



Note No.	SVC-FSB-0001 Rev D
Release Date	12/11/2017
Contact	ngceoservice@ngc.com

Preventative Maintenance of Chiller

Summary

This technical note describes preventative maintenance for the chiller and associated DPSS laser system.

Scope

This technical note applies to servicing both Nd:YAG and Nd:YLF products.

Notice

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Materials and Equipment

- Hydrogen Peroxide solution (3% Hydrogen Peroxide, available from local drug store)
- Optishield Plus™ /distilled water coolant (10% Optishield Plus™, 90% distilled water) sufficient to fill the system
- Distilled water, sufficient to fill the system
- Two replacement particle filters (Hydronix pleated 5µm polyester filter, part number SPC-25-1005, available at multiple online retailers)
- Filter-Housing Wrench

Maintenance Frequency

All new chiller and cooling fluid systems should be flushed with Hydrogen Peroxide prior to the first use. If a chiller is returned to Polyscience for service, it should be flushed with Hydrogen Peroxide upon return.

The fluid should circulate for a maximum period of one month, after which the system should be drained, cleaned and refilled with clean coolant as per this procedure. A hydrogen peroxide flush (see *Hydrogen Flush* section below) should be used only when contamination is present in the system.



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The filter on the closed loop system should be monitored weekly. The system should also be drained, cleaned and refilled with clean coolant as per this procedure if any discoloration of the filter occurs.

Procedure

Replace Cooling fluid and Filter

1. Drain the cooling fluid from the laser head and chiller. Clean any residue or contamination in the reservoir with the use of a bottlebrush or alcohol wipes.
2. Using a filter-housing wrench, dismantle the particle filter housing. Empty the coolant trapped in the filter housing into a container for later disposal. Clean the residue off of the inside of the filter housing with alcohol wipes.
3. Dispose of the expired particle filter. Install a new filter in the housing. Reinstall the filter housing and tighten using the filter-housing wrench.
4. Reconnect the laser head and fill the chiller reservoir with Optishield plus /distilled water coolant, following manufacturer's directions. Run for 0.5 hours with the cap loose.
5. Finally, secure the reservoir cap.

Hydrogen Peroxide Flush

1. Follow Steps 1-3 of the *Replace Filter* section.
2. Fill the chiller with a 3% solution of Hydrogen Peroxide. Care should be taken to ensure that the mixture completely fills to the top of the reservoir to ensure all wetted surface areas of the chillers are cleaned. Cycle the chiller on and off. Top off the reservoir as necessary to ensure it is full of the cleaning solution. Ensure that the cap of the chiller reservoir is loose or remove it completely to allow gas to escape from the system.



CAUTION Do not use a Hydrogen Peroxide concentration of higher than 3%. Do not circulate the H₂O₂ in through the system for a time longer than specified.

3. Circulate the cleaning solution through the system including the laser head for 40 minutes. A longer duration could cause damage to the chiller and hoses.
4. Drain the cleaning solution mixture from the chiller as detailed in steps 1 and 2.

Cutting Edge Optronics

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5. Refill and circulate distilled water for 5 minutes and drain. Ensure that the cap of the chiller reservoir is loose, or remove it completely to allow gas to escape from the system.
6. Drain the chiller and dispose of the filter.
7. Blow out water from the laser head with hoses provided in the plumbing kit.
8. Install new filter.
9. Reconnect the laser head and fill with Optishield plus /distilled water coolant, following manufacturer's directions. Run for 0.5 hours with the cap loose.
10. Finally, secure the reservoir cap.