SINGER®
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Singer Model A106-DL Dynamic Lifter™ Sewage Relief Valve
Schematic A-8640C

READ THIS ENTIRE MANUAL PRIOR TO WORKING ON THE VALVE

DESCRIPTION:

Model A106-DL is a fast acting valve designed to handle surges in sewage pumping systems caused by power failure or other sudden change of flow.

The Dynamic Lifter™ closes slowly to prevent closing surges.

APPLICATION:

- System pressure under the Inner Valve and Piston combine to provide effective opening force throughout the full stroke of the valve. Closing force is provided by enclosed springs that have been pre-compressed to minimize the pressure increase with the valve opening.
- A Diaphragm Separator isolates the piston fluid (mineral oil) from the sewage but constantly applies the system pressure to the piston to assist with the “instant” response.
- Closing spring force returns the fluid to the separation chamber through a needle valve to adjust the rate of closure.

OPERATION:

Under normal operating conditions the Dynamic Lifter™ Main Valve is in the closed position.
In the event of a surge, pressure below the diaphragm of the Diaphragm Separator is forced upward and through the flexible hose to below the piston of the Main Valve to quickly and effectively open the Main Valve.

On closing, the fluid below the piston will return to the Diaphragm Separator via the Closing Speed Control (3), ensuring a slow, controlled closing, preventing any further surges.

INSTALLATION:

1. The Dynamic Lifter™ **MUST** be installed with the stem in the vertical position.
2. An isolating valve should be installed in the inlet of the Dynamic Lifter™.
3. To top up the oil in the Diaphragm Separator, connect a flexible hose to the 3/8” Isolating Valve (5) and hold the end of the hose higher than the Bleed Hole of the Main Valve (1). Pour mineral oil into the hose and bleed air from the Bleed Hole. Other means of introducing pressurized mineral oil to (5) can be used.
4. Close Isolating Valve (5) and install a pipe plug on the outlet of (5).

Note :

Small quantities of air may be present in the system without causing any damage

START-UP AND ADJUSTMENT:

There are two ways of adjusting this valve:

1. **Using external pressure.**
2. **Using line pressure.**

ADJUSTMENT USING EXTERNAL PRESSURE:

This valve can be adjusted using external pressure that is from 1.5 to 3 times the required set-point (see table below for multiplier).

1. Make sure that the valve is **not pressurized**.
2. Refer to Schematic A-8640C. Close Isolating Valve (4).
3. Mark position of the Main Valve stem at closed position.

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4. Apply pressure (water or air) to connection (7).

Valve Size	Seat Size	Piston Size	Multiplier
2”	2”	3”	1.5 times relief pressure
3”	3”	3”	2.2 times relief pressure
4”	4”	4”	2.2 times relief pressure
6”	6”	4”	3.6 times relief pressure
8”	8”	6”	3.0 times relief pressure

5. Increase pressure to the multiple of desired relief pressure setting per chart above as read on Gauge (6).
6. Turn Spring Adjusting Nut so that the Main Valve just cracks off its seat, say 1/16” with the pressure multiplier applied.
7. Remove external pressure, open Isolating Valve (4). With system pressure applied to both seat and piston, the Main Valve will open at the desired set-point.

ADJUSTMENT USING LINE PRESSURE:

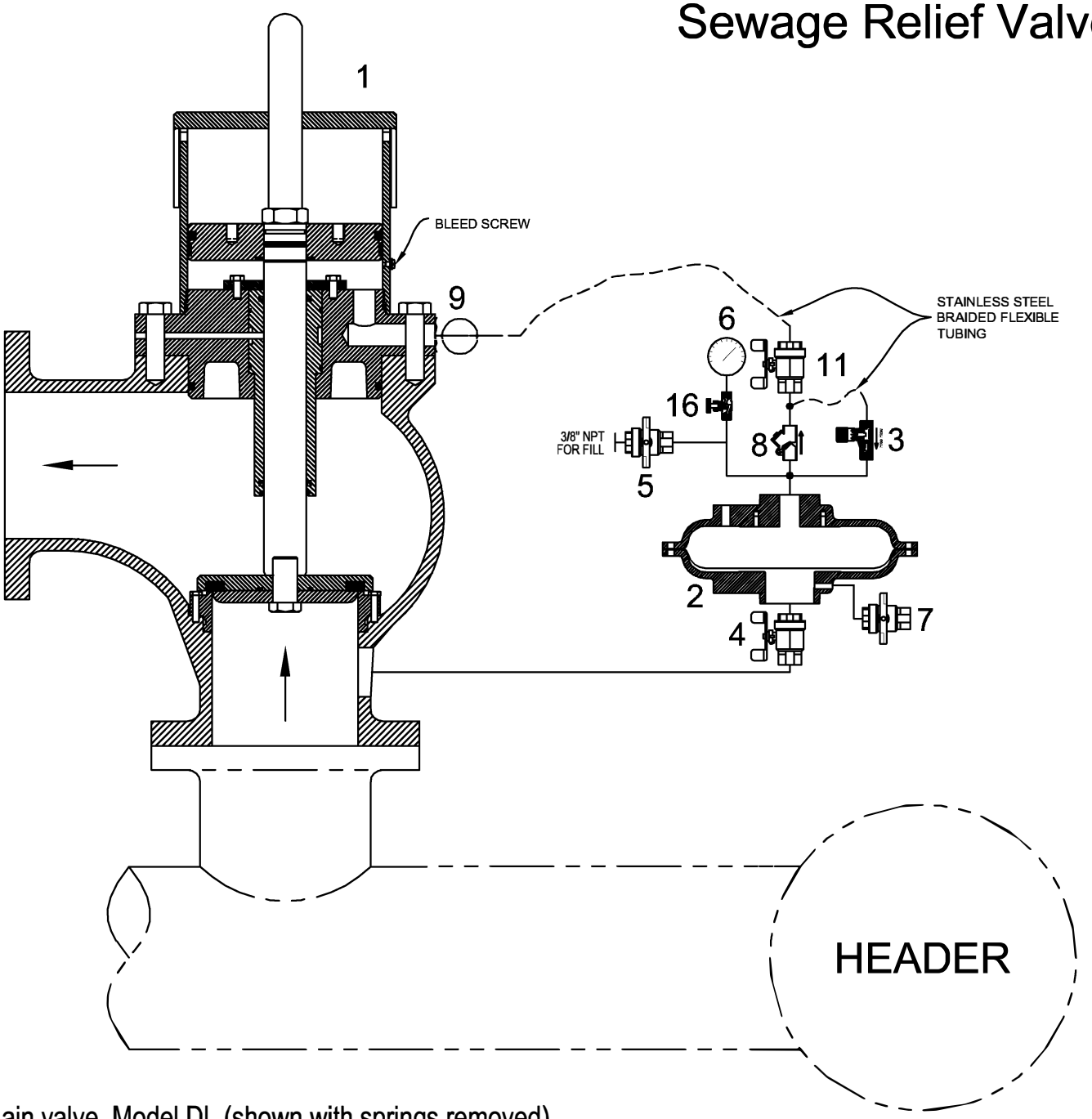
1. When the pump is ready to be started proceed as follows.
2. Check that Isolating Valves (5) and (7) are closed tight.
3. Check that connections to and from the Diaphragm Isolator are properly connected.
4. Open Isolating Valves (4), (9) and (11) and inlet isolating valve.
5. Pressurize the valve slowly to maximum normal system pressure.
6. Adjust
7. Adjust Closing Speed Control (3) as necessary.

Note that this valve can be opened manually to either flush it or to better clean the Inner Valve area.

To open the valve manually, close Isolating Valve (4) and connect a pressure source to (7). Open Isolating Valve (7) and apply pressure. If the pressure source provides sufficient pressure, Main Valve (1) should open. If the valve does not open, spring force may have to be removed to help the valve open.

A-8640C

Sewage Relief Valve



1. Main valve, Model DL (shown with springs removed).
   * MUST be installed with stem vertical.
2. Diaphragm Isolator.
3. Closing speed Control.
4. Isolating Valve.
5. Isolating Valve.
6. Pressure Gauge.
7. Isolating Valve.
8. Swing Check - TEFLON Seated.
9. Isolating Valve.
11. Isolating Valve.
15. Spare mineral oil (not shown).
16. Model 852B gauge cock.

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Drawn By:	Approved By:
Scott grover	
Date:	Drawing:
March 18,2002	A-8640C

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