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# CAIRE®

*A Chart Industries Company*

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## Med Tips

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October 2013

### PRODUCT INFORMATION

#### SeQual Eclipse 1 (Model 1000) End of Service Life

The SeQual Eclipse 1 (Model 1000) has reached the end of its 5-year service life. Manufacturing of this product was discontinued in 2007.

Effective immediately, CAIRE is no longer supporting service or repair parts for the SeQual Eclipse 1 (Model 1000). Service parts that are solely used in the Eclipse 1 are now obsolete and will no longer be orderable or available for use in repair.

There are several components of the Eclipse 1 that are interchangeable with more current models of the Eclipse 2, 3, and 5. These will continue to be available. Therefore, some Eclipse 1 units will still be repairable depending on the fault with the unit. The concentrators can be sent to a CAIRE factory service center for inspection to determine if they are repairable, and for estimates on the repair.

Please call Technical Support at 1-800-482-2473 (Option 3) if you have questions about parts that are available.

### SeQual Integra Analog End of Service Life

The SeQual Integra Analog concentrators (Models 2063, 2380, 2371, 2363, 2785, 2786, 2622, 2620, 2623, and 2621) have reached the end of their 5-year service life. Integra concentrators with the floating ball flow adjustment are designated as "analog units".

Effective Immediately, CAIRE is no longer supporting service parts for the analog Integra concentrators. Service parts that are solely used on Integra Analog units are now obsolete and will no longer be orderable or available for use in repair.

CAIRE is still supporting service of the Integra E-Z models. Models with digital flow display screens are designated as the "Integra E-Z". Parts that are used interchangeably on both models will continue to be available.

Please call Technical Support at 1-800-482-2473 (Option 3) if you have questions about parts that are available.

### C1000 Case Screw Changes

CAIRE has updated the screws used on the C1000 liquid oxygen portables. A number of the screws used on the C1000 case are similar in size. Therefore, CAIRE has consolidated the the various types of screws necessary for the case. Only two types of screws will now be used for the C1000 case. This allows for easier and simpler service. Please see the photos below for details regarding the newly updated part numbers.

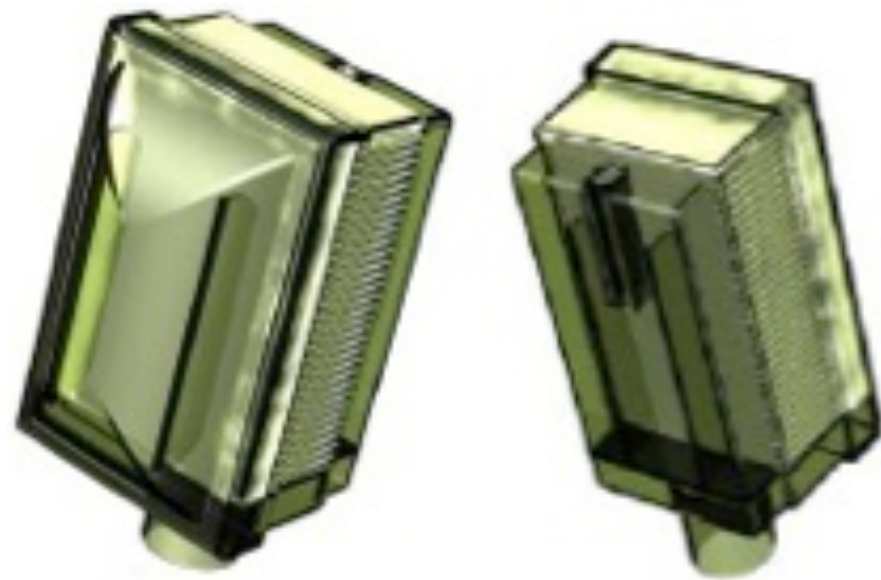


### Integra Compressor Filter Change

CAIRE has changed the compressor inlet filter for the Integra 10 L stationary oxygen concentrator to a new style. The new style is different in color and shape and does not change the functionality of the unit.



Old Style (PN 2607-SEQ)



New Style (PN 4405-SEQ)

### **Integra O2 Outlet**

CAIRE has changed the part number for the Integra O2 outlet. When ordering the O2 outlet, PN 20632206 should be used. This will replace the previous part number of #2659-

SEQ.



## HELPFUL HINTS / FAQs

### Frequently Asked Eclipse Battery Questions

Q: What type of battery is used in the Eclipse concentrator?

A: The Eclipse power cartridge contains two lithium ion batteries. Each of the batteries contains 7.92 grams of lithium ion content.

