



Quarter 4 - 2020 Med Tips

PRODUCT UPDATES

CAIRE offers Virtual Service Schools covering both LOX and Concentrator lines.

Each class is a comprehensive program that focuses on the technical and service aspects of the CAIRE family products. Class time is divided between lecture and hands-on workshops. The seminars will help the student develop a better understanding of how liquid oxygen equipment or concentrators work, how to identify the symptoms and causes of potential problems and how to use the technical information that is available in the Technical Manuals. Registration for CAIRE's Service Schools is mandatory. Registration forms must be received two weeks prior to the start of the class in order to guarantee availability and materials.

Concentrator Service School Topics include:

- Concentrator hazards and safety precautions
- Principles of pressure, flow and saturation
- Functions of the major components of a portable/stationary concentrator
- Theory of operation
- Hands-on experience with the concentrators
- Set up and use of test equipment
- Troubleshooting, repair and performance verification/testing procedures with hands-on experience

LOX Service School 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

To register for Service School, please email:

Techservice.global@caireinc.com for USA Training or jim.gibson@caireinc.com for European Training.

New G4 Lock Plate

There has been a material change to the 16 position G4 lock plate, PN 13095627, from Lexan Polycarbonate to aluminum 6061-T6. The new aluminum lock plate meets the torque requirements described in IEC 60601 Ed. 3.1 Clause 15.4.6.

Part number 13095627 will not change, and when current plastic parts stock is depleted use of the new aluminum lock plate will be implemented. See picture below.



Left: old plastic lock plate. Right: new aluminum lock plate.

Freestyle® Comfort™ Battery Capacity Test

The below procedure should be used to test the full capacity of the Freestyle Comfort power cartridge:

1. Fully recharge the battery using either a Freestyle Comfort connected to AC power or a desktop charger.
2. Install the fully charged power cartridge into a Freestyle Comfort and remove any external power cords.
3. Turn the Freestyle Comfort on and enter on O2 Test Mode.
4. To enter test mode press **+, +, -, -, +, -, +, -** on the keypad. The entire sequence needs to be entered within 5 seconds. If a mistake is made while entering this sequence, the user must wait 5 seconds before attempting again.
5. Once in test mode the flow can be increased or decreased as usual.
6. While in test mode, the unit will pulse at a pre-programmed frequency of 20 breaths per minute.
7. Using a stopwatch or timer, record the time it takes for the Freestyle Comfort to completely shut down.
8. Take this time recorded and compare it to the full-capacity operating time of a new power cartridge in the table below. If this time is less than 50% of the full capacity of a new power cartridge, it is recommended that the battery be taken out of service. See table below:

Battery Pack Duration Freestyle Comfort				
Setting	New Single (8-cell) Battery Duration	Minimum Duration Time (50% of New Single Battery)	New Double (16-cell) Battery Duration	Minimum Duration Time (50% of New Double Battery)
1	Up to 8 hours	4 hours (4:00)	16 hours	8 hours (8:00)
2	Up to 4 hours	2 hours (2:00)	8 hours	4 hours (4:00)
3	Up to 3 hours	1.5 hours (1:30)	6 hours	3 hours (3:00)
4	Up to 2.25 hours	1.12 hours (1:07)	4.5 hours	2.25 hours (2:15)
5	Up to 2 hours	1 hours (1:00)	4 hours	2 hours (2:00)

NOTE: There are many factors that influence battery run time on Freestyle Comfort:

- Ambient temperature
 - Ambient pressure
 - Compressor hours
 - Battery age
 - Test configuration
9. To exit test mode, turn the device off or enter the test mode sequence a second time. Be sure to exit test mode before returning the unit to patient use.

The Freestyle Comfort batteries are designed to last 300 charge/discharge cycles.

VisionAire® Power Cord Selection and Replacement Procedure

If replacing the power cord of a VisionAire device, make sure to replace it with the equivalent cord suitable to the particular unit. Units originally manufactured with a ferrite ring on the power cord must reuse the existing ferrite or order a replacement ferrite. See Table below.

