

Liquid End Sheet

LE-171S/ LE-172S/ LE-178S

When pumping solutions, make certain that all tubing is securely attached to the fittings. It is recommended that tubing or pipe lines be shielded to prevent possible injury in case of rupture or accidental damage. Always wear protective clothing and face shield when working on or near your metering pump.

Note: See parts list for materials of construction

A. INSTALLING INJECTION CHECK VALVE

1. The injection check valve should always be installed as close as possible to the point of injection, at the very end of the tubing run.
2. The purpose of the injection check valve is to prevent backflow from the treated line through the relief line of the metering pump.
3. A 1/2" NPT female fitting with sufficient depth will accept the injection check valve.
4. To insure correct seating of the ball inside the check valve, the injection check valve should be installed vertically, in the direction of the arrows indicating flow.

B. CONNECTING DISCHARGE TUBING

NOTE: Cut tubing to length needed for discharge line.

1. Discharge tubing is relatively stiff translucent tubing.
2. Route tubing from the injection check valve to the metering pump, making sure it does not touch hot or sharp surfaces, or is bent so sharply that it kinks.
3. Slide small end of the coupling nut onto tubing, then slide on the clamp ring.
4. Push tubing over the tapered nozzle of discharge valve housing so that tubing flares out and reaches the shoulder. (If tubing is stiff from cold, dip end in hot water).
5. Slide down the clamp ring and coupling nut until threads are engaged. Tighten by hand until tubing is held securely in place.

**Excessive force will crack or distort fittings.
DO NOT OVERTIGHTEN.**

6. Follow the same procedure for connecting tubing to injection valve.

NOTE: When pumping solutions of medium to high viscosity, the anti-syphon valve may reduce output as much as 10%.

C. CONNECTING SUCTION TUBING

1. Cut suction tubing to a length so that the foot valve hangs just above the bottom of the solution container. Maximum recommended vertical suction lift is 5 ft (1.5 m).

2. Follow same procedure in connecting suction tubing to suction valve and foot valve (see **B. Connecting Discharge Tubing**).

D. PRIMING

1. Connect the pressure release tubing to pressure release port on the four function valve.
2. Route tubing to the solution reservoir and anchor with a plastic tie.
3. Set the pump at 80% speed and 100% stroke. Start pump.
4. Turn Pressure Relief knob (black knob) 1/4 turn. Let pump run until solution is visible through translucent return tubing.
5. Turn Pressure Relief knob back 1/4 turn. The pump is now primed.

NOTE:

- (a) Pump is normally self-priming if suction lift is not more than 5 ft (1.5 m), valves in the pump are wet with water (pump is shipped from factory with water in pump head) and the above steps (**D. Priming**) are followed.
- (b) If the pump does not self prime, remove discharge valve housing and ball, and pour water or solution slowly into discharge port until head is filled. Follow step **D. Priming** thereafter.

E. DEPRESSURIZING DISCHARGE LINE

1. It is possible to depressurize the discharge line and pump head without removal of tubing or loosening of fittings.

Be sure injection check valve is properly installed and is operating. If a gate valve or globe has been installed downstream of injection check valve, it should be closed. Be certain relief tubing from the four function valve is connected and run to solution reservoir.

2. Pull on both anti-syphon and relief knobs.
3. The discharge line is now depressurized.
4. If the injection check valve is of higher elevation than the pump head, disconnecting tubing at injection check valve end will allow air to enter and cause solution to drain back to the tank.



