



Automatic Air Maintenance Device, Compressor Control Type Model S465

GENERAL DESCRIPTION

The Star Model S465 Automatic Air Maintenance Device is an automatic, field-adjustable device of the compressor control 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 S465 is utilized in applications where it is desirable or necessary to use a small, non-tank mounted compressor that is to be dedicated for the system to be pressurized. The S465 monitors system pressure and automatically cycles the air compressor on and off to maintain system pressure within preset limits.

The S465 features a Pressure Switch with integral unloading valve which automatically bleeds the pressure between the air compressor and S465 after the air compressor has been automatically shut off. This feature prevents starting the air compressor under load.

WARNING

The Model S465 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.

Pressure Switch Differential

6 psi (0.4 bar)

Field Adjustable Minimum Cut-In (On) Pressure

14 psi (1.0 bar)

Field Adjustable Maximum Cut-Out (Off) Pressure

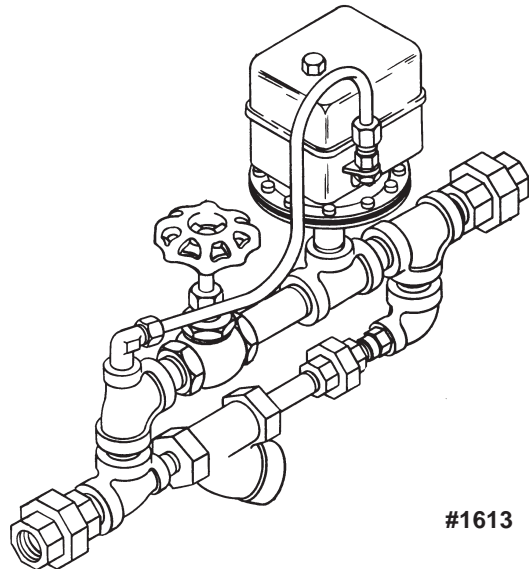
60 psi (4.1 bar)

Factory Set Outlet Pressure

35 to 41 psi (2.4 to 2.8 bar)

Assembly

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



#1613

OPERATION

The Bypass Valve in the S465 is opened to fast fill the system during the initial pressurization. Once the cut-out pressure of the Pressure Switch is reached, its actuating lever will transfer the DPDT switch contacts to shut off the air compressor and also open the unloader valve to bleed pressure between the air compressor and the Restrictor Check Valve. The Bypass Valve is then closed to place the S465 in automatic operation.

The Restrictor Check Valve prevents the unloader valve from bleeding down the system. Also, with the Bypass Valve closed, its 1/8 inch (3.2 mm) orifice limits flow of air 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.

If there is a slight leak in the system, the Pressure Switch will automatically transfer its contacts at the cut-in pressure to start the air compressor and then shut off the air compressor once the cut-out pressure is reached.

INSTALLATION

The Model S465 Automatic Air Maintenance Device must be installed in accordance with the following instructions:

- A. Connections between the air compressor and the S465, as well as between the S465 and the system to be pressurized, are to be a minimum of 1/2 inch (DN15) pipe size.
- B. A drip leg is to be installed in the air line between the air compressor and S465 as shown in Figure 2, if a moisture filter with integral drain is not installed at the outlet of the air compressor.
- C. A 1/2 inch (DN15), non-spring loaded, rubber faced, swing type check valve (#460491004) must be located between the S465 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.

