



instructions for

BACK PRESSURE REGULATORS

SELF-CONTAINED, TIGHT CLOSING

INSTALLATION, OPERATION, AND MAINTENANCE

STOP! LOOK! READ!

ADHERENCE TO THESE INSTRUCTIONS GUARANTEE OPTIMUM RESULTS *INSIST* UPON THEIR BEING FOLLOWED THESE INSTRUCTIONS APPLY TO THE FOLLOWING CLASSES

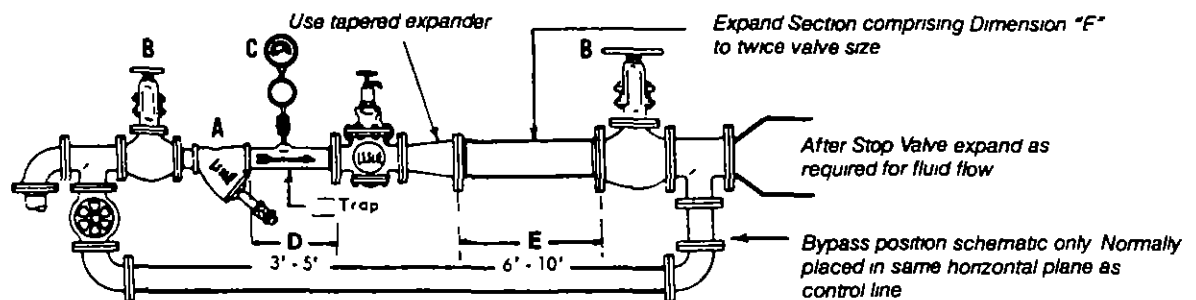
ULY, ULKY AND SIMILAR WITH THE NUMERALS 1, 2, etc AFTER CLASS DESIGNATION

FOR INFORMATION ON THE FOLLOWING ITEMS CONSULT SECTION SHOWN BELOW.

INSTALLATION	SECTION I
OPERATION	SECTION II
MAINTENANCE	SECTION III

SECTION I - INSTALLATION

- 1 INSTALL REGULATOR UPRIGHT, IN THE HIGHEST HORIZONTAL LINE OF PIPING, IN AN ACCESSIBLE LOCATION AND WITH ARROW ON SIDE OF BODY IN DIRECTION OF FLUID FLOW SEE FIGURE 1



PIPING DETAILS. To provide lowest noise and velocity factors, accurate pressure sensing and reasonable bypass length DIMENSION "D" should be 3' to 5', DIMENSION "E" 6' to 10' and tapered expander used on outlet of regulator

Fig. 1 — Recommended Regulator Installation

PROBLEM PREVENTING PROCEDURES

- **STRAINER** — Install a SELF-CLEANING STRAINER (A) to protect regulator from pipe scale and other foreign matter
- **STOP VALVES** — Install stop valves (B) before and after regulator To provide for maintenance, without the need for shutting down the system, include a bypass in piping arrangement
- **PRESSURE GAUGE** — Provide inlet pressure gauge (C) to show an accurate indication of controlled pressure when adjusting or operating the regulator
- **PIPE LINES** — Blow out pipe lines thoroughly before installing regulator Do Not use red lead or cement in making up joints Use pipe compound sparingly, on male threads
- **DRAINAGE** — Provide proper drainage in steam lines to prevent water hammer and possible erosion of equipment Insulate all steam lines to minimize condensation
- **FLANGED CONNECTIONS** — Where bronze or cast flanged regulators are to be connected to steel line flanges, remove raised faces of the line flanges Make internal diameter of gaskets $\frac{1}{4}$ " larger than bore of regulator

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LESLIE CONTROLS, INC., TAMPA, FL 33617



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SECTION II - OPERATION

NOTE Start with inlet and outlet stop valves closed

1. Place regulator in closed position by turning adjusting screw (1) into adjusting spring case (4) to compress adjusting spring. (3)
2. Open inlet stop valve wide and blow out dirt and condensate (in steam service) via strainer blow-off valve.
3. Partially open outlet stop valve. Then add compression to the adjusting spring until regulator closes
4. Turn adjusting screw (1) upward out of adjusting spring case until valve just begins to open. Permit system to warm up * (Steam Service)
5. Open outlet stop valve fully.
6. Regulator will then be adjusted to maintain back pressure value existing in system.
7. To increase back pressure value turn adjusting screw further into adjusting spring case (4) To decrease back pressure value turn adjusting screw (1) upward out of adjusting spring case. Readjust until desired back pressure value is obtained.

