



TEMPERATURE

Fixed and Adjustable Proportional Band Types

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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. Temperature Fixed and Adjustable Proportional Band Types. 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. Temperature Fixed and Adjustable Proportional Band Types. 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

CAUTION!

Piping system must be adequately designed and supported to prevent extraordinary loads to pressure equipment.

It is strongly recommended that this document be reviewed before attempting any installation, operation, or maintenance procedures.

Classes and Types

(Letter "P" in Class Indicates
Adjustable Proportional Band Type)

REVERSE ACTING DIRECT ACTING

R-2, RQ-2, RTP-2, RTHP-2 D-2, DQ-2, DTP-2, DTHP-2

INSTALLATION

Typical installations Figures 1 through 5. Follow sketch applicable to equipment in use. Temperature Pilot may be installed in any position. See note regarding liquid operating mediums.

1. Control valve piping in figures are schematic. Consult control valve instructions for proper piping details.
2. Location of Thermal Tube – Locate thermal bulb a minimum of 6" from nearest heating or cooling coil. DO NOT place in direct path of heating or cooling fluids in injection systems. Full length of thermal tube must be in contact with heated fluid at a point where true changes in temperature will be felt immediately. See Figure 5 for shell and tube heaters (Instantaneous).
3. Thermometer – Position thermometer in immediate area of thermal tube indication of signal temperature.
4. Location of Temperature Pilot – Temperature Pilot may be installed as far as 50' from the control valve. However, in heat exchanger applications control valve should be close enough to the heater to prevent existence of an excessive reservoir of heating fluid between valve and heater which will pass through heater, after valve closure, causing override.
5. Liquid Operating Mediums – Elevation between temperature pilot and control valve should not exceed 10' when liquid is used as operating medium.

NOTE: New type covers have two directional arrows both of which indicate "WARMER". However, the LEFT side of cover is marked "D-TYPES" and the right side is marked "R-TYPES". To INCREASE controlled temperature setting, turn the knob to the left (counter-clockwise) for "D-TYPES" and to the right (clockwise) for "R-TYPES".

OPERATION

NOTE: Start initially with all stop valves closed.

1. Open operating medium supply line. Adjust pressure reducing valve to supply proper operating pressure to temperature pilot. See Figure 6 for correct values.

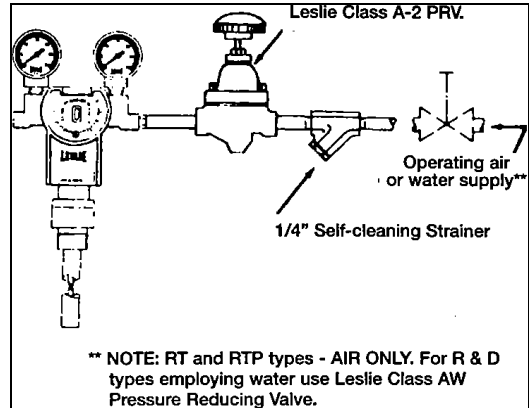


Figure 1 - Temperature Pilot Installation Details

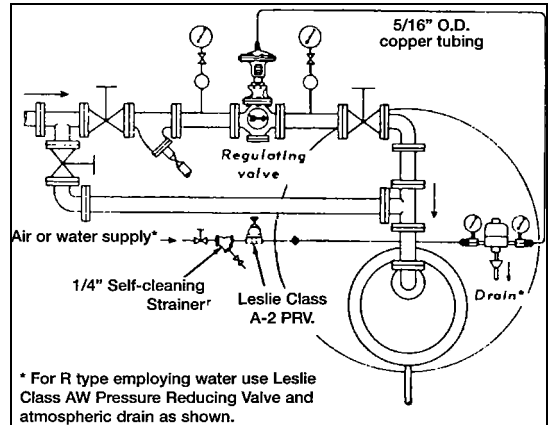


Figure 2 - Typical Installation on Storage Heater

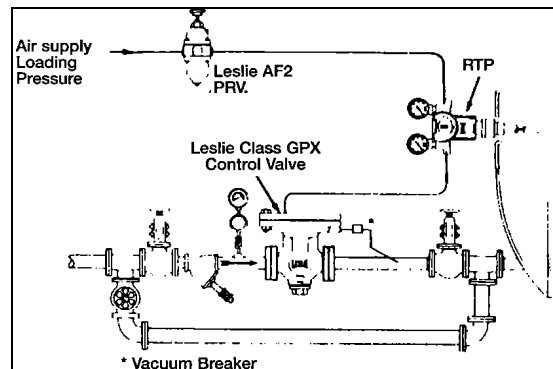


Figure 3 - Type RTP Temperature Pilot with Class GPK Control Valve - Delivered heating or cooling agent pressure limited by restricting loading pressure value

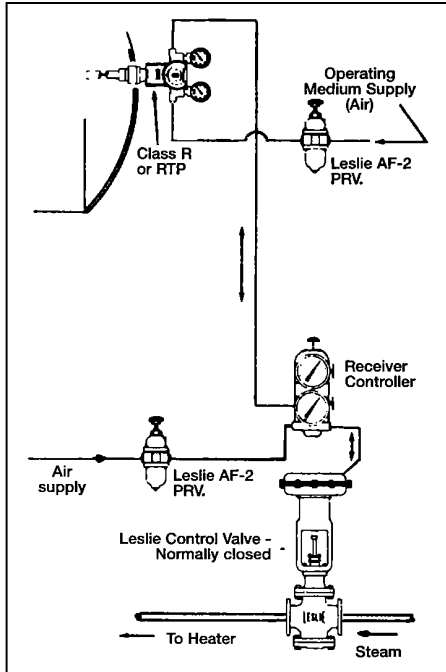


Figure 4 - Temperature Control System using Temperature Pilot as Air Temperature Transmitter.

NOTE: Satisfactory where pressure limiting is not required.

