INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Figure F990-D
Vacuum Breaking Valve for Clean Water

GA INDUSTRIES
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Manual Number F990-IOM-070825

WARNING: Cancer and Reproductive Harm – www.Prop65Warnings.ca.gov

INTRODUCTION

This manual will provide the information to properly install, operate and maintain the valve to ensure a long service life. GA Industries Vacuum Breaking Valves are ruggedly constructed to provide years of trouble-free operation with minimal maintenance.

These Vacuum Breaking Valves are not intended for use with fluids containing suspended solids such as wastewater and sewage. There are other types of GA Industries valves that are suitable for such applications.

CAUTION

The valve is NOT recommended for use with compressed air or other gases.

CAUTION

Vacuum Breaking Valves are not intended for used with hazardous, flammable, or toxic fluids.

The Shop Order (SO) Number, Figure Number, size and pressure rating are stamped on a nameplate attached to the valve. Please refer to the SO number when ordering parts.

DESCRIPTION OF OPERATION

The function of the Figure F990-D Vacuum Breaking Valve is to start to open to admit air into a pipeline in large volumes whenever the line pressure falls to approximately 0.25 psi below atmospheric to protect the pipeline.

The main valve body is basically a rubber seated silent check. The valve is normally closed held shut by the internal water pressure. The helical compression spring also acts to keep the valve disc closed. Whenever the pipeline falls approximately ½ PSI below atmospheric pressure, atmospheric will push the valve disc open compressing the spring permitting the air to enter the pipeline in large volumes. Once the air stops entering the pipe, the spring will return the valve disc to the closed position.

The valve disc and the compression spring behind it are the only moving parts.

RECEIVING AND STORAGE

Inspect the valve upon receipt for damage during shipment. Carefully unload all valves to the ground without dropping.

The valves should remain in a clean, dry and weather protected area until installed. For long term storage (greater than 6 months) the rubber surfaces of the seat should be coated with a non-toxic lubricant such as "SuperLube" made by Synco Chemical. Do not expose the rubber parts to sunlight or ozone.

VALVE CONSTRUCTION

The Figure F990-D is supplied with a flange that is faced and drilled per ANSI B16.1 Class 125.

The valve has an iron body and either bronze or stainless-steel internal metal components. The valve seals drop tight when the plug mates with a replaceable rubber O-ring retained in a dove-tail groove in the seat. The seat in Figure 990 valve is retained in the body by screws for transportation and installation in the pipeline. However, once installed, the seat is retained by the mating flange. Do not remove the upstream piping/flange while the downstream system is pressurized, or the seat may be dislodged from the body. Refer to Page 4 for details of construction and parts location.

INSTALLATION

GA Industries vacuum breaking valves must be correctly installed for proper operation.

The valve must be installed on a standard ANSI B16.1 Class 125 or ANSI B16.5 Class 150 flat faced flange. The inside diameter of the mating flange must be the same or smaller as the inside diameter of the valve's seat for proper seat retention.

If the mating inlet flange has an expanded inside diameter (such as cement lined pipe or slip-on pipe flange) a support ring meting the above dimensions must be installed between the pipe flange and the valve.

CAUTION

Valve and system damage may occur if mating inlet flange does not overlap valve seat.

Full face red rubber flange gaskets are recommended.

The flange bolt material shall be ASTM A307 Grade B (or equivalent). Higher strength bolting should only be used with full-face gaskets.

Lower heavy valves using slings or chains around the valve body and/or the lifting eye.

Lubricate the bolts or studs and insert around flange. Lightly tighten bolts until gaps are eliminated. Torque bolts in an alternating pattern in graduated steps. If leakage occurs wait 24 hours and re-torque the bolts but do not compress the gasket more than 50% or exceed bolt maximum torque rating.

If installed outdoors, below ground in a vault or in an unheated area, adequate freeze protection must be provided.

PREVENTIVE MAINTENANCE

GA Industries Figure F990-D Vacuum Breaking Valves require no scheduled lubrication, adjustment, or preventive maintenance.

A periodic inspection should be performed to listen for leakage when the pump is shut down and the valve is closed. If leakage is evident, isolate the valve, remove it from the pipeline and inspect seating surfaces for wear or damage.

TROUBLESHOOTING

- Valve Leakage
  Verify the inside diameter of the inlet flange gasket overlaps the seat and body.

  Verify the seat is flush with the flange face. If the seat has lifted above the flange face mating flange and gasket are not properly retaining the seat. Inspect seating surface and rubber O-ring for wear and/or damage. Replace as needed.

- Valve Does Not Pass Flow
  Verify there's no debris in the valve preventing it from opening.

WARNING

Removing the valve from the line or disassembling the valve while there is pressure in the valve body may result in injury or damage to the valve

DISASSEMBLY

The valve should be removed from the line before disassembly. A skilled technician with proper tools should perform all work. No special tools are required.

