Neslab/PolyScience Chiller Planned Maintenance Checklist

This document describes the planned maintenance procedures for the Neslab and PolyScience external chillers shipped with output devices using 40 Watt thermal imaging heads. Since August, 1999, the PolyScience 6305P has been the standard external chiller shipped with these devices, but a large number still use the Neslab CFT-33.

Note: Planned maintenance of the chiller should be performed every 6 months, coinciding with the PM visit for the output device. However, depending on the site environment, some procedures may need to be performed more often if possible. Other procedures are only necessary once per year. These requirements are described in the relevant section for each chiller.

Tools and parts required: You should have the following supplies on hand before performing chiller maintenance:

- Electric motor oil – SAE 10 or 20 – in a suitable dispenser
- 4 liters(1 gal.) of Pre-mixed coolant (PN 82-1032A). See the "Coolant Information" section on page 12 for handling precautions.
- Clean 4 liter (1 gallon) container
- Funnel
- Paper towels
- Rubber or latex gloves
- 15/16" wrench or large crescent wrench
- Phillips screwdriver
- Regular & small flat blade screwdriver
- Needle nose pliers
- Vacuum cleaner — Neslab only
- 5/16" wrench or socket (1/4" drive) — Polyscience only

Related Documents

73-3238A: Neslab CFT 33D Chiller – Installation and Operation

73-3324A: PolyScience Model 6305P Chiller – Installation and Operation

Logging Information

When the chiller PM has been completed, please complete the form on the last page and send a copy to CreoScitex Service in Burnaby.

Neslab CFT-33

Figure 1 shows the front/left side view of the NeslabCFT-33 chiller. The recommended planned maintenance procedures for this chiller are described in the pages that follow.



Figure 1: Neslab CFT-33 Chiller — Front/Left Side View

General Preparation

1. Turn the recorder off
2. Turn the chiller's **POWER** switch off (see Figure 1).

Monthly:

Clean the condenser and air vents.

Note: The frequency of cleaning depends on the environmental conditions around the chiller and length of operating time.

1. Using a flathead screwdriver, gently pry the one-piece grille assembly off the lower front of the chiller.
2. Clean the condenser fins and side panel vents with a vacuum cleaner or compressed air.
3. Replace the grille assembly.

Bi-Annually

Clean the pump strainer.

1. Remove the 4 screws on each side of the chiller's outer cover (see Figure 1), and then lift the cover off.
2. Place a large wad of paper towel or a small pan under the pump strainer retaining nut (see Figure 2).

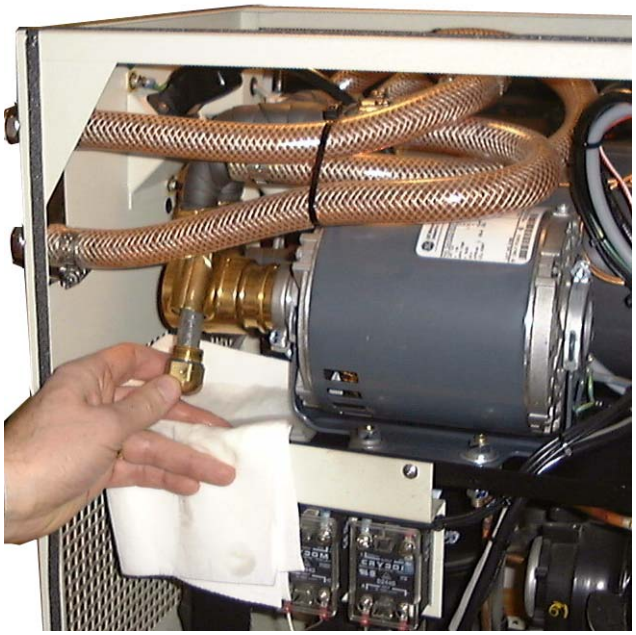


Figure 2: Neslab Chiller with Pump Strainer Pulled Out

3. Using a 15/16" wrench or crescent wrench, remove the strainer retaining nut, and extract the strainer. It is recommended that you wear rubber or latex gloves when you may be exposed to the coolant.