MAIN BOARD	REGION	CORD	FERRITE
CB016 CIRCUIT BOARD VISIONAIRE 3 LED 60601 MDD V2	USA	NA	NA
	EU	CD001-13	MI275-1
	UK	CD001-17	MI275-1
	AUS	NA	NA
	CHINA	NA	NA
CB078 CIRCUIT BOARD, ASSY,MAIN, VISIONAIRE 1 LED	USA	CD038-12	NOT NEEDED
	EU	CD038-13	NOT NEEDED
	UK	CD038-17	NOT NEEDED
	AUS	NA	NA
	CHINA	CD037-2	21110498
CB151 CIRCUIT BOARD, MAIN, VISIONAIRE 1 LED	USA	CD011-13S	MI275-1
	EU	CD011-4	MI275-1
	UK	CD011-18	MI275-1
	AUS	21153269-1	MI275-1

CB102 CIRCUIT BOARD,MAIN, VISIONAIRE 1 LED	CHINA	21153269-1	MI275-1
	USA	CD011-13S	MI275-1
	EU	CD011-4	MI275-1
	UK	CD011-18	MI275-1
	AUS	21153269-1	MI275-1
	CHINA	21153269-1	MI275-1

Please refer to Service Bulletin PN 21495507.

Companion 5™ Flowmeter Outlet Pressure Test

CAIRE utilizes the new style flowmeter (21494452) on the 3rd Edition Companion 5 models. The previous style Companion 5 models will still use Flowmeter 15063266. A new version of the Companion 5 concentrator is being released that is compliant to IEC 60601-1 edition 3.1 and IEC 60601-1-2 4th edition.

Units produced as of July 2020 for China and Europe will use flowmeter 21494452 to be compliant to IEC 60601-1 edition 3.1 and IEC 60601-1-2 4th edition. Units produced prior to July 2020 use flowmeter 15063266. These changes do not apply to 120 V models of the Companion 5. See below.



PN:15063266



PN:21494452

Two different flowmeter styles for the Companion 5.

Please refer to Service Bulletin PN 21495524.

LOX QDV Cleaning Kit PN 21484987

It is extremely important to wipe dry the fill connectors on the liquid oxygen equipment prior to the commencement of any fill. The scope of this kit is to clean moisture off the QDVs to reduce the occurrence of them freezing open from water turning to ice and not allowing the poppet to close. See pictures below.



Cleaning kit PN 21484987

Please refer to Instruction PN 21486583.

Travel Power Adapter

Portable concentrators power supplies are rated for universal voltages but require various power cords depending on the location. Using the Travel Power Adapter will keep you from having to carry different cords for the country you are visiting.



Out-Of-Warranty Repair Programs

Out-Of-Warranty Repair Programs

- Extend The Life Of Your Fleet
- No Quote Approval Process
- Rapid Turnaround
- Factory-Certified Parts
- Complete Factory Inspection



CAIRE-Certification Program

- Units receive a replacement or rebuilt:
 - Compressor
 - Sieve Beds
- 2-year warranty upon completion.

Concentrator	Price
Eclipse 5	\$895



Flat Rate Repair Program

- Full inspection and replacement of necessary parts
- 1 year warranty upon completion

Concentrator	Price
NewLife Elite	\$325
NewLife Intensity 10	\$650

The following items will no longer be offered for flat rate or CAIRE -Certification after the dates listed below.

