipment. Please refer to the current price list for further details of the warranty.

UL Listed and FM Approved

GENERAL AIR PRODUCTS

Manufactured by: General Air Products, Inc.
118 Summit Drive, Exton, PA 19341

Design Data

An Air Maintenance Device should be permanently connected to all dry pipe sprinkler systems to avoid the possibility of false valve “trips” which may result from small piping leaks gradually lowering system air pressure.

An Air Maintenance Device may also be utilized to automatically control the air supply to the piping system of an air supervised preaction system or to the pilot lines of a dry pilot actuated deluge valve.

There are several methods of providing a constant and controlled supply of air to a sprinkler system as follows:

Air Compressor and Air Maintenance Device Model (AMD-2)

The air compressor is connected electrically and mechanically to the trim of the dry pipe valve, through an Air Maintenance Device equipped with a pressure switch. The air pressure switch continuously senses the air pressure in the piping system and turns the compressor on if the pressure drops below the cut-in setting and turns the compressor off if the pressure rises above the cut-out setting. The cut-in pressure is usually set at the design air pressure for maintaining the dry pipe valve in the closed position. The cut-out pressure should be set approximately 10 psi above the cut-in pressure.

Note: If the dry pipe valve is equipped with an accelerator, this method of air maintenance is not recommended. The accelerator is sensitive to a 3 to 5 psi air pressure drop at a rate of approximately 1 psi in 10 seconds - see AMD-1.

Air Compressor with Air Receiver Tank and Air Maintenance Device (Model AMD-1)

The compressor-tank unit is equipped with an integral pressure switch that controls the pressure in the tank, maintaining the tank pressure at a level 10 to 15 psi above the designed air pressure demand of any dry pipe system supplied by the air compressor tank unit. The compressor-tank unit is mechanically connected to the trim of the dry pipe valve, through an Air Maintenance Device equipped with an air pressure regulator. The pressure regulator continuously regulates the incoming air (from the air receiver tank) and maintains the outgoing air pressure at the pressure setting of the regulator, usually within an accuracy of 1 psi. The outgoing air pressure setting is field adjustable from 5 to 75 psi. If the dry pipe valve is equipped with an accelerator, this method of air-maintenance is recommended.

Plant Air Supply and Air Maintenance Device (AMD-1)

The plant air supply is mechanically connected to the trim of the dry pipe valve through an Air Maintenance Device equipped with an air pressure regulator. The pressure regulator continuously regulates the incoming air and maintains the outgoing air pressure at the pressure setting of the regulator, usually within and accuracy of 1 psi. The outgoing air pressure setting is field adjustable from 5 to 75 psi. The minimum pressure in the plant air supply must be greater than the design air pressure required by the dry pipe system since the air pressure regulator will only regulate pressure downward.

Installation

General

The Air Maintenance Device must be installed in the air supply line leading to the dry pipe valve trim, preaction system piping or dry pilot system piping. The air flow through the Device must be in the direction shown by the arrows on the units.

Note: The minimum pipe size is 1/2” diameter, although 3/4” diameter piping will provide a more rapid initial system fill.

Note: In particularly humid environments, a *DRYSTAR* ™ desiccant air dryer should be properly installed between the compressor and the dry pipe valve to remove moisture from the compressed air supply. Condensed moisture that is allowed to back up into the compressor cylinder may cause compressor damage. Cold room / freezer room installations must have a pre-packaged *Dry Air Pac* ™ which includes an AMD-1. Consult factory for correct installation procedures.

Model AMD-1 (Pressure Regulator)

Step 1. Close the 1/4” ball valves (#8) and open the bypass valve (#7) in the Air Maintenance Device and open the air supply valve in the dry pipe valve trim.

Step 2. Open the air supply control valve from the plant air system or air receiver tank to pressurize the system.

Step 3. When the system is pressurized, check the air pressure gauge to verify the the pressure is at the design pressure requirement for the system.

(Continued)

UL Listed and FM Approved

GENERAL AIR PRODUCTS

Manufactured by: General Air Products, Inc.
118 Summit Drive, Exton, PA 19341

Installation (continued)

Model AMD-1 (Pressure Regulator)

Caution: Care must be taken NOT to overpressure the system above the regulator setting when using the quick load line.

Note: If necessary to adjust the system pressure, move the locking nut away from the body of the regulator and turn the adjusting screw clockwise to increase the system pressure and counter clockwise to reduce system pressure.

When reducing from a higher to a lower setting, first reduce to some pressure less than desired, then bring up to the desired point.

After achieving the desired pressure setting, lock the pressure setting.

Step 4. Close the bypass valve (#7) and open the two 1/4" ball valves (#8). The Air Maintenance Device is now in service.

Model AMD-2 (Pressure Switch)

Step 1. An electrical power circuit should be installed using the pressure switch to control the compressor motor in accordance with the National Electric Code and/or the requirements of the local Authority Having Jurisdiction. Consult factory for specific recommendations.

Step 2. Close the 1/4" ball valves (#18) and open the bypass valve (#17) in the Air Maintenance Device and open the air supply valve in the dry pipe valve trim.

Step 3. Energize the branch circuit to the pressure switch to start the compressor and pressurize the system.

Step 4. When the system is pressurized, the pressure switch will cut-out and stop the compressor. Note the cut-out pressure.

Step 5. Open any valve connected to the piping system (such as the three-way valve for the air gauge on the dry pipe valve trim) just enough to slowly reduce the air pressure. Close it immediately when the pressure switch cuts-in and note the cut-in pressure. Verify the the cut-in and cut out pressures meet the minimum design requirements for the system air pressures.

