Installation, Operation and Maintenance Instructions

Type 1227
High Flow Gas Pressure Regulator

The Type 1227 High Flow Gas Pressure Regulator is used with natural gas, compressed air, and other gases. Depending on the configured model, the maximum possible inlet pressure is 2000 psi (138 bar) and the temperature limits are -40°F to 180°F (-40°C to 82°C). Please refer to the Type 1227 Product Specifications section to determine your model's exact specifications. The application of your regulator should not exceed any of the specified ratings.

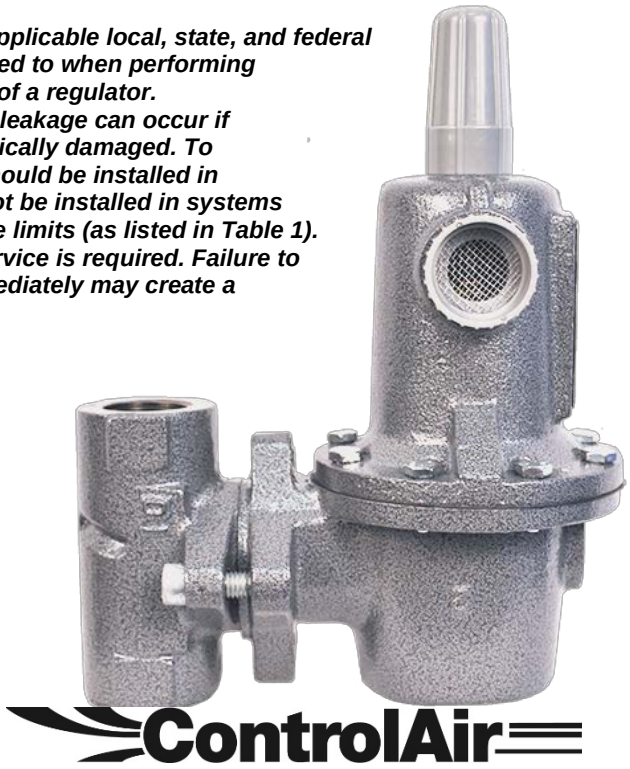
WARNING

The ControlAir Type 1227 Pressure Regulator does not include internal relief. A pressure relieving or pressure limiting device should be used to ensure that the outlet pressure does not exceed the regulator's specifications while in service. Leakage, equipment damage, or personal injury can result from over-pressuring the regulator.

NOTE: If you suspect that a product is defective, contact the factory or the ControlAir Representative in your area for a return material authorization number (RMA). This product should only be installed by trained and competent personnel.

WARNING

All ControlAir instructions, as well as applicable local, state, and federal codes and regulations should be adhered to when performing installation, operation, or maintenance of a regulator. Personal injury, equipment damage, or leakage can occur if the regulator is over-pressured or physically damaged. To avoid physical damage the regulator should be installed in a safe location. The regulator should not be installed in systems that could exceed its specified pressure limits (as listed in Table 1). If leakage develops, then immediate service is required. Failure to remove the regulator from service immediately may create a hazardous situation.



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1. SPECIFICATIONS

Body Sizes (inches)	3/4", 1" or 2" NPT	
Output Ranges	5-20 psig (0.4-1.4 bar), 15-40 psig (1.0-2.8 bar), 10-95 psig (0.7-6.4 bar), 35-80 psig (2.4-5.5 bar), 70-150 psig (4.8-10.3 bar)	
Max. Inlet Pressure	See Table 1	
Body Inlet Pressure Rating	LCC Steel: 2,000 psi (138 bar)	
Valve Disk Inlet Pressure Rating	Nitrile (NBR) Disk: 1,000 psi (69 bar) Nylon (PA) Disk: 2,000 psi (138 bar) Fluorocarbon (FKM) Disk: 300 psi (20.7 bar)	
Orifice Sizes	3/32", 1/8", 3/16", 1/4", 3/8", 1/2"	
Maximum Flow Coefficients (Cv)	See Table 2	
Flow Capacities	See Table 3	
Temperature Limits	**Elastomer Material Valve/Disk Diaphragm**	**Body Material**
	Nitrile (NBR) & Nylon (PA): -40° to 180° F (-40° C to 82° C) Fluorocarbon (FKM): 0° to 180° F (-18° to 82° C)	LCC Steel: -40° to 180° F (-40° C to 82° C)
Weight	3/4" NPT Body: 6.5 lbs. (3 kg) 1" NPT Body: 6.5 lbs. (3 kg) 2" NPT Body: 10 lbs. (4.5 kg)	
Operating Media	compressed air, natural gas, other inert gasses	

