

GE Healthcare

## **eBike II / eBike II L / eBike II EL**

Service Manual

2018112-069 Revision F





# MANUAL INFORMATION

- GE Medical Systems Information Technologies GmbH considers itself responsible for the effects on safety, reliability, and performance of the equipment, only if:
  - assembly operations, extensions, readjustments, modifications, or repairs are carried out by ergoline GmbH or by persons authorized by GE Medical Systems Information Technologies GmbH,
  - the electrical installation of the relevant room complies with the applicable national and local requirements,
  - and the instrument is used in accordance with the intended use and the instructions for use.
- This manual contains service information; operating instructions are provided in the operator's manual of the instrument.
- This manual is in conformity with the instrument at printing date.
- The Service Manual **eBike II** is valid for the following devices:

2017911-201	EBIKE BASIC
2017911-202	EBIKE BASIC US
2017911-203	EBIKE BASIC & BP
2017911-204	EBIKE BASIC & BP US
2017911-205	EBIKE COMFORT
2017911-206	EBIKE COMFORT US
2017911-207	EBIKE COMFORT & BP
2017911-208	EBIKE COMFORT & BP US
2017911-209	EBIKE L 240V
2017911-210	EBIKE L & BP 240V
2017911-211	EBIKE L EXT TRMNL 240V
2017911-212	EBIKE L & BP EXT TRMNL 240V
2017911-213	EBIKE L 120V US
2017911-214	EBIKE L & BP 120V US
2017911-215	EBIKE L EXT TRMNL 120V US
2017911-216	EBIKE L & BP EXT TRMNL 120V US
2017911-217	EBIKE EL 240V
2017911-218	EBIKE EL & BP 240V
2017911-219	EBIKE EL EXT TRMNL 240V
2017911-220	EBIKE EL & BP EXT TRMNL 240V
2017911-221	EBIKE EL 120V US
2017911-222	EBIKE EL & BP 120V US
2017911-223	EBIKE EL EXT TRMNL 120V US
2017911-224	EBIKE EL & BP EXT TRMNL 120V US

optional with Module „N I B P“ and all Supply and Service Items  
and Software Version FW 3

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## REVISION HISTORY

This manual is subject to the GE Medical Systems Information Technologies change order service.  
The revision code, a letter that follows the document part number, changes with every update of the manual.  
The initial version of the manual has the letter A.

Part No.	Revision Code	Date	Comment
2018112-069	Rev A	2011-03	Initial Release
2018112-069	Rev B	2011-06	p. 11, 147: P/N lift tool changed p. 44: default values added p. 47: 60Hz explanation added p. 46, 47: saddle calibration, extended pp. 127: spare parts, accessories etc. in different chapters
2018112-069	Rev C	2012-05	p. 3: software-version changed p. 147: P/N lift tool corrected p. 185: load accuracy added
2018112-069	Rev D	2013-06	p. 137: SPARE eBIKE II Basic Comfort BP Module added
2018112-069	Rev E	2014-02	p. 22, 23: Motor control eBike L, BCU added p. 26, 27: Motor control eBike EL, SCU added p. 31, 32: Check USB interface and Change COM port assignment modified p. 101: Replacement control unit motors and remote control, compatible modules eBike II L added p. 104, 105, 109, 110: Motor control eBike L, BCU added p. 122: Replacement control unit motors and remote control, compatible modules eBike II EL added p. 125, 126, 129, 130: Motor control eBike EL, SCU added p. 164, 177, 178, 179: SPARE eBIKE L, BCU, eBIKE EL, SCU added p. 203: Voltage and fuses eBIKE L corrected and eBIKE L, BCU added p. 205: Voltage and fuses eBIKE EL corrected and eBIKE EL, SCU added p. 209: Uncrating and basic assembly instruction eBike II L / EL added



Part No.	Revision Code	Date	Comment
2018112-069	Rev F	2018-05	<p>p. 19, 20, 91, 151 pictures power switch changed</p> <p>p. 49 parameter in service menu adapted</p> <p>p. 53 screenshot changed and new screenshot inserted</p> <p>p. 149 new crank/pedal set new pedal set</p> <p>p. 151 new power cord</p> <p>p. 157 new blood pressure cuffs</p> <p>p. 159 new adjustable cranks, new USB driver CD</p> <p>p. 160 new power cord</p> <p>p. 163 modified picture</p> <p>p. 165 new crank/pedal set new pedal set</p> <p>p. 166 picture changed</p> <p>p. 180 new part added</p> <p>p. 187 picture changed (fuses removed)</p> <p>p. 189 new blood pressure cuffs</p> <p>p. 191 4 new parts</p> <p>p. 192 new USB driver CD</p> <p>p. 195 new part added</p> <p>p. 201 – 203 chapter <i>Cleaning, Maintenance, Disposal</i> added</p> <p>p. 204 value power changed</p>

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# ELECTRICAL SAFETY

## Warning

### • Equipment Damage •

- *The regulations about handling ESD sensitive components must be observed.*

## Hint

### Requirements for Persons stipulated in the German Medical Device Operators Ordinance

- *The requirements of §11 section 6, §11 section 5 sentence 1 and §6 section 4 of the MPBetreibV (German Medical Device Operator Ordinance) must be satisfied.*

## Warning

### • Patient Hazard, Equipment Damage •

- *IEC 60601-1 requirements must be satisfied during repair, modifications and inspections of medical electrical equipment.*
- *To ensure that equipment functions faultlessly and without presenting any hazard after service interventions, it must be subjected to the test procedures stipulated for the different device categories.*
- *A device is considered to be unsafe, when:*
  - *it cannot be repaired*
  - *the user does not wish to have the device repaired.**In this case, the operator must be informed in writing of the hazard presented by the device. The same remark must be annotated on the service report and on the service invoice..*

### • Patient Hazard, Equipment Damage •

- *Use original spareparts only.*
- *For information about product changes, refer to the manufacturer's original documentation only.*
- *Observe the fuses' original ratings, characteristics and Ampere interrupting capacity.*
- *Parts of the device that ensure its safe operation must be neither damaged nor obviously unsuitable. This applies to insulation and insulating components in particular.*
- *Power cords must be visually inspected for signs of damage before connecting them to the power line.*

## LEAKAGE CURRENTS

### MEASURING EQUIPMENT

The measuring equipment used for the electrical safety tests must be inspected and calibrated at regular intervals. As per the German Medical Device Operator Ordinance, the measurement results must be documented in the medical device book.

### eBIKE II BASIC / COMFORT

The eBike II basic/comfort ergometers are protection class II equipment (no connection to protective ground). The necessary electrical safety tests for these devices together with the limit values are listed in the chapter „eBike II basic/comfort – Preventive maintenance“.

### eBIKE II L / EL

The eBike II L / EL supine ergometers are protection class I equipment (with connection to protective ground). The necessary electrical safety tests for these devices together with the limit values are listed in the chapter „eBike II L – Preventive maintenance“ and „eBike II EL – Preventive maintenance“.

## INSPECTION ACCORDING TO GERMAN MEDICAL DEVICE OPERATOR ORDINANCE

### TECHNICAL SAFETY INSPECTIONS AND INSPECTIONS OF THE MEASURING SYSTEMS

According to §6 and §11 of the German Medical Device Operator Ordinance, the load unit must be inspected to the approved rules of the art at intervals of 2 years by an GE Medical Systems Information Technologies authorized service technician, and repaired if necessary.

Static and dynamic inspections of the ergometer must be performed according to DIN VDE 0750-238.

Calibration instructions for the NIBP module can be found in this Service manual. Follow these instructions to display the BP values with the test setup according to DIN EN 1060-1 and DIN EN1060-3.

The measurement results must be documented in the medical device book..

According to the German Medical Device Operator Ordinance, the next due inspection is indicated on the Test Sticker next to the ergometer's nameplate.

#### Hint

- §11 of the German Medical Device Operator Ordinance demands that ergometers used in medicine, i.e. ergometers for exercising patients with a defined and reproducible physical load, be calibrated with a dynamic load.

## TOOLS



The following tools are recommended to disassemble the devices:

### Flat bladed screwdrivers:

- 1 pc. 1.0 x 0.18
- 1 pc. 4.0 x 0.8
- 1 pc. 6.0 x 1.2

### Philips screwdrivers:

- 1 pc. PH 1
- 1 pc. PH 2
- 1 pc. PH 3

### Fork wrenches:

- 1 pc. 5.5 mm
- 2 pc. 7 mm
- 1 pc. 13 mm
- 1 pc. 17 mm
- 1 pc. 19 mm

### Allan keys:

- 1 pc. 2.5 mm straight
- 1 pc. 3 mm straight and elbow
- 1 pc. 4 mm straight and elbow
- 1 pc. 5 mm straight
- 1 pc. 6 mm straight and elbow

### Socket wrenches:

- 1 pc. 5.5 mm
- 1 pc. 13 mm

### Pliers

- 1 pc. side cutter
- 1 pc. flat nose pliers
- 1 pc. multigrip pliers

### Special tools

- 1 pc. crank extractor (P/N 2005737-001)
- 2 pc. round pin, max. 3 mm, minimum length 15 mm
- 1 pc. ergometer eBike lift-up service tool (P/N 2018111-143)
- 1 pc. calibrated NIBP measure instrument





# ELECTRONIC MODULES / ASSEMBLY

## OVERVIEW

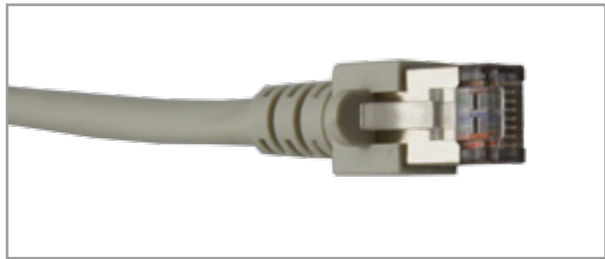
### DESCRIPTION OF ELECTRONIC AND CABLING

The electronic of the eBike II is based on a modular concept.  
Each module has its own processor with the appropriate software.

To communicate between different modules, the CAN bus is used – a stable and standardized protocol used in the automotive industrie.

The connection between different modules is made by use of standard shielded patch cables.




These cables carry the power lines (24 volt) and the CAN bus signal lines.

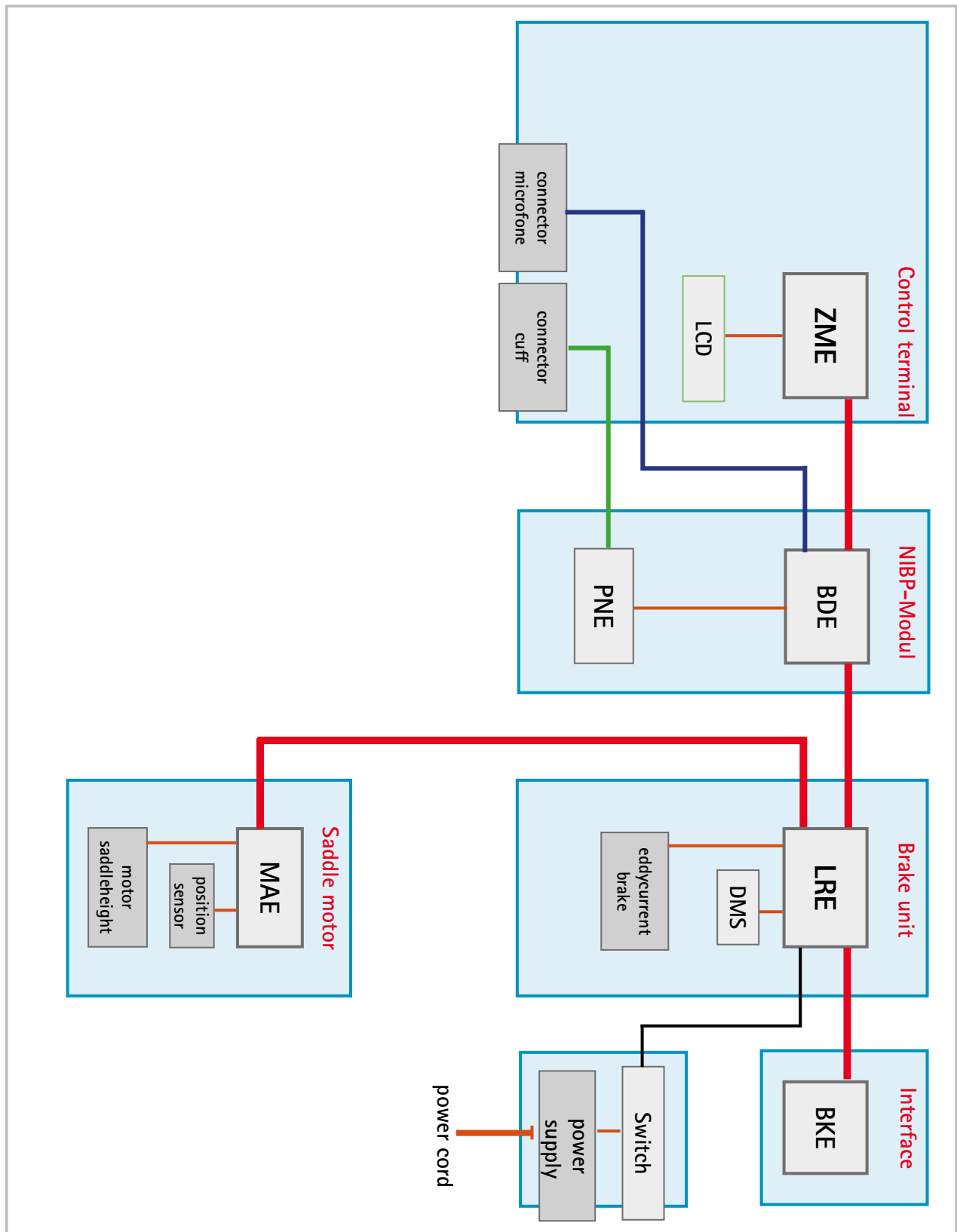


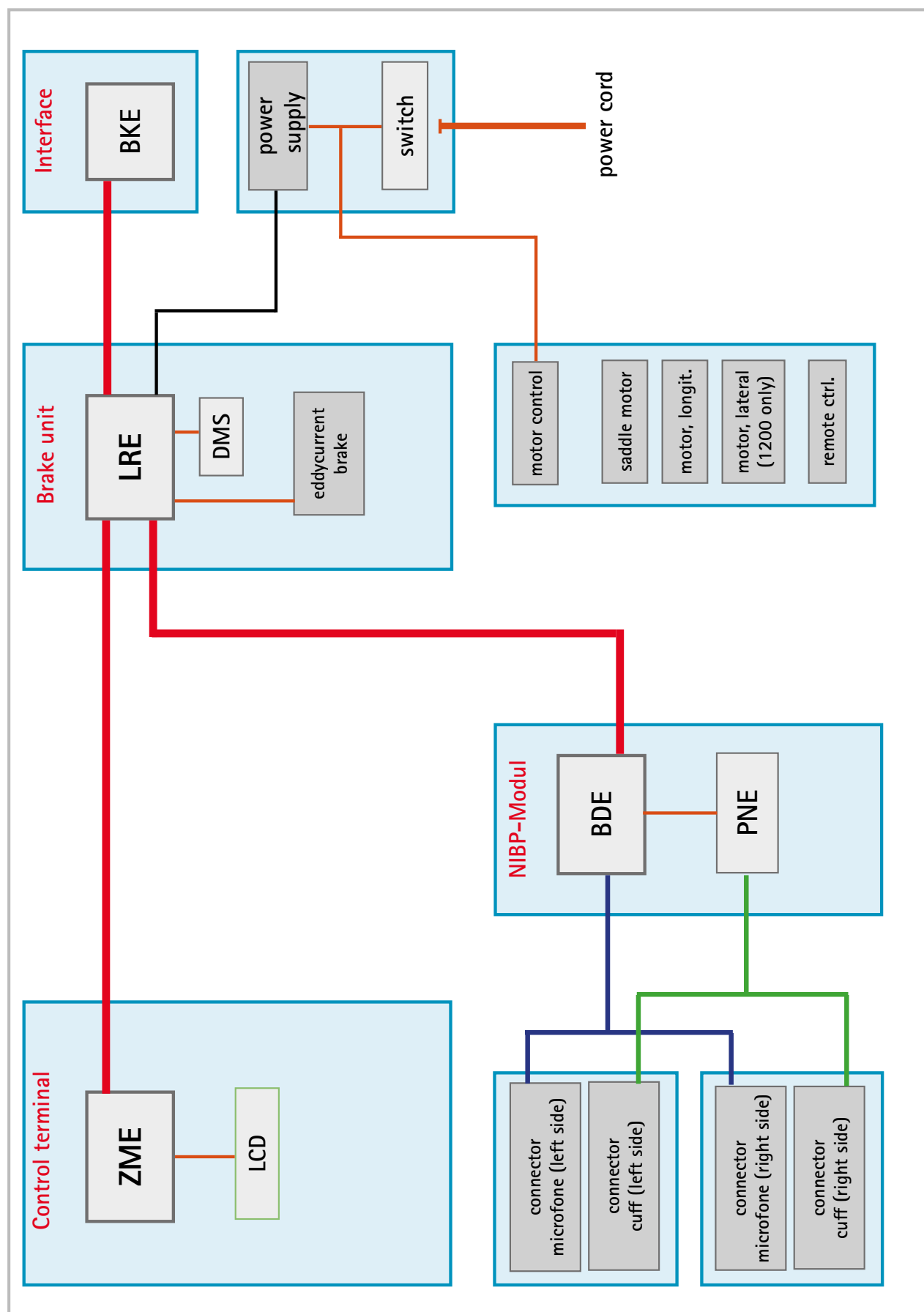
STANDARD CONNECTING CABLE (PATCH CABLE, SHIELDED)

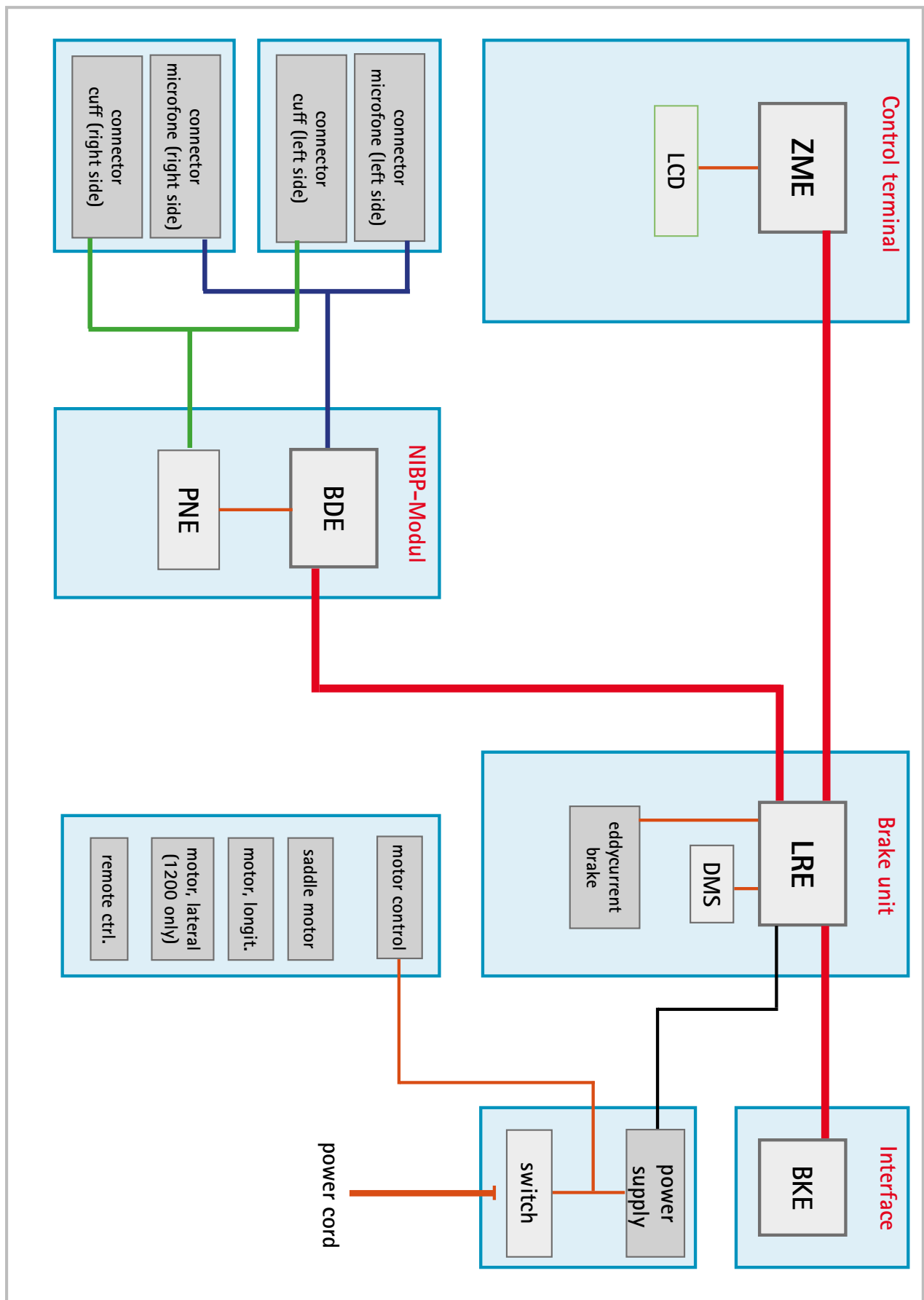
### ABBREVIATIONS

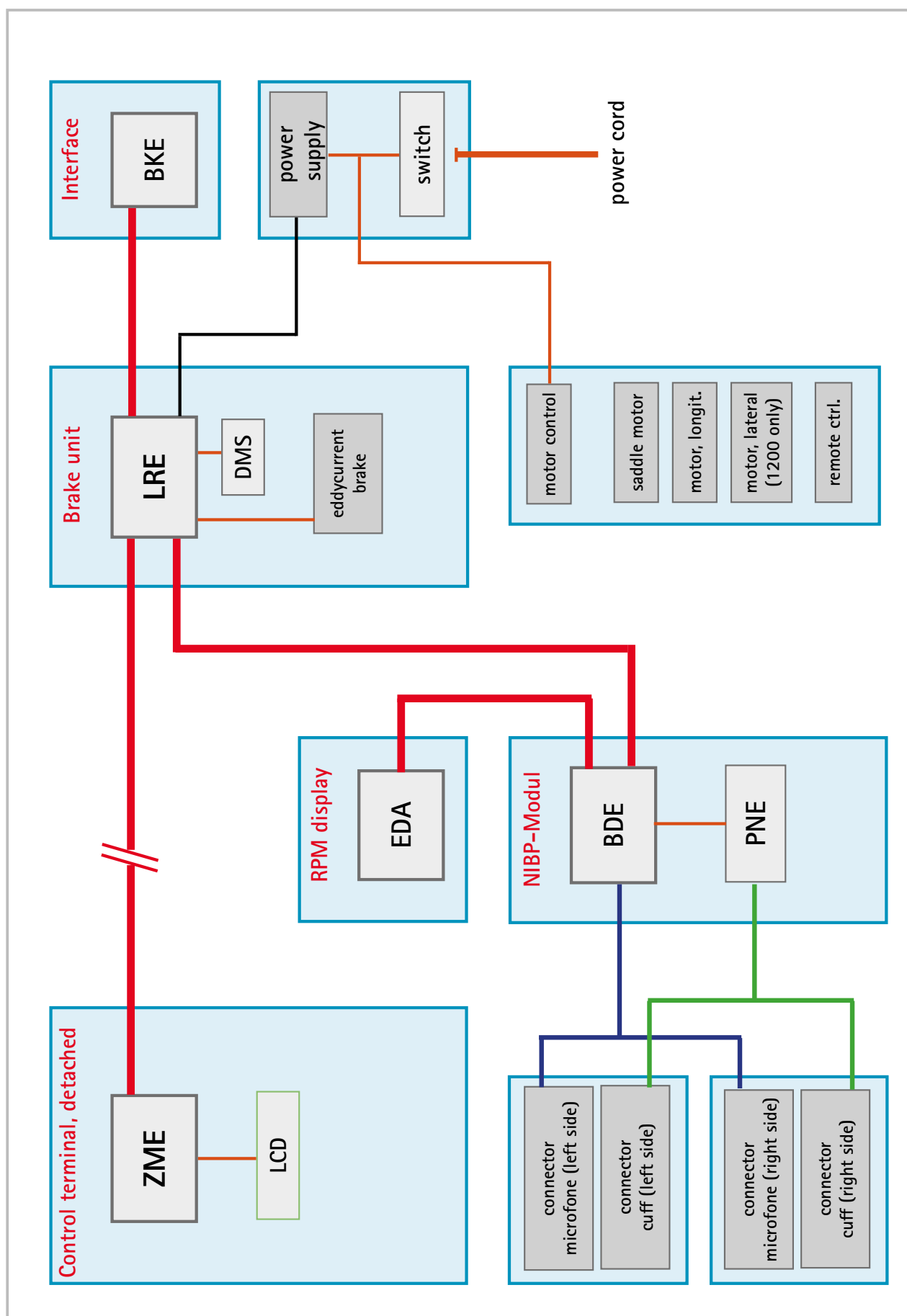
ZME	Main control unit
LRE	Load regulation unit
BKE	<b>B</b> asic communication unit
BDE	Bloodpressure unit
PNE	Pneumatic unit (NIBP)
MAE	Saddle motor unit
DMS	Strain gauge
LCD	Display

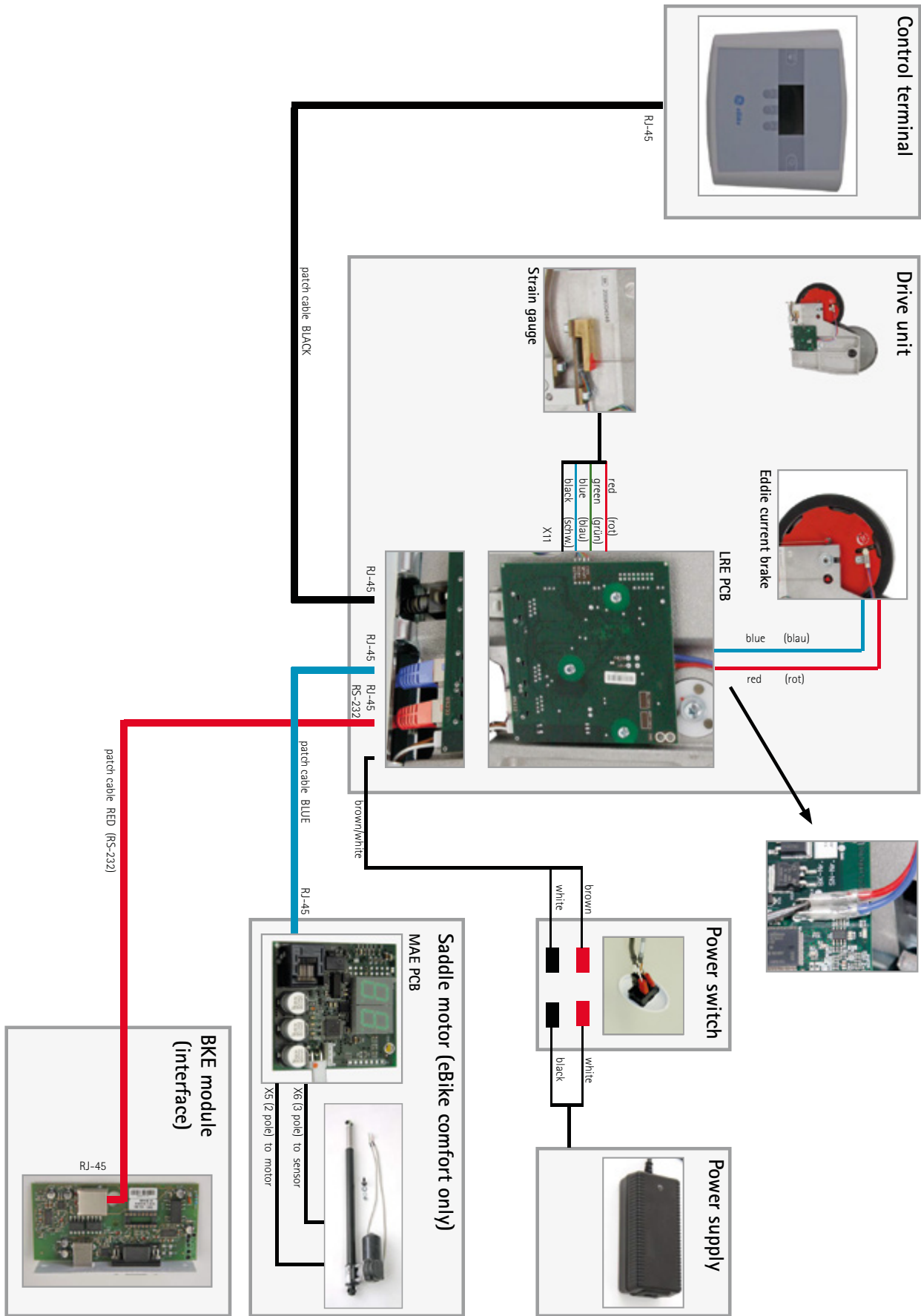
	RJ-45 Patchcable
	Microfone cable
	Connecting tube (cuff)

