A low cost auxiliary system consisting of He cryostat, superconducting magnet, and sample holder assembly with field probe has been constructed. The system meets the requirements of NMR on strongly paramagnetic or ordered magnetic materials, which are accurate temperature settings over a wide range, high NMR frequencies, high and accurate magnetic fields of moderate homogeneity, and exact crystal orientations in the fields. The following values are achieved: The temperature setting in the range 1.7–400 K varies less than 0.5% for 10 min, which is the typical recording time of a spectrum. The distance from the NMR oscillator to the sample is only 55 cm (wavelength of ~550 MHz radiation), giving a tolerable He evaporation rate of 0.35 l/h. The maximum field at 4.2 K is 43.2 kG, which can be measured with an accuracy better than ±100 ppm. The homogeneity at maximum field over a central sphere 8 mm in diameter is 5 G. The uncertainty on the crystal orientation in the field is ±1/2 degree. Review of Scientific Instruments is copyrighted by The American Institute of Physics.