MATERIALS OF CONSTRUCTION

	Standard (S)	**NACE (N)**
Body	LCC Steel	LCC Steel
Bonnet, Diaphragm Case	Aluminum	Aluminum
Diaphragm	Nitrile	Fluorocarbon
Valve Disk	Nitrile Nylon (option)	Fluorocarbon
Trim	Aluminum Stainless (option)	Stainless Steel

Table 1 Maximum Inlet Pressure by Output Range, Orifice Size, and Disk Material

Output Range**	Orifice Size		Maximum Inlet Pressure					
			Fluorocarbon (FKM) Disk		Nitrile (NBR) Disk		Nylon (PA) Disk (option)	
	in.	mm	psi	bar	psi	bar	psi	bar
5-20 psi (0.4-1.4 bar)	3/32	2.4	300	20.7	1000	69	2000	138
	1/8	3.2	300	20.7	1000	69	1000	69
	3/16	4.8	300	20.7	750	51.7	750	15.7
	1/4	6.4	300	20.7	500	34.5	500	34.5
	3/8	9.5	300	20.7	300	20.7	300	20.7
	1/2	13	300	20.7	250	17.2	250	17.2
15-40 psi (1.0-2.8 bar)	3/32	2.4	300	20.7	1000	69	2000	138
	1/8	3.2	300	20.7	1000	69	1500	103
	3/16	4.8	300	20.7	1000	69	1000	69
	1/4	6.4	300	20.7	750	51.7	750	51.7
	3/8	9.5	300	20.7	500	34.5	500	34.5
	1/2	13	300	20.7	300	20.7	300	20.7

Table 1 Maximum Inlet Pressure by Output Range, Orifice Size, and Disk Material – continued

35-80 psi (2.4-5.5 bar)	3/32	2.4	300	20.7	1000	69	2000	138
	1/8	3.2	300	20.7	1000	69	2000	138
	3/16	4.8	300	20.7	1000	69	1750	121
10-95 psi (0.7-6.4 bar)	1/4	6.4	300	20.7	1000	69	1500	103
	3/8	9.5	300	20.7	1000	69	1000	69
	1/2	13	300	20.7	750	51.7	750	51.7
70-150 psi (4.8-10.3 bar)	3/32	2.4	300	20.7	1000	69	2000	138
	1/8	3.2	300	20.7	1000	69	2000	138
	3/16	4.8	300	20.7	1000	69	2000	138
	1/4	6.4	300	20.7	1000	69	1750	121
	3/8	9.5	300	20.7	1000	69	1250	86.2
	1/2	13	300	20.7	750	51.7	750	51.7

Table 2 Cv Values

Orifice Size		Cv Value		
in.	mm	3/4" NPT Body	1" NPT Body	2" NPT Body
3/32	2.4	0.21	0.24	0.23
1/8	3.2	0.43	0.43	0.42
3/16	4.8	1.01	0.93	1.02
1/4	6.4	1.63	1.71	1.66
3/8	9.5	2.99	3.42	3.39
1/2	13	4.89	5.29	5.01

Table 3 Flow Capacities in SCFH at 20% droop of Natural Gas (0.6 Specific Gravity)