   Note: It is not necessary to drain the reservoir as it will not drain through the pump when the strainer is removed.

4. Thoroughly clean the strainer by rinsing it with water and blowing clean with compressed air.
5. Replace the strainer and retaining nut.
6. Clean up any spilled coolant.

   Note: If the strainer appears to have a slimy build-up, there may be a mold or algae problem and the water system will need to be cleaned as follows:

1. Disconnect the hose from the **INLET/RETURN** fitting on the back of the Chiller (see Figure 3). Connect the drain hose (ty-wrapped to the hose

assembly) to the disconnected hose and place the open end of the drain hose in a container.

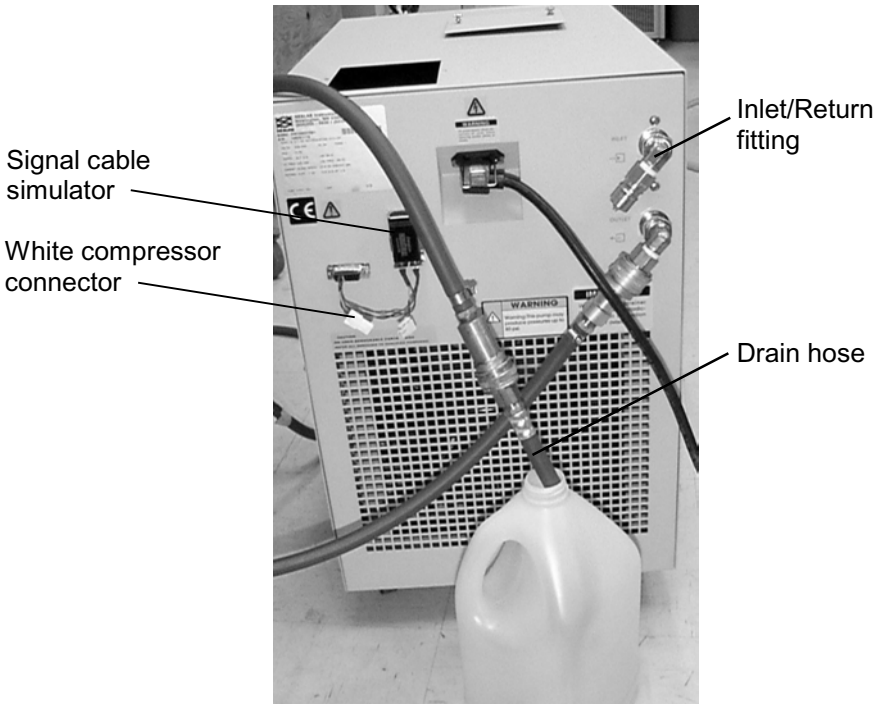


Figure 3: Neslab Chiller — Rear View

2. Disconnect the white connector on the signal cable simulator (see Fig. 3) to prevent the refrigeration compressor from being started.
3. Turn on the **POWER** switch on the front panel of the chiller. While holding the drain hose in the container, connect the signal cable simulator to the back if the Chiller to start the water circulating pump.
4. Pump out the system until the coolant flow stops. Remove the signal cable simulator or turn off the **POWER** switch to stop the pump.
5. Reconnect the water hose to the **INLET/RETURN** fitting.
6. Refill the reservoir with distilled water or clean tap water. Add a ¼ cup of household bleach.
7. Start the water circulating pump and let it run for approximately 1 hour.
8. Stop the pump and check the strainer as before. If there is still contamination, clean the strainer, re-install it and start the pump again for another hour.
9. Repeat this process until the strainer stays clean.
10. Stop the pump and drain the reservoir as before.
11. Refill the reservoir with fresh coolant (P/N 82-1032A).

Annually

Oil the pump motor.

