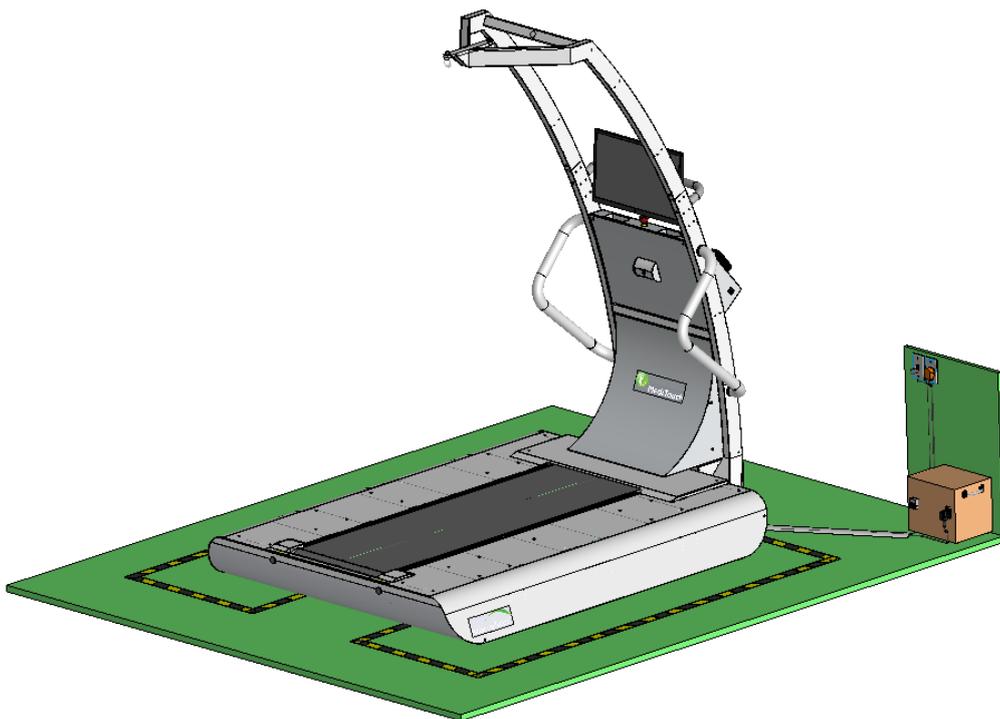




BalanceTutor™ Service Manual

November 2021



BalanceTutor a dynamic and static postural control trainer

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1 Version History

Date	Change description	Written by	Ver.
29 Nov 2015	Initial version	Ziv K.	151129
16 Dec 2015	Adding device installation instructions	Ziv K.	151216
10 Feb 2016	Opening sections: Maintenance section, Software System, Document Version History	Ziv K.	160210
28 Mar 2016	Opening section: Troubleshooting	Ziv K.	160328
3 May 2016	Adding Troubleshooting – mechanical noise reduction	Ziv K.	160503
26 May 2016	Opening section: Electrical connectivity	Ziv K.	160526
4 Aug 2016	Adding section: Mechanical maintenance	Ziv K.	160804
5 Oct 2016	Adding section: Items brought by technician	Ziv K.	161005
27 Mar 2017	Adding section: Preventing Maintenance	Ziv K.	170327
29 Jun 2017	Adding section: No display at patient screen	Ziv K.	170629
4 Jan 2019	Adding: Motor Auto-Tune, IMU Bluetooth connection, risk and hazard declarations, Pulley replacement	Ziv K.	190104
8 May 2019	Adding: Circular noises of front pulley, released clamping bolt.	Ziv K.	190508
21 Jan 2020	Adding: Restoring image to a new SSD	Ziv K.	200121
10 Mar 2021	Adding: Troubleshooting cracking sounds in front transmission	Ziv K.	210310
2 Nov 2021	Updating: Image restore procedures, Removing: Installation procedure section	Ziv K.	211102

E&EO

2 General

We would like to express our gratitude for putting your trust in us, in deciding for the purchase of the BalanceTutor. Since 2004, MediTouch has been developing and manufacturing applications in rehabilitation. When it comes to technology, ergonomics, design and safety, we have set extremely high standards for ourselves.

Because the BalanceTutor is a motor-driven device, you must pay special attention to the mentioned safety regulations. If proper notice taken of the safety regulations, the operation of the BalanceTutor is nearly without risk. Neglect of the safety regulations could result in dangerous situations and accidents with serious injury or death. Therefore, please read this service manual and the danger precautions in full before taking the device into operation.

Some simple maintenance and monitoring (no repair work!), as described, can easily be done or even have to be done by yourself. All kind of installation and repair work as well as most maintenance work has to be carry out only by trained and authorized technicians that was certified by MediTouch. The following symbols will indicate which work customer can handle and which work has to done by authorized technicians:

	<p>The customer/user should perform this maintenance and monitoring work. Some safety checks or monitoring (for examples harnesses and ropes, running belt condition and position, etc.) performed on daily basis. It is not expedient to contract certified technicians for such maintenance work. However, where it is practical, certified technicians can also perform all maintenance and monitoring work marked with this symbol.</p>
	<p>Trained and authorized technicians that certified by MediTouch must only perform all installation, maintenance, repair and monitoring work marked with this symbol. Customers/users must not perform these kinds of tasks and work.</p>
	<p>A risk and/or hazard process that required special attention during service or maintenance. This mark obligates the service and/or maintenance personnel to read and be fully aware its content.</p>

We recommend calling our competent service team or entering into a maintenance contract for a routine service at an interval of 12-36 months for standard machines and standard applications. Please contact MediTouch or its local distributor and ask for the Annual & Service program. In order to be able to supply you with the latest technical information and service, it is important for you to be included in this program. This operating and service manual as a firm part of the delivery of the BalanceTutor has to be accessible to the user at any time. This service manual written with great care. Should you, however, still find any details that do not correspond with your device, please notify us so that we can correct any mistakes as soon as possible. Subject to alterations without prior notice. Errors and omissions accepted.

3 Tools and Equipment

3.1 Tools for installation and/or service

Following list of tools required the distributor to be equipped with in order to perform installation and service/maintenance at the customer's site.

#	TOOL NAME	COMMENTS	IMAGE
1	Ratchet handle 1/2" Length: 10"	Can be found in one kit	
2	Extension bar 1/2" Length: 10"		
3	Ratchet socket 1/2" Metric Sizes: 8, 13, 17, 19 mm		
4	Reversible Ratchet Wrench Metric Sizes: 8, 12, 13, 17, 19		
5	Shock absorbent rubber hammer		
6	Hammer 600gr	DIN1041	
7	Hex Key Set Metric Sizes: 1.5 - 10		
8	Screwdriver Hex Blade for Slotted Screws	DIN5265	
9	Screwdriver Philips Screws Sizes: PH1, PH2		
10	Flat Tip 1000 VDE Screwdriver Sizes: 2.5x75, 3.0x100, 4.0x100		

#	TOOL NAME	COMMENTS	IMAGE
11	Philips Bit 2" (titan grade) Size: PH2		
12	Straight spirit level		
13	Cordless electronic drill & Impact drive Power: 16V or 18V		
14	Metallic snap knife		
15	T Handle plug socket Metric Size: 17x230mm		
16	Plier, Cutter kit, Electric wire stripper		
17	Bit to Socket 1/2" adapter		
18	Hand Tap Metric Sizes: M5, M6		
19	3M™ Hazard Warning Tape 766 Black/Yellow		
21	Voltmeter		
22	Junior hacksaw		
23	Any other tools are always good and welcomed		
24	Black cable tie – 200mm	1 Pack	

4 Maintenance and safety inspections



4.1 Preventive maintenance

The MediTouch authorized service engineers are happy to help you in case problems occur. Preventive maintenance can prevent future problems and is indispensable for the safety of technical devices. Therefore, ask our service department for an annual preventive maintenance contract, which is highly recommended by the manufacturer. Some basic regular maintenance and regular safety checks as stipulated in the following chapters are obligatory!

Before the device switched ON, the user always has to check visually:



- ✓ If there are no obstacles prohibiting the proper movement of the perturbation plate
- ✓ No damage to power supply cable
- ✓ Power plugs are connected
- ✓ Accessories such as Harness and Support Lanyard where applicable and available

4.2 Immediate maintenance

Immediate maintenance is necessary if:



- ! Cable and/or connector plug have been damaged
- ! The running belt slides over the running board during walking or running
- ! Rubber show cracks (mainly the running belt and the drive belt)
- ! Fluid has entered the device
- ! A defect or malfunction of the device has been detected or is suspected
- ! Coverings have removed off / broken

Only a properly and regularly serviced device is safe.

