PHYACTION SUPPORTA Quick Service Reference Guide

This document gives an overview of the most important service issues of the Phyaction supporta based on daily experience. For more detailed information we refer to the service manual.

List of most important error codes:

1. Error 200-10-xx: noise on ET potentiometer
   ➧ Check whether the potentiometers have 6 gold plated contacts.
2. Error 420-10-xx: defective main board: replace board
3. Error 500-10-xx: short circuit in keyboard (xx is in relation to defective key)
   ➧ Very often water of sponges has leaked into the keyboard and caused a malfunction.
4. Error 820-10-xx: battery low indication. Has been replaced by message 'BAT LOW' starting from SW 2.02
5. Error B00-10-xx: US potentiometer defective (most of the time)
6. Error B00-11-xx: problem on ET potentiometer
7. Error B00-20-xx: value of US potentiometer is wrong: replace

Other problems:

1. US head housing is cracked: replace when necessary. No extended warranty!
   The 4 cm² US heads are improved starting from SN: 492-22698
   The 1 cm² US heads are improved starting from SN: 491-21580
2. Unit doesn't start-up. The battery is fully charged: probably the unit was switched on. Switch off and wait 1,5 minute. Now switch on again.
3. US head connection has loosened: replace the connector
   Ref 131.525: US OUTPUT CONNECTOR ASSEMBLY 490

Facts about the use of the battery of the phyaction supporta:

The Phyaction supporta now has a NiMh battery. Before 05/1999 a NiCad battery was used.
The charging time for an empty battery is about 15 Hrs
The customer can easily replace the battery (ref 139.902)
New batteries first need to be charged.
When a charger or a powersupply is connected: the charging LED must go on.
When only the powersupply is used, it is recommended to remove the battery.
The normal life cycle of the battery is between 3-5 years.

Battery power indications:

Battery voltage below 11V: flashing 'battery empty' led.
Battery voltage below 10.6V : 'battery empty' led remains 'ON'
Battery voltage below 10V : message 'LOW BAT' or error 820-10

Hardware modifications:

Torsion spring of standard becomes loose: bend the end of the spring (see technical bulletin released in 1998)
Install 2 zener diodes (18V, 5%, 400mW) in order to avoid problems with the FET's (see technical bulletin released in 1998)

Software evolution (starting from version 2.01)

Version 2.01.
Previous version V1.03
Release date: 27/01/1998
Specifications: indication menu, indication value potentiometer when adjusting,
Version 2.02
Previous version V2.01
Release date: 15/12/1998
Specifications: indication LOW BAT instead of error 820-10, messages potentiometer on when switched on and key pressed when switched on are not stored in memory anymore. Improved contact control on US head.

We recommend an upgrade of each unit with the latest software version.

Functional test (service manual chapter 3)

Perform a safety test according to EN 60601.1
Check position of connectors (US and Charger)
During start up: all the LED's must go on for a short period.
2 pole MF: 500 Ohm load: 100 mA peak
2 pole MF: 2000 Ohm load: clamp at 110V
Disconnect ET cable, select MF 2 pole: short beep and shut down when intensity > 6 mA.
Ultrasound: continuous, 2W/cm² +/- 20%
With good contact: 3 or 4 LED's must be on

Service menu (see special service document)

Switch off the unit
Push buttons 22 and 28 and switch on
Release after 1 second (if pressed too long, error 500 appears: restart)
Unit display: 1 OFF
Change program with program number
Most important programs:

- Prog 3: first digit: switch ET potentiometer(on/off), second digit switch US potentiometer (on/off)
- Prog 4: all LED's are checked
- Prog 6: change contrast and save with memory button
- Prog 7: exhibition mode on/off
- Prog 10: Eeprom contents (and last error codes)