1. Locate the oil ports at the front and rear of the pump motor (see Figure 4) and remove the press-fit plugs.

   Note: On some Neslab models, there is only one oil port — at the rear of the pump motor.

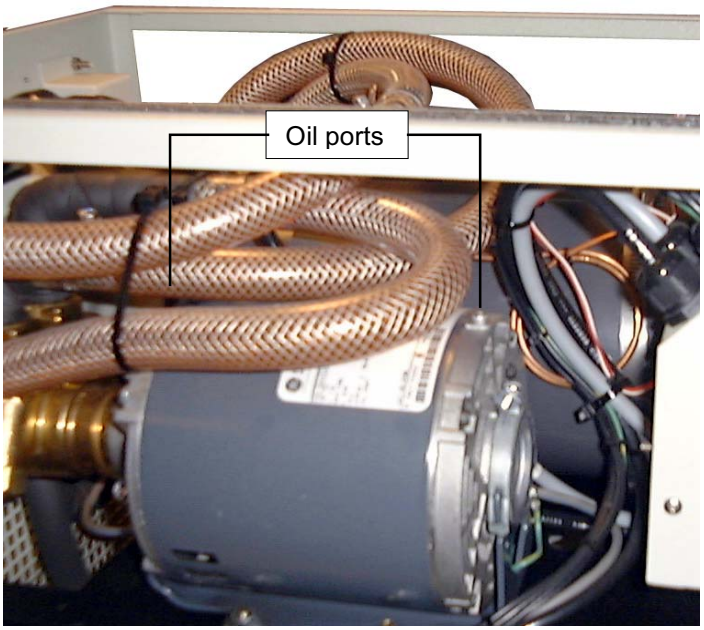


Figure 4: Neslab Motor Oil Ports

2. Add 30 to 35 drops of electric motor oil (SAE 10 or 20) oil to each bearing on the following schedule:

Continuous duty	Once a year
Intermittent duty	Once every 2 years

   Note: CreoScitex recommends that the motor be lubricated annually on a pro-rated basis dependant on the chiller's duty cycle.

3. Replace the oil port plugs.

Reconnect and test the chiller.

1. Remove the reservoir plug (see Figure 5), and using a funnel, fill the reservoir to the bottom of the fill hole threads with coolant (see the "Coolant Information" section on page 12 for handling precautions). Replace the reservoir plug.

Note: Make sure that the correct coolant is being used (40% ethylene glycol, 60% distilled water).

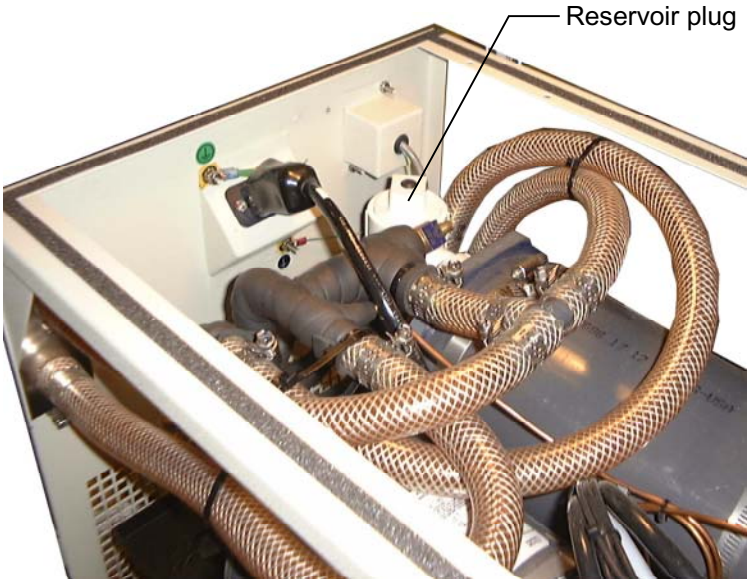


Figure 5: Neslab Chiller Reservoir Plug

2. Reconnect the white connector on the signal simulator (see Figure 3).
3. Turn the chiller's **POWER** switch back to the On position. The circulating pump and the compressor should start.
4. With the cover still off, check for leaks, noises and loose wires.
5. Once the chiller is working properly, replace the chiller cover and reattach the signal cable from the recorder.