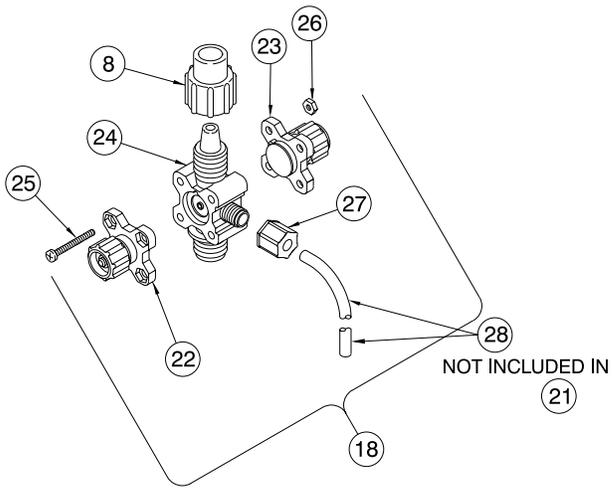
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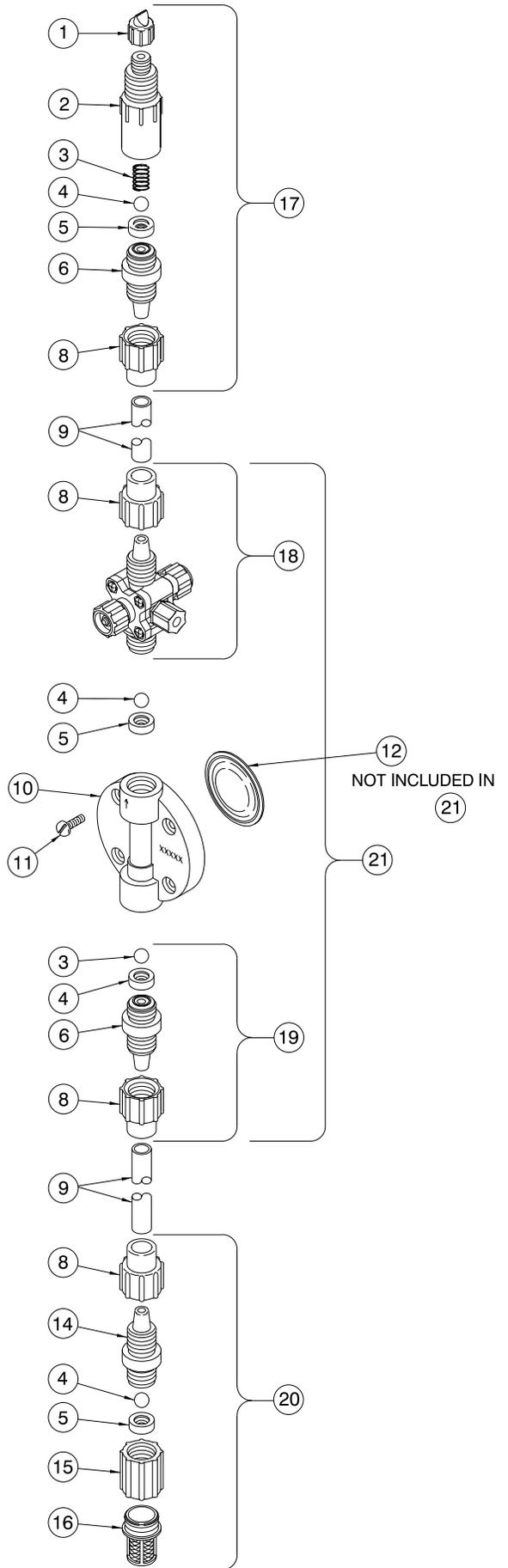
Replaces same of Rev. G 11/97
1604.H X/98