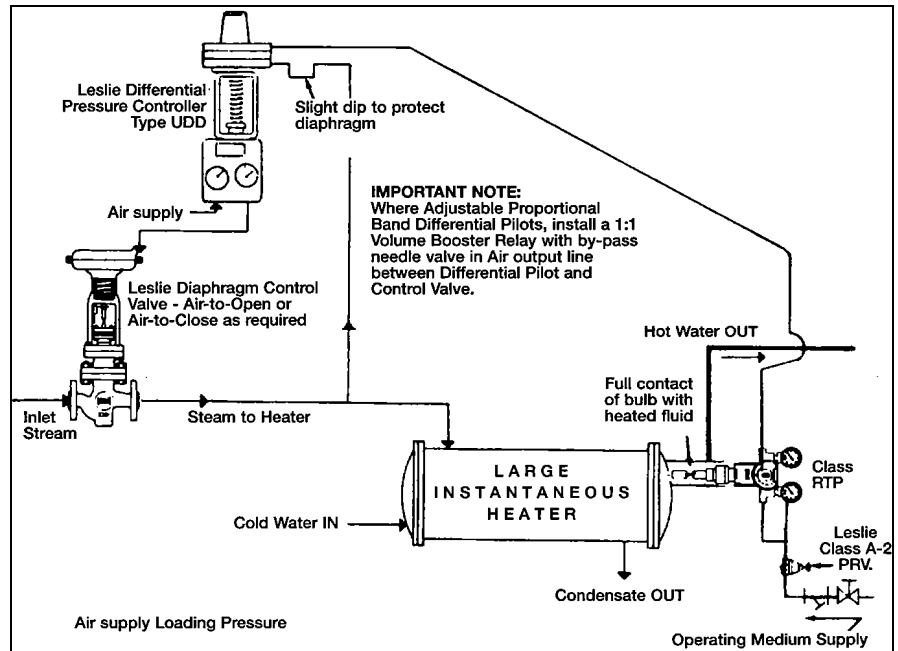


Figure 5 - Temperature Pilot controlling on Instantaneous Heater in conjunction with a Differential Pressure Pilot. Acts as Pressure Limiting Device. Provides anticipating action - 1:1 ratio, air/steam.

NOTE: Place thermal bulb as close to heater outlet as possible but not in heater unless it is designed for that purpose.

VALVE TYPE	VALVE ACTION	STARTS TO TRAVEL AT	FULL TRAVEL AT:	REMARKS
Diaphragm Control Valves	Air-to-Open Air-to-Close	3 psig	15 psig or other Maximum air pressure determined by pressure drop.	In control Valves required air pressure values may vary with pressure drop variations.
Internal Pilot Piston Operated Valves (Class LTY, LTPY, etc.)	Air-to-Open	Between 8 & 10 psi on diaphragm	At air loading pressure required for controlled pressure plus opening pressure. Flow depends on system demand.	Valve produces approximately 7 psig delivered controlled pressure per 1 psig additional loading pressure supplied after opening force is applied. Max. loading pressure 35 psig.
Fluid loaded diaphragm operated valves (Class GPK, etc.)	Air-to-Open	Opening pressure depends on pressure drop and valve size. See chart Figure 7, Instruction RVI 7a/12a.	Air at loading pressure required for controlled pressure plus opening pressure.	Valve produces 1 psig delivered controlled pressure per 1 psig loading pressure supplied after opening force is applied.

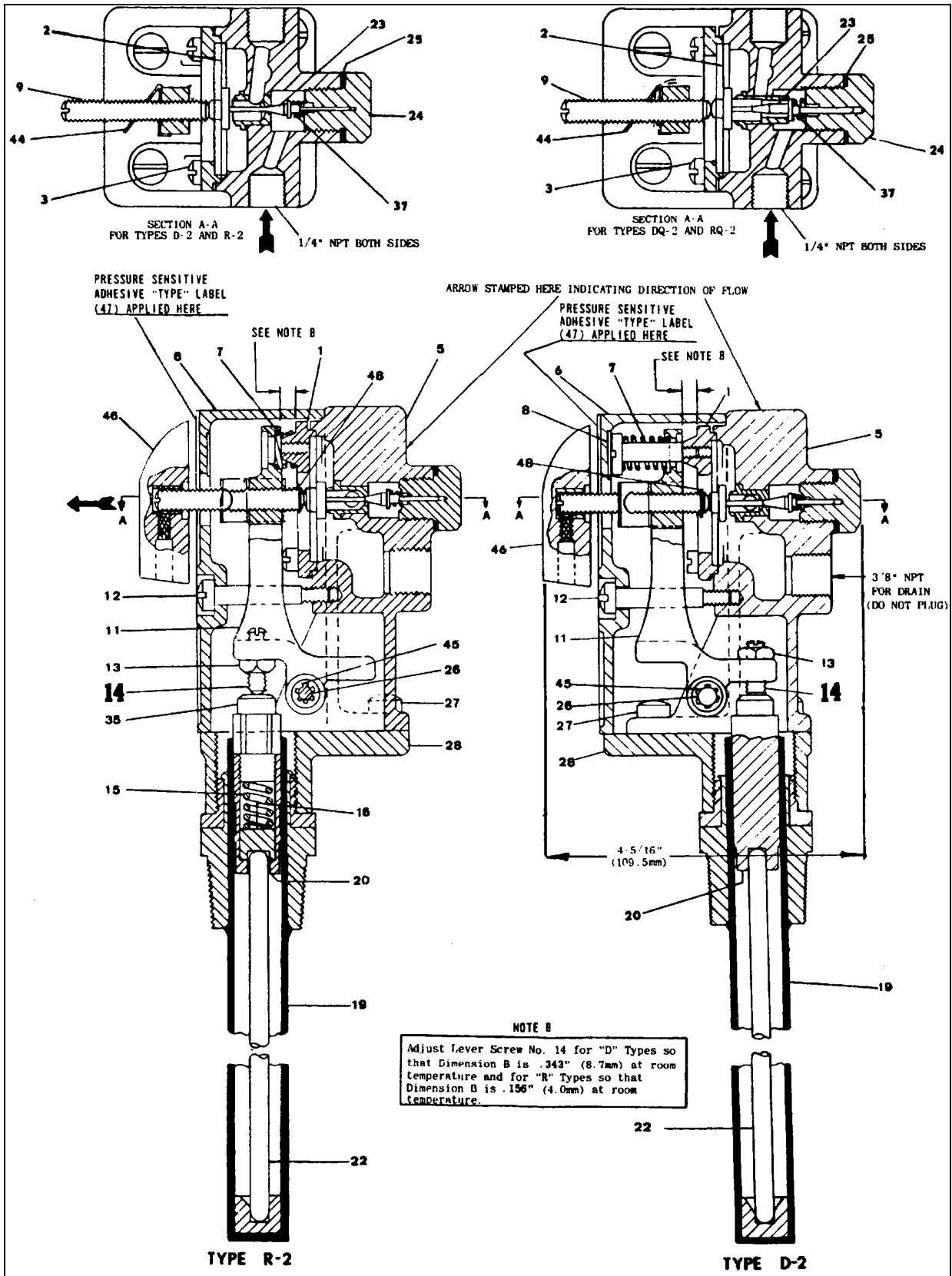


Figure 4 - Type R and D Sectionals

2. Turn adjusting screw knob (46) to supply sufficient operating medium pressure to control valve to bring it into opening position. See Figure 6 for values and reference notes on the particular control valve in use.
3. Open inlet stop valve wide. Partially open outlet stop valve to permit flow of heating or cooling fluid. Start flow of fluid to be heated through heater.
4. Adjust temperature pilot to supply sufficient operating pressure to move control valve to wide open position.
5. Observe temperature rise of fluid under control. When desired temperature is reached, adjust operating pressure to control valve by turning adjusting screw knob (46) until valve just closes.