Output Range	Set Point (psi)	Inlet Pressure (psi)	3/4" NPT Body Size						1" NPT Body Size						2" NPT Body Size					
			3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2
5-20 psi (0.4-1.4 bar)	5	10	170	320	700	1060	1540	1900	170	330	710	1100	1900	2500	170	330	710	1080	1700	2400
		20	290	460	1140	1800	3050	4350	290	500	1160	2060	3400	4450	290	500	1160	1900	2650	3900
		60	640	1170	2550	4240	6270	7370	640	1170	2600	4710	8140	13700	640	1170	2600	4750	7250	17800
		100	990	1800	3800	5980	7440	7900	990	1800	4070	7310	12500	16000	990	1790	4070	7310	16200	28700
	10	15	210	320	800	1290	2100	3300	210	375	880	1590	2480	3300	210	375	880	1220	1860	2670
		30	380	810	1530	2480	3860	6830	380	670	1560	2800	4720	6840	380	670	1560	2760	3640	6460
		75	770	1410	3020	5100	6620	7700	770	1410	3150	5710	9790	14500	770	1410	3150	5700	8060	22400
		150	1420	2580	5700	7130	8180	8200	1420	2580	5850	10500	17000	18000	1420	2580	5850	10500	23300	25900
		300	2700	4910	8000	8050	8250		2700	4910	11200	19800	20000		2700	4910	11200	10300	12800	
		750	4400	8930	8950				5400	12000	18000				6600	12000	27200			
		1250	4540						6300						11000					
		1750	5230						6800						15000					
		2000	5900						7600						6300					
	20	30	350	620	1400	2490	4360	6290	350	620	1450	2580	4360	6290	350	62	145	2350	4300	6110
		60	640	1170	2640	4680	8340	8940	640	1170	2640	4750	9690	14500	640	1170	2640	4750	8400	15700
		150	1420	2580	5850	10400	12100	13100	1420	2580	5850	10500	17700	34200	1420	2580	5850	10500	23300	29000
		300	2700	4910	11200	13000	15600		2700	4910	11200	20100	37000		2700	4910	11200	20100	19600	
		750	6600	12,000	14,200				6600	12000	23600				6600	12000	27200			
		1250	7500						10000						11000					
		1750	8400						12000						15000					
		2000	8600						14000						6300					
15-40 psi (1.0-2.8 bar)	40	60	610	1090	2530	4350	8140	9420	610	1090	2530	4510	9290	9420	610	1090	2530	4370	8680	13300
		100	990	1790	4070	7220	13200	15300	990	1790	4070	7310	14700	21900	990	1800	4070	7310	16200	25400
		200	1850	3370	7630	13500	18000	18500	1850	3370	7630	13700	27100	46400	1850	3370	7630	13700	30400	53900
		500	4400	8090	18300	24000	27000		4400	8090	18300	32900	63900		4400	8090	18300	32900	22000	
		1000	8700	16000	24400				8700	16000	36100				8700	16000	36100			
		1500	12000	21000					13000	22000					13000	22000				
		2000	14000						17000						17000					

Table 3 Flow Capacities in SCFH at 20% droop of Natural Gas (0.6 Specific Gravity) - continued

			Orifice Size (in.)																	
35-80 psi (2.4-5.5 bar)	60	100	970	1740	4010	6990	12800	17300	970	1740	4010	7000	13000	19300	970	1740	4010	7000	15000	20400
		200	1850	3370	7630	13500	21600	27400	1850	3370	7630	13700	24000	42200	1850	3370	7630	13700	30400	53900
		500	4400	8090	18300	28100	28900	33400	4400	8090	18300	32900	64000	94300	4400	8090	18300	32900	73000	38800
		1000	8700	16,000	30,000	31,200	37400		8700	16000	36100	50300	67700		8700	16000	36100	43000	52000	
		1500	13000	22,000	30400	36000			13000	22000	54000	63000			13000	22000	54000	43000		
		2000	17000	28000					17000	28000					17000	28000				
	80	150	1410	2580	5850	10200	19600	25700	1410	2580	5850	10500	21100	33600	1410	2580	5850	10500	23300	41300
		300	2700	4910	11200	19800	32700	33500	2700	4910	11200	20100	43300	75400	2700	4910	11200	20100	44600	79000
		750	6600	12000	27200	35000	44000	46000	6600	12000	27200	48900	105500	135000	6600	12000	27200	48900	87000	44000
		1250	11000	19000	37000	40000			11000	19000	45000	80000			11000	19000	45000	63000		
		1750	15000	25000	42000				15000	25000	63000				15000	25000	63000			
		2000	17000	28000					17000	28000					28000	71000				
70-150 psi (4.8-10.3 bar)	100	150	1170	2510	5540	8710	16000	20300	1170	2510	5540	8710	16000	24000	1170	2510	5540	8600	16000	22000
		300	2700	4910	11200	19400	30000	31700	2700	4910	11200	19400	30100	53200	2700	4910	11200	20100	35000	65300
		500	4400	8090	18300	31800	39000	39200	4400	8090	18300	31800	66500	83900	4400	8090	18300	32900	73000	129000
		1000	8700	16000	36100	40000	40500	47000	8700	16000	36100	59700	100000		8700	16000	36100	64800	82000	
		1500	13000	22000	43000	44000			13000	22000	54000	86000			13000	22000	54000	96000		
		2000	17000	28000	46000				17000	28000	71000				17000	28000	71000			
	125	200	1830	3320	7550	13160	22500	28600	1830	3320	7550	13400	28100	32800	1830	3320	7550	13700	24000	36000
		500	4400	8090	18300	32500	43800	51700	4400	8090	18300	32900	70800	109000	4400	8090	18300	32900	73000	129000
		1000	8700	16000	36100	50000	52900	72000	8700	16000	36100	64800	138000	160000	8700	16000	36100	64800	58000	
		1500	13000	22000	51000	56000			13000	22000	54000	96000			13000	22000	54000	96000		
		2000	17000	28000	53000				17000	28000	71000				17000	28000	71000			
	150	300	2700	4910	11200	17200	34700	46000	2700	4910	11200	17200	40100	55900	2700	4910	11200	20100	44600	64200
		500	4400	8090	18300	32500	48900	59700	2700	4910	11200	17200	40100	55900	2700	4910	11200	20100	44600	64200
		750	6600	12000	27200	48300	59000	72000	6600	12000	27200	48900	104000	160000	6600	12000	27200	48900	108000	62000
		1250	11000	19000	45000	68000	90000		11000	19000	45000	80000	150000		11000	19000	45000	80000	81000	
		1750	15000	25000	63000	77000			15000	25000	63000	112000			15000	25000	63000	112000		
		2000	17000	28000	71000				17000	28000	71000									

