



Common Cause for Incorrect Contents Indication on HELiOS Reservoirs

If the contents indicator is reading empty or low when the reservoir is full, and there are no leaking fittings or connections, then there may be an obstruction in the pressure sensing line. The most common cause of such obstructions is the formation of ice crystals within the line. To prevent these formations, it is important that the user purge the transfer hose of moist air prior to filling the reservoir, and ensure that both the male QDV on the reservoir and the female QDV on the portable are thoroughly dried before filling the portable. In addition, an empty reservoir should never be allowed to sit with either the vent valve or the flow control valve in an open state. In the event moisture does infiltrate the unit and block the pressure sensing line, the unit will need to be emptied and purged according to the procedures listed below.

PROCEDURE TO EMPTY THE RESERVOIR

1. Use the vent wrench to open the vent valve on the reservoir and allow the unit to depressurize.
2. To remove the remaining liquid, connect the pressurizing fixture (P/N B-701731-00) to the fill connector on the reservoir unit. Attach an adjustable 0 to 100 psig (0 to 690 kPa) source of gaseous nitrogen or gaseous oxygen to the DISS fitting inlet on the fixture.

CAUTION: It is never acceptable to use air from an onsite air compressor to purge liquid oxygen reservoirs. In addition to being too humid, such mechanically compressed air may contain trace amounts of oil and other hydrocarbons not suitable for use with oxygen.

3. Adjust the regulator until the gauge on the pressurizing fixture reads approximately 15 psig (103 kPa). With the vent valve open, allow the system to purge until all of the contents has been removed.

Note: Emptying the unit as described above will cause the vent valve to accumulate frost. A good way to ensure all of the liquid has been removed is to allow the unit to continue purging for about 15 minutes after the vent valve has thoroughly thawed.

PROCEDURE TO PURGE THE RESERVOIR

1. Before servicing the unit, empty the liquid oxygen contents from the reservoir.
2. Remove the upper shroud.
3. Use the vent wrench to open the vent valve on the reservoir.
4. With no pressure in the unit, disconnect both the flexible black (low) pressure sense line and the flexible red (high) pressure sense line from the bottom of the contents indicator. Using a wire tie, lightly secure the tubes to the vent valve to prevent them from moving around.

CAUTION: Always vent and empty the reservoir before disconnecting the pressure sensing lines.

5. Connect the pressurizing fixture (P/N B-701731-00) to the fill connector on the reservoir unit. Attach an adjustable 0 to 100 psig (0 to 690 kPa) source of gaseous nitrogen or gaseous oxygen to the DISS fitting inlet on the fixture.

CAUTION: It is never acceptable to use air from an onsite air compressor to purge liquid oxygen reservoirs. In addition to being too humid, such mechanically compressed air may contain trace amounts of oil and other hydrocarbons not suitable for use with oxygen.

6. Adjust the regulator until the gauge on the pressurizing fixture reads approximately 15 psig (103 kPa). With the vent valve open, allow the system to purge for about 45 minutes.
7. After approximately 45 minutes, close the vent valve. Allow an additional 15 minutes for gas to flow through and purge the pressure sensing lines. Confirm that the sensing lines are free of obstructions by verifying there is air flowing through the lines.
8. Disconnect the pressurizing fixture and open the reservoir vent valve. Reconnect both pressure sensing lines to the contents indicator, with the red tube being "high" and the black tube being "low". Verify correct contents indicator read

CAIRE Respiratory Service School

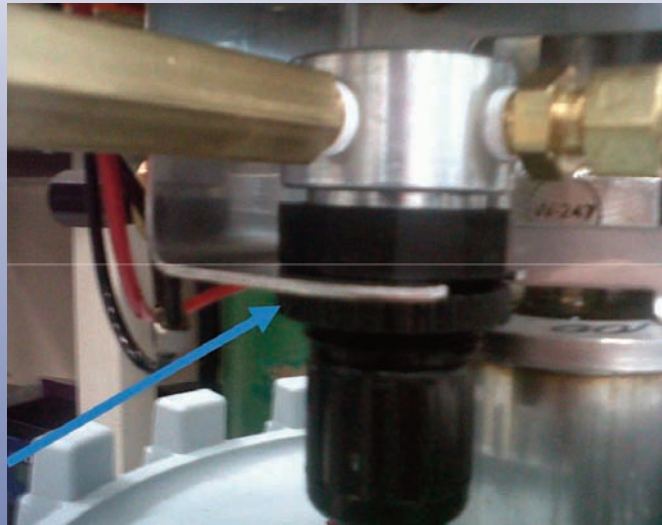
There will be a CAIRE Service School Training September 14-15 at our location in Ball Ground, GA. To participate, please complete and return the attached Registration Form.