Increasing/Decreasing Temperature Setting - To increase or decrease temperature setting turn adjusting screw knob (46) carefully as indicated by direction of arrow on cover for type pilot shown.

6. Check controlled temperature after a period of operation. Readjust adjusting screw knob (46) carefully if it is necessary to change temperature setting.

NOTE: Final adjustment are made best when apparatus is operating under normal load.

7. After adjustments are completed tighten lockscrew (3) just enough to provide sufficient drag to prevent adjusting screw knob (46) from moving due to vibration.

WIDENING PROPORTIONAL BAND – RTP, DTP, etc. See Figure 8

When making initial adjustments for temperature setting in RTP, DTP, etc. types start with the knob fully clockwise (narrowest band setting). If an unstable condition appears in the system, indicating need for widening of proportional band, turn knob (41) slowly in direction of arrow on knob (41) to widen proportional band until system stabilizes. (1-1/4 turns produce widest band.)

NOTE: Readjust set point slightly as desired by turning adjusting screw knob (46) as in Step 2.

To turn system off first close outlet stop valve then inlet stop valve.

NOTE: With GP Class Control valves relieve operating pressure from diaphragm before closing inlet stop valve.

To turn system on with temperature set open inlet stop valve then slowly open outlet stop valve.

MAINTENANCE

(Refer to figures below or appropriate drawings available on request.)

DISMANTLING

1. Remove cover screw (12) and cover (6). Take out fulcrum pin (26), lever (11) and lever spring (7). In D types remove lever spring screw (8) also.
2. Take out diaphragm plate screws (3), diaphragm plate (1) and diaphragm complete (2) (In RTP, DTP, etc. types take out spring (43) also). Lift out plunger (20) and rod (22). To remove rod from tube in D types, body (5) must be disassembled from base (28) first, by removing screws (27). (This is only necessary when rod, plunger or tube must be cleaned or replaced.)
3. Loosen and remove pilot valve plug (24), gasket (25) and pilot valve spring (37) (in R and D Types)

In RTP, DTP, etc. types proportioning band screw (39), pilot valve plug (24), "O" ring (40) and knob (41) are a subassembly. When pilot valve plug is removed from body the other parts will follow. Disassemble proportional band screw from plug. Clean all parts, replace "O" ring if necessary and reassemble parts.

CLEANING

Clean all parts including body with an approved solvent. Make sure body ports are clear. Use crocus cloth to remove encrusted material. Replace any badly worn or damaged part.

REASSEMBLY

1. Reassemble pilot valve (23), pilot valve spring (37), gasket (25) and pilot valve plug (24) to body. In RTP, DTP types these parts comprise a subassembly (pilot valve being replaced by the proportional band screw). Tighten pilot valve plug.
2. Reassemble rod (22) and plunger (20) in tube with recessed end over end of rod. Install diaphragm complete (2) in body recess with disc end toward nozzle. In RTP, DTP, etc. types make sure that small valved portion of disc enters orifice of nozzle. In D types reassemble body to base.

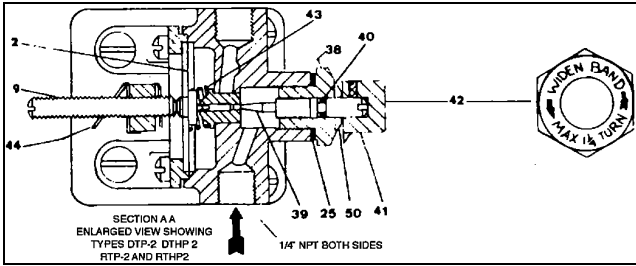


Figure 5 - Body assembly RTP - DTP Types, showing adjustable proportional band mechanism

3. Place diaphragm plate (1) on diaphragm complete (raised face downward). Insert screws (3) and turn down into body threads just enough to hold diaphragm plate snug. **DO NOT** overtighten as this will cause snap in diaphragm with possible erratic response resulting.
4. In R and RTP, etc. types assemble lever spring (7) and lever (11) to body, then insert fulcrum pin (26) in holes in body and lever. Test action of lever. It should be smooth and free. Check lever clearance as described under "Setting Lever Clearance"*.

In D, DPT, etc. types assemble lever (11) to body and insert fulcrum pin (26). Test action of lever. It should be free and smooth. Check lever clearance as described under "Setting Lever Clearance"*. Then assemble lever spring (7) on lever, insert screw (8) through spring and into diaphragm plate (1). Tighten screw.

* If lever clearance is correct **DO NOT DISTURB** adjustment.

5. Reassemble cover (6) to body. Insert screw (12). Tighten. Reconnect operating medium tubing (if disconnected). Readjust as described under "OPERATION".

HOW TO SET LEVER CLEARANCE

NOTE: Lever setting is factory set. Do not disturb if dimension corresponds to that shown below for the particular temperature pilot.

* To adjust when necessary, subject tube of temperature pilot to a temperature of approximately 70°F then turn adjusting screw (9) outward until it is clear of diaphragm complete (2) and proceed as follows (See Figure 7).

LEVER CLEARANCE ADJUSTMENT

NOTE: Thermo tube must be at room temperature while making lever clearance adjustments.

For Reverse Acting Types – R, RT, RTP, etc.

1. Loosen temperature adjusting knob lock screw and remove knob.
2. Remove cover screw and lift off cover.
3. Move temperature adjusting screw upward until bottom of screw is no longer in contact with diaphragm.
4. Check dimension "A" with a scale. Distance from bottom of lever to top of diaphragm plate should be 5/32".
5. If dimension is incorrect, loosen adjusting screw lock nut and screw adjusting screw into lever toward plunger plug if dimension is greater than 5/32" or away from plunger plug if dimension is less than 5/32". Check clearance. Repeat procedure until 5/32" clearance is obtained. Hold adjusting screw in place with a screwdriver and tighten lock nut. Replace cover and cover screw.
6. Adjust pilot for required control temperature. Replace temperature adjusting knob with pointer in center position of cover and tighten adjusting knob lock screw.

For Direct Acting Types – D, DT, DTP, etc.

1. Loosen temperature adjusting knob lock screw and remove knob.
2. Remove cover screw and lift off cover.
3. Move temperature adjusting screw upward until bottom of screw is no longer in contact with diaphragm.
4. Check "A" dimension with a scale. Distance from bottom of lever to top of diaphragm plate should be 11/32".
5. If dimension is incorrect, remove lever spring screw and lever spring.
6. Remove one fulcrum pin retaining washer and push out fulcrum pin.

7. Loosen lever adjusting screw lock nut and screw adjusting screw into lever toward plunger plug if dimension is less than 11/32". Replace lever and fulcrum pin. Hold lever tip down so that adjusting screw rests firmly against end of plunger plug. Check clearance. Repeat procedure until a clearance of 11/32" is obtained. Hold adjusting screw in place with a screwdriver and tighten lock nut.
8. Replace lever, fulcrum pin and retaining washer, lever spring and lever spring screw. Tighten lever spring screw. Replace cover and cover screw.
9. Adjust pilot for required control temperature. Replace temperature adjusting knob with pointer in center position of cover and tighten adjusting knob lock screw.

