



Automatic Air Maintenance Device, Pressure Reducing Type Model S460

GENERAL DESCRIPTION

The Star Model S460 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 S460 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.

WARNING

The Model S460 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 integrity of this device.

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

TECHNICAL DATA

Approvals

UL and ULC Listed. FM Approved.

Maximum Inlet Air (or Nitrogen) Supply Pressure

200 psi (13.8 bar)

Field Adjustable Outlet Pressure Range

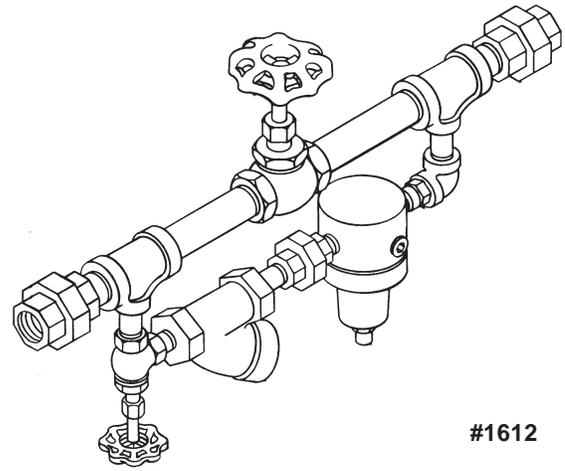
5 to 60 psi (0.4 to 4.1 bar)

Factory Set Outlet Pressure

35 psi (2.4 bar)

Assembly

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



#1612

OPERATION

The Bypass Valve in the S460 is opened to fast fill the system during the initial pressurization. Once the required system pressure has been reached, the Bypass Valve is closed and the Air Supply Control Valve is left open to place the S460 in automatic operation.

If there is a slight leak in the system, the Pressure Regulator will automatically maintain system pressure at the preset level. The 1/8 inch (3.2 mm) 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 a 5.6 K-Factor sprinkler.

INSTALLATION

The Model S460 Automatic Air Maintenance Device must be installed in accordance with the following instructions:

- A. Connections between the inlet air supply and the S460, as well as between the S460 and the system to be pressurized, are to be a minimum of 1/2 inch (DN15) pipe size.
- B. A 1/2 inch (DN15), non-spring loaded, rubber faced, swing type check valve (#460491004) must be located between the S460 and the system to be pressurized. A check valve of this type is provided in the air supply trim of Star dry pipe valves, preaction valves, and dry pilot trim.