Remove the cowl nuts (13), washers (11), bolts (10), cowl (9), screen (12), and retainer (8). Set the valve body on a flat, stable surface on two wooden boards with the bronze seat end pointing down. The boards should be placed outboard of the bronze seat to allow the seat to freely drop out of the valve body onto a surface that will not impart damage.

Place a metal rod on top of the poppet's stem inside the bushing (Figure 1). Hit the end of the rod with a hammer until the seat, poppet, spring and bushing drop out of the valve body.

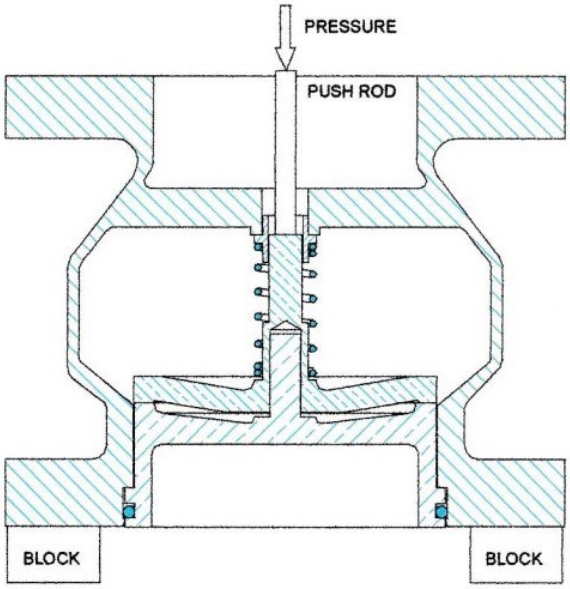

Figure 1

DO NOT LIFT THE VALVE BY THE SEAT SPOKES

Inspect the seat surface. Superficial marks and discoloration are normal but replace the seat if it is gouged or has grooves indicating the valve had been leaking.

Inspect the disc for damage, especially the upper and lower stem to ensure they have not worn unevenly. If they are not round, it can lead to misalignment and leakage so the disc should be replaced. The rubber seat (6) is retained in a "dovetail" groove in the seat (2) and can be pulled out if damaged. Inspect all parts for wear and damage. Replace damaged parts.

REASSEMBLY
Reassembly is performed in reverse order from disassembly. Clean all parts especially the threaded, seating and sealing surfaces before reassembling valve. Worn parts should be replaced.

Sit valve body (1) on a flat, stable surface. Install bushing (4) and place spring (5) over the bushing (4). Install new rubber seat (6) into dovetail groove in body seat (2). Lubricate and install a new seat O-Ring (7) in the groove on the OD of the disc. Lubrication is necessary to facilitate reassembly without damage to the O-ring.

Align and install seat stem into disc. Press down on the seat until it pops into the body and is flush with the body flange face. For large valves, place a wooden board across the disc and hit squarely with a hammer or mallet until the disc pops into the body.

Install screen, cowl, cowl bolts, washers and nuts.

Install valve with new gasket, tighten flange bolts, carefully introduce pressure and check for leaks.

REPLACEMENT PARTS
Genuine replacement parts are available from your local VAG/GA Industries representative or from the factory:

VAG USA, LLC
234 Clay Avenue
Mars, PA 16046 USA
Telephone: 724-776-1020
Fax: 724-776-1254
E-mail: quotes-ga@vag-group.com

Please have the nameplate data available when ordering parts.

WARRANTY
The Warranty for GA Industries valves is included in our Terms and Conditions which can be found here: https://gaindustries.com/terms

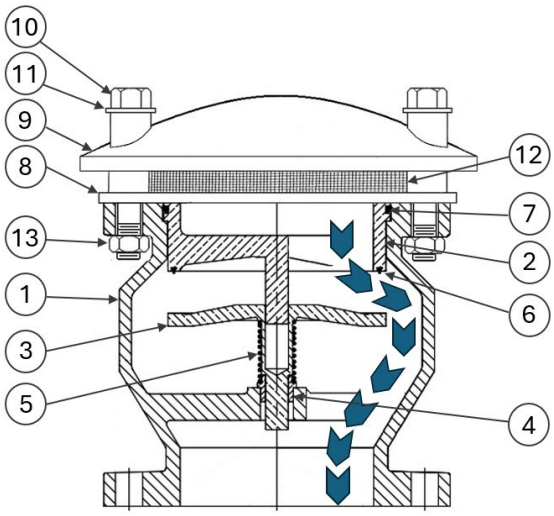

Figure 990-D

(Shown in Open Position

Vacuum Breaker Valve

Item	Description	Standard Material
1	Body	Ductile Iron
2	Body Seat	Bronze
3	Disc	Bronze
4	Bushing	Bronze or SS
5	Spring	Stainless Steel
6	Rubber Seat	EPDM Rubber
7	Seat O-Ring	EPDM Rubber
8	Retainer	Steel
9	Cowl	Steel
10	Cowl Bolts	Steel or SS
11	Cowl Washer	Steel or SS
12	Screen	Stainless Steel
13	Nuts	Steel or SS