ADJUSTING PROPORTIONAL BAND MECHANISM

NOTE: This adjustment is factory set with and air supply pressure of 20 psig. Adjustment should not be disturbed unless replacement of a part is necessary in the proportional band mechanism or if the inlet supply pressure is changed to a higher value. If it is necessary to disturb adjustment, readjust in the following manner.

1. Loosen set screw in knob (39). Remove knob from proportional band screw (23).
2. Supply desired operating pressure to temperature pilot. Then turn proportional band screw (23) inward toward seat until all air flow ceases through pilot. (Do Not squeeze screw against seat.)
3. Back proportional band screw (23) away from its seat the number of degrees shown in curve Figure 9 for the particular supply pressure in use.
4. Replace knob (39) on proportional band screw (23) with pointer against ping in plug (24) in a fully clockwise position.
5. This setting will produce minimum proportional band. Turning knob (39) counter-clockwise, widens proportional band. Maximum width of band is reached when pointer is turned counter-clockwise the percent of full rotation shown in curve Figure 10 for the particular air supply pressure in use.
6. Adjust for desired temperature and width of band as described under "Operation".

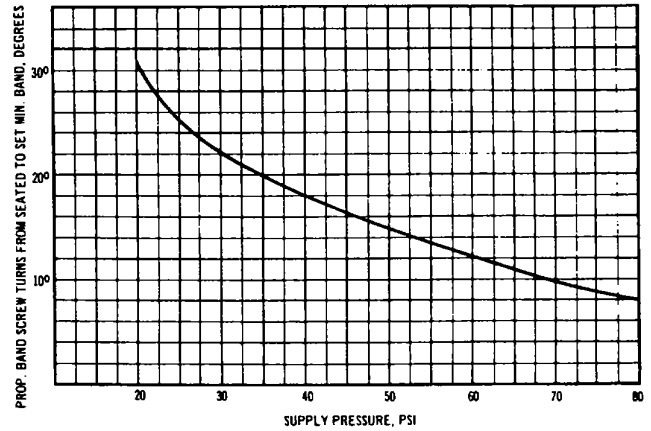


Figure 6 - Location of Minimum Band Setting

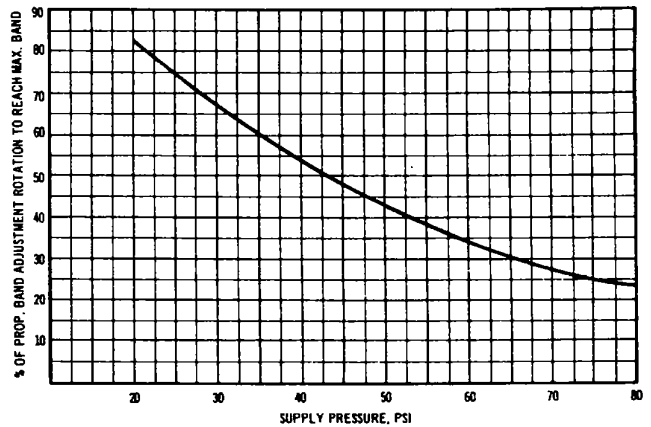


Figure 7 - Location of Maximum Band Setting

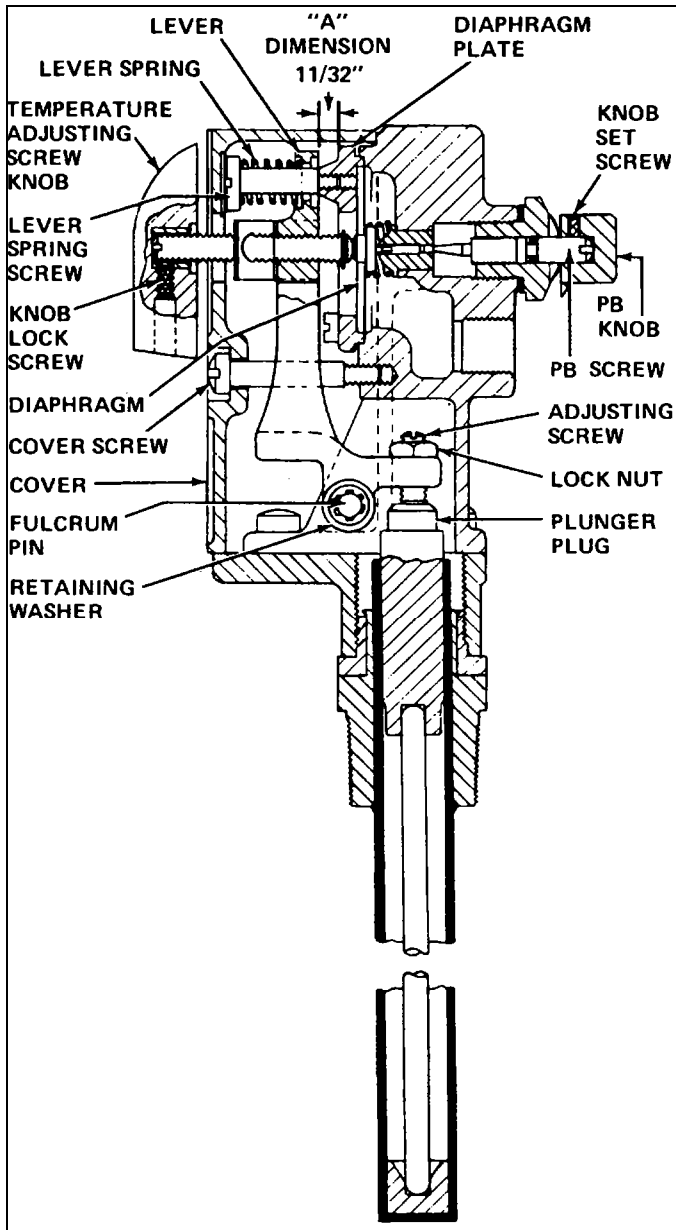


Figure 8 - Adjustable Proportional Band Type DTP

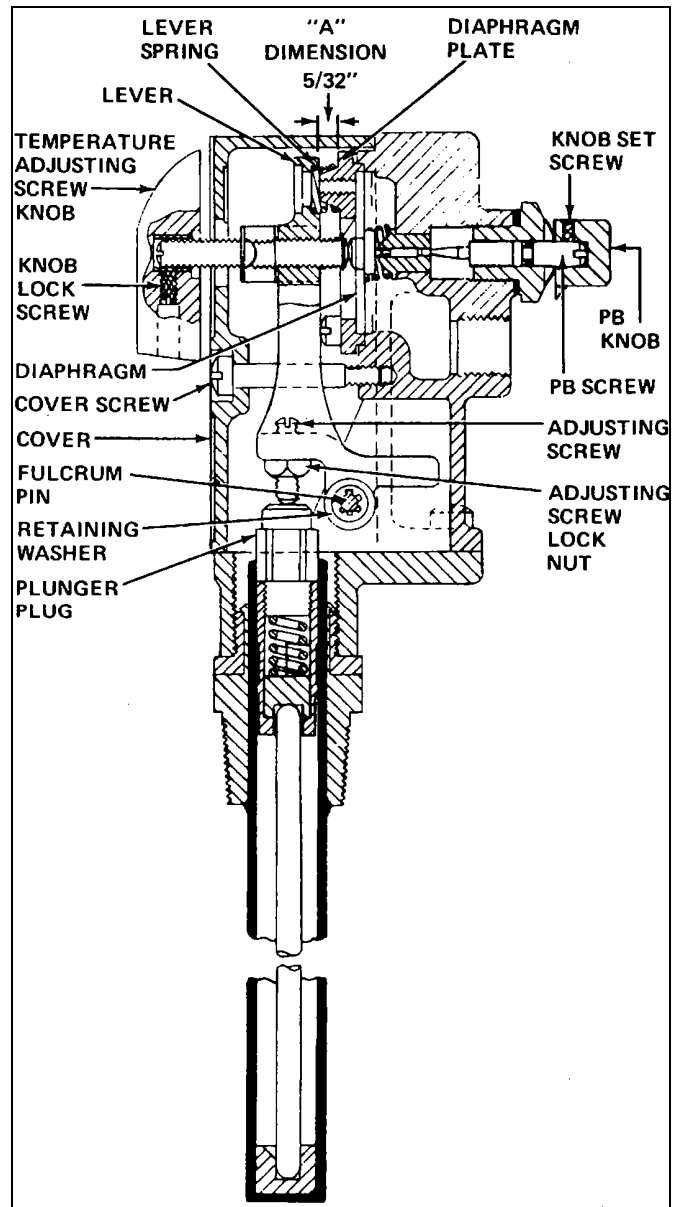
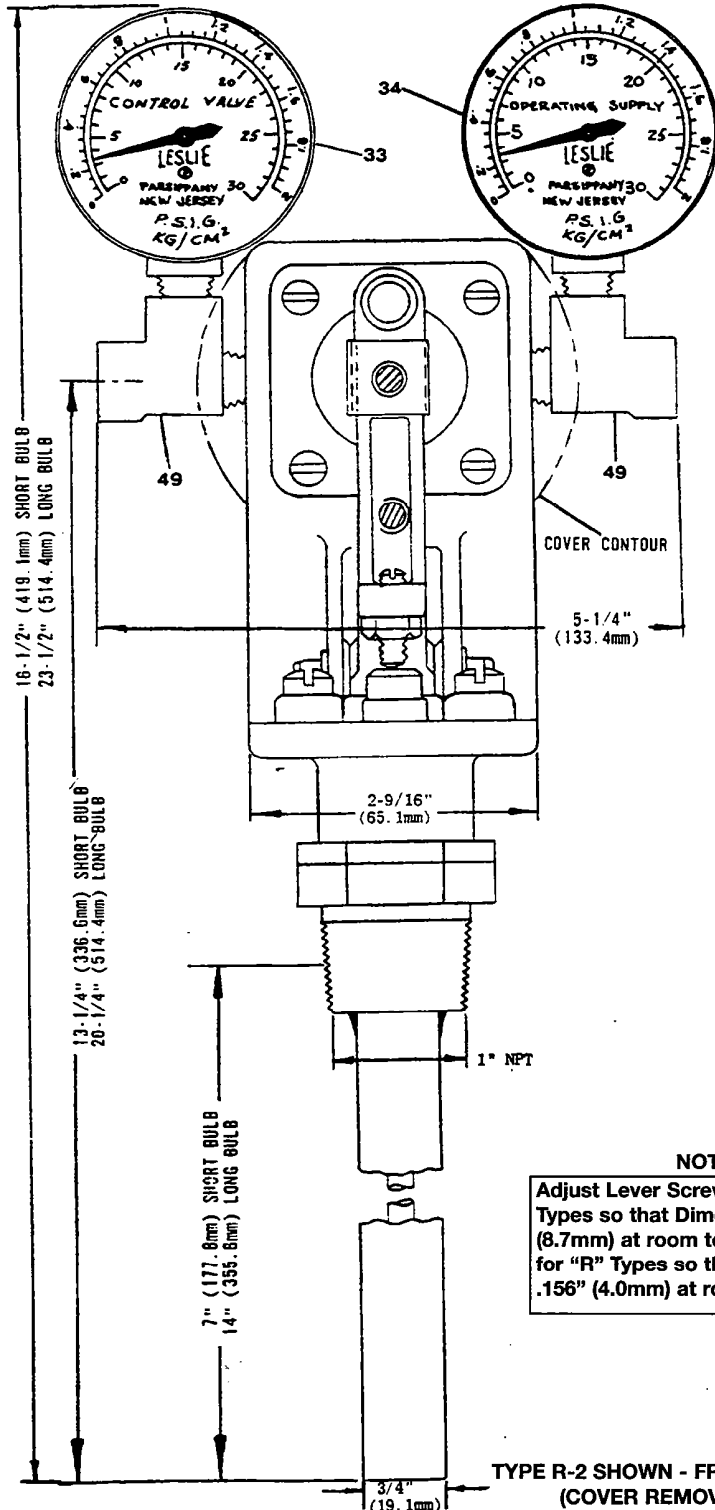


