

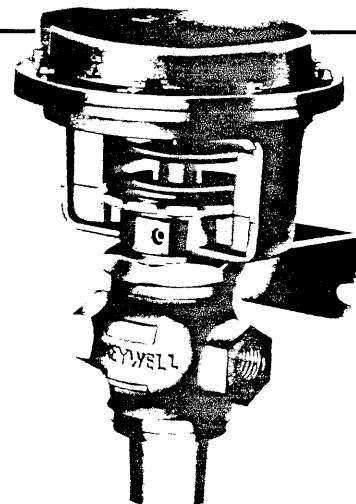


INSTRUCTIONS

Minneapolis-Honeywell Regulator Company

MINNEAPOLIS 8, MINNESOTA • TORONTO 17, ONTARIO

VP519C TWO-POSITION THREE-WAY AIR VALVE



GENERAL DESCRIPTION

The VP519C is a pneumatically operated, normally open (to the bottom port), two-position, three-way air valve. The VP519C, designed for use in large Da-Nite or Summer-Winter switch-over systems, operates as an air switch. It is furnished with two composition discs for air service.

The actuator may be rotated on the valve bonnet to permit alignment of the air connection with the control air piping or relay piping, and for easy removal from the valve.

The actuator used in this assembly employs a neoprene diaphragm, resistant to most greases and oils and capable of normal operation in ambient temperatures as high as 160 F.

A right angle mounting bracket, clamped between the actuator and valve body, permits mounting the valve assembly on a wall or panel in addition to mounting where the assembly is supported by its own piping.

The valve has upper and lower composition discs for tight shut-off. Cone-shaped, spring-loaded Teflon packing rings are used to provide the best possible

seal over long periods of extreme conditions with a minimum of attention.

For 100 per cent pneumatic operation, an SP400 Pneumatic Switch is employed (see Fig. 4) which allows the assembly to operate from a pneumatic signal.

An RP47A Electric-Pneumatic Relay can be employed with the VP519C (see Fig. 6) which allows the assembly to operate from an electric signal.

SPECIFICATIONS

MODEL: VP519C.

ACTION: Normally open to bottom port.

CLOSE-OFF RATING: See Fig. 2.

DIMENSIONS: See Fig. 1.

VALVE CONSTRUCTION: 3-way, two-position, normally open "B" to "AB" (note Fig. 2).

SIZES: 1/2" and 3/4".

BODY MATERIAL: Cast Bronze.

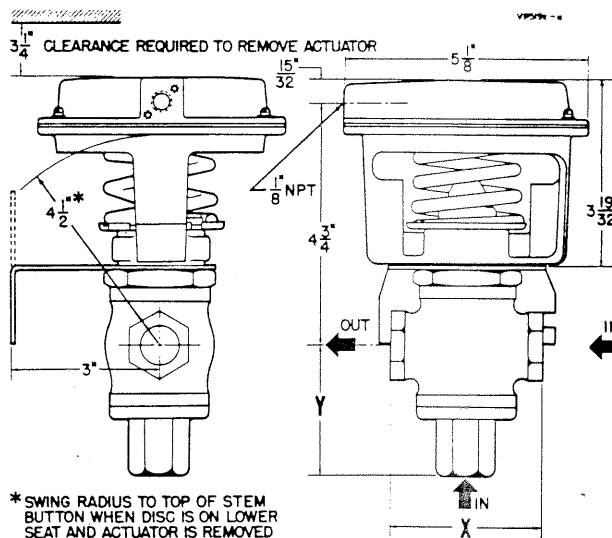
SEAT: Top seat, integral in bronze body; lower seat, integral in brass lower inlet.

PLUG: Quick-opening.

DISCS: Removable composition "A14U" upper and lower discs.

MAXIMUM PRESSURE DROP: 75 psi Max. (See Fig. 2 for CLOSE-OFF RATING.)

PACKING: 3-section Teflon cone, spring loaded, self adjusting.



VALVE SIZE	DIMENSION	
	X	Y
1/2	3-1/8	2-3/4
3/4	3-3/8	2-19/32

Fig. 1—VP519C Valve showing Approximate Dimensions.

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C. O.

