

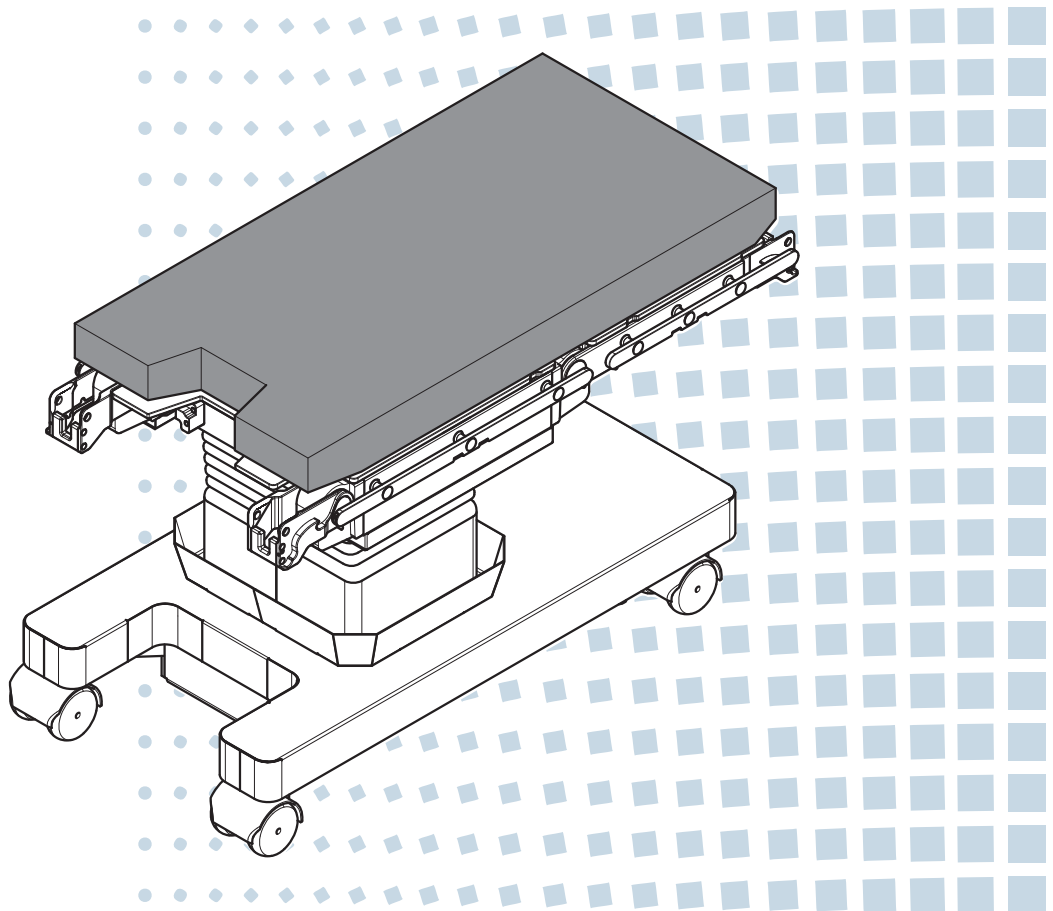


Hillrom™

Service Manual

PST 300+

Mobile operating table



ENGLISH
en-GB

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Trumpf Medizin Systeme GmbH + Co. KG is a subsidiary of Hill-Rom Holdings, Inc. The manufacturer is hereinafter referred to as Trumpf Medizin Systeme.

Technical Customer Service The contact details for the current sites of the Technical Customer Service in the individual countries are listed on the Internet at hillrom.com.

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This document applies to the following sales units:

Designation	Material number
Operating table	
PST 300L+	2082192
PST 300S+	2082193
Pad	
Pad PST 300L+ G	2079968
Pad PST 300S+ G	2079969

Other applicable documents

Designation	Document number
Instructions for use for the PST 300+ operating table	7990093

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Basic information

- The only repairs and settings permitted are those that are described in the instructions for repair, or that were covered during the training provided by Trumpf Medizin Systeme. All other repairs and settings must be discussed with Trumpf Medizin Systeme or must be performed directly by Trumpf Medizin Systeme. Unauthorised or temporary repairs, including changes to the software, are prohibited, even when requested by a customer.
- These instructions for repair are intended exclusively for service technicians of Trumpf Medizin Systeme and service technicians authorised, trained and certified by Trumpf Medizin Systeme.
- Faulty product parts must be replaced, even when this falls outside the scope of the order.
- Only original spare parts made by Trumpf Medizin Systeme may be installed in the product.
- If anything is unclear, or if any questions arise about the product, please contact Trumpf Medizin Systeme.
- The instructions for use of the operating table must be adhered to.
- Residual risks that may occur when handling the product are identified in the document using a signal word. The necessary safety measures and possible risks are listed if they are not observed. A corresponding signal word identifies the severity of the risk:

Signal word	Meaning
DANGER	This signal word denotes a dangerous situation that will lead to immediate death or severe injury, unless precautionary measures are taken.
WARNING	This signal word denotes a dangerous situation that may lead to death or severe injury, unless precautionary measures are taken.
CAUTION	This signal word denotes a dangerous situation that may lead to moderate or slight injury, unless precautionary measures are taken.
NOTICE	This signal word denotes a situation that may lead to product or environmental damage, unless precautionary measures are taken.

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May be subject to one or more patents. See above internet address.

Hillrom companies have proprietary rights to European, American and other patents and to outstanding patent applications.

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1 Safety

1.1 Service technician

The service technician is a qualified specialist who has been authorised, trained and certified by Trumpf Medizin Systeme. The service technician may perform only the work for which they have been authorised, trained and certified by Trumpf Medizin Systeme.

All relevant laws, legal regulations and standards must be observed and adhered to.

1.2 Work environment/work process

To access the work area at the medical facility, follow the instructions issued by the contact person. Please observe the hygiene instructions of the medical facility and personal vaccination protection.

The ambient conditions can be found in the instruction manual for the operating table.

Tools or removed components must always be sorted and placed somewhere safe. Be sure that no one can trip or fall over them.

After each repair and servicing, restore the original state of the product, check the product and only return it to the customer if it is fully functional. The functionality of the product must be demonstrated to the customer. The handover to the customer must be documented in writing and confirmed by the customer.

After the service, check the patient area on the operating table for foreign bodies. There may be no foreign bodies in the patient area of the operating table. The operating table may not be handed over to the customer if parts have fallen into the operating table and have not been removed.

1.3 Work protection

Do not wear clothing that may become caught in the device. Shirt and jacket sleeves should be buttoned or rolled up. Tie or put up long hair. Tuck the ends of scarves, ties or scarves into your clothing or pin them down. Loose clothing can be a hazard.

When carrying out any work on electrical components, including in particular on circuit boards and boards, ensure you wear the required ESD protective clothing (ESD protective gloves, ESD protective shoes, ESD-suitable clothing, ESD earthing wrist strap) in order to prevent electrostatic discharge.

Do not perform any activity that may place other people in danger or that may make the device a source of danger.

1.4 Protection against infection

Risk of infection throughout the entire medical facility. Adhere to all the protective measures and behavioural regulations of the medical facility. Obtain additional advice regarding protection against infection from a medical doctor.

Perform maintenance and repair work only on a cleaned and disinfected operating table. Cleaning and disinfection is carried out by the medical facility.

1.5 Screw guard

To ensure that the screws do not loosen of their own accord, all screws on the operating table without detent edged rings and a thread size above M4 are provided with a self-adhesive screw guard. The screws may be very difficult to loosen by hand. In this case, the screw guard should be loosened using a hot-air blower. The screw and threaded hole on the component must be thoroughly cleaned before reinstallation. There should be no adhesive residues. Medium-strength screw locking agent must be used to resecure the screw.

1.6 Torque

Trumpf Medizin Systeme has determined the following torque values based on the guideline VDI 2230 for stainless steel screws as per the valid standard A2. Calculations are based on screws with strength category 70.

