

Manual Locking & Running Unlocked

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| <p>Use deuterated solvent</p> | <ol style="list-style-type: none"> 1. The NMR Lock is a ^2H (deuterium) lock, which compensates for small changes in the magnetic field that might occur during data acquisition. <u>The NMR lock will only function if you use a deuterated solvent.</u> 2. Automated locking is available on all the spectrometers. 3. Any time you plan to use a mixture of solvents with multiple deuterium resonances, automatic locking may fail, so use manual locking. |
| <p>rsh LAST</p> | <ol style="list-style-type: none"> 1) You should first read in the last shim file, i.e., type rsh LAST. |
| <p>For automatic locking, type lock</p> | <p><u>Automatic Locking:</u></p> <ol style="list-style-type: none"> 1) You must have a parameter set or data set in the active window. 2) Type lock. Select the deuterated solvent you are using from the menu, then select OK. When this is finished, the message lockn:done is output above the pink command line. |
| <p>bsmsdisp lockdisp</p> | <p><u>Manual locking:</u> For manual locking, you will need to see both the BSMS Display and the Lock Display. Type bsmsdisp and lockdisp to show these two windows.</p> |
| <p>For manual locking, type lopo</p> | <ol style="list-style-type: none"> 1) Type lopo. (Sometimes this leads to an error message. To get around this problem, type ii and wait until you see the “finished” message at the bottom of the window.) A menu of deuterated solvents for you to select from will be displayed, then select OK. This command sets lock parameters according to values in the same solvent information table used by the lock command. 2) If you do not see the signal on the lock display, set the SWEEP AMPL (on the BSMS panel) to 20. If at this point, you do not observe a resonance, turn up the LOCK GAIN until you at least see noise. If you still do not see a lock signal, type ii if you did not already do that in step a) above. 3) If the resonance is not well centered, use the FIELD key to center it. For solvent systems with more than one deuterium resonance, reduce the SWEEP AMPL until only the resonance you want to lock on is displayed (the signal with the highest intensity). Once the resonance has been adjusted to a reasonable amplitude, press the LOCK ON/OFF key on the spectrometer keyboard to switch on the field lock. You may have to adjust the lock gain. The lock signal displayed will now appear as a sweeping horizontal trace. 4) If the lock level is unstable, it is probably because the lock gain is too high due to poor shimming. Adjust the shimming and you will probably be able to reduce the gain. 5) You can make a fine adjustment of the phase of the lock channel by adjusting the LOCK PHASE to obtain a maximum in the position of the lock signal. This is usually only necessary when carrying out gradient experiments. The au program loopadj will do this and more to optimize the lock. |
| <p>If you still don't see the lock signal, do these things</p> | |
| <p>Follow these steps, then</p> | |
| <p>Press the LOCK key</p> | |
| <p>How to run unlocked</p> | <p><u>How to run unlocked:</u> Type lock_off; ii. Wait for this to complete. In the BSMS Display, press the SWEEP button to turn off the field sweep.</p> |