

## Orion-2D Pneumatic Pressure Controller

part #55286, Patent No. 4.698.998

### SPECIAL FEATURES:

- Orion-2D is a variable volume pressure controlled with on operating pressure from vacuum to 300 psi. It consists of two low torque, fine micro-metering valves with positive shut-off, adjustable stop and soft seat. The pressure valve controls the inlet pressure and the other valve vents to atmosphere.
- The vernier is located at the center of the controller and allows the operator a very fine pressure adjustment (approx.  $\pm 5\%$  point max.) without using the pressure or vent valve.
- Selecting the appropriate O-ring material may extend the wide range of gas applications.
- There is one inlet, one outlet, and two test ports. One test port may be used to connect a pressure transducer or pressure gauge standard; the other test port may be used to connect the unit under test.

### OPERATION:

The pressure valve will begin to open when it is turned counter clockwise approximately 15 degrees. Full open position of the valves is achieved with a maximum of 3 1/2 turns from the closed position. Use the pressure/vent valves to achieve  $\pm 95\%$  of the target pressure. The pressure and vent valves must be closed before operating the vernier. The vernier is a piston and cylinder configuration, which generates  $\pm 5\%$  pressure, or vacuum of the indicated pressure. The vernier has a fine adjustment sensitivity of .0005 psi. Very low torque is required to turn the vernier... FINGERTIP ADJUSTMENT!!!!

### SPECIFICATIONS:

- **Pressure Range:** 0-300 psi and vacuum
- **Proof Pressure:** 325 psi
- **Pressure & Vent Valve Orifice:** .032
- **CV:** .007
- **Mechanical Rotation:** 3 1/2 Turns (nom.)
- **Torque:** Fingertip adjust
- **Vernier Volume:** 1/2 cubic inch (nom.)
- **Mechanical Rotation:** 16 turns (nom.)
- **Adjustable Sensitivity:** .0005 psi
- **Construction:** Aluminum body clear anodize aluminum knobs, black anodize all other parts 300 series stainless O-Rings Buna "N" STD, others available. (All stainless steel construction available for use with corrosive gases and, or high pressure up to 10,000 psi. Refer to model: Orion 3A pressure controller.)
- **Weight:** 3.0 Lbs.
- **O-ring repair kits:** Buna-N (standard) (part #58499); Ethylene-Propylene (part #58506); Silicone (part #58509); Neoprene (part #58515); Fluorocarbon "Viton" (part #55277).

Note: Various O-ring materials may be installed in Orion-2D by special order.



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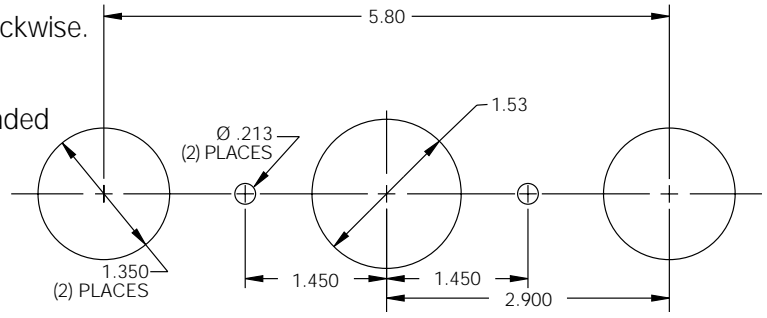
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### INSTALLATION:

