



Dry Pilot Actuator, Model S440

GENERAL DESCRIPTION

The Star Model S440 Dry Pilot Actuator is an auxiliary releasing device designed for use with Star Deluge and Preaction Valves having dry pilot release systems. The S440 is also used for Star Preaction Valves having double interlock electric/pneumatic release. The S440 actuates these automatic water control valves upon release of air (nitrogen) pressure. In the case of dry pilot actuation, air pressure is released due to opening of a pilot sprinkler; or in the case of double interlock preaction systems air pressure is released from the system piping due to the opening of an automatic sprinkler. When the S440 actuates, it permits water pressure to be released from the deluge or preaction valve differential chamber, thereby allowing the deluge or preaction valve to open.

WARNING

The Model S440 Dry Pilot Actuator 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 and LPC Approved.

Working Water Pressure

20 to 175 psi (1.4 to 12.1 bar)

Maximum Air (Nitrogen) Pressure

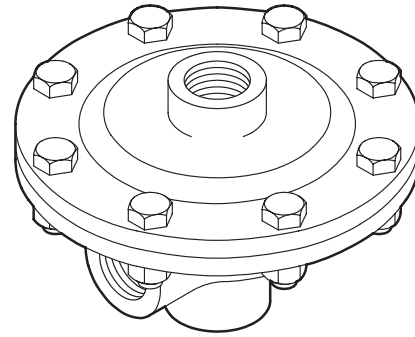
50 psi (3.4 bar). Refer to Figure 2.

Assembly

The body and cover in Figure 1 are bronze. The elastomer water seal is Buna-N, and the diaphragm is nitrile coated nylon.

OPERATION

When the Model S440 Dry Pilot Actuator is in service, the pilot line or sprinkler line pressure (11 - Fig. 1), as applicable, holds the Diaphragm (7 - Fig. 1) depressed and the Disc (8 - Fig. 1) seated against the water pressure (12 - Fig. 1) from the differential chamber of the deluge or preaction valve.



#4515

Operation of a pilot sprinkler or automatic sprinkler, as applicable, relieves the air pressure from the diaphragm. The Spring (6 - Fig. 1) and water pressure from the differential chamber of the deluge or preaction valve then combine to force the the S440 open, which permits water to begin flowing through the 1/8 inch diameter holes located in the wall of the Guide (5 - Fig. 1). As the air pressure continues to decrease, the flow out of the S440 (13 - Fig. 1) increases to a rate which is greater than can be replenished through the restricted water supply to the differential chamber of the deluge or preaction valve, which in turn permits the deluge or preaction valve to open and allow a flow of water into the system piping.

The relationship of the air pressure which should be maintained for system water pressures to 175 psi (12.1 bar) and the opening pressure drop required for opening of the Model S440 Dry Pilot Actuator are plotted in Figure 2.

INSTALLATION

The Model S440 Dry Pilot Actuator, which as applicable is provided as a trim component for Star Deluge or Preaction Valves, must be installed in accordance with the specific instructions provided with the Star Deluge or Preaction Valve Product Data Sheets.

NOTE

The dewpoint of the pilot line or sprinkler system air pressure must be maintained below the lowest ambient temperature to which the piping system will be exposed. Accumulation of water in the air connection to the S440 will lower the air pressure at which the S440 will open.

MAINTENANCE AND SERVICE

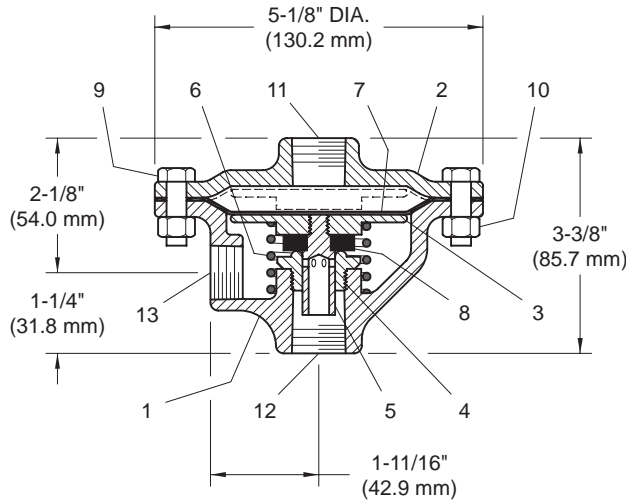
The Model S440 Dry Pilot Actuator does not require any regularly scheduled maintenance. It is recommended, however, that its proper operation and condition be periodically verified in accordance with the following described inspection procedure. Any impairment must be immediately corrected.

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.

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



NO.	DESCRIPTION	QTY.	PART
1	Body	1	Note 1
2	Cover	1	#B4076-3
3	Diaphragm Plate	1	Note 2
4	Seat Ring	1	Note 1
5	Guide	1	Note 2
6	Spring	1	#922801010
7	Diaphragm	1	#922801008
8	Disc	1	Note 2
9	Hex Head Cap Screw, 5/16" - 18UNC x 1"	8	CH
10	Hex Nut, 5/16" - 18 UNC	8	CH
11	1/2" NPT Pilot Line Connection (Air/Nitrogen)		
12	1/2" NPT Inlet Connection from Deluge/ Preaction Valve Differential Chamber		
13	1/2" NPT Outlet Connection to Drain		

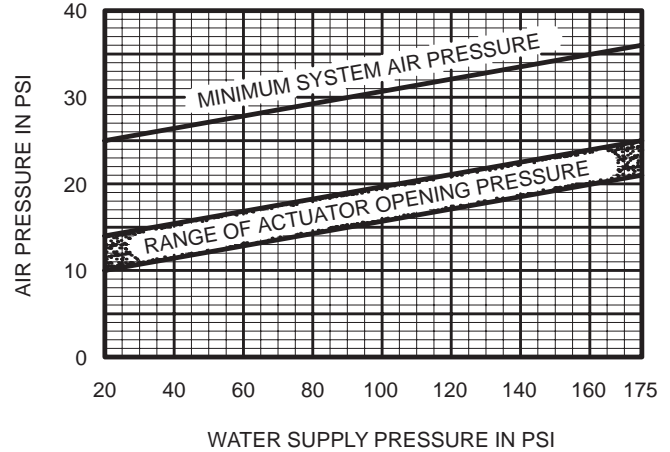
CH: Common Hardware
 Note 1: Body and Seat Ring
 Sub-assembly: #9228010012
 Note 2: Diaphragm Plate, Guide, and Disc
 Sub-Assembly: #922801013

**FIGURE 1
 MODEL S440 DRY PILOT ACTUATOR
 ASSEMBLY**

INSPECTION PROCEDURE

It is recommended that the following inspection procedure for the S440 be performed quarterly while performing the required inspection for the applicable deluge or preaction valve:

1. The S440 opens within the specified range of pressures.
2. Flow out of the S440 increase to a rate which will trip the deluge or preaction valve.
3. Inspect the drain for evidence of continued leakage past the S440. Determine and correct the cause of the leakage problem, as applicable.
4. It is recommended that at least every 5 years, the Diaphragm Cover be removed and the Diaphragm inspected. The Diaphragm should be replaced if there are any sign of deterioration due to age.



**FIGURE 2
 AIR (NITROGEN) PRESSURE REQUIREMENTS**

5. It is 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 S440 Dry Pilot Actuator (#4515)
 Refer to Price List for 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.