Figure 9 - Adjustable Proportional Band Type RTP

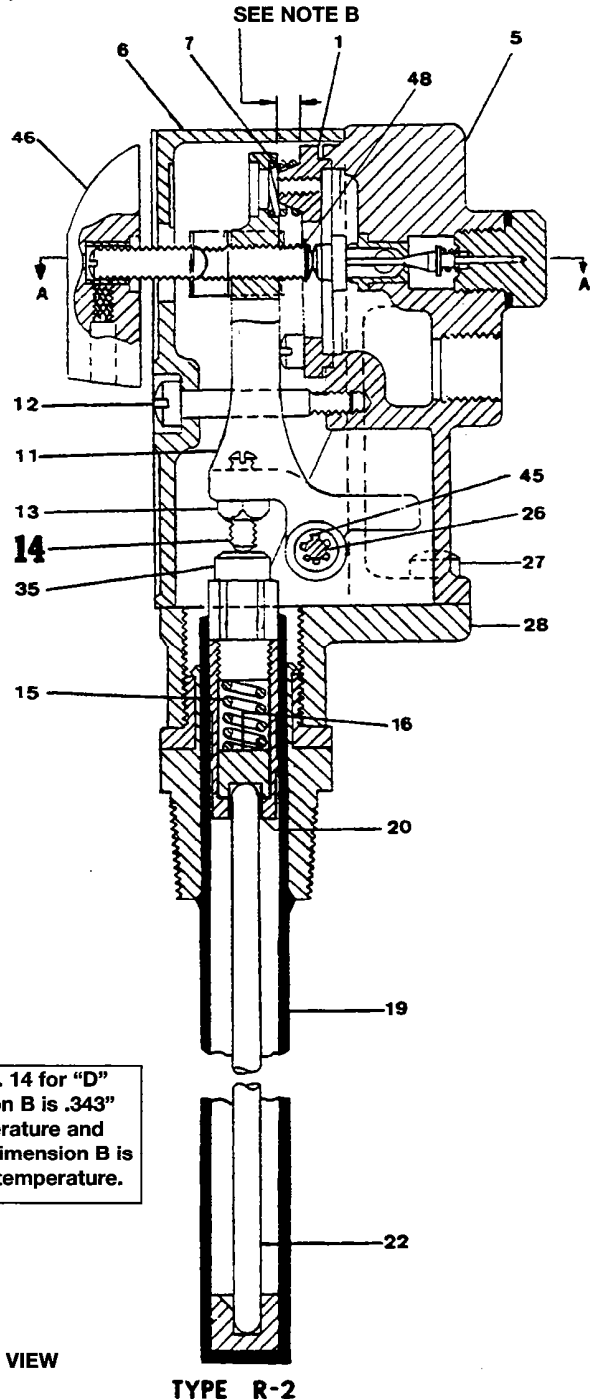
PARTS LIST

TYPES D-2, DQ-2, DTP-2, DTHP-2, R-2, RQ-2, RTP-2 AND RTHP-2

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



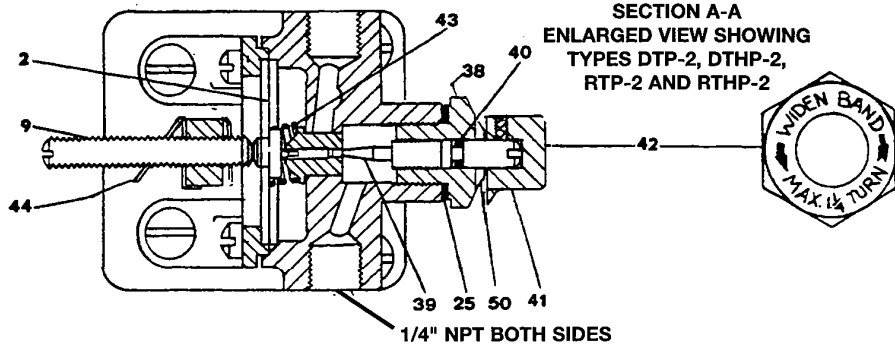
PRESSURE SENSITIVE
ADHESIVE "TYPE" LABEL
(47) APPLIED HERE



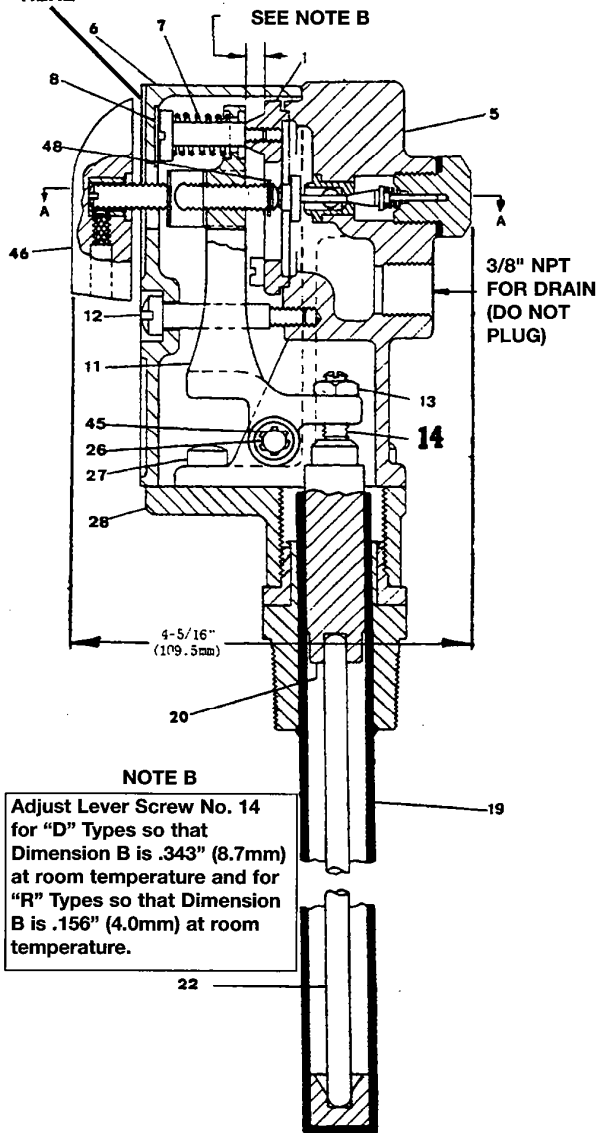
NOTE B

Adjust Lever Screw No. 14 for "D" Types so that Dimension B is .343" (8.7mm) at room temperature and for "R" Types so that Dimension B is .156" (4.0mm) at room temperature.

TYPES D-2, DQ-2, DTP-2, DTHP-2, R-2, RQ-2, RTP-2 AND RTHP-2



PRESSURE SENSITIVE ADHESIVE "TYPE" LABEL(47) APPLIED HERE



SEE NOTE B

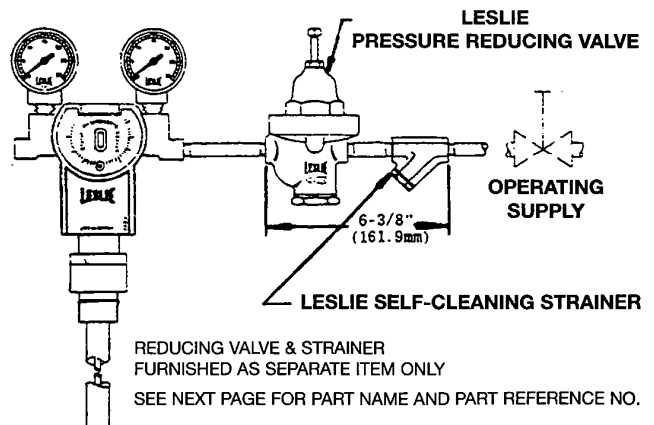
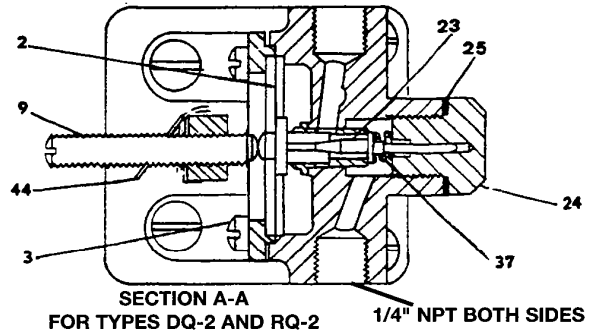
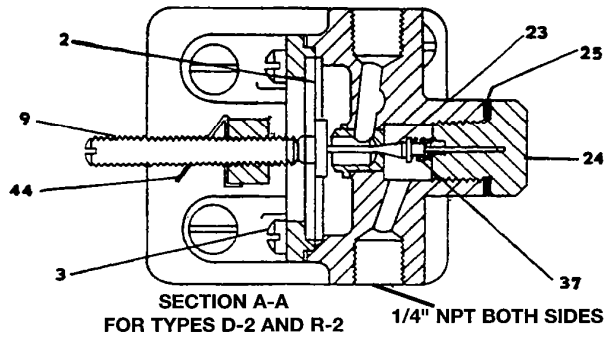
3/8" NPT FOR DRAIN (DO NOT PLUG)

