

Product Support Tech Tip

Tech Tip No: 034-0404
Page 1 of 5

Date first issued: 4 September, 2006
Last Update: 5 September, 2006 15:53

Equipment: Biolog 3000i ECG Recorder

Noted Symptom: Showing 'Leads Off' or '- - - -'

Information & Recommended Action:

Dirty Crocodile Clips / Poor Skin Preparation / Dry Electrodes cause 85% of problems whilst trying to record an ECG.

Whether the patient is male or female, the skin **must** be prepared for taking an ECG.

- Shave electrode sites if patient is hairy.
- Clean the surface of the skin thoroughly (a Steri Wipe will do sufficiently)
- Rub the skin Plethora (till red, usually with dry gauze). This will remove any grease or dead skin and any excess alcohol left by the steri wipe.
- Apply a good set of electrodes. If the "wet gel" type (such as type P-00-S) are being used they will last approximately two weeks after the airtight seal of the packet is opened, "solid gel" electrodes (such as BS3500 and Bio Tabs) will last a maximum of 30 days from breaking the airtight seal of the bag (as per electrode manufacturer's guidelines). It is a good idea to store the unused electrodes from the fresh pack in an airtight container in the fridge. (New electrodes can be purchased online from www.numed.co.uk)
- We highly recommend the "Supa Tab SU-00-C" as the electrode to use.



- Allow the electrodes to 'settle' once applied to the skin. This allows time for the gel to make a good transcutaneous contact (Usually about a minute)

Product Support Tech Tip

Tech Tip No: 034-0404
Page 2 of 5

Date first issued: 4 September, 2006
Last Update: 5 September, 2006 15:53

- Attach the Patient Cable to the patient. If using Crocodile Clips ensure they are cleaned of electrode gel and hair regularly. The metal strip inside the ‘mouth’ of the clip should be immaculately clean – remember you are dealing with very small electrical signals, less than 1/1000 of the voltage of a AA battery, so good contact is essential. (Below are examples of Dirty ones)



- We recommend you change your Crocodile Clips once a year when doing 1 to 3 ECG's a week or when dirty and contaminated. Replacements can be purchased online from www.numed.co.uk
- Ensure patient is resting and lying down if possible. The patient should remain **still and quiet** during the procedure.

Setting up the Biolog[®]

- Connect the patient cable to the Biolog[®] (remember to align the flat side of the Patient Cable plug uppermost with the flat top of the Biolog[®] before attempting insertion otherwise damage can occur)
- Turn on the Biolog[®] and adjust the contrast as necessary (using the Thumb Wheel on the right hand side of Biolog[®])
- A roman numeral “II” will be displayed at the bottom centre of the Biolog[®] Screen – this indicates Lead Position 2 is currently being displayed.
- Press and release the “Mode” button to step through the various lead positions checking that you are receiving a **good clear trace** in **all** lead positions.
- If not, check and adjust electrode placement (*See Diagram A*) and skin preparation.
- Once you are happy with the quality of the ECG, press and hold the “Mode” button till the Biolog[®] chirps, then release the Mode key.

Product Support Tech Tip

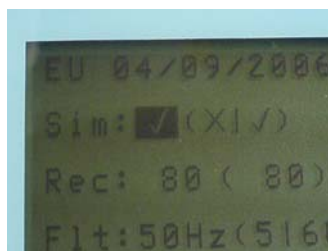
Tech Tip No: 034-0404
Page 3 of 5

Date first issued: 4 September, 2006
Last Update: 5 September, 2006 15:53

- The Biolog[®] screen will display 'Auto Acq' with a sequence of arrows '>>>>' appearing across the screen. This is the ECG in the process of being stored. The message will then change to 'Processing'. If any leads are off, you will be notified at this point. After a few seconds, the message changes to finished, accompanied by a second chirp. The complete save and store process takes around 30 seconds.
- Once you see 'Finished' displayed, the patient cable can be disconnected and the ECG can be transferred to the computer.
- If however you cannot get an ECG to appear on the Biolog and it is still showing "SL" when the patient cable is plugged in, please ensure that all eight pins in the plug that plugs into the Biolog[®] are present and correct (an Example is shown below)



- If all eight pins are present and correct, please go into the Biolog[®] menu and ensure that the "SIM" or "12 L" has a tick next to it. (an Example is shown below)



- To get into the "Menu" options please press the "Hold" button when you first see the "Menu" screen after turning on the Biolog[®]. (It's the 2nd of three screens to be displayed the first is the picture of a heart and the third is the ECG Capture Screen which will show "- - - -"). If you miss the menu screen, please turn off the Biolog[®] wait 5 seconds and try again.