Order This Sheet
By Form Number **95-2510**

PACKING LIMITATIONS: See TABLE I.

TEMPERATURE LIMITATIONS: See TABLE I.

PRESSURE LIMITS OF AGENT: See TABLE I and Fig. 1 for CLOSE-OFF RATING.

TRAVEL: See TABLE I.

FLOW CHARACTERISTICS: Two-position.

CAPACITY INDEX: (Cv): See TABLE I.

NOMINAL BODY RATING: 150 psi Max.

CONTROL AGENT: AIR ONLY. (Consult the Chicago Factory Engineering Department regarding the use of other mediums.)

CONNECTIONS (VALVE BODY): Female Pipe Thread in corresponding valve body sizes.
(OPERATOR): 1/8" Female Pipe Thread for valve or relay. Direct mounting of RP47A E-P relay with two #8-32" screws. Order M-H #309936 adaptor if 1/4" O.D. copper tubing is used.

DIAPHRAGM: Neoprene (160 F. max. ambient temperature).

POSITIONER: Not available.

EFFECTIVE AREA OF ACTUATOR: 11 square inches.

STARTING POINT: 5 psi, non-adjustable.

OPERATING RANGE: 6 to 9 psi.

CONTROL AIR PRESSURE: Max. safe pressure, 25 psi.

FINISH: Actuator, Gray Hammertone; bronze body; steel cadmium plated mounting bracket.

INSTALLATION

1. The installation dimensions (see Fig. 1) should be checked against the proposed valve location to make sure that sufficient space has been provided for the complete valve assembly.

2. If an E.P. relay is to be used, leave sufficient space above and adjacent to the actuator air connection to mount the relay.

NOTE: THE RP47A RELAY MUST ALWAYS BE MOUNTED VERTICALLY.

3. Check the required clearance necessary for the removal of the actuator in order to facilitate later servicing.

4. Installation with the valve upside down is not recommended, as moisture may accumulate in the actuator. Also, dirt, dust or grime can build up causing damage to the diaphragm.

5. Consider the installation of the valve with reference to port markings on the valve body. See Figures 4 and 6 which show typical piping diagrams. **NOTE: "AB" is the common outlet port while "A" and "B" are the inlet ports, as shown in Figure 3.**

6. If the valve is to be wall mounted, check the location for clearance of screws or bolts.

TABLE I

Valve Size	Cv	Travel	Packing Limitations				"A14U" Disc Limitations	
			Temp. limits of Agent		Press. limits of Agent		Temp. limits of Agent	
			Max.	Min.	150 psi	150 psi	Max.	Min.
1/2"	5.5	1.4"	337 F.	40 F.	150 psi	115 F.	35 F.	75 psi
3/4"	7.5	1.4"	337 F.	40 F.	150 psi	115 F.	35 F.	75 psi

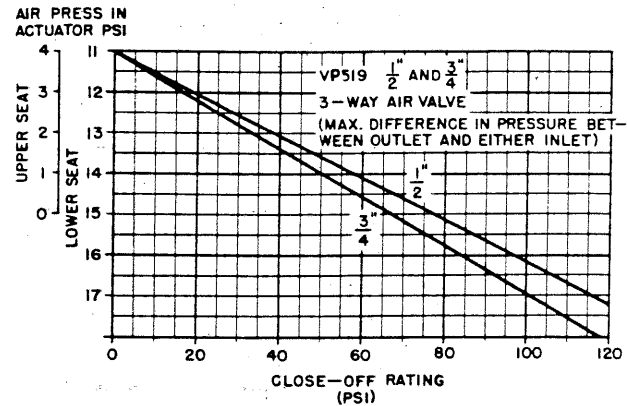


Fig. 2—Close-Off Ratings of VP519C.

ORDERING INFORMATION:

Specify—

1. Model number.
2. Pipe size.
3. Capacity index.
4. Ambient temperature.

Order from—

1. Your nearest M-H branch office, or
2. Minneapolis-Honeywell Regulator Company
8330 North Austin Avenue
Morton Grove, Illinois
In Canada—Vanderhoof Avenue, Leaside
Toronto 17, Ontario

REMOVING THE ACTUATOR FROM THE VALVE

Refer to Fig. 3.