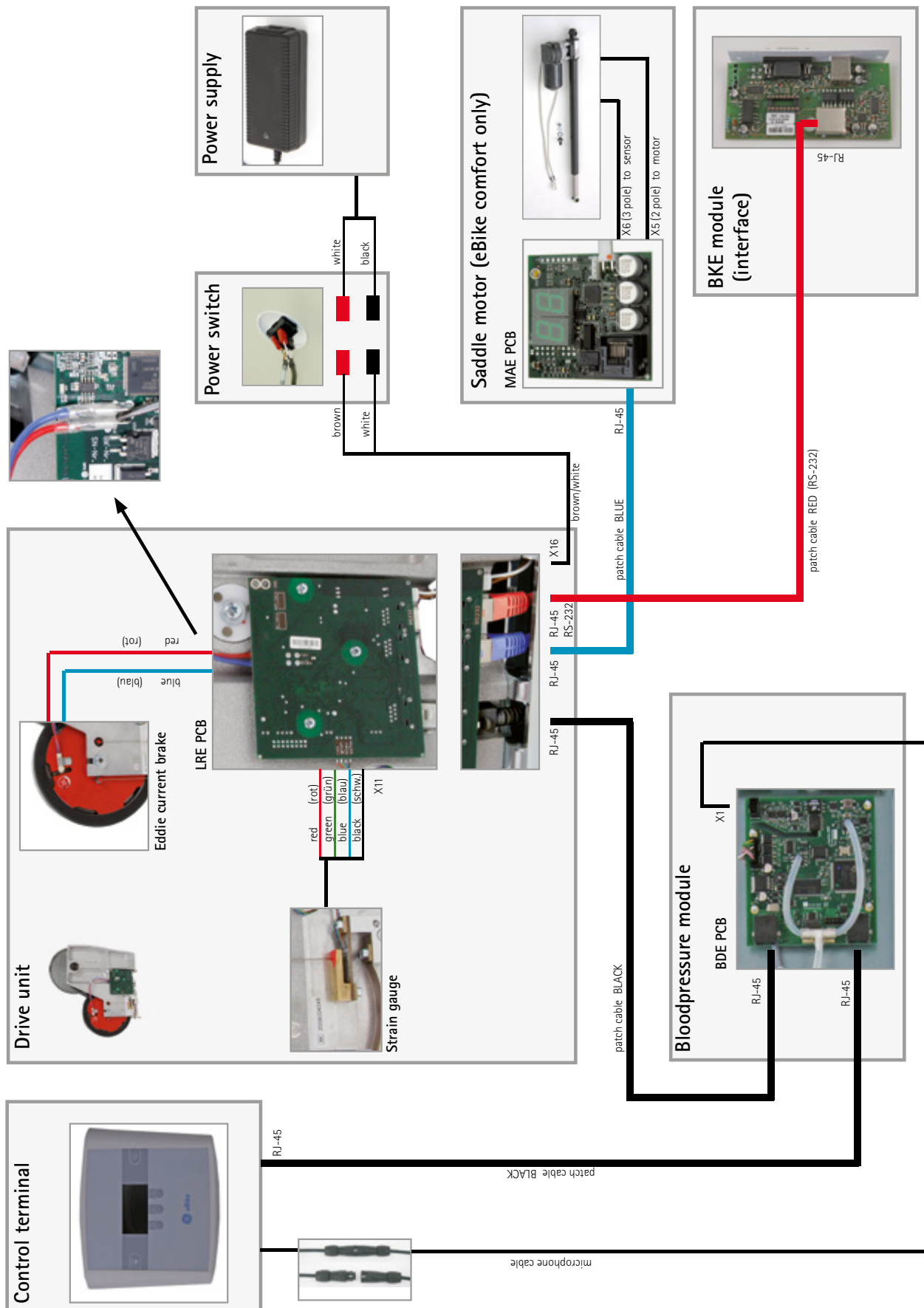




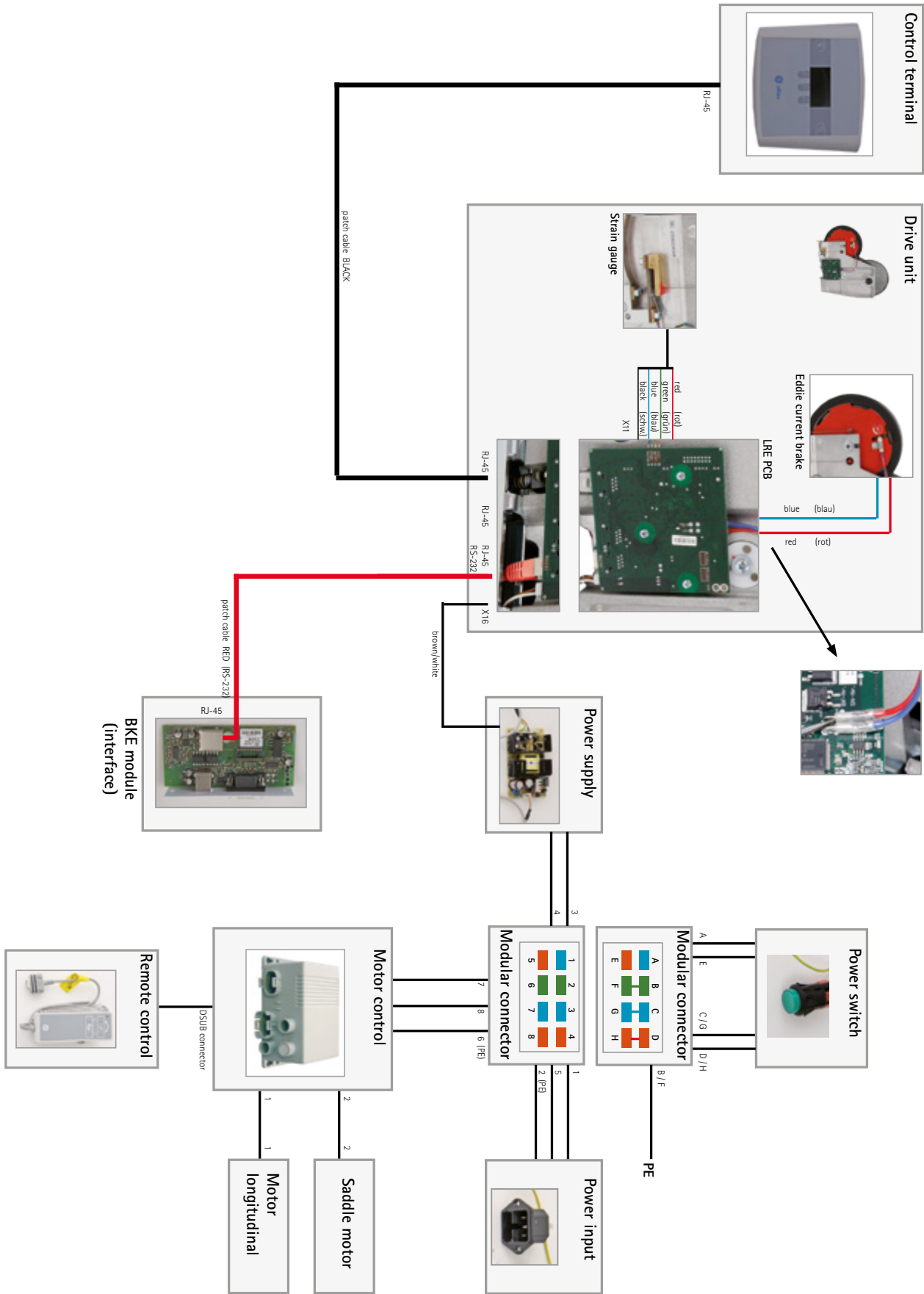


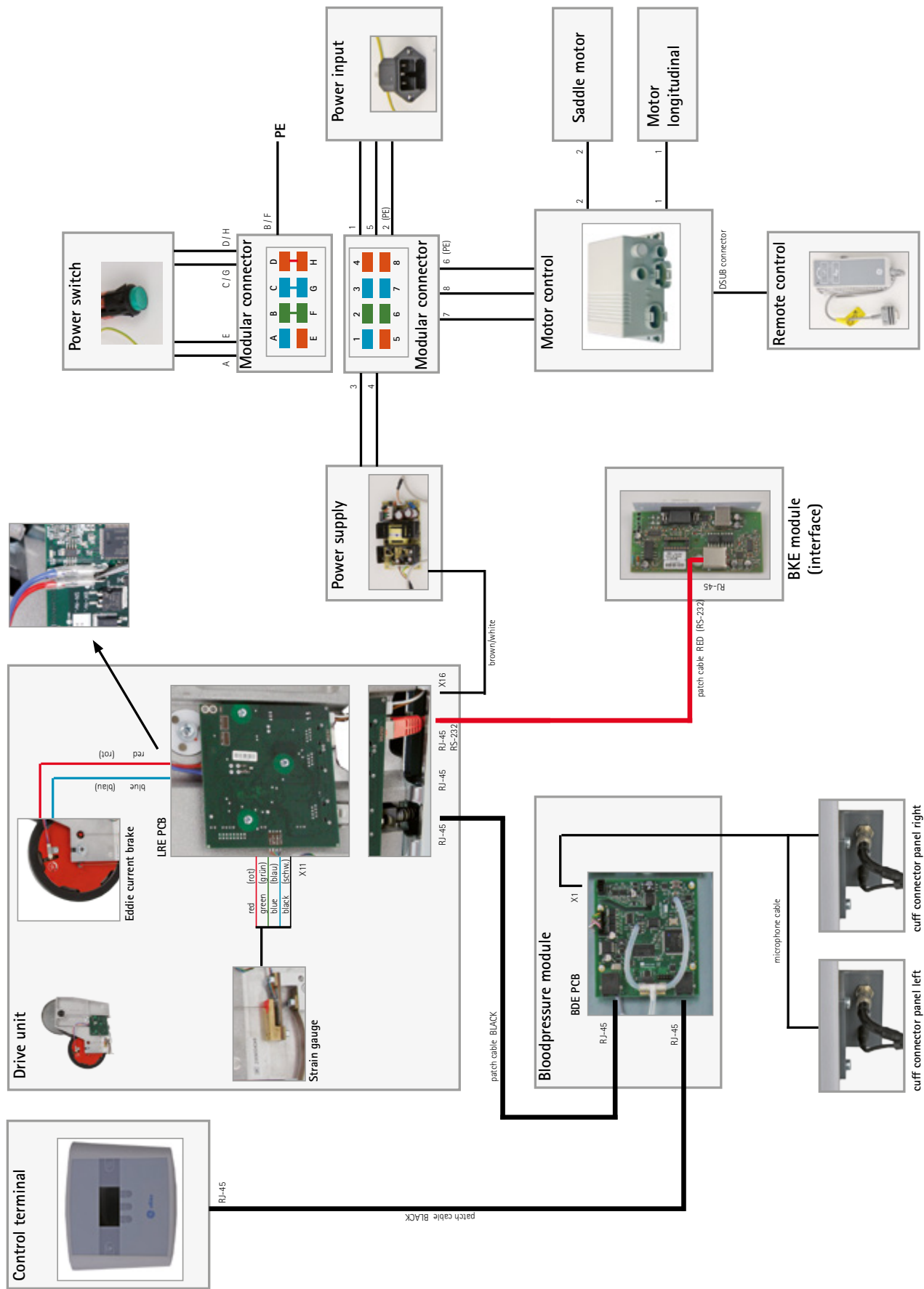




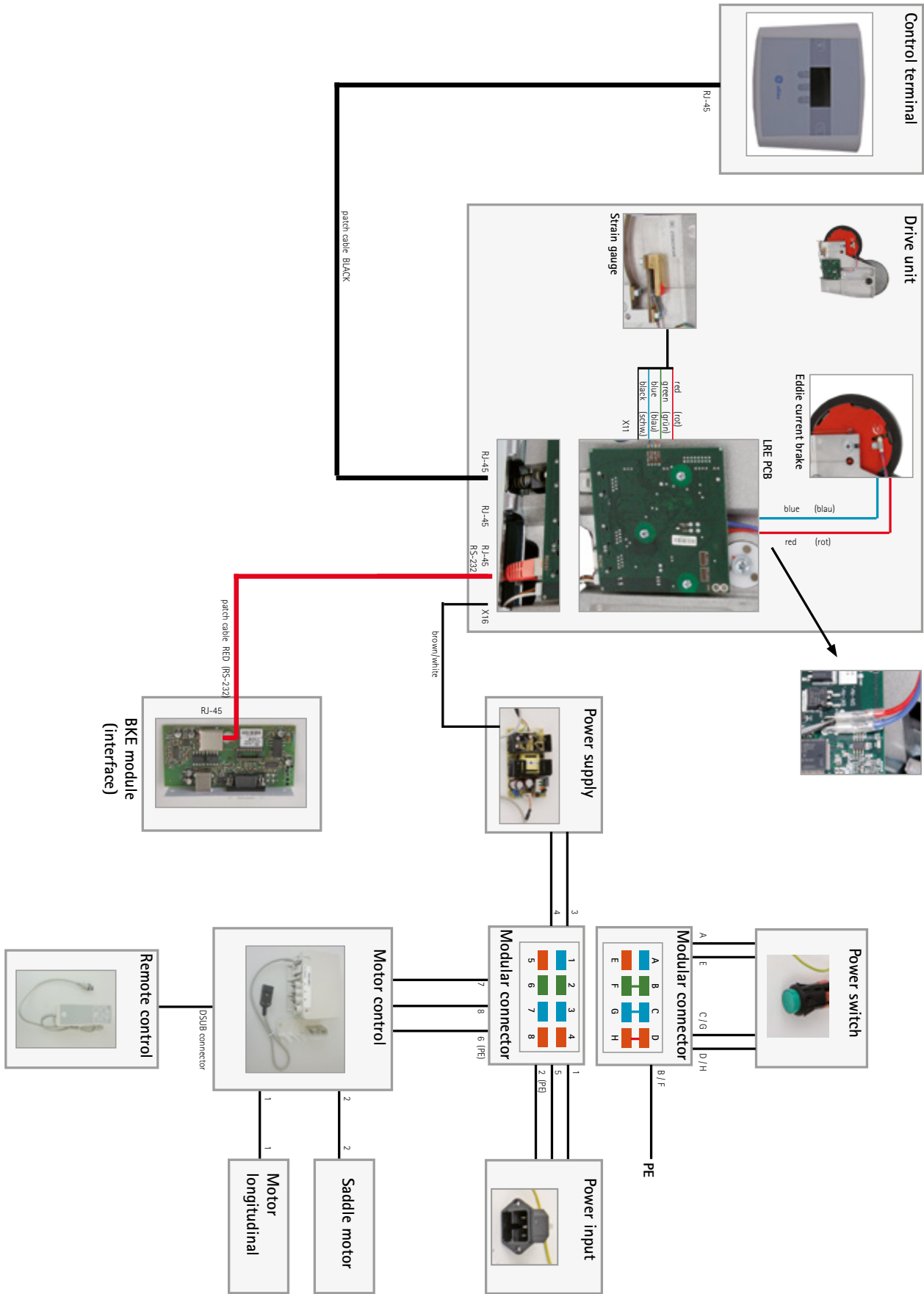


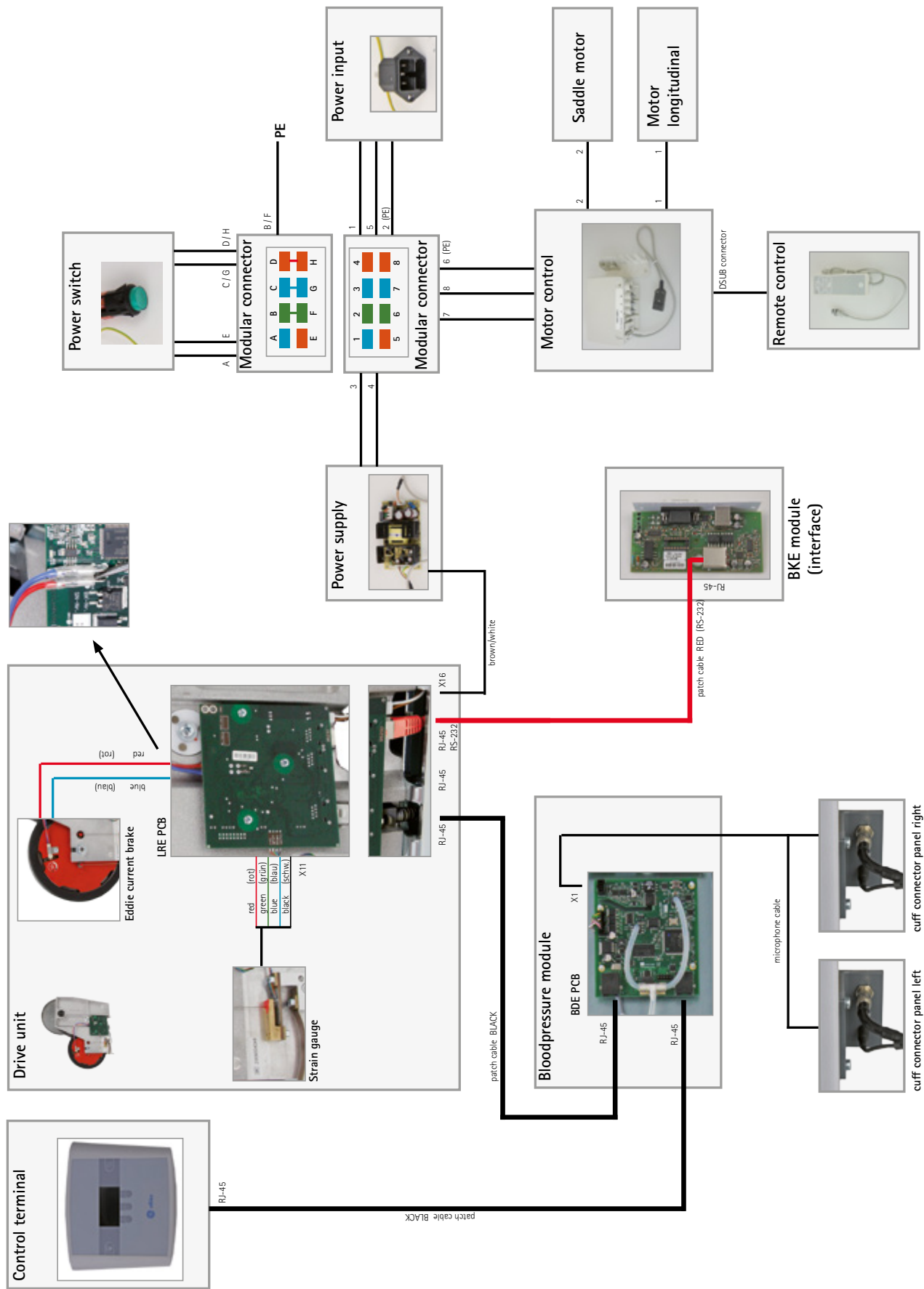




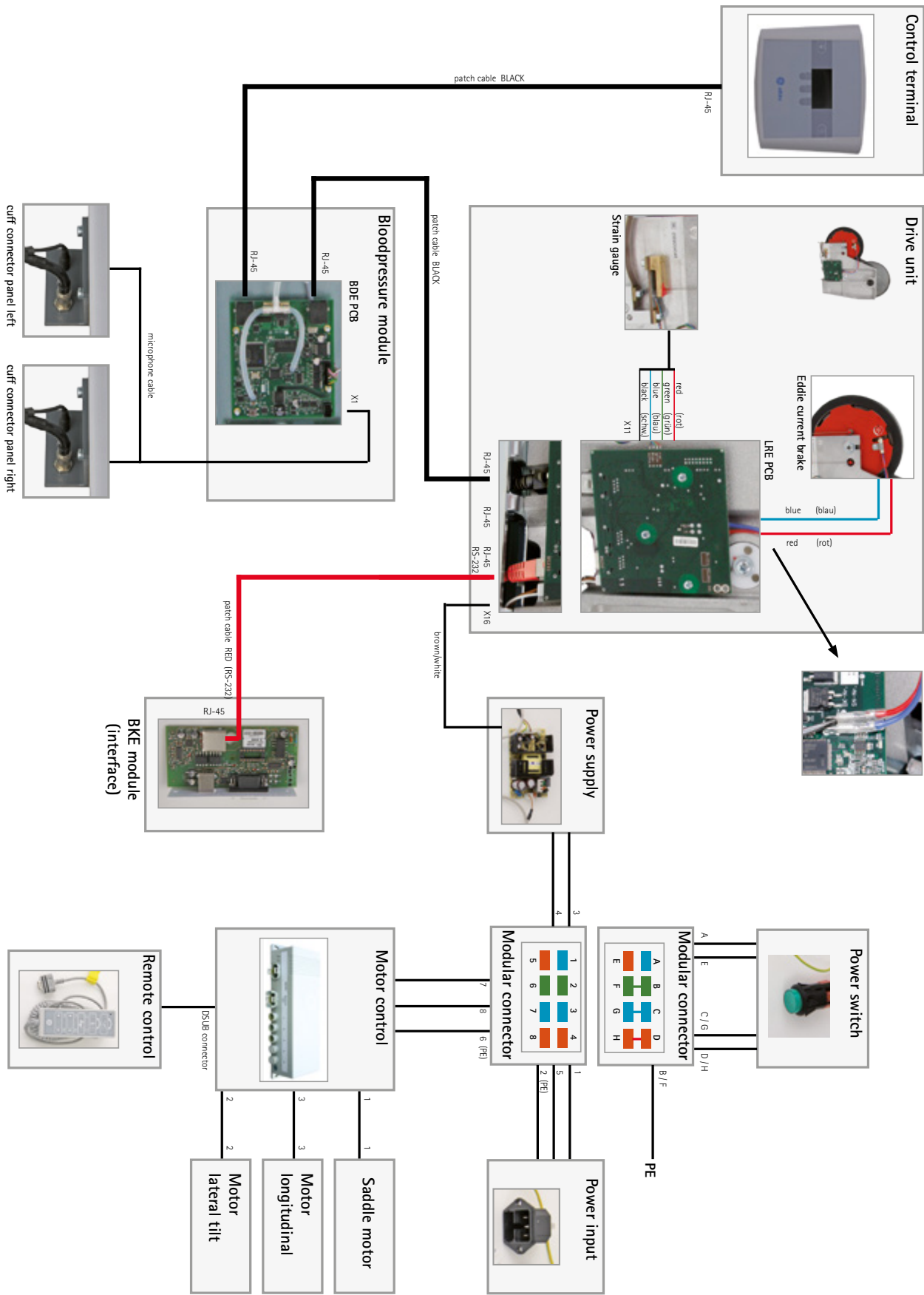


WIRING DIAGRAM eBIKE II L WITH BCU

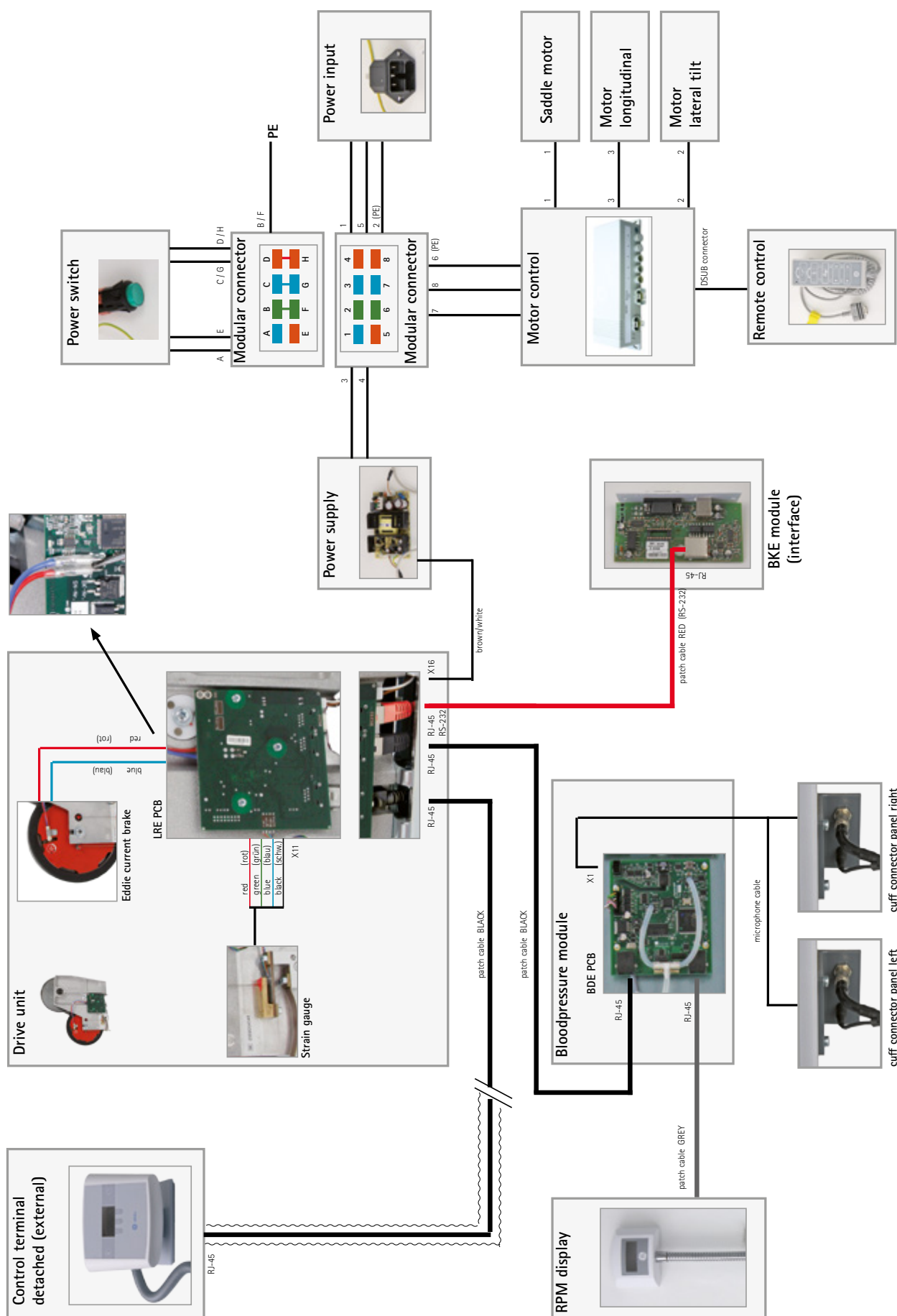




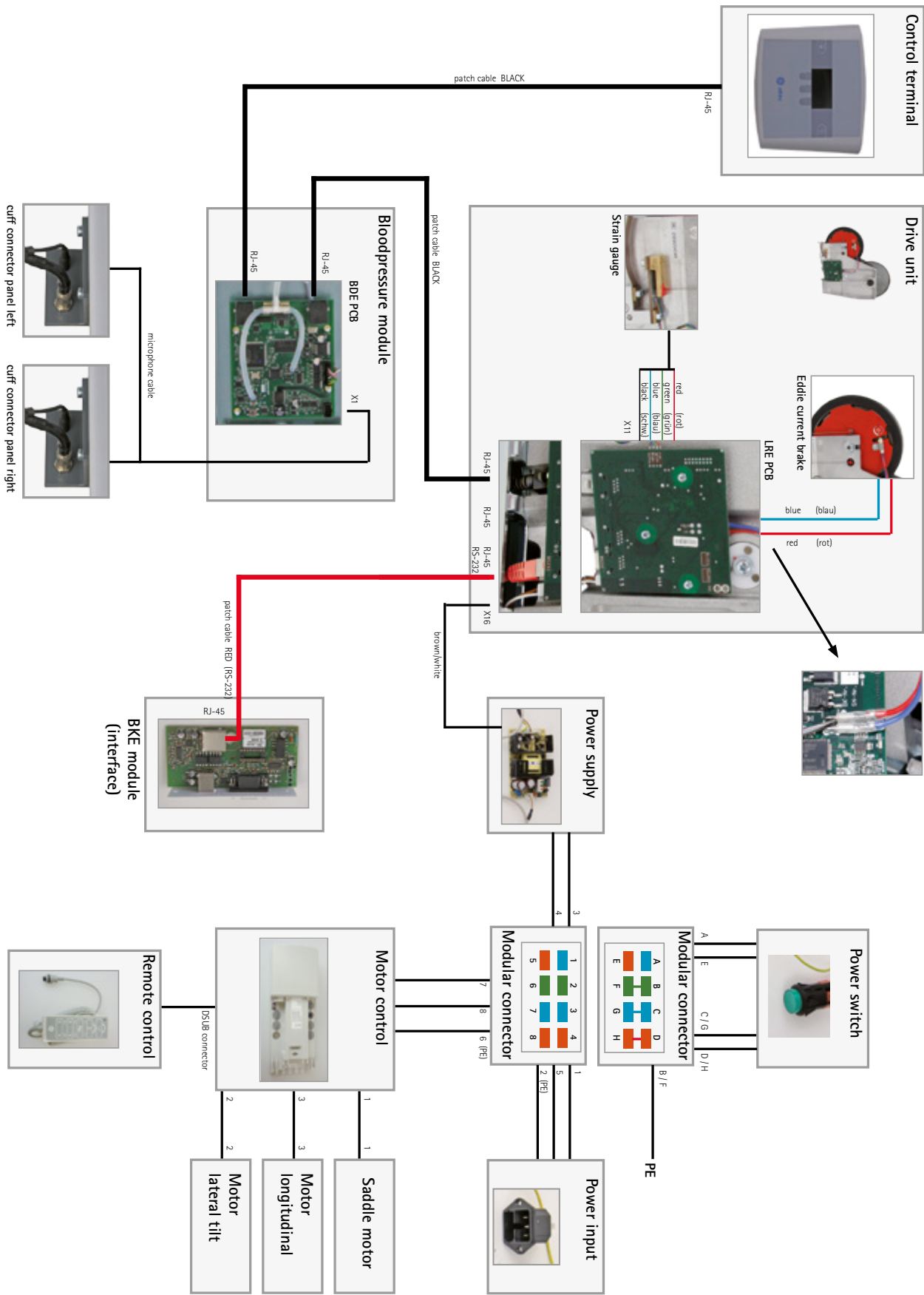
WIRING DIAGRAM eBIKE II EL WITH NIBP



# WIRING DIAGRAM eBIKE II EL CONTROL TERMINAL DETACHED WITH NIBP

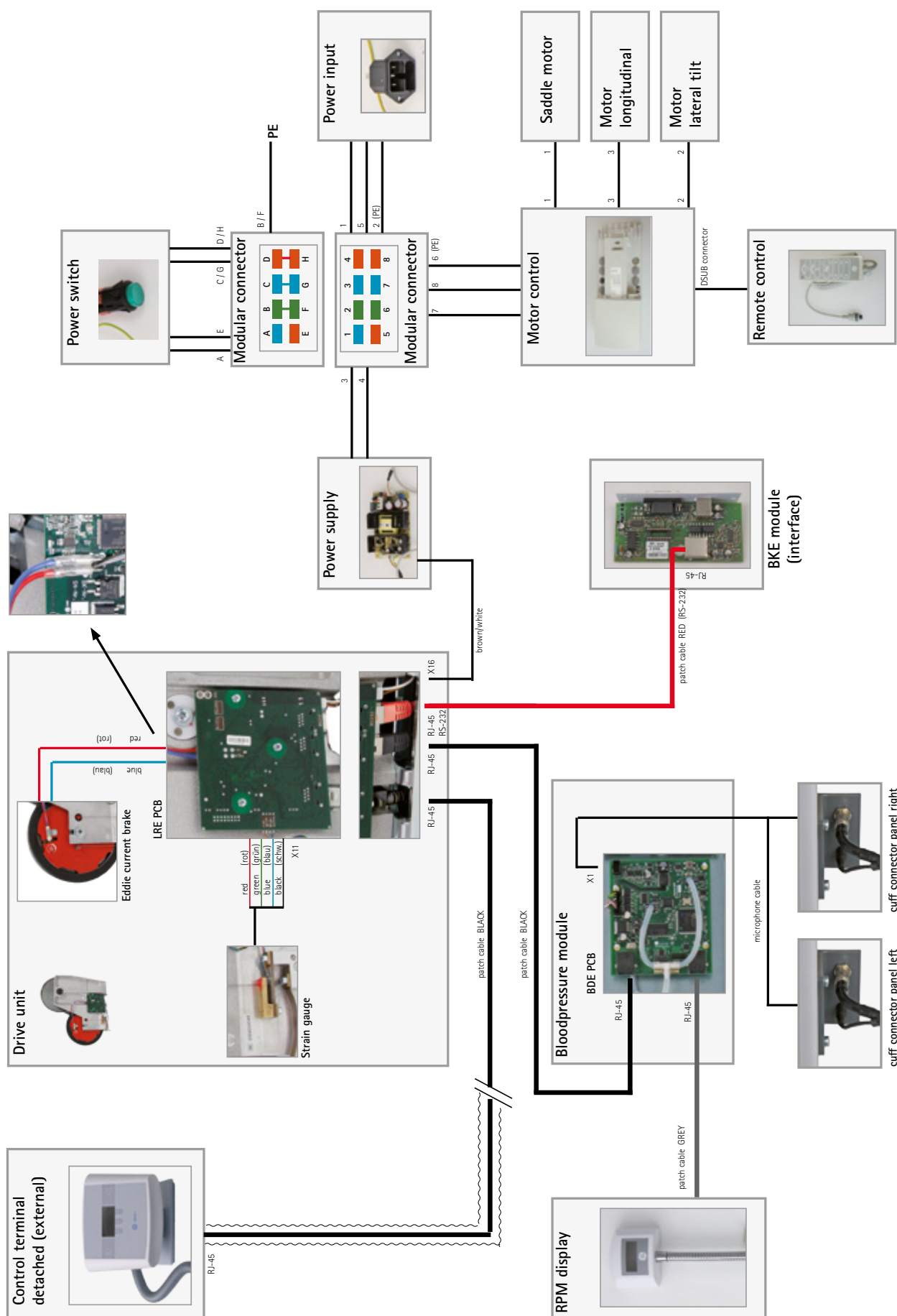


WIRING DIAGRAM eBIKE II EL WITH NIBP AND SCU





# WIRING DIAGRAM eBIKE II EL CONTROL TERMINAL DETACHED WITH NIBP AND SCU





## CONTROL TERMINAL

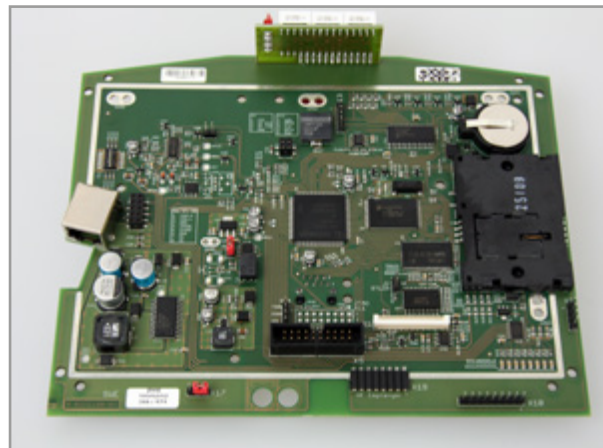
### ZME – MAIN ELECTRONIC BOARD

The ZME board represents the „mainboard“ of the eBike II electronics.

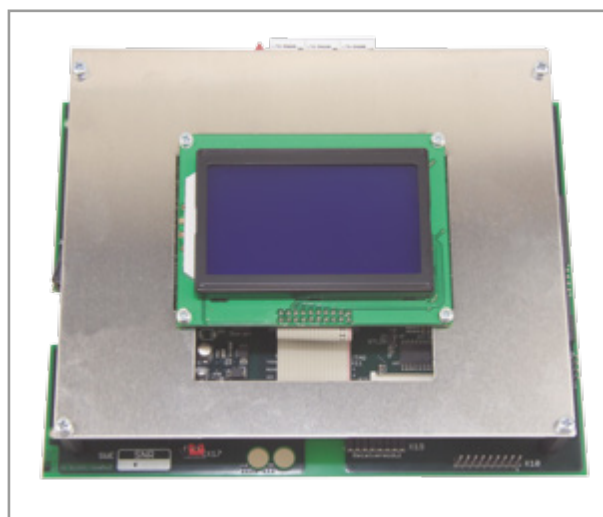
The LC display and the foil keyboard are connected to this board.

Remove the flat cable of the display and loose the 4 screws fixing the bearing metal plate.

The display unit can be removed.



ZME BOARD (TOP VIEW)



ZME WITH DISPLAY MOUNTED

## LOAD UNIT

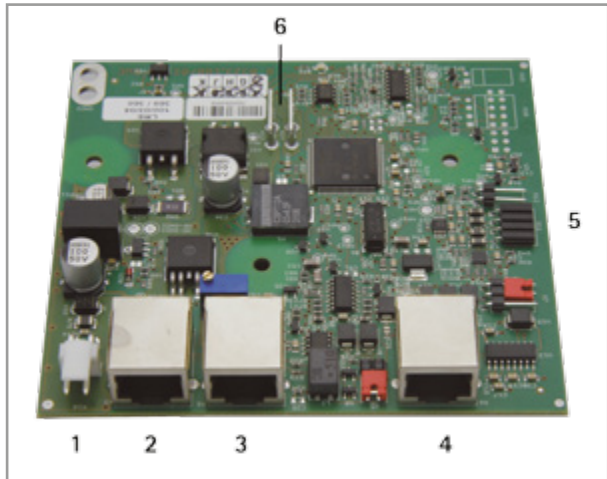
### LRE – LOAD REGULATING PCB

The electronics of the LRE-PCB stabilizes the actual load of the eddy current brake with the given accuracy. The rotations per minute are monitored with a non-contact hall sensor, the feedback signal of the strain gauge is analysed and the actual brake force adjusted accordingly.

The LRE board is mounted with the component side towards the aluminium housing of the drive unit.

The microprocessor of the LRE board also generates the interface signals for external communication (e.g. with PC ECG or ECG recorders).

The BKE interface board (generating the final RS-232 and USB signals) is always connected directly to the LRE board.



#### LRE BOARD

- 1 Connector for power supply (cable from main switch)
- 2 Connector for BKE board (RS-232 marked)
- 3 RJ-45 connector for ergoline bus system
- 4 RJ-45 connector for ergoline bus system
- 5 Connector for strain gauge unit (DMS)
- 6 Connector for eddy current brake

## INTERFACE

### BKE – INTERFACE PCB

The BKE board carries the external PC interfaces (RS-232 and USB).

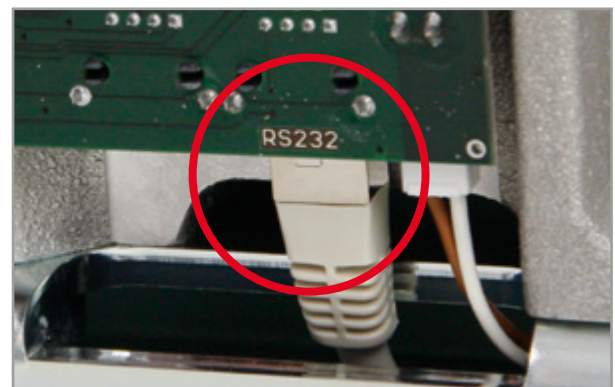
Both interfaces are electrically isolated (optocouplers).



BKE INTERFACE BOARD

The BKE is the only board without a microprocessor.

Therefore this board is always connected directly to the LRE board – the jack on LRE is labeled with „RS-232“.



RJ-45 CONNECTOR ON THE LRE BOARD TO CONNECT WITH THE BKE INTERFACE BOARD

## USB INTERFACE

### DRIVER INSTALLATION (VIRTUAL COMx)

Administrator rights are required to install the driver.

- Start PC and Monitor.
- Finish all running programs (- in background running programs as well).
- Insert the USB driver CD (PN 2017911-130) into the CD-ROM drive.
- Depending on the Windows® operating system used, start the appropriate driver from the CD:

Windows 2000®:

CP210x\_VCP\_Win2K\_XP\_S2K3.exe

Windows XP®, Windows Vista®, Windows 7, Windows 8®:

CP210x\_VCP\_XP\_S2K3\_Vista\_7.exe

- Follow the instructions given on the screen. Confirm the installation if a warning for a non identified program is displayed.
- Click „Finish" to start the first part of the USB driver installation.
- Connect the eBike with the USB cable to the PC and switch the eBike on:  
eBike is automatically recognized by WINDOWS and the driver is loaded („Silicon Labs CP 210x").
- Follow instructions given on the screen.
- Remove the CD from the drive unit.

## **CHECK USB INTERFACE**

The eBike has to be connected to the PC via USB cable and switched on.

- Start the WINDOWS „Device manager".
- Double click „COM & LPT" to display all connections.
- For CardioSoft/CS V6.71 and below:  
If an USB Serial Port („Silicon Labs CP 210x USB to UART Bridge") is assigned from COM1 up to COM4 no change is necessary. If an USB Serial Port higher COM4 is assigned, one of the COM ports 1 to 4 has to be deactivated to use this port number for eBike.
- For CardioSoft/CS V6.73 and above:  
If an USB Serial Port („Silicon Labs CP 210x USB to UART Bridge") is assigned from COM1 up to COM32 no change is necessary. If an USB Serial Port higher COM32 is assigned, one of the COM ports 1 to 32 has to be assigned to use this port number for eBike.
- Keep the assigned COM port in mind - this port number has to be used in the CardioSoft/CS settings.  
Close all open windows.

## **CHANGE COM PORT ASSIGNMENT**

- Right mouse click onto „Silicon Labs CP 210x USB to UART Bridge (COMx)"
- Select „Settings"
- Select Tab „Port Settings".
- Click onto „Advanced".
- For CardioSoft/CS V6.71 and below:  
Click onto „COM Port Number" and select an unused COM port between COM1 and COM4.

- For CardioSoft/CS V6.73 and above:  
Click onto „COM Port Number" and select an unused COM port between COM1 and COM32.
- Confirm with OK.
- Close all open windows.

## **COM – INTERFACE EXTENSION (MAC 5000 ST/5500)**

The MAC 5000 ST / MAC 5500 use analogue signals to set the load of the eBike, while the bloodpressure measurement is controlled with digital signals..

The eBike II is by default only equipped with a digital interface.

To connect an eBike II with a MAC 5000 ST / 5500 a special adapter (COM module PN 2008xxx-001) has to be installed to add an analogue interface to the eBike II.



COM MODULE (PN 2008xxx ) WITH JUMPER AND SCREW

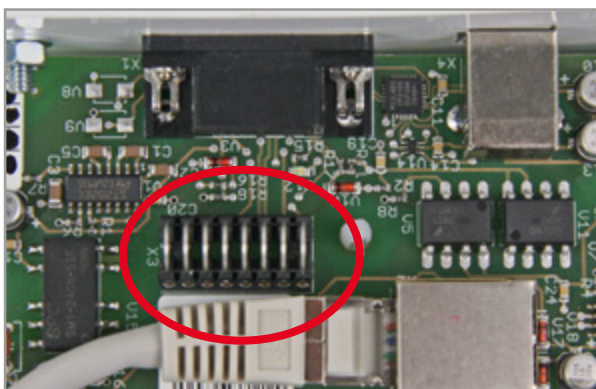
A jumper adapter has to be placed onto the BKE board to connect all required signals to the DSUB connector:

- Open the housing of the BKE on the bottom side of the ergometer.



OPEN THE HOUSING OF THE BKE (BOOTOM SIDE)

- Insert the jumper adapter into the corresponding socket, to close all necessary connections.
- Close the housing and fix to the ergometer chassis again.



BKE-PCB WITH JUMPER ADAPTER INSTALLED

The COM module is plugged onto the 9 pole DSUB connector (PORT 1) and screwed to the ergometer chassis.



COM MODULE MOUNTED ON 9 POLE DSUB



COM MODULE CONNECTORS

The analog adapter has to be activated as follows:

- In Service Menu go to System Configuration and set Analog Interface to I.
- Then power OFF/ON the eBike.
- Go to Settings, select ECG Type, enter password 003 and select Analog / Digital

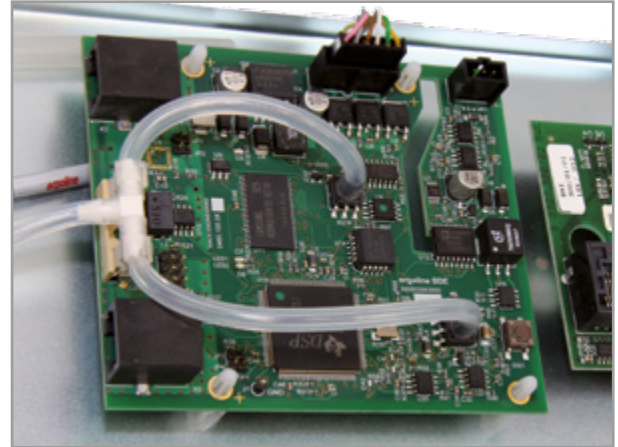
Insert the appropriate digital and analog connecting cables and fix the cables to the chassis using a strain relief..

## NIBP BLOODPRESSURE UNIT

### ASSEMBLY

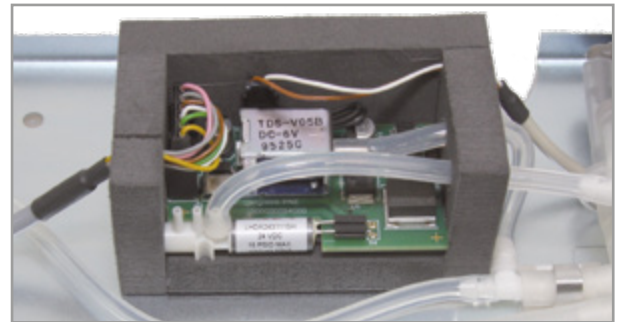
The NIBP module consists of several components.

The complete measurement electronics is placed on the BDE board.



BLOODPRESSURE MEASURING ELECTRONICSE (BDE)

The valves and the power driver for the pump are placed on a separate board, located in an sound and vibration absorbing foam carrier.



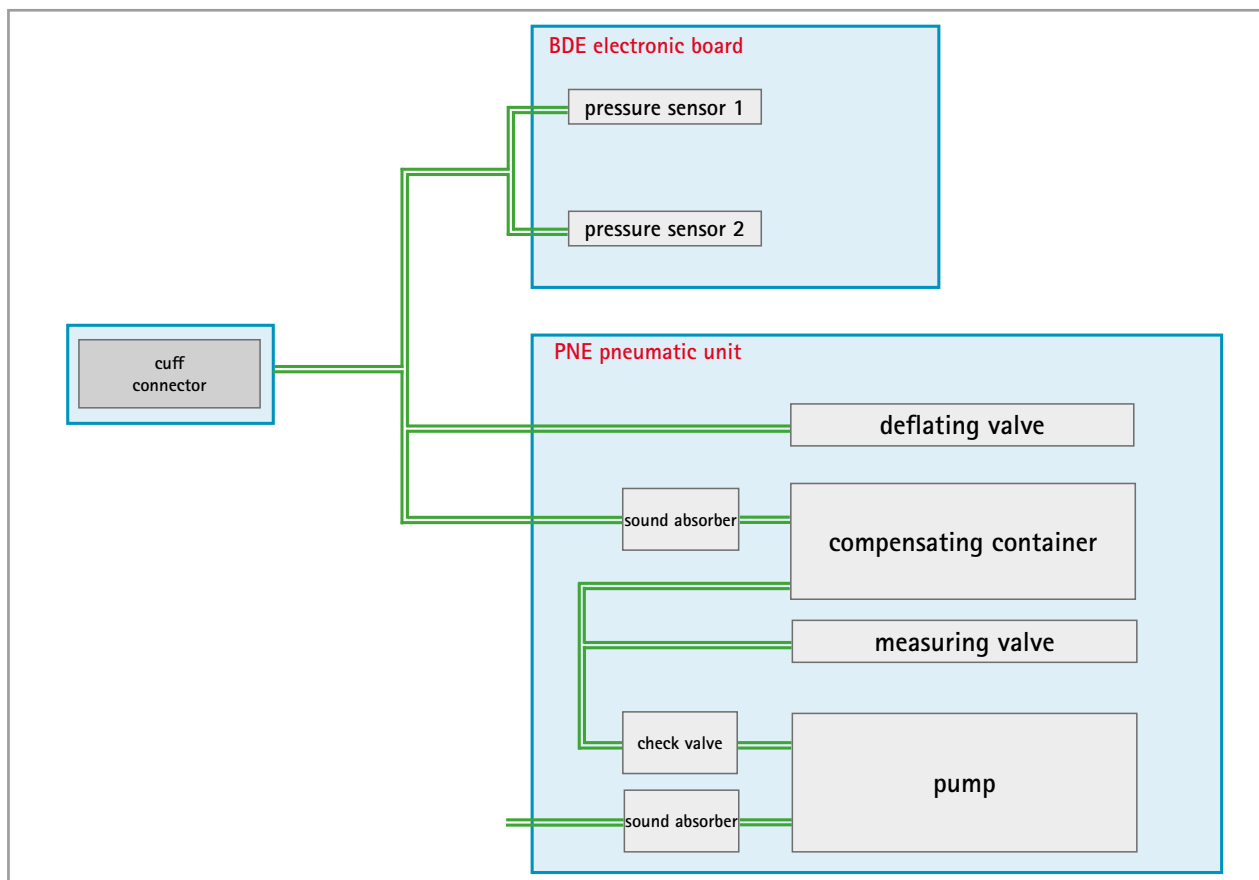
VALVE AND DRIVER PCB

The pump is also placed in a separate sound absorbing foam carrier.

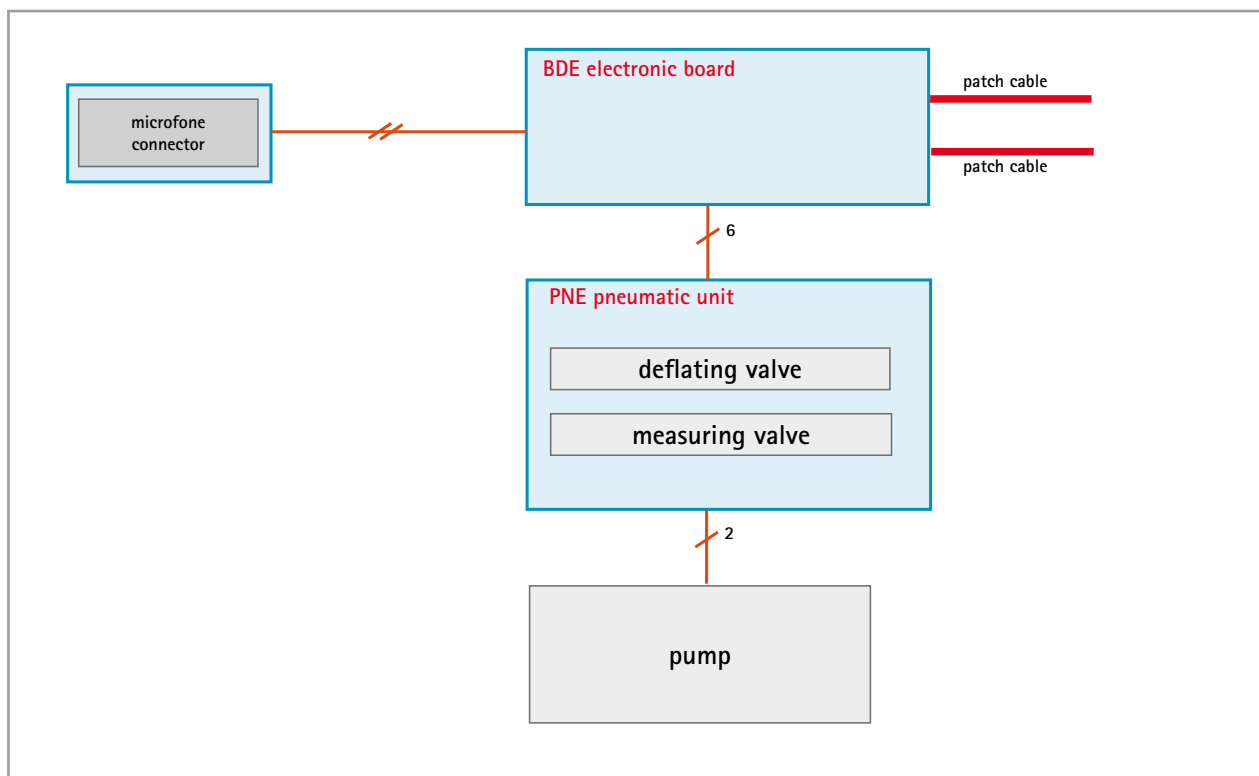


PUMP AND COMPENSATING CONTAINER

## PLACEMENT OF PRESSURE TUBES (SCHEMATIC)



## BLOCK DIAGRAM OF CABLING OF THE BLOODPRESSURE UNIT





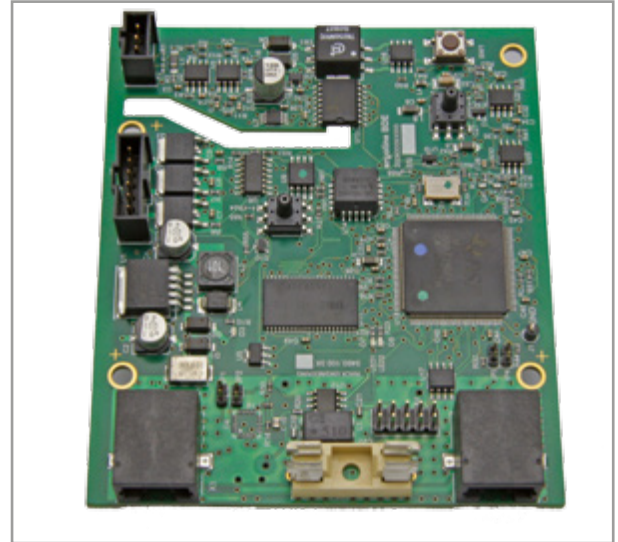
## **BDE – BLOODPRESSURE PCB**

The BDE electronics is responsible for analysing the microphone signals and controlling the valves and the pump.

The input of the microphone (upper left in picture) is galvanically separated.

A redundant surveillance system (2 nd pressure sensor) continuously monitors the actual cuff pressure and the pump time.

By use of the two RJ-45 jacks the BDE board is connected to the eBike II bus system.



**BDE– BLOODPRESSURE MEASUREMENT BOARD**

## **PNE – BLOODPRESSURE PNEUMATIC UNIT**

Depending on the actual ergometer type, the pneumatic components (pump, valves, compensating container) are arranged on different positions.

Electronic cabling and connection of the pressure tubes is nevertheless identical.



**ERGOMETER BLOODPRESSURE UNIT**

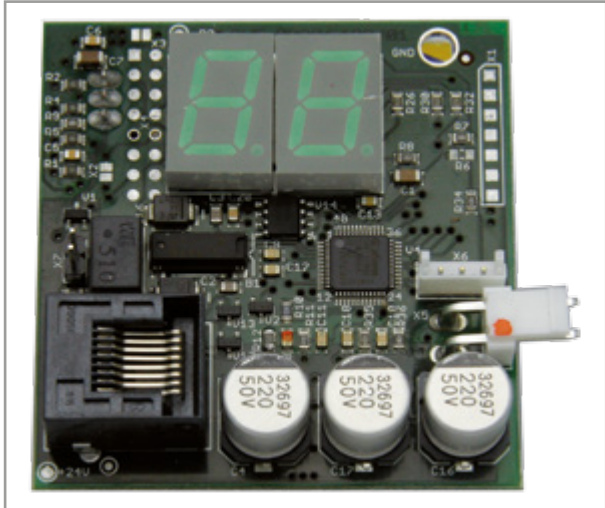
## ADDITIONAL MODULES

### MAE – SADDLEMOTOR / HEIGHT DISPLAY PCB

Controlling of saddle motor (eBike II comfort) and display of the actual saddle height is performed by the MAE board.

The MAE board has always to be placed at the end of the eBike II bus system (1 x RJ-45 jack only).

The saddle motor itself is connected with a special cable to the MAE board.



MAE BOARD (TOP VIEW)

### DRE – EXTERNAL RPM DISPLAY PCB

The eBike supine ergometers (eBike II 1000 and 1200) can be equipped with an external control terminal. In this case a special rpm display for patient information is needed.