Note: If necessary, adjust the cut-in or the cut-out pressure. Loosen the hex-nut on the cover of the pressure switch and remove the cover. Adjust the cut-in pressure by turning the Pressure Adjustment Screw in the proper direction. Adjust the pressure differential (difference between cut-in and cut-out pressure) by turning the Pressure Differential Screw. Consult Factory if in any doubt.

Step 6. Close the bypass valve (#17) and open the two 1/4" ball valves (#18). The Air Maintenance Device is now in service.

Care and Maintenance

The Air Maintenance Device does not require any regularly scheduled maintenance. However, it is recommended that proper operation and condition be periodically verified as follows:

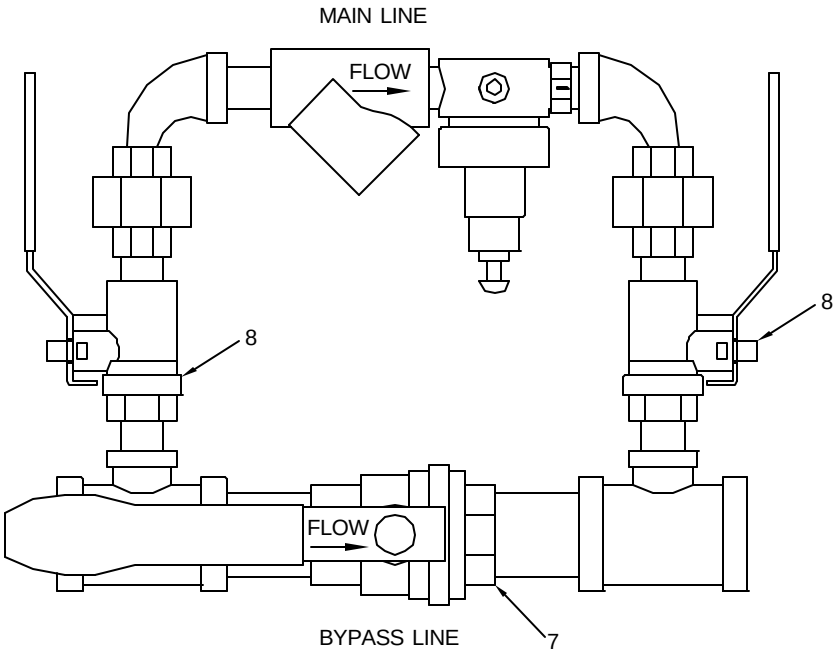
1. Verify that the 3/4" bypass valve is closed, the two 1/4" ball valves are open and the air supply control valve in the dry pipe valve trim is open.

2. Verify that the cut-in and cut-out pressures are at the proper setting, if applicable.

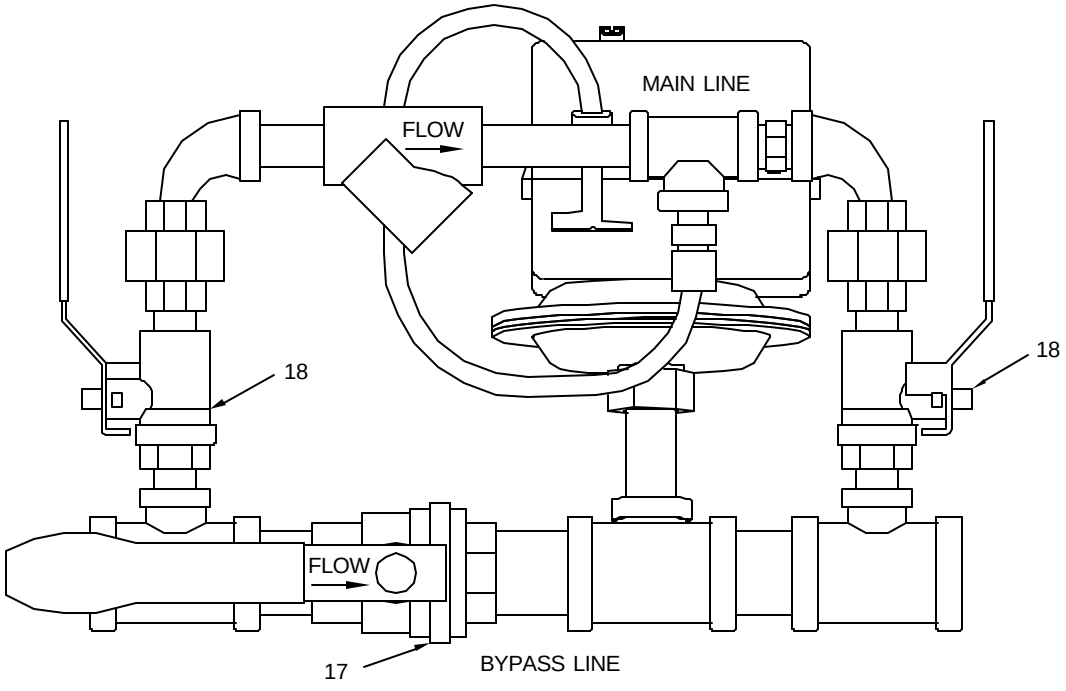
3. Verify that the regulated pressure is at the proper setting, if applicable.

4. Accumulated moisture should be removed from the drip leg on the air supply line and the desiccant in the air dryer should be replaced, if applicable.

5. The strainer should be cleaned.


MAIN LINE
FLOW
8
8
FLOW
BYPASS LINE
7

AMD1


MAIN LINE
FLOW
18
18
FLOW
17
BYPASS LINE

AMD2