2. INSTALLATION

See page 8 for Parts List references.

NOTE: If continued operation is necessary during installation or maintenance then a three-valve bypass should be installed around the position of the regulator.

1. Remove all packaging plugs from the regulator body inlet and outlet connections.
2. Carefully inspect the regulator for damage or debris. The regulator's inlet and outlet connections should be cleaned and free of debris before installation.
3. Ensure that all piping that is to be connected to the regulator is clean of foreign matter as well.
4. Apply pipe joint material to the piping threads that will be connected to the regulator.
5. Shut down the process before connecting the regulator.
6. Connect the regulator so that the process flows in the direction of the arrow on the body (9).

WARNING

Under certain conditions, this regulator may vent gas to the atmosphere. If operating in a hazardous process, this gas must not be allowed to accumulate and/or ignite. The user must be sure to vent the exhaust to a safe location away from any air intakes or possible ignition sources. The vent line must also be protected against clogging and condensation. Failure to safely vent hazardous gas from the regulator exhaust could result in personal injury, death, or property damage if a fire or explosion were to occur.

7. The regulator must be oriented such that the vent assembly (26) is protected against clogging. If the regulator is being installed outside, position the vent facing downward to prohibit moisture and debris from falling directly into the vent. This may require the stem guide (14) and/or diaphragm housing (10) to be repositioned.

NOTE: Refer to Page 5 for assistance with "Rotating the Spring Bonnet" procedure.

NOTE: Refer to Page 6 for assistance with "Adjusting the Diaphragm Housing Orientation".

WARNING ***Use pressure gauges to monitor the outlet pressure of the regulator during startup and vent the downstream pressure if necessary. The presence of downstream pressure during the startup of the regulator may cause the diaphragm of the regulator to be over-pressured. This condition could cause personal injury or property damage if the regulator is over-pressured to the point of explosion.***

8. Slowly begin flowing gas through the regulator.
9. Verify that the regulator is not leaking from any connection points.
10. Proceed to the Calibration section.

3. CALIBRATION

CAUTION ***While calibrating the unit always use a pressure gauge to monitor the pressure.***

CAUTION ***Under normal circumstances, the outlet pressure should not exceed the output range of the spring.***

1. Remove the adjustment screw cap (27).
2. Loosen the hex nut (32).
3. To increase the set point, rotate the adjustment screw (34) clockwise.
4. To decrease the set point, rotate the adjustment screw (34) counter-clockwise.
5. Once desired set point has been achieved, re-tighten the hex nut (32) while keeping the adjustment screw's (34) position fixed.
6. Reinstall the adjustment screw cap (27) to prevent accidental set point adjustment.

4. MAINTENANCE

Regulators accumulate general wear over time and must be inspected/evaluated for the possible need to repair or replace the instrument in accordance with local, state, and federal rules and regulations. ControlAir offers spare parts and repair kits for customers to order and keep on hand for routine maintenance.

WARNING ***To avoid personal injury or equipment damage resulting from sudden release of pressure or ignition of accumulated gas, isolate the regulator from the system and bleed all of its internal pressure before attempting maintenance procedures.***

ROTATING THE SPRING BONNET

CAUTION ***Before proceeding, remove the adjustment screw cap (27), loosen the hex nut (32), and release all spring tension by rotating the adjustment screw (34) counter-clockwise until the range spring (21) is completely relaxed.***

1. Remove the eight build bolts (33) and rotate the spring bonnet (11) into the desired orientation.
2. Insert and hand-tighten the build bolts (33) back into the spring bonnet (11).
3. Rotate the adjustment screw (34) clockwise putting tension back on the range spring (21) and slack in the diaphragm (23).
4. Complete tightening the build bolts (33).

