

Errata Sheet

Eclipse® Oxygen System Part Numbers 5500HT, 5700HT

This document is intended to be supplemental information to the Eclipse Oxygen System Part Numbers 5500HT, 5700HT and reference documents identified below.

Reference Documents for 5500HT, Eclipse High Temperature:

Eclipse Oxygen System, Model 5500HT
Eclipse User Manual, Part Number 6112
Eclipse User Manual Addendum, Part Number 5047
Eclipse Provider Manual, Part Number 3563

Reference Documents for 5700HT, Eclipse 2 High Temperature:

Eclipse 2 Oxygen System, Model 5700HT
Eclipse 2 User Manual, Part Number 4112
Eclipse 2 Provider Manual, Part Number 4114

Background:

This Eclipse Oxygen System (Part Number 5500HT/5700HT) is a modified version of the 5500/5700 Eclipse configurations to allow the system to more robustly handle operation outside the specified operating temperature range of the Eclipse. The software on this unit is upgradeable for future improvements.

These modifications include disabling high temperature shut down features built into the unit. The operating temperature range of unit in which the unit is warranted to meet specifications is 10°C to 40°C.

Modifications:

The over temperature shut down features, indicators and alarms on the compressor and Power Manager systems have been disabled.

Results:

SeQual engineering has performed testing on the modified units to determine how the modified units performed under high ambient temperature conditions. A brief summary of the results of that testing are:

1. Eclipse Operation up to 50°C:

- The Eclipse Oxygen System continues to run/operate.
- Reductions of oxygen purity were observed, however the unit still operated with greater than 85% purity.

- Some degradation of the accuracy of the oxygen purity measurement system within the unit was observed in that the system measured purity was lower than the actual purity of the oxygen measured. This implies that it may be possible to get an incorrect low purity warning (Oxygen less than 85%).
- Although operation from the Power Cartridge may be possible, the run time is limited and the life of the Power Cartridge may be degraded.

2. Eclipse Operation at 55°C:

- The Eclipse Oxygen System continues to run/operate.
- The purity continues to decrease.
- The inaccuracies in the oxygen purity measurement system become more pronounced.
- It may be likely that low purity indications will occur however the purity marginally met the system requirement of 85% oxygen purity.
- Due to the high temperature of the Power Cartridge, operation from the Power Cartridge pack is not possible.

3. Eclipse operation at 60°C:

- The Eclipse Oxygen System continues to run/operate.
- The purity decreased to the low 70% range.
- Purity measurement accuracy produced measurements with large errors causing very low purity alarms.
- Operating temperature of the compressor and power manager circuitry components had risen to the point where failure was possible.
- Due to the high temperature of the Power Cartridge, operation from the Power Cartridge pack is not possible.

4. Eclipse operation at 65°C:

- Testing was done for several hours. The Eclipse Oxygen System continues to run/operate.
- Purity measurements indicate that the system was producing purity less than 50%.
- Although compressor and power manager temperatures were unacceptably high, the system continued to operate with a low purity alarm.
- Purity measurement accuracy showed extremely large errors making the system unreliable for use.
- Deformation of internal and case plastic components occurred which would eventually produce catastrophic failure.
- Power Cartridge temperature had risen to above 75°C causing a potentially dangerous condition for the Power Cartridge (Lithium Ion Cobalt battery pack).



Power Cartridge Operation:

Provisions are made in the Eclipse design to indicate an alarm condition of a warm Power Cartridge when the Power Cartridge internal temperature rises above 60°C and to shut the system down when operating from Power Cartridge when the internal Power Cartridge temperature rises above 70°C. These are safety features that remain in effect in this system. Note that the Power Cartridge temperature will be higher than the surrounding ambient air temperature.

Reliability and Life:

The field life of compressors and semiconductor devices are heavily dependent upon operating temperature. Operation of the unit at high ambient temperature will have the effect of shortening the operating life of the unit. As temperature continues to increase, significant reduction in field life of the system is to be expected.

Warranty:

Due to the removal of the over temperature shut down provisions which are designed to protect the unit for degraded field life, this unit is supplied without warranty on the compressor and power manager boards.

Label Application:

An additional label "Remove All Power Sources to Reset" has been added to the Eclipse 5500HT/5700HT configuration. This label is intended to be applied by the user in a prominent location in the event of an Eclipse alarm event that requires to be reset.