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Model AMD-1 Automatic Air Maintenance Device Pressure Reducing Type With Field Adjustable Pressure Regulator

General Description

The Model AMD-1 Automatic Air Maintenance Device is an automatic, field-adjustable device of the pressure reducing type. It is used to control the pressure in a dry pipe sprinkler system, preaction system, or dry pilot line system of a dry pilot actuated deluge or preaction valve. The AMD-1 is utilized in applications where there is a compressed air (or nitrogen) source which is controlled at a higher pressure than the desired system pressure. Pressure sources include plant air supplies having their own automatic compressor controls, or nitrogen supplies having single-stage cylinder mounted pressure regulators.

The Model AMD-1 Automatic Air Maintenance Device is a redesignation for the Central Model D-2, Gem Model F324, and Star Model S460.

WARNING

The Model AMD-1 Automatic Air Maintenance Device described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. ***Failure to do so may impair the performance of this device.***

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted with any questions.

Technical Data

Approvals
UL and ULC Listed. FM Approved.
NYC under MEA 206-02-E.

Maximum Inlet Air (or Nitrogen) Supply Pressure
13,8 bar (200 psi)

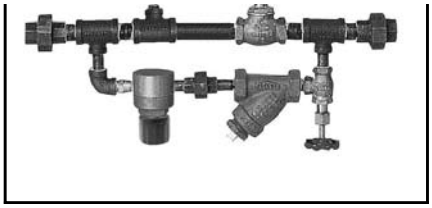
Field Adjustable Outlet Pressure Range
0,4 to 4,8 bar (5 to 70 psi)

Assembly
Major components illustrated in Figure 1 are factory assembled with galvanized steel nipples and malleable iron pipe fittings.

Operation

The By-Pass Valve in the AMD-1 is opened to fast fill the system during the initial pressurization. Once the required system pressure has been reached, the By-Pass Valve is closed and the Air Supply Control Valve is left open to place the AMD-1 in automatic operation.

Given a small leak in the system, the Pressure Regulator will automatically maintain system pressure at the preset level. The 2,4 mm (3/32") orifice in the Restrictor Check Valve limits the flow of air from the Pressure Regulator into the system to a value which is significantly less than that which will be exhausted by the operation of an 80 K-factor sprinkler.



Installation

The Model AMD-1 Automatic Air Maintenance Device must be installed in accordance with the following instructions:

NOTE

Suitable consideration must be given to the removal of excessive moisture from the compressed air supply.

Step 1. Connections between the inlet air supply and the AMD-1, as well as between the AMD-1 and the system to be pressurized, are to be a minimum of DN15 (0,5") pipe size.

Step 2. A DN15 (0,5"), non-spring loaded, rubber faced, swing type check valve must be located between the AMD-1 and the system to be pressurized. A check valve of this type is provided in the air supply trim of Tyco Fire Products dry pipe valves, preaction valves, and dry pilot trim.

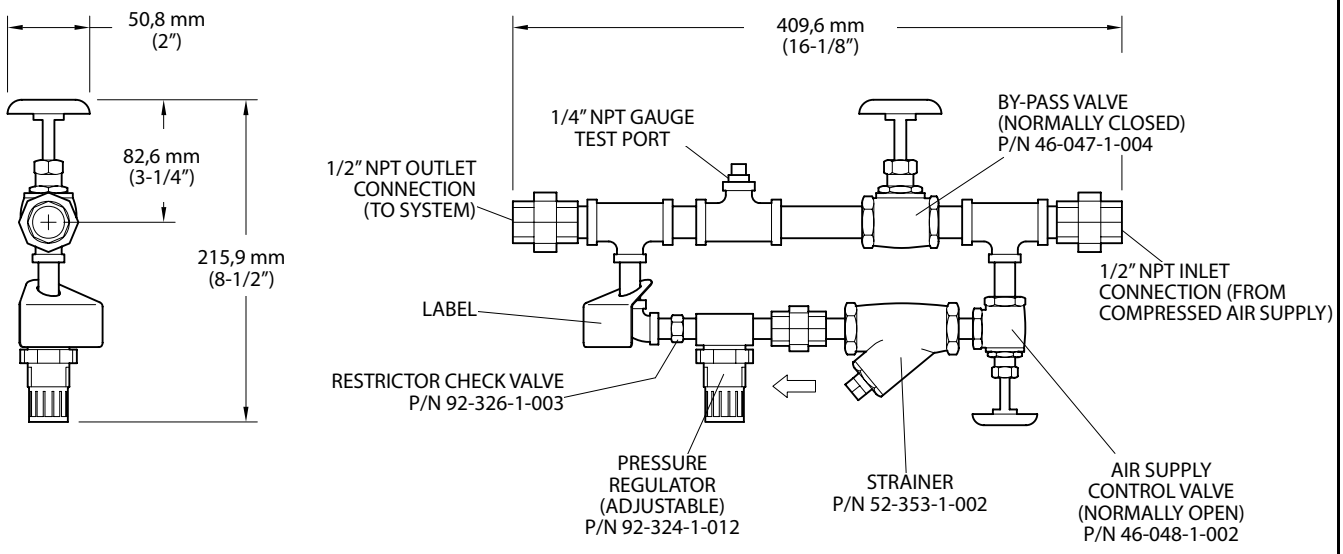


FIGURE 1
MODEL AMD-1 AUTOMATIC AIR MAINTENANCE DEVICE

Setting Procedure

The Model AMD-1 Automatic Air Maintenance Device must be set in accordance with the following instructions:

Step 1. Determine the pressure that meets the minimum requirements of the system to be pressurized.

