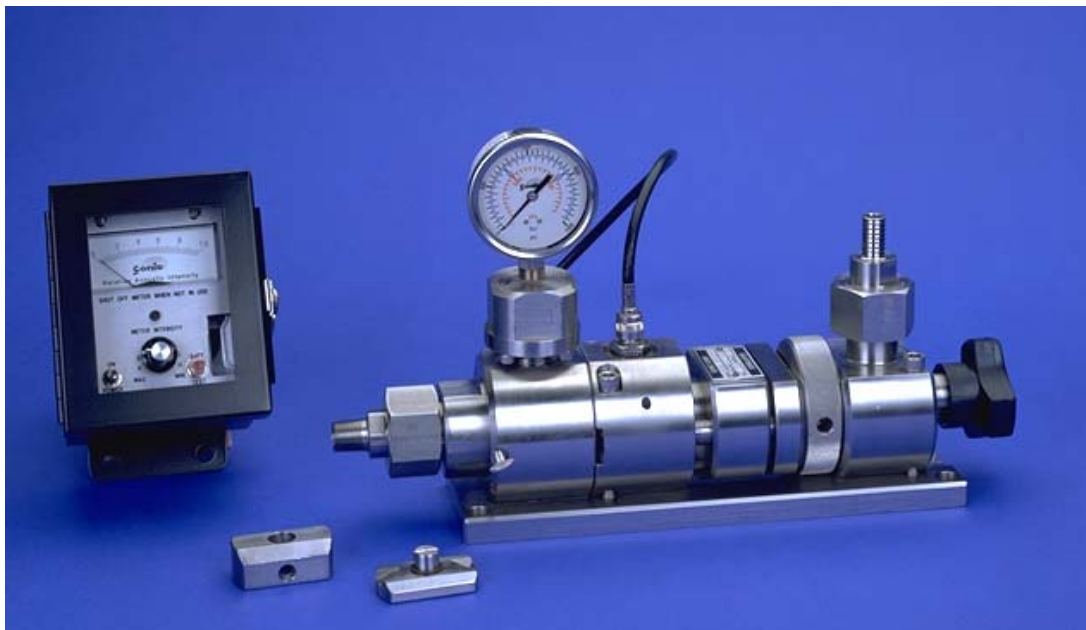




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The Model A Sonolator™



Assembly/Disassembly Instructions

Assembly and Disassembly

Refer to Drawing A161D and A151D or Figure 1 for all item numbers mentioned below. The numbers can be matched with their corresponding part number and description listed in each drawing or the Bill of Materials list included with the exploded view drawing.

Orifice Removal and Replacement

The Sonolator does not have to be removed from the system to change the orifice as it is a very simple task.

1. Loosen the Thumb Screw, (#30).
2. Grasp the Pressure Gauge, (#22), and push (or pull) to the left while gently rocking the gauge and sleeve (#5) back and forth to ease its movement over the 'O' rings. The entire assembly should slide several inches to the left exposing the Orifice Back-up Clamp, (#4), in the Sonolator Body, (#1).
3. Remove the Orifice Clamp, (#4), by pushing it out of the Body. It can go out either side.
4. Remove the Orifice, (#3), by pulling it to the left and pushing it out of the Body. A screwdriver may be necessary to pry it loose if the unit is dirty. Note the 'O' ring, (#38), on the orifice.
5. Reassemble by reversing the order. Clean and wipe all parts before replacing them. Don't forget to put an 'O' ring on the new orifice before it's installed. **DON'T FORCE ANYTHING. IF IT DOESN'T FIT, IT'S DIRTY OR IT'S BEING ASSEMBLED INCORRECTLY.**

The 'O' rings should be kept lubricated by using an appropriate lubricant.