Seminar topics include:

- Liquid oxygen (LOX) hazards and safety precautions
- Principles of pressure, flow and liquid oxygen saturation
- Functions of the major components of a liquid oxygen system
- HELIOS system theory of operation
- Reservoir and portable filling procedures with hands-on experience
- Set up and use of test equipment
- Troubleshooting, repair and performance verification/testing procedures with hands-on experience

Pressure Regulator Nut on HELIOS Standard Bases

Although the part number for the plastic pressure regulator nut shown below is not published in any literature, it is an orderable part and can be purchased using part number 10004925.



Customer & Technical Info

For ordering information contact

Customer Service:

Europe:	+44 1344 403100
Australia/New Zealand:	+61 2 9749 4333
US Toll Free:	800.482.2473
Asia/Pac Rim:	770.721.7759
The Americas:	770.721.7759

For technical information contact

Technical Service:

Europe:	
Phone:	+441344 403100
Email:	technicalservice.europe@chart-ind.com
US Toll Free	
Phone:	800.482.2473
Email:	techservice.usa@chart-ind.com
Asia/Pac Rim	
Phone:	770.721.7759
Email:	techservice.usa@chart-ind.com



CAIRE Inc.'s Liquid Oxygen System 2010 Technical Training Seminar

CAIRE Inc. is offering a factory-based technical training seminar on the array of liquid oxygen system in the CAIRE Family, including HELiOS, Spirit Family, Liberator, and others. The information presented in this two-day seminar is designed to make your technician comfortable with how the Liquid Oxygen system works, how to identify and resolve equipment problems, and how to keep your equipment in top operating condition. Certificates of attendance will be presented at the conclusion of the seminar.

SEMINAR DATES

~~March 30 & 31~~

~~June 22 & 23~~

September 14 & 15

December 7 & 8

To determine seating availability in these seminars please call CAIRE Inc.'s Technical Service Department at 800.482.2473 or e-mail us at techservice.usa@chart-ind.com. Thank you.

SEMINAR LOCATION AND HOURS

The technical training seminars will be held in our training center located at:

**CAIRE Inc.
2200 Airport Industrial Drive
Suite 500.
Ball Ground, Georgia 30107
Local Phone: 770.721.7700**

The class sessions will begin promptly at 8:00 AM and end at approximately 4:45 PM. Attire for the seminar is casual. However, since we will be working with liquid oxygen (-297° F) and will be taking a tour of the manufacturing facility, shorts and sandals should *not* be worn during class.

NO SEMINAR FEE

There will be no Seminar Fee for CAIRE Inc.'s Technical Trainings. Seminar participants are responsible for transportation to and from the airport and the training location. Participants are also responsible for their hotel rooms and any charges that are related to their stay. CAIRE Inc. will provide all meals throughout the two-day training.

(Please note any special needs or food allergies on the registration form)



CAIRE Inc.'s Liquid Oxygen System 2010 Technical Training Seminar

SEMINAR REGISTRATION INFORMATION

To register for a seminar, please complete the attached seminar registration form and fax to CAIRE Inc. LOX Training at 770.721.7701. **You will be notified if the seminar is full. Class size is limited and registration is on a first come, first served basis. Please do not finalize travel arrangements until your enrollment is confirmed. Note: A seminar may be cancelled due to insufficient enrollment.** If your plans change and you need to cancel your reservation, please do so by calling 800.482.2473 at *least 14 days* prior to the seminar date.

LODGING AND TRANSPORTATION

Hotel reservations for participants in the CAIRE Inc.'s technical training seminars may be made at the following hotels:

Hampton Inn
710 Transit Ave.
Canton, GA 30114
Phone: 770.345.7400

Best Western
705 Transit Ave.
Canton, GA 30114
Phone: 770.345.6800

When making reservations for the seminar at these hotels, you may ask for the Chart corporate room rate. Our corporate rate is available only when you make reservations through the local hotel's reservation desk and you mention that you are attending a CAIRE/ Chart seminar.



**CAIRE Inc.'s Liquid Oxygen System
2010 Technical Training Seminar
Registration Form**

*Please fax completed form to 770.721.7701
Attn: Elizabeth Hofstetter
* denotes required field*

***Seminar Date:** _____

***Attendee Name:** _____

***Company:** _____

***Company Address:** _____

***City:** _____

***State:** _____

***Postal Code:** _____

***Phone Number:** _____

***Fax Number:** _____

***Email Address:** _____

***Date:** _____

Circle all Products that Apply to You:

HELIOS Reservoirs	Liberator Reservoirs	Companion Reservoirs
HELIOS Portables	Stroller/Sprint Portables	Spirit Portables
Companion Portables	All of the Above	

<u>Hotel you are staying at:</u> (circle)	Hampton Inn 710 Transit Ave. Canton, GA 30114 770.345.7400	Best Western 705 Transit Ave. Canton, GA 30114 770.345.6800
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NOTE: We will not be providing transportation to and from these hotels.

Registration Deadline: The deadline for submission of this registration form is one week prior to the start of the LOX Training Seminar.