NOTE B

Adjust Lever Screw No. 14 for "D" Types so that Dimension B is .343" (8.7mm) at room temperature and for "R" Types so that Dimension B is .156" (4.0mm) at room temperature.

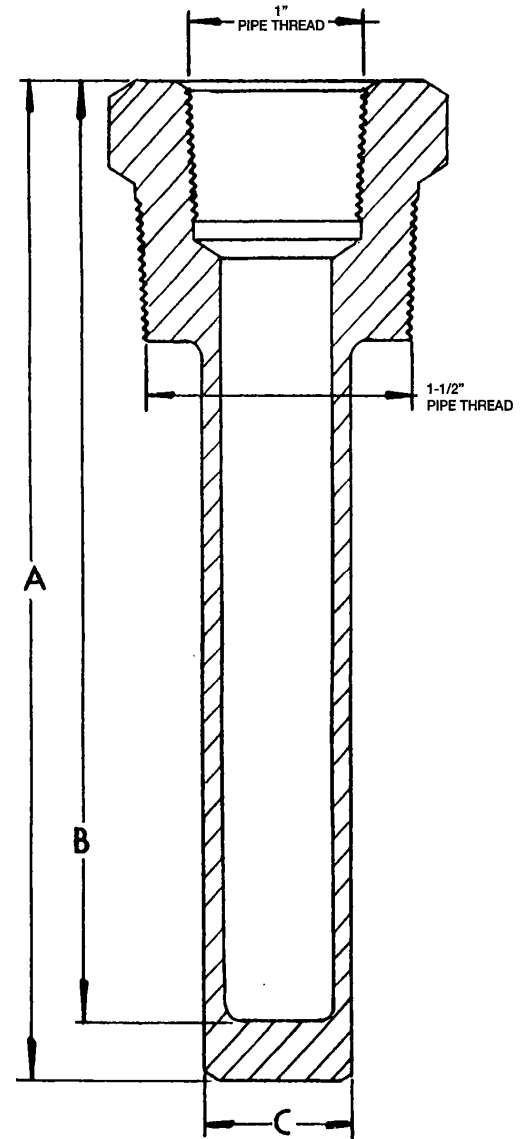
TYPE D-2

NET WEIGHT - 7 LB (3.2kg) APPROXIMATE



REDUCING VALVE & STRAINER FURNISHED AS SEPARATE ITEM ONLY
SEE NEXT PAGE FOR PART NAME AND PART REFERENCE NO.

Type Casing	Maximum Working Pressure	Material	Ref. No.	Dimensions		
				A	B	C
SHORT 1/8	1,000 P.S.I	Monel	56330	7-1/4	6-7/8	1
		Stainl. Steel, Carpenter 20	45862			
		Stainless Steel, 316				
	2,000 P.S.I	Stainless Steel, 304	23954	7-1/4	6-7/8	1-
		Stainless Steel, 316				
		Stainless Steel, 304	32200			
LONG 1/8	1,000 P.S.I	Stainless Steel, 316		14-3/4	14-3/8	1
		Stainless Steel, 304	22632			
		Monel	22000			
	2,000 P.S.I	Stainless Steel, 316		14-3/4	14-3/8	1-
		Stainless Steel, 304				
SPECIAL ONE PIECE CONSTRUCTION						
SHORT	1,000 P.S.I	Stainless Steel, 316	48552	7-1/4	6-7/8	1
LONG	1,000 P.S.I	Stainless Steel, 316	50022	14-3/4	14-3/8	1'



TYPES D-2, DQ-2, DTP-2, DTHP-2, R-2, RQ-2, RTP-2 AND RTHP-2
 WHEN ORDERING PARTS, PLEASE GIVE PART NAME AND PART REFERENCE NUMBER FROM TABLE BELOW
 USE PART NUMBER ONLY TO LOCATE PART ON DRAWING ON PAGE 11

TYPE	DESCRIPTION
D-2	Direct Acting - Fixed Proportional Band. Air, non-corrosive gas or water as operating medium.
R-2	Reverse Acting - Fixed Proportional Band. Air, non-corrosive gas or water as operating medium.
DQ-2	Similar to D-2 except larger pilot valve porting permitting the use of water or other non-corrosive liquids of low viscosity as operating medium or higher volume output for air or non-corrosive gas as operating medium.
RQ-2	Similar to R-2 except larger pilot valve porting permitting the use of water or other non-corrosive liquids of low viscosity as operating medium or higher output for air or non-corrosive gas as operating medium.
DTP-2	Direct Acting - Adjustable Proportional Band. Air or non-corrosive gas as operating medium.
RTP-2	Reverse Acting - Adjustable Proportional Band. Air or non-corrosive gas as operating medium.
DTHP-2	Similar to DTP-2 except constructed for higher adjustable temperature range.
RTHP-2	Similar to RTP-2 except constructed for higher adjustable temperature range.

On all "D" (Direct Acting) types, an increase in the temperature of the control agent causes an increase in output pressure of the operating medium from the pilot controller. On all "R" (Reverse Acting) types, an increase in the temperature of the control agent causes a decrease in output pressure of the operating medium from the Pilot controller.

TYPE PILOT	D-2 & R-2		DQ-2 & RQ-2		DTP-2 & RTP-2				DTHP-2 & RTHP-2 (1)	
	MIN. BAND	MAX. BAND	MIN. BAND	MAX. BAND	MIN. BAND	MAX. BAND	MIN. BAND	MAX. BAND	MIN. BAND	MAX. BAND
ADJ. RANGE °F	32-400									
TUBE LENGTH	7°(177.8mm)	14°(355.6mm)	7°(177.8mm)	14°(355.6mm)	7°(177.8mm)	14°(355.6mm)	7° (177.8mm)			
PROP. BAND 20 PSI SUPPLY 3-15 PSI OUTPUT IN °F	4.8	3.0	13.3	8.0	15	50	8	30	15	50
AVER. LOADING CAP. 20 PSI SUPPLY 3-15 PSI OUPUT	.45 cfm AIR .120 gpm WATER		1.26 cfm AIR .336 gpm WATER		.06 cfm AIR	.72 cfm AIR	.06 cfm AIR	.72 cfm AIR	.06 cfm AIR	.72 cfm AIR

(1) DTHP-2 & RTHP-2 available with 7*(177.8mm) tube only.