NOTE

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

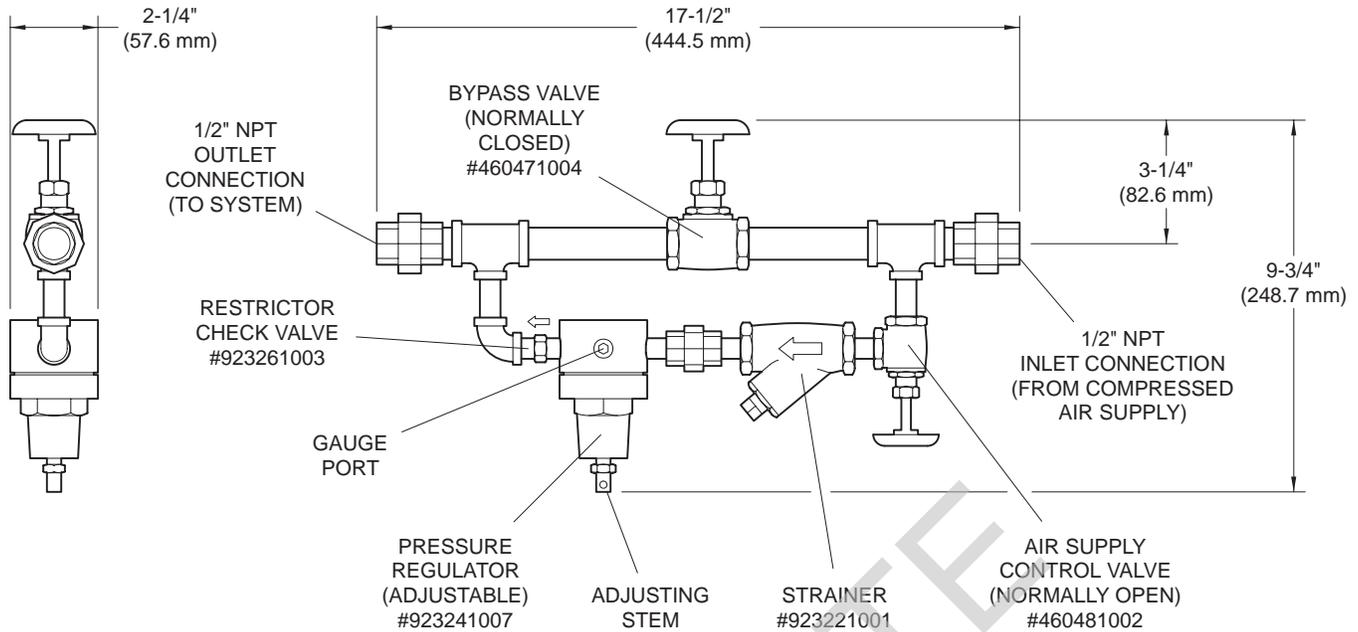


FIGURE 1
MODEL S460 PRESSURE REDUCING TYPE AUTOMATIC AIR MAINTENANCE DEVICE

SETTING PROCEDURE

The Model S460 Automatic Air Maintenance Device must be set in accordance with the following instructions:

1. Determine the pressure that meets the minimum requirements of the system to be pressurized.
2. If the required pressure is higher or lower than 35 psi (2.4 bar) then proceed with Step 3. If the required pressure is 35 psi (2.4 bar) then proceed with Step 9.
3. Close the control valve in the air supply trim of the system to be pressurized.
4. Remove the system pressure gauge from its connection and install it in the side gauge port on the pressure regulator.
5. Open the Air Supply Control Valve in the S460.
6. Adjust the output pressure of the Pressure Regulator. Turn the adjusting stem clockwise, as viewed from the stem end of the Pressure Regulator, to increase pressure and counter-clockwise to decrease pressure. One-half turn of the stem will change the outlet pressure by approximately 5 psi (0.4 bar).
7. Close the Air Supply Control Valve in the S460.
8. Return the system air pressure gauge to its normal location. Re-install the 1/4 inch pipe plug in the gauge port of the Pressure Regulator. Apply pipe thread sealant sparingly to the plug threads only.
9. Open the control valve in the air supply trim to the system being pressurized.
10. Open the Air Supply Control Valve in the S460.
11. Open the Bypass Valve in the S460.
12. Close the Bypass Valve after the system has been pressurized to approximately 5 psi (0.4 bar) less than the minimum required system pressure determined in Step 1.
13. After the system pressure has stabilized, note the value and compare with the requirement. Readjust the Pressure Regulator, as required, per Steps 3 through 8.

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 S460 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 to system trip in the event of a sprinkler operation.

Air may be momentarily exhausted from the bleed hole in the side of the Pressure Regulator after the system pressure has stabilized. This is a normal operating condition.

MAINTENANCE AND SERVICE

The Model S460 Automatic Air Maintenance Device does not require any regularly scheduled maintenance. It is recommended, however, that its proper operation and condition be periodically verified in accordance with the following described inspection procedure. Any impairment must be immediately corrected.

It is recommended that automatic sprinkler systems be inspected by a qualified Inspection Service.

NOTE

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

INSPECTION PROCEDURE

It is recommended that the following inspection procedure for the S460 be performed quarterly:

1. Verify that the Bypass Valve is closed.
2. Close the S460 Air Supply Control Valve and clean the 1/4 inch 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 S460 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 3 through 10 and 13 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 S460 Air Maintenance Device is now ready for service.

NOTE

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

ORDERING PROCEDURE

Please Specify:

Model S460 Automatic Air Maintenance Device (#1612)

Refer to Price List for complete listing of Part Numbers with respect to replacement parts, etc.

AVAILABILITY AND SERVICE

Star Sprinkler Inc. products and devices are available worldwide through a network of independent distributors. Please contact Star Sprinkler Inc. for information and the name and address of the Star distributor in your area.

LIMITED WARRANTY

Seller warrants for a period of one year from date of shipment (warranty period) that the products furnished hereunder will be free of defects in material and workmanship.

For further details on Warranty, contact Star Sprinkler Inc.

OBSOLETE