



**LESLIE**  
CONTROLS, INC.

A subsidiary of CIRCOR International, Inc.

12501 Telecom Drive, Tampa Florida 33637

**Installation, Operating and  
Maintenance Instructions  
Supplement**

**30/1.5.1  
Rev. 2**

**SMALL FLOW AIRMATE PRESSURE REDUCING  
VALVES AND AIR LOADERS  
CLASSES A-2, AG-2, AF-2, AFG-2, ETC.**

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# INTRODUCTION

This Installation, Operation, and Maintenance Manual is intended to be as complete and up to date as possible. It covers installation, operation, and maintenance procedures for Leslie Controls, Inc. Small Flow Airmate Pressure Reducing Valves. Leslie reserves right to update this manual and other product information concerning installation, operation, and/or maintenance, at any time and without obligation to notify product owners of such changes.

Leslie is not responsible for injury to personnel or product damage due to improper installation, operation, and/or maintenance Leslie Controls, Inc. Small Flow Airmate Pressure Reducing Valves. All installation, operation, and maintenance procedures should only be performed by trained/certified personnel. All personnel performing these procedures should completely and carefully read and understand all supplied materials before attempting procedures. All personnel should pay strict attention to all Notes, Cautions, and Warnings that appear within procedures detailed in this manual.

Leslie welcomes user input as to suggestions for product or manual improvement.

## Contact Information

For information concerning warranties, or for questions pertaining to installation,

Operation or maintenance of LESLIE products, contact:

LESLIE CONTROLS INC.  
12501 Telecom Drive  
Tampa, FL 33637

USA Phone: (813) 978-1000  
USA Fax: (813) 978-0984  
www.LESLIECONTROLS.com

To order replacement parts, contact LESLIE CONTROLS at address listed above, or call toll free:

USA/Canada/Caribbean Phone: (800) 323-8366

Note: Please include model and serial number of unit for which parts are being ordered. If ordering by phone, please have this information readily available.

## GENERAL NOTES AND WARNINGS

### Notes:

- If questions are not answered by this manual, or if specific installation, operation, and/or maintenance procedures are not clearly understood, contact Leslie Controls, Inc. for clarification before proceeding.
- If unit is damaged during installation, operation, or maintenance, complete following steps:
  1. Turn off and lock out pneumatic supply to unit in an approved manner.
  2. Turn off all incoming valves.
  3. Contact in-house maintenance personnel or Leslie Controls, Inc. for instructions.

**Note: Throughout this manual, warnings will be denoted by BOXES**

<p style="text-align: center;"><b>CAUTION!</b> Piping system must be adequately designed and supported to prevent extraordinary loads to pressure equipment.</p>
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It is strongly recommended that this document be reviewed before attempting any installation, operation, or maintenance procedures.

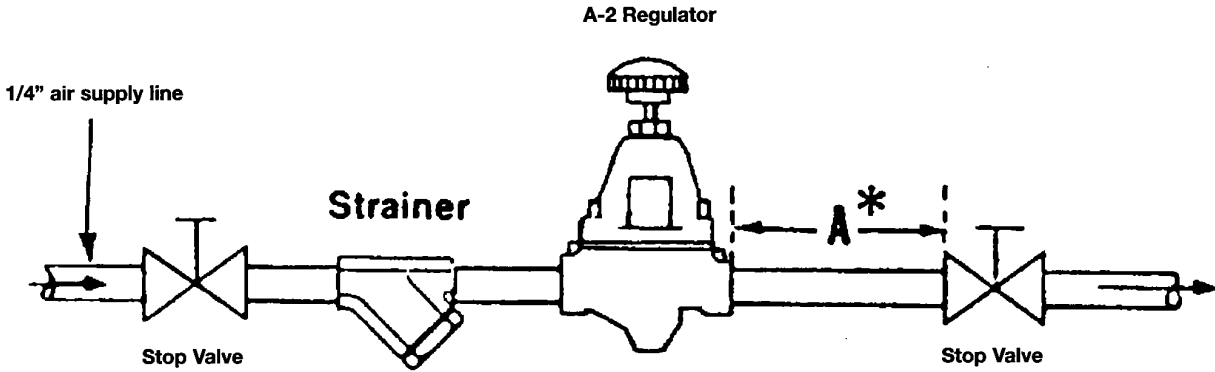


Figure 1 - Installation Detail

## INSTALLATION

Install as shown in Fig. 1. Use non-corrosive fittings and piping throughout. Use fine wire mesh or poromet filter screen.