4.3 Annual inspections



To keep the condition of the device in due order, examinations have to be performed regularly according to the local laws and requirements of your country (e.g. in Germany based on BGV A3, regulations for prevention of accidents as well as safety requirement inspections in accordance with MDD Medical Device Directive, etc.).

A MediTouch authorized and certified inspection be conducted by MediTouch technical personnel or by its worldwide partners only. An annual inspection report (DO-15-01-18) delivered to customer at completion.

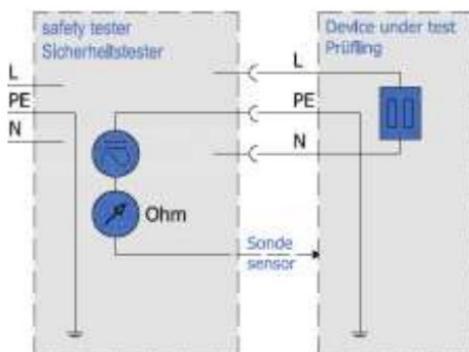
4.3.1 Visual inspections

- ! **Perturbation plate internal elements** - Remove the running board and carry out internal visual inspection for damages of device: Internal space, perturbation belt cracks and intact of the centering guide, lateral motor, electrical connectors to motor and cables, grounding cable and connectors between the perturbation plate and the base, released bolts. Before you perform a check-up, please clean all internal surroundings from dust and dirt.
- ! **Front motor compartment** – Remove front upper cover and carry out internal visual inspection for damages of device: cracks on the timing belt, correct tension of the timing belt, released and/or free wheels, released bolts. Before you perform a check-up, please clean all internal surroundings from dust and dirt.
- ! **Metal structure** – Perform visual check for all external metal components and inspect for broken/cracked welding areas.
- ! **Electrical components** – Perform visual inspection for all electrical components: isolation transformer connectors and in/out cables, cables entering to the patient screen, microUSB cables charging the IMUs, docking charger for heart rate monitor, USB outlet, RJ45 outlet, ON switch for the device (blue led), emergency press button, device power cable and connector.

4.3.2 Protective earth resistance (R_{PE}) measurement



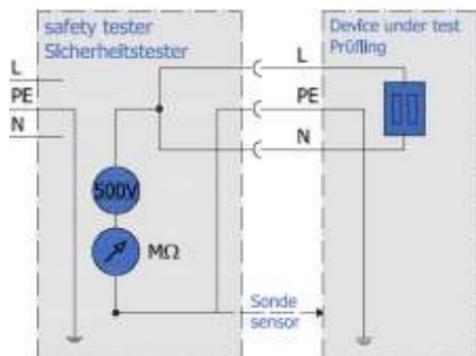
Risk of electrical shock. Risk damaging internal device electrical components.



- Resistance between housing and protective earth connection.
- The low resistance pass is to be controlled according to VDE 0701/0702 (sports and fitness machines) or VDE 0751/IEC 60601-1 (medical devices) by the protective resistance measurement with a measuring device for the protective earth resistance measurement.
- The connecting lead is to be moved while measuring for at least 5 sec. If the resistance thus changes, it is highly probable that the cable or the connectors have been damaged. In this case the cable should be replaced and the device repaired immediately.

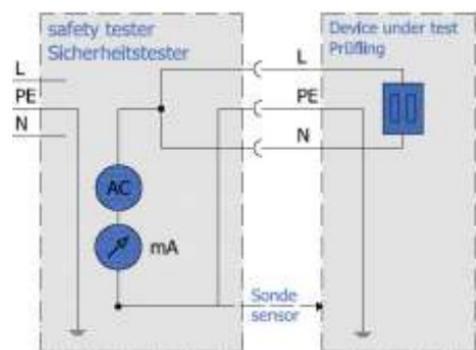
- Limit value $< 0.3 \Omega$

4.3.3 Isolation resistance (R_{ISO}) measurement



- Resistance between „bridged“ L+N and Protective Earth connection.
- Make sure that all isolations that are under stress of the mains voltage, are considered. All switches and contactors need to be connected.
- The measurement need to be performed with measuring devices for the isolation resistance measurement according to VDE 0701/0702 (sports and fitness machines) or VDE 0751/IEC 60601-1 (medical devices).
- Limit value $> 2.0 M\Omega$

4.3.4 Equivalent (alternative) leakage current (I_{EDL}) measurement



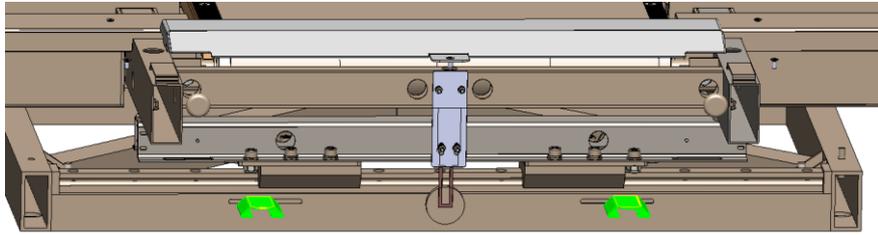
- Impedance measurement, indicating the current in the protective earth cable
- The measurement is to be performed by a measuring device for leakage current measuring according to VDE 0701/0702 (sports and fitness machines) or VDE 0751/IEC 60601-1 (medical devices).
- The measurement is equivalent to the single fault earth leakage current based on IEC 60601.
- Limit value $< 0.5 \text{ mA}$

4.3.5 Control and tightening of the running belt

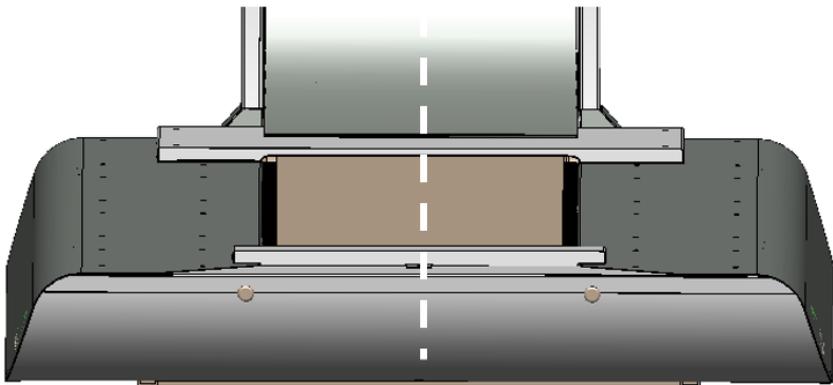
The belt may loosen after a while or it where adjusted wrongly. In this case, a backlash occurs between the driving shaft and the belt, i.e. when weight is applied to the belt by stepping on it, the belt slows down. The belt tension should be checked as follows:

- Visually inspect the surface for cracks. In case of a crack replace running belt immediately.
- Start the system and move to manual mode and select a speed of 1 to 1.5 km/h.
- Hold on to the side handrails, place one foot on the stationary plate and with the second foot try to block the rotation of the running belt by stemming yourself against the belt with your feet.
- Try to block the movement of the running belt for max. 3 seconds. The driving shaft and the motor shaft should not be turning during that time. Otherwise the running belt has to be tightened (or the driving belt).

4.3.6 Limit switch safety operation

Purpose	Checking if at maximal lateral perturbation the limit switch does not activated.
Procedure	<p>Access to Setting → Technical → Treadmill → Press 21.75, -21.75 → Apply</p> <p>The limit switch <u>should not</u> be activated, if yes adjust the limiters locations.</p> 

4.3.7 Homing process conducted correct

Purpose	Confirm perturbation plate return to physical zero of the device after Homing command.
Procedure	<p>Access to Setting → Technical → Treadmill → Press Homing.</p> <p>Confirm after Homing the perturbation plate returns to the center for the device.</p>  <p>If the plate do not returns to the exact center location, please consult with MediTouch.</p>

4.3.8 Software update

Purpose	BalanceTutor latest software version is crucial for safety and correct functionality of the device.
Procedure	Schedule with MediTouch for software update.

4.4 Device cleaning

4.4.1 Operator and Patient Screens



Duration	Daily
Material	Use a standard Screen Cleaner with a microfiber cloth.
Procedure	Turn OFF the device and pull the electrical plug from the wall socket. Clean touch screen at the beginning of each working day or when there are many fingerprint on the screen. Regarding the patient screen, cleaning is on demand.
Prohibition	<p>a. Do not use any materials/ liquids beside the definition above. Any other material may harm and damage the screen surface.</p> <p>b. Confirm the liquid Alcohol-free, Ammonia-free and Phosphate-free.</p>

4.4.2 Metal & Harness



Duration	Daily
Material	Use a light moistened cloth to clean metal surfaces and harness straps of the device. For disinfection, MediTouch recommends the Bacillol plus , which is an Alcohol-based rapid disinfectant for disinfecting alcohol resistant surfaces.
Usage	Turn OFF the device and pull the electrical plug from the wall socket, clean all parts of the device <u>excluding the screens</u> .