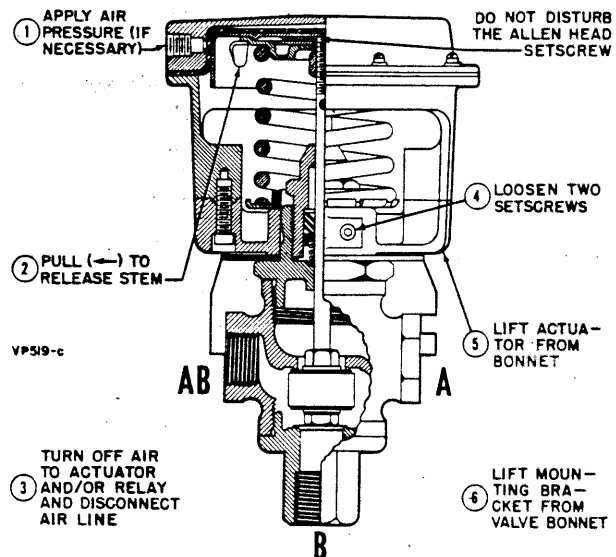


Fig. 3—Removing the actuator from the valve.

If, at any time, it is necessary to remove the actuator from the valve, proceed as outlined in Fig. 3.

VALVE BRACKET MOUNTING PROCEDURE:

1. The VP519C must be mounted vertically if an E. P. Relay is to be used.
2. When using the valve mounting bracket, scribe the two mounting screw locations on the wall and use lag screws, expansion-type anchor bolts, or any other suitable device.
3. Drive the screws to within 1/4" of the wall surface. Insert the bracket between the wall surface and screw heads. Tighten the screw.

VALVE BODY PIPING

1. It is essential that all piping be lined up squarely at each connection so that no unusual strain is placed on the valve body. Such strain may be severe enough to distort the body and prevent the valve from operating and closing off properly.
2. The VP519C will usually be hooked up in a mixing arrangement (two inlets and one outlet), but, since the VP519C is a two-position valve, it will provide switching service (either one of two inlets to one outlet).
3. For switching service the inlet connections should be made at either of the ports marked "A" or "B" making certain that the fluid flow is in the direction of the arrow cast on the valve body with the resulting outlet connection at the port marked "AB". (See Figures 4 and 6.)

4. Take care to prevent pipe dope or oil, pipe chips, scale or any other foreign matter from entering the piping, since this material may lodge in the valve and prevent proper operation.

5. Do not apply pipe dope to the threads of the valve body or to the first two threads of the pipe. See "GOOD VALVE INSTALLATION PRACTICE" in this sheet.

AIR PIPING

1. Install gage tees in the lines where needed for use in testing and adjusting.
2. 1/4" OD copper tubing is recommended, but 1/8" galvanized iron pipe may be used. Order a #309936 adaptor if copper tubing is to be used.
3. Prevent pipe dope, chips, oil, or other material from entering the air piping.
4. Pipe dope, if used, should be applied only to male threads and not to the first two threads. Do not use dope on brass threads.
5. Tubing to be connected should be cut off squarely and cleanly, and burrs removed.
6. If tubing must be bent close to the connector nut,

make the bend before inserting the tubing. Do not tighten fitting and then attempt to bend tubing. This will injure the threads and ruin the seal of the joint.

7. Make sure all connections are airtight.

NOTE: If an E. P. relay is used, mount it directly to the boss of the actuator. The Relay must always be mounted vertically, regardless of the installation position of the VP519C Valve Assembly.

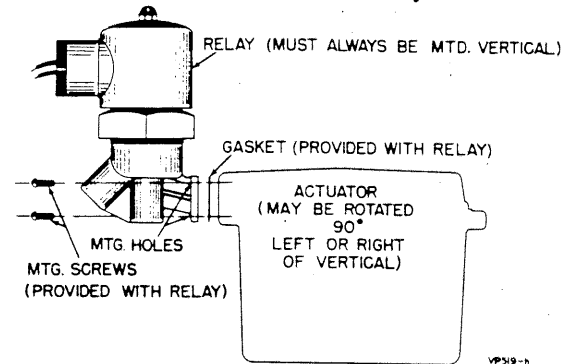


Fig. 5—Mounting the E. P. Relay.