*Note: Strainer, shown for Class A-2 Types, is not necessary for Filter Type Classes, AF-2.*

\* *When used with air motors or pulsating equipment, line "A" should be of a sufficient length and diameter to provide a reservoir. On close coupled installations install small reservoir.*

## OPERATION

1. Open inlet supply valve to regulator.

*Note: Supply pressure should be at least 5 PSIG above maximum controlled pressure desired.*

2. Open outlet stop valve partially.
3. Turn handwheel (1) clockwise to start flow through regulator. Adjust for desired controlled pressure.\*\* Tighten locknut (2). Open outlet to stop valve fully.

\*\* *Turn handwheel clockwise to increase controlled pressure; counterclockwise to decrease.*

## MAINTENANCE

### DISMANTLING

1. Shut-off air supply. Loosen locknut (2). Relieve all adjusting spring compression.
2. Disassemble adjusting spring case (8), top spring seat (4), adjusting spring(s) (6) and nozzle-diaphragm assembly from main body.
3. Grasp internal rib of aspirator plate (14) (marked "Lift Here") and lift out of main body. Remove gasket (12).
4. Unscrew valve seat (16) with "O" Ring (17) from main body. Lift out main valve (18), with "O" Ring (19), and main valve spring (20).

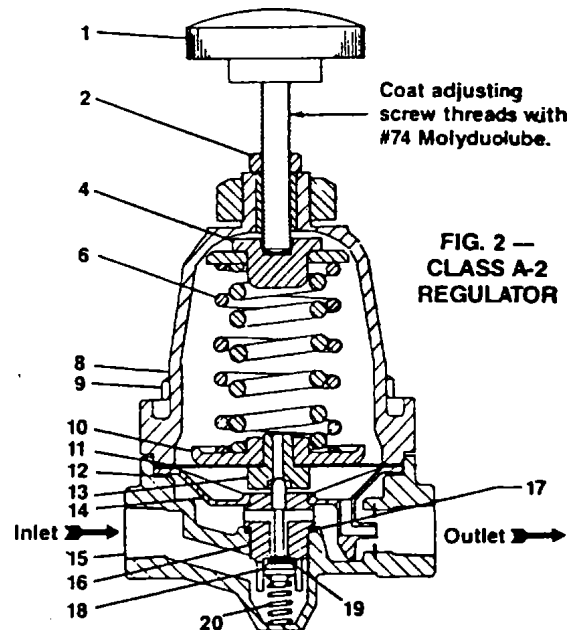


Figure 2 - Class A-2 Regulator

## CLEANING OR REPLACING PARTS

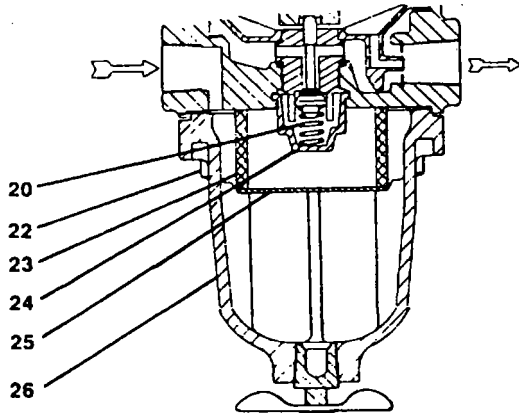
Examine and clean all parts. Use an approved detergent (non-injurious to synthetic materials) for cleaning. Blow out all ports and main body with air. Replace any badly worn or damaged parts.

## DIAPHRAGM REPLACEMENT

Disassemble nozzle disc assembly consisting of diaphragm disc (10), diaphragm (11) and nozzle (13). Nozzle snaps out of diaphragm disc by finger pressure on diaphragm disc side. Reassemble parts (with curve of disc away from diaphragm). Snap nozzle into place in diaphragm disc.

### Integral Filter Types – Class AF-2, etc.

In integral filter types remove filter case (26) from main body. Remove filter (23) and filter support disc (25).