4.4.3 Running belt



Duration	Weekly
Material	Use a light wet (water) cloth to clean the black running belt of the device. No special need for disinfection process.
Usage	Turn OFF the device and pull the electrical plug from the wall socket, clean all running belt surface by sliding the running belt over its pulleys.
Prohibition	Do not use the light wet cloth to clean the screens.

5 Software System



5.1 Servo drive firmware update

1. Enter to Windows as an Administrator
2. Run software PowerTools Pro - v5.3
3. Load firmware by pressing File → Open *.ep (firmware file).
4. Download firmware by pressing Device → Download → Press Emergency Stop Button (Physical button) → Press founded driver in the list → Press OK ... Wait for process completion.

Note: make sure Balancetutor.exe is not running at background

5. Repeat steps 2-4 for second driver.
6. Restart the system



5.2 PC software update

1. Enter to Windows as an Administrator
2. Go to c:\balancetutor folder
3. Delete all file except the following:

File name	Type
Log	Folder
SensorsLogs	Folder
ManufacturerSettings.xml	File
LocalSettings.xml	File

4. Copy all content from balancetutor.zip update folder to c:\balancetutor
5. For Database upgrade, Open folder c:\balancetutor\update and run Update.bat
6. Perform update for the latest dotNet Framework from Microsoft and make Windows update.
7. Restart the system.



5.3 Back up

- A. Cloud – MediTouch offers constant full software and database cloud back up whenever the device is in its service warranty period.
- B. Local – Shadow copy is active for drive c:\



5.4 System failure

In case of: Windows fail loading, Boot fail, Blue screen, etc.

Consult with MediTouch on best solution.

6 Troubleshooting

6.1 Sensor out range / under range

Indication	Error messages from the software indication sensor out of range
Reason for error/fault	Mechanical damage to the sensor. LoadCell not sending correct values to Phidgets bridge.
Corrective actions	Replace LoadCell

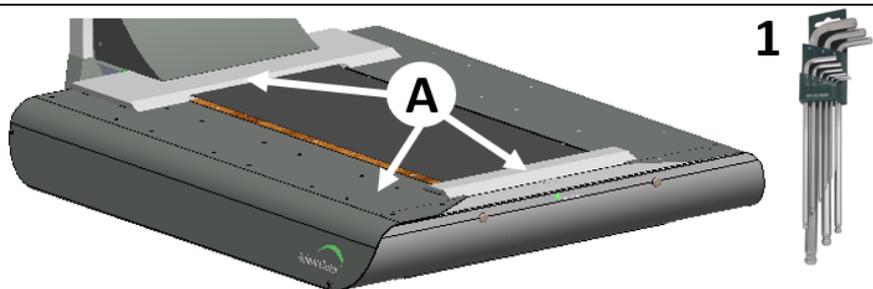


Handling with heavy components, Side covers serviced with two people only, service with power off and disconnection from main.

6.1.1 Cover removal

1. Use Hex Key No.3

A. Remove three covers and place them in a secure place



6.1.2 Back pulley release

1. Extension bar 1/2"-10"
2. Ratchet socket 1/2"-17mm
3. Bit to Socket 1/2" adapter
4. Cordless electronic drill

A. Release two M10 bolts from pulley.

Note:
BE CAREFUL NOT DAMAGE THE INNER CABLE LOCATED IN THE RIGHT HOLE.

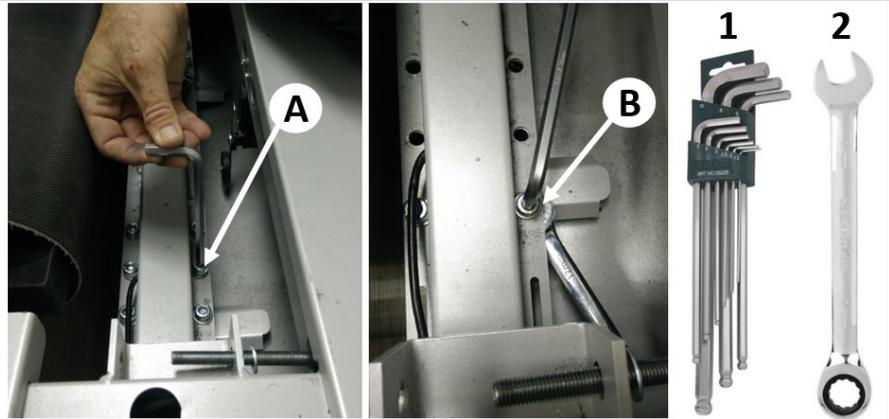
- B. Place the pulley on top of the running board
- C. Cut black cable tie



6.1.3 Sensor plate bolts release

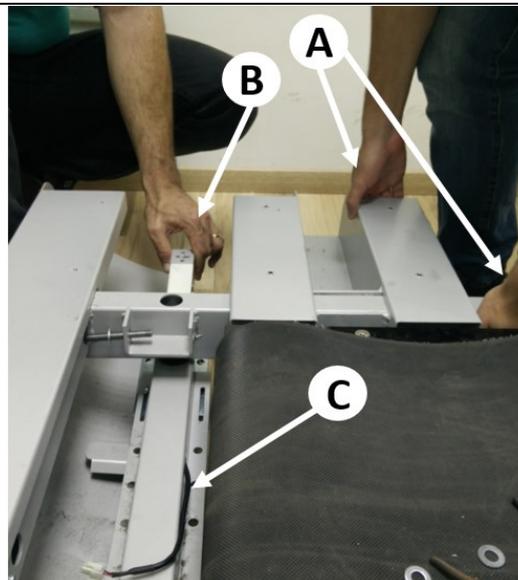
1. Hex Key No.8
2. Ratchet Wrench 17mm

- A. Release 4 bolts
- B. Release two bolts + nylock nuts



6.1.4 Sensor plate release

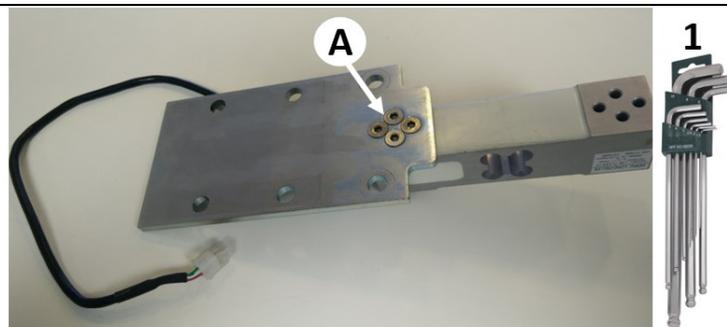
- A. Lift no more than 1-2cm the upper frame
- B. Pull the sensor from its position
- C. Pay attention sensor cable released from here



6.1.5 Sensor replacement

1. Hex Key No.4

- A. Replace sensor according orientation described in the image



6.1.6 Back assembly

Perform assembly in the same reverse order as described above.

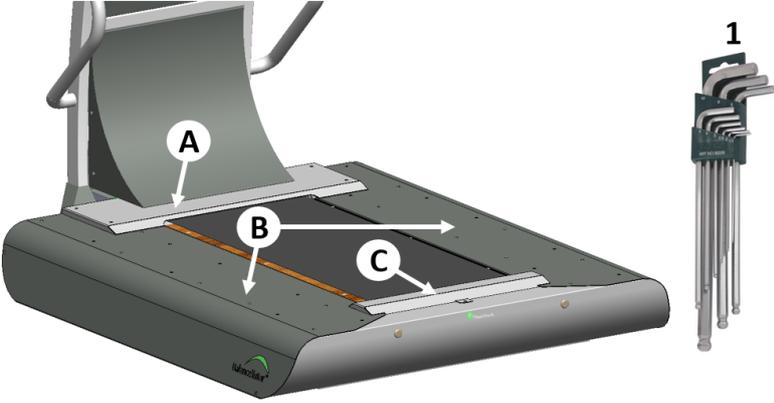
6.2 Mechanical noises during walking

Indication	Mechanical/metallic noises during walking, stepping on side plates, resonance, etc.
Reason for error/fault	Metal to metal noises during front motor activity or walking.
Corrective actions	Padding upper plate ribs with EPDM Foam and PVC edge profiles.
MediTouch order	P/N: PAC-23-11-01 Description: BalanceTutor Damping Kit

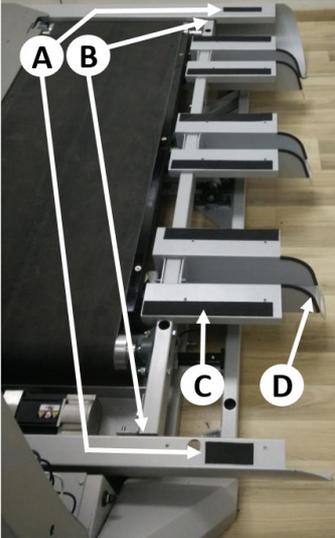


Handling with heavy components, Side covers serviced with two people only, service with power off and disconnection from main.

