

Dear Varian Inova-300 Users,

Most of you are probably aware that in the summer of 2006 the user training procedures for our Varian Inova-300 NMR spectrometers were substantially changed. These changes were designed to make it easier for new users to run the spectrometer, with a particular emphasis on minimizing the amount of manual manipulation required for the sample-changing/locking/shimming operations (this was an area where many existing users had trouble), and, to a lesser extent, printing operations.

At the time we instituted the new training procedures we did not require existing users to get re-trained. However, we strongly recommended that users learn the new methods, either on their own or with assistance from PINMRF staff. For those of you who have not yet learned the new methods, we still make this recommendation.

It has become apparent that some recently-trained users are picking up old-user procedures from their colleagues. This sometimes results in problems with using the spectrometers correctly. Therefore, we must make the following requests of all users:

- 1) if you were trained using the current PINMRF procedures please continue to operate the spectrometers using the methods you learned during your training;
- 2) if you need to learn different or additional techniques please contact PINMRF staff for assistance;
- 3) if you are training other users in your research group you **MUST** train according to the current PINMRF training guides.

Finally there are a couple of operating procedures that we ask **ALL** users to now learn and follow, even if you were trained in the old (pre-mid-2006) fashion:

- 1) leave the sample spinning **ON all the time**, unless your experiment requires it to be off;
- 2) do not change the lock phase setting;
- 3) as a general rule, use a sample volume of 0.7 mL or more;
- 4) when you leave the spectrometer, make sure the standard sample is in the magnet with the **lock ON, spinning ON**, and correct shims loaded.

A summary sheet is attached for your reference, and it also will be posted by each Varian 300 spectrometer. This summary sheet contains a few extra pointers regarding correct spectrometer usage, so please make sure you read it.

Thank you very much for your cooperation. Please contact me with any questions or comments.

Sincerely,

John

PINMRF

Varian Inova-300 NMR Spectrometers Spectrometer Operating Procedures

1. Sample setup: the Varian Inova-300 spectrometers require a minimum sample volume of 0.7mL. Sample volumes smaller than this will be very difficult to lock and shim and are NOT recommended.
2. Experiment setup: we strongly recommend you read the PINMRF Varian User Guide and follow the operating procedures given there. PINMRF staff will help you with these procedures if need be.
3. Instrument operation: the user **SHOULD NEVER** adjust the lock phase during routine spectrometer operation. If you think the lock phase is misadjusted, contact PINMRF staff for assistance.
4. Instrument operation: when you are finished with your experiments, the spectrometer should be left in the following state:
 - a) standard CDCl_3 sample in the magnet at the correct sample depth;
 - b) **sample spinning ON** and sample temperature controller OFF* ;
 - c) lock ON and with the correct lock power and gain values set;
 - d) shims checked and at least close to optimum values;
 - e) the command **standard** will set the correct field, lock and shim values.
5. Troubleshooting: if you are having problems with locking or shimming, do the following:
 - a) remove your sample;
 - b) insert the CDCl_3 standard sample making sure the sample depth is correct;
 - c) ensure that the sample spinning is on at ca. 20 Hz;
 - d) enter the command **standard** ;
 - e) make sure the lock is on – the sample should lock easily;
 - f) if the standard sample does not lock, contact PINMRF staff for assistance;
 - g) if the standard sample locks, check the quality of your own sample and/or tube.

* If you have used the sample temperature controller, make sure that the probe temperature has equilibrated to within +/- 10°C of room temperature before you leave the spectrometer.