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The Model BT Standard Sonolator™

Assembly/Disassembly Instructions

Assembly And Disassembly

Note: Nomenclature referred to below appears on Drawings K145D, K147D and K300D in the back of this manual. All tools necessary for assembly and disassembly of the unit have been included in the tool kit provided.

BEFORE OPENING THE SONOLATOR, ALWAYS CHECK THE PUMP DISCHARGE PRESSURE GAUGE TO ASSURE PRESSURE IS ZERO PSIG.

Orifice Removal and Replacement for Standard Mono and Dual-feed BT Sonolator™

All Orifices are marked with a part number that includes the area in square inches.

1. Remove any piping connected to the inlet of the Sonolator™. With most systems, a union is provided just prior to the inlet to allow simple and easy access to this end of the Sonolator™.
2. Remove the large Acme nut, (# 21), near the Sonolator inlet.
3. Remove the Orifice Piston, (# 2), by pulling out or by pulling off Sonolator Housing, (# 1).
4. Remove threaded Locking Collar, (# 4)
5. Remove Orifice, (#3). The Standard and Heat-traced Model BT Sonolator™ Orifices fit snugly and can be tapped lightly to be freed. Older Models 'B' and 'H-8 G-2' orifices are loose and are backed up with an 'O' ring seal.

Re-assembly is accomplished in reverse order. Be sure to check condition of 'O' rings before re-assembly.

NOTE: Tungsten Carbide Orifices are brittle and over tightening the Orifice Locking Collar can cause damage.

Orifice Removal and Replacement for Heat-traced BT Sonolator™

1. Remove the 4 hex head screws (#15) holding the Blade Piston (#5) in place.
2. Remove the entire Inside Cylinder (#16) with Blade Piston still attached.
3. Remove the 2 button head socket screws (#13) fastening the Orifice Piston (#2) to the Inside Cylinder (#16).
4. Remove the Orifice Piston (#2) from the Inside Cylinder.
5. Remove the Orifice Locking Collar (#4).
6. Remove the Orifice (#3).

Reassemble in reverse order.

Note: Be sure to properly lubricate all O-rings when reassembling, particularly those around the Inside Cylinder (#16).

Blade Removal and Replacement for Standard Mono and Dual-feed Sonolator™

NOTE: Be certain the blade you install is the proper thickness.

H-8 G-2 Sonolators manufactured prior to 1963 used 0.040 inch thick blades on low throughput units. Very few of these Sonolators remain unmodified to accept standard size blades.

Model 'B' Sonolators manufactured prior to 1968 use 0.084 inch thick blade. Model 'B' Sonolators manufactured after 1968 used 0.115 inch thick blades. During 1968 Model 'B' Sonolators were manufactured which used either 0.084 or 0.115 blades; to differentiate, the blade holders of those Sonolators taking the 0.115 inch thick blade were stamped "0.115".

Standard Model BT and BT-HP Sonolators utilize the **0.115** inch thick blade.

BLADES ARE AVAILABLE IN THE FOLLOWING MATERIALS: 316 Stainless Steel, Armco 17-7 Stainless Steel, and Tungsten Carbide.

1. Remove large Acme retaining nut, (# 21).
2. Remove the Blade Piston, (#5), by pulling on the adjusting handle. Be careful with brittle tungsten carbide blades; pulling too vigorously on the piston may cause the operator to hit the blade against the side of Sonolator. **Note:** If the blade piston is difficult to remove, first remove large nut as in step one, then turn calibrating handle counter clock-wise as far as it will go. This causes the blade to withdraw. Then, by turning the handle clock-wise as far as possible, the adapter (Item No. 22) and the entire blade piston will withdraw; if this fails to work, wedge the handle of the aluminum wrench, or a piece of wood, between the adapter and the housing and repeat the process. This will gradually withdraw the piston.
3. Remove the Blade, (#6), by removing the fastening bolts, (#8).

Reassemble in reverse order.

Blade Removal and Replacement for Heat-traced Sonolator™

1. Remove the 4 hex head screws, (#15), fastening the Blade Piston, (#5), to the Body, (#1).
2. Remove the flat head socket screws, (14), fastening the Blade Piston to the Inside Cylinder, (#16).
3. Remove the hex head screws, (#8), fastening the Blade, (#6), and Blade Clamp, (#7).
4. Remove the Blade, (#6), and replace if necessary.

Reassemble in reverse order.

Tuning Valve Removal and Replacement

1. Remove the 1 inch Acme Nut (#15).
2. Pull the Tuning Valve Assembly from the discharge neck.
3. Remove the mating 1 inch Conoseal (#30).
4. The Valve Handle (#28) and Ball (#29) can be screwed loose and replaced if necessary.