GOOD VALVE INSTALLATION PRACTICE

PIPE SIZE	EFFECTIVE LENGTH OF THREADS
1/2"	1/2"
3/4"	9/16"

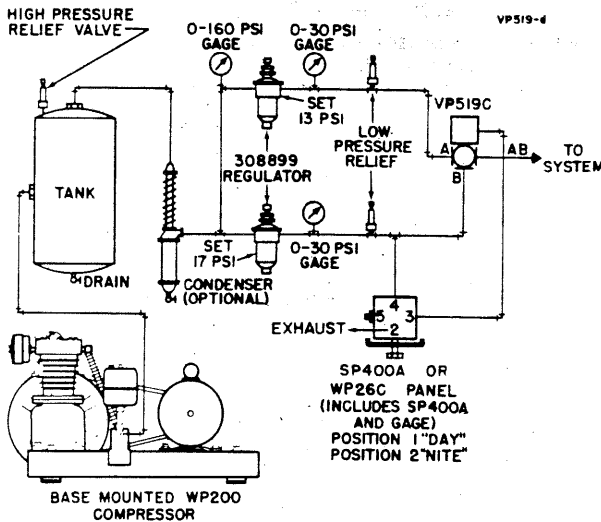
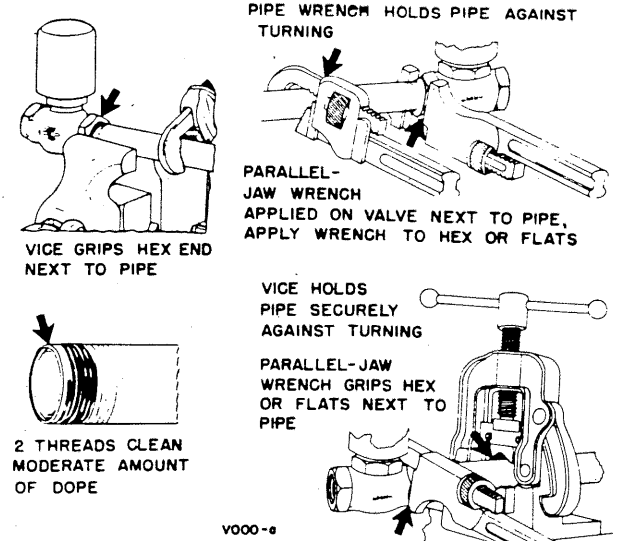


Fig. 4—VP519C Piping Diagram for Da-Nite System with Pneumatic Signal.

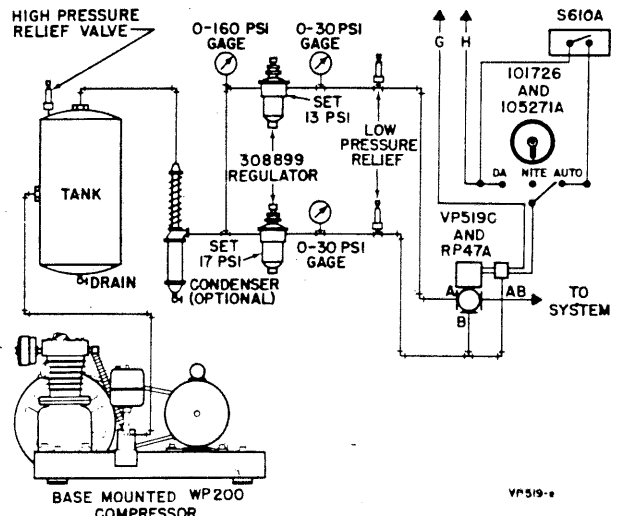


Fig. 6—VP519C Piping Diagram for Da-Nite System with Electric Signal.

TESTING AND ADJUSTING

When possible, the VP519C Air Valve should be tested under actual operating conditions.