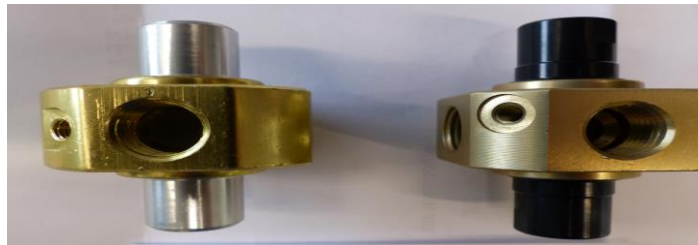
Eclipse 5 (3-LED)	10/1/2019
VisionAire 5	3/31/2019
Focus	3/31/2019
FreeStyle 3/5	3/31/2019
NewLife Elite (1 LED)	12/31/2020
NewLife Intensity 10 (1 LED)	12/31/2020

CAIRE Repair Centers

- Northeast Regional Service Center - **Buffalo, NY**
- Southeast Regional Service Center - **Ball Ground, GA**
- West Regional Service Center - **San Diego, CA**

Companion Reservoir R/E Valve Design Differences

The Relief/Economizer (R/E) valve on the Companion Reservoir may vary in design when ordered; this difference is only a supplier difference and does not affect the performance or the specifications of the valve. The difference is the thread for the level gauge high-pressure tube barb is slightly on the side. The part number remains the same: 10002368. See the picture below for the parts currently being sold.



Current in Service parts

Liquid Oxygen Time Use Chart

The Liquid Oxygen time use chart has been updated to include the pediatric flow duration for all our products that use pediatric flow control valves. Please do not hesitate to download the file from our web site

The file can be downloaded at: <http://files.caireinc.com/CutSheets-Lit/ML-LOX0007.pdf>

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Please consult the applicable product instructions for use for product indications, contraindications, warnings, precautions, and detailed safety information.



SERVICE BULLETIN

PN: 21495524

RELEASE DATE: October 14, 2020

MODEL: Companion 5™

ISSUE: Companion 5™ Flowmeter Outlet Pressure Test

NOTES: CAIRE is using the new style Flowmeter 21494452 on the 3rd Edition Companion 5 models. The previous style Companion 5 models will still use Flowmeter 15063266. A new version of the Companion 5 concentrator is being released that is compliant to IEC 60601-1 edition 3.1 and IEC 60601-1-2 4th edition.

Units produced as of July 2020 for China and Europe will use flowmeter 21494452 to be compliant to IEC 60601-1 edition 3.1 and IEC 60601-1-2 4th edition. Units produced prior to July 2020 use flowmeter 15063266. These changes do not apply to 120 V models of the Companion 5. **Reference Service Bulletin 21494864.**

Note: When replacing flowmeter reference table 1.

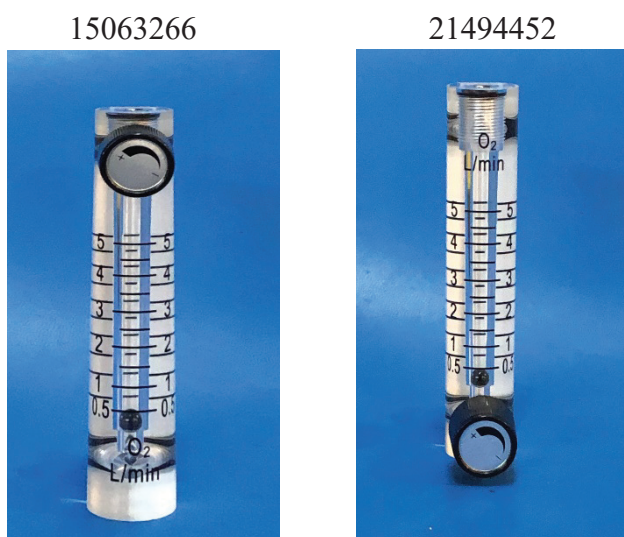


Figure 1. Two different flowmeter styles for the Companion 5

Outlet Pressure Test Procedure for Flowmeter 21494452:

- 1) Turn the power switch to the “ON” position and set flow to 5 LPM, and allow the unit to run for 1 hour prior to testing the deadhead pressure.
- 2) Install 6ft (1.82 m) of tubing to the O2 outlet port.
- 3) Teeing the tubing off to a spare flowmeter to act as a needle valve and pressure analyzer.
- 4) Slowly turn down the spare flowmeter knob until it stops.
- 5) Observe the reading on the pressure analyzer.
- 6) Acceptable range is <6 psig.
 - a) Acceptable range for China is 4.14 – 5.06 psig. If the outlet pressure is not within this range, the product regulator needs to be adjusted. (see manual for procedure)
- 7) Turn the power switch to the “OFF” position.
- 8) Remove tubing from O2 outlet port

Outlet Pressure Test Procedure for Flowmeter 15063266:

- 1) Open up the unit.
- 2) Remove the black plug from the side of the flow sensor.
- 3) Connect 5/32nd size tubing to the side of the flow sensor.
- 4) Connect the other end of the tubing to a pressure analyzer.
- 5) Turn the power switch to the “ON” position.
- 6) Open flowmeter to 5 LPM.
- 7) Allow the unit to run for 10 minutes prior to testing the pressure.
- 8) Observe the reading on the pressure analyzer.
- 9) Acceptable range is 4.3 – 4.9 psig. If the outlet pressure is not within this range, the product regulator needs to be adjusted. (see manual for procedure)
- 10) Turn the power switch to the “OFF” position.
- 11) Remove tubing from O2 outlet port.

Table 1. C5 Model by Flowmeter Type (as of October 14, 2020)

Model#	Description	Flowmeter	Complaint to IEC 60601?
21471908	Companion 5 Oxygen Concentrator 230 VAC, 50 Hz	21494452	Yes
21471909	Companion 5 Oxygen Concentrator with Bluetooth capability 230 VAC, 50 Hz	21494452	Yes
21139079	Companion 5 Oxygen Concentrator 230 VAC, 50 Hz (China) * <i>This model used 1503266 up until 7/1/2020</i>	21494452	No
15067021	Companion 5 Oxygen Concentrator 230 VAC, 50 Hz * <i>This model used 1503266 up until 7/1/2020</i>	21494452	No
15067005	Companion 5 Oxygen Concentrator 120 VAC, 60 Hz	15063266	No
21190674	Companion 5 Oxygen Concentrator 120 VAC, 60 Hz	15063266	No
21225813	Companion 5 Oxygen Concentrator with Bluetooth capability 120 VAC, 60 Hz	15063266	No

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SERVICE BULLETIN

PN: 21495507

RELEASE DATE: September 15, 2020

MODEL: VisionAire® Oxygen Concentrators

ISSUE: Power Cord Selection and Replacement Procedure

NOTES: When replacing the power cord on a VisionAire device, make sure you replace it with the equivalent cord suitable to that particular device. Units originally manufactured with a ferrite bead on the power cord must reuse the existing ferrite bead or order a replacement ferrite bead when replacing the power cord.

MAIN BOARD	REGION	CORD	FERRITE BEAD
CB016 CIRCUIT BOARD VISIONAIRE 3 LED 60601 MDD V2	USA	NA	NA
	EU	CD001-13	MI275-1
	UK	CD001-17	MI275-1
	AUS	NA	NA
	CHINA	NA	NA
CB078 CIRCUIT BOARD, ASSY, MAIN, VISIONAIRE 1 LED	USA	CD038-12	NOT REQUIRED
	EU	CD038-13	NOT REQUIRED
	UK	CD038-17	NOT REQUIRED
	AUS	NA	NA
	CHINA	CD037-2	21110498
CB151 CIRCUIT BOARD, MAIN, VISIONAIRE 1 LED	USA	CD011-13S	MI275-1
	EU	CD011-4	MI275-1
	UK	CD011-18	MI275-1
	AUS	21153269-1	MI275-1
	CHINA	CD037-1	MI275-1
CB102 CIRCUIT BOARD, MAIN, VISIONAIRE 1 LED	USA	CD011-13S	MI275-1
	EU	CD011-4	MI275-1
	UK	CD011-18	MI275-1
	AUS	21153269-1	MI275-1
	CHINA	CD037-1	MI275-1

Table 1 – Power Cord Reference

Table 1 above shows the correct part number of power cord to be ordered based on the originally manufactured circuit board on the device.