Threads	Stainless steel screws A2	
	in stainless steel	in aluminium
	with omniFIT (Nm)	with omniFIT (Nm)
M3	0.5	0.5
M4	2.5	2.5
M5	5.0	5.0
M6	8.0	6.0
M8	18.5	10.0
M10	30.0	18.5

1.7 Disposal



Within the European Union the product is governed by Directive 2012/19/EU on waste electrical and electronic equipment and complies with the requirements of Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment as amended by Commission Delegated Directive (EU) 2015/863 of 31 March 2015 as regards the list of restricted substances (RoHS). The operating table must not be disposed of via public collection points for waste electronic devices.

In countries outside the European Union (EU), the legal requirements of the respective country must be observed.

Please contact the Trumpf Medizin Systeme Technical Customer Service, the local sales representative or the appropriate national authority if you have any questions about proper disposal.

In addition to regional disposal, faulty products or products that are no longer used may be returned to Trumpf Medizin Systeme. Trumpf Medizin Systeme then takes responsibility for environmentally friendly disposal. Detailed information on returns is available from the Trumpf Medizin Systeme Technical Customer Service.

If the operating table is decommissioned, the lead-acid battery must be removed from the operating table by a qualified service technician. Once removed, the batteries must be sent to the Trumpf Medizin Systeme Technical Customer Service, using suitable packaging. Attention: when returning batteries, the package must be declared as containing hazardous materials of Class 8/UN2794.

1.8 Test procedures

As the medical products from Trumpf Medizin Systeme are distributed worldwide, uniform guidelines for electrical retesting should be used.

According to the IEC 62353 standard, the limit values according to the CF classification apply when testing applied parts. Due to its design, the Trumpf Medizin Systeme PST 300 operating table contains only one application part in Class B.

Furthermore, the Trumpf Medizin Systeme product-specific prescribed retests and safety checks are obligatory.

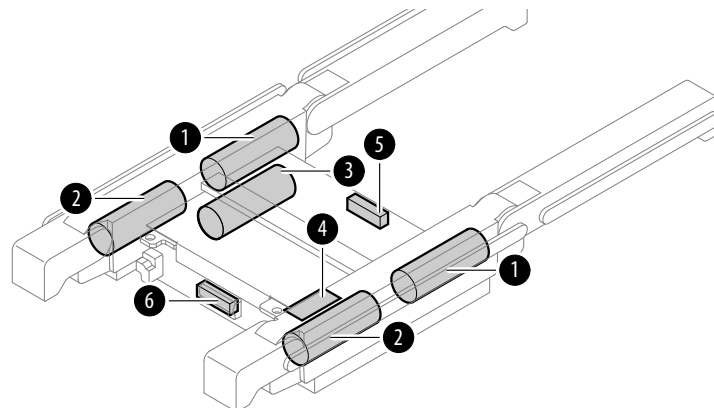
1.9 Components with serial number

Individual, safety-relevant components or assemblies of the operating table are marked with an additional serial number. When replacing one of the listed parts, the serial numbers of the removed and new parts must be reported to Trumpf Medizin Systeme using the "Service Report" form (country-specific). Complete the "Service Report" form in full and fax or email it to the Technical Customer Service. This information is required in order to process subsequent customer requests correctly. Attention - it may be the case that assemblies contain several components with serial numbers. In this case, all corresponding serial numbers must be entered in the "Service Report" form.

The "Service Report" form can be downloaded from the Trumpf Medizin Systeme online information system. On completion of work, package the defective part securely and send it back to Trumpf Medizin Systeme.

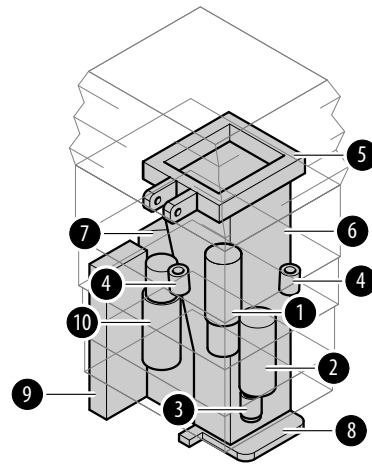
The following components or assemblies on the operating table can be clearly identified by their serial numbers:

Tabletop:



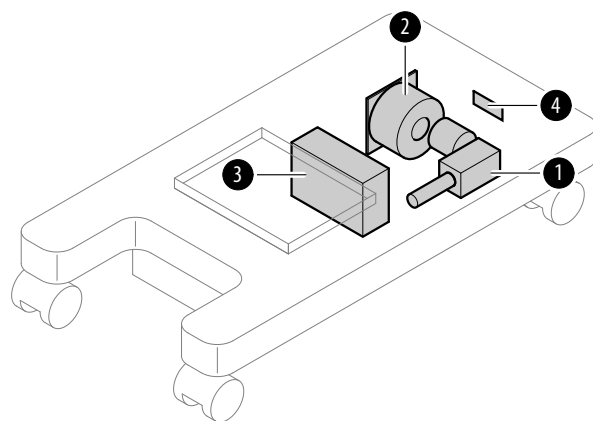
Pos.	Material description	Material number
1	Motor for back section hinge	1977822
2	Motor for leg section hinge	1977822
3	Longitudinal slide motor	1977822
4	PCBA distributor board	2081702
5	Connector socket for the control module with cable connection	2023321
6	Connector socket for the control module	2023322

Column:



Pos.	Material description	Material number
1	Lift motor	2077111
2	Edging motor	1957801
3	Spindle nut lift	2072460
4	Spindle nut Trendelenburg/tilt	2072201
5	Main cardan	1957806
6	Upper section of lift column	2077103
7	Bottom section of lift column	2077854
8	Lift spindle mount	2077851
9	Main Controller Unit	2072001
10	Trendelenburg motor	2081750

Running gear:



Pos.	Material description	Material number
1	Jack-up unit linear drive	1949664
2	Transformer	1950753
3	Power supply unit	2081701
4	Voltage selector circuit board	2048974

2 Getting information online (Online Info System)

Trumpf Medizin Systeme provides additional important and up-to-date information for the product range in electronic form on the online information system.

Only authorised personnel have electronic access to the online information system of Trumpf Medizin Systeme. The password for access to the online information system is available from the Technical Customer Service.

3 Tools

Fastening parts with metric threads are installed in the PST 300 operating table.

Tools

The following tools are required (and are not available from Trumpf Medizin Systeme):

- Allen wrench set (1.5 mm to 10 mm)
- Open wrench set (8, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19)
- Philips head screwdriver set (0, 1, 2, 3)
- Slotted screwdriver set (0, 1, 2, 3, 4, 5, 6)
- Socket wrench
- Side cutting pliers
- Nylon mallet
- Thickness gauge
- Pin remover
- Torque spanner
- 1 assembly levers
- Lifting aid for bolts
- Hot-air blower
The hot-air blower can be used to loosen an adhesive screw guard by heating it.
- Clamping pliers
The clamping pliers may be used to position the bearing blocks of the tabletop.
- Circlip pliers

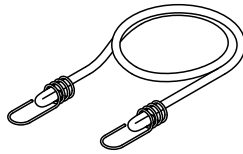
Measuring equipment

The following measuring equipment is required (and is not available from Trumpf Medizin Systeme):

- Multimeter
- Ruler
- Cable inspection equipment
- Test device for electrical safety (such as Secutest SIII or Rigel 62353+)

- Electronic spirit level
The level is used to calibrate the incline sensors.
- Spring balance with a measuring range up to 10 N
The spring balance is used to check the cogged belt tension.