IMPORTANT ***Tighten the eight build bolts (33) in a crisscross pattern.***

5. Re-calibrate the regulator to the desired set point per Calibration procedure.

ADJUSTING THE DIAPHRAGM HOUSING ORIENTATION

CAUTION

Before proceeding, remove the adjustment screw cap (27), loosen the hex nut (32), and add spring tension by rotating the adjustment screw (34) clockwise for 6 complete turns past the point it first contacts the spring guide (20). This separates the disk assembly (31) from the orifice (22) so neither becomes damaged during maintenance.

1. Remove the two body screws (28) that hold the body (9) and diaphragm housing (10) together.
2. With the body (9) and diaphragm housing (10) disconnected, reorient them to the desired position and reconnect.

   NOTE: When reassembling the body (9) and diaphragm housing (10), the pitot tube extending off the booster insert (17) must be inserted into the outlet side of the regulator body (9).

3. Insert the body screws (28) and tighten.
4. Re-calibrate the regulator to the desired set point per calibration procedure.

REPLACING THE ORIFICE

CAUTION

Before proceeding, remove the adjustment screw cap (27), loosen the hex nut (32), and add spring tension by rotating the adjustment screw (34) clockwise for 6 complete turns past the point it first contacts the spring guide (20). This separates the disk assembly (31) from the orifice (22) so neither becomes damaged during maintenance.

1. Remove the two body screws (28) that hold the body (9) and diaphragm housing (10) together.
2. The orifice (22) is threaded into the body (9). Remove the worn orifice.

IMPORTANT

Before installing the replacement orifice (22) and O-ring (3) into the body (9), apply lubricant to the O-ring.

3. Attach the replacement orifice (22) to the body (9) and tighten.

   NOTE: When reassembling the body (9) and diaphragm housing (10), the pitot tube extending off the booster insert (17) must be inserted into the outlet side of the regulator body (9).

4. Ensure the body (9) and diaphragm housing (10) are positioned correctly and then insert the body screws (28) and tighten.
5. Re-calibrate the regulator to the desired set point per Calibration procedure.

REPLACING THE VALVE DISK ASSEMBLY and DIAPHRAGM HOUSING O-RING

CAUTION

Before proceeding, remove the adjustment screw cap (27), loosen the Hex nut (32), and add spring tension by rotating the adjustment screw (34) clockwise for 6 complete turns past the point it first contacts the spring guide (20). This separates the disk assembly (31) from the orifice (22) so neither becomes damaged during maintenance.

1. Remove the two body screws (28) that hold the body (9) and diaphragm housing (10) together.
2. The disk assembly (31) is attached to the stem (15) with a retainer clip (29). Remove the retainer clip and worn disk assembly.
3. Replace the diaphragm casing O-ring (3) which is located on the outside of the booster insert (17).

IMPORTANT

Apply lubricant to the replacement diaphragm casing O-ring (3) before installing it onto the booster insert (17).

4. Align the hole in the stem (15) with the hole in the replacement disk assembly (31) and secure using the retainer clip (29).
5. With the body (9) and diaphragm housing (10) disconnected, reorient them to the desired position and reconnect.

NOTE: When reassembling the body (9) and diaphragm housing (10), the pitot tube extending off the booster insert (17) must be inserted into the outlet side of the regulator body (9).

6. Insert the body screws (28) and tighten.
7. Re-calibrate the regulator to the desired set point per Calibration procedure.

REPLACING THE DIAPHRAGM OR SPRING

CAUTION ***Before proceeding, remove the adjustment screw cap (27), loosen the Hex nut (32), and release all spring tension by rotating the adjustment screw (34) counter-clockwise until the range spring (21) is completely relaxed.***

1. Remove the eight build bolts (33) and separate the spring bonnet (11) and diaphragm housing (10).
2. To replace the diaphragm, continue to #3. To replace the spring, go to #9.
3. Tilt the diaphragm housing (10) so that the pusher post (30) slides off the lever (13) allowing the diaphragm assembly to be removed.

   NOTE: The diaphragm assembly consists of the pusher post (30), diaphragm (23), piston (18), lower spring guide (19), and hex head screw (36).