Power Cord Installation

To install a new power cord, follow the steps below:

1. Place both the new power cord and old power cord together (side-by-side) to determine the location to install the strain relief on the new power cord.

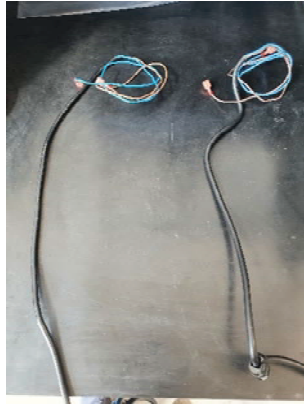


Figure 1

2. Route both wire ends of the new power cord into entry location on the base of unit and pull the power cord through the hole to the pre-determined location from step 1.

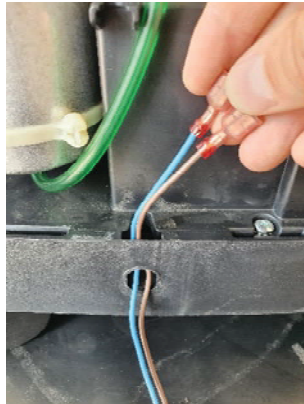


Figure 2

3. Install strain relief onto the power cord and secure the power cord to base.



Figure 3

4. Locate ferrite bead and insert both wire leads from new power cord into the center of the ferrite bead so that the outside insulation of power cord is flush with the inside rim of the ferrite bead.



Figure 4

5. Continue to wrap both power cord wires around and through the center of the ferrite bead 6 times. (The last few times will require wires to be inserted individually one at a time into center of the ferrite bead.)



Figure 5

6. Insert power cord into the holding clamps located to the right of the left sieve bed, and route the power cord to the inside of the top left sieve bed tubing connection.



Figure 6

7. Reconnect the brown wire from the power cord to the hour meter and the blue wire from the power cord to the circuit breaker.

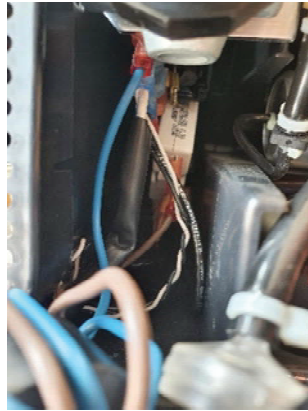


Figure 7

8. Reinstall right mounting plate assembly to center section using a Phillips-head screwdriver.

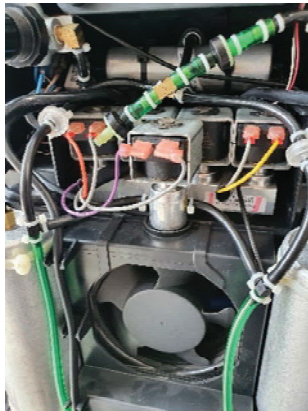


Figure 8

9. When properly installed, the ferrite bead should be located in the recessed area behind the right mounting plate assembly.

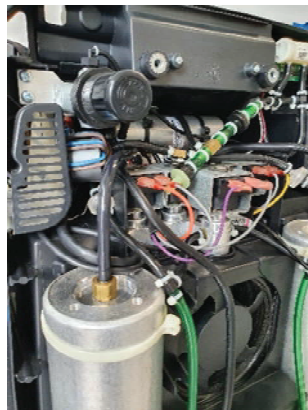


Figure 9

10. Reinstall both covers and turn unit on to confirm operation.



Figure 10

Note: For further details see VisionAire manual PN: MN241-1

Note: See Service Bulletin 21220076 and 21190303 for details on the main board changes to the VisionAire.

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