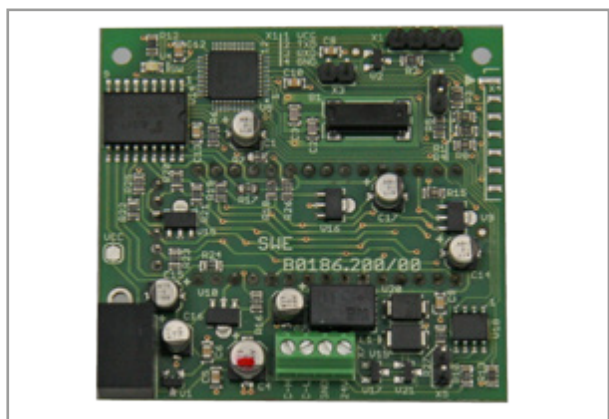
.

This electronic board has its own microprocessor and communicates via the eBike bus (CAT-5 patch cable).

The rpm display unit has to be connected as the last unit in the bus system (one RJ-45 connector only).



DRE – EXTERNAL RPM DISPLAY, FRONT SIDE  
(SUPINE ERGOMETER)



DRE – EXTERNAL RPM DISPLAY, COMPONENT SIDE



# MECHANICAL ASSEMBLY

## CONTROL TERMINAL

### DISASSEMBLY OF CONTROL TERMINAL

Loose both Phillips-head screws at the side of the control terminal.

Remove the control terminal from the support.



Disconnect the patch cable from the ZME board.



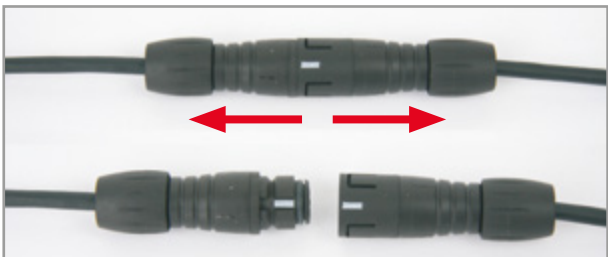
### Ergometer with option bloodpressure:

- Disconnect the microfon cable by pulling out the 3 pole jack.(see picture)
- Disconnect the blue hose at the hose connector (see picture).



### Caution

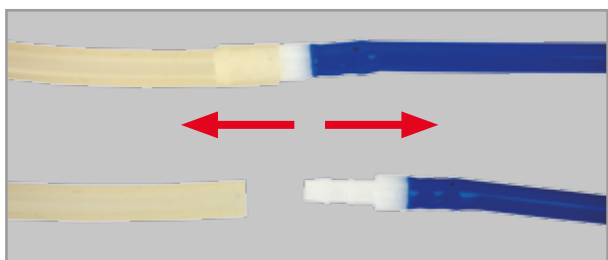
*Do not twist the microphone cable connector - the cable will be damaged!*



### OPENING OF THE CONTROL TERMINAL

Loose the 4 Phillips head screws at the bottom of the housing.

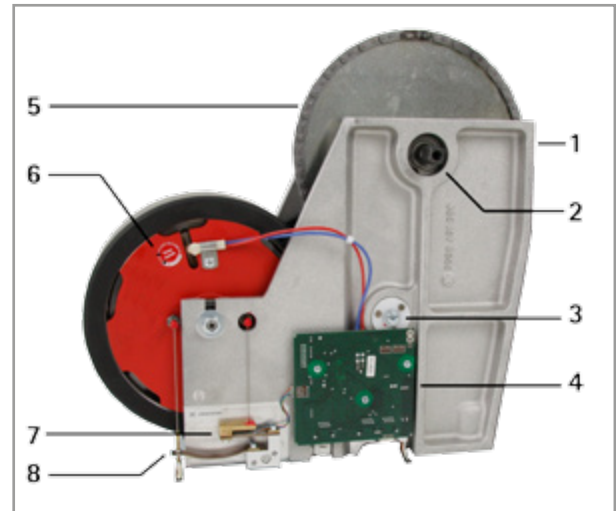
Lift carefully the upper part of the housing (with the foil keyboard) and disconnect the cable from the ZME board. The front panel is plugged into the enclosure and can be easily removed.



## LOAD UNIT

### ASSEMBLY

All eBike ergometers are equipped with an identical load unit (brake unit) with an eddy current brake of 1000 Watt.



#### ASSEMBLY OF THE LOAD UNIT

- 1 Cast aluminium housing
- 2 Precision bearings
- 3 Rotational-speed sensor (magnetic)
- 4 LRE load regulation electronics
- 5 Sprocket with chain
- 6 Eddy current brake (1000 W)
- 7 Strain gauge unit (DMS)
- 8 Pretensioning spring

### TRANSMISSION CHAIN EXCHANGE

The new chain has to be prepared:

#### Hint

*Exchange of the chain is possible without disassembling the complete housing - only the top of the housing has to be lifted.*



Bend both ends of the small fixation spring towards the axis by use of a flat nose plier.



Disassemble the chain lock by removing the retaining spring towards the end of the chain.



The chain lock consists of a retaining spring (1), an outer plate (2) and an outer plate with pins (3).



Turn the sprocket to move the chain coupling to the top position.

Remove carefully the fixation clamp of the chain with a pliers.



Remove the outer plate with pins.





Couple the new chain with the old chain by using the outer plate with pins of the chain lock.



Drawing at the old chain, mount the new chain on the sprocket



Disassemble the old chain.

Close the new chain:

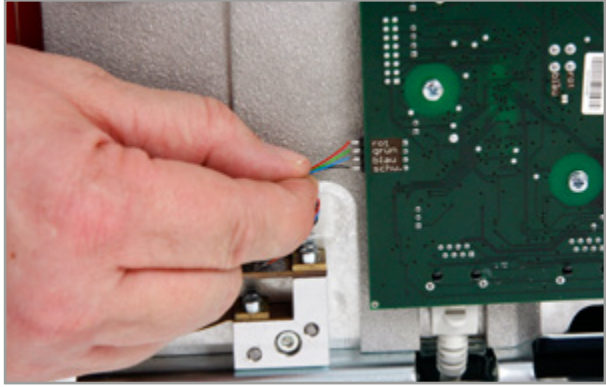
Bring the two ends of the new chain together and connect with the chain lock:

- Insert outer plate with pins into the chain ends, attach outer plate and press chain lock together.
- Attach retaining spring with the closed end of the retaining ring pointing in the direction of chain travel.
- Slide retaining spring in the grooves in the pins.

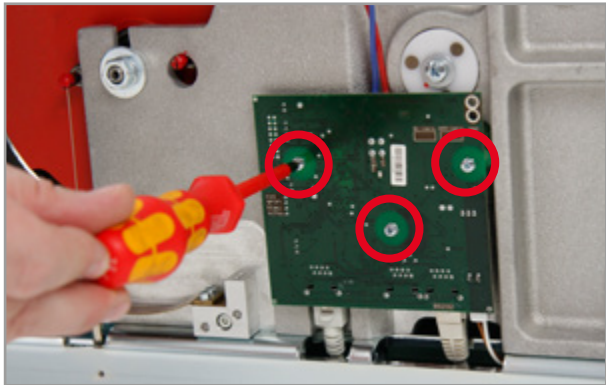


## LRE BOARD EXCHANGE

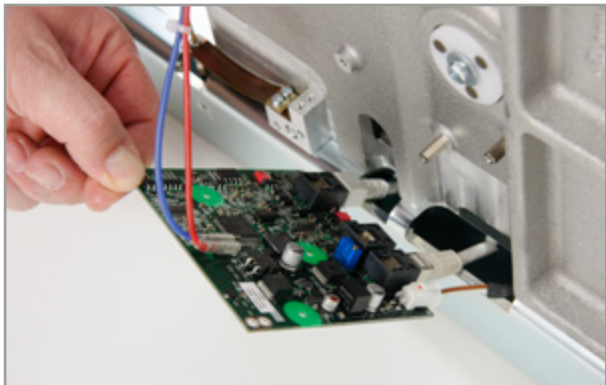
- disconnect strain gauge unit cable



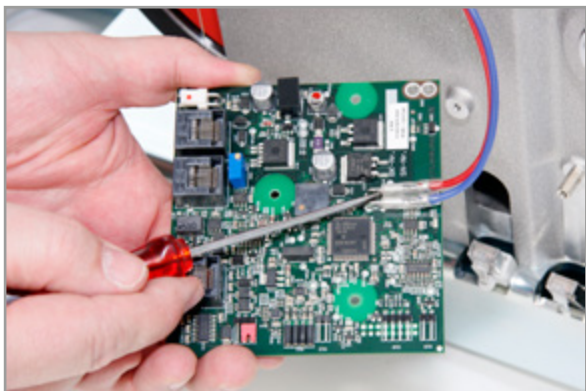
- remove 3 Phillips screws



- swing down the LRE board
- disconnect the RJ-45 cables
- disconnect the power supply connector



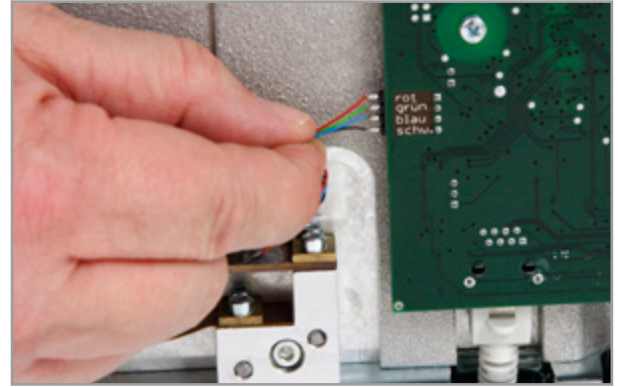
- remove the cable shoes to the eddy current brake by using a flat screw driver





## DMS EXCHANGE

- Remove the DMS cable from the LRE board



- Loose 2 Allen key screws



- The strain gauge unit hangs at the tensioning rope

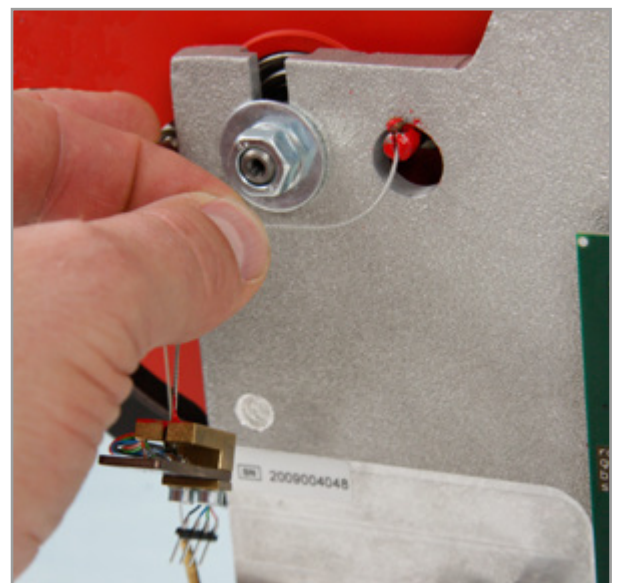


- Scratch the sealing wax from the top suspension of the tensioning rope (e.g. by use of a screw driver)
- Remove the tensioning rope to the top by pulling it off the vertical slot

The assembly of the replacement DMS unit is performed in reverse order.

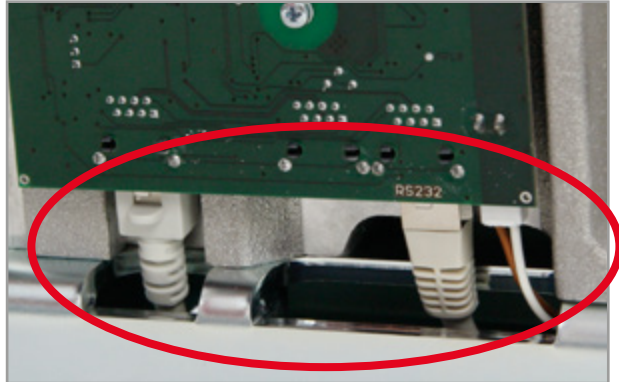
**WARNING:** The rubber coated side of the strain gauge should not be hurt !!

To fix the tensioning rope in the upper fixture, a standard glue can be used.

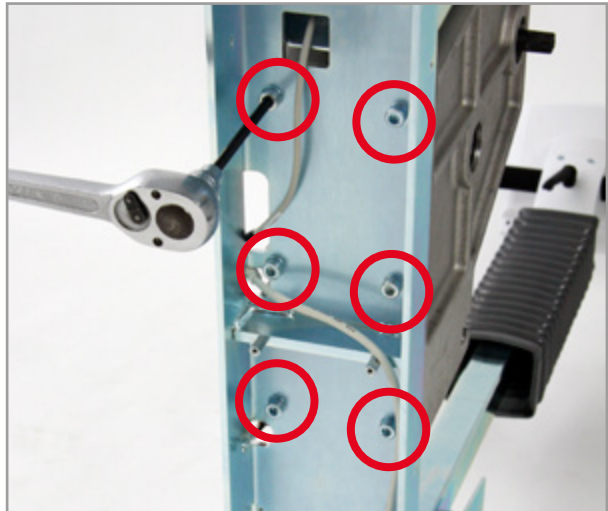


## LOAD UNIT EXCHANGE

- Remove the ergometer housing (see detailed description at the appropriate ergometer type)
- Disconnect the patch cables and the power supply cable from the LRE board



- The load unit is fixed with 6 Allen key screws at the ergometer chassis.  
Loose the screws with a ratchet - prevent the load unit from falling down (weight approx. 10 kg)





## SERVICE MENU

The ergometer software is controlled with 5 keys:



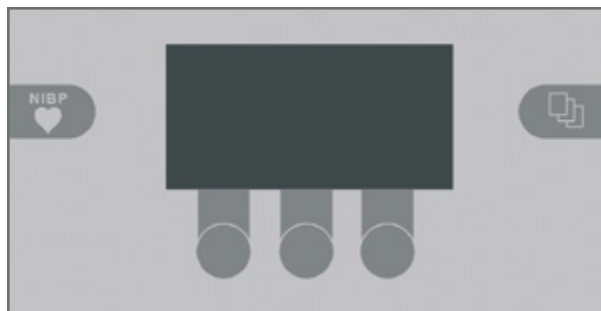
With this key you display the main menu or return to the previous menu level.



With this key you initiate a blood pressure measurement. A measurement in progress can be aborted with the same key.



The functions of these three softkeys change with the displayed menu - the key label describing the function is shown on the display.



KEYPAD



## TURNING THE SYSTEM ON

You turn the ergometer on by pressing the power switch - the green indicator in the switch lights up. The ergometer runs a self-test.

As soon as the self test appears on the ergometer display, press the two softkeys

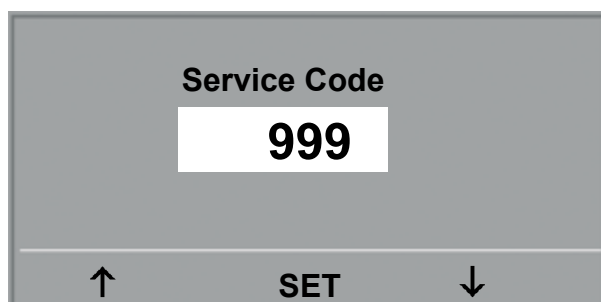


synchronously and hold.



ACTIVATING THE SERVICE MENU

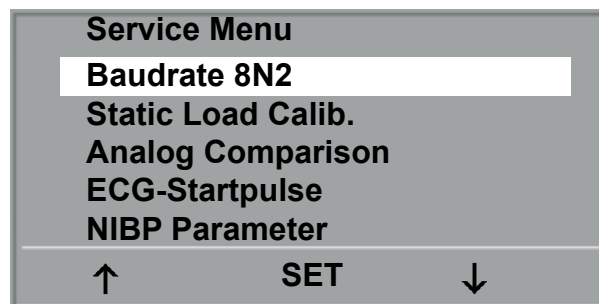
To prevent settings from being changed by chance, the service menu is „protected“ by a password. Select „999“ with the arrow keys and confirm with SET.



PASSWORD FOR SERVICE MENU

The service menu with the following parameters appears:

- Baudrate 8N2
- Static Load Calibration
- Analog Comparison (with option COM only)
- ECG-Startpulse
- NIBP Parameter (with option NIBP only)
- Software Update
- Dynamic Load Calibration
- PC-Mode
- Saddle Calibration (eBike II comfort only)
- NIBP Calibration (with option NIBP only)
- NIBP Test (with option NIBP only)
- Ergometer Type (without option NIBP only)
- System Config.
- Error log



SELECTION OF PARAMETERS IN SERVICE MENU

Select the desired parameter by use of the right and left softkeys (↑ ↓) and confirm with SET.

## DEFAULT SETTINGS

### SETTINGS MENU

- default mode menu
- protocols see operator manual
- contrast at optimum
- load change +/- 5W
- language US devices english  
other devices german
- beep ON
- date/time current values
- ECG type digital
- rpm min: 54 / max: 65
- pulse display OFF

### SERVICE MENU

- Baudrate 8N2 4800
- ECG-Startpulse leadtime: 60 sec  
pulswidth: 100 msec
- NIBP Parameter leadtime: 60 sec  
Resting NIBP: ON
- PC-Mode-Automatic: ON
- Ergometer Type ER900
- Analog comparison  $20W = 0,2 V / 300W = 3.0 V$
- System Config.
  - Saddle engine eBike basic/L/EL 0  
eBike comfort 1
  - NIBP module devices w/o NIBP 0  
devices with NIBP 1
  - Analog interface 0
  - 60 Hz Power US devices 1  
other devices 0

### Hint

- The service menu in the ergometers is available in english only.
- Depending on the actual ergometer configuration, not all settings are visible.
- Leaving the service menu is only possible by switching the device off.
- The sequence of the following descriptions does not follow the sequence in the service menu.

## STATIC LOAD CALIBRATION

The static calibration of the load unit is described in the separate chapter „Calibration / alignment“.

## DYNAMIC LOAD CAL.

To perform a dynamic load calibration, a calibrated dynamic test bench is needed.

The dynamic calibration of the load unit is described in the separate chapter „Calibration / alignment“.

## SOFTWARE UPDATE

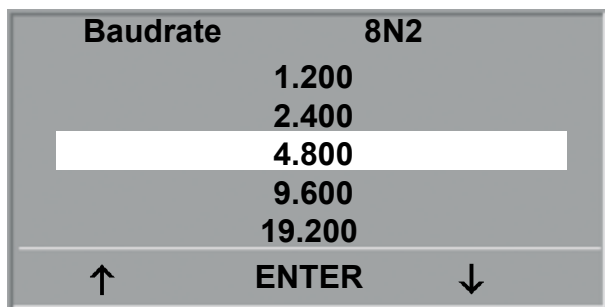
For a description of a software update of the ergometer (firmware) see the separate chapter „Software update“.

## BAUDRATE 8N2

The baudrate can be selected between 1.200 Baud and 115.000 Baud.  
Default value for standard ergometers is 4.800 Baud.

### Hint

- *The baudrate must be set to 4800 baud always!*



SELECTION OF SERIAL BAUDRATE

Select the desired parameter by use of the right and left softkeys (↑ ↓) and confirm with ENTER.

## ECG STARTPULSE

To configure the remote start pulse for external ECG recorders (ergometer is controlled by internal programs).

Select the desired parameter by use of the right and left softkeys (↑ ↓) and confirm with ENTER.  
Adjust the appropriate value with the arrow keys and store the value with ENTER.

### Leadtime

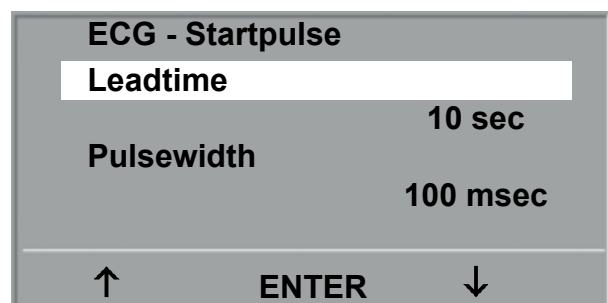
Remote pulse leadtime before the next load step

Setting range: 1 to 30 sec. in 1 sec. steps

### Pulsewidth

Remote pulse pulse width

Setting range: 100 to 1000 ms in 100 msec steps



CONFIGURATION OF ECG REMOTE PULSE

## NIBP PARAMETER

If the ergometer load is controlled by the internal programs, this parameter defines the start of the NIBP module.

### Leadtime

Defines the leadtime of the bloodpressure measurement to the next load step

Setting range: 40 to 90 sec. in 1 sec. steps

### Resting NIBP

Defines whether or not a resting bloodpressure measurement is taken before starting the stress test.

Setting range: OFF - ON

<b>NIBP Parameter</b>		
<b>Leadtime</b>		
		<b>60 sec</b>
<b>Resting NIBP</b>		
		<b>ON</b>
↑	<b>ENTER</b>	↓

CONFIGURATION OF NIBP PARAMETERS

## PC-MODE

### PC-Mode „Automatic“

If „YES“ is activated, the ergometer automatically switches to remote mode (PC mode) as soon as a valid signal is received from the interface.

<b>PC Mode</b>		
<b>Automatic</b>		
		<b>Yes</b>
		<b>No</b>
↑	<b>ENTER</b>	↓

AUTOMATIC MODE

## SADDLE CALIBRATION

(eBike II comfort only)

This parameter is used to adjust the electrical saddle motor. (display scale 1-40)

Select „TOP Position“ and confirm with „ENTER“.

By use of the arrow keys, move the saddle to the desired top position (standard 36 cm above saddle guidance) and confirm with „SET“.

Select „Bottom Position“ and confirm with „ENTER“.

By use of the arrow keys, move the saddle to the desired bottom position (standard 7 cm above saddle guidance) and confirm with „SET“.

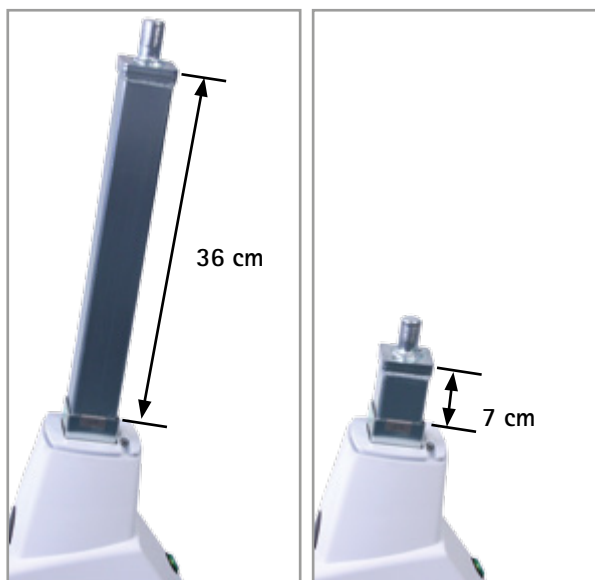
<b>Saddle Calibration</b>		
<b>TOP Position</b>		
<b>BOTTOM Position</b>		
↑	<b>ENTER</b>	↓

<b>Saddle Calibration</b>		
<b>TOP Position</b>		
<b>BOTTOM Position</b>		
↑	<b>SET</b>	↓

CALIBRATION OF ELECTRICAL SADDLE ADJUSTMENT

### Hint

- Do not move the saddle over the „TOP position“ (36 cm) and under the „BOTTOM position“ (7 cm - see pictures).
- If the motor is moved to the mechanical stop positions, the eBike power supply will switch off due to overload.



CORRECT POSITIONS FOR SADDLE ADJUSTMENT

## ERGOMETER TYPE

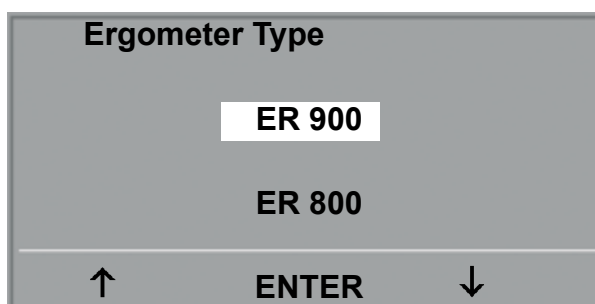
This setting appears only in eBike II **without** NIBP option!

If in PC mode an „I“ command is received, the ergometer sends an identification data string to the PC. / ECG recorder.

To maintain compatibility to ergoline ergometers of the former generation, the eBike II ergometer identify as Ergometrics 900 ergometers.

The identification may be changed by use of this parameter:

setting ER900 identifies with: 0900P10V243  
setting ER800 identifies with: V3.3



CONFIGURATION OF IDENTIFICATION DATA STRING

### Hint

- Must be set to ER900 always !

## SYSTEM CONFIG.

The hardware configuration of the ergometer is defined in this setup.

Select the module / option and change the setting to 1 if the module is integrated in the actual ergometer.

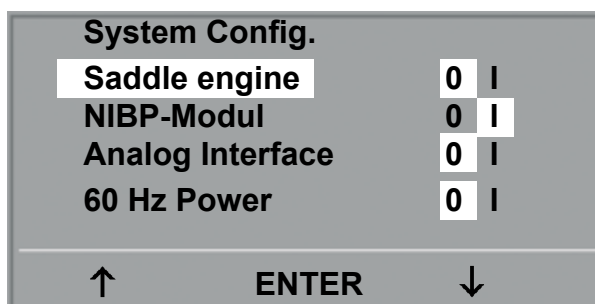
### 60 Hz Power:

This setting depends on the mains frequency used and sets internal filters on the LRE board:

- Select 0 for a 50 Hz mains frequency  
Select 1 for a 60 Hz mains frequency

### Hint

Wrong setting of the mains frequency has no influence on the load regulation or the correct function of the ergometer.



SETTING OF ERGOMETER CONFIGURATION



## ERROR LOG

The software of the eBike II ergometers stores internal error messages in a special memory area (error log file). These error messages can be checked and cleared in this menu.

To display the stored error messages select „Show Error Log“ and confirm with ENTER.

<b>Error log</b>		
<b>Err. Log Quantity:</b>		<b>2</b>
<b>Show Error Logs</b>		
<b>Show NIBP Logs</b>		
<b>Clear Error Logs</b>		
<b>Clear NIBP Logs</b>		
↑	<b>ENTER</b>	↓

### ERROR LOG MEMORY

The first error message is displayed:

**Source:** The unit generating the error

**1. Date:** Date of first occurrence of this error

**1. Time:** Time of first occurrence of this error

**Err.Code:** Corresponding error code of the software

**Quantity:** Number of occurrences of this error

<b>Error No.:</b>	<b>1 / 3</b>
<b>Source:</b>	<b>ZME</b>
<b>1. Date:</b>	<b>02.09.2008</b>
<b>1. Time:</b>	<b>14:20</b>
<b>Err.Code:</b>	<b>0008</b>
<b>Quantity:</b>	<b>3</b>
↑	<b>RETURN</b>
	↓

### DISPLAYING A SINGLE ERROR

By using the arrow keys, the following error messages can be displayed.

RETURN closes the error log display

The software of the eBike II ergometers stores the signal strength of each measure and indicates failed measures.

<b>NIBP</b>	<b>failed:</b>	<b>N.N.</b>
<b>Mic.</b>	<b>level 1:</b>	<b>N.N.</b>
<b>Mic.</b>	<b>level 2:</b>	<b>N.N.</b>
<b>Mic.</b>	<b>level 3:</b>	<b>N.N.</b>
<b>Mic.</b>	<b>level 4:</b>	<b>N.N.</b>
<b>Mic.</b>	<b>level 5:</b>	<b>N.N.</b>
↑	<b>RETURN</b>	↓

### NIBP LOG

## NIBP TEST / NIBP CALIBRATION

This menu is visible, if the ergometer is equipped with an automatic NIBP module and this module is activated.

Test and calibration of the NIBP module is described in the separate chapter „Calibration / alignment“.

## ANALOG COMPARISON (CALIBRATION)

This function is used to align the analog remote signals (input and output) to the corresponding ECG devices.

The eBike II ergometers have to be equipped with the optional „COM-Modul“. This module is placed onto the 9-pin DSUB connector and screwed to the chassis.

Additionally, a jumper connector has to be placed on the BKE board.

The COM module handles one analog input and 6 analog output signals from/to external devices.

### Hint

- To align the analog load signals, the corresponding ECG recorder should be connected as a reference voltage source.
- Disconnect a RS232- or USB cable, if connected.
- The alignment of the analog signals can be controlled after leaving the service menu (e.g. by starting a remote controlled stress test).



### SIGNAL ASSIGNMENT OF ANALOG CONNECTOR (COM MODULE)

Pin 1: INPUT Load  
Pin 2: reserved - do not connect  
Pin 3: reserved - do not connect  
Pin 4: OUTPUT BP heartrate  
Pin 5: OUTPUT Load  
Pin 6: OUTPUT Diastole  
Pin 7: OUTPUT rpm  
Pin 8: OUTPUT Systole  
Housing: Signal GND

Select the analog signal to be aligned and confirm with ENTER.

### Analog Calibration

Input	1	Load
Output	1	Load
Output	2	Heart.
Output	3	Syst.
Output	4	Diast.
↑	RETURN	↓

### ALIGNMENT OF ANALOG INPUT / OUTPUT SIGNALS

## ALIGNMENT „INPUT: ANALOG LOADCONTROL“

IN-Volt: displays the voltage at the analog input

Set the ECG recorder output to a low load value (e.g. 20 Watt).

The according voltage is displayed (IN-Volt).  
Wait until the voltage has settled.

Select „OFFSET“ and confirm with ENTER.

<b>INPUT 1 Load</b>	
<b>IN-Volt:</b>	<b>0.10 V</b>
<b>OFFSET</b>	<b>20 Watt</b>
<b>GAIN</b>	<b>300 Watt</b>
↑	ENTER ↓

ALIGNMENT OF ANALOG INPUT „LOAD“

By using the arrow keys set the load value to the ECG recorder value (e.g. 20 Watt) and confirm with SET.

The setting is stored in the ergometer.

<b>INPUT 1 Load</b>	
<b>IN-Volt:</b>	<b>0.10 V</b>
<b>OFFSET</b>	<b>20 Watt</b>
<b>GAIN</b>	<b>300 Watt</b>
↑	SET ↓

OFFSET ALIGNMENT OF ANALOG INPUT „LOAD“

Set the ECG recorder output to a high load value (e.g. 300 Watt).

The according voltage is displayed (IN-Volt).  
Wait until the voltage has settled.

Select „GAIN“ and confirm with ENTER.

<b>INPUT 1 Load</b>	
<b>IN-Volt:</b>	<b>3.05 V</b>
<b>OFFSET</b>	<b>20 Watt</b>
<b>GAIN</b>	<b>300 Watt</b>
↑	ENTER ↓

ALIGNMENT OF ANALOG INPUT „LOAD“

By using the arrow keys set the load value to the ECG recorder value (e.g. 300 Watt) and confirm with SET.

The setting is stored in the ergometer.

<b>INPUT 1 Load</b>	
<b>IN-Volt:</b>	<b>3.05 V</b>
<b>OFFSET</b>	<b>20 Watt</b>
<b>GAIN</b>	<b>300 Watt</b>
↑	SET ↓

GAIN ALIGNMENT OF ANALOG INPUT „LOAD“

Setting range:

**OFFSET:** range from 20 to 1000 Watt in 10 Watt steps

**GAIN:** range from 20 to 1000 Watt in 10 Watt steps

## ALIGNMENT „OUTPUT: ANALOG LOAD VALUE“

The output voltage representing a special load value of the ergometer is defined with this setting.

It is possible to adjust the voltage and / or the load value.

Select the parameter by use of the arrow keys and confirm with „Enter“

Adjust the value by using the arrow keys and store the setting with SET.

Setting range:

**GAIN**:(voltage) 20 mV to 10000 mV in steps of 2 mV

**GAIN** (load) 20 to 999 Watt in steps of 10 Watt

OUTPUT 1 Load	
<b>GAIN</b>	3000 mV
<b>GAIN</b>	300 Watt
↑	ENTER ↓

OUTPUT 1 Load	
<b>GAIN</b>	3000 mV
<b>GAIN</b>	300 Watt
↑	SET ↓

ALIGNMENT OF ANALOG OUTPUT „LOAD“

## ALIGNMENT „OUTPUT: ANALOG HEARTRATE“

The output voltage representing a special heartrate is defined with this setting.

It is possible to adjust the voltage and / or the heartrate value.

The setting is performed as described above under **Alignment „Output: Analog Load value“**

Setting range:

**GAIN** (voltage): 500 to 2000 mV in  
2 mV steps

**GAIN** (heartrate): 50 to 250 bpm in  
10 bpm steps

OUTPUT 2 Heart	
<b>GAIN</b>	1000 mV
<b>GAIN</b>	100 ♥
↑	ENTER ↓

## ALIGNMENT „OUTPUT: ANALOG SYSTOLE“

The output voltage representing the systolic value is defined with this setting.

It is possible to adjust the voltage and / or the systolic value.

The setting is performed as described above under **Alignment „Output: Analog Load value“**

Setting range:

**GAIN** (voltage): 500 to 2000 mV in  
2 mV steps

**GAIN** (systole): 50 to 250 mmHg in  
5 mmHg steps

OUTPUT 3 Systole	
<b>GAIN</b>	1000 mV
<b>GAIN</b>	100 mmHg
↑	ENTER ↓

## ALIGNMENT „OUTPUT: ANALOG DIASTOLE“

The output voltage representing the diastolic value is defined with this setting.

It is possible to adjust the voltage and / or the diastolic value.

The setting is performed as described above under **Alignment „Output: Analog Load value“**

Setting range:

**GAIN** (voltage): 500 to 2000 mV in  
2 mV steps

**GAIN** (diastole): 50 to 250 mmHg in  
5 mmHg steps

OUTPUT 4 Diastole	
<b>GAIN</b>	1000 mV
<b>GAIN</b>	100 mmHg
↑	ENTER ↓

## ALIGNMENT „OUTPUT: RPM“

The output voltage representing the actual rpm value is defined with this setting.

It is possible to adjust the voltage and / or the rpm value.

The setting is performed as described above under **Alignment „Output: Analog Load value“**

Setting range:

**GAIN** (voltage): 200 to 1000 mV in  
2 mV steps

**GAIN** (rpm): 30 to 130 rpm in  
5 rpm steps

OUTPUT 5 rpm	
<b>GAIN</b>	1000 mV
<b>GAIN</b>	50 rpm
↑	ENTER ↓

## ALIGNMENT „OUTPUT: ECG“

(For eBike II REHA Ergometer with integrated ECG amplifier only)

The zeroline and the amplitude of the analog ECG output signal is defined.

The setting is performed as described above under **Alignment „Output: Analog Load value“**

Setting range:

**ZEROLINE**: 200 to 10000 mV  
in 10 mV steps

**AMPLITUDE**: 200 to 10000 mV  
in 10 mV steps

OUTPUT 6 EKG	
<b>ZEROLINE</b>	5000 mV
<b>AMPLITUDE</b>	5000 mV
↑	ENTER ↓

# ALIGNMENT / CALIBRATION

## STATIC CALIBRATION

### LIFT-UP TOOL FOR eBIKE BASIC / COMFORT



PARTS OF ERGOMETER LIFT-UP TOOL

### DISMOUNT PEDAL CRANK SCREWS

- Carefully lift the protective cover off the crank, using a small flat screw driver.
- Plug the extractor (P/N 2005737-001) onto the screw of the crank



- Lose the screw with an open ended wrench (17 mm)
- Remove the screw and the lock washer
- DO NOT REMOVE THE CRANKS !



### **MOUNTING THE FRONT SUPPORT**

- Tilt the ergometer onto the left side



- Mount the front support with the screw M10 x 20

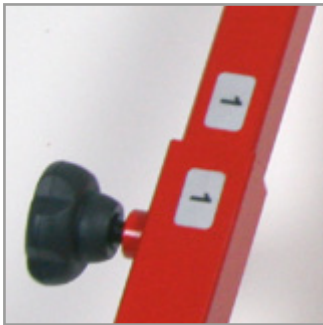


- Bring the ergometer back in an upright position



## MOUNTING THE MAIN SUPPORT FRAME

- Assemble the main support frame by plugging the two angled pipes in the appropriate counter parts (marked 1 / 1 and 2 / 2) until the lock and clamp indexing plunger clicks into place
- Fix the connections by clockwise screwing the plunger



- Turn-over the main support frame and shift it under the ergometer



### Hint

*The support frame should lie symmetrically under the ergometer.*



- Lift the side arms of the main support frame and adjust them before the crank threads
- Pay attention to identical distance between crank thread and tube on both sides



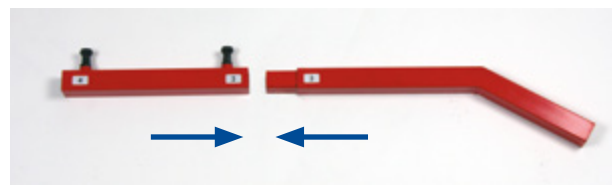
- Insert the bushings through the frame into the cranks:
  - the shoulder have to fit completely into the crank
  - check for equal distance on both sides



- Insert the long screws with a washer through the bushings and screw them tight into the cranks



- Mount the lifting arm (marked 3 / 3)



- Push the lever arm into the base frame ( 4 / 4 ) and tighten it



#### LIFTING UP THE ERGOMETER

- Stand in front of the ergometer
- Stabilize the ergometer with one hand at the handle
- Press the lever arm downwards until it lies flat on the bottom and the ergometer stands on the front support.



#### Caution

*During lift-up, the ergometer will move forward (approx. 20 cm) !*



- For safety reasons, a tilt protection has to be mounted (marked 5 / 5).



### Warning

*If the ergometer is lifted up, the tilt protection has always to be mounted and secured!*



- The static calibration with 8kg weight can be performed.



ERGOMETER IN LIFT-UP POSITION WITH TILT PROTECTION MOUNTED

### UNLIFTING THE ERGOMETER

- Dismount the tilt protection (5 / 5).
- Carefully lift the lever arm of the main support frame whilst holding the ergometer at the handle bar, until the ergometer chassis stands stable on the floor and the front support.
- Disassemble the lift tool in reverse order.

## PREPARING eBIKE II L / EL

### Note

*Additional accessories required for load calibration of eBike L / eBike EL:*

- *calibration stay for eBike L / eBike EL  
(P/N 2018111-134 SPARE EBIKE L&EL SUPPORT FOR CALIBRATION)*
- *8-kg calibration weight for eBike L / eBike EL  
(P/N 2018111-135 SPARE EBIKE L&EL CALIBRATION WEIGHT 8KG)*
- *2nd persons to assist in lifting the couch ergometer*

- Place the ergometer on a level surface and put it into operation.
- Set the back rest of eBike L to an angle of 45° (semi-recumbent position), using the remote control.

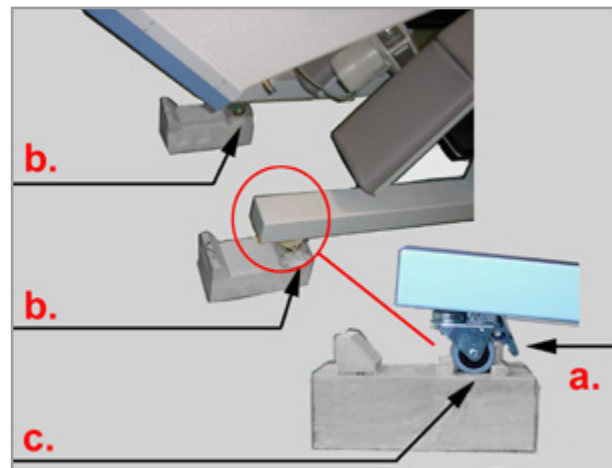
Adjust eBike EL to a lateral tilt of 0°, using the remote control.

- Then set the back rest to an angle of 45° (semi-recumbent position).
- Turn the front castors of eBike L/EL to the back and lock the castor brakes (see arrow a. in illustration).
- To begin with, lift the eBike L/EL at the front, left hand side and place the calibration support under the left castor (see arrow b. in illustration).

Then lift the eBike L/EL at the front, right hand side and place the calibration support under the right castor.

#### Caution:

The castors must be located between the two border strips (see arrow c. in illustration).



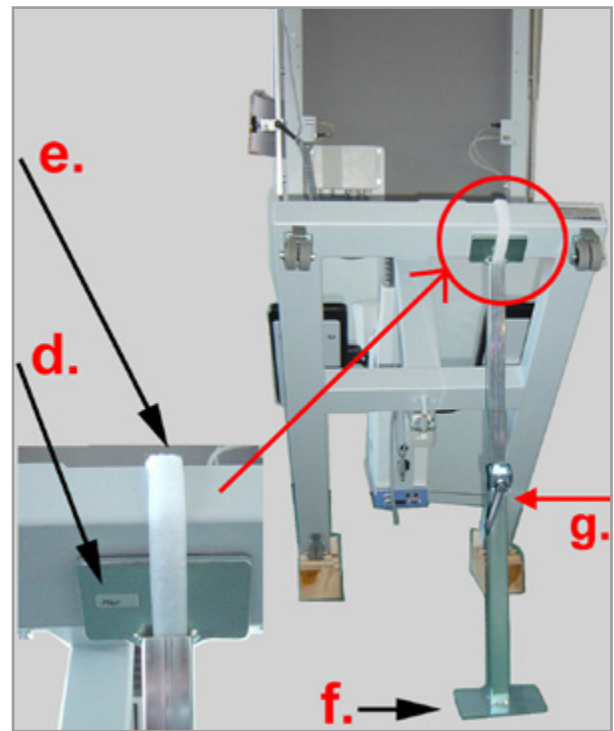
- Extend the calibration stay to approx. 835 mm and lock.
- Hang the hook of the calibration weight adaptor into the eye of the strain gauge return spring and let hang.



- With the aid of an assistant, lift the couch ergometer eBikeL / EL at the back of the base and position the calibrationstay labelled „rear“ (see d. in illustration) to the right of the center brace below the transverse frame.
- Attach the calibration stay to the base, using adhesive tape (see e. in illustration).
- Lift the base a little and wait for the calibration stay to stop swinging.

### Caution

- *Place a weight (e.g. the tool chest) on the baseplate of the calibration stay.*
- *Make sure that both sides of the transverse frames fit in the calibration stay and that the stay itself is in a stable position*



- With the aid of the calibration stay, align the bottom edge of the connection box exactly horizontal.
- To do so, open clamping lever g and adjust top section.
- Perform calibration (see following section)



## STATIC CALIBRATION WITH CALIBRATION WEIGHT

The alignment and calibration procedures (static load calibration, dynamiv load calibration, NIBP calibration) are identical for all eBike II ergometers.

All calibration processes are started in the service menu.

To activate the service menu the ergometer has to be switched off and on again.