SHUTTING SYSTEM DOWN

To shut system down close outlet stop valve then close inlet stop valve.

STARTING SYSTEM UP WITH REGULATOR SET.

To start system up with regulator set open inlet stop valve fully, drain condensate (steam systems) then open outlet stop valve fully.

*Note Where by-pass is available warm up system through by-pass prior to cutting regulator in.

SECTION III - MAINTENANCE

LESLIE Reducing Valves, Differential Pressure Valves may be dismantled and cleaned without removal from the pipe line

CHECK NAMEPLATE FOR PROPER CLASS AND WRITE FOR APPLICABLE DRAWINGS

DISMANTLING

Refer to proper drawing (or Fig 3)

1. Close the stop valves on each side of the reducing valve.
2. Release all compression on the adjusting spring (3) by turning the handwheel (1) counter clockwise.
3. Unscrew or unbolt adjusting spring case (4) and take out spring (3), diaphragm (6) and spring-seats (2 & 5)
4. Unscrew controlling valve seat (7) with socket wrench provided for this purpose.
5. Remove top cap (11), piston (15), and cylinder liner (14).
6. Remove bottom cap (22) and take out main valve (17) and main valve spring (19)
7. In classes where used, seat ring in body can be taken out, when necessary, with the special seat ring wrench provided for this purpose

CLEANING

Clean all parts with an approved solvent, and check as follows

1. Examine main valve to be sure it moves freely in guides, and seats properly.
2. If valve seating surfaces (metal seats only) are scored or cut, regrind with fine grinding compound, allowing the piston to remain in the cylinder liner when regrinding the main valve to insure perfect centering. Remove all traces of grinding compound before reassembling
3. Have all working parts moving freely.
4. See Proper Drawing for steel top cap assembly

CAUTION

LESLIE Reducing Valves are ruggedly built, carefully assembled, and dimensioned very accurately. Do not change any dimensions. To assure long life, complete interchangeability and low maintenance costs, only use standard LESLIE parts

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REASSEMBLY

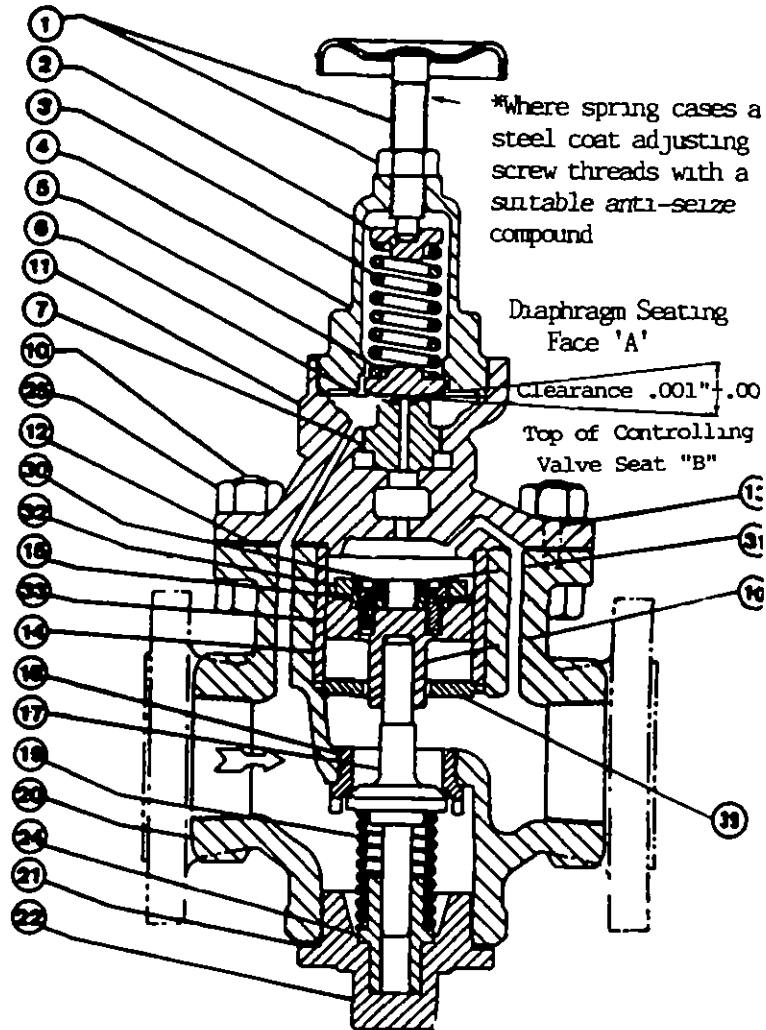
- 1 Graphite or compound should not be used on joints. Moving parts require no lubricant.
2. Place the main valve (17) spring (19) and gasket (21) in position on bottom cap, (22) and screw or bolt to the valve body.
3. Depress the piston (16) in the cylinder liner (14) (be sure movement is smooth and free). Top of liner must be flush with top flange of body.
4. Bolt the top cap (11) with gasket (12) to the body -- pull bolts up evenly.
5. Assemble the controlling valve seat (7) in the top cap. Tighten controlling valve seat firmly with special wrench furnished for the purpose, and top wrench to make sure of perfectly tight joint. Do Not Pull down excessively with wrench.