Auxiliary tools



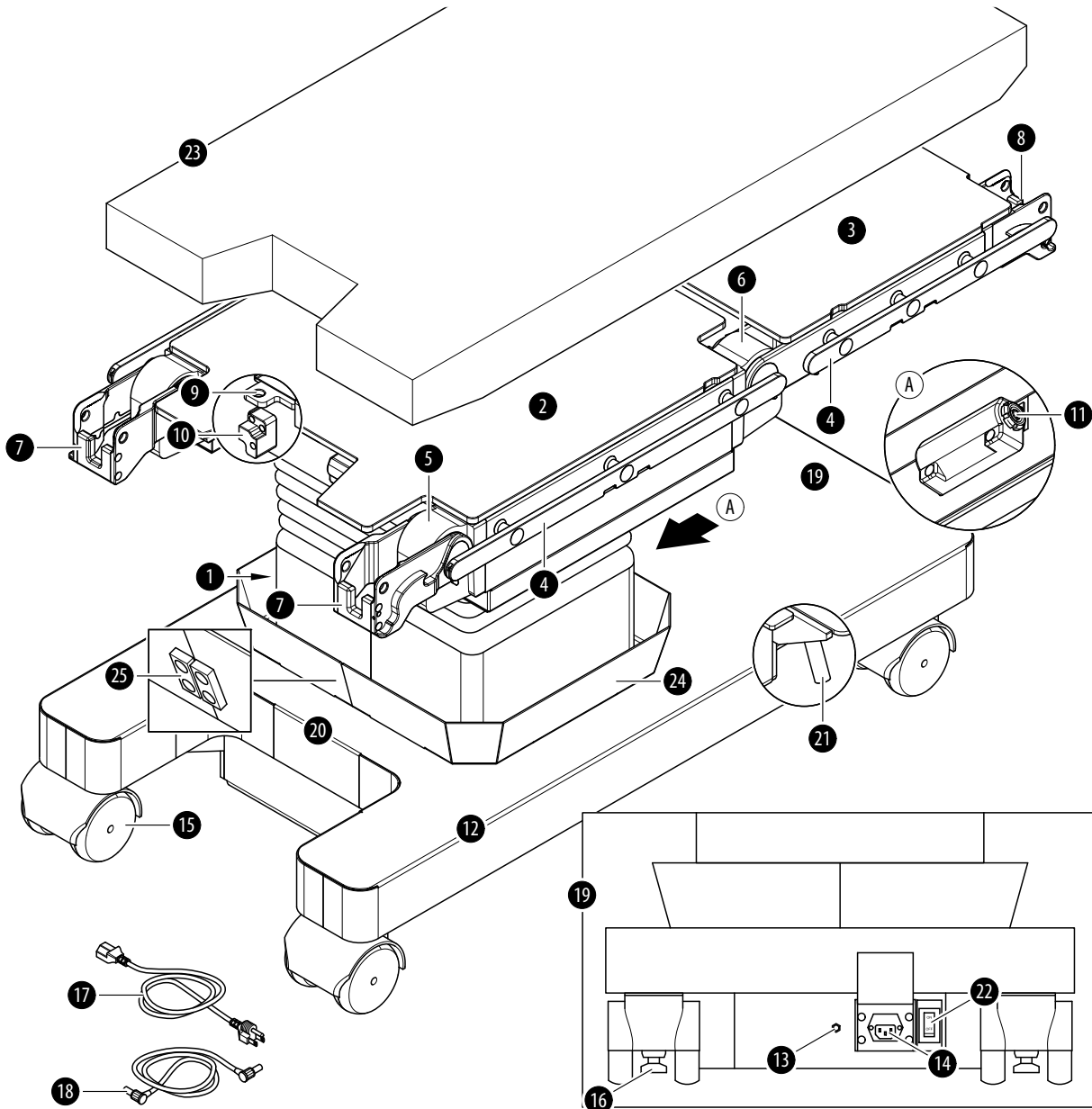
The following auxiliary tools are required (and are not available from Trumpf Medizin Systeme):

- Cable ties
- Alcohol (degreasing agent)
- Punch
The punch is used to loosening fixed connections.
- Lashing straps with velcro strap or hooks at the ends
The lashing straps may be used, for example, to fasten the bellows when access to the upper part of the operating table column is required.
- Tension measuring device
The tension measuring device is used to check the cogged belt tension on the motor for leg section hinge and on the motor for back section hinge.

The following Trumpf Medizin Systeme auxiliary tools are needed:

Designation	Material number
(T) Wheel extractor The wheel extractor is used to remove the gear wheel from the longitudinal slide of the gear shaft.	2067884
(T) Dummy linear guides The dummy is used for extending the linear guide.	2067885
TS3K Series Service Tool service software	–
(T) Tail wheel The tail wheel is used to place the operating table on its side.	1800121
Screw guard varnish Loctite 243 50 ml	0970613
Terostat MS 939 adhesive	4150068
ISOFLEX TOPAS NCA 52 special grease	2031284
UNIMOLY GB 2 lubricant	2065940
ISOFLEX TOPAS NCA 5051 longlife grease	1784510
POLYLUB GLY 151 lubricant	2082175
Care set and cleaning set	4159014

4 Overview



- [1] Column keypad
- [2] Seat section
- [3] Back section
- Operating table S with short back section
- Operating table L with long back section
- [4] Side rail
- [5] Hinge, leg section, adjustable by motor
- [6] Hinge, back section, adjustable by motor
- [7] Coupling point mount L
- [8] Coupling point mount S/M
- Operating table S with M mount coupling point
- Operating table L with S mount coupling point

- [9] Insertion aperture for the extension adapter
The extension adapter is available as an accessory from Trumpf Medizin Systeme.
- [10] Support block for extension adapter
The extension adapter is available as an accessory from Trumpf Medizin Systeme.
- [11] Control module connection socket in the IR housing
- [12] Running gear
- [13] Connecting pin for equipotential bonding conductor
- [14] Connector socket for the mains cable
- [15] Wheel
All 4 wheels can be turned around their own axis by 360°.
- [16] Retractable feet (parking brake)
- [17] Mains power cable
- [18] Equipotential bonding conductor
- [19] Head end of the operating table
- [20] Foot end of the operating table
- [21] Emergency release lever for running gear
- [22] Switch for switching the operating table on/off
- [23] Pad
- [24] Column protection, 2-piece (cladding protection)
- [25] Magnet

4.1 Cable overview

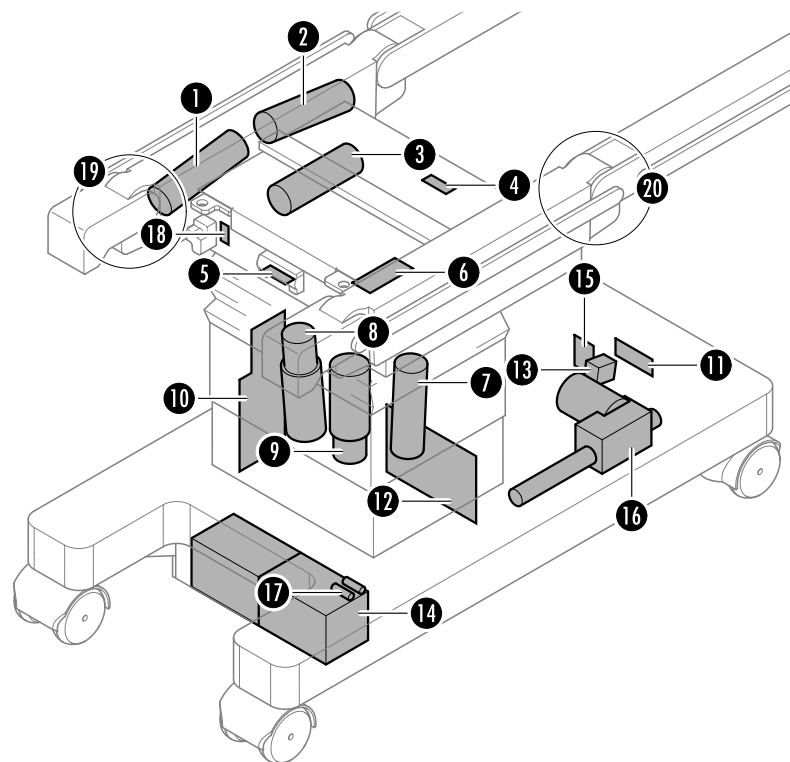
Material number	Cable	Cable routing	Description
Tabletop			
2025250	W201	Cable from the left motor for leg section hinge and the left motor for back section hinge through the power chain to cable W401 (plug connection in the column head)	Chapter 13.2, page 93
2025267	W202	Cable from the distributor board (sensor connection back section end position) through the power chain to cable W502 (plug connection in left strut)	Chapter 13.2, page 93
2025265	W203	Cable from the distributor board (sensor connection to zero position of leg section) through the power chain to cable W503 (plug connection in left strut)	Chapter 13.2, page 93
2025268	W204 (end position, zero position switch)	Cable from the longitudinal slide switches through the power chain to the distributor board	Chapter 13.2, page 93
2072485	W220	Cable from the distributor board (hook sensor connection) through the power chain to cable W520 (plug connection in left strut)	Chapter 13.2, page 93
2025262	W301	Cable from the right motor for leg section hinge and the right motor for back section hinge through the power chain to cable W401 (plug connection in the column head)	Chapter 13.2, page 93