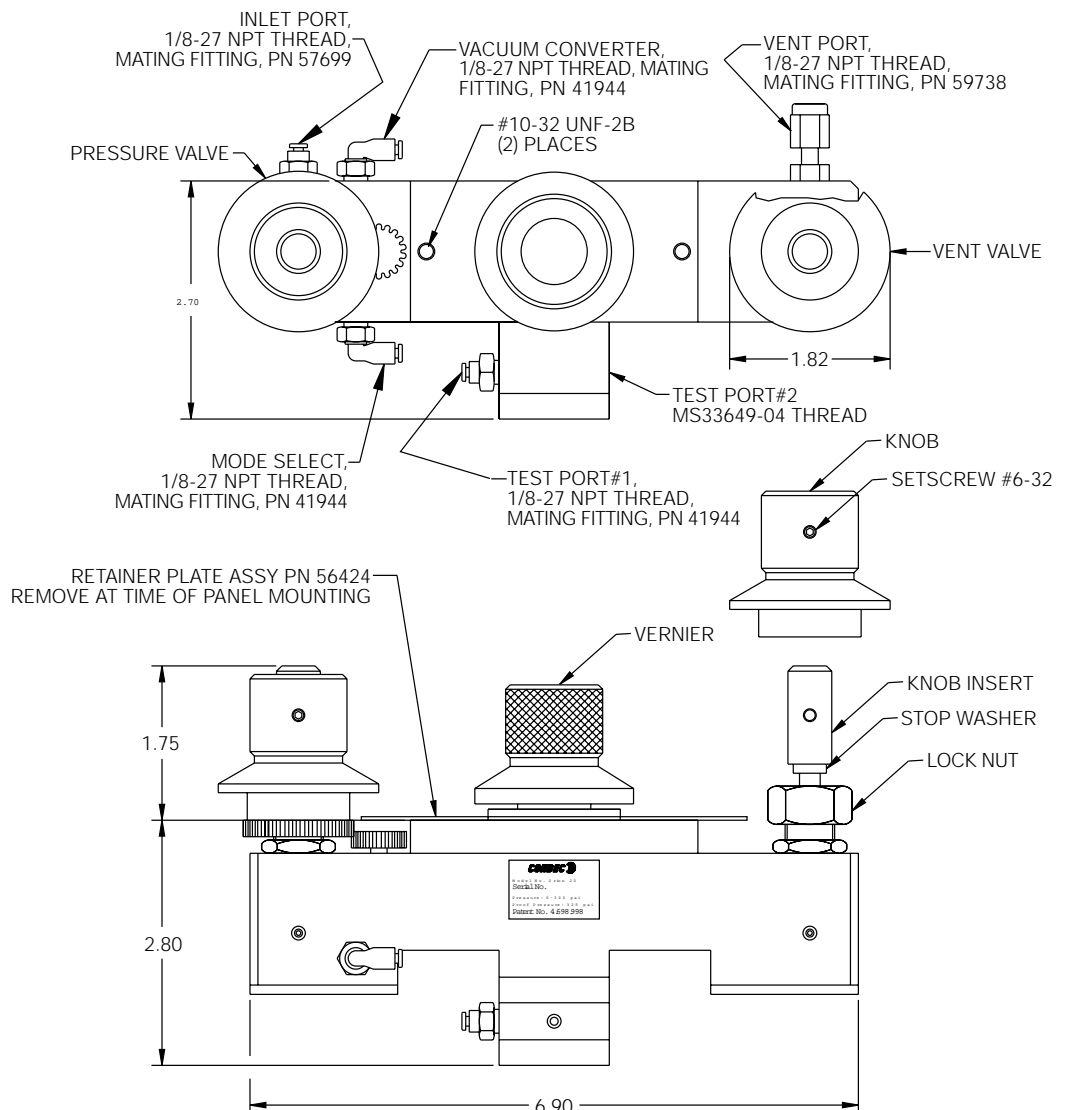
The Valve is factory adjusted.

#### Panel or bracket mounting:

1. Turn the two outside knobs clockwise.
2. Remove all (three) knobs.
3. Install controller into recommended hole pattern with two 10-32 x 1/2" lg. screws.
4. Install knobs, align set screws with both dimples on knob inserts and shaft.