5. Loosen the set screws (#19) on the Tuning Valve Handle Nut (#16) and remove for replacement.

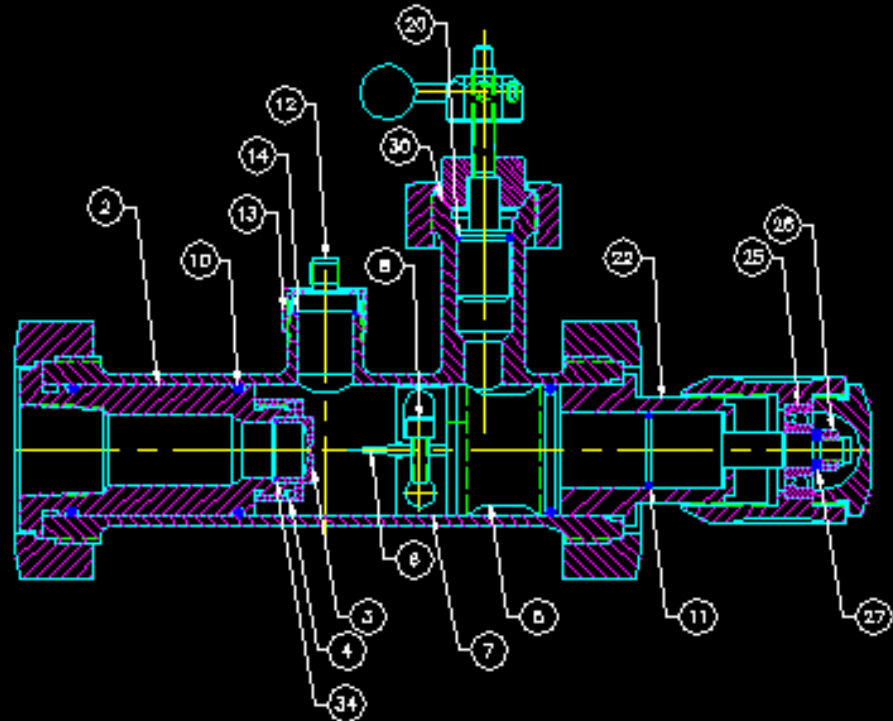
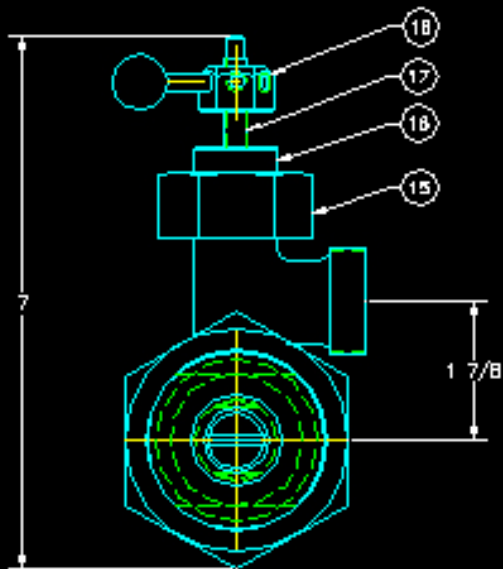
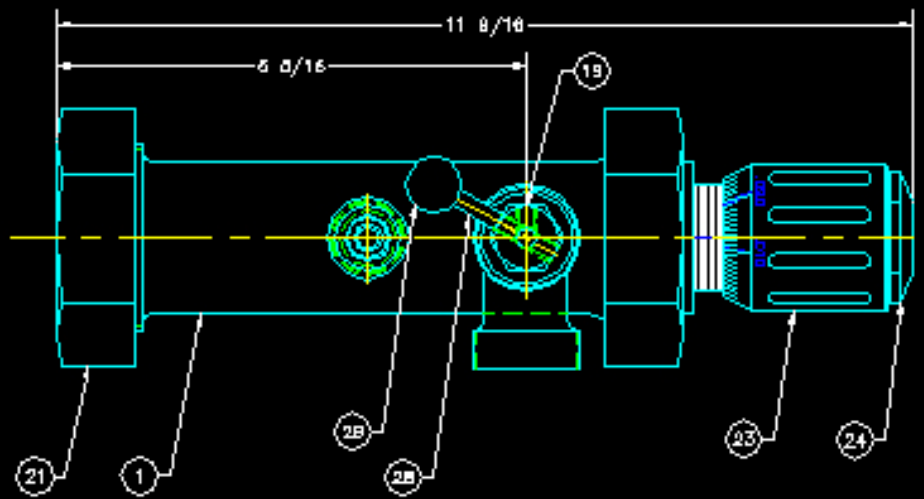
Tuning valve stem and seat are replaceable. Erosion of the seat can be tolerated only to the point where proper tuning can no longer be obtained.