Material number	Cable	Cable routing	Description
2025264	W302	Cable from the distributor board (sensor connection to end position of leg section) through the power chain to cable W506 (plug connection in right strut)	Chapter 13.2, page 93
2025266	W303	Cable from the distributor board (sensor connection to zero position of back section) through the power chain to cable W507 (plug connection in right strut)	Chapter 13.2, page 93
2025273	W304	Cable from the distributor board (operating sensor connection) through the power chain to cable W508 (plug connection in column head)	Chapter 13.2, page 93
2025263	W305	Cable from the longitudinal slide of the motor through the power chain to cable W401 (plug connection in column head)	Chapter 13.2, page 93
2025271	W306	Cable from the distributor board to the IR circuit board at the foot end	Chapter 13.2, page 93
2072457	W320	Cable from the distributor board (hook sensor connection) through the power chain to cable W520 (plug connection in right strut)	Chapter 13.2, page 93
2025245	W401	Cable from the main board (Main Controller Unit) (connection of longitudinal slide motor, motor for leg section hinge and motor for back section hinge) to the plug connection in the column head	Chapter 13.2, page 93
2025248	W402	Cable from the distributor board to the main board (Main Controller Unit)	Chapter 13.2, page 93
2025249	W404 (protective conductor)	Protective conductor from column head (foot end) to Trendelenburg bracket	Chapter 13.2, page 93
2025275	W502 (sensor for end position of back section)	Cable from left back section hinge to cable W202 (plug connection in strut)	Chapter 13.4, page 96
2056956	W503 (sensor in end position of leg section)	Cable from left leg section hinge to cable W203 (plug connection in strut)	Chapter 13.3, page 94
2025272	W505	Cable from distributor board to IR circuit board at head end	Chapter 13.2, page 93
2056959	W506 (sensor in end position of leg section)	Cable from right leg section hinge to cable W302 (plug connection in strut)	Chapter 13.3, page 94
2056960	W507 (sensor in zero position of back section)	Cable from right back section hinge to cable W303 (plug connection in strut)	Chapter 13.4, page 96
2057062	W508 (operating sensor)	Cable from operating sensor to cable W304 (plug connection in column head)	Chapter 13.5, page 98
2072262	W520 (hook sensor)	Cable from hook sensor to cable W220 (plug connection in right strut) or to cable W320 (plug connection in left strut)	Chapter 13.6, page 100



Material number	Cable	Cable routing	Description
Column			
2025241	W101 (power supply)	Cable from the main board (Main Controller Unit) through the power chain to the power supply unit	Chapter 14.2, page 103
2025242	W102	Cable from the main board (Main Controller Unit) through the power chain to the lift motor and the jack-up unit motor	Chapter 14.2, page 103
2025243	W103	Cable from the main board (Main Controller Unit) (jack-up unit switch connection) through the power chain to cable W703 (plug connection at power supply unit)	Chapter 14.2, page 103
2025244	W104	Cable from the main board (Main Controller Unit) through the power chain to the power supply unit	Chapter 14.2, page 103
2025218	W105 (protective conductor)	Protective conductor from Trendelenburg bracket through the power chain to the running gear	Chapter 14.2, page 103
2025245	W401	Cable from the main board (Main Controller Unit) (connection of longitudinal slide motor, motor for leg section hinge and motor for back section hinge) to the plug connection in the column head	Chapter 14.2, page 103
2025248	W402	Cable from the distributor board to the main board (Main Controller Unit)	Chapter 14.2, page 103
2025246	W403	Cable from the main board (Main Controller Unit) (Trendelenburg switch connection) to cable W602 (plug connection at lift column)	Chapter 14.2, page 103
2025249	W404 (protective conductor)	Protective conductor from column head (foot end) to Trendelenburg bracket	Chapter 14.2, page 103
2023086	W405 (end position, zero position switch)	Cable from the lift switches to the main board	Chapter 14.2, page 103
2024959	W602 (end position switch)	Cable from the Trendelenburg switches to cable W403 (plug connection in lift column)	Chapter 14.2, page 103
Running gear			
2025241	W101 (power supply)	Cable from the main board through the power chain to the power supply unit	Chapter 15.2, page 105
2025244	W104	Cable from the main board through the power chain to the power supply unit	Chapter 15.2, page 105
2025218	W105 (protective conductor)	Protective conductor from Trendelenburg bracket through the power chain to the running gear	Chapter 15.2, page 105
2025213	W701	Cable from the on/off switch to cable W101 (plug connection on power supply unit)	Chapter 15.2, page 105

Material number	Cable	Cable routing	Description
2025215	W702 (protective conductor)	Protective conductor from the power socket to the running gear	Chapter 15.2, page 105
2025219	W703 (jack-up unit switch)	Cable from switch to cable W103 (plug connection on power supply unit)	Chapter 12.3, page 82
2025216	W704	Cable from power supply unit to batteries, cable W705 (fuse) and cable W706 (fuse)	Chapter 15.2, page 105
2025217	W705	Cable from fuse to battery	Chapter 15.2, page 105
2065006	W706	Cable from fuse to battery	Chapter 15.2, page 105
2072559	W721	Cable from the voltage selector circuit board to the transformer switching relay	Chapter 15.2, page 105
2072355	W720	Cable from transformer switching relay to the mains socket	Chapter 15.2, page 105



- [1] Motor for leg section hinge
- [2] Motor for back section hinge
- [3] Longitudinal slide motor
- [4] IR circuit board at head end
- [5] IR circuit board at foot end
- [6] Distributor board
- [7] Edging motor
- [8] Trendelenburg motor
- [9] Lift motor
- [10] Main board in the Main Controller Unit
- [11] Voltage selector circuit board
- [12] Power input circuit board
- [13] Mains bushing
- [14] Batteries

- [15] On/Off switch
- [16] Jack-up unit motor
- [17] Battery fuse
- [18] OR sensor
- [19] Leg section hinge
- [20] Back section hinge

5 Preparing the operating table

Before beginning maintenance or repair work, prepare the operating table in accordance with the following work steps:

1. Activate the parking brake of the operating table.
2. Move the operating table into the zero position.
3. Remove the accessories from the operating tabletop.
4. Remove the tabletop sections from the operating tabletop.
5. Move the operating table into the highest position.
6. Remove the pad from the operating tabletop so that it is not exposed to general damage.
7. Remove the column protection (cladding protection).

6 Basic work

6.1 Disconnecting the external power supply

1. Switch off the operating table using the switch at the head end of the running gear.
2. Remove the plug of the mains power cable from the power socket.
3. Remove the mains power cable plug from the connector socket on the running gear.
4. Unplug the equipotential bonding conductor from the operating table (not available in all countries).