Top of controlling valve seat normally should be .001" to .005" lower than diaphragm seating face of top cap. See Fig 3. Remachine top cap if maximum permissible depth is exceeded. Consult Leslie Representative if dimension on details are needed.

6. Check flatness of diaphragm (16) with straight edge. If "dished" more than .005" from level, replace with new diaphragm.

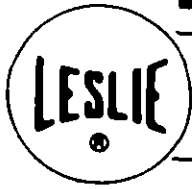
Fig. 3 - Type ULKY

7. Replace diaphragm, (6) adjusting spring, (3) spring seats (2 & 5) and spring case (4). Insert adjusting screw (1, in spring case.)*
8. Make all joints tight.
9. Readjust as shown under "Operation."



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FIELD REPLACEMENT OF PISTON CUP WASHERS

Consult the proper drawing of your regulator and related instruction sheet for parts numbers and general assembly details

Free of nicks and rough edges

- 1 Be sure cylinder liner is clear and I.D. free of rough, ragged edges

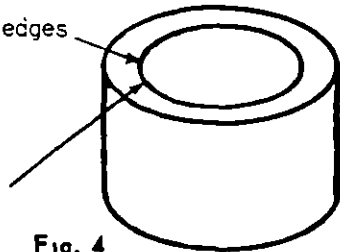
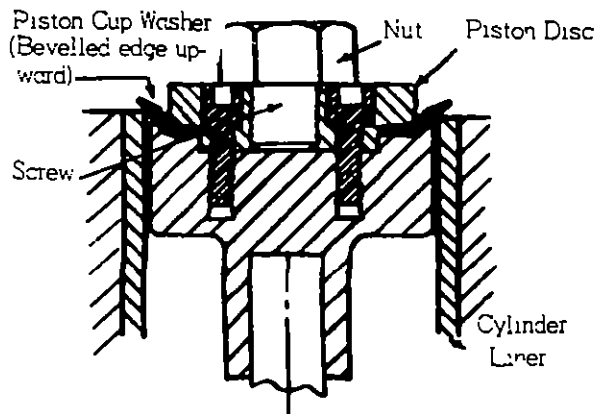


Fig. 4

- 2 Install cylinder liner in main body
- 3 Place piston cup washer or piston, with bevelled edge upward. Insert raised face of piston disc through center opening of piston cup washer and into recess in top of piston. Insert screw (or screws) through piston disc and into piston. Tighten firmly. Note: Be careful not to mar edge of piston cup washer in any manner



- 4 Place completed piston assembly in the cylinder liner with the piston cup washer upward
- 5 Place bolt and nut in one hole of main body top cap flange. Position nut on top of piston. Note: Place protector over main body flange face in order to prevent damage to face or cylinder liner. Using wrench as a lever, push piston assembly into cylinder liner

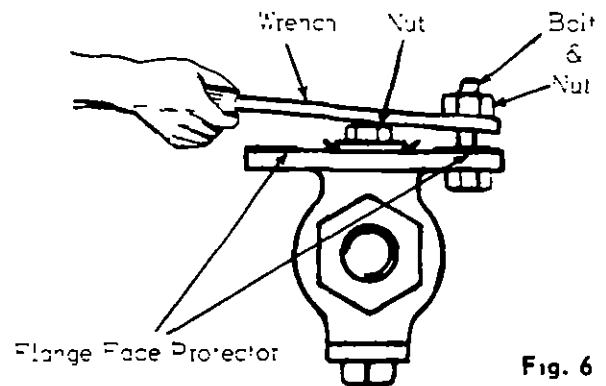


Fig. 6

- 6 Remove nut from top of piston and bolt from main body and complete assembly of regulator in accordance with instructions

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