**Figure 3 - Partial Assembly of AF-2 Type showing Additional Parts in Filter Assembly. All other parts (except main body) are the same as in A-2 Classes**

*NOTE: Removal of valve spring retainer (24) in integral Filter Types is unnecessary unless it is to be replaced. To remove, squeeze sidewalls together to clear groove in main body, then pull. To insert new part, squeeze sidewalls together sufficiently for shoulders to pass through body opening and into groove.*

## REASSEMBLING

1. Place main valve spring (20) in main body (15). Place "O" Ring (17) in recess of body. Assemble main valve (18), with "O" Ring (19), in valve seat (16). Screw valve seat into main body threads until seating face contacts main body and tighten.

2. Place gasket (12) in recess of main body (15). Insert aspirator plate (14) with aspirator tube in outlet orifice. Snap aspirator plate in place with finger pressure. Place nozzle-diaphragm assembly in main body with diaphragm disc (10) upward. Place adjusting spring(s) (6) and top spring seat (4) on diaphragm disc. Position spring case (8) with handwheel (1) on main body. Insert screws (9) and tighten.

### Integral Filter Types – Class AF-2, etc.

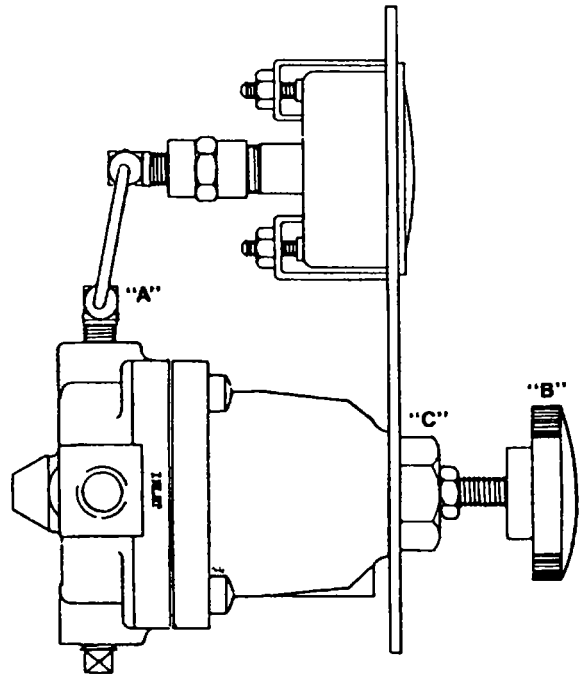
In integral filter types, place spring (20) into valve spring retainer (24), see figure 3, place filter support disc (25) and filter (23) in filter case (26). Assemble gasket (12) and filter case to main body. Insert screws (22) and tighten.

3. Readjust regulator as described under "OPERATION".

## MAINTENANCE OF LOADING PANELS

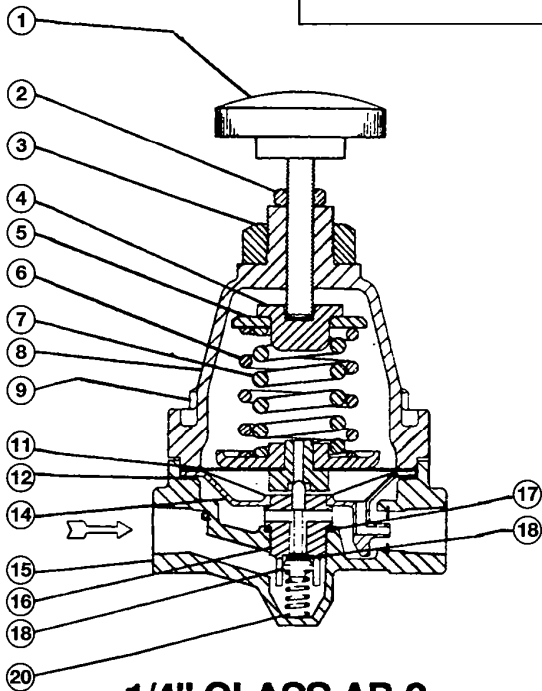
### Classes P-2, PF-2, etc.