4. Unscrew the hex head screw (36) from the pusher post (30) and separate them. Remove the worn diaphragm (23).
5. Install the replacement diaphragm (23) onto the hex head screw (36) and thread the hex head screw (36) back into the pusher post (30) until hand-tight.
6. Attach the underside of the pusher post (30) onto the lever (13) by hooking it into place. Rotate the diaphragm (23) until the holes in the diaphragm (23) are aligned with the holes in the diaphragm housing (10).
7. Now that the diaphragm (23) is oriented properly, remove the diaphragm assembly by unhooking the pusher post (30) from the lever (13). Complete tightening the hex head screw (36).
8. As done in step 5, re-hook the pusher post (30) back onto the lever (13) and double-check to ensure the diaphragm (23) and diaphragm housing (10) holes are still aligned.

IMPORTANT ***If the diaphragm (23) and diaphragm housing (10) holes have become misaligned, undo the hex head screw (36), turn the diaphragm (23) so the holes match up again, and then re-torque the hex head screw (36) back into the pusher post (30).***

9. If replacing the spring, remove the original spring (21) and replace with new desired range.
10. Install the range spring (21) on top of the lower spring guide (19) and place the spring guide (20) atop the range spring (21).

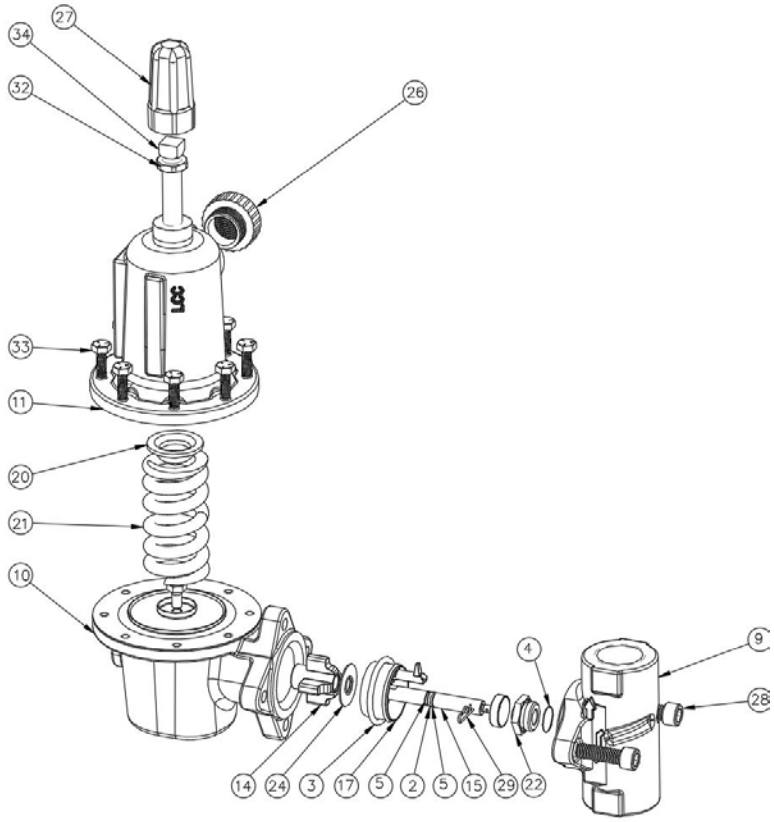
IMPORTANT ***Apply lubricant to the spring guide (20) before assembling with the range spring (21).***

11. Place the spring bonnet (11) back on top of the diaphragm housing (10) and ensure the location of the vent assembly (26) is in the desired position.
12. Insert and hand-tighten the build bolts (33) back into the spring bonnet (11).
13. Rotate the adjustment screw (34) clockwise putting tension back on the range spring (21) and slack in the diaphragm (23).
14. Complete tightening the build bolts (33).

IMPORTANT ***Tighten the eight build bolts (33) in a crisscross pattern.***

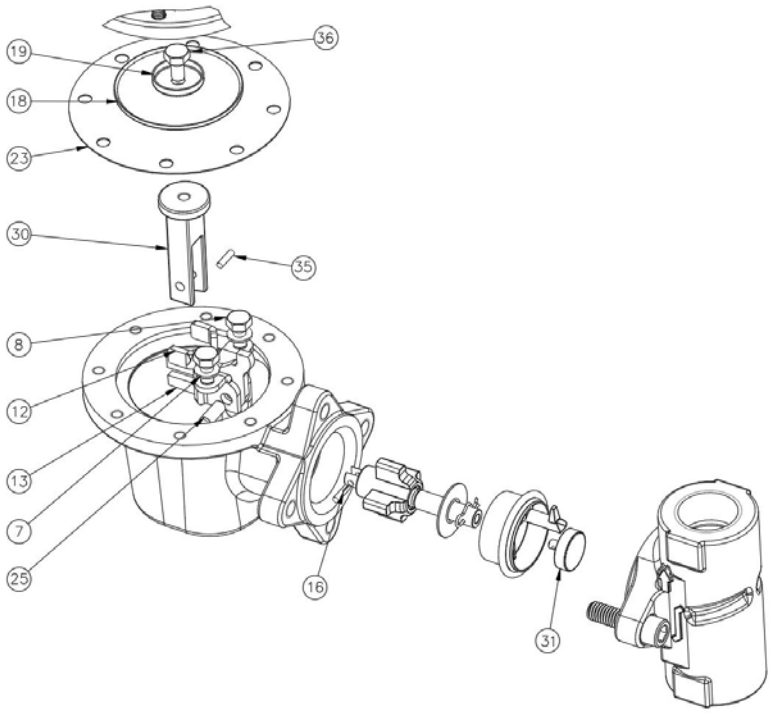
15. Re-calibrate the regulator to the desired set point per Calibration procedure.