Complete Disassembly of Standard Mono and Dual-feed Sonolator™

1. Remove any piping connected to the inlets of the Sonolator™. With most systems, a union is provided just prior to the inlet to allow simple and easy access to this end of the Sonolator™.
2. Remove the large Acme nut, (# 21), near the Sonolator inlet.
3. Remove the Orifice Piston, (# 2), by pulling out or by pulling off Sonolator Housing, (# 1).
4. Remove threaded Locking Collar, (# 4).
5. Remove the Orifice, (#3). The Standard and Heat-traced Model BT Sonolator™ Orifices fit snugly and can be tapped lightly to be freed. Older Models 'B' and 'H-8 G-2' orifices are loose and are backed up with an 'O' ring seal.
6. Remove the Probe Locking Collar, (#13).
7. Remove the Probe, (#12).
8. Remove the 1 inch Acme Nut (#15) near the Tuning Valve Assembly.
9. Remove the Tuning Valve Assembly consisting of the Nut, (#16), and stem and handle.
10. Pull the Tuning Valve Assembly from the discharge neck.
11. Remove the mating 1 inch Conoseal (#30).
12. The Valve Handle (#28) and Ball (#29) can be screwed loose and replaced *if necessary, not required for routine cleaning*.
13. Loosen the set screws (#19) on the Tuning Valve Handle Nut (#16) and remove for replacement, *if necessary, not required for routine cleaning*.
14. Now remove the other 2 inch Acme retaining Nut (# 21), on the discharge end of the Sonolator™ just near the Blade Calibrating Handle, (#23).
15. Remove the Blade Piston (#5) by pulling on the adjusting handle. Be careful with brittle tungsten carbide blades; pulling too vigorously on the piston may cause the operator to hit the blade against the side of Sonolator. **Note:** If the blade piston is difficult to remove, first remove large nut as in step one, then turn calibrating handle counter clock-wise as far as it will go. This causes the blade to withdraw. Then, by turning the handle clock-wise as far as possible, the adapter (Item No. 22) and the entire blade piston will withdraw; if this fails to work, wedge the handle of the aluminum wrench, or a piece of wood, between the adapter and the housing and repeat the process. This will gradually withdraw the piston.
16. Remove the Blade (#6) by removing the bolts (#8).

17. Unscrew the Calibrator's End Cap, (#24), to expose the Bearings, (#25), inside; *not required for routine cleaning.*
18. Unscrew the Blade Calibrator Handle, (#23), completely to remove; *not required for routine cleaning.*
19. Remove Handle from the Blade Piston, (#5), stem; *not required for routine cleaning.*
20. Press Bearing, (#25), out the Blade Calibrator Handle and replace if necessary; *not required for routine cleaning.*

Assembly accomplished in reverse order.



1. SEAL MATERIAL MAY BE SPECIFIED BY CUSTOMER WHEN ORDERING VALVES.
 (2000-SSA MATERIALS AVAILABLE TITANIUM OR HASTELLOY)
 (0-100W SPECIAL ANTI-LEAK BUNA-NITRIL BUTYL OR ETHYLENE PROPYLENE)

MODEL 'BT' SONOLATOR MONO FEED

NUM	REQ	PART NUM	DESCRIPTION	MATL
1	1	K139D	HOUSING	316 S.S.
2	1	K140C	ORIFICE PISTON	316 S.S.
3	1	K142B	ORIFICE	316 S.S.
4	1	K141B	ORIFICE LOCKING COLLAR	316 S.S.
5	1	K106D-2	BT BLADE PISTON	316 S.S.
6	1	K107A-4	.254 SIZE BLADE	316 S.S.
7	1	K108B	BLADE CLAMP	316 S.S.
8	2	ST1008A	SLHCS 1/4-20X5/8 LG.	COMM
10	3	AL1021	O-RING #2-222	VITON
11	1	SL1007	O-RING #2-020	VITON
12	1	IN1008	PROBE PV-2	316 S.S.
13	1	IN1015	PROBE LOCKING COLLAR	304 S.S.
14	1	SL1005	O-RING #2-017	VITON
15	1	ST2001	ACME 1" NUT	COMM
16	1	K116B	TUNING VALVE HANDLE NUT	304 S.S.
17	1	K117B	VALVE STEM	316 S.S.
18	1	K118B	STEM RETAINER	304 S.S.
19	2	ST1002	SHSS, CUP, #10-24X1/4 LG.	COMM
20	1	SL1004	O-RING #2-016	VITON
21	2	ST2002	ACME 2" NUT	COMM
22	1	K122C	PISTON GUIDE	316 S.S.
23	1	K152C	CALIBRATOR	304 S.S.
24	1	K127C	END CAP	304 S.S.
25	1	ST4003A	BEARING MRC 201-S	COMM
26	1	ST1023	FINISHED HEX NUT 3/8-16	COMM
27	1	ST1024	LOCKWASHER, 3/8	COMM
28	1	K131B	BAR DETAIL	304 S.S.
29	1	ST4001A	BALL, 3/4 DIA.	COMM
30	1	SL2001	CONDSEAL, 1"	COMM
34	1	SL1006	O-RING #2-018	VITON