6.2.1 Cover removal

<p>1. Hex Key No.3</p> <p>A-C. Remove covers</p>	
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6.2.2 Foam and Profile placement

<p>A. Attach Foam 15cm – 4pcs</p> <p>B. Attach Foam 4cm – 4pcs</p> <p>C. Attach Foam 38cm – 12pcs</p> <p>D. Assemble Profile 13cm – 12pcs</p>	
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6.2.3 Back assembly

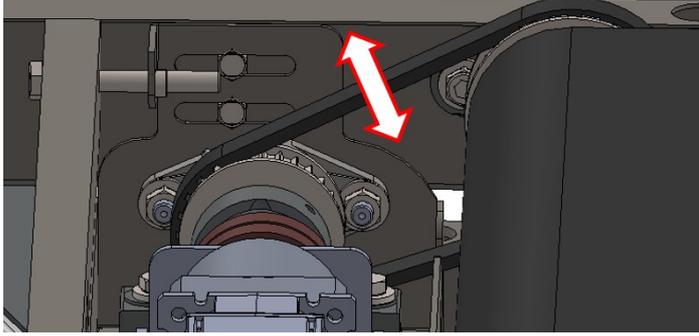
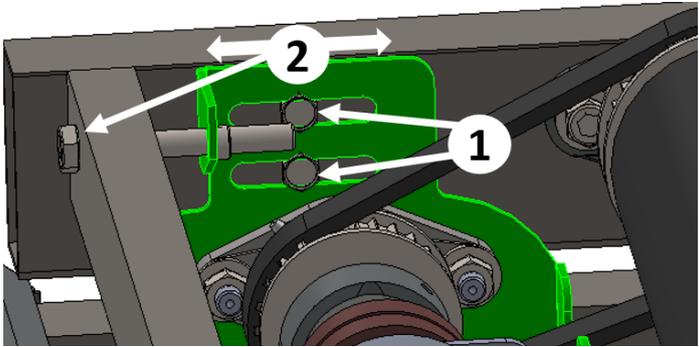
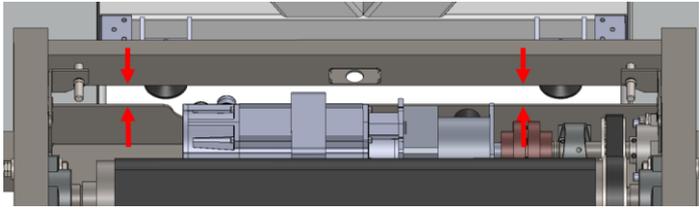
Perform assembly in the same reverse order as described above.

6.3 Mechanical noises from front motor transmission

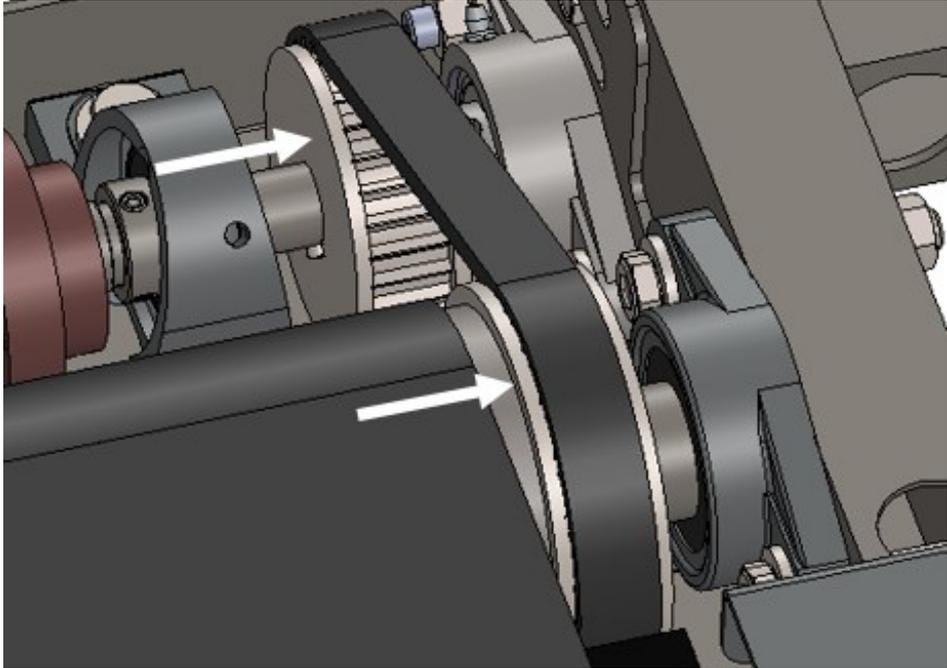
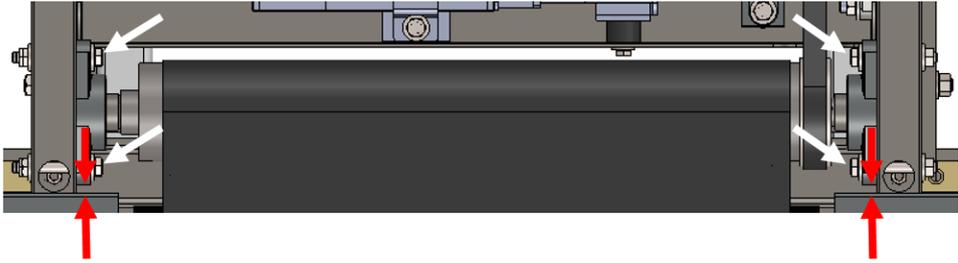


Handling with rotation parts. Service with power off and disconnection from main. Risk harming fingers. Use appropriate tools.

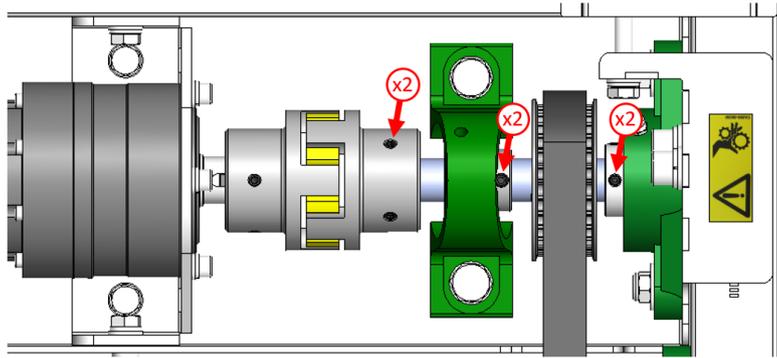
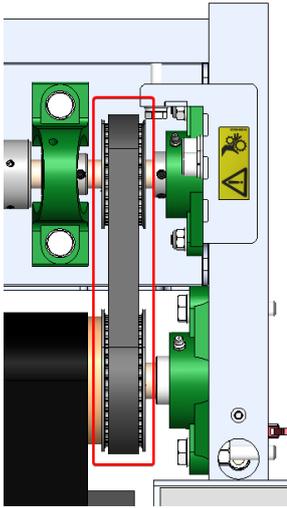
6.3.1 Case 1 - Timing belt tightness

<p>Indication</p>	<p>Tightness of the timing belt is too loose or tight. Approximately more or less than $\pm 0.5\text{cm}$ when you pull and push the belt to its vertical axis.</p> 
<p>Corrective actions</p>	<p>(1) Release a little bit the two bolts (of each side of the motor house) (2) Adjust timing belt to have a ripple of no more than $\pm 0.5\text{cm}$ of its horizontal axis.</p>  <p>Make sure that the motor house parallel to front frame bar.</p>  <p>After tension confirmation tight, the bolts back.</p>

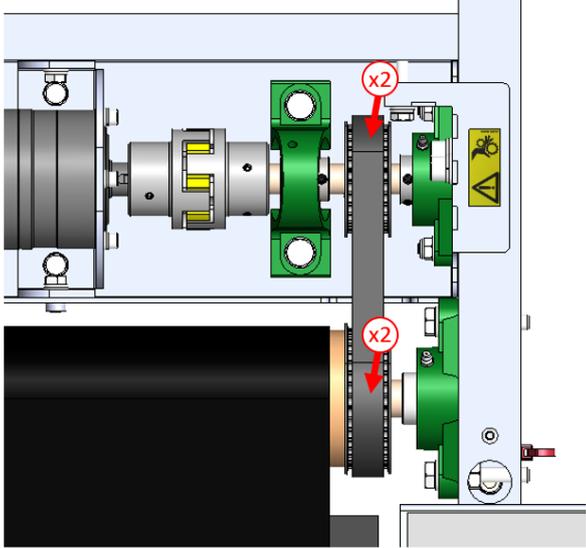
6.3.2 Case 2 - Front transmission alignment

Indication	Components are not parallel; Timing Wheels, Front pulley, etc.
Corrective actions	<p>Confirm that the following cases;</p> <ol style="list-style-type: none"> 1. Timing wheels must be parallel one each other.  <ol style="list-style-type: none"> 2. Confirm Pulley is parallel to the front Rib (red), if no adjust using bearing release bolts (white). 