**Disconnect tubing at "A". Remove handwheel "B". Take off locknut "C". Remove valve from panel. Follow Maintenance instructions Section III.**

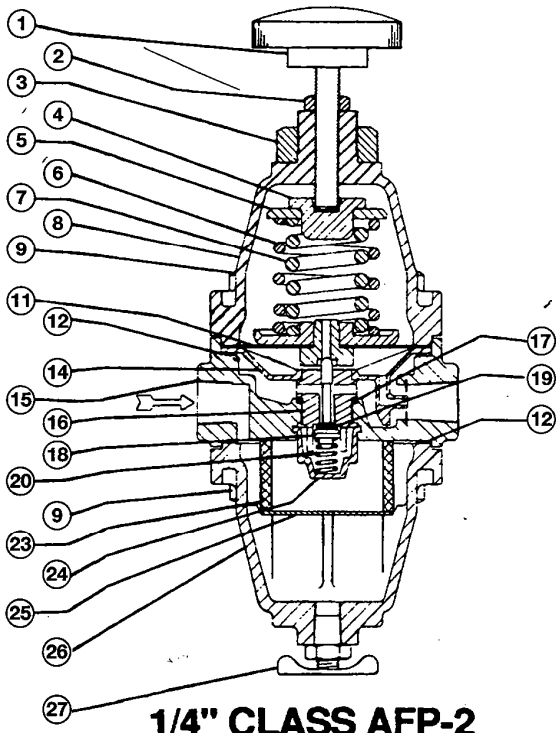


**Figure 4 - Class P-2 Panel Loader**

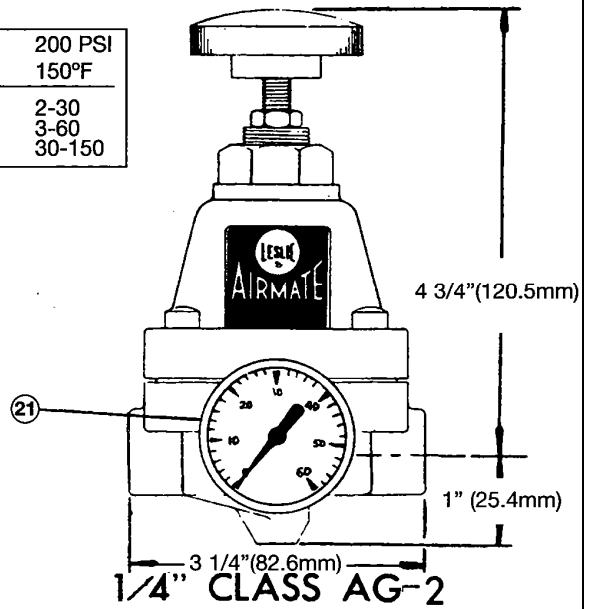
MAX. INLET PRESSURE	200 PSI
MAX. TEMPERATURE	150°F
RANGE PSI	2-30 3-60 30-150



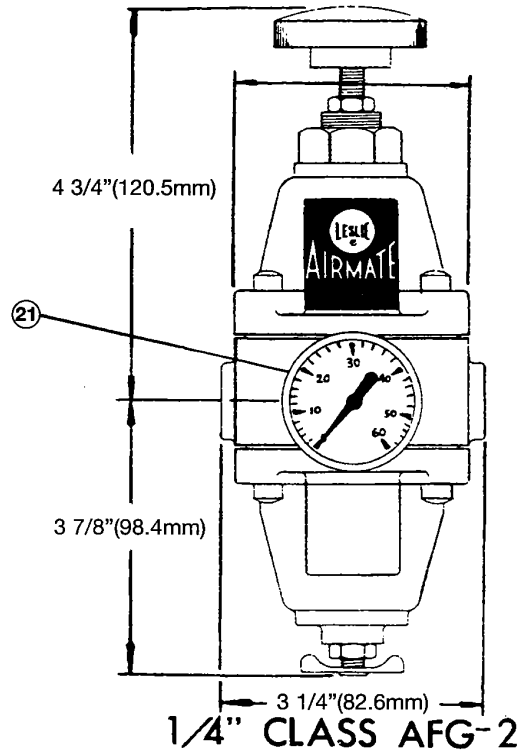
**1/4" CLASS AP-2**



**1/4" CLASS AFP-2**



**1/4" CLASS AG-2**



**1/4" CLASS AFG-2**

AIRMATE - REG. U.S. PAT. OFF.