As soon as the self test appears on the ergometer display, press the two softkeys

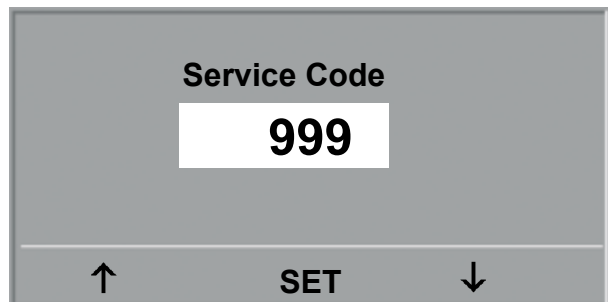


synchronously and hold:



SERVICE MENU CONTROL TERMINAL

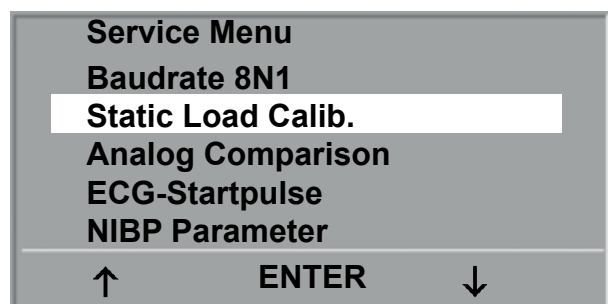
To prevent settings from being changed by chance, the service menu is „protected“ by a password. Select „999“ with the arrow keys and confirm with SET.



PASSWORD FOR SERVICE MENU

The service menu appears.

Select „Static load calibration“ with the arrow keys and confirm with ENTER.



SERVICE MENU CONTROL TERMINAL

### Hint

- To perform a static load calibration, a 8 kg calibration weight is needed.

First the offset value (zero value) is defined („OFFSET“).

The displayed strain gauge value should be in the range between 50 und 220 mV (typical 130 -170 mV).

Press [SET] to store the actual OFFSET.

**Static Load Calib.  
OFFSET**

**DMS-Volt: 147 mV**  
**Typ: 130 ... 170 mV**  
**Max: 50 ... 250 mV**

**SET**

STATIC LOAD CALIBRATION OFFSET

**ATTENTION:** The storage of the value needs some seconds!

**Static Load Calib.**

**DMS-Volt: 147 mV**

**Wait max. 20 sec**

STATIC LOAD CALIBRATION OFFSET – STORAGE IN PROGRESS

Next step is the calibration of the gain factor for the strain gauge.

**Static Load Calibration  
GAIN**

**DMS-Volt: 1676 mV**  
**Max: 1509 ... 1989 mV**  
**Load 8kg weight**

**SET**

STATIC LOAD CALIBRATION GAIN

Mount the calibration weight (8kg) to the hook at the bottom of the ergometer.



8 KG CALIBRATION WEIGHT



CALIBRATION WEIGHT MOUNTED (8 KG)

The actual strain gauge voltage (DMS-Volt) is shown and should be in the given range.

SET stores the GAIN value

**ATTENTION:** The storage of the value needs some seconds!

The successfull calibration is confirmed.

Remove the calibration weight.

Leave the menu by pressing ESC (top right key).

### Static Load Calibration

**DMS-Volt: 1676 mV**

**Calibr. succesfull**

STATIC LOAD CALIBRATION FINISHED



## DYNAMIC LOAD CALIBRATION

Connect the load calibrator with the ergometer (observe the detailed hints of the manufacturer).

When a dynamic calibration is performed, the measured actual load values are entered into the ergometer software.

The ergometer calculates the exact characteristic load curve for regulating the eddy current brake.

The following load / rpm combinations have to be measured:

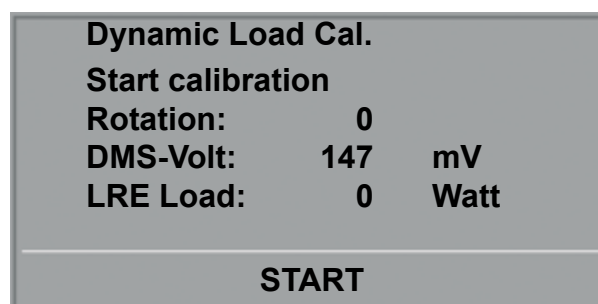
- 50 Watt at 50 rotations / min
- 50 Watt at 110 rotations / min
- 400 Watt at 110 rotations / min

Select „Dynamic load calibration“ in the service menu and confirm with ENTER (or SELECT).

- Start the calibration process with START

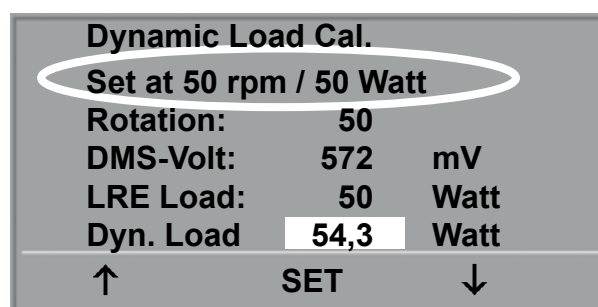
**Hint**

- *To perform the load setting of the ergometer during the dynamic calibration process, a Laptop or PC with terminal program has to be connected to the serial port of the ergometer.*
- *Alternatively the program of the load calibrator unit can be used.*



DYNAMIC LOAD CALIBRATION – WAITING FOR START

- Set the calibrator unit to 50 rpm
- Set the ergometer to 50 Watt (via PC interface)
- Wait approx. 20 seconds, until the load display is stable
- By using the arrow keys, input the actual value of the calibrator (54,3 Watt) at the ergometer.
- Store the value with SET.



DYNAMIC LOAD CALIBRATION – 50 WATT AT 50 RPM

- Set the calibrator unit to 110 rpm.
- Wait approx. 20 seconds, until the load display is stable
- By using the arrow keys, input the actual value of the calibrator (e.g. 55,0 Watt) at the ergometer.
- Store the value with SET.

Dynamic Load Cal.		
Set at 110 rpm / 50 Watt		
Rotation:	50	
DMS-Volt:	327	mV
LRE Load:	50	Watt
Dyn. Load	55,0	Watt
↑	SET	↓

DYNAMIC LOAD CALIBRATION – 50 WATT AT 110 RPM

- Set the ergometer to 400 Watt (via PC interface)
- Wait approx. 20 seconds, until the load display is stable
- By using the arrow keys, input the actual value of the calibrator (e.g. 412,5 Watt) at the ergometer.
- Store the value with SET.

Dynamic Load Cal.		
Set at 110 rpm / 400 Watt		
Rotation:	50	
DMS-Volt:	327	mV
LRE Load:	400	Watt
Dyn. Load	412,5	Watt
↑	SET	↓

DYNAMIC LOAD CALIBRATION – 400 WATT AT 110 RPM

The successfull completion of the dynamic load calibration is confirmed.

- Stop the calibration unit.

Dynamic Load Cal.		
Rotation:	110	
DMS-Volt:	1327	mV
LRE Load:	400	Watt
Calibration successfull		

DYNAMIC LOAD CALIBRATION – FINISHED

## CALIBRATION OF BLOODPRESSURE UNIT

Recommended components:

- Calibrated pressure measuring device (mmHg) (manometer)
- Compensating container with 500 ml volume (min.)
- Handpump
- Adapter for eBike cuff connector
- Connecting tubes with t-adaptors



CALIBRATED PRESSURE MEASURING DEVICE (mmHg)



COMPENSATING CONTAINER (EXAMPLE)

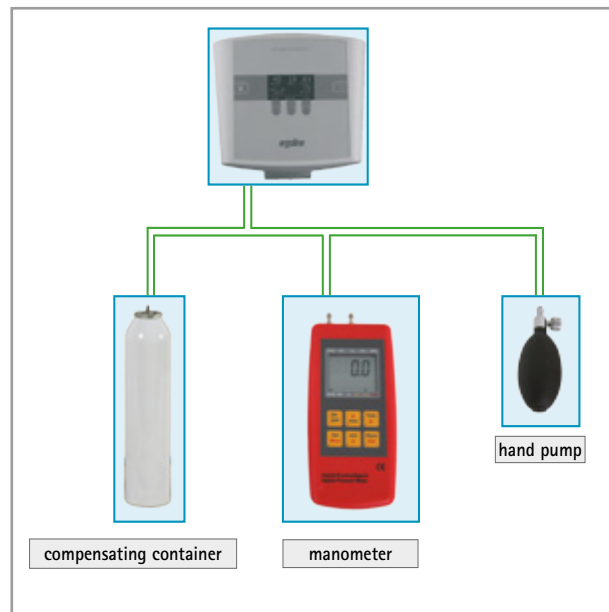


HAND PUMP



ADAPTER FOR eBIKE CUFF CONNECTOR

All the different components are connected with tubes (one pressure system) and connected to the cuff connector of the ergometer control terminal (use cuff adaptor).



#### CALIBRATION SETUP NIBP

### **NIBP Test**

This function is used to check the internal pressure system (pressure sensor, closeness, leakage etc.).

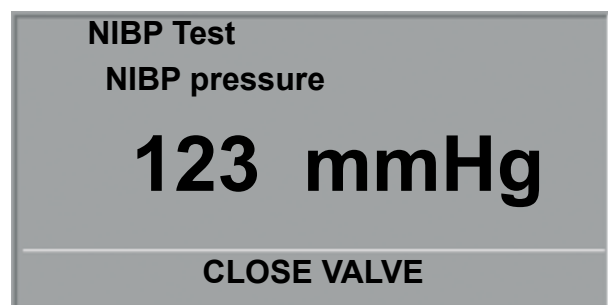
Select „NIBP Test“ in the service menu and confirm with ENTER (or SELECT).

Using the hand pump, apply a fixed pressure to the system

The actual pressure value is displayed.

Compare the displayed ergometer value with the value of the manometer.

The maximum allowed deviation is  $\pm 3$  mmHg.



#### TEST OF THE INTERNAL NIBP PRESSURE SYSTEM

#### **Hint**

- If the applied pressure reaches 320 mmHg, the internal safety valve is opened.  
Press „Close valve“ (middle soft key) to continue with the NIBP-Test.

## NIBP CALIBRATION

This function allows the calibration of the internal pressure measurement system.

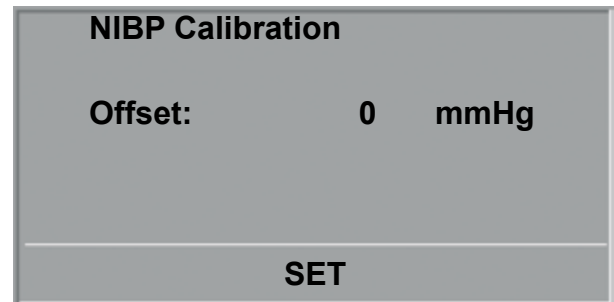
Select „NIBP Calibration“ in the service menu and confirm with ENTER (or SELECT).

### Offset calibration

During this calibration step NO pressure should be present in the system.

The cuff connector (self closing) has to be opened (use cuff connector).

- Remove cuff
- Connect the cuff connector with a short tube
- The actual pressure value is displayed.
- Press SET (or START)
- The zero value is stored

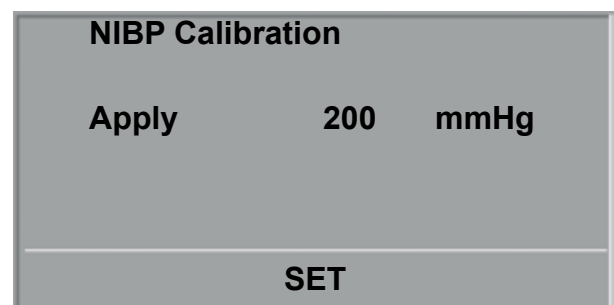


PRESSURE CALIBRATION – OFFSET

### Calibration with 200 mmHg

Connect the complete measurement system (hand pump, manometer and compensating container) as described under „NIBP test“.

- Using the hand pump, apply a fixed pressure of 200 mmHg to the system (control by the external manometer)
- Wait some seconds until the pressure is stable - correct the pressure if necessary
- Press SET (or START)
- The NIBP calibration is finished



PRESSURE CALIBRATION – GAIN

## SOFTWARE UPDATE

To load a new version of the internal software into the eBike II ergometers, a PC or Laptop with USB or a serial port (RS-232) is needed.

To use the ergometer USB port, a special driver has to be installed on the PC( virtual COM driver).

Copy the complete software package onto the PC and unzip it.

Connect the PC or Laptop with a serial cable or USB cable with the ergometer (Port 1 oder USB).

The software update is started in the service menu.

To activate the service menu the ergometer has to be switched off and on again.

As soon as the self test appears on the ergometer display, press the two softkeys



synchronously and hold.

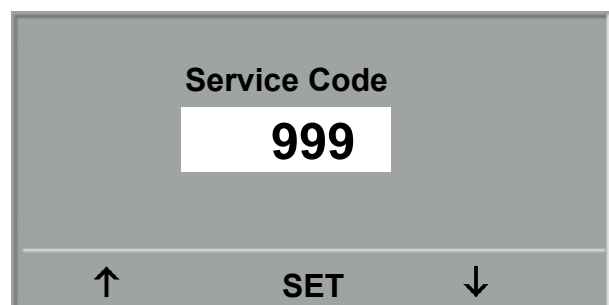
### Hint

- Always use the latest software version for the appropriate ergometer.
- Use only the PC update program included in the software package.



SERVICE MENU CONTROL TERMINAL

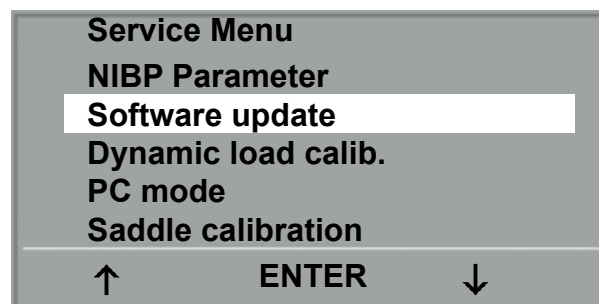
To prevent settings from being changed by chance, the service menu is „protected“ by a password. Select „999“ with the arrow keys and confirm with SET.



PASSWORD FOR SERVICE MENU

The service menu appears

Select „Software update“ with the arrow keys and confirm with ENTER (or SELECT).



SERVICE MENU CONTROL TERMINAL

The actually installed software version is displayed.



Press the right key to display the installed software versions of the different electronic modules.

*Grp:* name of the module  
*Ap-SW:* actually installed version  
(if =0 no connection to module)  
*X:* XCUT of software-version (always 0)  
*S-No.:* serial number of PCB, if electronically available)

Grp	Ap-SW	X	S-No.
ZME	2.5	0	910
LRE	3.2	0	117
UPDATE			

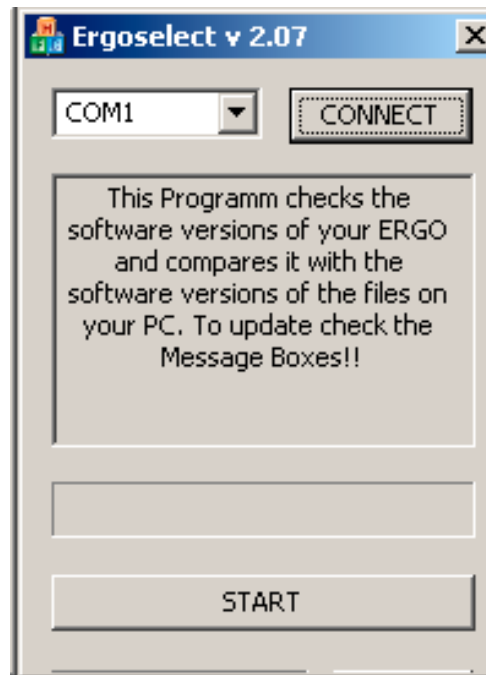
Press the right key again to display the installed bootloader versions of the different electronic modules.

*Grp:* name of the module  
*Op-SW:* required software version  
(has to be equal to the Ap-SW in previous display)  
*BootLo:* actual bootloader version of PCB

Grp:	Op-SW:	Bootlo:
ZME	2.5	0.3
LRE	3.2	0.2
UPDATE		

Start the software update by pressing „UPDATE“

Start the PC- update program ergoselect.exe .



Adjust the serial (or virtual) COM-Port used for the connection with the ergometer.

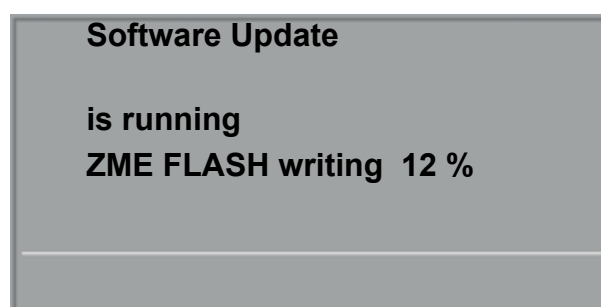
Press CONNECT to establish the software connection.

As soon as the connection is established, the START button becomes active (- or an error message appears).

Initiate the update by pressing „START“.



the update progress is displayed on the ergometer display and on the PC.



SOFTWARE UPDATE IN PROGRESS

After the update is performed, the ergometer has to be switched off and on again.



SOFTWARE UPDATE FINISHED





# eBIKE II BASIC / COMFORT

## PREVENTIVE MAINTENANCE

### Hint

- *eBike II basic / comfort is a protection class II device (no connection to protective ground)*
- *preventive maintenance has to be performed every 2 years*

## FINAL CHECKOUT PROCEDURE / FUNCTIONAL TEST

- Check the setup for stability, adjust with levelling device if required.

**Expected result:** No instability Pass/Fail

- Visually inspect the device:
  - inspect coat of lacquer
  - inspect cables / power cord
  - Check bellows on steering column and saddle

**Expected result:** No damage or wear detected Pass/Fail

- Check cranks, pedals and Velcro strips

**Expected result:** Cranks, pedals and velcro strips OK Pass/Fail

- eBike basic
  - Check handlebar adjustment (angle)
  - Check saddle height adjustment
  - Check that the clamping levers (saddle (height) and handlebar (angle) adjustment) are tight.  
Grease the threads of the clamping levers (every 2 to 6 months, depending on application purpose).  
(Use of an universal high-performance lubricant such as OKS 470 is recommended)

eBike comfort

- Check electrical saddle adjustment: adjust minimum and maximum saddle height;  
then return saddle to mid-level
- Check correct indication of saddle height display
- Check handlebar adjustment (angle)
- Check that the clamping lever for handlebar adjustment (angle) is tight

**Expected result:** Adjustments work and levers are tight, all threads properly greased Pass/Fail

- Using the power cord, connect the device to the power line and turn it on with the power switch  
Wait for selftest to end:
  - check LCD (e.g. for error messages)
  - check in the software if the firmware version is OK

**Expected result:** Device powers on without errors and FW is OK Pass/Fail

- Check speed indication on LCD and additional speed indication for test subject.  
Check noise level of idling drive unit (e.g. for grinding noises or noise from the bearing)

**Expected result: Speed displayed on both displays and no noticeable noise**

**Pass/Fail**

- Units with NIBP module:
  - Check cuff tubing and tubing connections, microfon connectors
  - Check blood pressure measurement on test subject at rest
  - Check blood pressure readings on LCD

**Expected result: BP values are displayed and in proper range**

**Pass/Fail**

- Start manual exercise test, change load (e.g. start 50 W, increase 25 W)
  - Check load level and load indication

**Expected result: Load changes as expected**

**Pass/Fail**

- If ergometer is remote controlled from ECG recorder or PC-ECG system:
  - Check connecting cable
  - Check load control via ECG recorder or PC ECG system
  - Check remote start if applicable

**Expected result: Ergometer can be controlled by external unit**

**Pass/Fail**

## ELECTRICAL SAFETY

Current leakage test results meet requirements?

Perform electrical safety checks when indicated.

All indicated electrical safety checks require a pass/fail indication for steps performed.

Record the measurement values in your debrief.

Step		Condition (1)	UUT – ON (2)	Result	Leakage Current limits
<b>Earth Leakage Current</b>					
1.	Forward Polarity	N/A			
2.	Neutral open, Forward Polarity	N/A			
3.	Neutral open, Reverse Polarity	N/A			
4.	Reverse Polarity	N/A			
<b>Enclosure Leakage Current</b>					
1.	Forward Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
2.	Neutral open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
3.	Ground open, Forward Polarity	N/A			
4.	Ground open, Reverse Polarity	N/A			
5.	Neutral open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
6.	Reverse Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
<b>Patient Leakage Current to Ground (3)</b>					
1.	Forward Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
2.	Neutral open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
3.	Ground open, Forward Polarity	N/A			
4.	Ground open, Reverse Polarity	N/A			
5.	Neutral open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
6.	Reverse Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
<b>Ground Continuity</b>					<b>Resistance</b>
1.	AC mains power cord ground prong to exposed metal surface (ground lug)	N/A			

(1) NC = Normal Condition

SFC = Single Fault Condition

N/A = Not Applicable

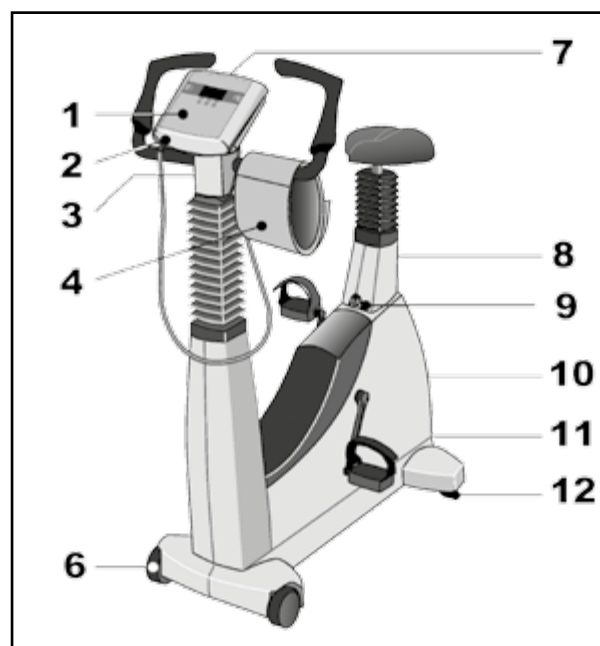
(2) UUT = Unit Under Test

(3) Test applies for eBike II basic/comfort with bloodpressure unit only - measuring point is the microfone connector

## MECHANICAL ASSEMBLY

### CONTROLS AND INDICATORS

- 1 Control terminal
- 2 Blood pressure cuff connection (option)
- 3 Adjustment of the handlebar angle
- 4 Blood pressure cuff
- 5 Adjustment of the handlebar height (eBike comfort only)
- 6 Castors
- 7 Speed display (RPM) for patient
- 8 Adjustment of the saddle height (eBike 100 only)
- 9 Digital saddle height indication (eBike comfort only)
- 10 Power switch (green button)
- 11 Sockets for power cord and connection cables (underside of ergometer)
- 12 Levelling devices to adjust the ergometer to uneven floors



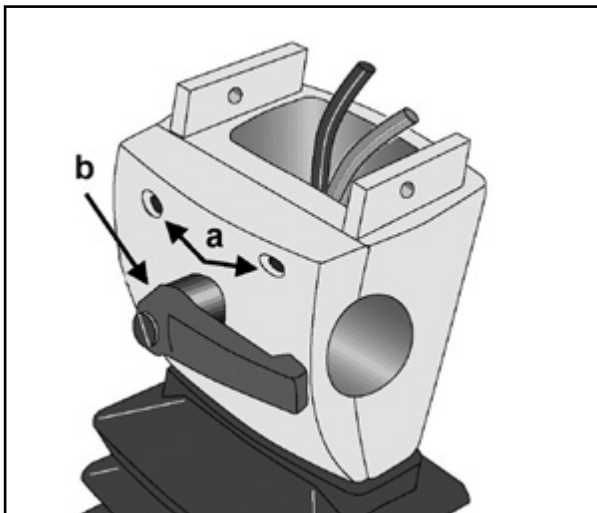
eBIKE BASIC – CONTROLS, CONNECTIONS AND INDICATORS



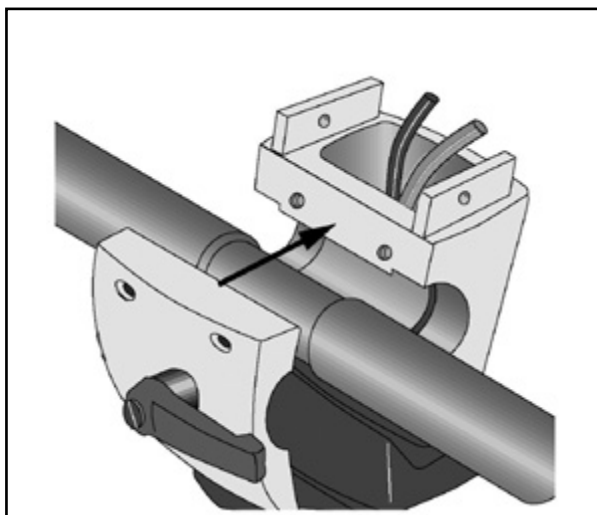
eBIKE COMFORT – CONTROLS, CONNECTIONS AND INDICATORS

## MOUNTING THE HANDLEBAR

- Remove the two screws (a) from the clamping plate.
- Holding the clamping plate, turn the clamping lever (b) counterclockwise and remove.
- Take off the clamping plate.
- Install the handlebar (handles downward) and secure with the clamping plate.
- Turn the screws (a) in and tighten moderately.
- Screw in clamping lever (b) by turning it clockwise and tighten moderately.



TAKING OFF THE CLAMPING PLATE



MOUNTING THE HANDLEBAR

### Note

- *When mounting the handlebar, it should first point down until the control terminal has been installed.*
- *Then bring the handlebar to the correct position and secure by tightening the clamping lever and the screws.*
- *At the eBike comfort you can additionally adjust the height of the handlebar to any level by means of a clamping lever.*

## REMOVE HOUSING

### DISMOUNT PEDAL CRANKS

- Carefully lift the protective cover off the crank, using a small flat screw driver.



- Plug the extractor (P/N 2005737-001) onto the screw of the crank



- Loose the screw with an open ended wrench (17 mm)
- Remove the screw and the lock washer



- Turn the extractor and screw it strongly into the winding of the crank screw



- Use an open ended wrench (17 mm) to remove the crank by screwing the bolt onto the axis.



## REMOVE TOP COVER

- Use a small socket wrench or a round pin (3 mm) to unlock the two plastic locks through the small holes (left and right side of top cover).



- Remove the top cover



## DISMOUNT THE WHEELS

- Carefully remove the cover off the wheels using a small flat screwdriver





- Remove the snap ring from the axis and pull off the wheel.



### Hint

*When mounting the wheels again, check that the notch inside the plastic wheel has to be positioned outwards - otherwise the cover will not snap into the wheel.*



### THREADED BAR (FRONT)

- Loosen one of the two cover nuts with a socket wrench and pull the threaded bar out the housing



## REMOVE SCREWS CONNECTIONS

- Loose the screw connections (front and rear) on one side with a socket wrench



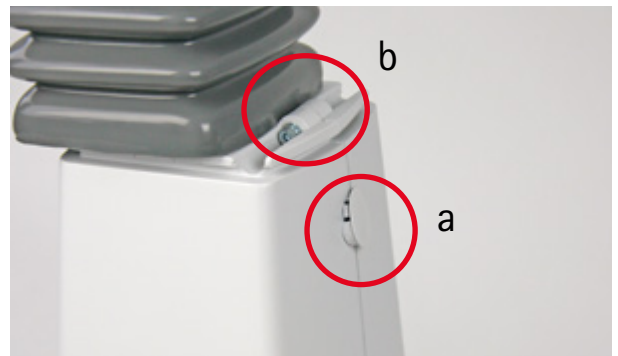
- The housing is screwed to the bottom of the metal frame (on both sides of the eddy current brake). remove these screws with a long socket wrench.



- Remove the lower screws on both sides of the housing (Philips screw driver).



- Remove the protective cover (a) at the top front part of the housing, pull the bellows upwards and loose the Allen key screw (b)..



- Pull the bellows at the saddle bar upwards and loose the Allen key screw.



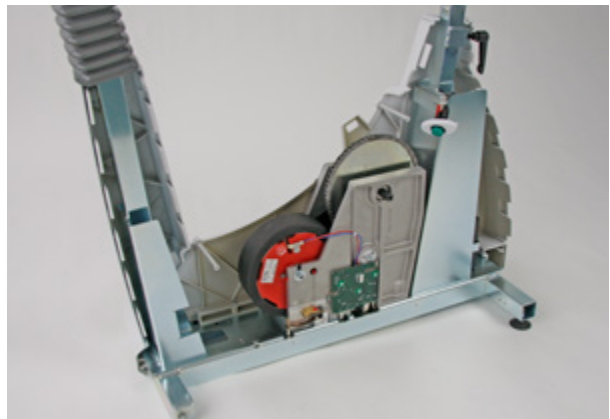
- Press the dark plastic insert to the outside.



- Separate the two housing parts with a flat screwdriver below the front and rear bellows (snap in locks).

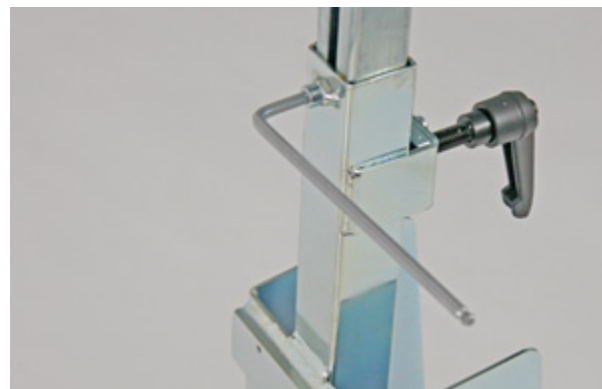


- The housing can be removed.

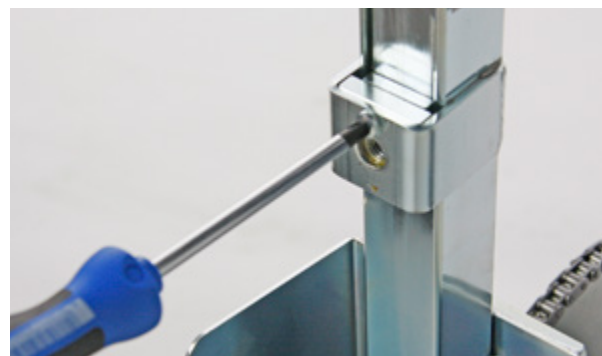


### SADDLE PILLAR EXCHANGE (eBIKE BASIC)

- Remove the housing of the ergometer.
- Loose the limiting screw for the saddle pillar with an Allen key
- Remove the lever



- Loose the Philips screw



- Disassemble the clamping plate and the threaded plate



- The saddle pillar can be pulled out.

- Mounting of the new saddle pillar ist performed in reverse way.

## SADDLE MOTOR EXCHANGE (eBIKE COMFORT)

- Remove the housing of the ergometer.

### Note

*Position the saddle at mid-level before removing the saddle motor*

- Disconnect connection cable of the saddle motor from PCB Interface MAE
- Remove the saddle and pull off the bellows.
- Remove saddle host – to do so, unscrew both screws at the top, push down the saddle tube to allow the cylindrical pin to be removed from the saddle shaft.
- Remove clamping plate from saddle tube
- Pull saddle tube off the saddle motor.
- Unscrew the 4 screws of the saddle guide tube and remove the tube



- Loosen bottom fixation of the saddle motor (screw and nut are accessible via a hole at the bottom).



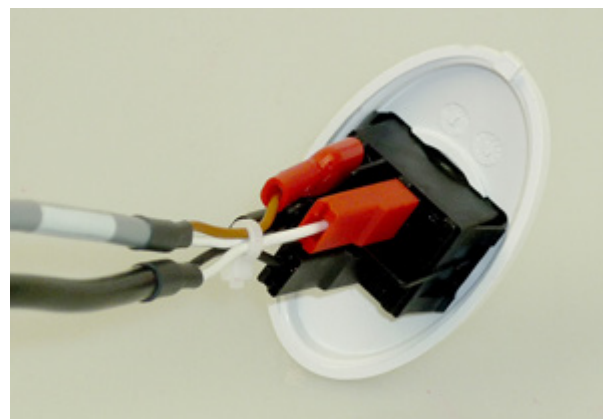
- Remove the saddle motor.
- The new motor is assembled in reverse order.
- Perform a saddle calibration (service menu) to adjust the top and bottom position.

## POWER SUPPLY UNIT EXCHANGE

The power supply is mounted in the rear of the ergometer  
Remove the mounting bracket (2 screws)  
Exchange the power supply unit and fix the mounting  
bracket again.



Exchange the connecting cables at the main switch  
accordingly  
Fix the cables with a cable strap



# eBIKE II L

## PREVENTIVE MAINTENANCE

### Hint

- *eBike II L is a protection class I device (with connection to protective ground)*
- *Suitable common ground terminal:  
screw head of the protective earth connection between swivelling section and ergometer base*
- *preventive maintenance has to be performed every 2 years*

### FINAL CHECKOUT PROCEDURE / FUNCTIONAL TEST

- Visually inspect the device
  - Inspect coat of lacquer
  - Inspect cables/power cord
  - Inspect bellows on steering column and saddle
  - Inspect footboard for stability
  - Inspect cuff, tubing and tubing connection
  - Inspect couch adjustment motor for damage
  - Check the setup for stability, lock castor brakes, if required.

**Expected result:** No damage, instability or wear detected

**Pass/Fail**

- Check rests, cranks, pedals and Velcro strips
  - Check that all clamping levers and star grips are firmly seated
  - Check that cranks, pedals, Velcro strips and pedal shoes are properly fixed.
  - Inspect leg rests and their attachment, if leg rests are installed.
  - Inspect head and arm rests as well as handgrips.
  - Grease the threads of the clamping levers (every 6 months, depending on application purpose).  
(Use of an universal high-performance lubricant such as OKS 470 is recommended)

**Expected result:** All threads properly greased, cranks, rests and pedals OK

**Pass/Fail**

- Power on
  - Using the power cord, connect the device to the power line and turn it on with the power switch.
  - Wait for self-test to end:  
Check LCD, e.g. for error messages.
  - Check in the software if the firmware version is OK.

**Expected result:** Device powers on without errors and FW is OK

**Pass/Fail**

- Couch adjustment motor
  - Set motor to both stop positions
  - Change couch position from horizontal (0°) to semi-recumbent (45°) and then back to the horizontal position (0°)

**Expected result:** Couch position changes to the expected positions

**Pass/Fail**



- Saddle adjustment motor
  - Check all possible positions by moving the saddle to the top and to the bottom position.
  - Return saddle to the middle position.

**Expected result:**            **saddle position changes to the expected positions** **Pass/Fail**
  
- Speed and Noise
  - Check speed indication on LCD and additional speed indication for test subject.
  - Check noise level of idling drive unit (e.g., for grinding noises or noise from the bearing).

**Expected result:**            **peed displayed on both displays and no noticeable noise** **Pass/Fail**
  
- Units with NIBP module:
  - Check cuff tubing and tubing connections, microfon connectors
  - Check blood pressure measurement on test subject at rest
  - Check blood pressure readings on LCD

**Expected result:**            **BP values are displayed and in proper range** **Pass/Fail**
  
- Start manual exercise test, change load (e.g. start 50 W, increase 25 W)
  - Check load level and load indication

**Expected result:**            **Load changes as expected** **Pass/Fail**
  
- If ergometer is remote controlled from ECG recorder or PC-ECG system:
  - Check connecting cable
  - Check load control via ECG recorder or PC ECG system
  - Check remote start if applicable

**Expected result:**            **Ergometer can be controlled by external unit** **Pass/Fail**

## ELECTRICAL SAFETY

Current leakage test results meet requirements?

Perform electrical safety checks when indicated.

All indicated electrical safety checks require a pass/fail indication for steps performed.

Record the measurement values in your debrief.

Step		Condition (1)	UUT – ON (2)	Result	Leakage Current limits
<b>Earth Leakage Current</b>					
1.	Forward Polarity	NC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
2.	Neutral open, Forward Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	1.000 $\mu\text{A}$
3.	Neutral open, Reverse Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	1.000 $\mu\text{A}$
4.	Reverse Polarity	NC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
<b>Enclosure Leakage Current</b>					
1.	Forward Polarity	NC	_____ $\mu\text{A}$	Pass/Fail	100 $\mu\text{A}$
2.	Neutral open, Forward Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
3.	Ground open, Forward Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
4.	Ground open, Reverse Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
5.	Neutral open, Reverse Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
6.	Reverse Polarity	NC	_____ $\mu\text{A}$	Pass/Fail	100 $\mu\text{A}$
<b>Patient Leakage Current to Ground (3)</b>					
1.	Forward Polarity	NC	_____ $\mu\text{A}$	Pass/Fail	100 $\mu\text{A}$
2.	Neutral open, Forward Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
3.	Ground open, Forward Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
4.	Ground open, Reverse Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
5.	Neutral open, Reverse Polarity	SFC	_____ $\mu\text{A}$	Pass/Fail	500 $\mu\text{A}$
6.	Reverse Polarity	NC	_____ $\mu\text{A}$	Pass/Fail	100 $\mu\text{A}$
<b>Ground Continuity</b>					<b>Resistance</b>
1.	AC mains power cord ground prong to exposed metal surface (ground lug)	NC	_____ $\text{m}\Omega$	Pass/Fail	Less than 200 $\text{m}\Omega$

(1) NC = Normal Condition

SFC = Single Fault Condition

N/A = Not Applicable

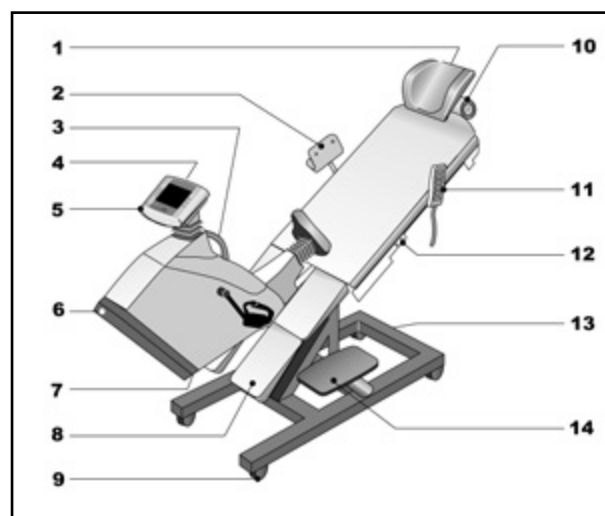
(2) UUT = Unit Under Test

(3) Test applies for eBike II L with bloodpressure unit only - measuring point is the microphone connector

## MECHANICAL ASSEMBLY

### CONTROLS AND INDICATORS

- 1 Clamping lever for head rest adjustment
- 2 Arm rest for blood pressure measurement  
(right or left; on systems with automatic blood pressure measurement only)
- 3 Handgrip (mounting and dismounting aid)
- 4 Speed indication for patient
- 5 Control terminal
- 6 Power switch (green button)
- 7 Connectors for power cord and connection cables
- 8 Leg rest (option)
- 9 Castors, locking
- 10 Tissue roll
- 11 Remote control for couch and saddle adjustment
- 12 Connection for blood pressure cuff on either side of the couch (on systems with automatic blood pressure measurement only)
- 13 Type plate
- 14 Footboard



eBIKE L – CONTROLS, CONNECTIONS AND INDICATORS

## REMOVE HOUSING

### DISMOUNT PEDAL CRANKS

- Carefully lift the protective cover off the crank, using a small flat screw driver.



- Plug the extractor (P/N 2005737-001) onto the screw of the crank



- Loose the screw with an open ended wrench (17 mm)
- Remove the screw and the lock washer



- Turn the extractor and screw it strongly into the winding of the crank screw



- Use an open ended wrench (17 mm) to remove the crank by screwing the bolt onto the axis.



## REMOVE SADDLE

- Using the remote control, move the saddle into a low position (approx. 15 cm distance to housing).
- Pull the bellows back and remove the snap ring.



- Pull out the retaining bolt and remove the saddle.



- Remove the bellows.



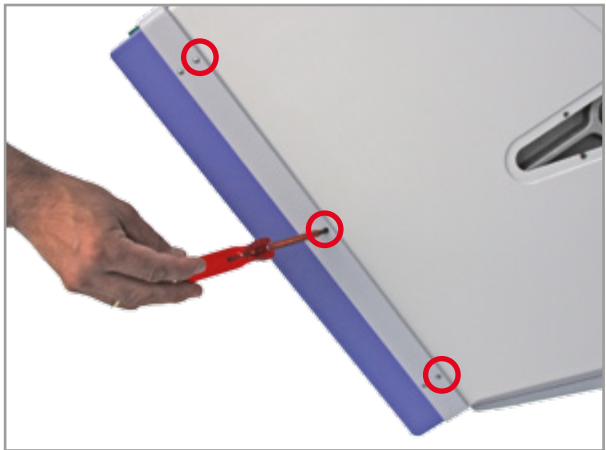
## REMOVE COVER SHEET

- Loose the screws off the cover sheets and remove the covers on both sides of the housing.  
Remove the clamping nuts.



## REMOVE THE HOUSING

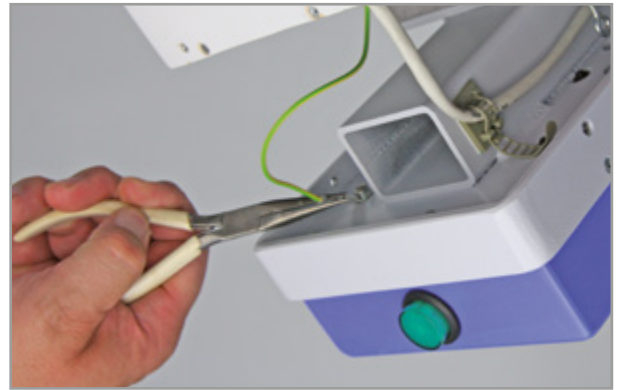
- Loose the retaining screws on both sides (3 each).



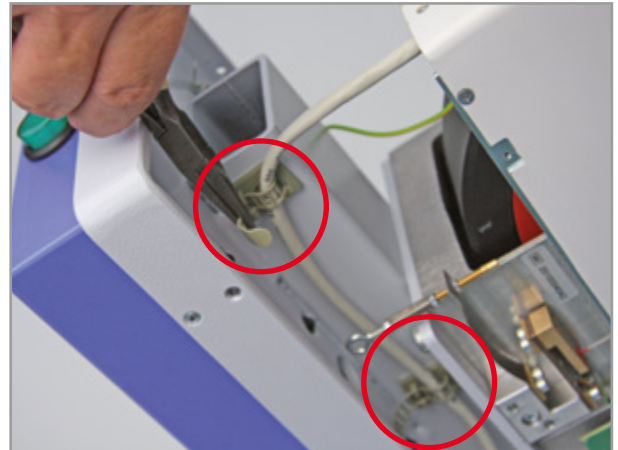
- Pull the housing towards the top of the supine.