6.3.3 Case 3 – Cracking sounds in front transmission

Indication	Cracking sounds (high frequency) in a non-periodic manner during front motor operation.
Reason for error/fault	Axial tensions, dry components that has mechanical interaction
Corrective actions	<ol style="list-style-type: none"> 1. Release all marked setscrews <div data-bbox="507 562 1284 920" data-label="Image">  </div> 2. Run the treadmill in different speeds for few minutes. 3. During motor operation, lubricate using silicon spray or WD-40 all transmission-moving parts including shaft and its interfaces to the bearings. 4. Confirm the two black rollers assembled with the drive belt are vertically aligned one each other before tightening back the setscrews. <div data-bbox="507 1279 794 1787" data-label="Image">  </div> 5. Confirm cracking sounds gone then lock back all released setscrews. 6. Confirm again cracking sounds gone after locking all setscrews.

6.3.4 Case 4 – Knocking sounds in front transmission

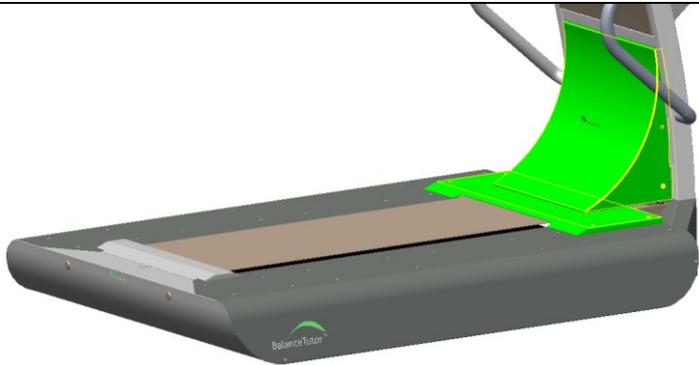
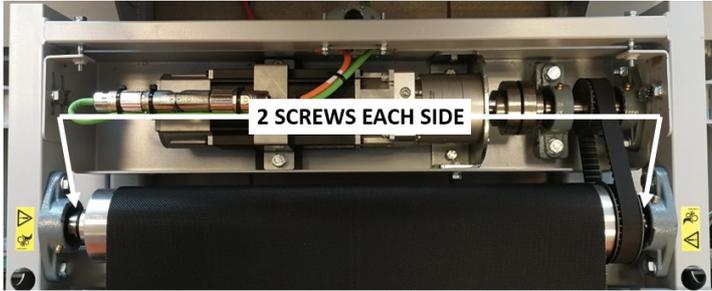
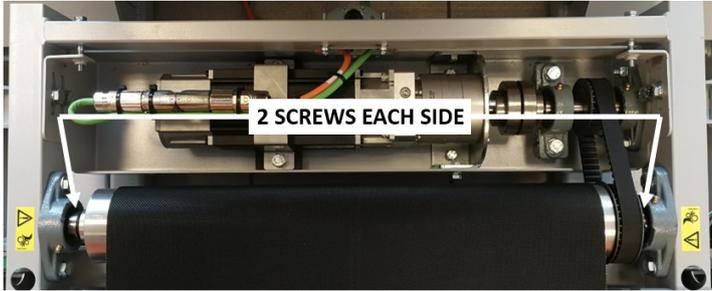
Indication	Semi-periodic metallic knocks during front motor operation
Reason for error/fault	Setscrews in the two drive belt rollers are released Relevant to BT versions up to serial number A183000058
Corrective actions	<ol style="list-style-type: none"> 1. Confirm all setscrews are tightened and secured with additional added Loctite type 242  <ol style="list-style-type: none"> 2. Run the treadmill in different speeds for few minutes. 3. During motor operation, lubricate using silicon spray all transmission-moving parts.

6.3.5 Case 5 - Constant noises during front motor running

Indication	Constant noise heard each cycle of the front motor pulley, with or without load.
Reason for error/fault	Unwanted pressures apply between front pulley shafts and there holding bearings. Can appear after assembly.
Corrective actions	Release tensions between pulley shafts and its bearing.



Attention service handling with heavy and moving parts components. Service with power off and disconnection from main. Risk damaging fingers.

1. Remove the following covers only		 Hex key #3
2. Release two screws located on each bearing		 Hex key #2.5
3. Turn ON the system and let the front motor run on maximal speed for 5 seconds.		
4. Tighten back the two screws located on each bearing		 Hex key #2.5
5. Turn ON the front motor in different speeds, confirm noise disappeared and assemble all covers with reverse order.		

6.4 Belt vibrations

Indication	<p>Treadmill running belt vibrates* in walking speeds which varies from 0.1-1.2 kmh.</p> <p>* Fast and small forward & backward movements with a duration approximately of 10 times per second.</p>
Reason for error/fault	<ol style="list-style-type: none"> 1. Inner side of the treadmill belt is very dry, which causing a high friction between the running board and the treadmill inner surface. 2. Extreme high treadmill belt tension, which caused by unappropriated tension of the back pulley.
Corrective actions	<p>Solution 1</p> <p>Lubricate the running board surface bellow the running belt with Silicon Lubricant Liquid, run the treadmill on high speed so the liquid will spread uniformly all over the overlapped surface, then test the belt vibration again for the low speeds.</p> <p>Solution 2</p> <p>If Solution 1 not solves the problem, there is a need to modify front motor gains in the servo driver. For this, please announce MediTouch and schedule a remote session with MediTouch tech team.</p>

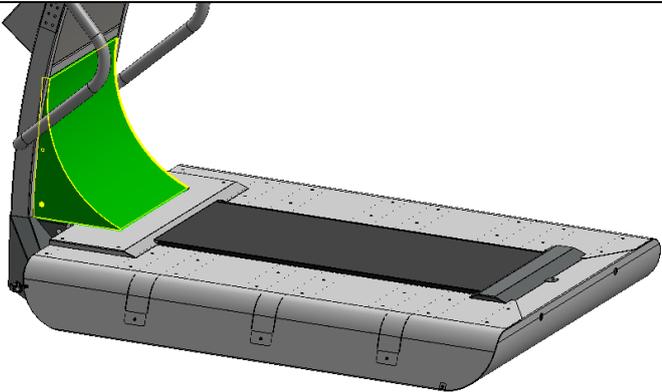
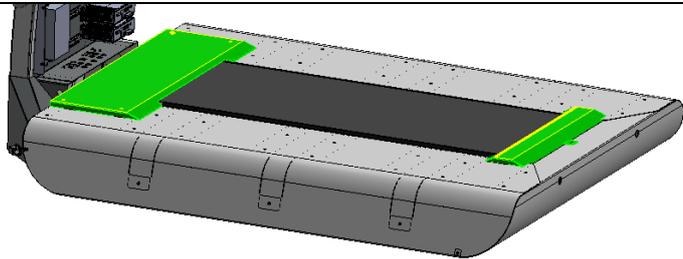
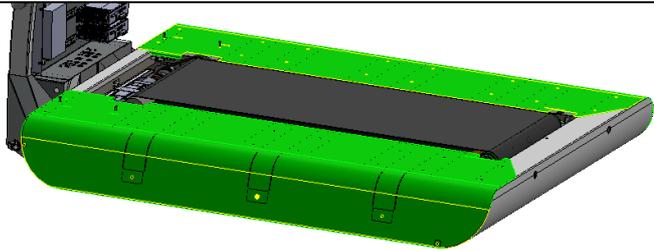
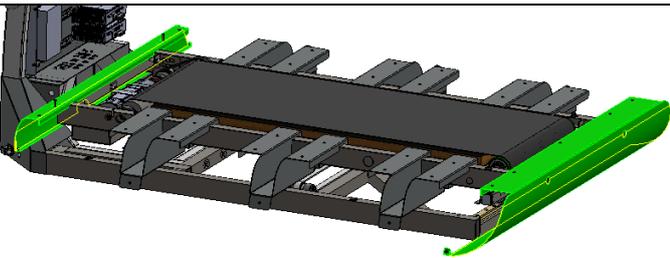
6.5 Front pulley replacement