PolyScience Model 6305P

Figure 6 shows the front/left side view of the PolyScience chiller. The recommended planned maintenance procedures for this chiller are described below.

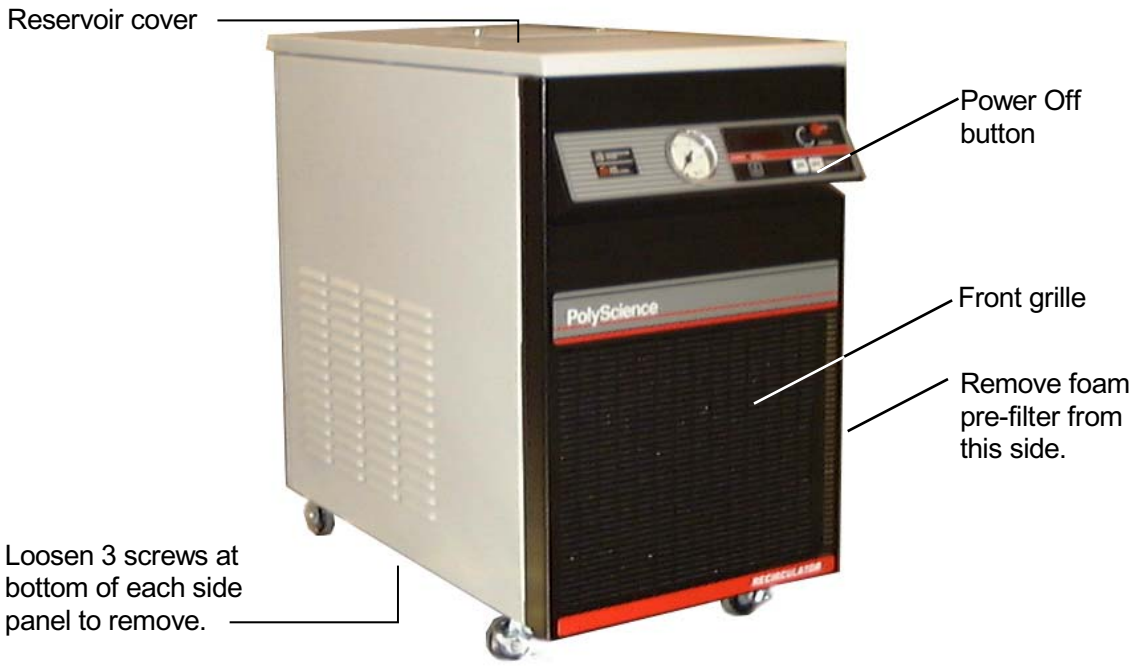


Figure 6: PolyScience Chiller — Front/Left Side View

General Preparation

1. Turn the Recorder off.
2. Press the Power OFF button on the front panel of the chiller (see Figure 6).
3. Turn off the red Master Switch on the back of the chiller (see Figure 7).

Monthly:

Clean the condenser and air vents.

Note: The frequency of cleaning depends on the environmental conditions around the chiller and length of operating time.

1. Remove the foam pre-filter from the right side of the front panel behind the grille (see Figure 6).
2. Wash the foam pre-filter in clean water and mild detergent.
3. Use a vacuum cleaner or compressed air to remove dirt and dust from the chiller's front grille and side vents.

4. Replace the foam pre-filter.

Annually:

Clean the fluid filter.