**LESLIE** **LESLIE CONTROLS, INC.**  
TAMPA, FLORIDA 33637

**LESLIE - AIRMATE  
LOADERS AND PANELS**

DATE	APP'D.	D'W'N	DWG NO.	30/1.4.1 ALT 11
10-23-92				

SUPERSEDES DRAWING NO. RV-19180 F, ALT. 2

**WHEN ORDERING PARTS PLEASE GIVE CLASS, PART NAME AND PART REFERENCE NUMBER FROM TABLE BELOW. USE PART NUMBER ONLY TO LOCATE PART ON DRAWING. (SEE PG. 1 FOR DRAWING)**

PART NO.	PART NAME	MATERIAL	QTY. PER UNIT	REFERENCE NUMBERS			
				AP-2	AG-2 & AP-2	AF-2	AFG-2 & AFP-2
1	Handwheel, Complete	Phenolic & Steel	1	52680	52680	52690	52680
2	Nut	Steel, Cad. Plated	1	24772	24772	24772	24772
3	Lock Nut	Steel, Cad. Plated	1	11689	11689	11689	11689
4	Top Spring Seat	Steel, Cad. Plated	1	20571	20571	20571	20571
5	Spring Seat Plate, Range 30-150 only	Aluminum	1	59514	59514	59514	59514
6	Adj. Spring Outer, Range 30-150 only	.219 Wire Diam. (NOTE 4)	1	53362	53362	53362	53362
7	Adj. Spring, Range 2-30 only	.135 Wire Diam. (NOTE 4)	1	57791	57791	57791	57791
7	Adj. Spring, Range 3-60 only	.117 Wire Diam. (NOTE 4)	1	33974	33974	33974	33974
7	Adj. Spring, Range 3-150 only	.148 Wire Diam. (NOTE 4)	1	54484	54484	54484	54484
8	Adj. Spring Case Compl.	Aluminum	1	52665	52665	52665	52665
9	Screw, Phillips Head	Steel, Cad. Plated	NOTE 7	58661	58661	58661	58661
11	Diaph. Compl., Range 3-60 & 30-150 (NOTE 8)	Synthetic Rubber & Celcon	1	56507	56507	56507	56507
11	Diaph. Compl., Range 2-30 (NOTE 8)	Synthetic Rubber & Celcon	1	58659	58659	58659	58659
12	Gasket	Synthetic Rubber	NOTE 1	52992	52992	52992	52992
14	Pilot Plate	Celcon	1	52899	52899	52899	52899
15	Main Body Range 3-60 (NOTE 2)	Aluminum	1	54494	54495	54498	54499
15	Main Body Range 2-30 (NOTE 2)	Aluminum	1	54496	54497	54500	54501
15	Main Body Range 30-150	Aluminum	1	52664	52694	52671	52696
16	Valve Seat	Aluminum	1	52676	52676	52676	52676
17	O-ring, Valve Seat	Synthetic Rubber	1	51162-94	51162-94	51162-94	51162-94
18	Main Valve Complete (NOTE 3)	Celcon	1	54488	54488	54488	54488
19	O-Ring	Buna N	1	54458-94	54458-94	54458-94	54458-94
20	Main Valve Spring	Music Wire, Cad. Plated	1	52706	52706	52706	52706
21	Gage, 3-60 Range AG-2 & AFG-2 (NOTE 9)	Steel Case, Clearlok Crystal	1	-----	54457	-----	54557
21	Gage, 2-30 Range AG-2 & AFG-2 (NOTE 9)	Steel Case, Clearlok Crystal	1	-----	58087	-----	58087
21	Gage, 30-150 Range AG2 & AFG-2 (NOTE 9)	Steel Case, Clearlok Crystal	1	-----	54558	-----	54558
21A	Pipe Plug (NOTE 5)	Nylon	NOTE 6	-----	53030	-----	53030
23	Filter, 5 Micron	Resin Imperg. Cellulose	1	-----	-----	52936	52936
24	Valve Spring Retainer	Celcon	1	-----	-----	52922	52922
25	Filet Support Disc	Stainless Steel	1	-----	-----	52990	52990
26	Filter Case	Aluminum	1	-----	-----	52921	52921
27	Drain Cock	Brass	1	-----	-----	58269	58269

Please specify Range when ordering

NOTE 1 – Quantity one (1) for AP-2 and Quantity two (2) for AFP-2.

NOTE 2 – Main Body is furnished complete with variable Pilot.

NOTE 3 – Main Valve is furnished complete with O-Ring Part No. 19.

NOTE 4 – Material is Spring Steel, Cadmium Plated.