Blade Removal and Replacement

1. Remove the Tuning Valve Housing, (#14).
2. Remove the Blade Adjusting Wheel, (#13), by loosening the 2 set screws located around the rough edge of the Wheel.
3. Remove the Calibrator Guide, (#12), by removing the 2 flat face screws holding it in place.
4. Without removing the Calibrator, (#11), remove the Blade Holder, (#10), by sliding it gently off of the two dowels extending from the Body, (#1).
5. Remove the hex head screw, (#28) which holds the Blade, (#46), and the Blade Clamp, (#9).
6. Replace the Blade, (#46).
7. Reassemble the Clamp and insert the Blade Holder and Calibrator.
8. Place one of the Bearings, (#31) over the Calibrator.
9. Bolt the Calibrator Guide, (#12), onto the ends of the Body dowels using the flat face screws, (#27).

10. Unscrew the Calibrator, (#11), until it is flush against the Bearing and the Calibrator Guide.
11. Reinstall the other Bearing and the Blade Adjusting Wheel, fastening the set screws.
12. Install the Tuning Valve Housing, (#14).

Complete Disassembly

1. Disconnect the Sonolator from the system by unscrewing the union Nuts (#20) from both the inlet and discharge.
2. Rotate the Blade Adjusting Wheel, (#13), to move the blade as far back from the orifice as possible.
3. Unscrew and remove both cap screws, (#26), from the Tuning Valve Body, (#14). Pull the Tuning Valve Body to the rear to remove. The "O" ring, (#41), on the Calibrator, (#11), may give some resistance.
4. Disassemble the Tuning Valve by unscrewing the Valve Body, (#44), using the adjustable wrench. Check the Teflon seat, stem, and "O" ring for wear. If replacement is necessary, the entire assembly should be ordered.
5. Remove the Blade Adjusting Wheel, (#13), by loosening the two Allen screws, (#32), and sliding the Wheel off of the Calibrator, (#11).
6. Unscrew and remove the two screws, (#27), holding the Calibrator Guide, (#12), to the dowel Pins, (#2). Slide the calibrator guide to the rear off the dowel pins.
7. Slide the Blade Holder, (#10), and the Calibrator, (#11), to the rear off of the dowel Pins. Unscrew the Calibrator from the Blade Holder.
8. Remove the Blade Clamp, (#9), from the Blade Holder, (#10), by unscrewing the cap screw. Lift the Blade, (#8), off of the Blade Holder.
9. To complete disassembly for cleaning and inspection, unscrew the Probe, (21), and the entire pressure gauge assembly. Remove the Body, (#1), from the Base, (#15), by unscrewing the two cap screws, (#26), next to the probe. Remove the Orifice Clamp, (#4), Orifice, (#3), and Sleeve, (#5).

Complete Assembly

Prior to re-assembly, all parts should be cleaned in an appropriate solvent, if necessary, or in hot soapy water. Use caution with steel wool and abrasive cleaners as excessive use may adversely affect lubricated surfaces and interfere with close tolerances. Inspect all "O" rings for cuts, nicks, or breaks and replace if indicated. Lubricate "O" rings with an appropriate grease.

1. Bolt the Body, (#1), onto the Base, (#15), using the two cap screws (#26).
2. Place the Blade, (#8), into the Blade Holder, (#10), so that the sharp edge faces the orifice. Make sure the Blade is supported evenly on both sides. Install Blade Clamp, (#28), and tighten the cap screw, (#9).
3. Position the Blade Holder, (#10), on the dowel Pins, (#2), and slide onto the Body, (#1).

4. Screw the Calibrator, (#11), into the Blade Holder, (#10), until it is snug, and slide the Bearing, (#31), onto the Calibrator.
5. Slide the Calibrator Guide, (#12), over the Calibrator and onto the dowel Pins, (#2). Place the end screws, (#27), into the ends of the dowel pins and tighten.
6. Manually rotate remaining Bearing (#31) onto the Calibrator, (#11), and then slide the Adjusting Wheel (#13) onto the Calibrator, making sure the Bearing shoulder is facing the bearing. Tighten the Allen screws in the Wheel. **NOTE:** Unless the calibrator is assembled exactly as described so that the bearings are held snugly, it will be almost impossible to rotate the calibrator wheel when the unit is under pressure.
7. Slip the Tuning Valve Body, (#14), into the Calibrator, (#11). Install and tighten the two remaining cap screws.
8. Install and tighten the Tuning Valve assembly, (#44), making sure the Teflon seat is in position.
9. Install the Sleeve, (#5), Pressure Gauge assembly, and Probe, (#21). Reconnect to system using union nuts.

