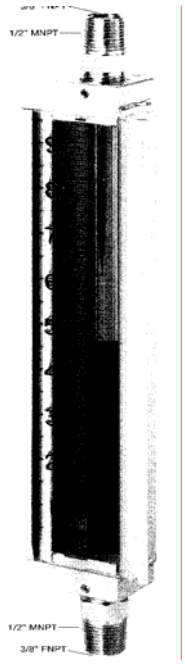
ARCHON Industries, Inc

Liquid Level Gauges

Models:

BT-LLG **ND-LLG**



INSTALLATION & MAINTENANCE INSTRUCTION

Instruction No.:	**1014.2**
Revision Issued:	**3/01/03**
Approved:	**Engineering Manager**

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Warning

ONLY QUALIFIED PERSONNEL WHO ARE FAMILIAR WITH GAUGE GLASS VALVES AND THEIR OPERATION SHOULD UNDERTAKE INSTALLATION OF THIS PRODUCT.

Danger

Failure to properly install could result in serious personal injury and property damage. Read all warnings and instructions before performing installation or maintenance. Safety glasses and gloves should be worn at all times when working with or examining water gauge glass and connections.

NOTE: Gauge is not suitable for steam-water applications.

INSTALLATION

1. Prior to actual installation, turn handwheel on the upper and lower valves clockwise until stem closes against seat.

2. Apply Teflon tape or pipe dope to pipe threads and mount to vessel. It is recommended to use a union type pipe fitting between the gauge valves and vessel connections.

3. Check vessel connections as well as vent and drain connections at each end of the gauge to ensure pressure tightness.

4. Open the valves slightly by turning the valve handwheel counterclockwise very slowly to avoid thermal shock and mechanical stress on the tubular glass sight tube.

5. Allow gauge pressure and temperature to slowly equalize with the vessel. Do not open the valves fully.

NOTE: FAILURE TO SLOWLY BRING THE GAUGE INTO SERVICE WILL CAUSE RAPID PRESSURIZATION OF THE SIGHT TUBE WHICH COULD RESULT IN SERIOUS PERSONAL INJURY AND PROPERTY DAMAGE.

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6. Inspect gauge for leaks before proceeding with installation.

7. Ball checks have been installed in the valve bodies to prevent loss of fluid in the event of glass breakage. Open the valves completely after temperature and pressure have equalized to permit the ball checks in the valve bodies to properly seat.

   NOTE: In some circumstances where liquid being gauged tends to surge in a rapid manner, ball checks can seat and give a false level reading.

SWITCH INSTALLTION

If the installation includes capacitive switches, refer to drawing IV-LLGCAPSWITCH for instructions.

MAINTENANCE

1. During system shutdown, gauge valves should be left open to allow the gauge pressure and temperature to equalize with the vessel.

2. Should the gauge require maintenance while the vessel is in service, gauge valves should be closed completely to allow the gauge to reach ambient temperature if necessary. Liquid should be carefully drained through the drain valve on the lower gauge valve.

   NOTE: Do not proceed with any maintenance unless the gauge has been relieved of all pressure or vacuum and has reached ambient temperature. Gauge should be flushed out to remove any hazardous liquids.

3. Cleaning of the sight tube can be accomplished without removal of the sight tube from the assembly. Using a standard tube brush, access the tube via the vent/drain connections.

4. If removal of the sight tube is necessary, proceed as follows:

   a. Remove the polycarbonate shield or expanded metal shield by bending the crimped portion of the gauge frame on each end away from the shield to slide the shield out.
   b. Remove wire from around the sight tube splicer if it exists.

c. Remove two (2) hex socket head screws in the block at each end of the gauge which hold 1-1/4" square x ¼" thick O-ring compression plates in place.
d. Push the sight tube up into the upper block as far as is required to allow the lower end of the tube to swing out from inside the gauge frame.
e. Carefully lower the sight tube out of the block in the upper end of the gauge frame. (NOTE: If the sight tube has a splicer, extra care should be taken so that the sight tube assembly does not disassemble.)
f. Remove O-ring compression plates and seals from the sight tube.

5. To install the sight tube, proceed as follows:

   a. Insert sight tube into splicer if one exists. If a Teflon shrink-tube splicer exists it will be necessary to place Teflon O-rings cushion between adjoining sight tubes and heat-shrink the Teflon splicer in place.
   b. Slide 1-1/4" square x ¼" thick O-ring compression plates onto each end of the sight tube.
   c. Slide O-ring seals onto each end of sight tube.
   d. Push end of sight tube into hole in block inside frame on upper end of gauge as far as is required to enable lower end of the sight tube to swing over and into hole in block inside frame on lower end of the gauge.
   e. Install two (2) hex socket head screws in the block at each end of the gauge which hold 1-1/4" square x ¼" thick O-ring compression plates in place and tighten securely.

6. Integral valve body contained on each end of gauge to be assembled / disassembled as illustrated in exploded view on the next page. (NOTE: When reassembling valve bodies, it is recommended to use a lubrication compound on the threads to protect against corrosion, galling, etc.)

Warning

Read all warnings and instructions before performing installation or maintenance. Safety glasses and gloves should be worn at all times when working with or examining water gauge glass and connections.

Danger

Improper installation or maintenance of gauge glass and connections can cause immediate or delayed breakage resulting in bodily injury and/or property damage.

Use And Care

DO NOT's

DO NOT use glass if it contains any scratches, chips, or any other visible signs of damage.
DO NOT reuse any tubular glass packing.
DO NOT subject gauge glass to bending or torsional stresses.

Use And Care

DO NOT's

DO NOT over tighten glass packing nuts.
DO NOT allow glass to touch any metal parts.
DO NOT exceed the recommended pressure of the gauge or gauge glass.
DO NOT clean the gauge or gauge glass while pressurized or in operation.

DO's

DO verify proper gauge has been supplied.
DO examine gauge glass and packing carefully for damage before installation.
DO install protective guards and utilize automatic ball checks where necessary to help prevent injury in case of glass breakage.
DO inspect the gauge glass daily, keep maintenance records, and conduct routine replacements.
DO protect glass from sudden changes in temperature such as drafts, water spray, etc.

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