1. Drain the reservoir as follows;
   a. It is recommended that rubber or latex gloves be worn when you may be exposed to the coolant.
   b. Disconnect the hose from the INLET fitting on the back of the chiller.
   c. Connect the drain hose (Tywrapped to the hose assembly) to the disconnected hose and place the open end of the drain hose in an empty container (see Figure 7).
   d. Turn on the Master Switch on the back of the chiller (see Figure 7). Press and hold the Manual Pump Override button until the coolant starts to flow into the container. Keep holding the button until the pump starts to draw air.
   e. Disconnect the remaining water hose from the chiller, turn off the Master Switch and disconnect the power cord.

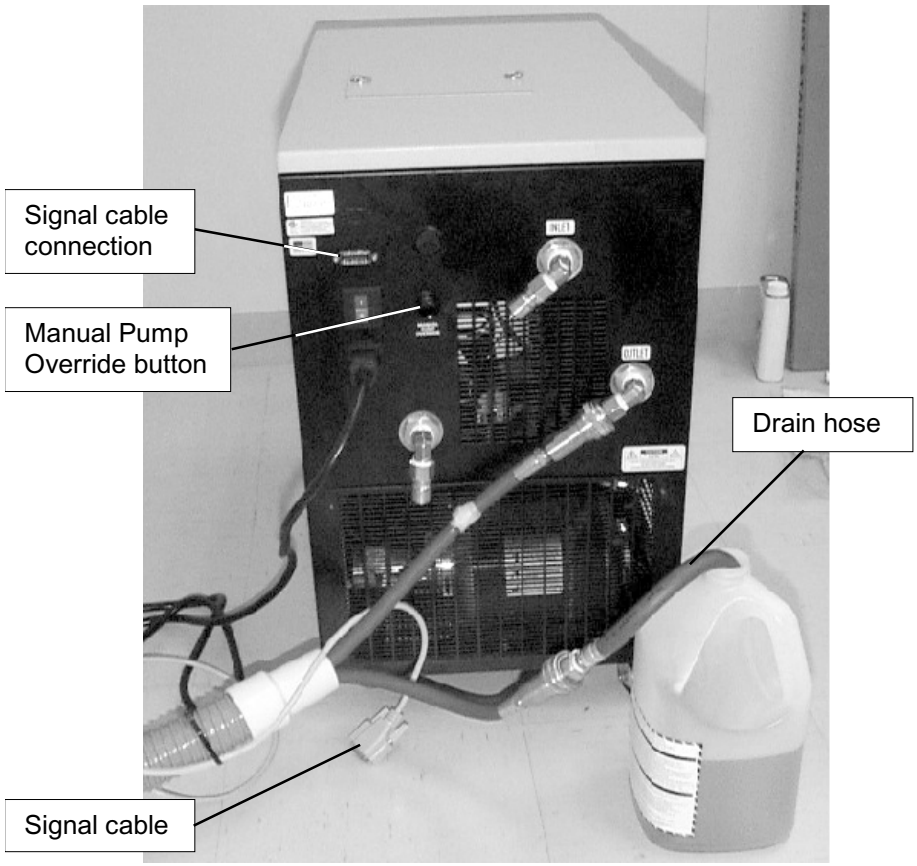


Figure 7: PolyScience Chiller — Rear View

2. Using a 5/16" wrench or socket, loosen, but do not remove, the 3 screws along the bottom of the access panel on the left side (from the front panel) of the chiller (see Figure 6).
3. Remove the panel by pulling the bottom out and then pulling the panel down to disengage the 3 plastic tabs from the holes in the top panel.
4. The filter sediment bowl will be full of coolant, so have a suitable container available to dump the coolant into.
5. Place a large wad of paper towel under the sediment bowl (see Figure 8).
6. Grip the sediment bowl firmly and turn clockwise to remove it.



Figure 8: Removing the Filter Sediment Bowl on the PolyScience Chiller

7. Remove the stainless steel wire screen from the filter head.
8. Run tap water over the filter screen and/or blow compressed air through it to clean it.
9. Rinse out the sediment bowl
10. Put the screen back into the filter head and reattach the sediment bowl.
11. Clean up any spilled coolant.

Oil the pump motor.