TYPES D-2, DQ-2, DTP-2, DTHP-2, R-2, RQ-2, RTP-2 AND RTHP-2

PART NO.	PART NAME	MATERIAL	MATERIAL SPEC	QTY. PER UNIT	REFERENCE NUMBERS - EACH TYPE					
					DTP-2	DTHP-2	R-2	RQ-2	RTP-2	RTHP-2
1	Diaphragm Plate	Cast Aluminum	ASTM B-108	1	58563	58563	58059	58059	58563	58563
2	Diaphragm, Complete (NOTE 1)	Phosphor Bronze	ASTM B-103	1	21996	21996	10895	10895	21996	21996
3	Screw	Brass	Commercial	4	9981	9981	9981	9981	9981	9981
5	Body	Cast Bronze	ASTM B-61	1	20676	20676	11764	38258	20676	20676
6	Cover	Cast Aluminum	ASTM B-26 Alloy B443.0	1	58048	58048	58048	58048	58048	58048
7	Lever Spring	(NOTE 2)	(NOTE 2)	1	58085	58085	58086	58086	58086	58086
8	Lever Spring Screw	Brass	ASTM B-16	1	9986	9986	--	--	--	--
9	Adjusting Screw	Brass	ASTM B-16	1	58089	58089	58089	58089	58089	58089
11	Lever	Brass	ASTM B-146	1	58060	58060	58060	58060	58060	58060
12	Cover Screw	Brass	Commercial	1	58090	58090	58090	58090	58090	58090
13	Nut	Brass	ASTM B-16	1	9734	9734	9734	9734	9734	9734
14	Lever Screw	Brass	ASTM B-16	1	9984	9984	9984	9984	9984	9984
15	Plunger Spring	Monel	ASTM B-164 Cl. B	1	--	--	1030	10130	10130	10130
16	Spring Seat	Brass	ASTM B-16	1	--	--	9979	9979	9979	9979
19	Thermo Tube, Complete, 14" Length	Brass	Commercial	1	10127	--	10127	10127	10127	--
19	Thermo Tube, Complete, 14" Length	Stainless Steel	AISI Type 316	1	12991	--	12991	12991	12991	--
19	Thermo Tube, Complete, 7" Length	Brass	ASTM B-16	1	10608	--	10608	10608	10608	--
19	Thermo Tube, Complete, 7" Length	Stainless Steel	AISI Type 316	1	21536	21536	21536	21536	21536	21536
20	Plunger	Brass	ASTM B-16	1	9985	9985	9977	9977	9977	9977
22	Rod, 14" Length	Steel	Carpenter Invar #36	1	9976	--	9976	9976	9976	--
22	Rod, 7" Length	Steel	Carpenter Invar #36	1	16222	20207	16222	16222	16222	20207
23	Pilot Valve	Stainless Steel	AISI Type 302/304	1	--	--	11312	11312	--	--
24	Pilot Valve Plug	Brass	ASTM B-16	1	--	--	9966	9966	--	--
25	Pilot Valve Plug Gasket	Copper	Commercial	1	10137	10137	10137	10137	10137	10137
26	Fulcrum Pin	Monel	ASTM B-164 Cl. B	1	9972	9972	9972	9972	9972	9972
27	Screw	Brass	Commercial	4	9982	9982	9982	9982	9982	9982
28	Base	Cast Bronze	ASTM B-61	1	10132	10132	10132	10132	10132	10132
33	Control Pressure Gauge	Steel Case	Black En. Finish	1	58092	58092	58092	58092	58092	58092
34	Supply Pressure Gauge	Steel Case	Black En. Finish	1	58093	58093	58093	58093	58093	58093
35	Plunger Plug	Brass	ASTM B-16	1	--	--	9978	9978	9978	9978
37	Pilot Valve Spring	Stainless Steel	AISI Type 302	1	--	--	33666	33666	--	--
38	Proportional Band Cap	Brass	ASTM B-16	1	52619	52619	--	--	52619	52619
39	Proportional Band Screw	Stainless Steel	AISI Type 302	1	52618	52618	--	--	52618	52618
40	O-ring	Synthetic Rubber	Commercial	1	52625	52625	--	--	52625	52625
41	Control Knob	Plastic	Commercial	1	53348	53348	--	--	53348	53348
42	Indicator Label	Mylar	Commercial	1	52626	52626	--	--	52626	52626
43	Diaphragm Spring	Spring Steel	ASTM A-228	1	52620	52620	--	--	52620	52620
44	Adjusting Screw Clamp	Aluminum	ASTM B-103	1	58063	58063	58063	58063	58063	58063
45	Fulcrum Pin Retaining Washer	Copper	Commercial	2	58088	58088	58088	58088	58088	58088
46	Adjusting Screw Knob, Complete	Plastic	Commercial	1	58091	58091	58091	58091	58091	58091
47	Label	Aluminum	ASTM B-209	1	58094	58094	58094	58094	58094	58094
48	Adjusting Screw Retaining Washer	Copper	Commercial	1	58257	58257	58257	58257	58257	58257
49	Street Tee (1/4)	Brass	ASTM B-16	2	28188	28188	28188	28188	28188	28188
50	Spring Washer	Cad. Plated Spring Steel	Commercial	1	58561	58561	--	--	58561	58561

FOR ALL TYPES NOT LISTED. PLEASE ORDER PARTS BY NAME AND INCLUDE RANGE, TYPE, AND SERIAL NUMBER.

☼ Recommended spare parts.

* These parts should be on hand, plus recommended spare parts, when overhauling equipment.

NOTE 1: Diaphragm; Complete, Reference Number 10895 consists of: Diaphragm, Ref. No. 9967, Material Phosphor. Bronze; two (2) Retaining Rings, Ref. No. 48065, Material Brass, and Disc, Ref. No. 11201, Material Monel; Diaphragm Complete, Ref. No. 21996 consists of: Diaphragm, Ref. No. 9967, Material Phosphor Bronze; two (2) Retaining Rings, Ref. No. 48065, Material Brass; and Disc, Ref. No. 20183, Material Monel.

NOTE 2: For Classes D-2, DQ-2, DTP-2 and DTHP-2. Material is Music Wire, Cad. Pl. For Classes R-2, RQ-2, RTP-2 and RTHP-2 Material is Stainless Steel.



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.