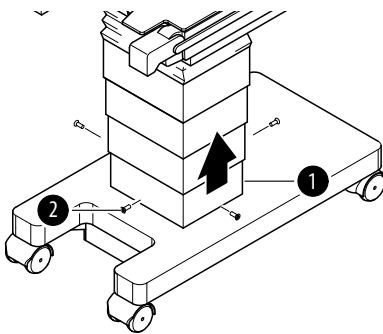
6.2 Connecting the external power supply

1. Switch off the operating table using the switch at the head end of the running gear.
2. Push the plug of the mains power cable into the connector socket on the running gear.
3. Insert the plug of the mains power cable into an earthed power socket.
4. Switch on the operating table using the switch at the running gear.

6.3 Opening the column cover on the running gear

To obtain access to the internal components, remove the column cover from the running gear, push it up and secure in place.

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Unscrew the lowest column cover [1] from the running gear (4 screws [2]).
4. Carefully slide the column cover upwards and fix it (e.g. with lashing straps or cable ties).

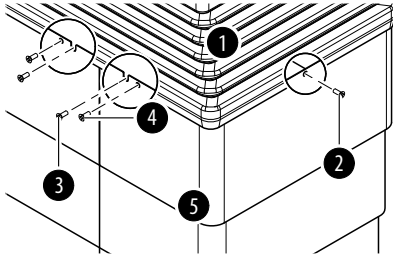


6.4 Closing the column cover on the running gear

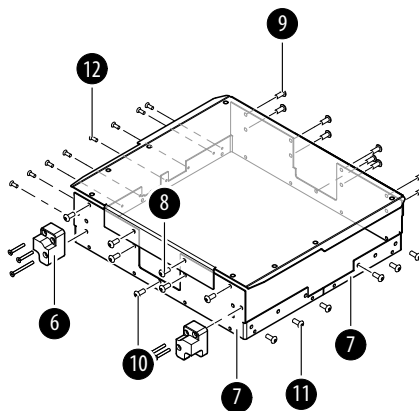
1. Check the seal of the column cover on the running gear and replace if worn or damaged.
2. Release the fixing of the column cover and lower the column cover onto the running gear. Make sure that the seal on the running gear has not been moved but the gap between the running gear and the casing is tight.
3. Mount the lowest column cover on the running gear (4 screws).

6.5 Open column top

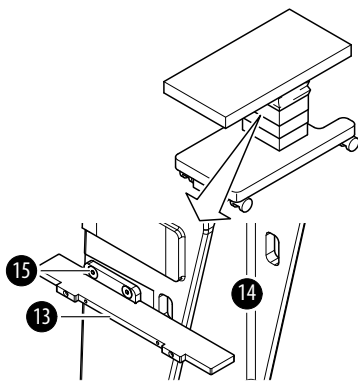
To obtain access to the internal components, remove the column cover from the bellows and lower it onto the running gear. Next, the bellows are detached from the column head.



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Release the bellows [1] from the column cover [5] (1 screw [2] on both the left and the right below the bellows).
4. Release the bellows [1] from the guide column (both the inner screws [3] below the bellows at the head and foot end).
5. Note the mounting position of the flat conductor. Pull the bellows upwards and unplug the flat conductor of the column keypad from the main board (Main Controller Unit). The flat conductor is clamped to the plug. First push the small pins at the edge of the plug downwards and then pull the cable out of the plug.



6. Unscrew the column cover [5] from the frame (4 screws, 1 screw per side) and place it down on the running gear.
Attention - the column cover will slide down as soon as all the screws have been removed.
7. Remove both carrier blocks [6] for the extension adapter (3 screws each).
8. Switch on the operating table using the switch at the running gear.
9. Release the two cover plates [7] from the head and foot of the column head.
Move the longitudinal slide of the operating tabletop as necessary, so that the lateral screws on the cover plates are accessible.
 - a) Remove the upper 6 screws [8] from the foot end of the column head.
 - b) Remove the upper 8 screws [9] from the head end of the column head.
 - c) Remove 1 screw [10] below the bushing strip at both the head and foot end of the column head.
 - d) Remove the upper 6 screws [11] from the left-hand side of the column head.
 - e) Remove the upper 8 screws [12] from the right-hand side of the column head (operator side).
10. Switch off the operating table using the switch at the running gear.



11. Remove the bracket [13] for the bellows on the head end of the guide column [14] (2 screws [15]).
12. Carefully guide the bellows with the cover plates [7] downwards.

6.6 Closing the column cover on the bellows

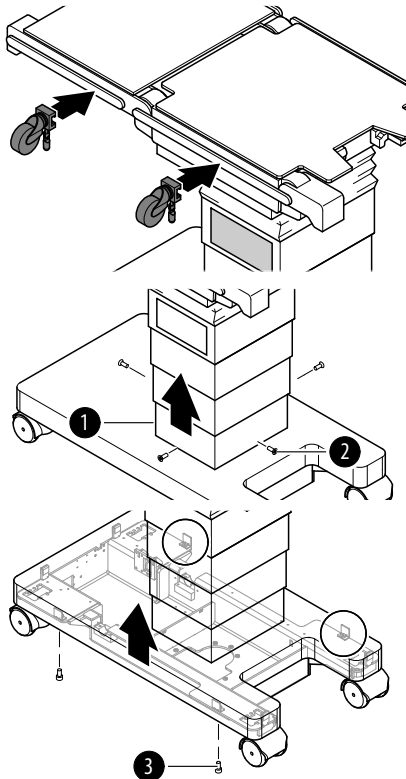
1. Carefully guide the bellows with the cover plates upwards.
2. Switch on the operating table using the switch at the running gear.
3. Mount the bellows with the head-end and foot-end cover plates on the column head.
Ensure that the cover plates fit underneath the column head cover. Move the longitudinal slide of the operating tabletop as necessary, so that the lateral screws on the cover plates are accessible.
 - a) 7 screws at the foot end
 - b) 9 screws at the head end
 - c) 8 screws on the right side
 - d) 6 screws on the left side
4. Switch off the operating table using the switch at the running gear.
5. Mount the bracket for the bellows on the head end of the guide column (2 screws).
6. Mount both support blocks for the extension adapter on the column head (3 screws each).
7. Guide the column cover upwards and mount it at the head and foot end of both guide column brackets (2 screws each).
8. Return the flat conductor to its original mounting position. Pull the bellows upwards and push the flat conductor of the column keypad into the plug of the main board (Main Controller Unit) and engage. Push the small pins at the edge of the plug upwards for this purpose.
9. Mount the lower frame of the bellows on both guide column brackets at the head and foot end (2 screws each).
10. Mount the bellows on the column cover (1 screw each on the left and right below the bellows).

6.7 Turn over the operating table

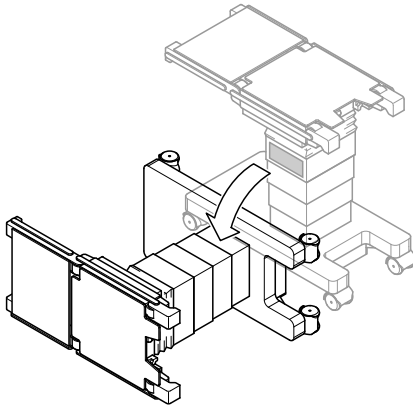
Due to the high weight of the operating table, it must be tilted with the help of a second person.

The operating tabletop should be placed onto a soft surface to prevent scratches and other damage to the operating table.

Hillrom offers the tail wheel as a special auxiliary tool, which is to be attached to the side rail before tilting. The operating table is subsequently placed onto the tail wheels. Other materials may also be used as an aid for depositing the operating tabletop, as required.



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. If the tail wheels (#1800121) are present, attach one tail wheel each to the right side rail (operator side) of the seat section and the back section.
4. Open the column cover on the running gear:
 - a) Unscrew the lowest column cover [1] from the running gear (4 screws [2]).
 - b) Carefully slide the column cover upwards and fix it (e.g. with lashing straps or cable ties).
5. Loosen the metal cover of the running gear from the running gear (4 screws [3]), lift, and fix in the lifted position using straps or similar means.
6. Switch on the operating table using the switch at the running gear.
7. **NOTICE!** The extended retractable feet on the 4 wheels can be broken by the great force exerted whilst moving. The parking brake must not be activated when the operating table is to be turned over. Release the parking brake of the operating table using the button [i46].
8. Switch off the operating table using the switch at the running gear.