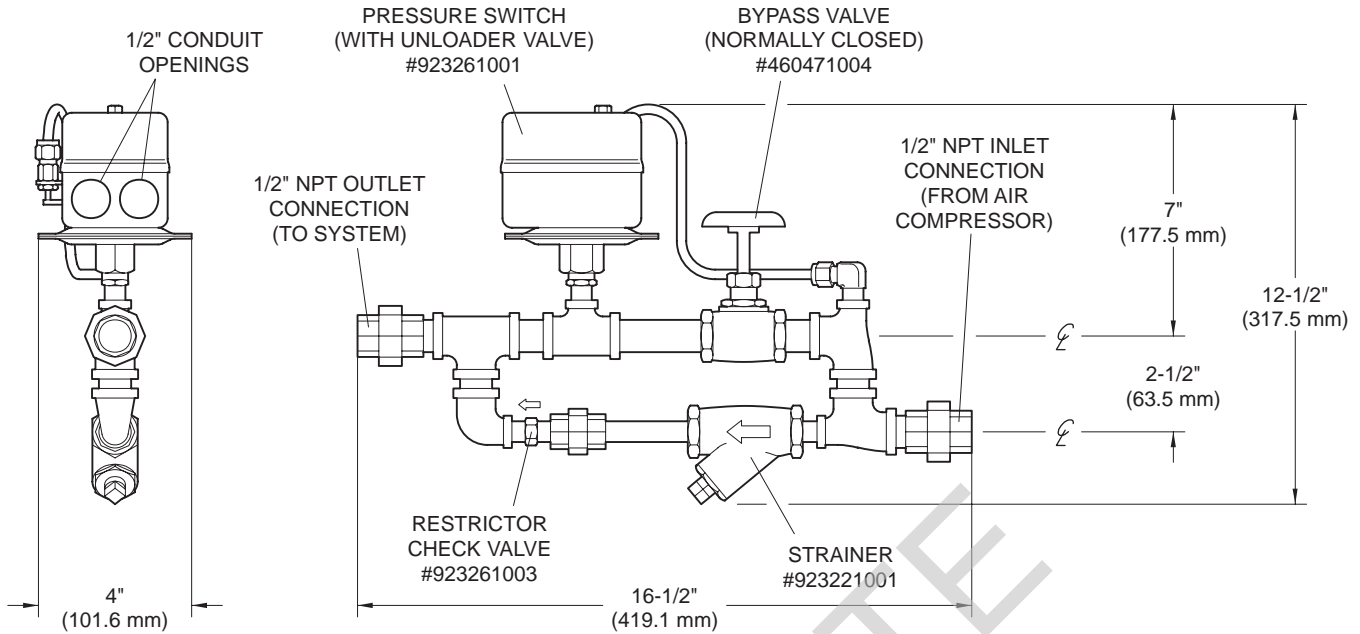


FIGURE 1
MODEL S465 COMPRESSOR CONTROL TYPE AUTOMATIC AIR MAINTENANCE DEVICE

D. Conduit and electrical connections to the Pressure Switch are to be made in accordance with the requirements of the Authority Having Jurisdiction and/or the National Electrical Code. Refer to Figure 3 for identification of the wiring terminals.

Wiring to the Pressure Switch is made through two 1/2 inch conduit openings in the base of its enclosure. The No. 8 screw terminals will accept up to No. 12 AWG wire. The switch ratings are as follows:

115 VAC, 1 Phase	2 HP
230 VAC, 1 Phase	3 HP
230 VAC, 3 Phase	5 HP
575 VAC, 3 Phase	5 HP
115 VDC	2 HP
230 VDC	2 HP

NOTES

The housing of the Pressure Switch meets the requirements of NEMA 1. Consequently, the Model S465 Air Maintenance Device must not be used in an application where potentially explosive atmospheres are present or in an application where a NEMA 1 enclosure is not acceptable.

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

SETTING PROCEDURE

The Model S465 Automatic Air Maintenance Device must be set in accordance with the following instructions:

1. Open the Bypass Valve in the S465.
2. Open the control valve in the air supply trim to the system to be pressurized.
3. Apply electrical power to the Pressure Switch to pressurize the system.
4. Close the Bypass Valve after the Pressure Switch cuts-out. Note the cut-out pressure.
5. Open a connection to the system just enough to slowly reduce the air pressure and close it immediately after the Pressure Switch cuts-in.

Verify that the cut-in pressure meets the minimum requirements of the system to be pressurized, and note the cut-out pressure.

If necessary, remove the cover from the Pressure Switch and adjust the cut-in pressure adjustment screw shown in Figure 3. The cut-in pressure changes approximately 1.5 psi (0.1 bar) per half-turn of the screw.

NOTE

The cut-in 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.

6. Repeat Step 5 if the cut-in pressure required adjustment. Note both the cut-in and cut-out pressures.

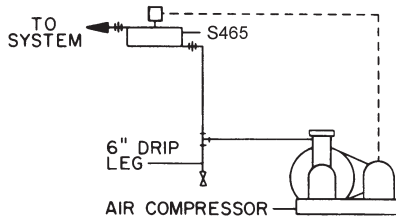


FIGURE 2
INSTALLATION OF DRIP LEG
BETWEEN AIR COMPRESSOR AND
MODEL S465 AIR MAINTENANCE DEVICE

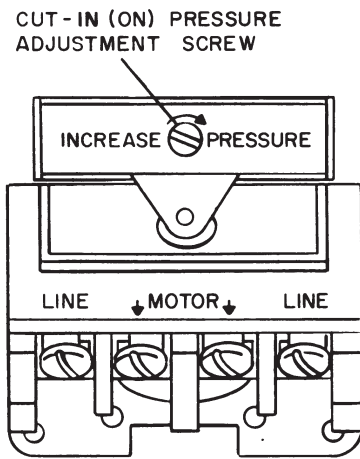


FIGURE 3
PRESSURE SWITCH
ADJUSTING SCREW AND WIRING TERMINALS
(COVER REMOVED)

MAINTENANCE AND SERVICE

The Model S465 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.

NOTES

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.

Disconnect the electrical power to the S465 before performing any maintenance work requiring breaking an air connection or work on or near electrical connections.

INSPECTION PROCEDURE

It is recommended that the following inspection procedure for the S465 be performed quarterly:

1. Verify that the Bypass Valve is closed.
2. Clean out 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. Close the system's main control valve and open the main drain valve. Close the Accelerator Control Valve, if the system is so equipped.
4. Open a connection to the system just enough to slowly reduce the air pressure and close it immediately after the Pressure Switch cuts-in. Verify that the cut-in and cut-out pressures are essentially the same as the previously established requirements.
5. Open the Accelerator Control Valve, as applicable.
6. 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 S465 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.

NOTE

Do not allow condensed moisture to back-up into the air compressor cylinder.

ORDERING PROCEDURE

Please Specify:

Model S465 Automatic Air Maintenance Device (#1613)

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