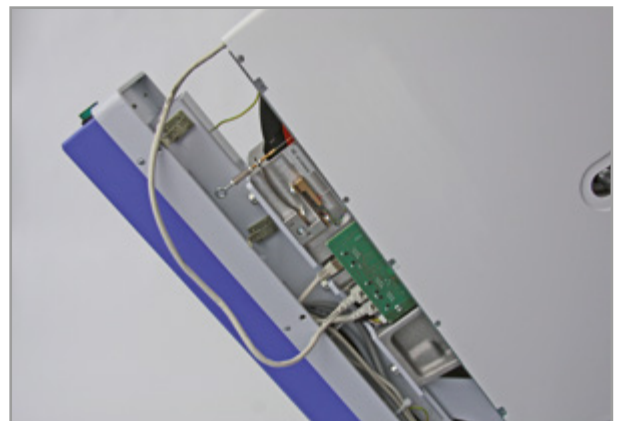
- Disconnect the protective earth connector



- Open both strain reliefs for the connecting cable (patch cable) ZME <-> LRE



- Connecting cable ZME <-> LRE is released.



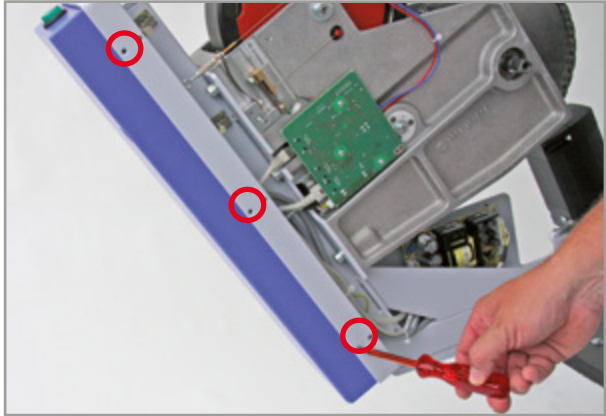
- Pull the housing sideways to pass the crank axis and remove it.



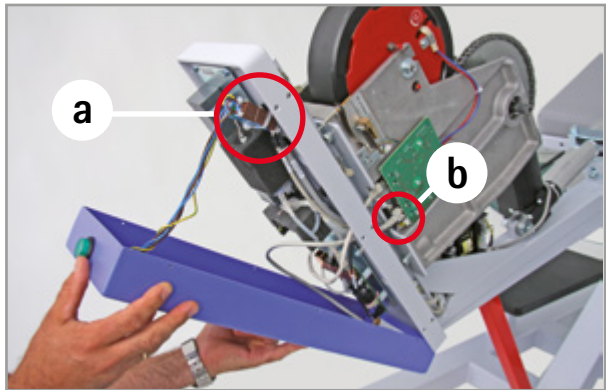
## REMOVE CONNECTION BOX

- Remove 6 fixing screws.

!! Support the connecting box from below !!



- Disconnect the connecting cable to the mains switch at the modular connector (a).
- Disconnect the connecting cable LRE <-> BKE from the LRE board (CAT-5 Patchkabel)
- The connecting box can be removed.





## REPLACING MODULES

### REPLACE POWER SUPPLY

- Switch the device off !!
- Disconnect the power cable !!
- After removing the housing, loose the fixing screws of the power supply.
- Disconnect both connectors an remove the module.
- The new power module is mounted in reverse order.



## REPLACEMENT CONTROL UNIT MOTORS AND

### REMOTE CONTROL

This Parts are used on eBike II L up to serial NO 2014006999

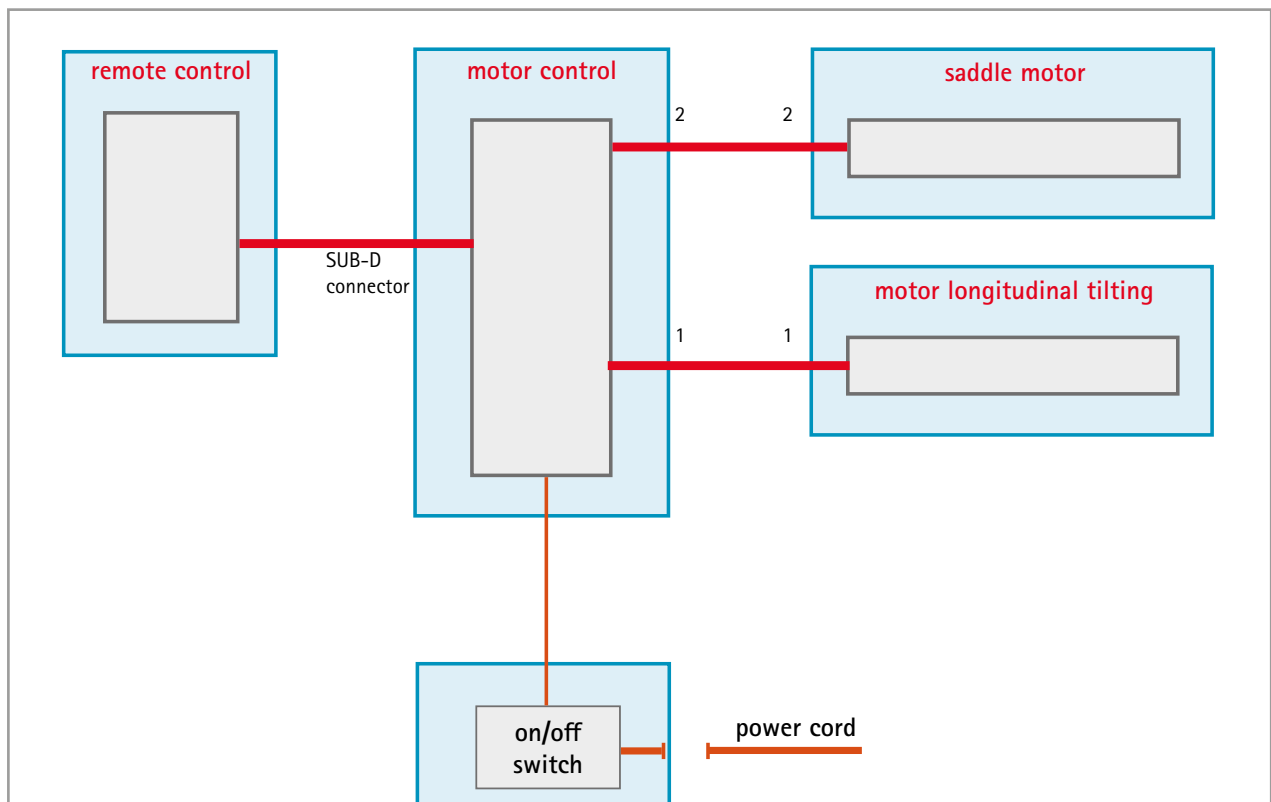
Compatible modules eBike II L		
No.	Spare Part number	Designation
1	2018111-067	EBIKE L&EL SADDLE MOTOR
2	2018111-092	EBIKE L MOTOR CONTROLLER 240V
3	2018111-093	EBIKE L MOTOR CONTROLLER 120V
4	2018111-096	EBIKE L REMOTE CONTROL
5	2018111-098	EBIKE L MOTOR PITCH ANGLE

This Parts are used on eBike II L from serial NO 2014007000 and higher

Compatible modules eBike II L		
No.	Spare Part number	Designation
6	2018111-210	EBIKE L/EL SADDLE MOTOR BCU/SCU
7	2018111-211	EBIKE L MOTOR CONTROLLER 240V BCU
8	2018111-212	EBIKE L MOTOR CONTROLLER 120V BCU
9	2018111-215	EBIKE L REMOTE CONTROL BCU
10	2018111-217	EBIKE L MOTOR PITCH ANGLE BCU

## REPLACE MOTOR CONTROL UNIT

### BLOCK DIAGRAM MOTOR CONTROL UNIT



## REPLACE MOTOR CONTROL UNIT

### Troubleshooting

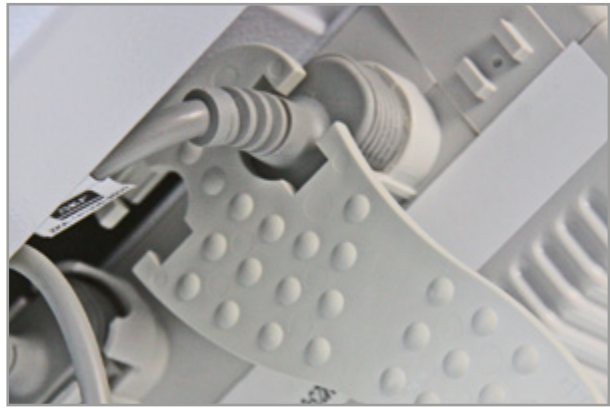
- Before replacing the motor control unit make sure that the motor is actually defective.
- For this check, use a new hand switch (the hand switch for eBike EL can also be used) and test the motorfunctions.
- If the control unit does not work, it is out of order and must be replaced.
- If it works, the hand switch is defective.



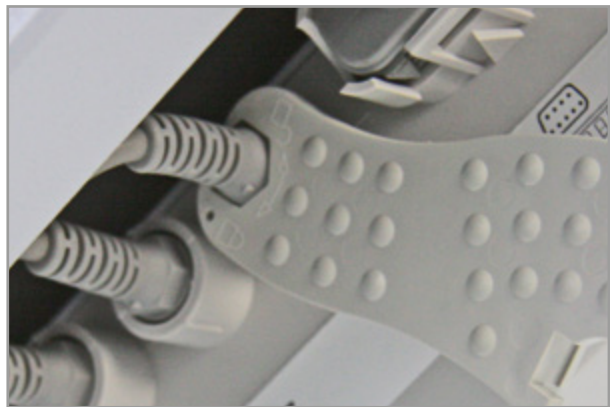
- Disconnect device from mains!
- Disconnect all cables prior the disassembling of the unit, using a suitable fork wrench or the special tool.



- Place the special tool onto the power connector and unlatch the clamps by pressing the tool downwards.
- Disconnect the power connector.
- Disconnect the remote control cable connector the same way.



- The other side of the tool is used to unlatch the connectors of the motor cables (marked 1, 2 and 3) by turning the connector (bayonet fixing) and pulling out.



- Loose the fixing screws of the motor control unit.
- Assembly of the new control unit is performed in reverse order.

### Hint

- *Do not interchange the motor connectors!  
(Cable and jacks are marked !)*
- *Following the exchange of a motor or after any malfunction the control unit has to be initialised!*

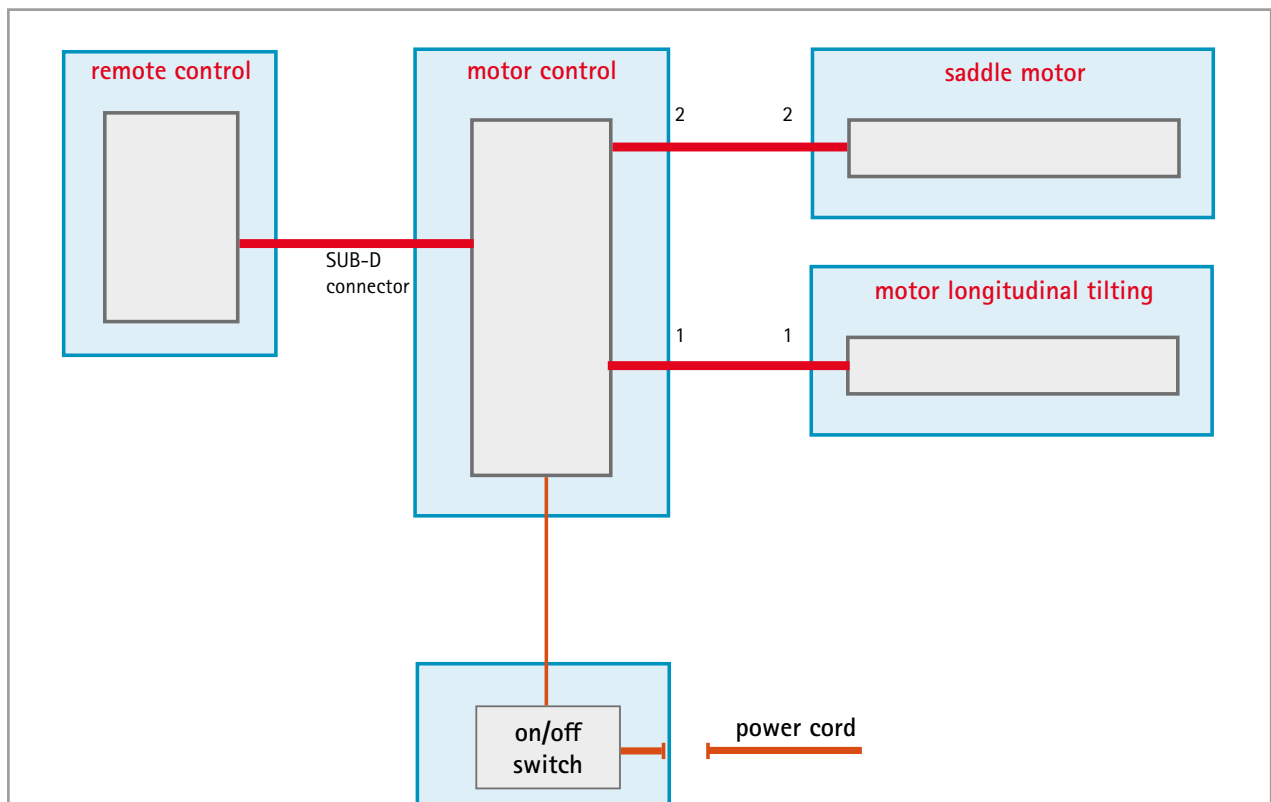
*To initialise the control unit, both motors have to be moved in defined end positions::*

*- The motor for the supine angle has to be retracted completely (supine horizontal)*

*-The saddle motor have to be extended completely.*

## REPLACE MOTOR CONTROL UNIT WITH BCU

### BLOCK DIAGRAM MOTOR CONTROL UNIT



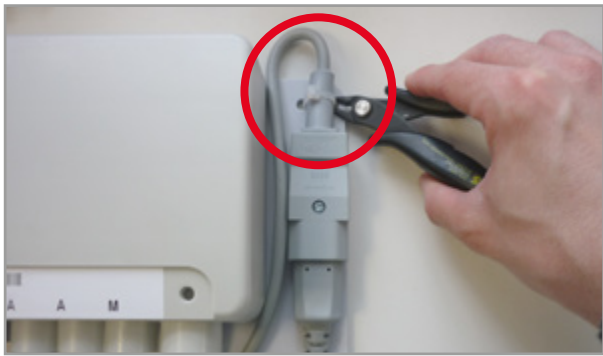
## REPLACE MOTOR CONTROL UNIT

### Troubleshooting

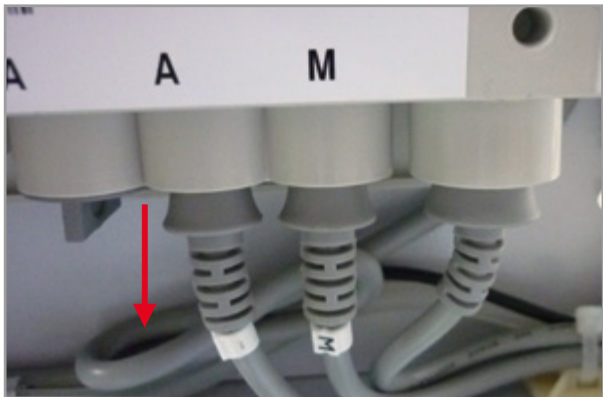
- Before replacing the motor control unit make sure that the motor is actually defective.
- For this check, use a new hand switch (the hand switch for eBike EL can also be used) and test the motorfunctions.
- If the control unit does not work, it is out of order and must be replaced.
- If it works, the hand switch is defective.



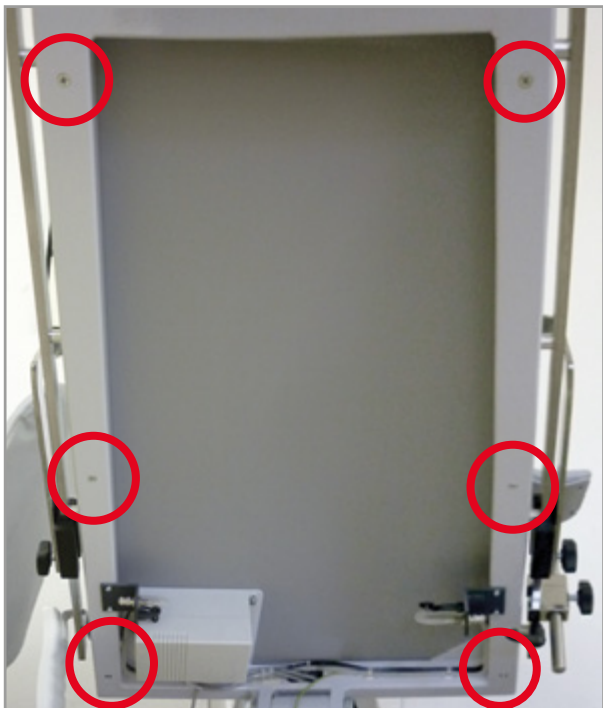
- Remove the cable tie.
- Disconnect the power plug.



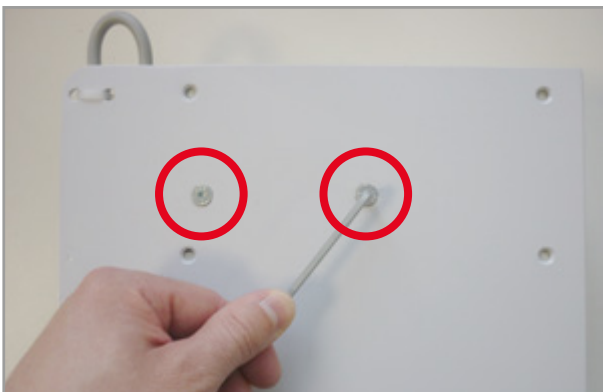
- Disconnect the remote control.
- Disconnect the saddle motor A and the motor longitudinal tilting M.



- Remove the 6 screws on the upholstery.
- Place the upholstery away.



- Remove the 2 screws from the motor control.



- Loose the fixing screws of the motor control unit.
- Assembly of the new control unit is performed in reverse order.

### Hint

- *Do not interchange the motor connectors!  
(Cable and jacks are marked !)*
- *Following the exchange of a motor or after any malfunction the control unit has to be initialised!*

*To initialise the control unit, both motors have to be moved in defined end positions::*

*- The motor for the supine angle has to be retracted completely (supine horizontal)*

*-The saddle motor have to be extended completely.*

## REPLACE SADDLE MOTOR

### Troubleshooting

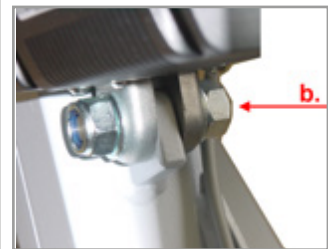
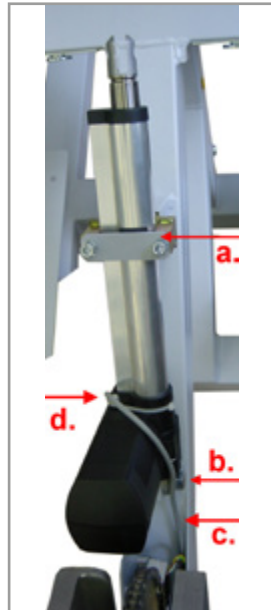
- Before replacing the saddle motor make sure that the motor is actually defective.
- For this check, switch the hexagon socket of the saddlemotor from channel 2 to channel 1.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motor control unit or the hand switch is defective.

Before you can replace the saddle motor, the connectionbox and the casing must be removed first. Then follow these steps to replace the saddle motor:

- Loosen both hexagon socket screws a. of the saddle guide.
- Remove pin b. with self-locking screw.
- Disconnect plug of cable c. at motor control (connector 2. in illustration).  
To do so, first turn jack plug counterclockwise as far as possible (e.g. using a suitable fork wrench), then pull out the jack plug.  
Open cable tie and pull cable towards the saddlemotor.

### Note

- To facilitate pulling in the new saddle motor cable, attach a draw rope to the cable of the old saddle-motor)
- When mounting the new saddle motor, secure the motor control connection cable with a cable tie d, as shown in the illustration.





## REPLACE LIFT MOTOR FOR COUCH ADJUSTMENT

### Troubleshooting

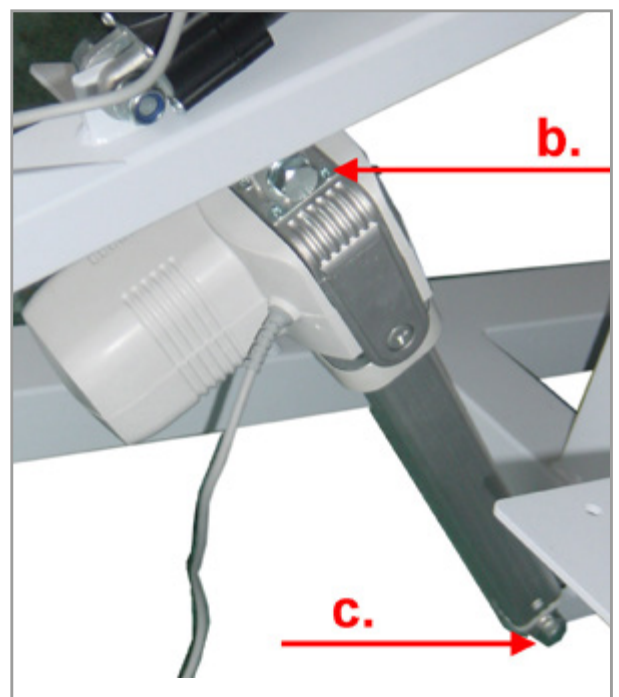
- Before replacing the lift motor for couch adjustment make sure that the motor is actually defective.
- For this check, switch the hexagon socket of the liftmotor from channel 2 to channel 1.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motor control unit or the hand switch is defective.

Follow these steps to replace the couch adjustment motor:

- Set motor to the end position where the couch surface is completely horizontal.
- Disconnect system from mains!
- When the lift motor has been removed, the couch surface must be protected against falling down!
- Disconnect connector 2. (see illustration) at motor control. To do so, first turn jack plug counterclockwise as far as possible (e.g. using a suitable fork wrench), then pull out the jackplug. Loosen cable tie of the connection cable.
- Remove pins b. + c. with self-locking screw.
- Remove lift motor.

#### Note:

Reverse the above steps to install the new lift motor.  
Secure the connection cable to the motor control unit with cable ties.



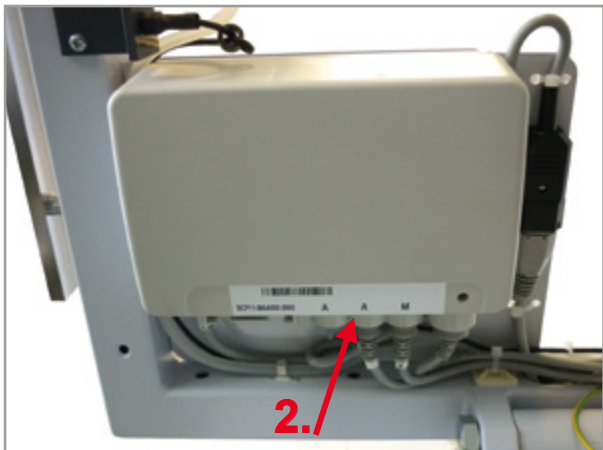
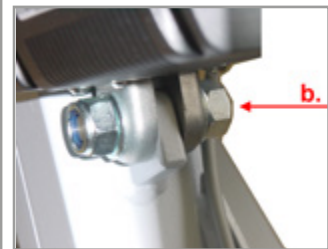
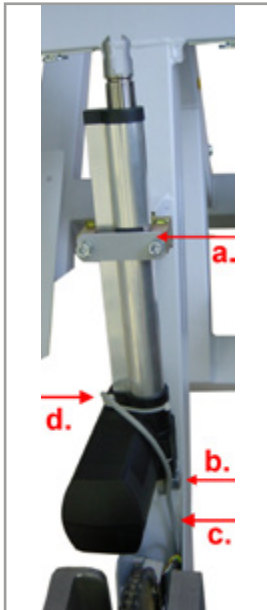
## REPLACE SADDLE MOTOR WITH BCU

### Troubleshooting

- Before replacing the saddle motor make sure that the motor is actually defective.
- For this check, switch the hexagon socket of the saddlemotor from channel 2 to channel 1.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motor control unit or the hand switch is defective.

Before you can replace the saddle motor, the connectionbox and the casing must be removed first. Then follow these steps to replace the saddle motor:

- Loosen both hexagon socket screws a. of the saddle guide.
- Remove pin b. with self-locking screw.
- Disconnect plug of cable A at motor control (connector 2. in illustration).  
Open cable tie and pull cable towards the saddlemotor.



### Note

- To facilitate pulling in the new saddle motor cable, attach a draw rope to the cable of the old saddle-motor)
- When mounting the new saddle motor, secure the motor control connection cable with a cable tie d, as shown in the illustration.

## REPLACE LIFT MOTOR FOR COUCH ADJUSTMEN WITH BCU

### Troubleshooting

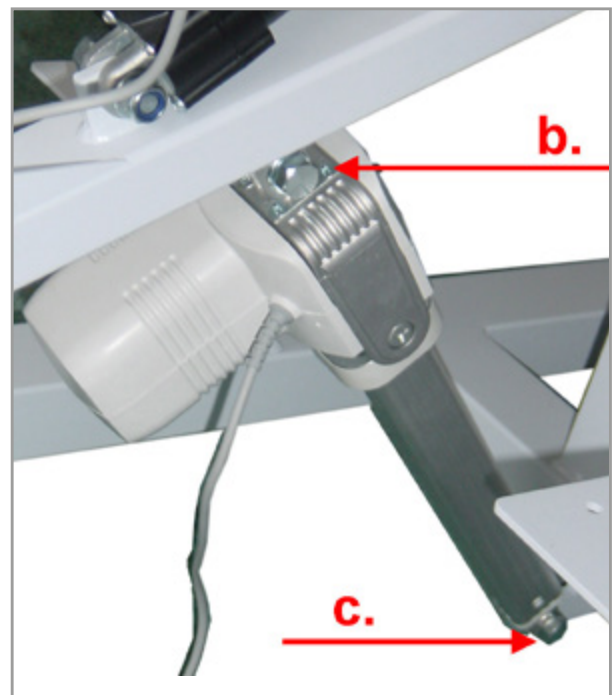
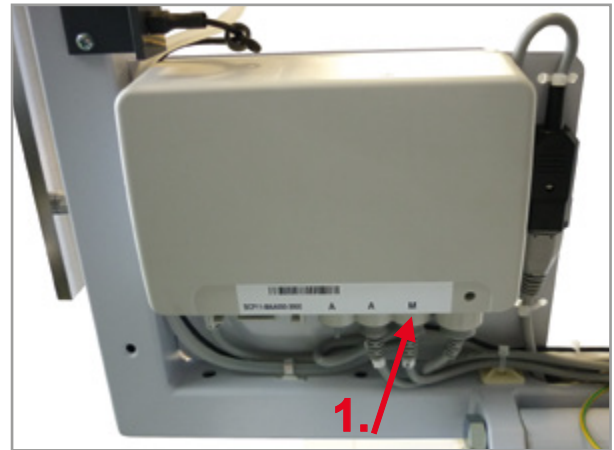
- Before replacing the lift motor for couch adjustment make sure that the motor is actually defective.
- For this check, switch the hexagon socket of the liftmotor from channel 2 to channel 1.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motor control unit or the hand switch is defective.

Follow these steps to replace the couch adjustment motor:

- Set motor to the end position where the couch surface is completely horizontal.
- Disconnect system from mains!
- When the lift motor has been removed, the couch surface must be protected against falling down!
- Disconnect plug of cable M at motor control (connector 1. in illustration).
- Open cable tie and pull cable towards the lift motor.
- Remove pins b. + c. with self-locking screw.
- Remove lift motor.

#### Note:

Reverse the above steps to install the new lift motor.  
Secure the connection cable to the motor controlunit with cable ties.



## REPLACE EXTERNAL SPEED INDICATOR (eBIKE L EXT.)

- Open connection box.  
Disconnect connection cable for external speed indicator from LRE or from BDE (devices with NIBP) board.
- Unscrew the screws securing the external speedindicator and remove the speed indicator by pulling it upward.



# eBIKE II EL

## PREVENTIVE MAINTENANCE

### Hint

- *eBike II EL is a protection class I device (with connection to protective ground)*
- *Suitable common ground terminal:  
screw head of the protective earth connection*
- *preventive maintenance has to be performed every 2 years*

### FINAL CHECKOUT PROCEDURE / FUNCTIONAL TEST

- Visually inspect the device
  - Inspect coat of lacquer
  - Inspect cables/power cord
  - Inspect bellows on steering column and saddle
  - Inspect footboard for stability
  - Inspect cuff, tubing and tubing connection
  - Inspect couch adjustment motors for damage
  - Check the setup for stability, lock castor brakes, if required.
  - Inspect outrigger.

**Expected result:** No damage, instability or wear detected

**Pass/Fail**

- Check rests, cranks, pedals and Velcro strips
  - Check that all clamping levers and star grips are firmly seated
  - Check that cranks, pedals, Velcro strips and pedal shoes are properly fixed.
  - Fold down drop section
  - Inspect leg rests and their attachment, if leg rests are installed.
  - Inspect head and arm rests as well as handgrips.
  - Grease the threads of the clamping levers (every 6 months, depending on application purpose).  
(Use of an universal high-performance lubricant such as OKS 470 is recommended)

**Expected result:** All threads properly greased, cranks, rests and pedals OK

**Pass/Fail**

- Power on
  - Using the power cord, connect the device to the power line and turn it on with the power switch.
  - Wait for self-test to end:  
Check LCD, e.g. for error messages.
  - Check in the software if the firmware version is OK.

**Expected result:** Device powers on without errors and FW is OK

**Pass/Fail**

- Both couch adjustment motor
  - Set both motors to both stop positions
  - Change couch position from horizontal (0°) to semi-recumbent (45°) and then back to the horizontal position (0°)
  - Check adjustment range for lateral tilt from the horizontal position (0°)

**Expected result:** Couch position changes to the expected positions

**Pass/Fail**

- |                  |                                                   |           |
|------------------|---------------------------------------------------|-----------|
| Expected result: | saddle position changes to the expected positions | Pass/Fail |
|------------------|---------------------------------------------------|-----------|

- |                  |                                                         |           |
|------------------|---------------------------------------------------------|-----------|
| Expected result: | peed displayed on both displays and no noticeable noise | Pass/Fail |
|------------------|---------------------------------------------------------|-----------|

- |                  |                                             |           |
|------------------|---------------------------------------------|-----------|
| Expected result: | BP values are displayed and in proper range | Pass/Fail |
|------------------|---------------------------------------------|-----------|

- |                  |                          |           |
|------------------|--------------------------|-----------|
| Expected result: | Load changes as expected | Pass/Fail |
|------------------|--------------------------|-----------|

- |                  |                                              |           |
|------------------|----------------------------------------------|-----------|
| Expected result: | Ergometer can be controlled by external unit | Pass/Fail |
|------------------|----------------------------------------------|-----------|

## ELECTRICAL SAFETY

Current leakage test results meet requirements?

Perform electrical safety checks when indicated.

All indicated electrical safety checks require a pass/fail indication for steps performed.

Record the measurement values in your debrief.

Step		Condition (1)	UUT – ON (2)	Result	Leakage Current limits
<b>Earth Leakage Current</b>					
1.	Forward Polarity	NC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
2.	Neutral open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	1.000 $\mu$ A
3.	Neutral open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	1.000 $\mu$ A
4.	Reverse Polarity	NC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
<b>Enclosure Leakage Current</b>					
1.	Forward Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
2.	Neutral open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
3.	Ground open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
4.	Ground open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
5.	Neutral open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
6.	Reverse Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
<b>Patient Leakage Current to Ground (3)</b>					
1.	Forward Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
2.	Neutral open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
3.	Ground open, Forward Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
4.	Ground open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
5.	Neutral open, Reverse Polarity	SFC	_____ $\mu$ A	Pass/Fail	500 $\mu$ A
6.	Reverse Polarity	NC	_____ $\mu$ A	Pass/Fail	100 $\mu$ A
<b>Ground Continuity</b>					<b>Resistance</b>
1.	AC mains power cord ground prong to exposed metal surface (ground lug)	NC	_____ $m\Omega$	Pass/Fail	Less than 200 $m\Omega$

(1) NC = Normal Condition

SFC = Single Fault Condition

N/A = Not Applicable

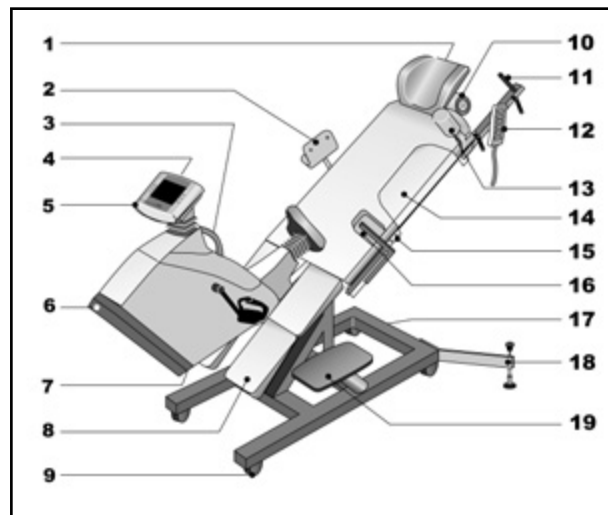
(2) UUT = Unit Under Test

(3) Test applies for eBike II EL with bloodpressure unit only - measuring point is the microfone connector

## MECHANICAL ASSEMBLY

### CONTROLS AND INDICATORS

- 1 *Clamping lever for head rest adjustment  
Release lever for upholstery drop section (14)*
- 2 *Arm rest for blood pressure measurement (right  
or left; on systems with automatic blood pressure  
measurement only)*
- 3 *Handgrip (mounting and dismounting aid)*
- 4 *Speed indication for patient*
- 5 *Control terminal*
- 6 *Power switch (green button)*
- 7 *Connectors for power cord and connection cables*
- 8 *Leg rest (option)*
- 9 *Castors, locking*
- 10 *Tissue roll*
- 11 *Upper handgrip, adjustable*
- 12 *Remote control for couch and saddle adjustment*
- 13 *Armpit support, adjustable*
- 14 *Drop section of upholstery*
- 15 *Connection for blood pressure cuff on either side of  
the couch (on systems with automatic blood pressure  
measurement only)*
- 16 *Hip support, adjustable*
- 17 *Type plate*
- 18 *Outrigger*
- 19 *Footboard*



eBIKE EL – CONTROLS, CONNECTIONS AND INDICATORS



## DISASSEMBLY OF HOUSING

### DISMOUNT PEDAL CRANKS

- Carefully lift the protective cover off the crank, using a small flat screw driver.



- Plug the extractor (P/N 2005737-001) onto the screw of the crank



- Loose the screw with an open ended wrench (17 mm)
- Remove the screw and the lock washer



- Turn the extractor and screw it strongly into the winding of the crank screw



- Use an open ended wrench (17 mm) to remove the crank by screwing the bolt onto the axis.



## REMOVE SADDLE

- Using the remote control, move the saddle into a low position (approx. 15 cm distance to housing).
- Pull the bellows back and remove the snap ring.



- Pull out the retaining bolt and remove the saddle.

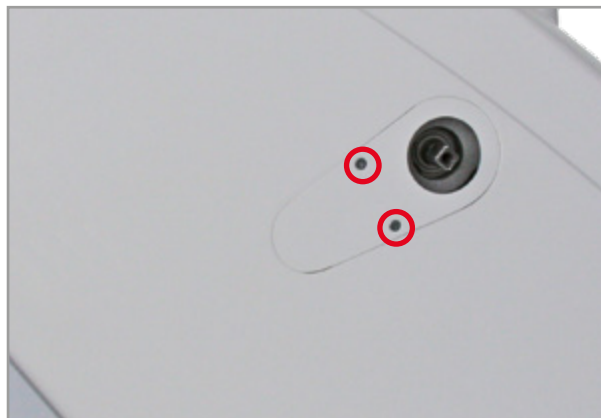


- Remove the bellows.



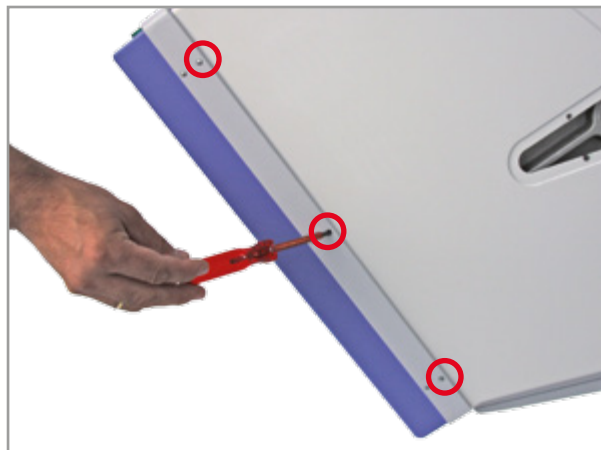
## REMOVE COVER SHEET

- Loosen the screws on the cover sheets and remove the covers on both sides of the housing. Remove the clamping nuts.



## REMOVE THE HOUSING

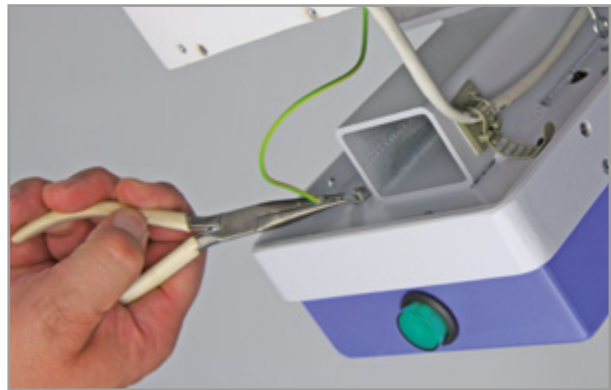
- Loosen the retaining screws on both sides (3 each).



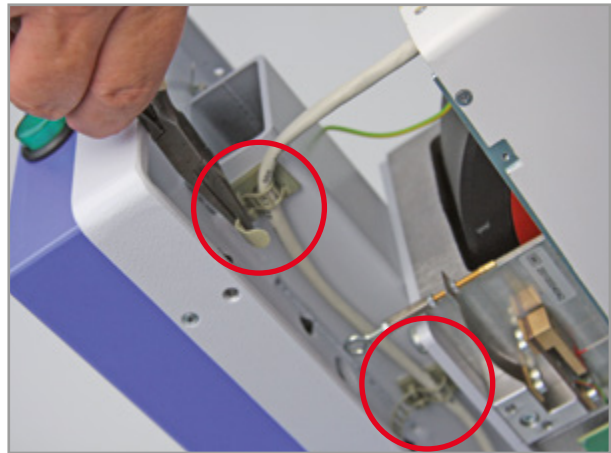
- Pull the housing towards the top of the supine.



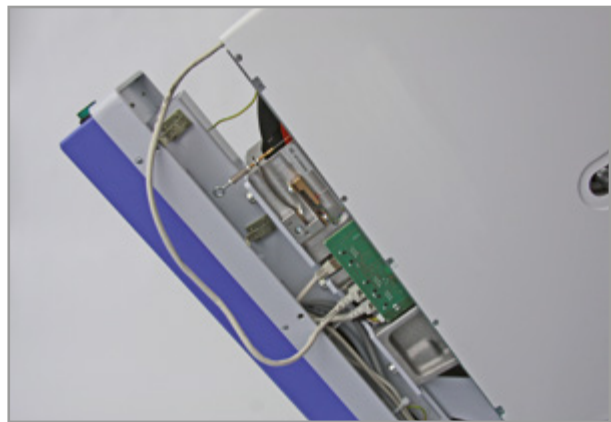
- Disconnect the protective earth connector



- Open both strain reliefs for the connecting cable (patch cable) ZME <-> LRE



- Connecting cable ZME <-> LRE is released.



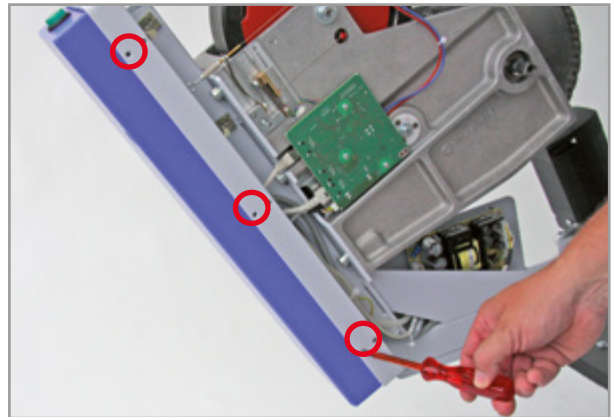
- Pull the housing sideways to pass the crank axis and remove it.



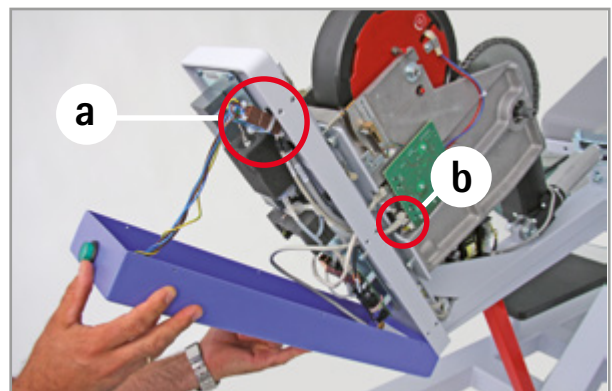
## REMOVE CONNECTION BOX

- Remove 6 fixing screws.

!! Support the connecting box from below !!



- Disconnect the connecting cable to the mains switch at the modular connector (a).
- Disconnect the connecting cable LRE <-> BKE from the LRE board (CAT-5 Patchkabel)
- The connecting box can be removed.



## REPLACING MODULES

### REPLACE POWER SUPPLY

- Switch the device off !!
- Disconnect the power cable !!
- After removing the housing, loose the fixing screws of the power supply.
- Disconnect both connectors an remove the module.
- The new power module is mounted in reverse order.