NOTE 5 – Not shown on drawing, used on Reverse side of Body when Gage is specified for Class AG-2 & AFG-2 only.

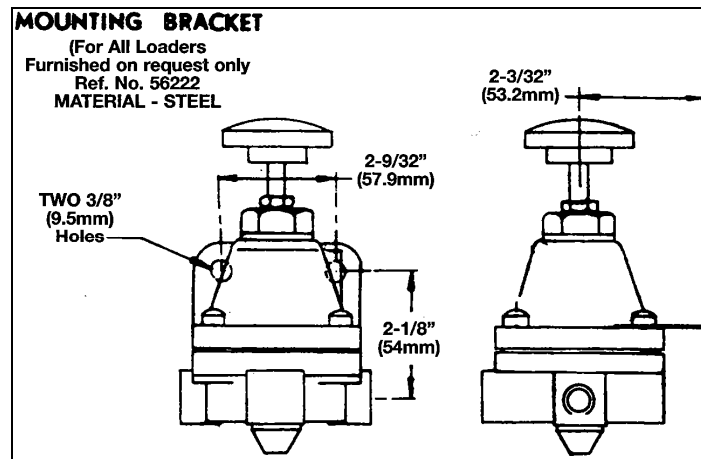
NOTE 6 – Quantity one (1) for AG-2 & AFG-2 Classes and Quantity two (2) for AP-2 & AFP-2 Classes.

NOTE 7 – Quantity four (4) for AP-2 & AG-2 Classes and Quantity eight (8) for AFP-2 & AFG-2 Classes.

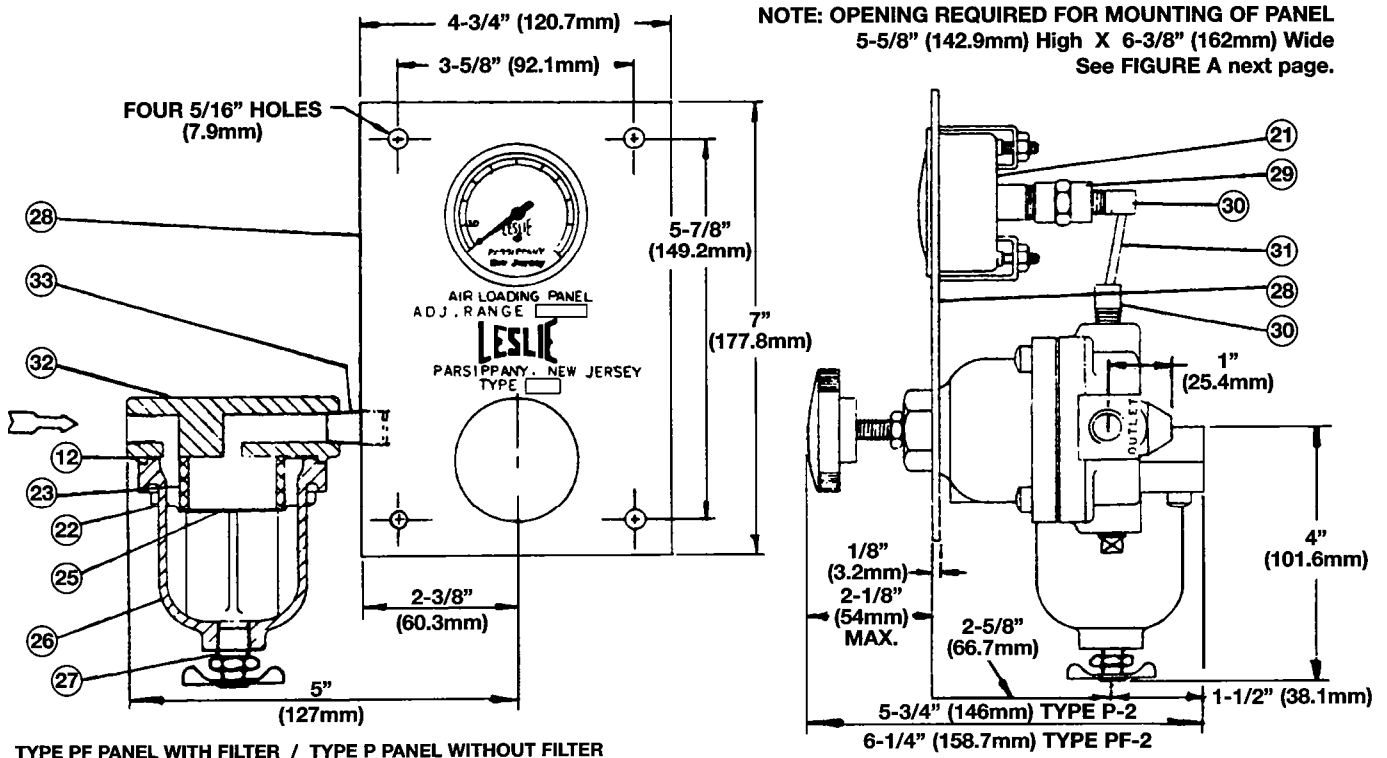
NOTE 8 – Diaphragm Complete includes Diaphragm, Diaphragm Disc and Nozzle.