Reason for change	Change pulley to have the construction with the centered v-guide
Corrective actions	Replace pulley with a v-guide construction

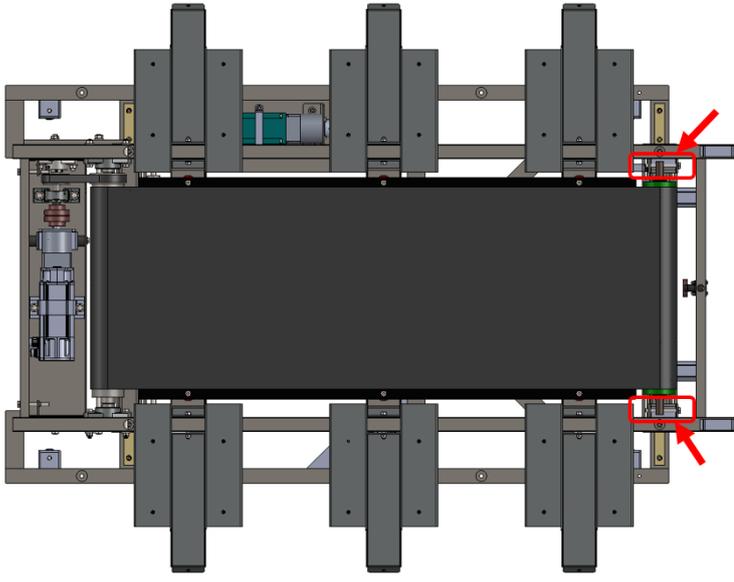
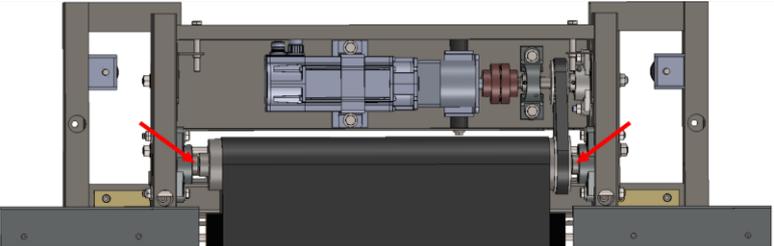
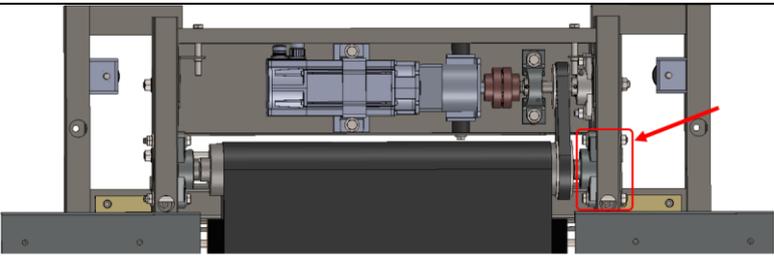
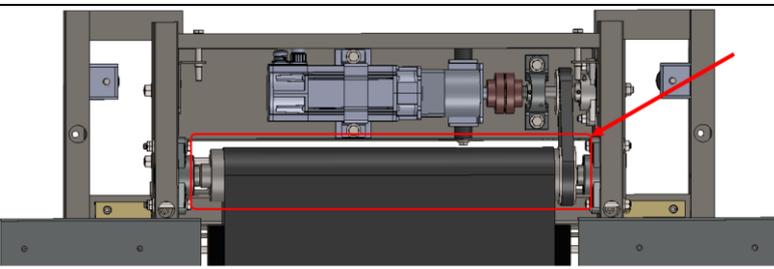


Attention service handling with heavy and moving parts components. Service with power off and disconnection from main. Risk damaging fingers.

6.5.1 Cover Removal

<p>1. Remove electrical board cover.</p>		 <p>Hex key #3</p>
<p>2. Upper covers</p>		
<p>3. Side covers</p>		
<p>4. Front covers</p>		

6.5.2 Pulley Replacement

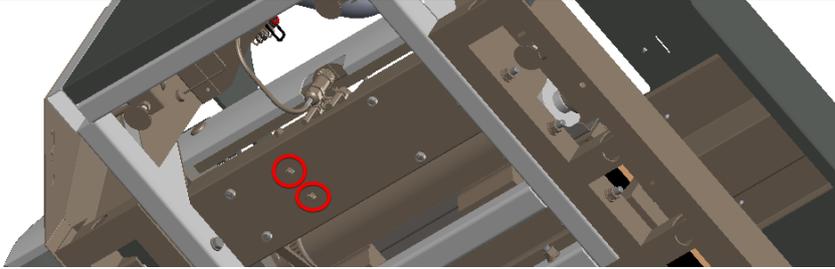
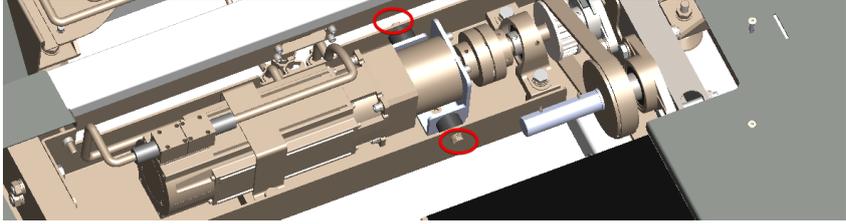
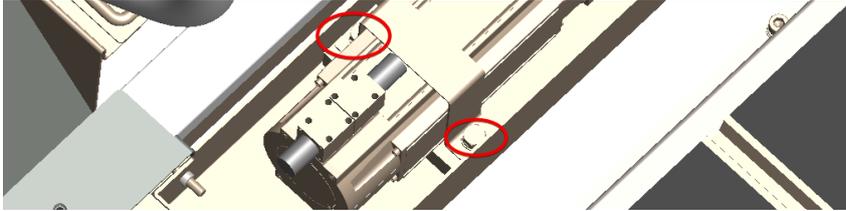
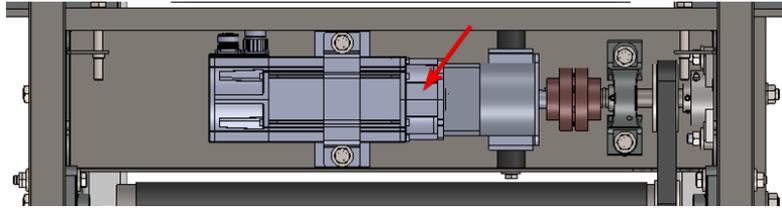
<p>1. Release the two bolts</p>		 <p>T Handle Socket 17x230mm</p>
<p>2. Release the locking hex black bolts in the bearings</p>		 <p>Hex key #3</p>
<p>3. Remove two bolts holding the bearing</p>		 <p>2pcs Wrench 17mm</p>
<p>4. Remove the front pulley and replace it including the black timing wheel</p>		
<p>5. Perform adjustment procedure as describe in section 8.3.2 for the front pulley, and close all components as described in this section from last to first.</p>		

6.6 Front motor not responding

Indication	Front motor not responding to software commands, EP206 driver shows E on it's display, encoder error messages from power tool software.
Reason for error/fault	Encoder malfunctioning, bad connection in encoder channel wire or its connectors.
Corrective actions	Check green cable or replace motor, check more information in Fault Description at Epsilon EP Driver Installation Manual from Control Technique.



Attention service handling with heavy and moving parts components. Service with power off and disconnection from main. Risk damaging fingers.

