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	Variant II Troubleshooting		DOCUMENT # H-08-002
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WRITTEN BY: Paula Morris, MT (ASCP)	EFFECTIVE DATE: 11/10/2005	REVISION: H-2	SUPERCEDES: H-1

I. PROCEDURE

The problems that you may encounter while using the VARIANT II are divided into different categories. Refer to the following information to help you find a solution.

- CDM alarms see Table 6-1
- Instrument (hardware/mechanical problems) see Table 6.2.2 and Table 6.2
- Sample problems see procedures that are listed below and Table 6.3
- Bio Rad Technical support phone number is 1-800-224-6723 press #2

Instrument is the Variant II serial number 10219 and our account number is 52989 Bio Rad is located in California but they have a 24 hour service line.

When you call with a problem, they will give you a case number, which should be written down in the problem log for future reference.

CHECK REAGENTS VISUALLY FOR ADEQUATE AMOUNTS AND LINES ARE INSERTED IN THE REAGENT.

If controls are a problem check that the correct lot numbers and values have been entered and correspond with the current controls and calibrator. Refer to the manuals to check if they have been diluted properly.


Remember that once a problem is fixed the controls and calibrators must be run in sequence with the samples

I.e.: do not stop the instrument fix the problem then run patients without rerunning the controls and calibrator. Also **do not** run the controls at the end of the run as patient samples. The controls **must be run using the correct identified tubes so the control values will go into the library.**

CHECK FOR LEAKS

Visually check the interior of the VARIANT II Chromatographic Station for the presence of a leak: fluid or salt residues may indicate the presence of a slow leak. If you detect a leak, check for loose connections; gradually tighten loose connections that may be the source for the leak.

LEAKS IN THE SYSTEM OR INCORRECT METHOD OF CHANGING REAGENTS (raising the line to high above the bottles) WILL CAUSE AIR TO GET INTO THE PUMPS.

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The chromatogram will show short spikes on all the peaks (Appendix A) or a raised baseline (Appendix B).

Check to if there are any interfering electrical instruments being used when the instrument is running. Vibrating instruments can not be placed on the same counter as the Variant II.


1. Again check to see if there are clots in the samples that did run through the instrument.
2. Inspect the detector by unseating and reseating the detector.
3. Shut the system on and off. See Appendix C procedure (increase peaks on HPLC).
4. To wash the sampler click on appropriate bar in maintain page.
5. While doing a short system flush call Bio Rad if there are any more suggestions.

High Area Counts

High HCT do a 1:400 dilution
 Inadequate Wash of Sample Needle
 Inadequate Drain of Dilution Chamber (take off the front cover and look in the dilution chamber for incomplete drainage)
 Syringe pump not functioning properly

Low Area Counts

Low HCT do a 1:100 dilution
 Short sample – Check Sample Volume
 Air in sample lines or diluents syringe
 Clots in sample
 Inadequate tube venting
 Pinch Valves not functioning properly
 Inadequate mixing of tube maybe indicated by no peaks

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Noisy spin

Cap on the dilution vial is not properly seated. Needs to be pressed down till it snaps shut.

No adapter inserted for small tubes

Dirty racks

Too many barcode labels on the tube

Residue on top of tubes (wipe off the plastic insert on the spin head). This part can be replaced it is in the cardboard box under the HPLC counter.

Rack not aligned to Spin Head-CALL in SERVICE


Rack Jam

Too many racks loaded

Wrong type of rack used

Rack is blocking the carrier

Home position not aligned – CALL for SERVICE

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Shut Down and Start up the Variant II Instrument (Also use when CDW ERROR occurs)

Click on Start

Click on Shut down

(If it says do you want to end task? Click on end task.)

The computer screen will then save the data so wait till it tells you it is OK to shut down.

Then press the button on the CPU which is beneath the monitor.

Shut off the sampling station. The button is on the right side.

Shut off the chromatography station. The button is on the left side in the back of the instrument.

Wait two minutes on the clock then power up the chromatography station.

Power up the sampling station

Press the button to restart the CPU


Login to Windows NT by pressing Ctrl, Alt, and Del.

No user Id or password is needed to open Windows just press ENTER.

Click on icon CDM which will bring you into the main screen.

This should reboot the computer program and reset the instrument.

If this does not work, call Bio Rad

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INCREASED PEAKS ON HPLC

Turn off pump station then sampling station
 Leave off for 30 seconds
 Turn on pump station and then sampling station
 Under maintain instrument
 Injection flush
 Change volume from 0.1 to 4.0
 Select injection flush option
 When finished continue with next step

Set %B to 100
 Set flow to 3.0
 Set timer to 5.0
 Then start flow

When cycle is complete
 Set %B to 100
 Set flow to 2.0
 Set timer to 15.0
 Start flow
 When cycle is complete try running a few samples and check graphs

Extra peaks on the end of the sample run i.e.: small C peak on just the calibrator sample

Take the front black cover off the instrument, when instrument is idle the wells should be dry. If the wells are full then there is a plug and the samples are being contaminated by the previous patient's sample.

Take out the extra fluid and use straight bleach to fill the wells to the brim.
 Keep the bleach in the wells for 20 minutes. Take out the bleach from the wells, place the cover back on and proceed to the maintain screen. Press
 Wash sampler 3xs. Decontaminate the system. Then run a calibrator and see if the extra C peak has been eliminated. If it is still visible, then replace the needle.

II. HISTORY

- H-1 This procedure was written by Paula Morris on 11/10/2005.
- H-2 This procedure was revised by Paula Morris on 3/2011.