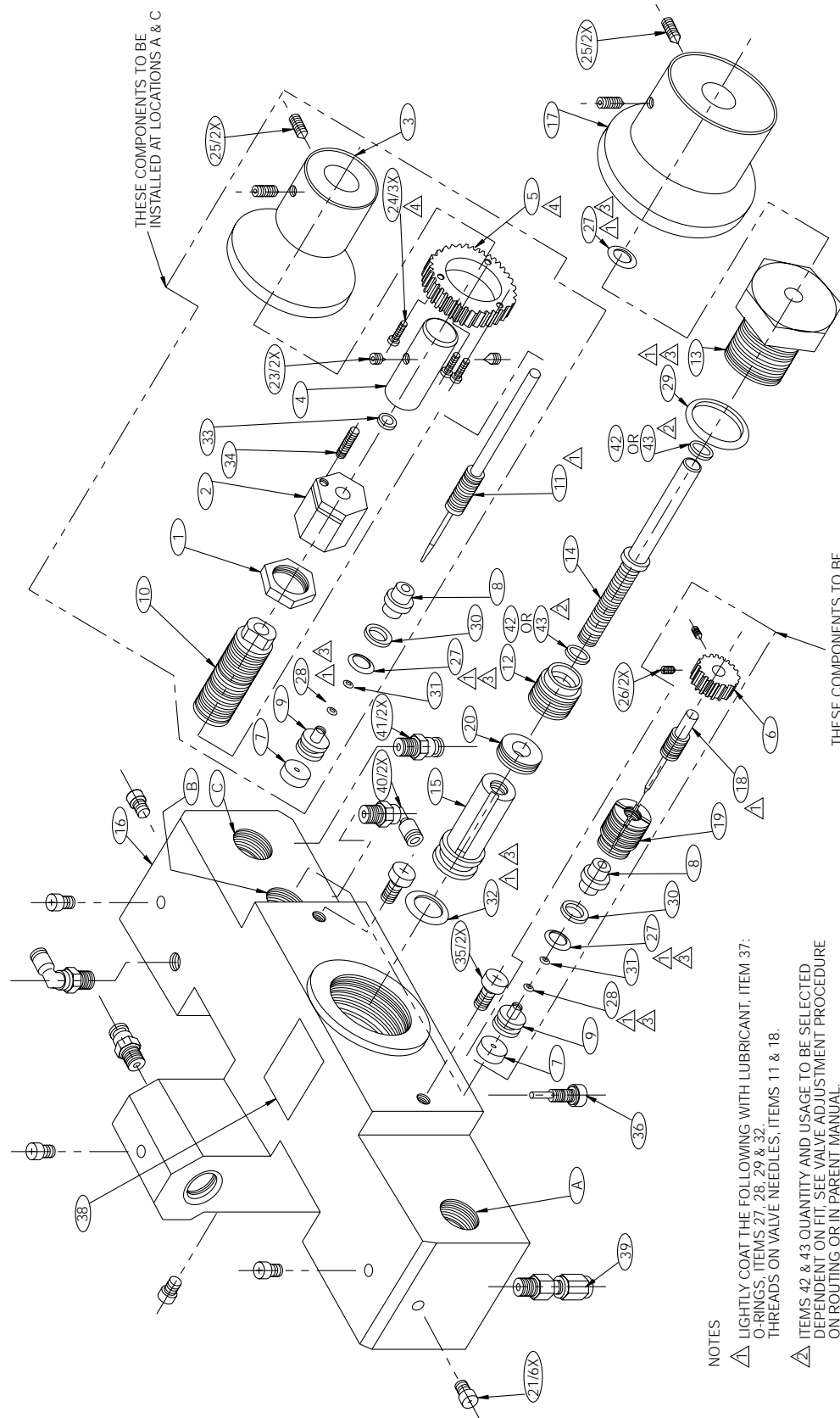
RECOMMENDED HOLE PATTERN FOR ORION 2D



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### Bill of Material

Ref #	Part #	Description	Qty.
1	57482	Nut, Valve Needle Housing 9/16-18, width across flats: .75, thickness: .12	2
2	54401	Locknut	2
3	58079	Knob	2
4	57889	Knob, Insert	2
5	57256	Gear, Spur 40-tooth	1
6	59233	Gear, Spur 18-tooth	1
7	55896	Valve Seat	3
8	59387	Valve Seat, Stem	3
9	59045	Valve, Needle Seat	3
10	54540	Housing, Valve Needle	2
11	59551	Valve Needle	2
12	57906	Bushing, End	1
13	59378	Cap, End	1
14	59495	Shaft	1
15	59241	Piston	1
16	55714	Body, Dual Valve	1
17	57580	Knob	1
18	55533	Valve Needle	1
19	55159	Housing, Valve Needle	1
20	56784	Locknut, 9/16-18UNF-3A, SST	1
21	58927	Screw, Hex seal 4-40NC-2A x _ phillips head	6
23	59383	Setscrew, 6-32NC x 1/8, SST	4
24	58342	Screw, Cap Hex Socket Head, #2-56UNC-3A, purchase per mil spec 16995-2	3
25	59322	Setscrew, 6-32NC x 1/4, SST	6
26	59326	Setscrew, 2-56NC x 1/8, alloy steel	2
27	55554	O-ring, AS568A dash no. 010, Buna-N (Nitrile) 70 durometer color black	4
28	55536	O-ring, AS568A dash no. 002, Buna-N (Nitrile) 70 durometer color black	3
29	55573	Shaft O-ring, AS568A dash no 117, Buna-N (Nitrile) 70 durometer color black	1
30	60633	Retainer, Packing Backup, single turn tetrafluoroethylene	3
31	55570	Washer, Backing .04 thick, tetrafluoroethylene resin	3
32	55577	O-ring, AS568A dash no 111, Buna-N (Nitrile) 70 durometer color black	1
33	59245	Washer, #8 Screw Size .187, ID x .440 OD x .040 thick nylon	2
34	60202	Setscrew, hex	2
35	60837	Screw, MACH Pan Head #10- 32NF x 1/2 phillips head 300 series, SST	2
36	58976	Screw, Self Sealing, 8-32 x 5/8 modified to print	1
38	53308	Label Roll, 1.25x1.25, polytrans 3000 void, 3" core, 8" O.D.	1
39	59738	Fitting, Male Connector 1/8 tube x 1/8 NPT brass	2
40	41944	Connector, Male Swivel Elbow 1/8 NPT x 5/32 tube O.D.	2
41	57699	Fitting, Tube Male Connector 5/32 tube O.D. x 1/8 NPT	2
42	59878	Spacer, .005 thick mylar	2
43	59880	Spacer, .007 thick mylar	2



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