5. Routine Maintenance

The cryo-cooler is designed to operate with the minimum of maintenance.

5.1 Daily Checks

- Ensure that liquid levels in the vessel and high pressure reservoir are within their ranges. The range for the vessel is between 45 % and 55%, the range for the high pressure reservoir is between 75% and 45%.
- Check that system pressures are at their operational values. The high pressure circuit should be at the set pressure, and the vessel should be at 1psi.
- Check that the liquid nitrogen supply is adequate for the expected running time. Approximately 600l is required for 8 hours operation at 2.5kW.

5.2 Monthly Checks

- Check for signs of condensation or frosting on the cryo-cooler or transfer lines. Attach a roughing pump to affected area and pump the vacuum space for several hours. There is likely to be some initial outgassing of the material in the vacuum space. However, after pumping several times, the vacuum will improve with time and the condensation will disappear.

5.3 Six Monthly Checks

- It is recommended that all vacuum spaces should be pumped out every 6 months to ensure that good vacuum is being maintained.
- Refer to the Barber Nichols manual for maintenance of the pump motor bearings and 'O' ring seals. The pump bearings have an estimated life of 5000 hours under normal use.

5.4 Twelve Monthly Checks

- It is recommended that the cryo-cooler should be warmed up every twelve months, or when convenient, to do a thorough purge of the system with warm, dry nitrogen gas. Over time, impurities may well collect in the vessel or pipework in the form of ice. This should be removed by purging.