5. PARTS LIST



Item	Description	Qty.
2	O-RING, -010 B-N 70D	1
3*	O-RING, -222 B-N 75D	1
4	O-RING, -017 B-N 90D	1
5	BACKUP RING	2
9	BODY	1
10	DIAPHRAGM HOUSING	1
11	SPRING BONNET	1
14	STEM GUIDE	1
15	STEM	1
17	BOOSTER INSERT	1
20	SPRING GUIDE	1
21	RANGE SPRING	1
22	ORIFICE	1
24	STABILIZER GASKET	1
26	VENT ASSEMBLY	1
27	ADJUSTMENT SCREW CAP	1
28	BODY SCREW	2
29*	RETAINER CLIP	1
32	HEX NUT	1
33	BUILD BOLTS	8
34	ADJUSTMENT SCREW	1

*Included with ControlAir Regulator Repair Kit



Item	Description	Qty.
7	LOCK WASHER	2
8	LEVER SCREW	3
12	LEVER RETAINER	1
13	LEVER	1
16	GROOVED PIN	1
18	PISTON	1
19	LOWER SPRING GUIDE	1
23*	DIAPHRAGM	1
25	LEVER PIN	1
30	PUSHER POST	1
31*	DISK ASSEMBLY	1
35	PUSHER POST PIN	1
36	HEX HEAD SCREW	1

*Included with ControlAir Regulator Repair Kit

6. REPAIR KITS

ORIFICE REPLACEMENT KITS

Material	O-Ring Material*	Size		Part No.
Aluminum	Nitrile (NBR)	3/32”	2.4 mm	449-871-179
		1/8”	3.2 mm	449-871-180
		3/16”	4.8 mm	449-871-181
		1/4"	6.4 mm	449-871-182
		3/8”	9.5 mm	449-871-183
		1/2"	13 mm	449-871-184
Stainless Steel		3/32”	2.4 mm	449-871-185
		1/8”	3.2 mm	449-871-186
		3/16”	4.8 mm	449-871-187
		1/4"	6.4 mm	449-871-188
		3/8”	9.5 mm	449-871-189
		1/2"	13 mm	449-871-190
Aluminum	Fluorocarbon (FKM)	3/32”	2.4 mm	449-871-191
		1/8”	3.2 mm	449-871-192
		3/16”	4.8 mm	449-871-193
		1/4"	6.4 mm	449-871-194
		3/8”	9.5 mm	449-871-195
		1/2"	13 mm	449-871-196
Stainless Steel		3/32”	2.4 mm	449-871-197
		1/8”	3.2 mm	449-871-198
		3/16”	4.8 mm	449-871-199
		1/4"	6.4 mm	449-871-200
		3/8”	9.5 mm	449-871-201
		1/2"	13 mm	449-871-202

*O-Ring Material will match Diaphragm Material when ordered as a complete assembled.

Replacement Springs

Color (Range)	Part No.
Yellow Spring 5-20 psig (0.3-1.4 bar)	446-755-202K
Green Spring 15-40 psig (1-2.8 bar)	446-755-203K
Blue Spring 35-80 psi (2.4 bar)	446-755-204K
Blue Spring 10-95 psi (0.7-6.4 bar)	446-755-204K
Red Spring 70-150 psi (4.8-10.3 bar)	446-755-205K