## REPLACEMENT CONTROL UNIT MOTORS AND REMOTE CONTROL

This Parts are used on eBike II L up to serial NO 2014006999

Compatible modules eBike II EL		
No.	Spare Part number	Designation
1	2018111-067	EBIKE L&EL SADDLE MOTOR
2	2018111-094	EBIKE EL MOTOR CONTROLLER 240V
3	2018111-095	EBIKE EL MOTOR CONTROLLER 120V
4	2018111-097	EBIKE EL REMOTE CONTROL
5	2018111-099	EBIKE EL MOTOR PITCH ANGLE
6	2018111-100	EBIKE EL MOTOR TRANSVERSE ANGLE

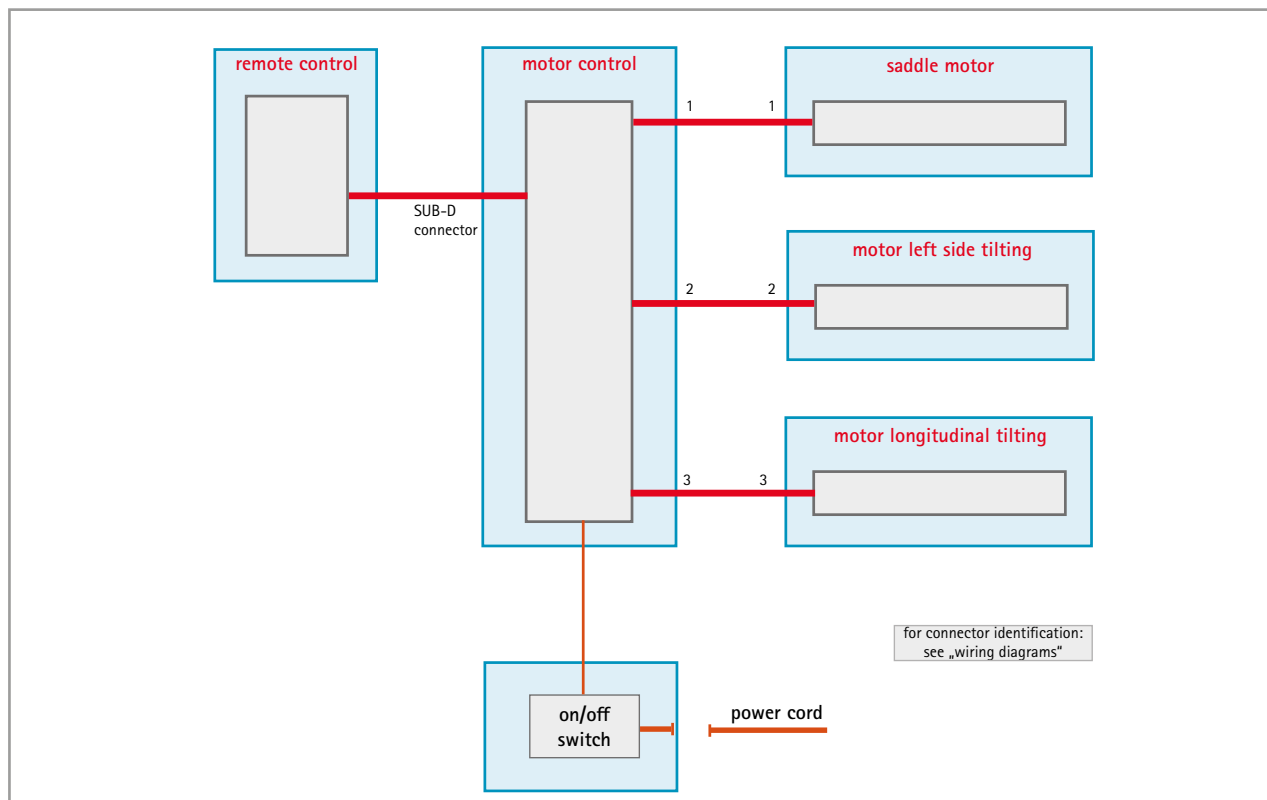
This Parts are used on eBike II L from serial NO 2014007000 and higher

Compatible modules eBike II EL		
No.	Spare Part number	Designation
7	2018111-210	EBIKE L/EL SADDLE MOTOR BCU/SCU
8	2018111-213	EBIKE EL MOTOR CONTROLLER 240V SCU
9	2018111-214	EBIKE EL MOTOR CONTROLLER 120V SCU
10	2018111-216	EBIKE EL REMOTE CONTROL SCU
11	2018111-218	EBIKE EL MOTOR PITCH ANGLE SCU
12	2018111-219	EBIKE EL MOTOR TRANSVERSE ANGLE SCU



## EXCHANGE MOTOR CONTROL UNIT

### BLOCK DIAGRAM MOTOR CONTROL UNIT



## EXCHANGING THE MOTOR CONTROL UNIT

### Troubleshooting

- Before replacing the motor control unit make sure that the motor is actually defective.
- For this check, use a new hand switch for eBike EL and test the motor functions.
- If the control unit does not work, it is out of order and must be replaced.
- If it works, the hand switch is defective.



- Disconnect device from mains!
- Disconnect all cables prior the disassembling of the unit, using a suitable fork wrench or the special tool.





- Place the special tool onto the power connector and unlatch the clamps by pressing the tool downwards.
- Disconnect the power connector.
- Disconnect the remote control cable connector the same way.



- The other side of the tool is used to unlatch the connectors of the motor cables (marked 1, 2 and 3) by turning the connector (bayonet fixing) and pulling out.



- Loose the fixing screws of the motor control unit.
- Assembly of the new control unit is performed in reverse order.

### Hint

- Do not interchange the motor connectors! (Cable and jacks are marked !)
- *Following the exchange of a motor or after any malfunction the control unit has to be initialised!*

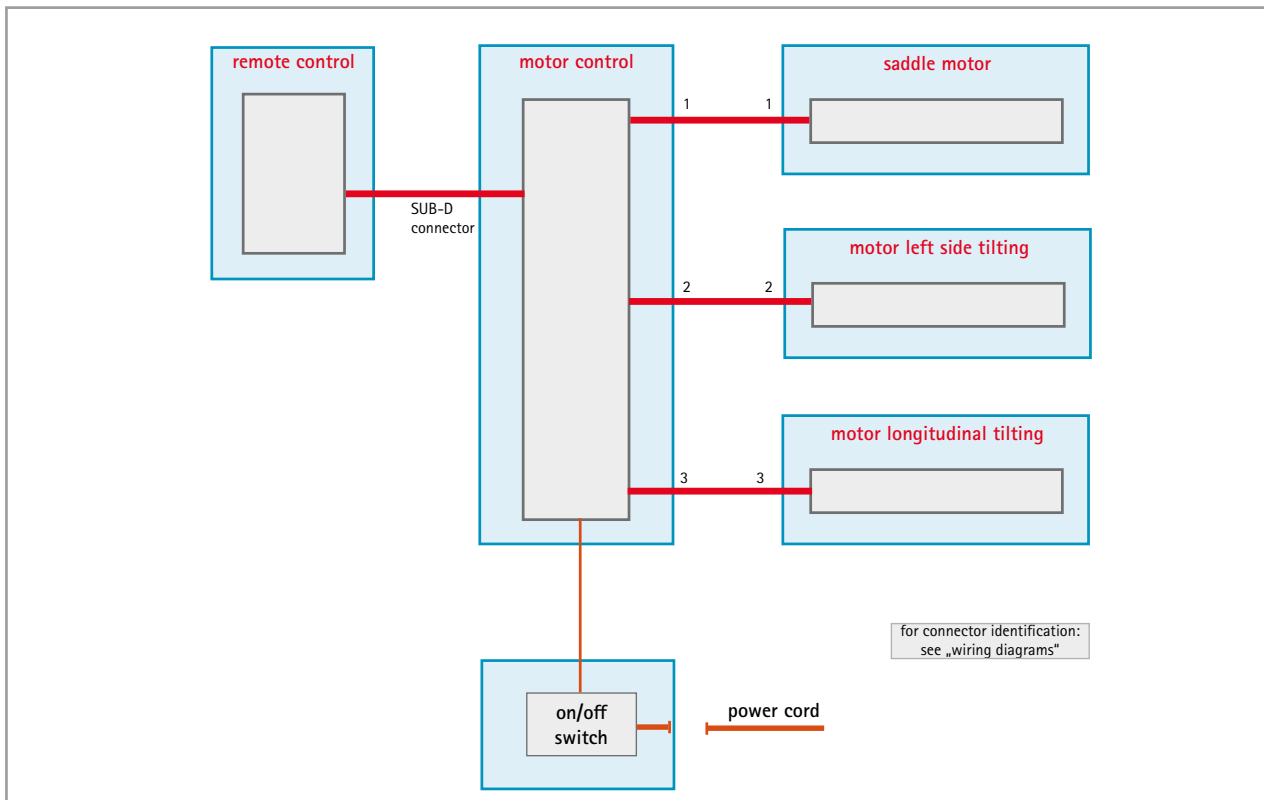
*To initialise the control unit, both motors have to be moved in defined end positions::*

*- The motor for the supine angle has to be retracted completely (supine horizontal)*

*-- The motor for the supine angle has to be extended completely (supine 45° to the side)*

## EXCHANGE MOTOR CONTROL UNIT WITH SCU

### BLOCK DIAGRAM MOTOR CONTROL UNIT



### EXCHANGING THE MOTOR CONTROL UNIT

#### Troubleshooting

- Before replacing the motor control unit make sure that the motor is actually defective.
- For this check, use a new hand switch for eBike EL and test the motorfunctions.
- If the control unit does not work, it is out of order and must be replaced.
- If it works, the hand switch is defective.



- Disconnect the power connector.
- Disconnect the motor cables.
- Disconnect the remote control cable connector the same way.



- Loose the fixing screws of the motor control unit.
- Assembly of the new control unit is performed in reverse order.

### Hint

- Do not interchange the motor connectors! (Cable and jacks are marked !)
- *Following the exchange of a motor or after any malfunction the control unit has to be initialised!*

*To initialise the control unit, both motors have to be moved in defined end positions::*

*- The motor for the supine angle has to be retracted completely (supine horizontal)*

*-- The motor for the supine angle has to be extended completely (supine 45° to the side)*

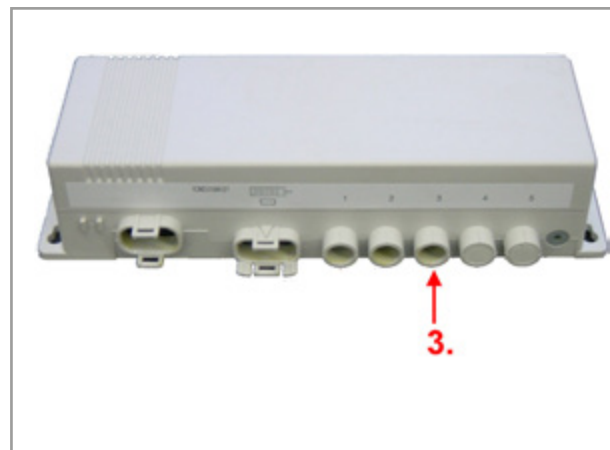
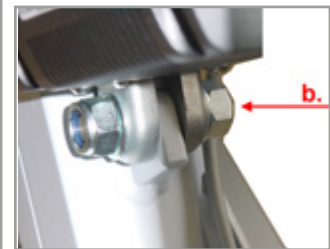
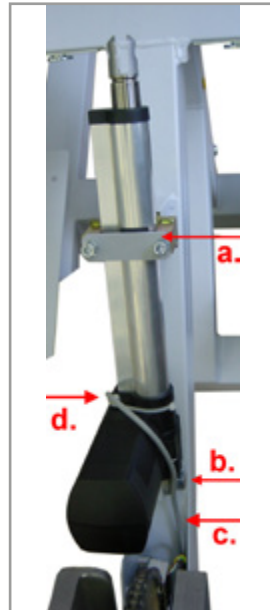
## REPLACE SADDLE MOTOR

### Troubleshooting

- Before replacing the saddle motor make sure that the motor is actually defective.
- For this check, switch the hexagon socket of the saddlemotor from channel 3 to channel 1 or 2.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motor control unit or the hand switch is defective.

Before you can replace the saddle motor, the connectionbox and the casing must be removed first. Then follow these steps to replace the saddle motor:

- Loosen both hexagon socket screws a. of the saddle guide.
- Remove pin b. with self-locking screw.
- Disconnect plug of cable c. at motor control (connector 3. in illustration). To do so, first turn jack plug counterclockwise as far as possible (e.g. using a suitable fork wrench), then pull out the jack plug. Open cable tie and pull cable towards the saddlemotor.



### Note

- To facilitate pulling in the new saddle motor cable, attach a draw rope to the cable of the old saddle-motor)
- When mounting the new saddle motor, secure the motor control connection cable with a cable tie d, as shown in the illustration.

## REPLACE LIFT MOTOR FOR COUCH ADJUSTMENT

### Troubleshooting

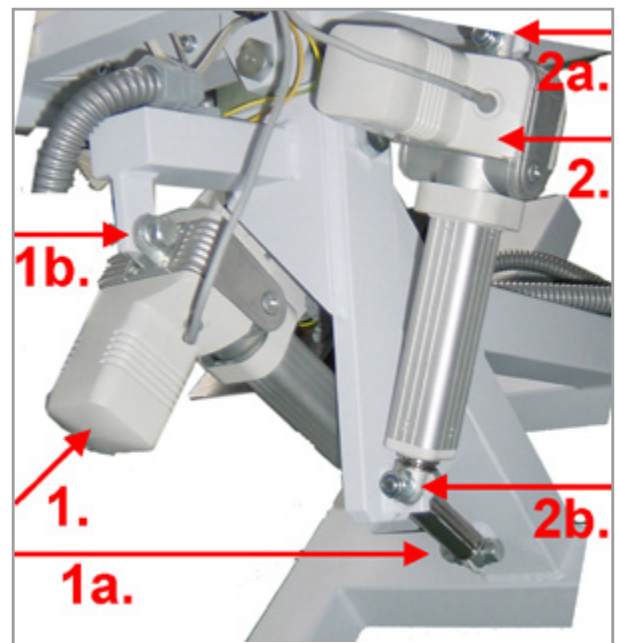
- Before replacing lift motor 1 or 2 for couch adjustment make sure that the motor is actually defective.
- For this check, switch the hexagon socket of liftmotor 1 from channel 1 to channel 2 or 3. For a test of lift motor 2, switch the hexagon socket from channel 2 to channel 1 or 3.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motorcontrol unit or the hand switch is defective.

Follow these steps to replace the couch adjustment motor:

- Set motor to the end position where the couch surface is completely horizontal and has a lateral tilt of 0°.
- When a motor has been removed, the couch surface must be protected against falling down!
- Disconnect system from mains!
- Disconnect connector 1. (lift motor for longitudinal adjustment) and/or connector 2 (liftmotor for left lateral tilt) from motor control unit. To do so, first turn jack plug counterclockwise as far as possible (e.g. using a suitable forkwrench), then pull out the jack plug.
- Loosen cable tie of the respective connectioncables.
- Remove pins 1a. + 1b. (lift motor for longitudinaladjustment) and/or pins 2a. + 2b. (lift motor forleft lateral tilt) with self-locking screw.
- Remove lift motor.

#### Note:

Reverse the above steps to install the new lift motor.  
Secure the connection cable to the motor controlunit with cable ties.



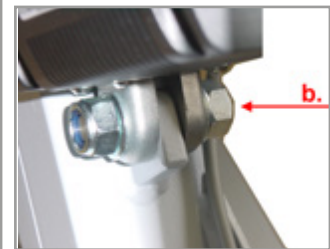
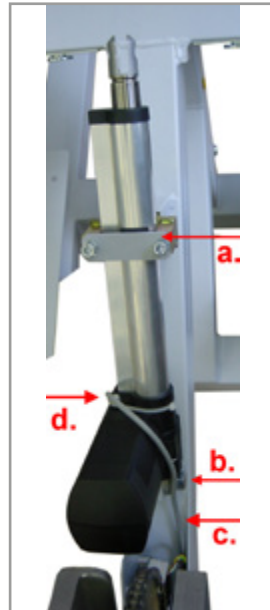
## REPLACE SADDLE MOTOR WITH SCU

### Troubleshooting

- Before replacing the saddle motor make sure that the motor is actually defective.
- For this check, switch the hexagon socket of the saddlemotor from channel 3 to channel 1 or 2.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motor control unit or the hand switch is defective.

Before you can replace the saddle motor, the connectionbox and the casing must be removed first. Then follow these steps to replace the saddle motor:

- Loosen both hexagon socket screws a. of the saddle guide.
- Remove pin b. with self-locking screw.
- Disconnect plug of cable c. at motor control (connector 3. in illustration). Open cable tie and pull cable towards the saddlemotor.



### Note

- To facilitate pulling in the new saddle motor cable, attach a draw rope to the cable of the old saddle-motor)
- When mounting the new saddle motor, secure the motor control connection cable with a cable tie d, as shown in the illustration.

## REPLACE LIFT MOTOR FOR COUCH ADJUSTMENT WITH SCU

### Troubleshooting

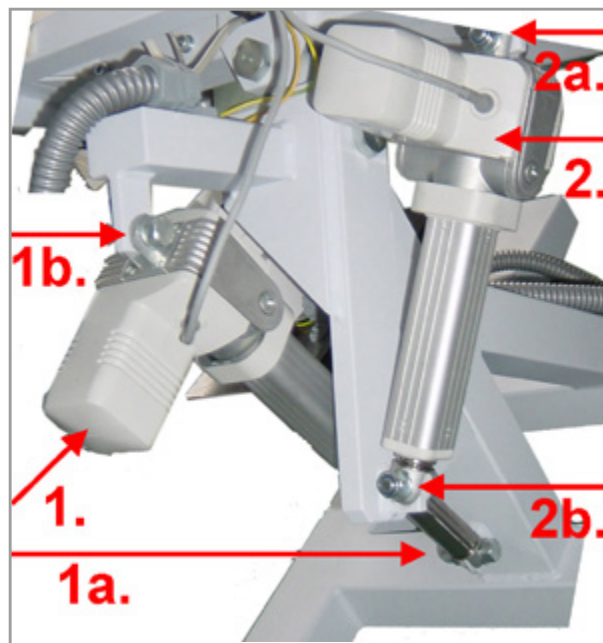
- Before replacing lift motor 1 or 2 for couch adjustment make sure that the motor is actually defective.
- For this check, switch the hexagon socket of liftmotor 1 from channel 1 to channel 2 or 3. For a test of lift motor 2, switch the hexagon socket from channel 2 to channel 1 or 3.
- If the motor does not work, it is out of order and must be replaced.
- If the motor works, the motorcontrol unit or the hand switch is defective.

Follow these steps to replace the couch adjustment motor:

- Set motor to the end position where the couch surface is completely horizontal and has a lateral tilt of 0°.
- When a motor has been removed, the couch surface must be protected against falling down!
- Disconnect system from mains!
- Disconnect connector 1. (lift motor for longitudinal adjustment) and/or connector 2 (liftmotor for left lateral tilt) from motor control unit.
- Loosen cable tie of the respective connectioncables.
- Remove pins 1a. + 1b. (lift motor for longitudinaladjustment) and/or pins 2a. + 2b. (lift motor forleft lateral tilt) with self-locking screw.
- Remove lift motor.

#### Note:

Reverse the above steps to install the new lift motor.  
Secure the connection cable to the motor controlunit with cable ties.



## REPLACE EXTERNAL SPEED INDICATOR (eBIKE EL EXT.)

- Open connection box.  
Disconnect connection cable for external speed indicator from LRE or from BDE (devices with NIBP) board.
- Unscrew the screws securing the external speed indicator and remove the speed indicator by pulling it upward.







## ERRORCODES SOFTWARE eBIKE II

The displayed hexadecimal code is a combination of single error bits, each representing a special fault condition.

e.g.:	Displayed Error	Source:	ZME
		Err.Code:	0028 (hexadecimal)
	Bit conversion:	0 0 0 0	0 0 0 0 0 0 1 0 1 0 0 0 (0028 hex)
		15 14 13 12	11 10 9 8 7 6 5 4 3 2 1 0
		Bit Bit Bit Bit	Bit Bit Bit Bit Bit Bit Bit Bit Bit Bit Bit Bit
	Error bits set:	Bit 3	LCD communication error
		Bit 5	+5V out of range

Bit	Error	Reaction	Display / Info	Troubleshooting
0	Illegal program jump	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace ZME
1	Wrong SW configuration		Warning	- perform software update
2	not used			
3	LCD communication error	Safety shut down		- check LCD connection - replace LCD - replace ZME PCB
4	+24V out of range		Internal error	- check power supply - check connections: power supply to LRE cable ZME <-> LRE (or ZME <-> BDE BDE <-> LRE)
5	+5V out of range	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace ZME
6	2,5V out of range	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace ZME
7	Safety state mode	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace ZME
8	RAM-Test error	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace ZME

## ERROR CODE BITS LRE

Bit	Error	Reaction	Display / Info	Troubleshooting
0	To high rotation		Warning	none - advise user to cycle less than 130 rpm
1	Load out of limit		Warning	- advise user to cycle between 30 and 130 rpm - perform static calibration
2	DMS Offs. invalid	Safety shut down		- perform static calibration OFFSET - if error persists: replace strain gauge
3	DMS Gain invalid	Safety shut down		- perform static calibration GAIN - if error persists: replace strain gauge
4	+24V out of range		Internal error	- check power supply - check connections: power supply to LRE cable ZME <-> LRE (or ZME <-> BDE BDE <-> LRE)
5	+5V out of range	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace LRE
6	Brake not released.	Safety shut down		- check connections: LRE <-> brake LRE <-> strain gauge - perform static calibration
7	Safety state mode	Safety shut down		- restart eBike (OFF / ON) - if error persists: replace BDE
8	Setup not ready		Internal error	- restart eBike (OFF / ON) - if error persists: check cable ZME <-> LRE or BDE <-> LRE - replace LRE
9	CAN zykl. Timeout	Safety shut down		- restart eBike (OFF / ON) - if error persists: check cable ZME <-> LRE or BDE <-> LRE - replace LRE

## ERROR CODE BITS BDE (BOODPRESSURE)

Bit	Error	Reaction	Display / Info	Troubleshooting
0	not used			
1	cuff loose		Warning	<ul style="list-style-type: none"> <li>- check correct placement of cuff at patient (tight)</li> <li>- check cuff</li> </ul>
2	Micro position		Warning	<ul style="list-style-type: none"> <li>- check correct placement of microphone (see User Manual)</li> <li>- check microphone in cuff</li> <li>- replace cuff</li> </ul>
3	Leakage		Warning	<ul style="list-style-type: none"> <li>- check cuff</li> <li>- check hoses, hose connections</li> <li>- check compensation container</li> <li>- replace pneumatic unit</li> </ul>
4	Error Calibration	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- perform NIBP test</li> <li>- perform NIBP calibration</li> <li>- replace BDE PCB</li> </ul>
5	Error offset	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- perform NIBP test</li> <li>- perform NIBP calibration</li> <li>- replace BDE PCB</li> </ul>
6	not used			
7	not used			
8	Safety state mode	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: replace BDE</li> </ul>
9	Setup not ready	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: check cable ZME &lt;-&gt; BDE</li> <li>- replace BDE</li> </ul>
10	CAN zykl. Timeout	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: check cable ZME &lt;-&gt; BDE</li> <li>- replace BDE</li> </ul>

## ERROR CODE BITS MAE


Bit	Error	Reaction	Display / Info	Troubleshooting
0	Error seat sensor	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- check cable sensor &lt;-&gt; MAE - -</li> <li>- check cable motor &lt;-&gt; MAE</li> <li>- if error persists: replace seat motor</li> </ul>
1	Seat no movement	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- check cable sensor &lt;-&gt; MAE - -</li> <li>- check cable motor &lt;-&gt; MAE</li> <li>- if error persists: replace seat motor</li> </ul>
2	Wrong cabling	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- check cable sensor &lt;-&gt; MAE</li> <li>- check cable motor &lt;-&gt; MAE</li> <li>- replace cables</li> </ul>
3	not used			
4	+24V out of range		Warning	<ul style="list-style-type: none"> <li>- check power supply</li> <li>- check connections: power supply to LRE cable LRE &lt;-&gt; MAE</li> <li>- replace MAE</li> </ul>
5	not used			
6	not used			
7	Safety state mode	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: replace MAE</li> </ul>
8	not used			
9	CAN cykl. Timeout	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: check cable LRE &lt;-&gt; MAE</li> <li>- replace MAE</li> </ul>

## ERROR CODE BITS COM

Bit	Error	Reaction	Display / Info	Troubleshooting
0	not used			
1	not used			
2	not used			
3	not used			
4	+24V out of range		Warning	<ul style="list-style-type: none"> <li>- check mounting of COM (DSUB connector)</li> <li>- check jumper on BKE</li> <li>- check power supply</li> <li>- check connections: power supply to LRE cable LRE &lt;-&gt; BKE</li> <li>- replace COM</li> </ul>
5	not used			
6	not used			
7	Safety state mode	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- restart eBike (OFF / ON)</li> <li>- check mounting of COM (DSUB connector)</li> <li>- check jumper on BKE</li> <li>- if error persists: replace COM</li> </ul>
8	Setup not ready	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- check mounting of COM (DSUB connector)</li> <li>- check jumper on BKE</li> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: replace COM</li> </ul>
9	CAN zykl. Timeout	Module is switched off	Internal error	<ul style="list-style-type: none"> <li>- check mounting of COM (DSUB connector)</li> <li>- check jumper on BKE</li> <li>- restart eBike (OFF / ON)</li> <li>- if error persists: replace COM</li> </ul>

# **PROTOCOL MTK ERGOMETER (ONLY VALID FOR GERMANY!)**

**Only valid for Germany!**

GE Healthcare 	<b>Prüfprotokoll gemäß MPBetreibV §6 Sicherheitstechnische Kontrolle §11 Messtechnischen Kontrolle</b>	<b>Blatt 1 von 1</b>  <b>Prüfprotokollnr.:</b> _____
	<b>Ergometer eBike, eBike L, eBike EL</b>	

Die durchgeführten und nachfolgend dokumentierten Prüfungen sind das Ergebnis einer messtechnischen Kontrolle gemäß MPBetreibV ergänzt durch gerätespezifische Zusatzanforderungen von GEMS IT.

**Geprüftes Ergometer:** Type: \_\_\_\_\_ Serien Nr.: \_\_\_\_\_

**Letzte Überprüfung:** Datum: \_\_\_\_\_ Software: \_\_\_\_\_

SEV: (VDE0751)

**SL-Widerstand <0,3 Ohm**  
gemessen: \_\_\_\_\_ Ohm

**Ersatzgeräteableitstrom <0,75mA**  
gemessen: \_\_\_\_\_ mA

☐ Messgerät Type: \_\_\_\_\_  
Serien Nr.: \_\_\_\_\_

☐ Messgerät Type: \_\_\_\_\_  
Serien Nr.: \_\_\_\_\_

☐ Messgerät Type: \_\_\_\_\_  
Serien Nr.: \_\_\_\_\_

☐ Messgerät Type: \_\_\_\_\_  
Serien Nr.: \_\_\_\_\_

Drehzahl [min <sup>-1</sup> ]		Leistung [W]			Befund
Soll	Ist [±1]	Soll	max. Abw.	Ist	
30					
40					
50					
100					
120					
Regelverhalten < 3 Watt oder ± 5%					
40		25	± 3 Watt		
40		50	±3 Watt		
40		100	±5Watt		
70		200	±10 Watt		
90		500	±25 Watt		
100		600	±30 Watt		
Prüfstand Type: SN: geprüft bis: Prüf ID.Nr.: Separates Protokoll					

7-Segment-Anzeige vollständig?		Ergometergehäuse unbeschädigt?	
LCD-Kontrast in Ordnung?		Spannungsführende Teile nicht berührbar?	
Lenkerstange Befestigung/unbeschädigt?		Messkopf unbeschädigt?	
Sattelstange Befestigung/unbeschädigt?		Tastatur unbeschädigt/Funktion ok?	
Mechanische Sattelverstellung ok?		Sattel- und Lenkerklemmung gefettet?	
Elektrische Sattelverstellung ok? (nur Comfort/L/EL)		Elektrische Liegenverstellung ok (nur L/EL)?	
Mechanische Gerätestütze ok (nur EL)?		Elektrische Seitenverstellung ok (nur EL)?	
Bedienungsanleitung vorhanden?		Medizinproduktebuch vorhanden?	

bestanden ☐ nicht bestanden ☐ Bemerkungen: \_\_\_\_\_

**Jahr der nächsten notwendigen messtechnischen Kontrolle:**


**20\_\_**

Datum: \_\_\_\_\_

Unterschrift : \_\_\_\_\_

# PROTOCOL MTK BLOODPRESSURE MODULE ERGOMETER (ONLY VALID FOR GERMANY!)

Only valid for Germany!

GE Healthcare 	<b>Prüfprotokoll über die Ergebnisse der messtechnischen Kontrolle gemäß §11, MPBetreibV</b>	<b>Blatt 1 von 1</b>
	<b>Blutdruckmessgerät im Ergometer</b>	<b>Prüfprotokollnr.:</b> _____

Die durchgeführten und nachfolgend dokumentierten Prüfungen sind das Ergebnis einer messtechnischen Kontrolle gemäß DIN EN 1060-1 und DIN EN 1060-3, ergänzt durch gerätespezifische Zusatzanforderungen von GEMS IT.

**Geprüftes Ergometer:**                      **Typ:** \_\_\_\_\_ **Serien Nr.:** \_\_\_\_\_

**Letzte Kalibrierung:**                      **Datum:** \_\_\_\_\_

☐ Da bei der messtechnischen Kontrolle Ihres Medizinproduktes das Medizinproduktebuch nicht vorlag, werden Sie gebeten, die nachstehenden Angaben für Ihre Dokumentation zu verwenden.

Durchgeführte Prüfung	Prüfergebnis/ermittelte Werte	Bemerkungen
1. Sichtprüfung:	<div><input type="checkbox"/> i.O.</div> <div><input type="checkbox"/> n.i.O.</div>	
2. Funktionsprüfung:	<div>BDM-Werte:</div> <div><div>systolisch:</div><div><div></div><div>mmHg</div></div></div> <div><div>diastolisch:</div><div><div></div><div>mmHg</div></div></div> <div><div>Pulsrate:</div><div><div></div><div>min<sup>-1</sup></div></div></div>	<div><input type="checkbox"/> Proband</div> <div><input type="checkbox"/> Patientensimulator</div>
3. Luftundichtheitsprüfung [< 6 mmHg/min.]	<div>Druckabfall (50 mmHg): <div></div> mmHg/min.</div> <div>Druckabfall (300 mmHg): <div></div> mmHg/min.</div>	
4. Anzeigefehler des Manschettendrucks (nach Aufpumpen ca. 3 Sek. abwarten)	<div><div>mmHg</div><div><div>[ ± 3 mmHg]</div><div><div>0</div><div>50</div><div>100</div><div>150</div><div>200</div><div>250</div><div>300</div></div></div></div> <div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	

eingesetzte Prüf-/Messmittel	Bezeichnung, Typ	Seriennummer
- Kalibriertes Druckmessgerät		
- Patientensimulator für Blutdruck		
- Sonstige		
- Sonstige		
- Sonstige		

bestanden ☐ nicht bestanden ☐ Bemerkungen:

**Jahr der nächsten turnusmäßigen messtechnischen Kontrolle:**

**20**\_\_ \_\_

Datum: _____	Unterschrift : _____
GE Medical Systems <i>Information Technologies</i> GmbH, Munzinger Str. 5, D-79111 Freiburg, Germany	





2018111-017 SPARE EBIKE/B COVER SET R/L



Service Kit: casing eBike basic, kit

1x side panel eBike basic, left, with silk-screened GE logo  
1x side panel eBike basic, right, with silk-screened GE logo  
2x connection piece, diam. 10, length 100 mm  
10x washer U4.3x9x0.8  
4x screw M4x12 cyl.  
2x screw M4x30 cyl.  
4x screw M4x10, combi-slotted  
2x screw M4x25 cyl.

2x hex nut M4, self-locking Cleveloc  
1x cap D: 22.6, white  
1x adhesive label 80x35  
2x plastic wheel diam. 80 mm with slot  
2x spring washer w/o. cap diam. 12x28 mm, galvanized, white  
2x cap for plastic wheels  
2x lock washer diam. 9 mm  
2 x adhesive label roll 80x35 silver  
1x adhesive label roll ø25 silver

2018111-204 SPARE EBIKE/B COVER SET R/L US



Service Kit: casing eBike basic US, kit

1x side panel eBike basic US, left, with silk-screened GE logo  
1x side panel eBike basic US, right, with silk-screened GE logo  
2x connection piece, diam. 10, length 100 mm  
10x washer U4.3x9x0.8  
4x screw M4x12 cyl.  
2x screw M4x30 cyl.  
4x screw M4x10, combi-slotted  
2x screw M4x25 cyl.

2x hex nut M4, self-locking Cleveloc  
1x cap D: 22.6, white  
1x adhesive label 80x35  
2x plastic wheel diam. 80 mm with slot  
2x spring washer w/o. cap diam. 12x28 mm, galvanized, white  
2x cap for plastic wheels  
2x lock washer diam. 9 mm  
2 x adhesive label roll 80x35 silver  
1x adhesive label roll ø25 silver

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**2018111-018 SPARE EBIKE/C COVER SET R/L**



**Service Kit: casing eBike comfort, kit**

1x side panel eBike comfort, left, with silk-screened GE logo  
1x side panel eBike comfort, right, with silk-screened GE logo  
2x connection piece, diam. 10, length 100 mm  
10x washer U4.3x9x0.8  
4x screw M4x12 cyl.  
2x screw M4x30 cyl.  
2x screw M4x25 cyl.  
1x threaded rod M4, length 325 mm, galvanized, blue

1x cap D: 24.6, white  
1x foot rest cover left  
1x foot rest cover right  
1x adhesive label 80x35  
2x plastic wheel diam. 80 mm with slot  
2x spring washer w/o. cap diam. 12x28 mm, galvanized, white  
2x cap for plastic wheels  
2x lock washer diam. 9 mm  
2 x adhesive label roll 80x35 silver  
1x adhesive label roll ø25 silver

---

**2018111-206 SPARE EBIKE/C COVER SET R/L US**



**Service Kit: casing eBike comfort US, kit**

1x side panel eBike comfort US, left, with silk-screened GE logo  
1x side panel eBike comfort US, right, with silk-screened GE logo  
2x connection piece, diam. 10, length 100 mm  
10x washer U4.3x9x0.8  
4x screw M4x12 cyl.  
2x screw M4x30 cyl.  
2x screw M4x25 cyl.  
1x threaded rod M4, length 325 mm, galvanized, blue

1x cap D: 24.6, white  
1x foot rest cover left  
1x foot rest cover right  
1x adhesive label 80x35  
2x plastic wheel diam. 80 mm with slot  
2x spring washer w/o. cap diam. 12x28 mm, galvanized, white  
2x cap for plastic wheels  
2x lock washer diam. 9 mm  
2 x adhesive label roll 80x35 silver  
1x adhesive label roll ø25 silver

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**2018111-015 SPARE EBIKE/B COVER TOP GREY**



cover, top (grey) for eBike basic

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**2018111-205 SPARE EBIKE/B COVER TOP GREY US**



cover, top (grey) for eBike basic US

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**2018111-016 SPARE EBIKE/C COVER TOP BLUE**



cover, top (GE blue) for eBike comfort

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**2018111-207 SPARE EBIKE/C COVER TOP BLUE US**



cover, top (GE blue) for eBike comfort US

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## 2018111-013 SPARE EBIKE/C SADDLE GUIDE



### Service Kit: saddle guide eBike comfort

- 1x plate with threaded bushing, rear 54x35x8 mm*
- 1x clamping block POM 35x35x8mm*
- 1x nut M10*
- 2x screw M5x16, galvanized*
- 1x setscrew M10x20 with hexagon socket and flat point*

---

## 2018111-014 SPARE EBIKE/C SADDLE HOST



### Service Kit: saddle host eBike comfort

- 1x saddle host with motor 55x55x75*
- 1x straight pin, diam. 10x36*
- 2x screw M6x16*

---

## 2018111-144 SPARE EBIKE II /B SADDLE TUBE



### Service Kit: Assembled saddle tube w/o. motor for eBike II basic

- 1x saddle tube w/o motor for eBike II basic*
- 1x plate with threaded bushing, 34x35x 8 mm*
- 1x clamping sheet galvanized*
- 1 x screw M6x20*
- 1x setscrew M5x16*
- 1x clamping lever M10x 40 for clamping of saddle/handlebar*
- 1 x compensating sheet 0,5 mm*
- 1x high-performance lubricant, white, approx. 5 g*

---

## 2018111-011 SPARE EBIKE/C SADDLE TUBE



### Service Kit: Saddle tube, complete with motor for eBike comfort

- 1x saddle guide tube with motor 55x55x2 for eBike comfort*
- 1x saddle tube with motor 50x50x3 for eBike comfort*
- 4x screw M8 x 20*
- 4x star washer 8.4x15x0.8*
- 1x high-performance lubricant, white, approx. 5 g*

---

## 2018111-145 SPARE EBIKE II /C SADDLE MOTOR



Service Kit: saddle motor eBike II comfort

*1x saddle motor eBike II, pre-assembled  
1x shoulder bolt M8x25  
1x washer U 8.4x16x1.6  
1x washer U 10.5x20x2  
1x nut M8, self-locking*

---

## 2018111-005 SPARE EBIKE BASE FOR SADDLE HEIGHT DSPLY



Service Kit: Base for saddle height display

*1x base for saddle height display  
2x screw M3x12*

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## 2018111-006 SPARE EBIKE WNDW FOR SADDLE HEIGHT DSPLY



Window for saddle height display

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## 2018111-146 SPARE EBIKE II /C CABLE LRE MAE



Patch cable (1 m) connecting PCB LRE and PCB MAE

---

## 2018111-020 SPARE EBIKE STRAIN RELIEF SET



### Service Kit: Strain relief, kit

*3x cable strain relief, size 1, black, 4.5 - 5.7 mm  
1x cable strain relief, size 3, black, 6.5 - 7.7 mm  
4x screw M5x18 Li Kr*

---

## 2018111-019 SPARE EBIKE WHEEL SET



### Service Kit: Plastic wheels, kit

*2x plastic wheel diam. 80 mm with slot  
2x spring washer w/o. cap diam. 12x28 mm, galvanized, white  
2x cap for plastic wheels x lock washer diam. 9 mm*

---

## 2018111-021 SPARE EBIKE LEG LEVELLERS



### Service Kit: Levelling device, kit

*2x levelling device M10x30*

---

## 2018111-024 SPARE EBIKE BELLOW SET



### Service Kit: Bellows kit

*1x bellows handlebar, grey, for eBike  
1x bellows saddle, grey, for eBike*

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**2018111-022 SPARE EBIKE SADDLE STANDARD**



Bicycle saddle, standard

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**2018111-148 SPARE EBIKE II /B CLMPG LEVER/PLATE SET**



Service Kit: Plate with threaded bushing and clamping lever, incl. grease

- 1x threaded plate 34x35x8 mm*
- 1x clamping sheet 30x26x5 mm*
- 1x clamping lever M10x 40*
- 1x screw M6x20*
- 1x screw M5x16*
- 1x high-performance lubricant, white, approx. 5 g*

---

**2018111-026 SPARE EBIKE HANDLEBAR 500MM**



Handlebar with clamping opening, width 500 mm

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**2018111-025 SPARE EBIKE ADAPTER TERMINAL**



Service Kit: Control terminal adapter for eBike

- 1x control terminal adapter, 2 parts*
- 2x star washer Z 8.4x15x0.8*
- 2x screw M8x35*
- 1x clamping lever M8x30 for clamping of handlebar*
- 2x screw M6x25 cyl., slot*
- 2x screw M4x10*



---

**2018111-301 SPARE EBIKE II III CRANK/PEDAL SET R/L**



Pedal set, left and right, cranks and pedals

- 1x crank, left, square, 170 mm*
- 1x crank, right, square, 170 mm*
- 1x pedal, E 10, left and right, with rubber strap*
- 2x combi-slotted screw M8x1x18*
- 2x lock washer*
- 2x cap for crank thread*

---

**2018111-302 SPARE EBIKE II III PEDAL SET R/L LARGE**



Pedal set

- 1x pedal, E 10, left and right, with rubber strap*

---

**2018111-029 SPARE EBIKE SCREW SET FOR CRANKS**



Service Kit: screw set for pedal kit

- 2x combi-slotted screw M8x1x18*
- 2x lock washer*
- 2x cap for crank thread*

---

**2018111-149 SPARE EBIKE II DRIVE UNIT**



Service Kit: drive unit, new, for eBike II

- 1x drive unit eBike II, assembled*
- 6x screw M8x20*
- 6x star washer 8.4x15x0.8*

---

## 2018111-150 SPARE EBIKE II DRIVE UNIT EXCHANGE



Service Kit: drive unit, replacement, for eBike II L/EL

*1x drive unit eBike II, replacement, assembled  
6x screw M8x20  
6x star washer 8.4x15x0.8*

---

## 2018111-032 SPARE EBIKE STRAIN GAUGE



Service Kit: Strain gauge, kit

*1x strain gauge, pre-assembled for drive unit eBike  
1x clamping plate  
2x star washer F3.2  
2x screw M3x10  
1x micro rope, short, diam. 0.81 mm 7x7, length 88.7 mm, for eBike*

---

## 2018111-033 SPARE EBIKE RETURN SPRING



Service Kit: return spring with micro rope

*1x return spring with micro rope, diam. 0.6 mm 1x19, length 125 mm  
1x clamping plate  
2x star washer F3.2  
2x screw M3x8*

---

## 2018111-152 SPARE EBIKE II POWER SUPPLY



Service Kit: power supply module for eBike II, kit

*1x power supply 24V, 2.5A, 60VA, 50/60 Hz, preassembled*

---

## 2018111-226 SPARE EBIKE II POWER SWITCH



Service Kit: power switch with paneling for eBike II, kit

*1x power switch, pre-assembled, for eBike II  
1x cable connecting the power supply to the PCB LRE  
1x cable tie*

---

## 2017911-140 POWER CORD C EURO EBIKE II III



Power cord, black, length 2.5 m, German connector

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## 2018111-155 SPARE EBIKE II /B PCB ZME



PCB ZME kit for eBike II basic

*1x ZME P module, pre-assembled  
4x screw M3x8  
4x plastic washer 3,2x7x0,5*

---

## 2018111-157 SPARE EBIKE II PCB LRE



PCB LRE kit for eBike II

*1x PCB LRE  
3x screw M3x6  
3x washer 3,2x6*

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**2018111-158 SPARE EBIKE II PCB BKE**



PCB BKE kit for eBike II

*1x PCB BKE*

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**2018111-147 SPARE EBIKE II /C PCB MAE**



PCB MAE kit for eBike II comfort

*1x PCB MAE*

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**2018111-160 SPARE EBIKE II /C PCB BDE**



PCB BDE kit for eBike II (with bloodpressure)

*1x PCB BDE*

---

**2018111-161 SPARE EBIKE II BP PUMP MODULE**



Service Kit: blood-pressure module (pump unit) for eBike II

*1x blood-pressure pump  
1x input filter unit  
2x sound absorber  
1x check valve*

---

**2018111-209 SPARE EBIKE II BASIC COMFORT BP MODULE**



Service Kit: blood-pressure module eBike II Basic Comfort

*1x BP module, assembled  
incl. PCB*

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**2018111-162 SPARE EBIKE II TRMNL PC NEW**



*1x control terminal eBike II PC, new, standard (= w/o. BP), GE  
2x screw M4x10, combi-slotted*

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**2018111-163 SPARE EBIKE II TRMNL PC W BP NEW**



*1x control terminal eBike II PC, new, with BP, GE  
2x screw M4x10, combi-slotted*

---

**2018111-164 SPARE EBIKE II TRMNL PC EXCHANGE**



*1x control terminal eBike II PC, replacement, standard (= w/o. BP), GE  
2x screw M4x10, combi-slotted*

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**2018111-165 SPARE EBIKE II TRMNL PC W BP EXCHANGE**



*1x control terminal eBike II PC, replacement, with BP module, GE  
2x screw M4x10, combi-slotted*

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**2018111-166 SPARE EBIKE II TRMNL PC HOUSING TOP**

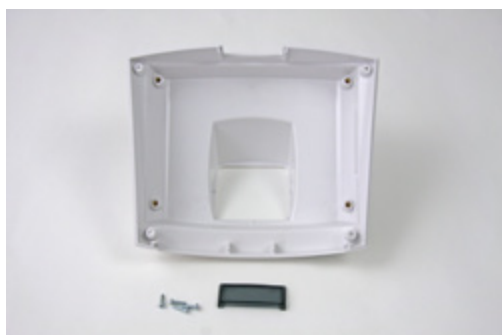


Service Kit: control terminal housing PC eBike II, top shell

*1x top shell for control terminal PC eBike II  
1x membrane keypad PC with small display (GE version)  
4x screw M3x12*

---

**2018111-172 SPARE EBIKE II TRMNL PC HOUSING BOTTOM**



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**2018111-173 SPARE EBIKE II TRMNL PANEL W BP**



*1x connector panel for control terminal eBike II with BP  
1x jack bushing 2.5 mm for connecting cuff  
1x cable panel to microphone cable  
1x tube coupling control terminal eBike II  
1x tube 3x2 mm, 285 mm length*

---

**2018111-054 SPARE EBIKE TERMINAL PANEL W/O BP**



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**2018111-056 SPARE EBIKE SCREW SET****Service Kit: screw set, kit**

4x screw M3x8 cyl.  
2x screw M3x8, Philips  
2x screw M3x12  
2x screw M3x14  
4x screw D 3.5x9.5  
4x screw M4x8  
6x screw M4x10, combi-slotted  
16x screw M4x12 cyl.