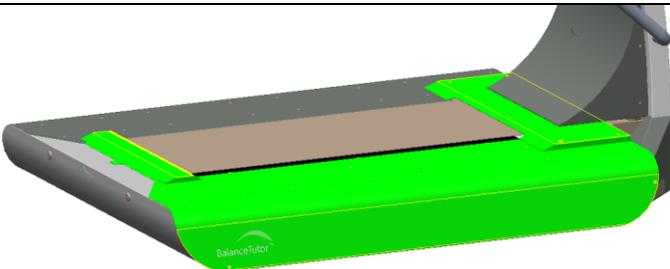
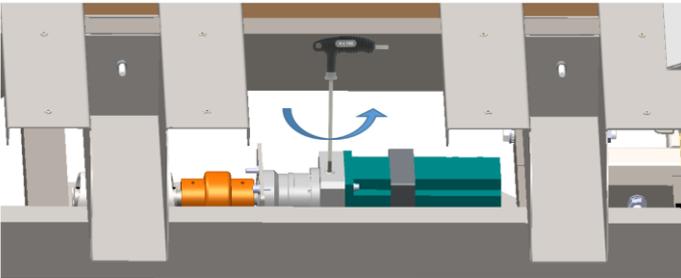
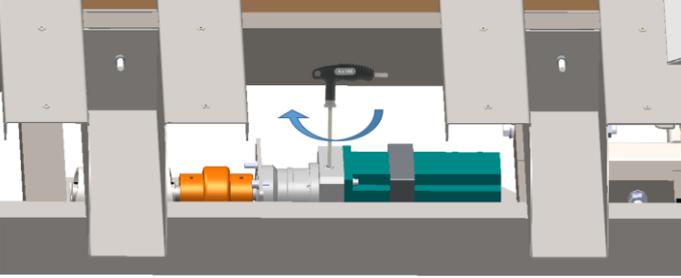
1. Remove two M10 bolts from bottom of the motor house.		
2. Remove two M10 bolts from the side		Reversible Wrench 17mm
3. Remove two M10 bolts that closes the motor from top		
4. Disconnect the motor from the gearbox		
5. Replace the motor and assemble all parts with reverse order.		

6.7 Lateral movement of perturbation platform not locked

Indication	Lateral movement of the perturbation platform not responding to perturbation intensities and/or can be moved manually.
Reason for error/fault	Lateral motor shaft and the gearbox not locked.
Corrective actions	Strengthen locking bolt from the lateral gearbox to the later motor shaft.



Attention service handling with heavy and moving parts components. Service with power off and disconnection from main. Risk damaging fingers.

1. Remove the following covers only		 Hex key #3
2. Remove THREAD CAP		 Hex key #6
3. Tighten the inner clamping bolt		 Hex key #3
4. Confirm the platform locked after turning ON the system and completing the homing procedure. Assemble all parts with reverse order.		

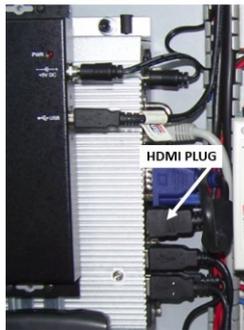
6.8 No display at patient screen

Indication	Messages on patient screen “Check Signal Cable”
Reason for error/fault	Screen not configured, Damaged cable/plugs during assembly, HDMI plug not fully inserted to PC HDMI socket
Corrective actions	Visual inspection on impurity of DVI-HDMI cable, Screen setup, check screen and pc connectors.

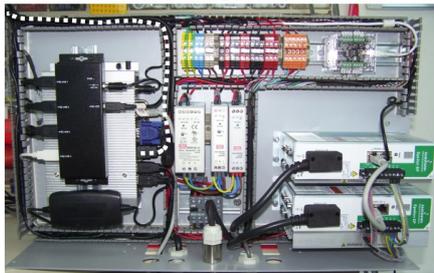
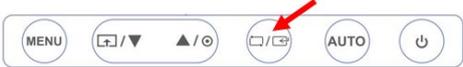


Risk from electrical shock. Risk of damaging electrical internal components.

6.8.1 Cable plugs not fully inserted/connected

Indication	HDMI plug not fully inserted to PC HDMI socket
Corrective actions	<p>Configure the screen using screen control buttons to direct the video to the DVI port.</p> <p>A. Remove electrical board cover</p>  <p>B. Confirm HDMI Plug it properly connected to the PC HDMI socket</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>TYPE 1 BOARD</p>  </div> <div style="text-align: center;"> <p>TYPE 2 BOARD</p>  </div> </div> <p>C. Restart the system and press channel selection on the patient screen to detect the DVI connection channel</p>  <p>Note: on the same principle, check the DVI plug connected to the patient screen</p>

6.8.2 Damaged cable

Indication	Damaged cable or connectors
Corrective actions	<p>A. Prepare the following cable: “Cable HDMI to DVI 1.8m Black”</p> <p>B. Remove covers 1+2</p>  <p>C. Replace carefully the cable with a new (white dashed route)</p> <div style="display: flex; justify-content: space-around;"> <div data-bbox="557 891 991 1182"> <p>TYPE 1 BOARD</p>  </div> <div data-bbox="1002 891 1430 1182"> <p>TYPE 2 BOARD</p>  </div> </div> <p>D. Restart the system and press channel selection on the patient screen to detect the DVI connection channel</p> 

6.8.3 Screen not configure

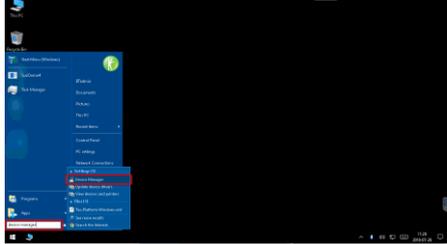
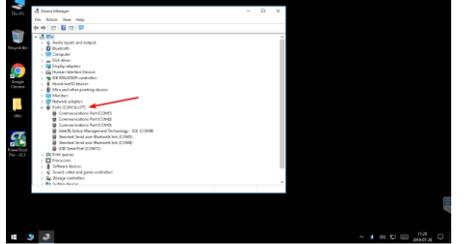
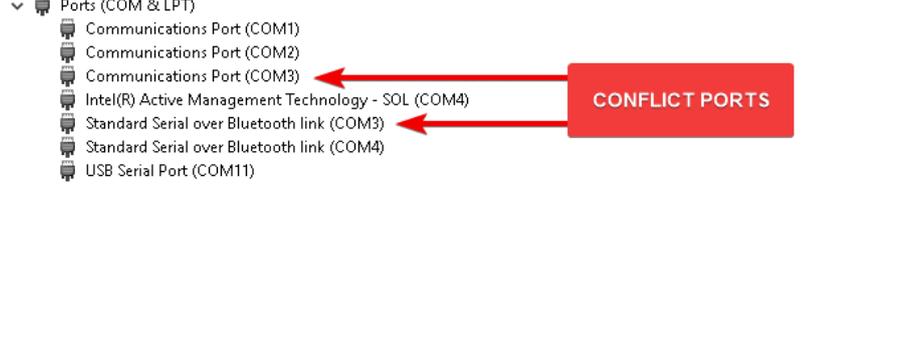
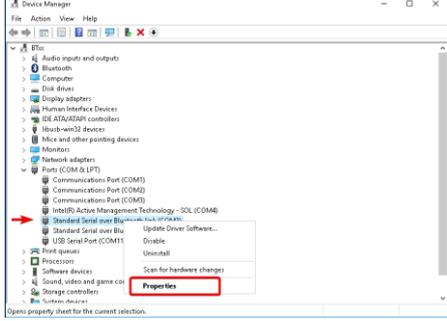
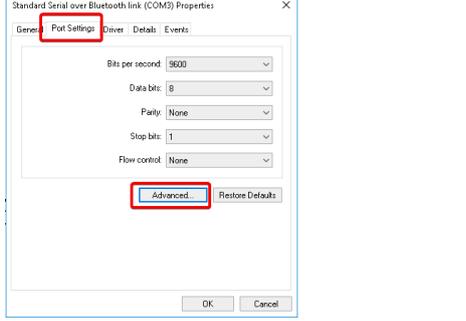
Indication	Patient screen not configure
Corrective actions	<p>Configure the screen using screen control buttons to direct the video to the DVI port.</p> <p>Restart the system and press channel selection on the patient screen to detect the DVI connection channel</p> 