Q: Can the same battery be used in all models of the Eclipse (1, 2, 3, 5)?

A: Yes, the same battery may be used in all models of the Eclipse. The face-plate of the Eclipse 5 battery is a slightly darker color than previous Eclipse battery models, but is still compatible.

Q: How long does it take a battery to fully charge when charging from inside of the Eclipse on AC power?

A: The Eclipse battery can take from 3-5 hours to charge under these conditions. The battery will charge while the Eclipse is connected to AC power whether the Eclipse is on or off.

Q: Is it harmful to the battery to leave it installed in the Eclipse for an extended period of time after it has fully charged?

A: No. The Eclipse battery can be left inside of the machine at all times without causing damage to the power cartridge.

Q: Is it best to store the battery fully charged or empty?

A: The best way to care for a lithium ion battery is to store it fully charged.

Q: How long will the Eclipse battery maintain a full charge while sitting in storage?

A: When properly stored in a cool, dry location, the battery can sit unused for up to 12 months without appreciable self-discharge.

Q: What is the estimated life-span of a battery?

A: The battery will maintain 80% of its capacity for 500 full charge and discharge cycles. This is difficult to directly equate to a number of years or months. As a general rule, CAIRE recommends that all batteries older than 2 years be tested for their capacity prior to being given to a patient.

Q: How can you determine the age of an Eclipse battery?

A: A white sticker containing a barcode can be found on the top of the battery. The serial number, or lot number, of the battery is given on this sticker. The first two digits of the lot/serial number represent the year that the battery was manufactured. For example, if the first two digits displayed are "08", as seen below, then the battery was manufactured in 2008.



Q: When does CAIRE recommend that a battery be taken out of service?

A: The battery should be taken out of service when the battery will no longer maintain 80% of its full capacity. It has been shown that after batteries reach 80% of their capacity, their capacity will begin to decrease quickly and unpredictably. Once battery capacities decline past this 80% level, their performance would not be considered reliable.

## Eclipse Battery Capacity Test

The below procedure should be used to test the full capacity of the Eclipse power cartridge.

1. Install the power cartridge in the Eclipse and remove any AC or DC power cords.
2. Turn the Eclipse on and let it run on a continuous flow setting.
3. Allow the Eclipse to run until the unit completely shuts down. Do not turn the Eclipse off when it begins to alarm for a low battery. Let it continue to run until the battery is completely drained.
4. Remove the power cartridge (battery) from the Eclipse and allow it to cool for approximately 2 hours.
5. Fully recharge the battery using either an Eclipse connected to AC power or a desktop charger.
6. Install the fully charged power cartridge into an Eclipse and remove any external power cords.
7. Turn the Eclipse on and let it run at the desired continuous (LPM) flow rate for testing.
8. Using a stopwatch or timer, record the time it takes for the Eclipse to completely shut down.
9. Take this time recorded in Step 8 and compare it to the full capacity operating time of a new power cartridge in the table below. If this time is less than 80% of the full capacity of a new power cartridge, it is recommended that the battery be taken out of service.

<b>Continuous Flow Setting</b>	<b>New Battery Full Capacity Operating Time</b>	<b>Minimum Operating Time (80% of New)</b>
0.5 LPM	4.4 Hours (4:24)	3.5 Hours (3:30)
1.0 LPM	3.7 Hours (3:42)	3.0 Hours (3:00)
2.0 LPM	2.0 Hours (2:00)	1.6 Hours (1:36)
3.0 LPM	1.3 Hours (1:18)	1.0 Hours (1:00)

## Eclipse Battery Calibration

**CAIRE recommends that the Eclipse power cartridge (battery) be calibrated once monthly.**

Calibration consists of completely draining and recharging the battery cartridge. This procedure is part of proper care for the lithium ion battery. Battery calibration will not only help to maximize the life of the battery cartridge, but will also ensure that a full charge lasts as long as it should when the patient is using the Eclipse.

Patients can perform this procedure once monthly as part of their regular use of the Eclipse. The best recommendation for providers is to perform this procedure every time the Eclipse returns to their shop (between patients, maintenance, etc.). Please see the battery calibration procedure below:

1. Install the power cartridge in the Eclipse.
2. Remove external power cords and operate the Eclipse from the power cartridge.
3. Allow the Eclipse to completely discharge the power cartridge. Do not connect to AC power or turn off the Eclipse when it begins to alarm for low battery. Allow the Eclipse to run until it shuts off and no battery power is remaining.
4. Re-attach the external AC power source. Verify that the external power indicator is lit on the front panel of the Eclipse. Leave the power cartridge installed. Charging should begin automatically when the battery reaches proper temperature.
5. Allow the power cartridge to completely charge, as indicated by the meter on the front display panel.