9. **CAUTION!** High weight of the operating table. Correct the wheel position as required and tilt the operating table with the help of a second person. Align the wheels in parallel to the long side of the operating table, so that the operating table does not roll away while it is being tilted. The side with the column keypad should face downwards.

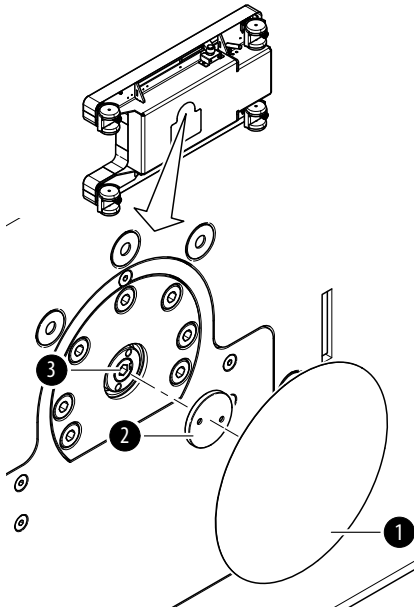
6.8 Restore the operating table to the upright position

1. Keep the floor in front of the operating table clear, and clean it if necessary.
2. **CAUTION! High weight of the operating table.** Move the operating table into the upright position with the help of a second person.
3. Switch on the operating table using the switch at the running gear.
4. Activate the parking brake of the operating table.
5. Switch off the operating table using the switch at the running gear.
6. Mount the running gear metal cover on the running gear (Chapter 11.2).
7. Guide the column cover downwards and close on the running gear (Chapter 6.4).
8. Remove the tail wheels, if present.

6.9 Emergency adjustment for the lift

If the lift motor has a defect, the column can no longer be moved upwards. The manual emergency adjustment must be performed to access the column. This emergency adjustment is not possible if the lift spindle is defective.

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Turn over the operating table (Chapter 6.7).
4. Remove the protective sheet [1] from the bottom of the running gear.
5. Remove the cover plate [2] from the spindle end (securing ring pliers).
6. Crank the lift spindle [3] up using a socket wrench.
7. If all work on the lift is complete, fasten the cover plate [2] to the spindle end (securing ring pliers and omniFIT 100M thread locking agent).
8. If all work on the lift is completed, attach a new protective sheet over the bearing housing of the spindle.
9. Once all work on the lift is complete, restore the operating table to the upright position (Chapter 6.8).



7 Operating tabletop mechanical components

7.1 Safety

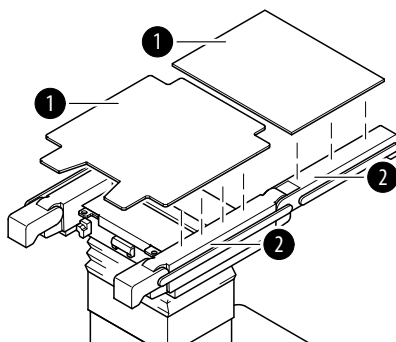
- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

7.2 Pad plate

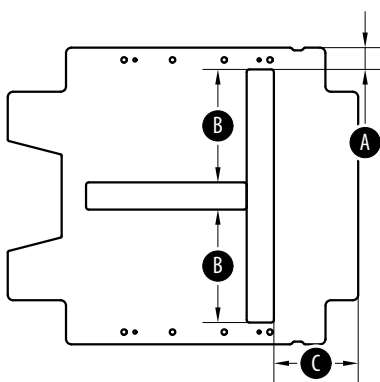
The struts are joined together by pad plates and the transverse web. After loosening or removing both pad plates, the struts can be moved to a certain extent in relation to each other. If possible, loosen and remove a maximum of 1 pad plates. Even minor differences in length between the right and left strut will subsequently prevent the section segments from engaging at the coupling points. As a result, the struts must be realigned lengthwise as soon as both pad plates have been loosened or removed.

Attention: When both pad plates are removed, pressure on the struts can result in the deformation of the transverse web. Do not lean or press on the struts.

Removal



Assembly



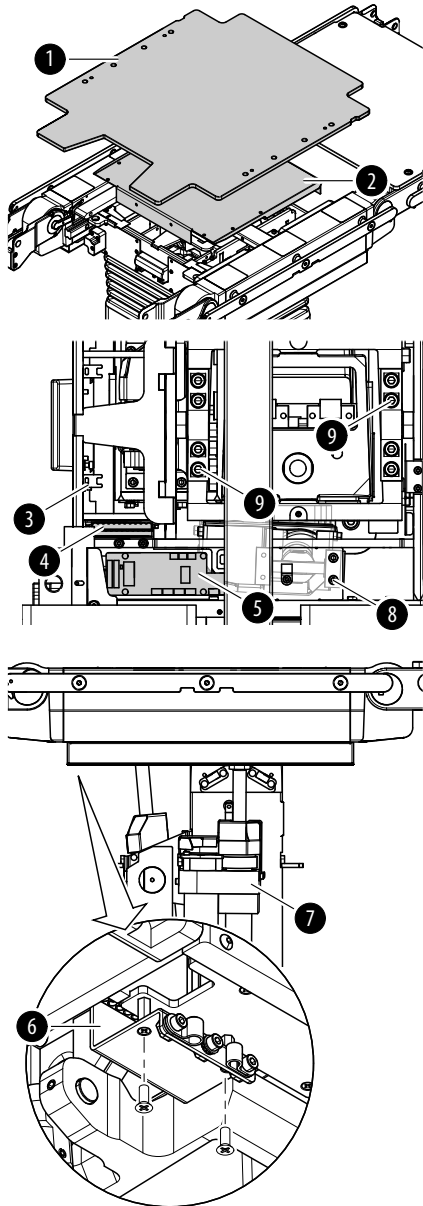
- [A] 40 mm (1.5748 in)
- [B] 207.5 mm (8.1693 in)
- [C] 155 mm (6.1024 in)

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Note the mounting position of the pad plate. Remove the pad plate [1] from the struts [2].
 - Seat section pad plate (8 screws)
 - Back section pad plate (6 screws)

1. Check the hook straps on the pad plate and replace if worn or damaged.
A new pad plate must be fitted with a new velcro tape (for the seat section only). The velcro tape has a self-adhesive backing.
 - a) Thoroughly clean and degrease the pad plate in the area of the velcro tape.
 - b) Stick the new velcro tape onto the pad plate in accordance with the specified dimensions.
2. Align struts lengthwise (Chapter 16.1).
Alignment of the struts is required only if both pad plates are removed.
3. Return the pad plate to its original mounting position. Position and attach the pad plate onto the struts:
 - Seat section pad plate (8 screws)
 - Back section pad plate (6 screws)
4. Put the pad in place.
5. Connect the power supply to the operating table (Chapter 6.2).