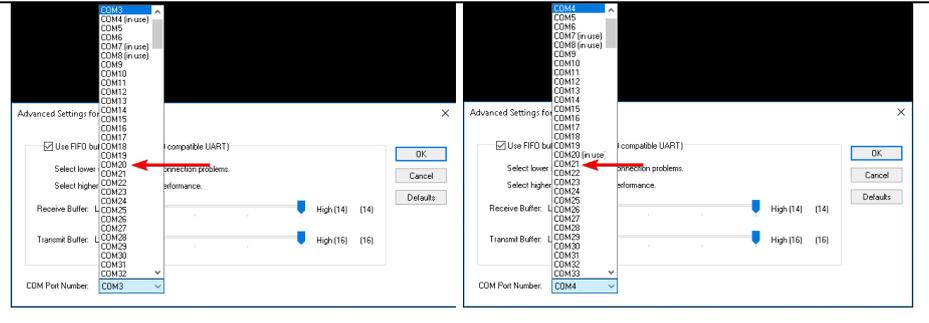
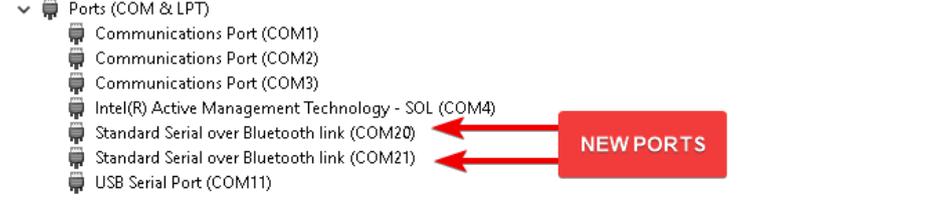
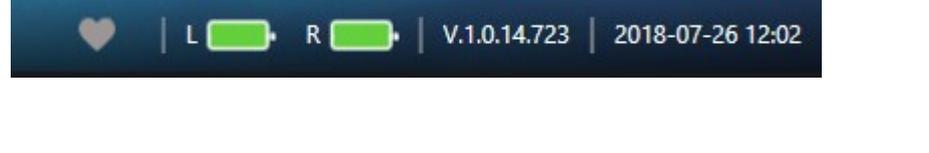
6.9 No communication with IMU's

Indication	One or two IMU's not connecting to the application
Reason for error/fault	Operation system not allocate correctly COM Ports for the Bluetooth devices
Corrective actions	Change COM Ports numbers



Risk harming operation system and file system integrity. Risk damaging current system state configurations.

<p>1. Logoff the application and enter as Btadmin user</p>	 
<p>2. Run Device Manager and press Ports</p>	 
<p>3. In this case, COM3 and COM4 are the IMU ports for Bluetooth communication, COM3 generated two times for different hardware, and it need to be changed.</p>	
<p>4. Right click on port you want to change, press properties. Tab to Port Settings and press Advance.</p>	 

<p>5. Change port to 20 for COM3 and 21 to COM4</p>	
<p>6. Confirm there are no conflict ports in the list.</p>	
<p>7. Restart the operation system and confirm IMU's are connected.</p>	

6.10 Restoring image to a new SSD

Indication	Disk replacement
Reason for change/error/fault	Disk error, broken, Disk size not compatible to image size, etc.
Corrective actions	Replacement of a new SSD, Creating Bootable USB Flash Disk (UFD) with image, Restoring process.



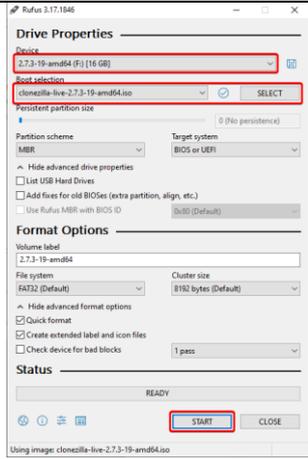
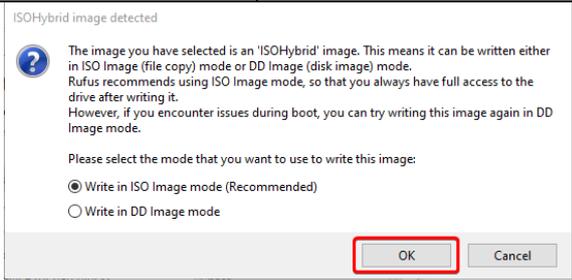
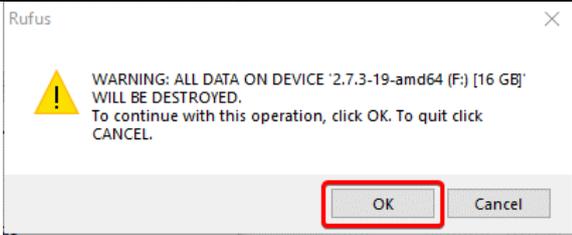
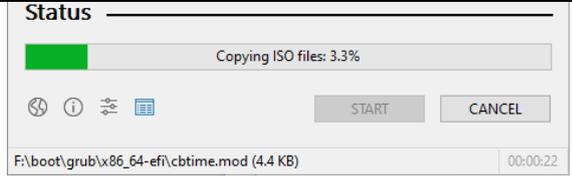
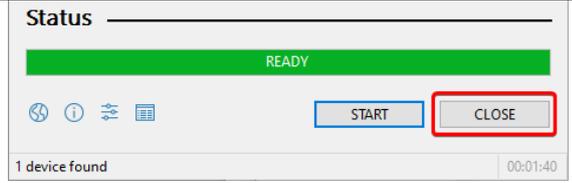
Risk harming operation system and file system integrity. Risk damaging current system state configurations.

6.10.1 Prerequisites

1. Replace SSD drive of the computer inside the BT
2. Prepare two USB Flash Drives (UFD) type: USB3 64GB.
3. Prepare a computer Win10 64bit for disk preparations
4. Enter to the following link and download all the following files to your local computer disk:
 - <https://www.dropbox.com/sh/5ow90uhxa0dwvcm/AADxGAjfGtmCzPyuG04DIFjLa?dl=0>
 - Rufus software
 - Clonezilla software
 - BT image zipped file
5. Unzip all the downloaded files

6.10.2 Preparing UFD1

Purpose of this procedure is to prepare an external bootable UFD so a Clonezilla software could run and using it to restore a complete new image to the new installed SSD.

<ol style="list-style-type: none"> 1. Insert computer your UFD1 2. Run rufus-3.17.exe file 3. Select Device - your new UFD1 4. Press SELECT → Navigate to Clonezilla file location 5. Press Start 	
<ol style="list-style-type: none"> 6. Press OK 	
<ol style="list-style-type: none"> 7. Press OK 	
<ol style="list-style-type: none"> 8. Wait until process completed 	
<ol style="list-style-type: none"> 9. When READY then Press CLOSE 	
<ol style="list-style-type: none"> 10. UFD1 is ready 	

6.10.3 Preparing UFD2

Purpose of this procedure is to prepare the image repository in the external UFD2.

1. Unpack the file **BT Disk Image** and copy entire extracted folder to a different UFD root directory. For example:

Name	Date modified	Type	Size
 2019-05-13-Win10-BT-1.0.15.0410	2019-06-19 11:58	File folder	

2. UFD2 is ready

6.10.4 Burn image to your new SSD

1. Insert UFD1 and UFD2 to your target computer (the Clonezilla and the Image)
2. Inset USB Keyboard and Mouse to your target computer
3. Press **ON** the blue momentary button
4. Immediately press **Delete** button to enter computer BIOS
5. Go to **Boot** → **Hard Drive BBC Properties** → Select **Boot Options** → Select **Set Flash Drive as first device** (boot from the UFD that the clonzilla installed)
6. Press **F4** → Press **Yes** → Wait about 1min for recovery system to load
7. If Clonzilla not loaded → enter bios again and change CSM boot option by: Press **Advanced** → Change **Boot Option Filter** to **Legacy only**, Change Storage, Video and Other PCI Devices to Legacy → Press **F4** → System is automatically rebooted (expected to enter Clonzilla)
8. Select **en_US.UTF-8 English** → Press **Enter**
9. Select **Keep the default keyboard layout** → Press **Enter**
10. Select **Start_Clonezilla** → Press **Enter**
11. Select **device-image** → Press **Enter**
12. Select **Local_dev** → Press **Enter** → ~~Press Enter~~
13. Press **CTR+C** (to rescan available drives)
14. Select the device where the image is located → Press **Enter**
15. Select **fsck-y** → Press **Enter**
16. Select the image file → Tab to press **Ok** → Press **Enter**
17. Select **Beginner mode** → Press **Enter**
18. Select **restoredisk** → Press **Enter**
19. Select image file → Tab to press **Ok** → Press **Enter**
20. Press **Space** to select it with * mark → Press **Enter**
21. Are you sure you want to continue? → Press **Y** → Press **Enter** (2 times)
22. Image copy started (5-10min process)
23. Now you can choose to: **Power off** → Press **Enter**
24. Remove the two UFD's from USB ports
25. Turn ON the computer
26. OS should loaded

6.10.5 After image restore actions

1. Change computer name in the following way: BTxxx (while xxx is the last number from the device serial number) → Restart the system
2. Install latest version of TeamViewer and send ID and Password to MediTouch TechTeam for remote access.
3. Confirm with MediTouch for the latest BT software version.
4. Confirm with MediTouch the following (Updated by MediTouch only):
 - Update FSO (Free Scale Output) values in BT application settings
 - Remote control receiver directed to the correct COM Port in local settings file
 - Other settings