## **Eclipse Battery Troubleshooting**

### **Symptom:**

Eclipse has a FAIL 95 error message displayed on the screen. The FAIL 95 indicates that the Eclipse has shut off due to a "Battery Communication Error."

-or-

The Eclipse is alarming with a yellow light. The battery display is not showing that the battery is charging. It is giving an alarm code of 01 (Eclipse 1 & 2) or 001 (Eclipse 3 & 5) when the "no-smoking" icon is pressed. This error code indicates that the Eclipse "Cannot Charge the Battery Cartridge."

### **Troubleshooting:**

The first step is to reset the Eclipse to see if the failure or error code reoccurs. The Eclipse will not turn back on or deliver air until it is reset once the FAIL 95 error has occurred. The Eclipse is reset by first removing the power cartridge and any external power cords. This will cause the code to disappear from the screen and the red light to go off. Reconnect the power sources approximately 20 seconds later and the Eclipse should power back on as normal.

If the fail or error code does not return after run time, then you can continue to use the Eclipse normally. If the FAIL 95

you can continue to use the Eclipse normally. If the FAIL 95 or alarm code occurs again, then there is a malfunction causing this error. This error can either be caused by a problem with the Eclipse, or simply with a faulty battery.

The easiest way to determine if the repeating error is caused by a fault with the Eclipse or the power cartridge is to try running the Eclipse with a second, or spare, battery cartridge.

If the FAIL 95 or error code occurs again with the second battery, then the Eclipse itself will need to be serviced. Contact CAIRE Technical Support (contact information at the bottom of this email) for more information.

If the alarm condition does not occur with the second battery, then you have diagnosed the original battery as the faulty component. In this case, the faulty battery would simply need to be replaced.

**Symptom:**

The Eclipse battery is not holding a charge. The battery is showing as being fully charged, but it is not lasting as long as it should.

**Troubleshooting:**

Any time battery duration is suspected to be low, the first step is to attempt to calibrate the battery cartridge. Often times, doing this can increase the capacity of a full charge and maximize the time that a full charge will last. You may want to reference the "Calibrate Battery" section in the corresponding procedure above. If the battery still does not last as long as it should after calibration, then the battery may be past its useful life. Perform the battery capacity test given above to determine if the battery needs to be replaced.

**ACCESSORIES**

**Liquid Oxygen Portable Bags and Backpacks**

A carrying bag is available for all CAIRE portable units. Use the table below as a guideline for ordering these accessories.

Portable Unit	Type of Carrying	Part Number
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	<b>Accessory</b>	
Stroller/Sprint/ Hi-Flow Stroller	Back Pack/Shoulder Pack	13214825
Companion C1000/C1000T	Back Pack/Shoulder Pack	10018138
Companion C500/C550	Hip Pack	B-778625-00
HELiOS Plus (H300)	Hip Pack	B-701654-00
HELiOS Marathon (H850)	Back Pack	069209
Spirit 300	Hip Pack	11843361
Spirit 600/1200	Back Pack/Shoulder Pack	13214825

## SERVICE SCHOOLS & TRADESHOWS

**Mark Your Calendars for our Upcoming 2013 Service Schools!**

### USA

**Concentrator Training: November 5, 6, 7 in Ball Ground, GA**

**LOX Training: November 12 & 13 in Ball Ground, GA**

\*\*Ball Ground trainings include a tour of our CAIRE and SeQual manufacturing facility.

For additional details and registration information about these trainings, please visit the ["Events & Service Schools"](#) tab of our website.

### Europe

**German Concentrator Training: October 8, 9, 10 in Wuppertal, Germany**

**Italian LOX Product Training: October 9 & 10 in Padova, Italy**

To register or request more information on the 2013 European trainings, please contact [Jim Gibson](#).

### Tradeshows

This month we will be attending the following tradeshows. We would love for you to stop by our booth!

**FOCUS on Respiratory Care**

October 1-2

Las Vegas, NV

Booth #216

**American Association of Cardiovascular and Pulmonary  
Rehabilitation (AACVPR)**

October 3-4  
Nashville, TN  
Booth #700

**Moving Mountains**

October 5  
Denver, CO  
CAIRE Booth

**Medtrade Fall**

October 8-10  
Orlando, FL  
Booth #301

**Minnesota Association for Medical Equipment Services Fall  
Conference (MAMES)**

October 24  
Welch, MN  
CAIRE Booth

**CONTACT US**

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