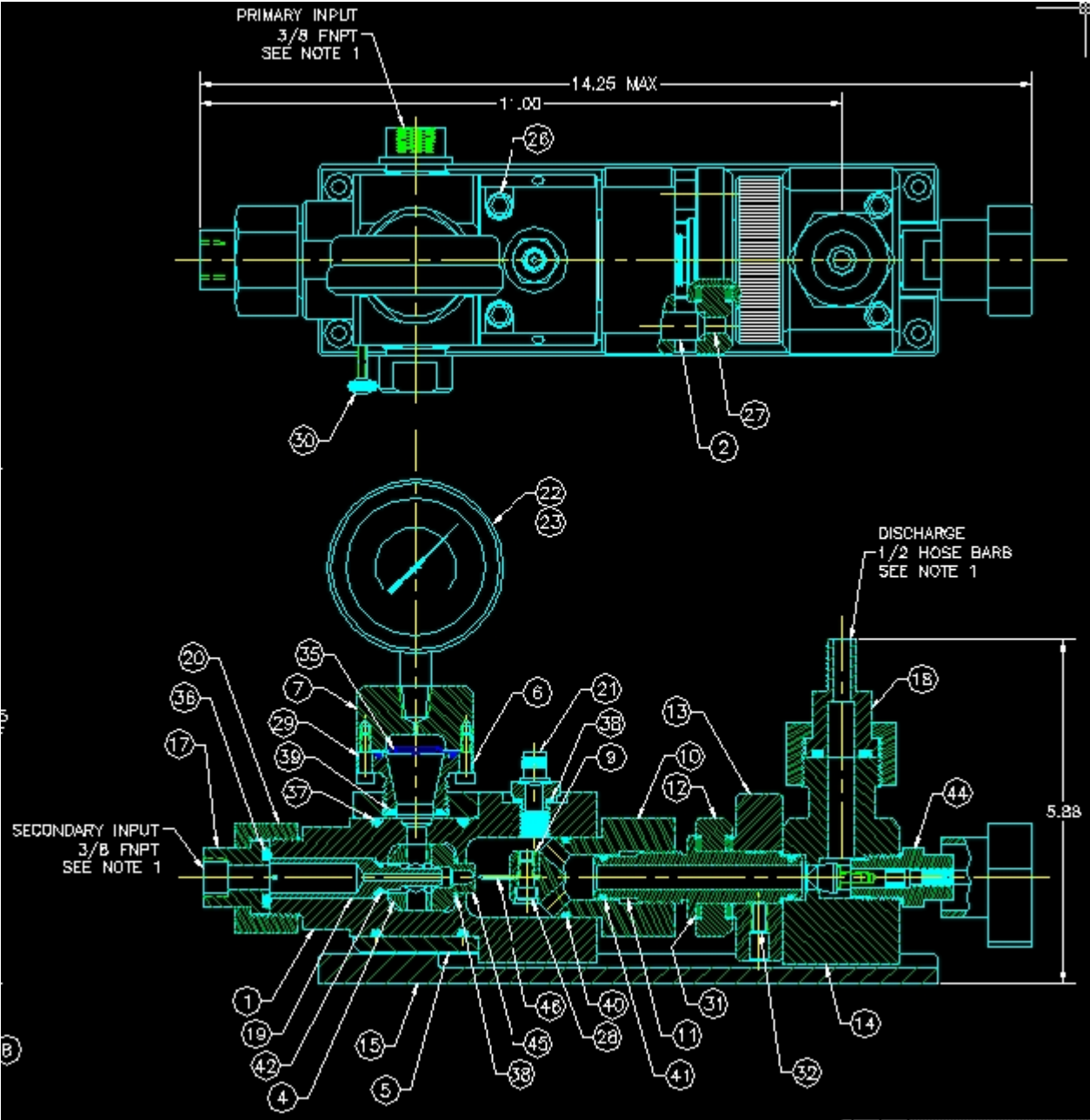
Check movement of all parts. If they don't work smoothly, go back and check your work. DON'T FORCE ANYTHING.