CARDIAC DIAGNOSTICS

Product Support Tech Tip

Tech Tip No: 034-0404
Page 4 of 5

Date first issued: 4 September, 2006
Last Update: 5 September, 2006 15:53

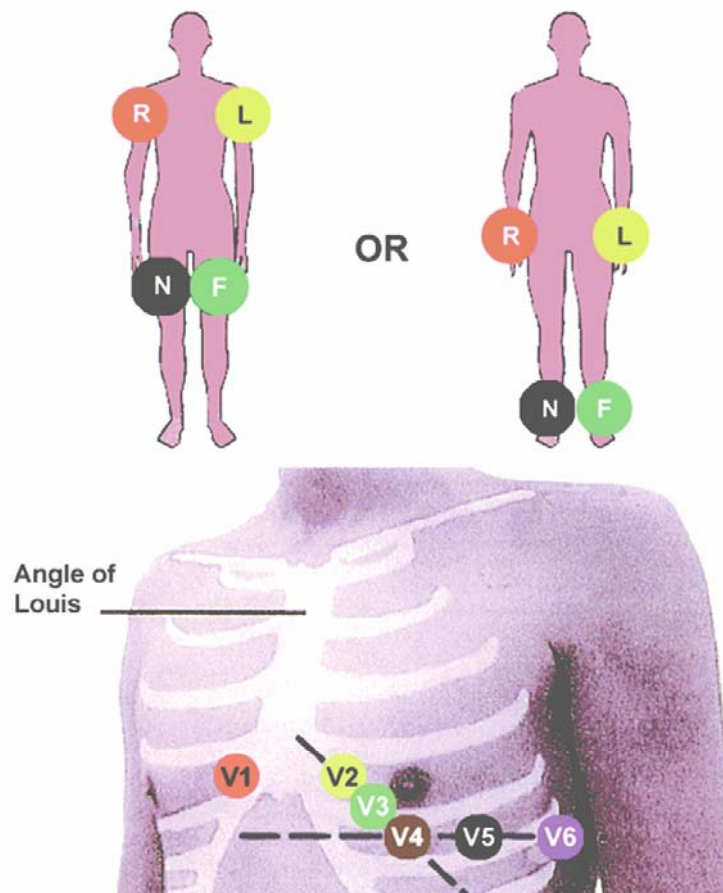
- Once on the menu screen, click the “Hold” button and with each click the “Black Box” will move along, keep going until you see the line shown above or a line that says “SIM” or “12L”
- If inside the box is a cross, please click the “Review” button to change the “Cross” to a “Tick”
- Press the “Mode” button to save the settings and return to the “- - - -” ECG Capture Screen
- One last test is to connect all 10 Croc Clips to a single piece of metal (e.g. Metal Ruler, Knife Blade, Stainless steel trolley edge.) Then connect the cable to the Biolog®. If you get a flat line (no QRS) all the way across the screen then this indicates that the equipment is normally functioning correctly and that the problem you are having is still with Patient Contact.
- If you still get “- - - -” across the screen, either the cable has a problem or one or more of the crocodile clips are dirty.
- If the clips are definitely immaculately clean and you still cannot record an ECG after performing all these steps then please contact Numed Product Support on repairs@numed.co.uk to request a returns number or call on 0114 2433896.

Product Support Tech Tip

Tech Tip No: 034-0404
Page 5 of 5

Date first issued: 4 September, 2006
Last Update: 5 September, 2006 15:53

12 Lead (10 Electrode) Placement Guide



- V1:** Fourth intercostal space to the right of the sternum.
- V2:** Fourth intercostal space to the Left of the sternum.
- V3:** Directly between leads V2 and V4.
- V4:** Fifth intercostal space at midclavicular line.
- V5:** Level with V4 at left anterior axillary line.
- V6:** Level with V5 at left midaxillary line.
(Directly under the midpoint of the armpit)