INSTRUCTIONS

Series 4300

CryoCombo Unmounted - CCU

Orange Research

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This assembly is a purpose driven design. It consists of a tank level gauge and an integral valve manifold. There is a port on the level gauge for adding a pressure gauge. This compact design is intended to reduce cost, installation time and maintenance.

HOW IT WORKS

Level Gauge

A spring-loaded diaphragm, each side exposed to different pressures, moves in proportion to the level of the tank liquid. The high pressure, from the bottom of the tank, and the low pressure, from the top of the tank, each act against this diaphragm moving it laterally within the gauge pressure housing. A magnet attached to the diaphragm induces a rotation of the pointer magnet assembly, located within the dial case, allowing the tank level to be indicated on a large, easy-to-read scale.

Valves

An integral compact valve manifold contains an equalizer valve and two isolation valves. The isolation valves isolate the high-pressure and low-pressure sides of the diaphragm sensor.

INSTALLATION

Secure the gauge to the tank using the four 1/4”-20 mounting holes on the back of the gauge and the valve manifold. To attach to a panel, use 3 screws to mate the gauge flange to the panel. Back mounting is always necessary to support the assembly properly.

The high and low pressure process ports are located at the bottom of the valve manifold. Connect the high pressure port, marked “+”, to the bottom of the tank and the low pressure port, marked “-“, to the top of the tank.

To add a tank pressure gauge to our assembly, remove the hex plug at the top of the level gauge housing. Install a pipe nipple and a pressure gauge in this port. The pipe nipple should be long enough to clear the top of the level gauge. Orange Research supplies an optional pipe nipple for this purpose.

During installation and filling the equalizer valve is open to ensure equal pressure to each side of the diaphragm. During operation, the equalizer valve is closed to allow the high and low pressure to act against the diaphragm and indicate tank level.

Note: Open each valve slowly to protect the gauge from sudden changes in pressure.

MAINTENANCE

This tank level gauge was designed for simplicity and durability. Because of this, there is little maintenance required.

Level Gauge

Though unlikely, any lack of movement in the pointer may be due to debris in the diaphragm pocket. Remove the low pressure port end cap using a spanner wrench, removing the spring and washer. Make sure the order of assembly is noted for reassembly. Check the side pressure port o-rings and replace if necessary. Blow dry air into the low pressure side housing. Lubricate o-ring as described above and reassemble the end cap, securing tightly.

Valves

If necessary, the valves may be removed for cleaning by first removing the stainless steel roll pins. Then turn the valve assemblies counter clockwise until they clear the manifold. Check the condition of the o-ring seals and replace if necessary. Clean the valve seat with alcohol and dry air. For oxygen service, lubricate o-rings with chemically inert, oxygen compatible lubricant. For non-oxygen service, lubricate o-rings with an all-purpose silicone lubricant. New copper washers must be installed when replacing the valve assemblies

Note: When blowing dry air into the unit, make sure all valves are removed to ensure debris is able to exit the pressure body completely.

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