7.3 Tabletop

Removal



Assembly

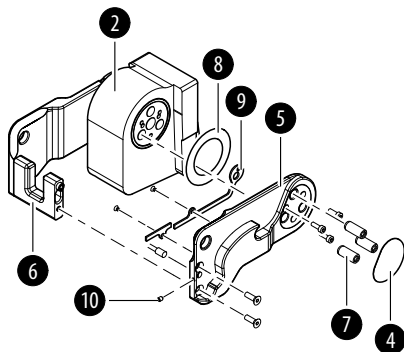
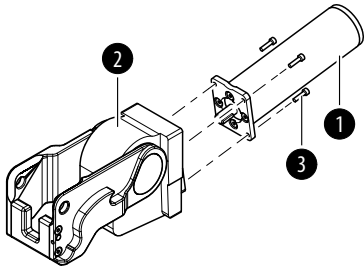
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column top and guide the column cover downwards (Chapter 6.5).
4. Remove the pad plate [1] from the seat section (Chapter 7.2). Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
5. Remove the column head cover [2] (Chapter 9.3).
6. Switch on the operating table using the switch at the running gear.
7. Shift the longitudinal slide of the tabletop to the zero position.
8. Switch off the operating table using the switch at the running gear.
9. Note the cable routing. Remove the protective conductor W404 from the column head (1 screw [3] with 1 washer and 2 serrated lock washers).
10. Note the cable routing. Pull out the plug of cables W201, W301 and W305 from the socket [4] of cable W401.
11. Note the cable routing. Pull out the plug of cable W402 from the PCBA distributor board [5] and loosen the cable shield.
12. Remove the retaining plate W401 [6] (2 screws).
13. Secure edging assembly [7] to the column using cable ties.
14. Release the edging assembly [7] from the top (4 screws [8]).
15. **CAUTION!** Do not prop up on the tabletop if the screws have been removed. The tabletop may tip from the column as a result of the load. Ensure the tabletop is supported by a second person.
Release the tabletop from the column: Remove 4 screws [9] each from the bearing blocks on both sides.
16. Note on work protection (health and safety): Due to the heavy weight of the tabletop, take care not to strain your back when lifting down. A second person is required for lifting down the tabletop.
Note the mounting position of the tabletop. Carefully lift the tabletop [8] from the column and position it securely on a level and soft pad.
1. Note on work protection (health and safety): Due to the heavy weight of the tabletop, take care not to strain your back when lifting. A second person is required for lifting and assembling the tabletop.
Return the tabletop to its original mounting position. Do not crush the connecting cables. Press the bearing blocks inwards using the clamping pliers and position the tabletop on the column.
2. Mount the tabletop on the column: Tighten 4 screws in the bearing blocks on both sides.

3. Mount the edging assembly on top of the tabletop (4 screws). Tighten the screws with a torque of 10 Nm.
4. Remove the cable ties from the edging assembly and column.
5. Install the retaining plate W401 (2 screws).
6. Attention! Do not interchange the plug connections on the circuit board. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect the plug of cable W402 to the PCBA distributor board and mount the cable shield.
7. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Insert the plug of cables W201, W301 and W305 into the W401 cable bushing.
8. Mount protective conductor W404 on the column head (1 screw with 1 washer and 2 serrated lock washers).
9. Mount the column head cover (Chapter 9.3).
10. Mount the pad plate onto the strut (Chapter 7.2).
11. Guide the column cover upwards and close (Chapter 6.6).
12. Put the pad in place.
13. Connect the power supply to the operating table (Chapter 6.2).

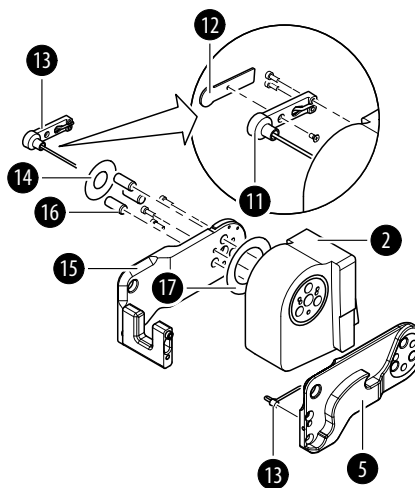
7.4 Leg section gear

Removal

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the drive unit leg section (Chapter 8.2).
5. Note the mounting position of the motor. Unscrew the motor [1] from the leg section gear [2] (4 screws [3]) and remove.



6. Remove the self-adhesive protective sheet [4] from the outer coupling plate [5].
7. Separate the outer coupling plate [5] from the encoding bracket [6] (2 screws).
8. Remove 3 pins [7] from the outer coupling plate [5] using a pin remover.
9. Attention - there is a sliding washer [8] between the coupling plate [5] and the gear unit [2]. Make sure that the sliding washer is not lost. Remove the outer coupling plate [5] (3 screws).
10. Remove the two cable covers [9] from the outer coupling plate [5] (2 screws).
11. Remove the threaded pin [10] from the outer coupling plate [5].
12. Unscrew the cable housing [11] from the drive unit of the leg section [2] (2 screws).
13. Remove the cover [12] from the cable housing [11] (1 screw).
14. Note the cable routing. Unplug the sensor [13] from the outer coupling plate [5] and the sensor cable from the remaining parts.
15. Remove the self-adhesive protective sheet [14] from the inner coupling plate [15].
16. Remove 3 pins [16] from the inner coupling plate [15] using a pin remover.
17. Attention - there is a sliding washer [17] between the coupling plate [15] and the gear unit [2]. Make sure that the sliding washer is not lost. Remove the inner plate (3 screws).



Assembly

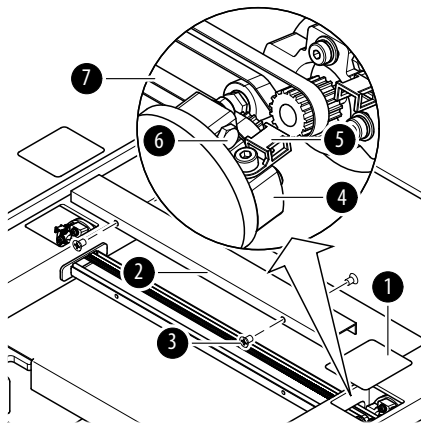
1. Remove any adhesive residue from the two coupling plates and degrease.
2. Check sliding washers and replace if worn or damaged.
3. Push a sliding washer onto the inner lip seal of the gear and press in the internal coupling plate.
Make sure the sliding washer is properly positioned.
4. Knock 3 pins into the gear unit at the inner coupling plate.



5. Mount the inner coupling plate (3 screws).
6. Stick a new protective self-adhesive sheet onto the inner coupling plate.
Pay attention to the positioning. The screws of the coupling plate must be covered.
7. Restore the original cable routing.
Insert the sensor into the outer coupling plate and secure with the threaded pin. The sensor must end flush with the coupling plate.
8. Place the sensor cable into the opening of the outer coupling plate and mount the two cable covers (2 screws).
9. Pull the sensor cable through the disassembled parts (sliding washer - gear with inner coupling plate - cable housing).
10. Push the sliding washer onto the lip seal of the gear and press in the outer coupling plate onto the gear.
Make sure the sliding washer is properly positioned. Make sure that the sensor cable is not pinched.
11. Knock 3 pins into the gear unit at the outer coupling plate.
12. Mount the outer coupling plate (3 screws).
13. Mount the outer coupling plate on the encoding bracket (2 screws).
14. Stick a new protective self-adhesive sheet onto the outer coupling plate.
Pay attention to the positioning. The screws of the coupling plate must be covered.
15. Restore the original cable routing. Place the sensor cable into the cable housing.
16. Mount the cover to the cable housing (1 screw).
Make sure that the cable does not become pinched.
17. Mount the cable housing to the drive unit for leg section (2 screws).
18. Restore the motor to its original mounting position. Mount the motor onto the leg section gear (4 screws).
19. Mount the leg section drive unit onto the seat section bar (Chapter 8.2).
20. Align the hinges (Chapter 16.2).
21. Mount the pad plate onto the strut (Chapter 7.2).
22. Put the pad in place.
23. Connect the power supply to the operating table (Chapter 6.2).

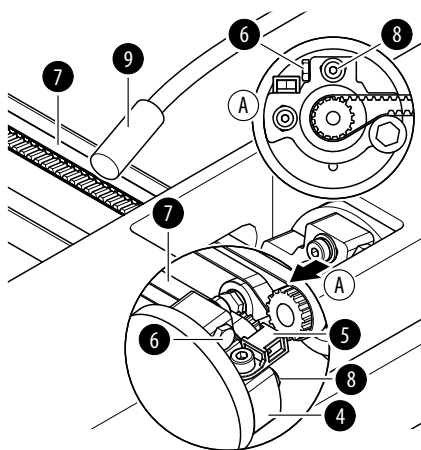
7.5 Leg section cogged belt

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the self-adhesive protective sheet [1] from the centre opening on both struts.
5. Remove the cogged belt cover [2] (4 screws [3]).
6. Release the clamping device [4] for the belts on both leg section drive units (2 screws each).
7. Release the cable clip [5] on a drive unit (1 screw).
8. Slightly loosen the tensioning screw [6] on the clamping device [4]. Where necessary, ensure that the tensioning screw on the other clamping device is also slightly loosened.
9. Note the mounting position of the cogged belt. Do not twist the sprocket on the motor.
10. Pull the cogged belt [7] through the struts and remove.