The Pressure Gauge Assembly normally contains a Viton diaphragm. The diaphragm may be attacked by certain solvents or may fail in normal use after a period of time. Refer to the Pressure Gauge Drawing, Figure 3, for assembly and maintenance instructions.

Tools furnished with the "A" Sonolator are:

<u>Part Number</u>	<u>Description</u>
T-1016	1/8 inch Short Allen Wrench
T-1017	5/32 inch Short Allen Wrench
T-1018	3/16 inch Short Allen Wrench
T-1021	1/4 inch Long Allen Wrench
T-1034	9 inch adjustable wrench

Drawing A161D



A161 Sonolator™ Bill Of Materials

NUM	REQ'D	PART NO.	DESCRIPTION	MATERIAL
1	1	A152	BODY	316 S. ST.
2	2	A103	PIN	17-4-PH
4	1	A156	D.F. ORIFICE CLAMP	316 S. ST.
5	1	A158	D.F. SLEEVE	316 S. ST.
6	1	A107	BOTTOM SEAL	316 S. ST.
	*	A107HP	HP BOTTOM SEAL	316 S. ST.
7	1	A108	TOP SEAL	304 S. ST.
	*	A108HP	HP TOP SEAL	304 S. ST.
8	1	A159	DF PLUG	316 S. ST.
9	1	A110	BLADE CLAMP	316 S. ST.
10	1	A111	BLADE HOLDER	316 S. ST.
11	1	A112	CALIBRATOR	316 S. ST.
12	1	A113	CALIBRATOR GUIDE	304 S. ST.
13	1	A114	WHEEL	304 S. ST.
14	1	A115	TUNING VALVE BODY	316 S. ST.
15	1	A116	BASE	304 S. ST.
16	1	A160	D.F. 3/8 FNPT PLUG	316 S. ST.
17	1	COMM	CONNECTION, 3/8 FNPT	316 S. ST.
18	1	A119	CONNECTION, 1/2 HOSE BARB	316 S. ST.
19	1	A157	D.F. SECONDARY INJECTOR	304 S. ST.
20	2	ST2016	UNION NUT	304 S. ST.
21	1	IN1027	PROBE, P _v 4	316 S. ST.
22	1	COMM	PRESSURE GAUGE	
23	1	COMM	SNUBBER	
26	4	COMM	SHCS, 5/16-18 X 2.75 LG	304 S. ST.
27	2	COMM	FHCS, 1/4-20 X .75	304 S. ST.
28	1	ST1008	SHCS, 1/4-20 X .63 LG	316 S. ST.
29	4	COMM	SHCS, #10-24 X .63 LG	304 S. ST.
30	1	COMM	THUMB SCREW, #10-24 X .63 LG	304 S. ST.
31	2	COMM	BEARING, THRUST	
32	2	ST1005	SHSS, OV PT, 1/4-20 X .38 LG	304 S. ST.
35	1	SL20DB	BELLOPHRAGM DIAPHRAGM	VITON
36	2	SL1031	O-RING, 2-210	VITON
37	2	SL1022	O-RING, 2-224	VITON
38	2	SL1002	O-RING, 2-014	VITON
39	3	SL1014	O-RING, 2-116	VITON
40	1	SL1030	O-RING, 2-123	VITON
41	2	SL1029	O-RING, 2-113	VITON
42	2	SL1001	O-RING, 2-012	VITON
44	1	A174	TUNING VALVE ASSEMBLY	316 S. ST., TEPHLON
45	1	A153	ORIFICE	304 S. ST. OR T.C.
46	1	A109	BLADE	17-4-PH OR T.C.