



Bell & Gossett

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INSTRUCTION MANUAL

HS-613

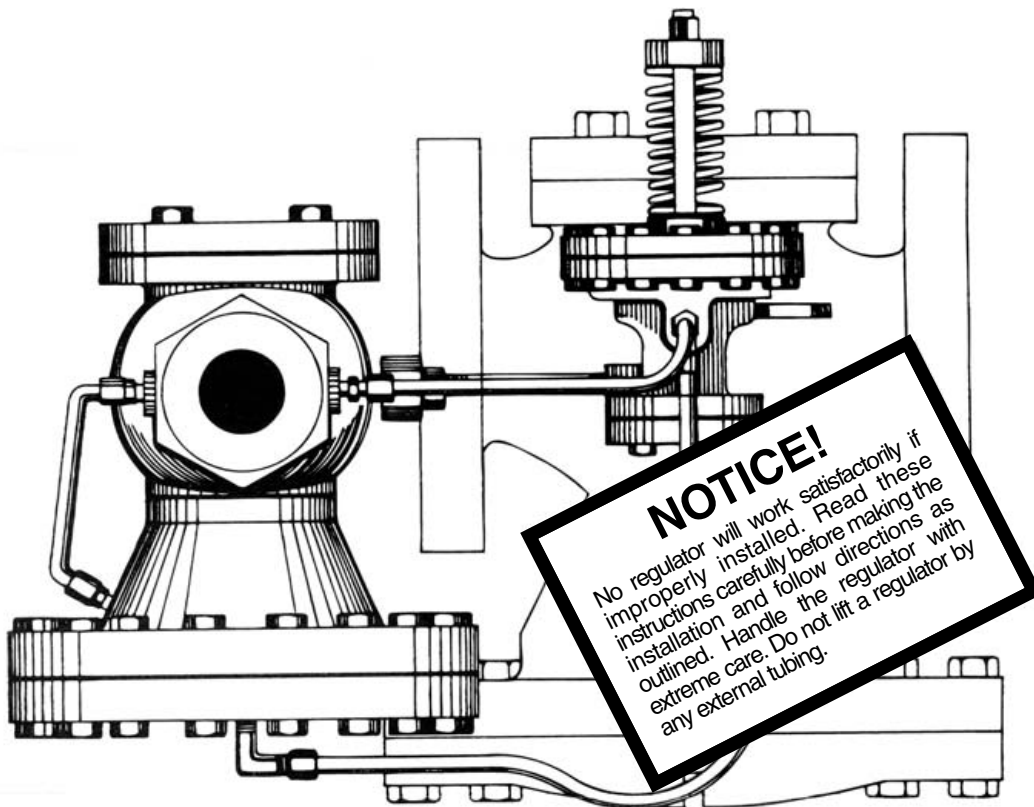
REVISION B

Hoffman Specialty[®] Series 2000 Air and Spring Pilot Replacement Parts

Models AP-1, AP-3, AP-5

and SP-12, SP-30, SP-60, SP-175, SP225

(Not currently manufactured)



PLEASE READ INSTRUCTIONS CAREFULLY BEFORE STARTING WORK. ALL WORK MUST BE PERFORMED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.

CAUTION:



BEFORE ANY VALVE SYSTEM IS DISASSEMBLED CLOSE ALL STEAM LINES WHICH COULD PRESSURIZE ANY OF THE VALVE CHAMBERS. ANY VALVE CHAMBER MAY HAVE HOT CONDENSATE TRAPPED, USE CAUTION WHEN OPENING ANY SECTION OR CHAMBER.

Pressure Pilots (SPRING AND AIR)

Remove the pilot from the main valve. In order to determine the malfunction before disassembling the valve, hook the pilot to air and test. Attach shop air to the pilot inlet, install a line with a shutoff valve and a pressure gauge at the pilot outlet and plug the feed back port.

Pressure Pilot Test

SEAT AND BALL LEAKAGE

Release the loading force. (Spring tension or air pressure).
Open the inlet and outlet valves.

- LOOK FOR:** Leakage at the outlet, allow only a very small leakage.
- INDICATES:** Seat and Ball are worn or held open by dirt.
- ACTION:** Clean parts and retest, replace parts if cleaning fails.

STICKING VALVE MOVEMENT

Close the outlet valve and adjust outlet pressure to half of the inlet. Open and close the outlet valve several times.

- LOOK FOR:** Outlet pressure on valve closure, the pressure should be approximately the same each time.
- INDICATES:** Moving parts are sticking.
- ACTION:** Clean parts and retest, replace parts if cleaning fails.

DIAPHRAGM DAMAGE

Close the outlet valve pressurizing the downstream side of the pilot.

- LOOK FOR:** Leakage to atmosphere at spring button and cover or middle diaphragm case vent, allow none.
- INDICATES:** Broken diaphragms.
- ACTION:** Replace diaphragms.

IF PILOT PASSES

If the pilot valve passes the above tests it is functional and the problem is somewhere else, proceed to main valve.

Pressure Pilot Repair

The instructions describe how to disassemble and rebuild a pilot. For assembly the steps are reversed. Please note that if the air test has indicated a specific problem some of the steps may be skipped. For example, if the test indicates a bad diaphragm, there is no need to open the cover at the other end.

1. Unbolt Lower Cover.
REASSEMBLY TORQUE 175 in-lb.
2. Remove; Screen, Spring Ball Button, Ball and Stem. Stem should drop out when the valve is inverted.
3. Clean the parts and inspect for wear on seat, ball and stem. If there is no wear and it appears dirt was the problem, assemble and retest the valve.
4. On the Spring Pilot remove the nuts and washers, yoke, spring and spring button.
- 4a. On the air pilots unbolt the large diaphragm case. Remove the case, diaphragms and button.
REASSEMBLY TORQUE 425 in-lb.
5. Move the pilot valve diaphragm button up and down by hand. Movement should be smooth and free.
6. Unbolt the diaphragm cover. Remove it and the diaphragm button.
REASSEMBLY TORQUE 175 in-lb.
7. Lift off the diaphragms and inspect for damage.
USE NEW DIAPHRAGMS FOR REASSEMBLY.
8. Lift out the cup and unthread the seat.
ASSEMBLY - THREAD IN UNTIL SEAT BOTTOMS.
9. Clean all gasket and diaphragm sealing surfaces. Use steel wool or fine (400 grit) paper to clean diaphragm seal areas.
10. Clean all parts before reassembly. Polish sliding surface with steel wool until movement is free.
REPLACE ALL WORN PARTS.
11. Reassemble the valve. Insert seat gasket and apply non-hardening sealant to seat threads. Start at number 8 above and work backwards.

REASSEMBLY COMPLETED

When the assembly is completed retest with air.



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