NOTE 9 – Gages are dual calibrated for Metric & Std.

**PATENTED**



NET WEIGHT - 2.5 lbs. (1.1 kg)



PATENTED

TYPE	AIR LOADER RANGE	GAGE CALIBRATION	AIR LOADER	SPARE PARTS KITS	
P-2	2-30	0-30	AP-2(2-30)	NO. 011 9113 03	
PF-2				FOR AP-2, AG-2, P-2 2-30 RANGE AND 30 PP-1 AND 30 PPF-1 PANELS	
P-2	3-60	0-60	AP-2(3-60)	NO. 011 9113 01	
PF-2				FOR AP-2, AG-2, P-2, PF-2 3-60 & 30-150 RANGES AND 60 & 150 PP-1 AND 60-150 PPF-1 PANELS	
P-2	30-150	0-160	AP-2(30-150)	NO. 011 9113 02	
PR-2				FOR FILTER ONLY	
30 PP-1 & PPF-1	2-300-30	AP-2(-30)			
60 PP-1 & PPF-1	3-60	0-60	AP-2(3-60)		
150 PP-1 & PPF-1	30-150	0-160	AP-2(30-150)		

SPARE PARTS ARE FURNISHED IN KITS IN QUANTITIES SHOWN IN TABLE BELOW

PART NO.	PART NAME	KIT REF. NO.	011911301		011911303		011911302	
			QTY.	REF. NO.	QTY.	REF. NO.	QTY.	REF. NO.
11	Diaphragm Compl.	(8)	2	56507	2	56459	--	--
12	Gasket	2	52992	2	52992	10	52992	--
14	Pilot Plate	1	52899	1	52899	--	--	--
16	Valve Seat	2	52676	2	52676	--	--	--
17	O-Ring, Valve Seat	2	51162-94	2	51162-94	--	--	--
18	Main Valve Complete	(3)	2	54488	2	54488	--	--
20	Main Valve Spring	2	52706	2	52706	--	--	--
23	Filter	--	--	--	10	52936	--	--

NOTE 3 – Main Valve is furnished complete with o-Ring, Part No. 19.

NOTE 8 – Diaphragm complete includes Diaphragm, Diaphragm Disc and Nozzle.

SEE PG. 4 & 5 FIR AIRMATE LOADERS

**WHEN ORDERING PARTS PLEASE GIVE PART NAME AND PART REFERENCE NUMBER FROM TABLE BELOW. USE PART NUMBER ONLY TO LOCATE PART ON DRAWING**

PART NO.	PART NAME	MATERIAL	QTY. PER UNIT	REFERENCE NUMBERS			
				P-2	PF-2	PP-1	PPF-1
12	GASKET (Note 10)	Synthetic Rubber	1	--	52992	--	52992
21	Gage, 0-30	Steel, Plastic Crystal	Note 9	38546	38546	54070	54070
21	Gage, 0-60	Steel, Plastic Crystal	Note 9	35647	35647	54071	54071
21	Gage, 0-160	Steel, Plastic Crystal	1	53583	53583	54072	54072
22	Screw (Note 10)	Steel, Cad. Plated	4	--	52993	--	52990
23	Filter (Note 10)	Resin Imperg. Cellulose	1	--	52936	--	52936
25	Filter Support Disc (Note 10)	Stainless Steel	1	--	52990	--	52990
26	Filter Case (Note 10)	Aluminum	1	--	52921	--	52921
27	Drain Cock (Note 10)	Brass	1	--	58269	--	58269
28	Panel	Aluminum	1	35634	35634	54068	54068
29	Female Coupling	Brass	1	35646	35646	35646	35646
30	Male Elbow	Brass	2	34911	34911	34911	34911
31	Tubing	Copper	1	54833	53367	53368	53368
32	Cover (Note 10)	Cast Aluminum	1	--	54751	--	54751
33	Nipple (Note 10)	Brass	1	--	49474	--	49474