1. Be sure that the controlled air pressures are within the close-off ratings of the valve (see Fig. 2). One, or both, setscrews (4, Fig. 3) must be tightened for testing.
2. Check all air connections for leaks. Be sure that the pressure from the controller to the valve is the correct operating pressure.
3. If a relay is employed, make certain that the main air pressure is correct.
4. Check the relay electrical circuit for loose con-

nections or breaks. When "making" the relay connection, the plunger in the relay should snap open to feed air to the valve actuator. Air flow through the valve will be "A" to "AB".

If the plunger chatters or fails to open, check the power supply. Be sure that the voltage and frequency stamped on the relay nameplate are the same as that of the other electrical components.

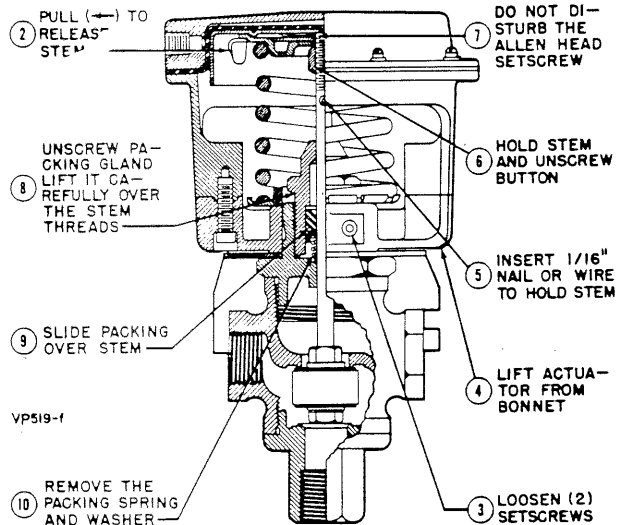
When "breaking" the relay connection, the plunger should close to shut off the air supply and exhaust the air from the valve actuator. Air flow through the valve will be "B" to "AB". If the plunger fails to close, see the RP47A Electric-Pneumatic Relay Installation sheet, 95-994.

MAINTENANCE AND SERVICE SUGGESTIONS

Very little preventive maintenance is required for the VP519C Two-Position Three-Way Air Valve because of its simplified design. It is important that the valve parts be kept clean. Cleaning should be done at regular intervals. Use a soft brush to remove grease and foreign matter. Trichloroethylene is recommended as a solvent for removing grease which cannot be brushed away. CAUTION: Do not allow any of the solvent to come into contact with the valve diaphragm.

REPACKING (see following 15 steps):

- ① Shut down and drain the system; turn on 4 psi control air until completion of step 2, below, then turn off the control air and remove the air line.



- ⑪ Clean packing gland, spring, washer, packing cavity and valve stem with trichloroethylene.

- ⑫ Put a small amount of Plasti-Lube #2 on the Teflon rings, the upper half of the stem, and the in-

side of the packing gland. Replace the packing spring and the packing follower. Place the new Teflon rings on the stem—one at a time, pointing toward the valve seat (note figure). Be careful not to scratch or tear the rings while sliding them into place. Screw them over the threaded part of the stem if necessary.

- ⑬ Lubricate the stem passage in the top of the packing gland with a small amount of the special lubricant and reassemble the packing gland assembly. Turn the packing gland down tight.

- ⑭ Replace the stem button, taking care not to move the setscrew in the button. Hold the stem by inserting a nail in the 1/16" hole just below the stem button, and screw the button on securely. If the set-screw is loosened for any reason it is necessary to insure that the original distance between the top of the stem button and the valve bonnet is reset.

- ⑮ Install the actuator on the valve.

If the valve does not operate properly after it has been cleaned and adjusted, contact the service department of the nearest Minneapolis-Honeywell Branch Office. The Company maintains complete service departments in most large cities. The branch offices have available a stock of controls and repair parts for nearly all service requirements.

Time and trouble can be saved by arranging with Minneapolis-Honeywell for maintenance of all your automatic control equipment. A maintenance agreement guarantees expert, economical care and insures maximum life and efficiency from your control system.

ORDERING NOTE: Plasti-Lube may be ordered under M-H #311057 for a 2 oz tube or #311193 for a 1/2 oz tube; Teflon cone packing under #310623 (specify number of cones needed).

Order from Minneapolis-Honeywell Regulator Co., 8330 North Austin Avenue, Morton Grove, Illinois. Prices may be obtained from our local branch.