Step 2. Close the AMD-1 By-Pass Valve, and close the AMD-1 Air Supply Control Valve.

Step 3. Open the control valve in the air supply trim of the system to be pressurized and then reduce the system air pressure to zero (gauge pressure).

Step 4. Close the control valve in the air supply trim of the system to be pressured.

Step 5. Remove the system pressure gauge from its connection and temporarily install it in the 1/4 " NPT AMD-1 Gauge Test Port.

NOTE

Make certain that the piping to which the AMD-1 Gauge Test Port is connected is at zero (gauge pressure) before removing the plug.

Step 6. Open the Air Supply Control Valve in the AMD-1.

Step 7. While observing the relocated pressure gauge, adjust the output pressure of the pressure regulator. Pull the knob out and away from the pressure regulator body and then slowly turn the knob clockwise, as viewed from the knob end of the pressure regulator, to increase pressure and counterclockwise to decrease pressure.

When decreasing pressure, the air pressure must be relieved downstream of the pressure regulator by temporarily opening the control valve in the air supply trim of the system to be pressurized (assuming that the system to be pressurized is at zero (gauge pressure)).

After the pressure regulator is set, push the knob in and towards the pressure regulator body to "snap" it in a locked position.

Step 8. Close the Air Supply Control Valve in the AMD-1.

Step 9. Return the system air pressure gauge to its normal location. Re-install the 6 mm pipe plug in the the AMD-1 Gauge Test Port. Apply pipe thread sealant sparingly to the plug threads only.

NOTE

Make certain that the piping to which the AMD-1 Gauge Test Port is connected is at zero (gauge pressure) before removing the pressure gauge.

Step 10. Open the control valve in the air supply trim to the system being pressurized.

Step 11. Open the Air Supply Control Valve in the AMD-1.

Step 12. Open the By-Pass Valve in the AMD-1.

Step 13. Close the By-Pass Valve after the system has been pressurized to approximately 0,4 bar (5 psi) less than the minimum required system pressure determined in Step 1.

Step 14. After the system pressure has stabilized, note the value and compare with the requirement. Readjust the Pressure Regulator, as require.

NOTES

If the system was over-pressurized during manual fill, a suitable connection to the system must be opened and the pressure manually reduced to the desired value. The AMD-1 will then automatically maintain the preset system pressure. The Restrictor Check Valve prevents the Pressure Regulator from bleeding down the system pressure.

The system pressure should be set at the minimum required value, in order to minimize the time for system trip in the event of a sprinkler operation.

Care and Maintenance

The following inspection procedure must be performed as indicated, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service in accordance with local requirements and/or national codes.

NOTES

Before closing a fire protection system main control valve for maintenance work on the fire protection system that it controls, permission to shut down the affected fire protection systems must first be obtained from the proper authorities and all personnel who may be affected by this decision must be notified.

After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring´proprietary and/or central station alarms.

It is also recommended that accumulated moisture be removed from air supply moisture filtration equipment, at least quarterly. More frequent inspections may be necessary in particularly humid environments

The Model AMD-1 Automatic Air Maintenance Device must be inspected quarterly in accordance with the following instructions:

1. Verify that the By-Pass Valve is closed.
2. Close the AMD-1 Air Supply Control Valve and clean out the 6 mm (1/4″) Strainer located at the inlet to the Restrictor Check Valve. Be sure to reinstall the strainer screen and tighten the cap securely.
3. Open the AMD-1 Air Supply Valve and verify that the control valve in the air supply trim to the system being pressurized is open.
4. Verify that the system pressure is essentially the same as the previously established requirement. If not, adjust the system pressure as follows:
   a. Close the system's main control valve and open the main drain valve. Close the Accelerator Control Valve, if the system is so equipped.
   b. Follow Steps 1 through 14 in the Setting Procedure.
   c. Slowly open the Accelerator Control Valve, as applicable.
   d. Slowly open the main control valve and after water begins to flow, slowly close the main drain valve and then completely open the main control valve. The AMD-1 Air Maintenance Device is now ready for service.

Limited Warranty

Products manufactured by Tyco Fire & Building Products (TFBP) are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by TFBP. No warranty is given for products or components manufactured by companies not affiliated by ownership with TFBP or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by TFBP to be defective shall be either repaired or replaced, at TFBP' sole option. TFBP neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. TFBP shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

In no event shall TFBP be liable, in contract, tort, strict liability or under any other legal theory, for incidental, indirect, special or consequential damages, including but not limited to labor charges, regardless of whether tyco fire products was informed about the possibility of such damages, and in no event shall TFBP' liability exceed an amount equal to the sales price.

The foregoing warranty is made in lieu of any and all other warranties express or implied, including warranties of merchantability and fitness for a particular purpose.

This limited warranty sets forth the exclusive remedy for claims based on failure of or defect in products, materials or components, whether the claim is made in contract, tort, strict liability or any other legal theory.

This warranty will apply to the full extent permitted by law. The invalidity, in whole or part, of any portion of this warranty will not affect the remainder.

Ordering Procedure

Orders for the AMD-1 and replacement parts must include the description and Part Number (P/N).

AMD-1:

Specify: Model AMD-1 Automatic Air Maintenance Device,

..... P/N 52-324-2-002

Replacement Parts for AMD-2 Air Maintenance Device:

(Specify description) for use with Model AMD-1 Automatic Air Maintenance Device,

..... P/N (see Figure 1).