Please Specify Range When Ordering

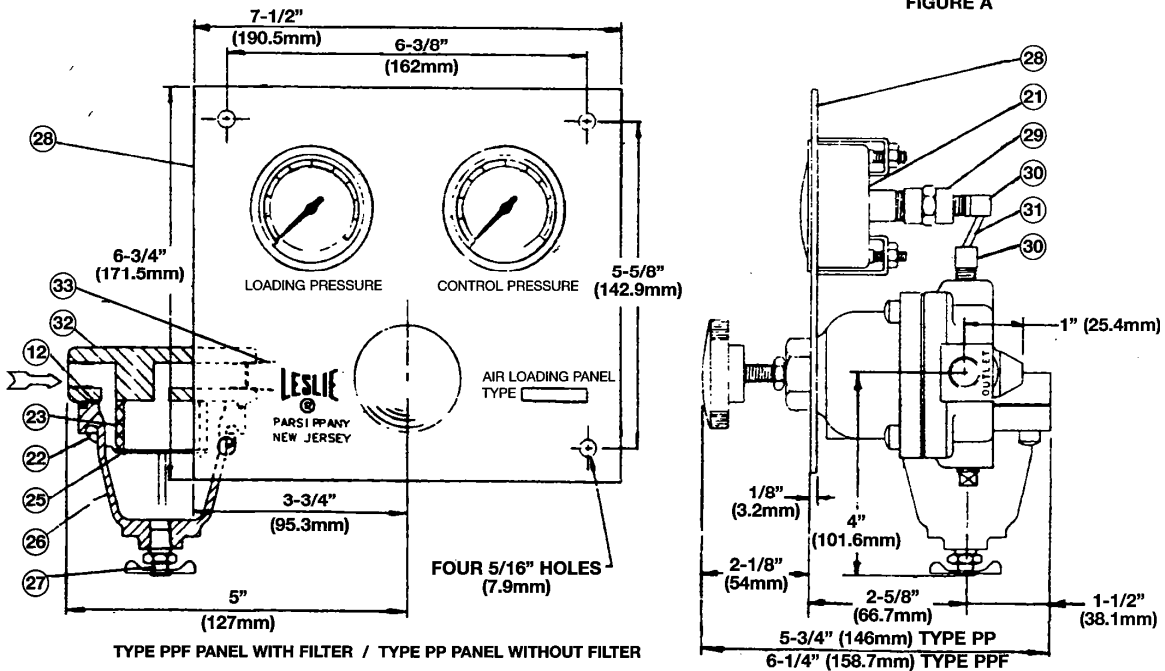
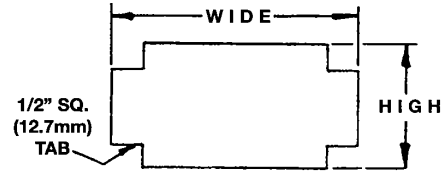
NOTE 9 – Quantity one (1) for P-2 and PF-2. Quantity two (2) for PP-1 and PPF-1.

NOTE 10 – For Types PF-2 & PPF-1 only.

MAX. INLET PRESSURE - 200 PSI

MAX. TEMPERATURE - 150° F

**NOTE:**  
**OPENING REQUIRED FOR MOUNTING OF PANEL**  
 5-5/8" (142.9mm) High X 6-3/8" (162mm) Wide  
 See FIGURE A.



**30/1.4.1**





*It is solely responsibility of system designer and user to select products and materials suitable for their specific application requirements and to ensure proper installation, operation and maintenance of these products. Assistance shall be afforded with selection of materials based on technical information supplied to Leslie Controls Inc.; however, system designer and user retain final responsibility. Designer should consider applicable Codes, material compatibility, product ratings and application details in selection and application. Improper selection, application or use of products described herein can cause personal injury or property damage. If designer or user intends to use product for an application or use other than originally specified, he must reconfirm tat selection is suitable for new operating conditions. Life expectancy for this product defaults to warranty period of sales contract.*