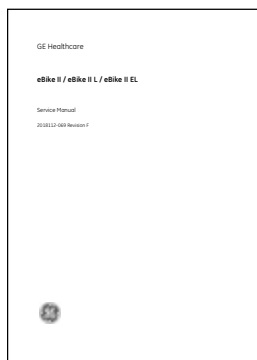
4x screw M4x30 cyl.  
2x screw M5x16  
4x screw M5x18, Philips  
2x screw M6x16  
2x screw M6x25  
6x screw M8x20 cyl.  
2x screw M8x35 cyl.  
1x shoulder bolt 10, M8x25  
1x knurled screw M3x8  
5x washer F 3.2x6x0.4  
12x washer U 4.3x9x0.8  
10x washer Z 4.3x8x0.5  
14x washer Z 8.4x15x0.8  
1x washer U 8.4x16x1.6  
1x washer U 10.5x20x2  
1x hex nut M3  
1x hex nut M4  
2x hex nut M4, self-locking  
1x nut M8, self-locking  
4x nut M10  
2x setscrew M5x16  
1x setscrew M10x20  
1x straight pin D 10m6x36  
1x spacer pin M3 12 mm  
1x spacer pin M3 28 mm  
4x stand-off 12.7 mm  
1x fixture for power cord  
1x cable bushing black  
1x threaded rod M4 325 mm

---

**2018111-174 SPARE EBIKE II CABLE SET****Service Kit: patch cable set, kit**

1x patch cable 0,5 m  
1x patch cable 1,0 m  
1x patch cable 1,5 m

## Servicing Instructions System eBike II, English





**2017911-010 SPLY EBIKE CUFF ADULT STD TUBE 130CM**



BP cuff, adults, 130 cm tubing

**2017911-012 SPLY EBIKE CUFF ADULT LARGE TUBE 130CM**



BP cuff, adults, long version, 130 cm tubing

**2017911-014 SPLY EBIKE CUFFADULT SMALL TUBE 130CM**



BP cuff, adults, small version, 130 cm tubing

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2017911-015 SPLY EBIKE SADDLE MOUNT INFANT



saddle mount for children's saddle, eBike basic/comfort

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2017911-016 SPLY EBIKE SADDLE INFANT



children's saddle, black

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2017911-017 SPLY EBIKE SADDLE SPORT



racing saddle, black

---

2017911-018 SPLY EBIKE SADDLE MOUNT HOR ADJUSTABLE



saddle fixture, horizontally adjustable

## 2018111-227 SPARE EBIKE CRANK SET ADJUSTABLE



## Adjustable cranks for eBike

2 pc. combi screw M8 x 1 x 18, SW 14 mm

2 pc. ribbed disk

2 pc. terminal cap for pedal cranks

1 pc. Allan key, black, width 5 mm (for adjustment of crank length)

## 2017911-130 SPLY EBIKE II III USB DRIVER CD



2017911-131	SPLY EBIKE II USB CABLE 5M
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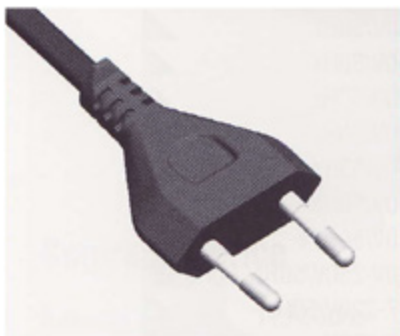


## 2017911-132 SPLY EBIKE II COM MODULE



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2017911-140 POWER CORD C EURO EBIKE II III



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2017911-141 SPLY EBIKE II PWR CORD G2 UK



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2017911-142 SPLY EBIKE II PWR CORD A US



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2017911-143 SPLY EBIKE II PWR CORD AC CHINA



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2017911-144 SPLY EBIKE II PWR CORD M2 SOUTH AFRICA



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2017911-145 SPLY EBIKE II PWR CORD I2 AUSTRALIA



**2018111-135 SPARE EBIKE L&EL CALIBRATION WEIGHT 8KG**



8 kg calibration weight, incl. Hook

**2005737-001 TOOL PEDAL PULLER VARIOBIKE 500**



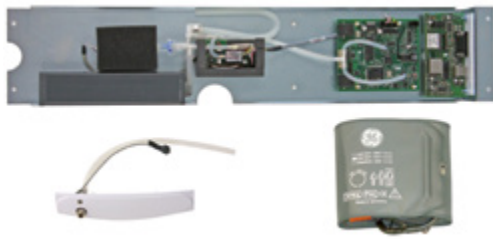
Pedal puller

**2018111-143 ERGOMETER EBIKE LIFT-UP SERVICE TOOL**



Service tool: Lift support for eBike

**2017911-133    ERGOMETER EBIKE II BP ADD-ON KIT**



Bloodpressure upgrade for use with eBike II

2018111-064 SPARE EBIKE L&EL SADDLE STANDARD



Service Kit: Saddle for eBike L/EL

*1x saddle for eBike L/EL  
1x socket pin 1x locking washer*

2018111-065 SPARE EBIKE L&EL BELLOWS FOR SADDLE



*1x bellows saddle, grey, for eBike*

2018111-066 SPARE EBIKE L&EL HOLDER FOR BELLOW SDLE



Service Kit: Holder for bellows, saddle

*1x retaining piece bellows saddle  
4x washer U 4.3  
4x screw 3.5 x 16*



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**2018111-067 SPARE EBIKE L&EL SADDLE MOTOR**



Service Kit: Saddle motor eBike L / EL, complete

- 1x saddle motor eBike L / EL*
- 1x stud screw SW19*
- 2x washer U13*
- 1x nut M12, self-locking*
- 1x clamp 2x screw*
- 1x foam rubber*
- 1 x cable tie, 280 mm*

---

**2018111-210 SPARE EBIKE L/EL SADDLE MOTOR BCU/SCU**



Service Kit: Saddle motor eBike L / EL, complete

- 1x saddle motor eBike L / EL*
- 1x stud screw SW19*
- 2x washer U13*
- 1x nut M12, self-locking*
- 1x clamp 2x screw*
- 1x foam rubber*
- 1 x cable tie, 280 mm*

---

**2018111-301 SPARE EBIKE II III CRANK/PEDAL SET R/L**



Service Kit: Pedal set, left and right, cranks and pedals

- 1x crank, left, square, 170 mm*
- 1x crank, right, square, 170 mm*
- 1x pedal, E 10, left and right, with rubber strap*
- 2x combi-slotted screw M8x1x18*
- 2x lock washer*
- 2x end cap for crank*

---

**2018111-302 SPARE EBIKE II III PEDAL SET R/L LARGE**



Service Kit: Pedal set

- 1x pedal, E 10, left, with rubber strap*
- 1x pedal, home trainer, right, with Velcro strap*

---

## 2018111-029 SPARE EBIKE SCREW SET FOR CRANKS



Service Kit: screw set for pedal kit

*2x combi-slotted screw M8x1x18  
2x lock washer  
2x cap for crank thread*

---

## 2018111-175 SPARE EBIKE II L STRAP PEDAL SHOE R/L



Service Kit: strap for pedal shoe

*2x Strap 450 mm, for pedal shoe with plastic clip  
2x grub screw  
8x setscrew M3x5*

---

## 2018111-192 SPARE EBIKE II L/EL DRIVE UNIT



Service Kit: drive unit, new, for eBike II

*1x drive unit eBike II, assembled  
6x screw M8x20  
6x star washer 8.4x15x0.8*

---

## 2018111-193 SPARE EBIKE II L/EL DRIVE UNIT EXCHANGE



Service Kit: drive unit, replacement, for eBike II L/EL

*1x drive unit eBike II, replacement, assembled  
6x screw M8x20  
6x star washer 8.4x15x0.8*

---

## 2018111-032 SPARE EBIKE STRAIN GAUGE



### Service Kit: Strain gauge, kit

- 1x strain gauge, pre-assembled for drive unit eBike*
- 1x clamping plate*
- 2x star washer F3.2*
- 2x screw M3x10*
- 1x micro rope, short, diam. 0.81 mm 7x7, length 88.7 mm, for eBike*

---

## 2018111-033 SPARE EBIKE RETURN SPRING



### Service Kit: return spring with micro rope

- 1x return spring with micro rope, diam. 0.6 mm 1x19, length 125 mm*
- 1x clamping plate*
- 2x star washer F3.2*
- 2x screw M3x8*

---

## 2018111-151 SPARE EBIKE CHAIN



### Service Kit: chain for drive unit

- 1x chain for drive unit*

---

## 2018111-155 SPARE EBIKE II /B PCB ZME

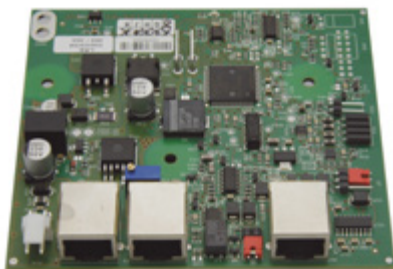


### PCB ZME kit for eBike II basic

- 1x ZME P module, pre-assembled*
- 4x screw M3x8*
- 4x plastic washer 3,2x7x0,5*

---

**2018111-176 SPARE EBIKE II L /EL PCB LRE**



PCB LRE kit for eBike II (L and EL only)

*1x PCB LRE  
3x screw M3x6  
3x washer 3,2x6*

---

**2018111-158 SPARE EBIKE II PCB BKE**

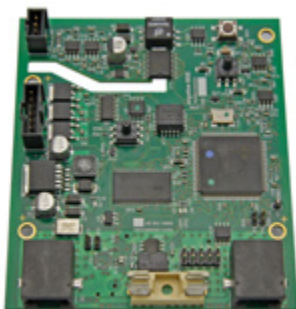


PCB BKE kit for eBike II

*1x PCB BKE*

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**2018111-160 SPARE EBIKE II PCB BDE**



PCB BDE kit for eBike II (with bloodpressure)

*1x PCB BDE*

---

**2018111-161 SPARE EBIKE II BP PUMP MODULE**



Service Kit: blood-pressure module (pump unit) for eBike II

*1x blood-pressure pump  
1x input filter unit  
2x sound absorber  
1x check valve*

---

**2018111-151 SPARE EBIKE CHAIN**



Service Kit: chain for drive unit

*1x chain for drive unit*

---

**2018111-162 SPARE EBIKE II TRMNL PC NEW**



*1x control terminal PCplus, new, standard (= w/o. BP), GE  
2x screw M4x10, combi-slotted*

---

**2018111-163 SPARE EBIKE II TRMNL PC W BP NEW**



*1x control terminal PCplus, new, with BP module, GE  
2x screw M4x10, combi-slotted*

---

**2018111-164 SPARE EBIKE II TRMNL PC EXCHANGE**



*1x control terminal PCplus, replacement, standard(= w/o. BP), GE  
2x screw M4x10, combi-slotted*

---

**2018111-165 SPARE EBIKE II TRMNL PC W BP EXCHANGE**



*1x control terminal PC plus, replacement, with BP module, GE  
2x screw M4x10, combi-slotted*

---

**2018111-166 SPARE EBIKE II TRMNL PC HOUSING TOP**



**Service Kit: control terminal housing PCplus eBike II, top shell**

*1x top shell for control terminal PC plus eBike II  
1x membrane keypad PCplus with large display (GE version)  
4x screw M3x12*

---

**2018111-172 SPARE EBIKE II TRMNL PC HOUSING BOTTOM**



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**2018111-173 SPARE EBIKE II TRMNL PANEL W BP**



*1x connector panel for control terminal eBike II with BP  
1x jack bushing 2.5 mm for connecting cuff  
1x cable panel to microphone cable  
1x tube coupling control terminal eBike II  
1x tube 3x2 mm, 285 mm length*

---

**2018111-054 SPARE EBIKE TERMINAL PANEL W/O BP**



---

**2018111-081 SPARE EBIKE L&EL BELLOW FOR TERMINAL**



**Service Kit: Control terminal bellows**

- 1x bellows, control terminal*
- 2x retaining piece bellows control terminal*
- 2x washer U4.3*
- 2x screw 3.5x16*

---

**2018111-202 SPARE EBIKE II L&EL HOLDER FOR TERMINAL**



**Service Kit: Terminal bracket**

- 2x retaining piece control terminal eBike II L/EL*
- 4x washer U4.3*
- 4x screw M4x12*
- 1x retaining piece control terminal eBike II L/EL*
- 2x spacer control terminal POM*
- 1x screw M6x60*
- 2x washer U6.4*
- 1x nut M6, self-locking*

---

**2018111-177 SPARE EBIKE II L&EL REVOLUTION DISPLAY**



**Service Kit: External speed indicator for eBike II L/EL**

- 1x external speed indicator, complete with goose neck and connection cable*
- 1x mounting material*

---

**2018111-178 SPARE EBIKE II L&EL TUBE EXT TRMNL**



Service Kit: Flex tubing for external terminal eBike II L/EL

*2,5m Flexa tube AD 19PG 13,5mm, assembled with  
2x screw connect PG 13,5mm  
2x mounting angle PG 13,5mm  
4x screw M5x16mm  
4m cable LRE to ext. Terminal  
1x RJ 45 connector*

---

**2018111-179 SPARE EBIKE II L&EL STND PANEL EXT TRMNL**



Service Kit: Foot for external control terminal eBike II L/EL

*1x foot, external, eBike II L/EL  
4x leg, grey  
2x screw M4x10*

---

**2018111-180 SPARE EBIKE II L&EL COVER WITH HANDHOLD**



Service Kit: Casing eBike II L / EL

*1x cover eBike II L EL  
2x cover plate L\_EL  
4x nut M4  
4x screw M4x10  
2x cable tie holder  
2x cable tie  
2x retaining ledge for cover L/EL  
8x screw M3x6*

---

**2018111-208 SPARE EBIKE II L&EL COVER WITH HANDHOLD US**



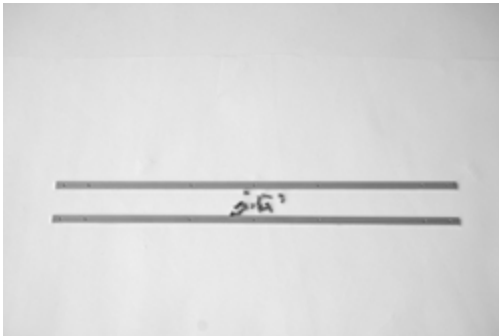
Service Kit: Casing eBike II L / EL US

*1x cover eBike II L EL US  
2x cover plate L\_EL  
4x nut M4  
4x screw M4x10  
2x cable tie holder  
2x cable tie  
2x retaining ledge for cover L/EL  
8x screw M3x6*



---

**2018111-181 SPARE EBIKE II L&EL RETAINING LEDGE**



Service Kit: retaining ledge eBike II L / EL

*2x retaining ledge for cover L/EL  
8x screw M3x6  
6x screw M3x12mm*

---

**2018111-182 SPARE EBIKE II L&EL CONNECTION BOX**



Service Kit: Connection box for eBike II L/EL

*1x connection box for eBike II L/EL preassembled  
6x screw M3x12  
2x screw M4x10  
2x nut M4  
3x washer 4,3x9  
3x lock washer 4,3x8  
1x screw M3X6  
1x plastic washer 3,2x7*

---

**2018111-113 SPARE EBIKE L&EL CASTOR SET**



Service Kit: Castor, locking

*4x castors, locking, diam. 50  
1x Allen key, size 8 5/16*

---

**2018111-114 SPARE EBIKE EL OUTRIGGER SUPPORT**



Service Kit: Outrigger left, complete for eBike EL

*1x outrigger eBike EL, fully assembled  
2x washer U10  
2x screw M10x40*

---

## 2018111-115 SPARE EBIKE EL TRANSPORTATION LOCK



Service Kit: Transportation lock for eBike EL

*1x transportation lock eBike EL with sticker „TOP“  
2x screw M10x30*

---

## 2018111-091 SPARE EBIKE L&EL GUIDE BAR SET



Service Kit: Guide rail

*1x guide rail 4x stand-off, diam. 14, length 12  
4x screw M6x30*

---

## 2018111-101 SPARE EBIKE L HOLDER FOR PAPER ROLL 60



Service Kit: Paper roll holder 60 cm for eBike

*1x paper dispenser for eBike L  
2x washer U4.3  
2x screw M4x12  
1x tissue roll, white*

---

## 2018111-102 SPARE EBIKE EL HOLDER FOR PAPER ROLL 50



Service Kit: Paper roll holder 50 cm for eBike EL

*1x paper dispenser for eBike EL  
2x washer U4.3  
2x screw M4x12  
1x tissue roll, white*

---

## 2018111-110 SPARE EBIKE L&EL HOLDER FOR LEG REST



Leg rest bracket

2x spacer sheets  
4x threaded disk 30x6  
4x washer U8.4  
4x screw M8x50 (eBike L only)  
4x screw M8x70 (eBike EL only)

---

## 2018111-111 SPARE EBIKE L FOOTBOARD SMALL RIGHT



Service Kit: Foot board, small, for eBike L/EL

1x foot board small 370x180x20  
4x screw 5x17  
(with eBike L: 1 each is used on the right and left)  
(with eBike EL: 1 is used on the left)  
4x washer U6.4

---

## 2018111-112 SPARE EBIKE EL FOOTBOARD LARGE RIGHT



Service Kit: Foot board, large, for eBike EL

1x foot board large 440x300x20  
4x washer U6.4  
4x screw M6x12

---

## 2018111-092 SPARE EBIKE L MOTOR CONTROLLER 240V



Service Kit: Motor controller magnetic 230 V for eBike L, dual-channel

1x motor controller magnetic 230V/50Hz, dual-channel  
4x washer 4.3  
4x nut M4

---

**2018111-093 SPARE EBIKE L MOTOR CONTROLLER 120V**



Service Kit: Motor controller magnetic 120 V for eBike L, dual-channel

*1x motor controller magnetic 120V/60Hz, dual-channel  
4x washer 4.3  
4x nut M4*

---

**2018111-094 SPARE EBIKE EL MOTOR CONTROLLER 240V**



Service Kit: Motor controller magnetic 230 V for eBike EL, three-channel

*1x motor controller magnetic 230V/50Hz, three-channel  
4x washer 4.3 4x screw M4x16*

---

**2018111-095 SPARE EBIKE EL MOTOR CONTROLLER 120V**



Service Kit: Motor controller magnetic 120 V for eBike EL, three-channel

*1x motor controller magnetic 120V/60Hz, three-channel  
4x washer U4.3  
4x screw M4x16*

---

**2018111-096 SPARE EBIKE L REMOTE CONTROL**



Hand switch for eBike L, dual-channel

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## 2018111-097 SPARE EBIKE EL REMOTE CONTROL



Hand switch for eBike EL, three-channel with memory

---

## 2018111-098 SPARE EBIKE L MOTOR PITCH ANGLE



Service Kit: Motor longitudinal tilt for eBike L

*1x motor, longitudinal tilt (motor max. 30°) for eBike L  
1x grommet black  
2x stud screw SW19  
4x washer U13  
4x ring Hostaform D. 30  
2x nut M12, self-locking*

---

## 2018111-099 SPARE EBIKE EL MOTOR PITCH ANGLE



Service Kit: Motor longitudinal tilt for eBike EL

*1x motor, longitudinal tilt (motor max. 10°) for eBike EL  
2x stud screw SW19  
2x washer U24  
2x washer U13  
4x ring Hostaform D. 30  
2x nut M12, self-locking  
3x cable tie 95 mm*

---

## 2018111-100 SPARE EBIKE EL MOTOR TRANSVERSE ANGLE



Service Kit: Motor lateral tilt for eBike EL

*1x motor, lateral tilt (motor max. 10°) for eBike EL  
2x stud screw SW19  
2x washer U24  
2x washer U13  
4x ring Hostaform D. 30  
2x nut M12, self-locking  
3x cable tie 95 mm*

---

## 2018111-211 SPARE EBIKE L MOTOR CONTROLLER 240V BCU



Service Kit: Motor controller magnetic 230 V for eBike L, dual-channel

*1x motor controller magnetic 230V/50Hz, dual-channel  
2x screw M5 x 10*

---

## 2018111-212 SPARE EBIKE L MOTOR CONTROLLER 120V BCU/SCU



Service Kit: Motor controller magnetic 120 V for eBike L, dual-channel

*1x motor controller magnetic 120V/60Hz, dual-channel  
2x screw M5 x 10*

---

## 2018111-213 SPARE EBIKE EL MOTOR CONTROLLER 240V SCU



Service Kit: Motor controller magnetic 230 V for eBike EL, three-channel

*1x motor controller magnetic 230V/50Hz, three-channel  
4x washer 4.34x screw M4x16*

---

## 2018111-214 SPARE EBIKE EL MOTOR CONTROLLER 120V SCU



Service Kit: Motor controller magnetic 120 V for eBike EL, three-channel

*1x motor controller magnetic 120V/60Hz, three-channel  
4x washer U4.3  
4x screw M4x16*

---

**2018111-215 SPARE EBIKE L REMOTE CONTROL BCU**



Hand switch for eBike L, dual-channel

---

**2018111-216 SPARE EBIKE EL REMOTE CONTROL SCU**



Hand switch for eBike EL, three-channel with memory

---

**2018111-217 SPARE EBIKE L MOTOR PITCH ANGLE BCU**



Service Kit: Motor longitudinal tilt for eBike L

- 1x motor, longitudinal tilt (motor max. 30°) for eBike L*
- 1x grommet black*
- 2x stud screw SW19*
- 4x washer U13*
- 4x ring Hostaform D. 30*
- 2x nut M12, self-locking*

---

**2018111-218 SPARE EBIKE EL MOTOR PITCH ANGLE SCU**



Service Kit: Motor longitudinal tilt for eBike EL

- 1x motor, longitudinal tilt (motor max. 10°) for eBike EL*
- 2x stud screw SW19*
- 2x washer U24*
- 2x washer U13*
- 4x ring Hostaform D. 30*
- 2x nut M12, self-locking*
- 3x cable tie 95 mm*

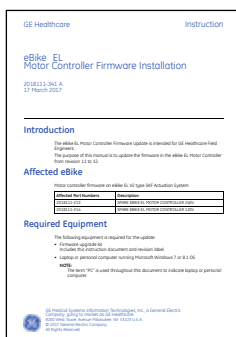
## 2018111-219 SPARE EBIKE EL MOTOR TRANSVERSE ANGLE SCU



### Service Kit: Motor I lateral tilt for eBike EL

1x motor, lateral tilt (motor max. 10°) for eBike EL  
2x stud screw SW19  
2x washer U24  
2x washer U13  
4x ring Hostaform D. 30  
2x nut M12, self-locking  
3x cable tie 95 mm

## 2018111-220 EBIKE EL MOTOR CONTROLLER FIRMWARE UPGRADE KIT



### Firmware Upgrade Kit: Motor Controller for eBike EL

*eBike EL motor controller firmware instruction installation*  
*Label eBike EL motor controller firmware version*

## 2018111-194 SPARE EBIKE II L&EL CLAMPING LEVER SET



### Service Kit: Clamping lever kit for eBike L/EL

1x clamping plate 30x8x34  
1x reinforcing angle 34.3x25x2  
1x star knob M10x15

## 2018111-104 SPARE EBIKE L&EL CLMPG LVR SET HANDGRIP



### Service Kit: Clamping lever kit for handgrip tube

1x clamping sleeve for handgrip tube, complete  
2x star washer 5.3  
1x screw M5x6  
1x Novo Grip clamping lever M10x15



---

**2018111-199 SPARE EBIKE II L&EL FIX TUBE W STAR HANDLE**



Service Kit: Fixation tube with star knob eBike II EL

*1x fixation tube for handgrip, complete  
1x star knob M8x 15*

---

**2018111-183 SPARE EBIKE II L&EL CONN RACK FOR CUFF**



Service Kit: Connection angle for cuff

*1x connection angle cuff  
1x tube coupling for connector panel  
2x washer Z4.3  
2x screw M4x12*

---

**2018111-184 SPARE EBIKE II L&EL INTRNL MIC CABLE**



Service Kit: Microphone cable, internal, incl. connections

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**2018111-185 SPARE EBIKE II L&EL INTERNAL TUBE SET**



Service Kit: tubing kit, complete, all types of tubing

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## 2018111-186 SPARE EBIKE II L&EL INTERNAL CABLE SET

Service Kit: patch cable kit, complete, all types of patch cables

*1x patch cable 0,25m  
1x patch cable 0,5m  
1x patch cable 1,0m  
1x patch cable 1,5m  
1x patch cable 5,0m  
2x RJ-45 connector  
1x patch cable LRE to external speed display*

---

## 2018111-159 SPARE EBIKE L&EL HANDGRIP



Service Kit: Handgrip

*1x handgrip*

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## 2018111-200 SPARE EBIKE II L&EL STAR HANDLE M8



Service Kit: Star knob eBike L / EL M8

*1x star knob M8x15*

---

## 2018111-201 SPARE EBIKE II L&EL STAR HANDLE M10

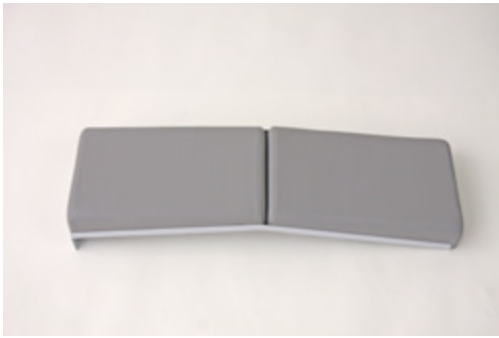


Service Kit: Star knob eBike L / EL M10

*1x star knob M10x15*

---

**2018111-116 SPARE EBIKE EL LEG REST RIGHT**



Service Kit: Leg rest, right, for eBike L / EL

*1x leg rest, right, complete with upholstery, grey, mounted*

---

**2018111-117 SPARE EBIKE EL LEG REST LEFT**



Service Kit: Leg rest, left, for eBike L/EL

*1x leg rest, left, complete with upholstery, grey, mounted*

---

**2018111-118 SPARE EBIKE L&EL HEAD CUSHION**



Service Kit: Head cushion eBike L/EL

*1x head cushion eBike L/EL, grey  
2x screw M6x30*

---

**2018111-119 SPARE EBIKE EL HOLDER FOR HEAD SUPPORT**



Service Kit: Holder for head rest, chromeplated

*1x support tubing head cushion  
1x Novogrip clamping lever M10 x 15  
1x reinforcing angle 34 x 25 x 2  
1x clamping board 30 x 8, length 34 mm  
2x screw M4 x 12 (for paper roll holder)  
2x washer U 4.3 x 12x 1 (for paper roll holder)  
1x high-performance lubricant, white, approx. 5 g*

---

## 2018111-120 SPARE EBIKE L BRACKET FOR HEAD CUSHION



Service Kit: Bracket for head cushion (eBike L only)

*1x bracket for head cushion eBike L  
2x clamp with star knob M8x20*

---

## 2018111-122 SPARE EBIKE EL ARMPIT CUSHION



Service Kit: Armpit cushion, grey (eBike EL only)

*1x armpit cushion, grey (eBike EL only)  
1x screw M8x25*

---

## 2018111-195 SPARE EBIKE II EL GUIDE TUBE ARMPIT SUPPORT



Service Kit: Guide tube armpit support (eBike II EL only)

*1x guide tube armpit support  
2x star knob M10x15  
2x reinforcing angles 34x25x2  
2x clamping board 30 x 8, length 34 mm  
1x retaining screw M8x20  
1x high-performance lubricant, white, approx. 5 g*

---

## 2018111-196 SPARE EBIKE II EL FIX TUBE ARMPIT



Service Kit: Support tubing armpit (eBike II EL only)

*1x support tubing for armpit  
1x star knob M10x15  
1x reinforcing angle 34x25x2  
1x clamping board 30 x 8, length 34 mm  
1x high-performance lubricant, white, approx. 5 g*

---

## 2018111-125 SPARE EBIKE EL HIP SUPPORT COMPLETE



Service Kit: Hip cushion, grey (eBike EL only)

*1x hip cushion, grey, mounted on support  
1x star knob*

---

## 2018111-126 SPARE EBIKE EL HIP CUSHION SINGLE



Service Kit: Hip cushion, grey (eBike EL only)

*1x hip cushion, grey  
2x screw*

---

## 2018111-197 SPARE EBIKE II EL GUIDE TUBE HIP SUPPORT



Service Kit: Guide tube hip cushion (eBike II EL only)

*1x guide tube hip support  
2x clamping plate 30x8, length 34  
2x reinforcing angle 34x25x2  
2x star knob M10x15  
1x retaining screw M8x20*

---

## 2018111-198 SPARE EBIKE II EL FIX TUBE HIP SUPPORT



Service Kit: support tubing hip support (eBike II EL only)

*1x support tubing hip support  
1x star knob M10 x 15  
1x reinforcing angle 34 x 25 x 2  
1x clamping board 30 x 8, length 34 mm  
1x high-performance lubricant, white, approx. 5 g 1x star knob M8x20*

---

## 2018111-129 SPARE EBIKE L COUCH CUSHION



Service Kit: Upholstery couch surface, grey, for eBike L

*1x upholstery couch cushion, grey, for eBike L  
6x screw M5x60*

---

## 2018111-130 SPARE EBIKE EL COUCH CUSHION



Service Kit: Upholstery couch surface, grey, for eBike EL

*1x upholstery couch cushion, grey, for eBike EL  
5x screw M5x60*

---

## 2018111-131 SPARE EBIKE EL DROP SECTION COMPLETE



Service Kit: Drop section, complete with holder (eBike EL only)

*1x drop section, complete with holder (eBike EL only)  
1x retaining screw M8x20*

---

## 2018111-132 SPARE EBIKE EL DROP CUSHION SINGLE



Service Kit: Drop cushion, grey (eBike EL only)

*1x drop cushion, grey  
4x screw M6x50*

---

## 2018111-133 SPARE EBIKE EL LOCK FOR DROP SECTION

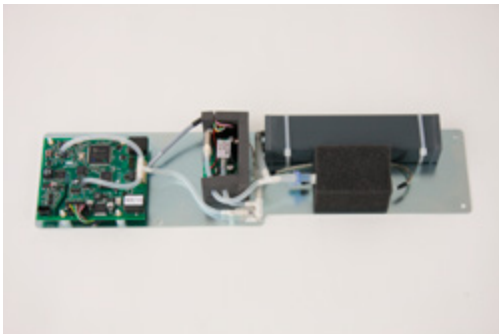


### Service Kit: Lock for drop section

*1x lock for drop section  
1x installation material kit*

---

## 2018111-187 SPARE EBIKE II L&EL BP MODULE

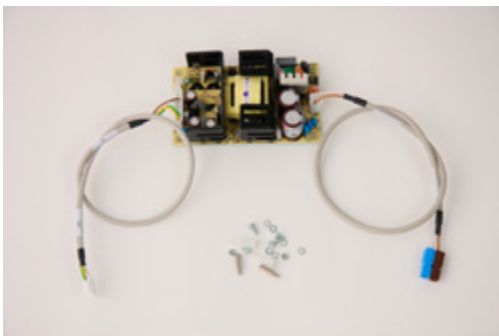


### Service Kit: 1xbloodpressure module

*1x BP module, assembled  
incl. PCB BDE*

---

## 2018111-188 SPARE EBIKE II L&EL POWER SUPPLY



### Service Kit: power supply module for eBike II L / EL

*1x power supply RPS 50/60 Hz  
1x interface cable connecting LRE to power supply RPS  
1x cable from power supply to modular connector  
2x spacer 12,7 mm  
2x screw 3,5x9,5  
2x spacer M 3 12 mm  
4x washer 3,2x6 mm  
2x washer 3,2x7 mm  
2x screw M3x6  
2x nut M3*

---

## 2018111-189 SPARE EBIKE II L&EL MAINS CONNECTOR SET



### Service Kit: Mains connection kit 120V / 230 V

*1x cold-appliance connector, KEA socket  
1x cold-appliance connector, KEA drawer for 2 fuses  
1x cable KEA socket to modular connector  
2x screw M3x6*

---

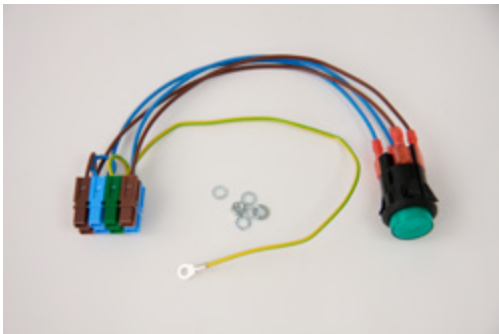
## 2018111-075 SPARE EBIKE CABLE MAINS EURO 5M



Power cord, grey, length 5 m, German connector

---

## 2018111-190 SPARE EBIKE II EL POWER SWITCH

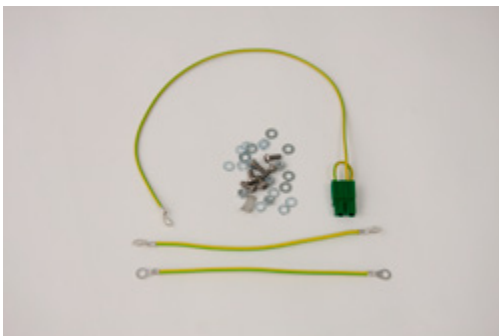


Service Kit: power switch, complete, for eBike II L/EL

*1x switch ON/OFF, round, illuminated  
5 cables (different colours)  
mounting material*

---

## 2018111-191 SPARE EBIKE II L&EL EARTH CABLE SET



Service Kit: Earth cable, kit for eBike II L/EL

*2x earth cable 150 mm  
3x screw M4x10 torx  
5x washer 2,3x9  
10x star washer 4,3x8  
1x earth cable between modular connector and chassis  
4x nut M4  
1x connector 6.3 mm*

---

## 2018112-069 MNL SVCE EBIKE II



Servicing Instructions eBike II English



2017911-010 SPLY EBIKE CUFF ADULT STD TUBE 130CM



BP cuff, adults, 130 cm tubing

2017911-012 SPLY EBIKE CUFF ADULT LARGE TUBE 130CM



BP cuff, adults, long version, 130 cm tubing

2017911-014 SPLY EBIKE CUFFADULT SMALL TUBE 130CM



BP cuff, adults, small version, 130 cm tubing

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#### 2017911-037 SPLY EBIKE L&EL ARM REST W HOLDER



Arm rest with holder, ebike L/EL

- 1x upholstery arm rest L/EL, grey*
- 1x holder OR rail L/EL*
- 1x Novo Grip clamping lever M8x25*
- 1x star knob M8x20*

---

#### 2017911-038 SPLY EBIKE L&EL ARM REST SWVL W HOLDER



Swiveling arm rest with holder, ebike L/EL

- 1x arm rest support L/EL*
- 1x holder for arm rest, chromeplated*
- 1x Novo Grip clamping lever M10x20*
- 1x holder OR rail L/EL*
- 2x Novo Grip clamping lever M8x25*

---

#### 2017911-039 SPLY EBIKE L&EL HANDGRIP W HOLDER



Handgrip with holder, ebike L/EL

- 1x handgrip with PVC holder, black*
- 1x holder OR rail L/EL*
- 1x Novo Grip clamping lever M8x25*
- 1x star knob M8x20*

---

#### 2017911-040 SPLY EBIKE L&EL LEG REST SET R/ L



Leg rest set, right and left, for ebike L/EL

- 1x leg rest left, incl. all accessories*
- 1x leg rest right, incl. all accessories*
- 1x retaining clamp for leg rests with 2 screws M4x12*
- 2x spacer sheets*
- 4x threaded disk 30x6*
- 4x washer U8.4*
- 4x screw M8x50 (required for eBike L only)*
- 4x screw M8x70 (required for eBike EL only)*

---

**2018111-175 SPARE EBIKE II L STRAP PEDAL SHOE R/L**



Service Kit: strap for pedal shoe

*2x Strap 450 mm, for pedal shoe with plastic clip  
2x grub screw  
8x setscrew M3x5*

---

**2018111-222 SPLY EBIKE L & EL PEDAL SHOE JD-30A Set**



Pedal shoe JD-30A set

*2x combi-slotted screw M8x1x18  
2x lock washer  
2x end cap*

---

**2018111-223 SPARE EBIKE II MOUNTING STRAP FOR PEDAL SHOE JD-30A**



Mounting strap for pedal shoe JD-30A 2x strap including screws

*8x screw M5x16  
8x hexagon nut M5*

---

**2018111-224 SPARE EBIKE II MOUNTING STRAP WITH PLUG FOR PEDAL SHOE JD-30A**



Mounting strap for pedal shoe JD-30A 2x strap with plug including screws

*8x screw M5x16  
8x hexagon nut M5*

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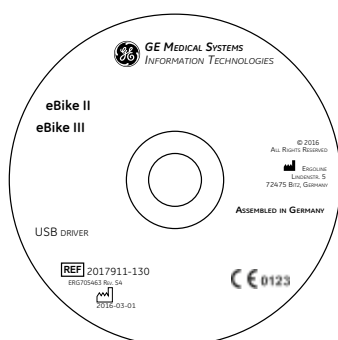
## 2017911-042 SPLY EBIKE II L&EL INFUSION HOLDER



Infusion holder, incl. fastening device

*1x infusion stand for rail eBike L/EL  
1x Novo Grip clamping lever  
1x star knob*

## 2017911-130 SPLY EBIKE II III USB DRIVER CD



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## 2017911-131 SPLY EBIKE II USB CABLE 5M



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## 2017911-132 SPLY EBIKE II COM MODULE



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2017911-150 SPLY EBIKE L&EL PWR CORD F EURO



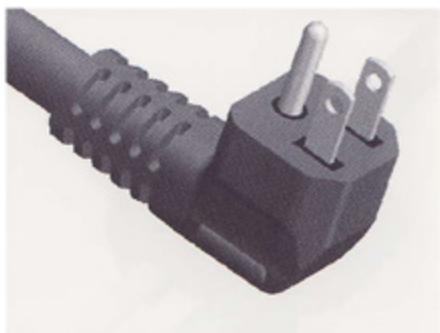
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2017911-151 SPLY EBIKE L&EL PWR CORD G3 UK



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2017911-152 SPLY EBIKE L&EL PWR CORD B US



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2017911-153 SPLY EBIKE L&EL PWR CORD I3C CHINA



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2017911-154 SPLY EBIKE L&EL PWR CORD M3 STH AFRICA



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2017911-155 SPLY EBIKE L&EL PWR CORD I3 AUSTRALIA



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2017911-156 SPLY EBIKE L&EL PWR CORD D INDIA



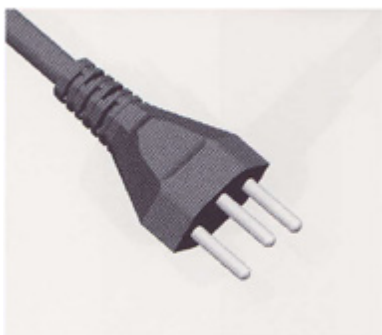
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2017911-157 SPLY EBIKE L&EL PWR CORD H ISRAEL



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2017911-158 SPLY EBIKE L&EL PWR CORD J SWITZERLAND



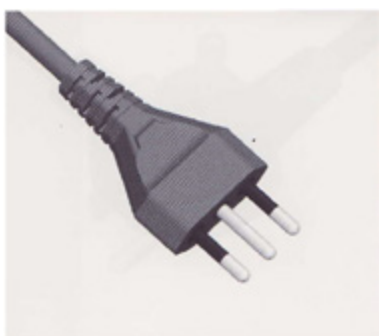
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2017911-159 SPLY EBIKE L&EL PWR CORD K DENMARK



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2017911-160 SPLY EBIKE L&EL PWR CORD L ITALY



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2018111-225 SPARE EBIKE II L&EL FUSE SET



Fuse set

2x T 2,0 AH, 250 V  
2x T 3,0 AH, 250 V  
2x T 4,0 AH, 250 V  
2x T 5,0 AH, 250 V  
2x T 8,0 AH, 250 V