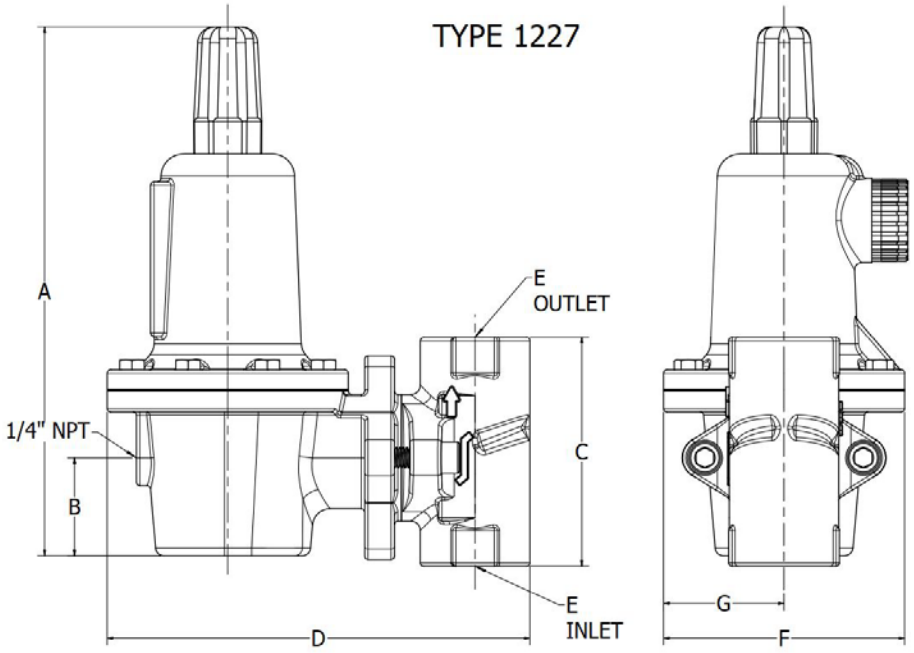
Regulator Repair Kit

Materials of Construction	Part No.
Nitrile / Aluminum Trim	449-871-175
Nitrile / Stainless Steel Trim	449-871-176
Fluorocarbon / Aluminum Trim	449-871-177
Fluorocarbon / Stainless Steel Trim	449-871-178

Regulator Repair Kits include: O-Ring and Backup O-Rings, Diaphragm Housing O-Ring, Diaphragm, Retainer Clip, and Disk Assembly.

NOTE: The Regulator Repair Kits listed in this General Instructions use Nitrile (NBR) for the Diaphragm material. Repair Kits with alternative Regulator/Trim/Diaphragm material combinations can be provided upon request. Consult factory for details.

7. DIMENSIONS



PORT SIZE (NPT)	A	B	C	D	E	F	G
3/4"	9.41 [239.0]	1.75 [44.4]	4.07 [103.4]	7.52 [191.1]	3/4" NPT	4.29 [109.0]	2.15 [54.5]
1"	9.41 [239.0]	1.75 [44.4]	4.07 [103.4]	7.52 [191.1]	1" NPT	4.29 [109.0]	2.15 [54.5]
2"	9.41 [239.0]	1.75 [44.4]	5.00 [127.0]	8.57 [217.8]	2" NPT	4.29 [109.0]	2.15 [54.5]

in [mm]

8. TROUBLESHOOTING

WARNING ***To avoid personal injury or equipment damage resulting from sudden release of pressure, or ignition of accumulated gas, isolate the regulator from the system and bleed all of its internal pressure before attempting troubleshooting procedures.***

Symptom	Probable Cause(s)	Corrective Action(s)
Leak occurring at body, detected through performance and/ or the sound of gas leaking	Unit is improperly installed	Refer to Installation procedure on page 4
Unit does not hold pressure	Set point is not adjusted properly and is set too low	Refer to Calibration procedure on page 5
No outlet pressure from unit	Set point is not adjusted properly and is set too high	Refer to Calibration procedure on page 5
	Inlet and outlet connections installed with opposite orientation relative to pipeline flow	Refer to Installation procedure on page 4. Additionally, there is an arrow marked on the Type 1227 body indicating the direction of gas flow through the regulator inlet and outlet connections.

9. WARRANTY & DISCLAIMER

ControlAir LLC products are warranted to be free from defects in materials and workmanship for a period of eighteen months from the date of sale, provided said products are used according to ControlAir LLC. recommended usages. ControlAir LLC liability is limited to the repair, purchase price refund, or replacement in kind, at ControlAir's sole option, of any products proved defective. ControlAir LLC reserves the right to discontinue manufacture of any products or change products materials, designs or specifications without notice. Note: ControlAir does not assume responsibility for the selection, use, or maintenance of any product. Responsibility for the proper selection, use, and maintenance of any ControlAir product remains solely with the purchaser and end user.

WARNING ***These products are intended for use in industrial compressed-air systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.***