| KEY NO. | PART NO. | DESCRIPTION | QUANTITY | | |
|---------|----------|--|----------|---------|---------|
| | | | LE-171S | LE-172S | LE-178S |
| 1 | 27352 | Flapper Valve | 1 | 1 | 1 |
| 2 | 10394 | Injector Fitting, PP | 1 | | |
| | 26841 | Injector Fitting, PVDF | | 1 | |
| | 10294 | Injector Fitting, PVC | | | 1 |
| 3 | 10339* | Spring, PVDF Coated | 1 | 1 | 1 |
| 4 | 10338* | Ball, Ceramic .375 | 4 | 4 | 4 |
| 5 | 29443* | Seal Ring, Polyprel® | 4 | 4 | 4 |
| 6 | 10792 | Valve Seat, PP, .500" | 2 | | |
| | 31561 | Valve Seat, PVDF, .500" | | 2 | |
| | 10492 | Valve Seat, PVC, .500" | | | 2 |
| 8 | 10411 | Coupling Nut | 4 | 4 | 4 |
| 9 | 10142-16 | Tubing, .500" O.D. PE | 1 | 1 | 1 |
| 10 | 27212 | Head, PP, 1.8 SI | 1 | | |
| | 27214 | Head, PVDF, 1.8 SI | | 1 | |
| | 30914 | Head, PVC, 1.8 SI | | | 1 |
| 11 | 10340 | Screw, 10-24 x 3/4" S.S. | 4 | 4 | 4 |
| 12 | 31420* | Liquifram™, 1.8 SI Copolymer PTFE | 1 | 1 | 1 |
| 14 | 10793 | Valve Housing, PP, .500" O.D. | 1 | | |
| | 31562 | Valve Housing, PVDF, .500" | | 1 | |
| | 10493 | Valve Housing, PVC, .500" | | | 1 |
| 15 | 10978 | Foot Valve Seat | 1 | 1 | 1 |
| 16 | 10123 | Strainer, Polypropylene | 1 | 1 | 1 |
| 17 | 29523 | Injection Pressure Valve Assembly | 1 | | |
| | 31564 | Injection Pressure Valve Assembly | | 1 | |
| | 32087 | Injection Pressure Valve Assembly | | | 1 |
| 18 | 25900 | Anti-Syphon/Pressure Relief Valve Assembly | 1 | | |
| | 27043 | Anti-Syphon/Pressure Relief Valve Assembly | | 1 | |
| | 33060 | Anti-Syphon/Pressure Relief Valve Assembly | | | 1 |
| 19 | 29527 | Suction Valve Assembly | 1 | | |
| | 31961 | Suction Valve Assembly | | 1 | |
| | 27612 | Suction Valve Assembly | | | 1 |
| 20 | 29524 | Foot Valve Assembly | 1 | | |
| | 31563 | Foot Valve Assembly | | 1 | |
| | 27613 | Foot Valve Assembly | | | 1 |
| 21 | 29056 | Head Assembly, LE-171S, PP | 1 | | |
| | 29062 | Head Assembly, LE-172S, PVDF | | 1 | |
| | 31223 | Head Assembly, LE-178S, PVC | | | 1 |
| 22 | 28446 | Relief Cap Assembly | 1 | | 1 |
| | 28447 | Relief Cap Assembly | | 1 | |
| | 33024 | Relief Cap Assembly | | | 1 |
| 23 | 25838 | Anti-Syphon Cap Assembly | 1 | | 1 |
| | 27045 | Anti-Syphon Cap Assembly | | 1 | |
| | 31138 | Anti-Syphon Cap Assembly | | | 1 |
| 24 | 25870 | Valve Body, PP, .500" | 1 | | |
| | 26856 | Valve Body, PVDF, .500" | | 1 | |
| | 30426 | Valve Body, PVC, .500" | | | 1 |
| 25 | 25627 | Screw, 6-32 x 1 1/4" S.S. | 4 | 4 | 4 |
| 26 | 25628 | Nut, Hex 6-32 S.S. | 4 | 4 | 4 |
| 27 | 25631 | Coupling Nut | 1 | 1 | 1 |
| 28 | 25636-10 | Tubing, .250" O.D. PE | 1 | 1 | 1 |
| 29 | 37203 | Clamp Ring | 3 | 3 | 3 |
| --- | 32293 | Suction Tubing Straightener (not shown) | 1 | 1 | 1 |

*Parts included in Spare Parts Kit Sp-U10.



NOTE:
 Threaded connections into pump head are 3/4"-16 UNF straight threads. **DO NOT USE TEFLON® TAPE.** These joints are sealed by seal ring valve seats (item 6 on exploded view).





**8 Post Office Square
Acton, MA 01720 USA
TEL: (978) 263-9800
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<http://www.lmipumps.com>**

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