2018111-134 SPARE EBIKE L&EL SUPPORT FOR CALIBRATION



Service Kit: Device Support for Calibration

*1 x calibration stay  
2 x calibration support*

2018111-135 SPARE EBIKE L&EL CALIBRATION WEIGHT 8KG



Service Kit: Calibration Weight

*1 x weight (8 kg)  
1 x hook*

2018111-203 SPARE EBIKE L&EL MOTOR CAB TOOL



Service Kit: Tool for disassembly of motor cables

*1 x special tool*



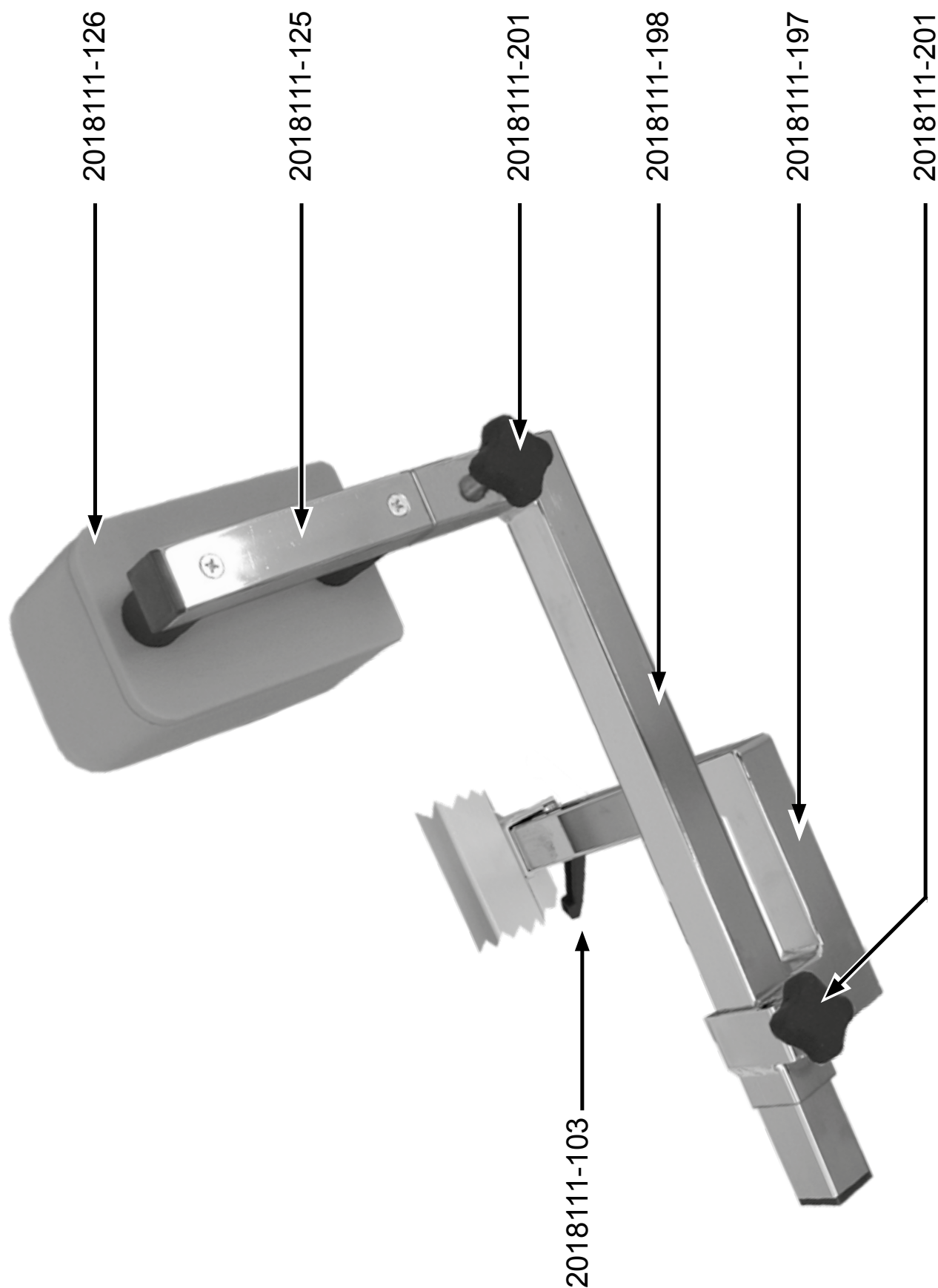
2017911-134    ERGOMETER EBIKE II L&EL BP ADD-ON KIT



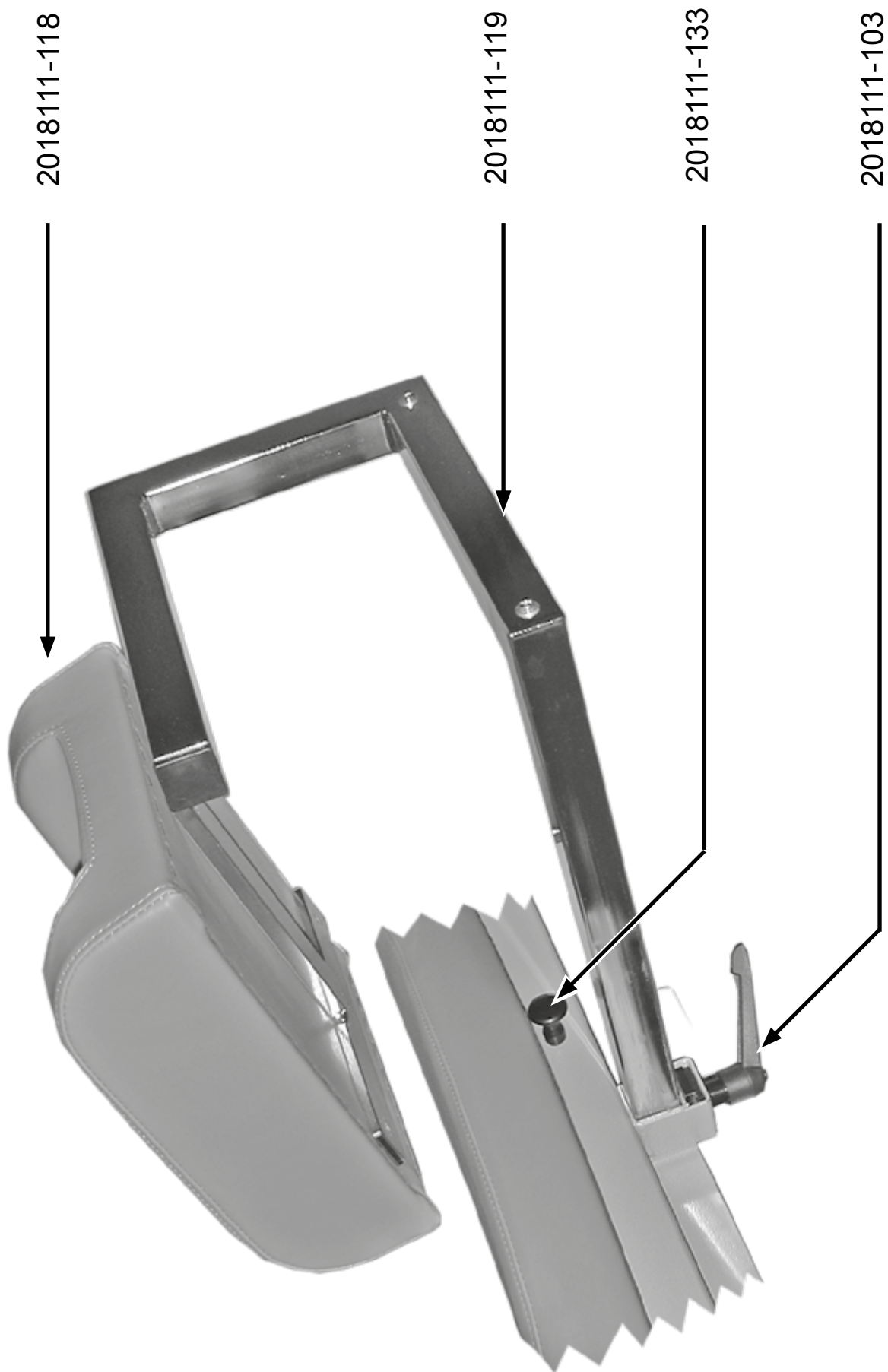
Service Kit: Retrofit Kit Blood Pressure Module for eBike II L / EL

*1x bloodpressure module eBike II L/EL, assembled  
4x spacer M4x5  
4x washer 4,3x12  
4x nut M4  
6x screw M3x12mm  
1x patch cable 0,25m  
2x mounting anglel BDE eBike II L/EL  
2x tube connector Rectus*

*4x screw M4x12  
2x tube 3x2 550mm  
5x aluminium clips  
1x BP cuff, standard  
1x Addendum for BP Module retrofit kit*







## CLEANING, MAINTENANCE, DISPOSAL

### GENERAL CLEANING

Wipe the device surface down with a cloth moistened with soap water or a disinfectant.  
The cloth should not be dripping wet; do not allow liquids to enter the device.

### CLEANING THE SADDLE

Clean the saddle with a soft and dry or moist cloth (**Disinfectants used should not contain any alcohol**).

### CLEANING THE UPHOLSTERY (E.G. COUCH ERGOMETER)

Wipe the upholstery down with a soft cloth moistened with soap water.  
The cloth should only be moist and not dripping wet.  
If the cleaning agents and disinfectants used are caustic or contain alcohol, they may damage and/or discolor the upholstery.

### DISINFECTION

Only the following disinfectants are approved for disinfection:

#### Schülke & Mayr GmbH:

- Antifect® AF, FF, FD 10
- Terralin® (0,5 %)
- Quartamon Med®

#### B. Braun Melsungen AG:

- Hexaquant plus® (0,5 % / 5,0 %)
- Hexaquant S® (1,5 % / 5,0 %)
- Meliseptol®
- Melsept SF® (0,5 % / 5,0 %)

#### ECOLAB:

- Incidin Foam®

#### Warning

- Shock Hazard •

- *Disconnect the device from the power line before cleaning.*

- Equipment Damage •

- *Do not allow liquids to enter the equipment.  
Devices into which liquids have entered must be immediately cleaned and checked by a service technician, before they can be reused.*
- *Do not use acids, alkaline solutions (household cleaners) or caustic disinfectants.*

#### Note

- *The use of cleaning agents and disinfectants containing alcohol is not permitted!*

#### Hint

- *Strictly observe the manufacturer's instructions for use.*

## CLEANING THE BLOOD PRESSURE CUFF

### REMOVING THE MICROPHONE

Pull the end of the cuff through the metal clasp and fold out the cuff.  
Pull on the short Velcro tab to open the microphone pocket and carefully remove the microphone.

### CLEANING

Clean the cuff and tubing with a moist cloth.  
You can use a dishwashing liquid or mild soap water  
**(no cleaning agents containing alcohol).**

Clean the microphone with a cloth moistened with alcohol or soap water.  
Allow the microphone to dry before reinserting it in its pocket.

### DISINFECTION

For disinfection, spray a disinfectant sparingly on the cuff, the tubing and the microphone.  
After the contact time indicated by the manufacturer, wipe all components dry.

Only the following disinfectants are approved for disinfection:

#### Schülke & Mayr GmbH:

- Antifect® AF, FF, FD 10
- Terralin® (0,5 %)
- Quartamon Med®

#### B. Braun Melsungen AG:

- Hexaquart plus® (0,5 % / 5,0 %)
- Hexaquart S® (1,5 % / 5,0 %)
- Meliseptol®
- Melsept SF® (0,5 % / 5,0 %)

#### ECOLAB:

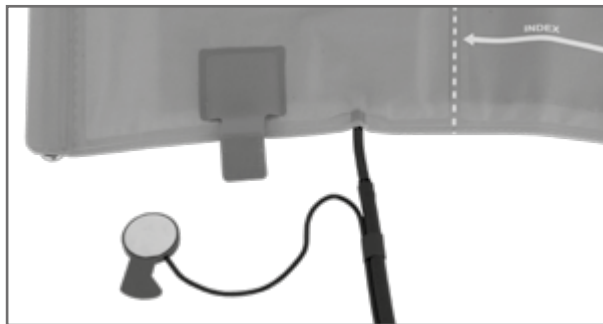
- Incidin Foam®

### INSERTING THE MICROPHONE

Slip the microphone into the pocket, the metal side facing the arm.

Guide the microphone cable out of the pocket and to the right of the Velcro tab. Then close the tab.

Fold the end of the cuff over and introduce it into the metal clasp.



REMOVING THE MICROPHONE

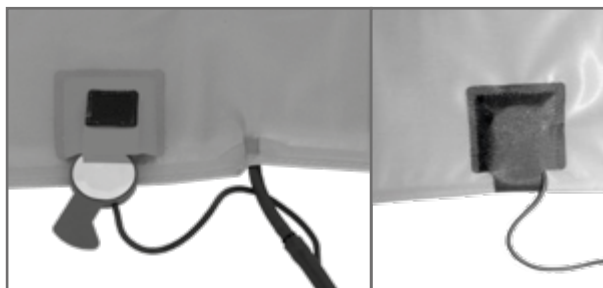
#### Warning

##### • Equipment Damage •

- *Cuff, microphone and tubing may not under any circumstances:*
  - be immersed in liquids
  - be cleaned in a water bath or in running water.

#### Hint

- *Strictly observe the manufacturer's instructions for use.*



INSERTING THE MICROPHONE

## MAINTENANCE

### CHECKS BEFORE EACH USE

Before each use, visually inspect the device for signs of damage.

If you detect damages or impaired functions which may result in a hazard to the patient or the operator, the device must be repaired before it can be used again.

### TECHNICAL SAFETY INSPECTIONS AND TECHNICAL INSPECTIONS OF THE MEASURING SYSTEM

The technical safety inspections and the inspections of the measuring system must be completed every two years according to the rules of the art by a Service Engineer authorized by ergoline.

Similarly, the automatic sphygmomanometer in the control terminal must be checked and calibrated by an authorized specialist every two years to fulfill legal requirements.

The date of the next inspection is indicated on the inspection sticker attached next to the type plate on the ergometer.

### DISPOSAL

Do not dispose the product described in this Operator Manual as unsorted municipal waste. It must be collected separately.



Please contact the authorized manufacturer ergoline GmbH to obtain information concerning the decommissioning of your equipment. There is no proper waste management, proper disposal is documented by ergoline GmbH. Consult operating instructions.

## TECHNICAL SPECIFICATIONS eBIKE II BASIC / COMFORT

Model	modular ergometer system eBike basic / comfort
Operating Mode	continuous operation
Power	100 – 240 V / 50 – 60 Hz (100 VA max.)  <b>specification power cord US:</b> SJT 2xAWG16 125 V / 10 A „hospital“ or „hospital grade“  <b>specification internal backup battery:</b> IEC: CR 2032 / 3 V 230 mAh
Braking Principle	computer-controlled eddy current brake with torque measurement; speed independent to DIN VDE 0750-0238
Load Range	6 – 999 watts, speed independent (see diagrams)
Speed Range	30 to 130 RPM
Deviation of Measured Load	- according to DIN VDE 0750-0238: 25 ... 60 watt: ± 3 watt 60 ... 400 watt: ± 5 %  - according to manufacturer: 6 ... 60 watt: ± 3 watt 60 ... 999 watt: ± 5 %
Load Increments	user programmable
Internal Protocols	<ul style="list-style-type: none"><li>• 5 fixed incremental exercise test protocols (e.g. WHO)</li><li>• 10 user-programmable protocols</li><li>• manual load control</li></ul>
Permitted Patient Weight	160 kg (352 lbs) max.
Saddle Height Adjustment	continuous, for patients between 120 cm and 210 cm (47 – 83 in) patient height  <u>eBike II basic:</u> manually adjustment of saddle height  <u>eBike II comfort:</u> electrical adjustment of saddle height with digital readout
Handlebar Adjustment	for patient heights between 120 cm and 210 cm (47 – 83 in) continuous handlebar adjustment over 360° <u>eBike II comfort::</u> height of handlebar adjustable



<b>Crank Length</b>	170 mm / 6.7 in (cranks with adjustable length are optional accessories)
<b>Displays</b>	LCD: 128 x 64 pixels, 68 x 34 mm (3 x 1 in) additional LED display for speed (RPM)
<b>Interfaces</b>	PORT 1 (DSUB-9-pole): digital remote control RS232 by PC or ECG recorder, USB: digital remote control by PC (driver required) ANALOG (optional): analog remote control by ECG recorder
<b>Dimensions, Weight</b>	length: 900 mm (35 in) width: 460 mm (18 in) (handlebar: approx. 575 mm / 23 in) height: 900 mm to 1350 mm (35-53 in) weight: eBike basic: approx. 61 kg (135 lbs) eBike comfort: approx. 69 kg (153 lbs)
<b>Safety Standards</b>	DIN EN 60601-1, DIN EN 60601-1-2, DIN VDE 0750-238
<b>Protection Class / Degree of Protection</b>	II / B (to DIN EN 60601-1)
<b>MDD Classification</b>	class IIa to 93/42 EEC
<b>RF Emission</b>	class B to DIN EN 55011 / 5.0 DIN EN 60601-1-2
<b>Environment</b>	<b>operation:</b> temperature: +10 to +40 °C (50 to 104 °F) rel. humidity: 30 to 75%, no condensation atmospheric pressure: 700 to 1060 hPa  <b>transport and storage:</b> temperature: -20 to +70 °C (-4 to +158 °F) rel. humidity: 10 to 90%, no condensation atmospheric pressure: 500 to 1060 hPa

## TECHNICAL SPECIFICATIONS eBIKE II L

Model	eBike II L / external terminal								
Operating Mode	continuous operation								
Power	<p><b>version 1:</b> 220 – 240 V / 50 – 60 Hz (345 VA max.) fuses: 2 x 2,0 time lag</p> <p><b>version 2:</b> 110 – 120 V / 50 – 60 Hz (345 VA max.) fuses: 2 x 3,0 time lag</p> <p><b>version 3, BCU:</b> 230 V / 50 Hz (345 VA max.) fuses: 2 x 2,0 time lag</p> <p><b>version 4, BCU:</b> 120 V / 60 Hz (345 VA max.) fuses: 2 x 4,0 time lag</p> <p><b>specification power cord US:</b> SJT 3xAWG16 125 V / 10 A „hospital“ or „hospital grade“</p> <p><b>specification internal backup battery:</b> IEC: CR 2032 / 3 V 230 mAh</p>								
Braking Principle	computer-controlled eddy current brake with torque measurement; speed independent to DIN VDE 0750-0238								
Load Range	6 – 999 watt, speed independent								
Speed Range	30 to 130 RPM (see characteristic)								
Deviation of measured load	<p>– according to DIN VDE 0750-0238:</p> <table><tr><td>25 ... 60 watt:</td><td>± 3 watt</td></tr><tr><td>60 ... 400 watt:</td><td>± 5 %</td></tr></table> <p>– according to manufacturer:</p> <table><tr><td>6 ... 60 watt:</td><td>± 3 watt</td></tr><tr><td>60 ... 999 watt:</td><td>± 5 %</td></tr></table>	25 ... 60 watt:	± 3 watt	60 ... 400 watt:	± 5 %	6 ... 60 watt:	± 3 watt	60 ... 999 watt:	± 5 %
25 ... 60 watt:	± 3 watt								
60 ... 400 watt:	± 5 %								
6 ... 60 watt:	± 3 watt								
60 ... 999 watt:	± 5 %								
Load Increments	user programmable								
Internal Protocols	<ul style="list-style-type: none"><li>• 5 fixed incremental exercise test protocols (e.g. WHO)</li><li>• 10 user-programmable protocols</li><li>• manual load control</li></ul>								
Permitted Patient Weight	160 kg (352 lbs)								
Saddle Adjustment	motor-driven, continuous adjustment for heights between 120 cm and 210 cm (47 – 83 in)								

<b>Couch Surface Angle</b>	motor-driven, continuous adjustment, 0 to 45°
<b>Crank Length</b>	170 mm / 6.7 in (adjustable length cranks available as optional accessories)
<b>Displays</b>	LCD: 128 x 64 pixels, 68 x 34 mm (3 x 1 in) additional LED display for speed (RPM)
<b>Interfaces</b>	PORT 1 (DSUB-9-pole): digital remote control RS232 by PC or ECG recorder, USB: digital remote control by PC (driver required) ANALOG (optional): analog remote control by ECG recorder
<b>Dimensions, Weight</b>	minimum: 800 x 2350 mm / 31 x 93 in (W x L) 1720 mm / 68 in (H) (tilted 45°, headrest extended) maximum: 800 x 2520 mm / 31 x 100 in (W x L) (tilted 0° / horizontal), headrest extended) weight: approx. 110 kg (243 lbs)
<b>Safety Standards</b>	DIN EN 60601-1, DIN EN 60601-1-2, DIN VDE 0750-238
<b>Protection Class / Degree of Protection</b>	I / B (to DIN EN 60601-1)
<b>MDD Classification</b>	class IIa to 93/42 EEC
<b>RF Emission</b>	class B to DIN EN 55011 / 5.0 DIN EN 60601-1-2
<b>Environment</b>	<b>operation:</b> temperature: +10 to +40 °C (50 to 104 °F) rel. humidity: 30 to 75%, no condensation atmospheric pressure: 700 to 1060 hPa  <b>transport and storage:</b> temperature: -20 to +70 °C (-4 to +158 °F) rel. humidity: 10 to 90%, no condensation atmospheric pressure: 500 to 1060 hPa

## TECHNICAL SPECIFICATIONS eBIKE II EL

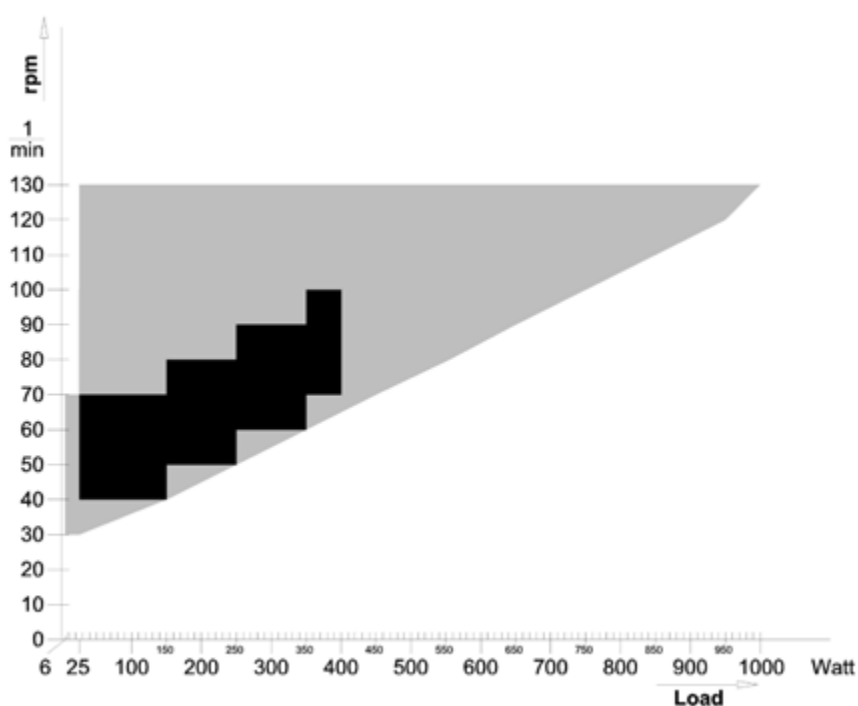
Model	eBike II EL / ext. terminal
Operating Mode	continuous operation
Power	<b>version 1:</b> 220 – 240 V / 50 – 60 Hz (345 VA max.) fuses: 2 x 2,0 time lag  <b>version 2:</b> 110 – 120 V / 50 – 60 Hz (345 VA max.) fuses: 2 x 3,0 time lag  <b>version 3, SCU:</b> 230 V / 50 Hz (345 VA max.) fuses: 2 x 5,0 time lag  <b>version 4, SCU:</b> 120 V / 60 Hz (345 VA max.) fuses: 2 x 8,0 time lag  <b>specification power cord US:</b> SJT 3xAWG16 125 V / 10 A „hospital“ or „hospital grade“  <b>specification internal backup battery:</b> IEC: CR 2032 / 3 V 230 mAh
Braking Principle	computer-controlled eddy current brake with torque measurement; speed independent to DIN VDE 0750-0238
Load Range	6 – 999 watt, speed independent
Speed Range	30 to 130 RPM (see characteristic)
Deviation of measured load	- according to DIN VDE 0750-0238: 25 ... 60 watt: ± 3 watt 60 ... 400 watt: ± 5 %  - according to manufacturer: 6 ... 60 watt: ± 3 watt 60 ... 999 watt: ± 5 %
Load Increments	user programmable
Internal Protocols	<ul style="list-style-type: none"><li>• 5 fixed incremental exercise test protocols (e.g. WHO)</li><li>• 10 user-programmable protocols</li><li>• manual load control</li></ul>
Permitted Patient Weight	140 kg (309 lbs)
Saddle Adjustment	motor-driven, continuous adjustment for heights between 120 cm and 210 cm (47 to 83 in)

<b>Couch Surface Angle</b>	motor-driven, continuous adjustment, 0 to 45°
<b>Crank Length</b>	170 mm / 6.7 in (adjustable length cranks available as optional accessories)
<b>Displays</b>	LCD: 128 x 64 pixels, 68 x 34 mm (3 x 1 in) additional LED display for speed (RPM)
<b>Interfaces</b>	PORT 1 (DSUB-9-pole): digital remote control RS232 by PC or ECG recorder, USB: digital remote control by PC (driver required) ANALOG (optional): analog remote control by ECG recorder
<b>Dimensions, Weight</b>	minimum: 800 x 2100 mm / 31 x 83 in (W x L) (headrest retracted) 1720 mm / 68 in (H) (tilted 45 °) maximum: 1200 x 2600 mm / 47 x 102 in (W x L) (tilted 0°, headrest extended) weight: approx. 140 kg (309 lbs)
<b>Safety Standards</b>	DIN EN 60601-1, DIN EN 60601-1-2, DIN VDE 0750-238
<b>Protection Class / Degree of Protection</b>	I / B (to DIN EN 60601-1)
<b>MDD Classification</b>	class IIa to 93/42 EEC
<b>RF Emission</b>	class B to DIN EN 55011 / 5.0 DIN EN 60601-1-2
<b>Environment</b>	<b>operation:</b> temperature: +10 to +40 °C (50 to 104 °F) rel. humidity: 30 to 75%, no condensation atmospheric pressure: 700 to 1060 hPa  <b>transport and storage:</b> temperature: -20 to +70 °C (-4 to +158 °F) rel. humidity: 10 to 90%, no condensation atmospheric pressure: 500 to 1060 hPa

## TECHNICAL SPECIFICATIONS eBIKE II BLOOD PRESSURE MODULE

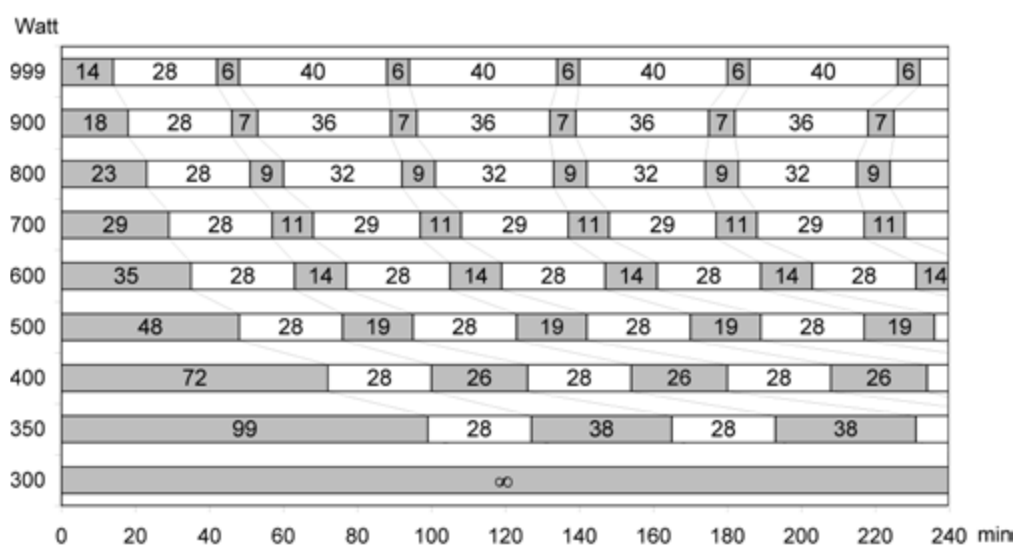
<b>Measuring Method:</b>	auscultatory method, oscillometric; for resting BP, the results from both measurements are compared for plausibility
<b>Measuring Range</b>	systolic pressure: 40 to 280 mmHg diastolic pressure: 40 to 280 mmHg pulse rate: 35 to 230 P/min
<b>Measurement Error</b>	pressure readout error: +/- 3 mmHg readout resolution: +/- 1 mmHg
<b>Inflation Pressure</b>	300 mmHg max.; during inflation the inflation pressure automatically adapts to patient's BP
<b>Inflation Rate</b>	between approx. 6 seconds (to 140 mmHg) and approx. 18 seconds (to 300 mmHg)
<b>Max. Cuff Pressure</b>	300 mmHg
<b>Cuff Deflation Method</b>	pulse-dependent deflation rate approx. 3 mmHg/beat or approx. 3 mmHg/s
<b>Calibration</b>	calibration with external pressure meter
<b>Artifact Rejection</b>	automatic artifact rejection and comparison of the resting BP readings from both methods for plausibility

## FAMILY OF CHARACTERISTICS OF THE BRAKING TORQUE CONTROL RANGE



**black:** speed-independent range to DIN VDE 0750-0238  
**black + grey:** speed-independent range of the eBike II ergometer

## FAMILY OF CHARACTERISTICS OF LOAD DURATION DUE TO IEC 60601-1



Under permanent load conditions the shown load and pause times (white) have to be observed.





## **eBike II L / EL**

Uncrating and basic assembly instructions

Revision 2013-08



## CONTENTS

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## GENERAL REMARKS

- 2 persons are needed to uncrate the eBike EL
- The following tools are recommended to uncrate and assemble the eBike EL:



- cardboard cutter
- box end wrench, open end wrench or socket wrench 17 mm (metric !)
- Philips screwdriver Ph 2



## REMOVE PACKING

- Place the palett in a position with enough working space around it.



- Cut the 2 straps with a cardboard cutter and remove them.



- Cut the red seal and remove the red plastic inset.



- Turn the white lock counter clockwise and remove it.



- Cut the tapes at all 4 corners (see pictures).



- Lift the cardboard box and remove it.





- Take the accessories box out (– contains power cord and user manuals).



- Cut the tapes of the packed remote control, unpack it and place it at the head support of the eBike L / EL.



- Cut and remove the tapes fixing the 2nd accessories box.



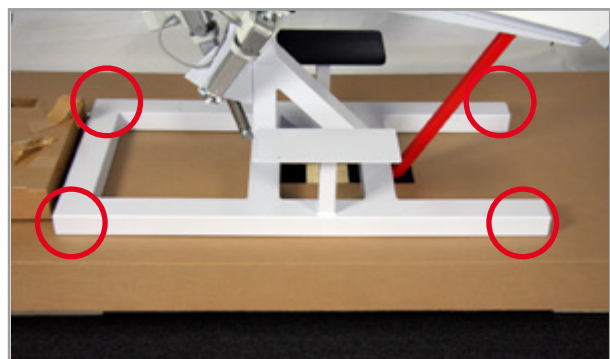
This box contains:

- 4 double castors with mounting screws and Allen key
- outrigger (eBike EL only)
- paper rol holder



## REMOVE TRANSPORT SCREWS

- 4 screws are fixing the eBike L / EL on the palett.



- Unscrew all 4 screws with a wrench (17 mm - metric).



## CASTORS MOUNTING

- Turn the eBike L / EL 90° on the palett.

The corners of the base frame should overlap on both sides.



- Screw all 4 double castors into the base frame using the included Allen key and tighten them carefully.



- Lift the eBike L / EL at the bottom end, shift it onto the castors and position it on the floor.

Remove the pallet with the cardboard.



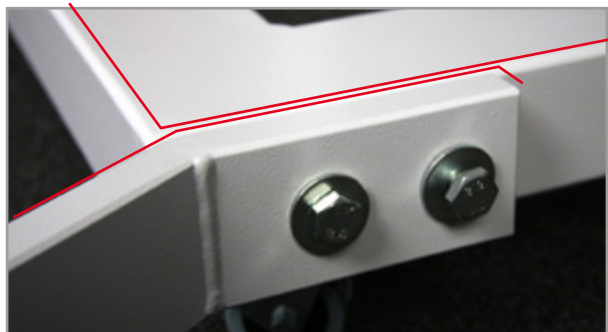
## OUTRIGGER MOUNTING (eBIKE EL)

- Unscrew the 2 screws (17 mm) with washer from the base frame.

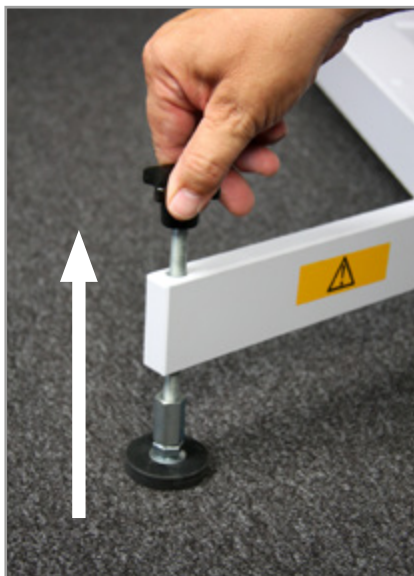


- Fix the outrigger with these screws (wrench 17 mm) and tighten them.

Take care to mount the outrigger in parallel to the base frame.



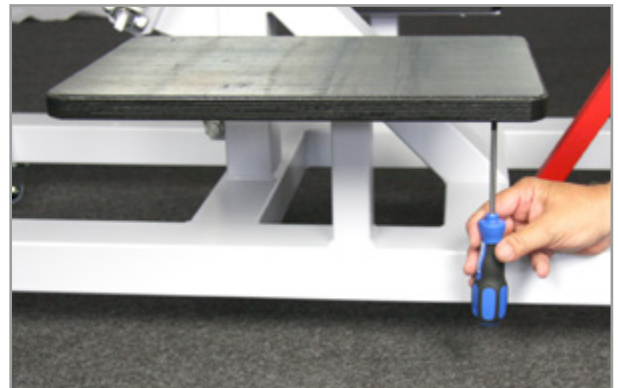
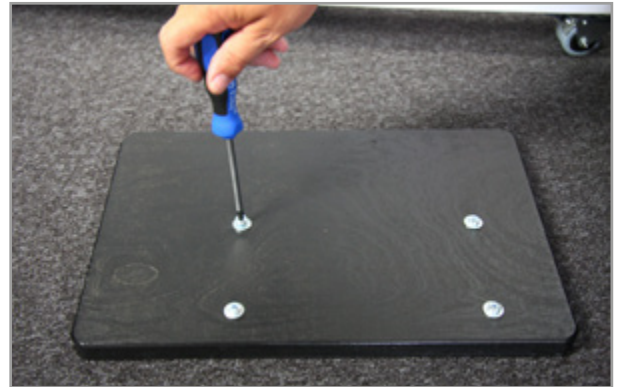
- For transport to the final location, screw the screw foot into the top position.





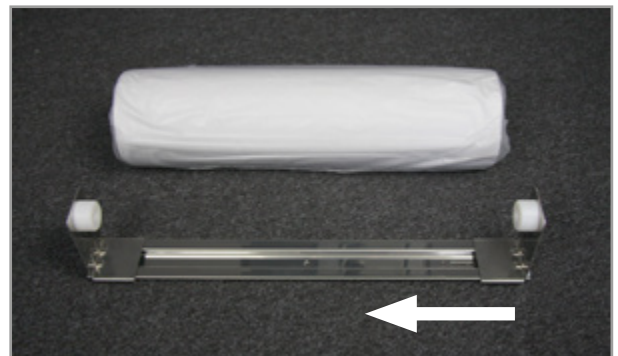
## FOOTBOARD MOUNTING

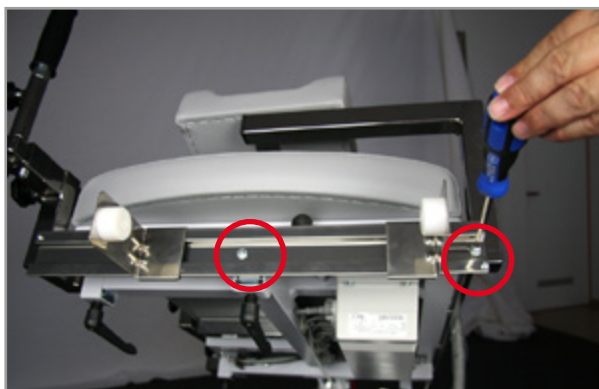
- Unscrew 4 screws from the footboard and fix the board on the base frame.



## PAPER ROLL HOLDER

- Separate the paper roll from the holder.  
Slide the right holder to the middle to free the screw hole.
- Unscrew 2 screws from the head support and fix the paper roll holder with them onto the support.



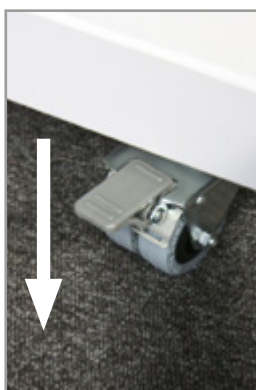


- Unpack the paper roll and insert it in the holder.



## SETTING UP THE eBIKE EL

- Move the eBike EL to the final location and apply the castor brakes.



- Adjust the screw foot at the outrigger until it is flat on the floor..



## REMOVING THE TRANSPORT LOCK (eBIKE EL ONLY)

- The transport lock is fixed to the base frame with 2 screws (17 mm).  
Unscrew carefully both screws with a wrench and remove the transport lock.
- Keep the transport lock and fixing screws, because the transport lock must be reinstalled before transporting the ergometer.



## POWER AND ECG CONNECTIONS

- Refer to the eBike EL user manual for installation of the power cable and ECG connection.



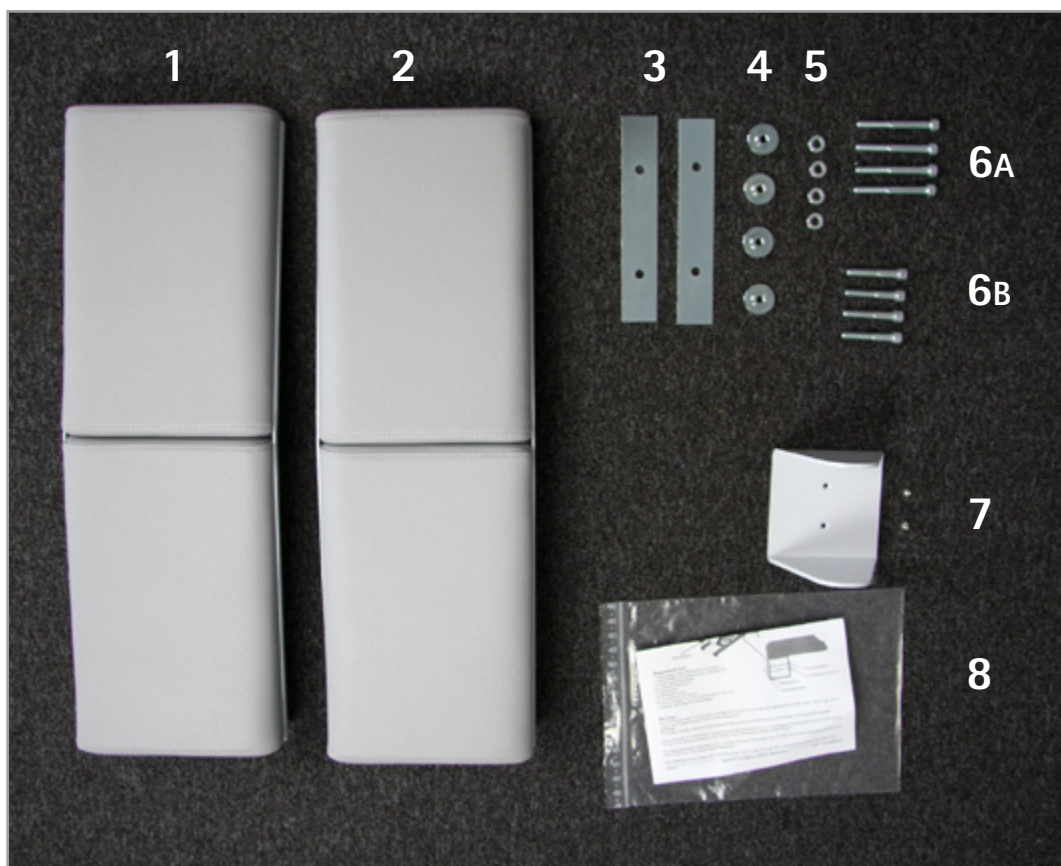


## LEG REST INSTALLATION (OPTION)

- Necessary tools:
  - Philips screwdriver
  - Allen key 6 mm (metric)
  - pipe wrench



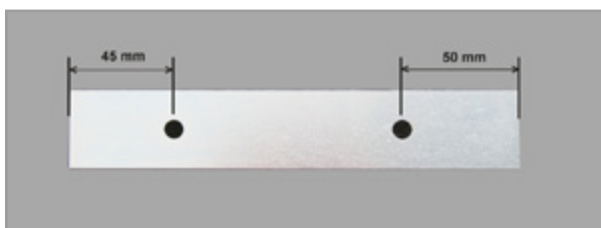
- Contents of the set:
  - [1] [2] 2 leg rests
  - [3] 2 spacing plates
  - [4] 4 special thread washer
  - [5] 4 washer Ø 8,4 x 16
  - [6A] 4 screw M8x70 with hexagon socket (eBike EL)
  - [6B] 4 screw M8x50 with hexagon socket (eBike L)
  - [7] 1 retaining clamp for leg rests with 2 screws
  - [8] 1 installation instruction



- Mount the leg rest holder into the bore holes of the square tubing in the swivel section, beneath the couch surface.



- Insert the appropriate hexagon socket screws (M8x50 for eBike L / M8x70 for eBike EL) with washers from top to bottom into the bore holes. Make sure that the screws do not squeeze the microphone cable and silicon tubing already in place.



- Place a spacing plate onto the screws, the short end pointing to the inside towards the padding, and secure it with the special thread washers.



- Holding the thread washers carefully, e.g. with a pipe wrench, tighten the four hexagon socket screws with a short Allen key.

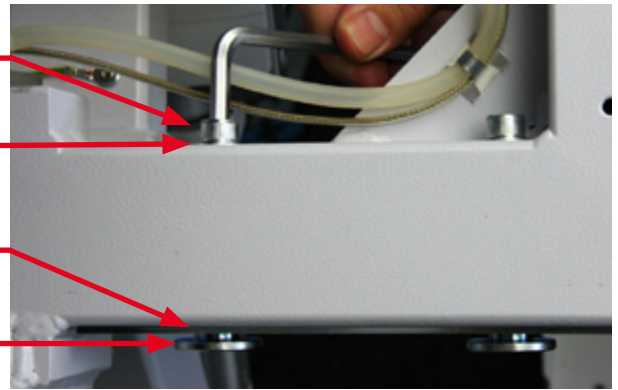


hexagon socket screw

washer

spacing plate

special thread washer



- Install the two leg rests in the plug-in devices.



## INSTALLATION OF RETAINING CLAMP

- The retaining clamp for the two leg rests is mounted onto the base frame.



- Remove the plastic caps from the holes.



- Screw the retaining clamp with 2 flat-head screws M4x12 to the frame.





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