1. If they haven't been removed already, remove the hoses from the rear of the chiller to get them out of the way.
2. Remove the 4 screws from the rear access panel, and then remove the panel.
3. Remove the 2 press-fitted plugs from the oil ports (see Figure 9).
4. Add 30 to 35 drops of electric motor oil (SAE 10 or 20) oil to each bearing on the following schedule:

Continuous duty	Once a year
Intermittent duty	Once every 2 years

   Note: CreoScitex recommends that the motor be lubricated annually on a pro-rated basis dependant on the chiller's duty cycle.

5. Replace the rear access panel

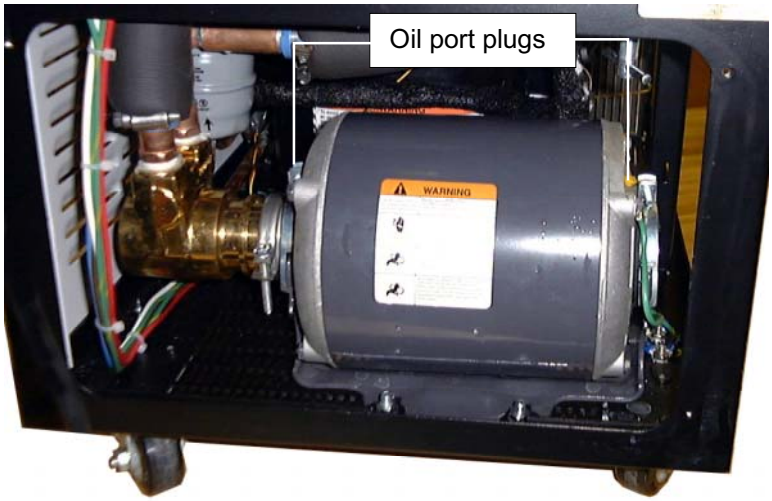


Figure 9: Location of Oil Ports on PolyScience Motor

Reconnect and test the chiller.

1. Reattach all water hoses. Check power cord and signal cable connections.
2. Remove the cover plate from the top of the chiller (see Figure 6) and remove the reservoir cap. Using a funnel, fill the reservoir with coolant (see the "Coolant Information" section on page 12 for handling precautions).

   Note: Make sure that the correct coolant is being used (40% ethylene glycol, 60% distilled water).

3. Press the Manual Pump Override button and check for proper operation.

4. Once the chiller is working properly, replace all panels and wipe down the chiller housing.

Coolant Information

The pre-mixed Coolant provided (P/N 82-1032A), is 40% by volume ethylene glycol (Dowtherm SR-1) and 60% by volume distilled water.

NOTE: If the pre-mixed coolant is not available, use distilled water only.



Caution:
Do not use automotive antifreeze. It will damage the pump and void the warranty.



Warning:
Do not drink solution. Accidental poisoning can cause central nervous system, cardiopulmonary and kidney effects.

Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling. Avoid breathing vapor. Keep container closed. Use with adequate ventilation.

Do not store in open or unlabelled containers.

Do not use with galvanized steel.

First Aid

Ingestion:

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

Note To Physician:

Early administration of ethanol may counter the toxic effects of ethylene glycol (cardiopulmonary effects attributed to metabolic acidosis and renal damage). Hemodialysis or peritoneal dialysis have been of benefit.

For additional information, consult the MATERIAL SAFETY DATA SHEET for this product.

Disposal

Dispose of any waste coolant in accordance with local hazardous materials disposal requirements.

Customer: _____ **Service Rep:** _____

Chiller: ☐ Neslab ☐ Polyscience **Serial Number:** _____

PM Performed:

- Cleaned condenser and air vents
- Cleaned pump strainer (Neslab) or fluid filter (Polyscience)
- Oiled pump motor
- Reconnected and tested chiller

Comments:

Please mail or fax completed form to the Response Center Burnaby, marked "Attention: Response Center" (fax: 1-800-472-2713).