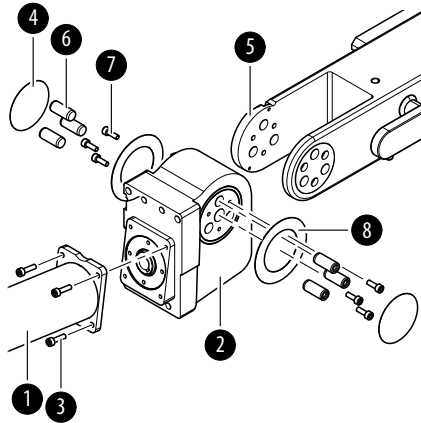
Assembly



1. Check the alignment of the right and left hinges in relation to each other. The two hinges must be at the same height. Adjust the hinges if necessary (Chapter 16.2).
2. Restore the cogged belt to its original mounting position. Carefully put the new cogged belts into both of the seat section bars at the ends and place them in the bridge (between the cogged belt guides).
3. Suspend the cogged belt.
Ensure that the cogged belt is properly guided over the clamp roller. The cogged belts must run parallel.
4. Adjust the cogged belt.
Evenly tension the cogged belt on both sides.
 - a) Screw in the tensioning screw [6] on both clamping devices [4].
 - b) Determine the cogged belt oscillation frequency using a tension meter device [9] and readjust the cogged belt tension where necessary using the tensioning screw(s) [6] (pre-tensioning $49 \text{ Hz} \pm 3 \text{ Hz}$, check 3x in succession).
 - c) Mount the clamping device [4] for the belts onto both drive units for the leg section hinge (2 screws [8]).
5. Attach the cable clip [5] onto the drive unit (1 screw).
6. Mount the cogged belt cover (4 screws).
7. Apply new self-adhesive protective sheets to the middle openings on both struts.
8. Mount the pad plate onto the strut (Chapter 7.2).
9. Put the pad in place.
10. Connect the power supply to the operating table (Chapter 6.2).

7.6 Gear unit back section

Removal



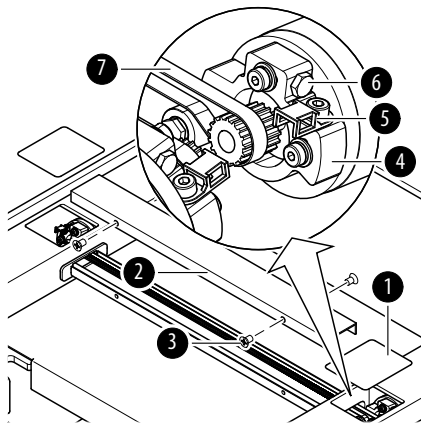
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section and the back section (Chapter 7.2).
4. Remove the back section drive unit (Chapter 8.4).
5. Note the mounting position of the motor. Unscrew the motor [1] from the back section gear [2] (4 screws [3]) and remove.
6. Remove both self-adhesive protective sheets [4] laterally from the back section hinge [5].
7. Remove 6 cylindrical pins [6] using a pin remover.
8. Remove 6 screws [7].
9. Remove the hinge [5] from the gear [2] and remove 2 sliding washers [8].

Assembly

1. Check sliding washers and replace if worn or damaged.
2. Press the sliding washers onto the lip seals and push the hinge onto the back section gear. Make sure the sliding washers are properly positioned.
3. Insert the 6 cylindrical pins.
4. Mount the 6 screws.
5. If necessary, attach new self-adhesive protective sheets laterally onto the back section hinge.
6. Restore the motor to its original mounting position. Mount the motor onto the back section gear (4 screws).
7. Mount the back section drive unit onto the seat section bar (Chapter 8.4).
8. Align the hinges (Chapter 16.2).
9. Align struts lengthwise (Chapter 16.1).
10. Mount the pad plates onto the strut (Chapter 7.2).
11. Put the pad in place.
12. Connect the power supply to the operating table (Chapter 6.2).

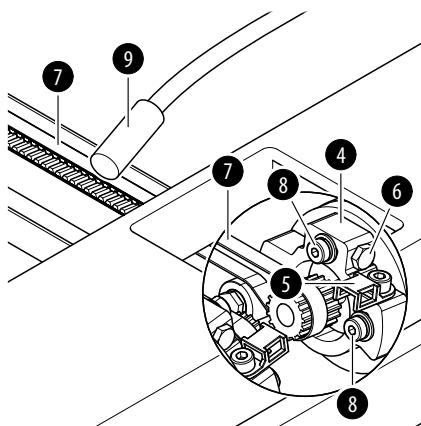
7.7 Cogged belt back section

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the self-adhesive protective sheet [1] from the centre opening on both struts.
5. Remove the cogged belt cover [2] (4 screws [3]).
6. Release the clamping device [4] for the belts on both back section drive units (2 screws each).
7. Release the cable clip [5] on a drive unit (1 screw).
8. Slightly loosen the tensioning screw [6] on the clamping device [4]. Where necessary, ensure that the tensioning screw on the other clamping device is also slightly loosened.
9. Note the mounting position of the cogged belt. Do not twist the sprocket on the motor.
Disengage the cogged belt [7] on both drives.
10. Pull the cogged belt [7] through the struts and remove.

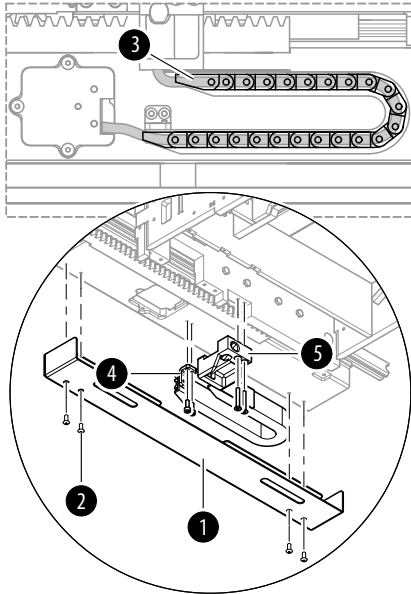
Assembly



1. Check the alignment of the right and left hinges in relation to each other. The two hinges must be at the same height.
Adjust the hinges if necessary (Chapter 16.2).
2. Restore the cogged belt to its original mounting position.
Carefully put the new cogged belts into both of the seat section bars at the ends and place them in the bridge (between the cogged belt guides).
3. Suspend the cogged belt.
Ensure that the cogged belt is properly guided over the clamp roller. The cogged belts must run parallel.
4. Adjust the cogged belt.
Evenly tension the cogged belt on both sides.
 - a) Screw in the tensioning screw [6] on both clamping devices [4].
 - b) Determine the cogged belt oscillation frequency using a tension meter device [9] and readjust the cogged belt tension where necessary using the tensioning screw(s) [6] (pre-tensioning $49 \text{ Hz} \pm 3 \text{ Hz}$, check 3x in succession).
 - c) Mount the clamping device [4] for the belts onto both drive units for the back section hinge (2 screws [8]).
5. Attach the cable clip [5] onto the drive unit (1 screw).
6. Mount the cogged belt cover (4 screws).
7. Apply new self-adhesive protective sheets to the middle openings on both struts.
8. Mount the pad plate onto the strut (Chapter 7.2).
9. Put the pad in place.
10. Connect the power supply to the operating table (Chapter 6.2).

7.8 Power chain (right side)

Removal

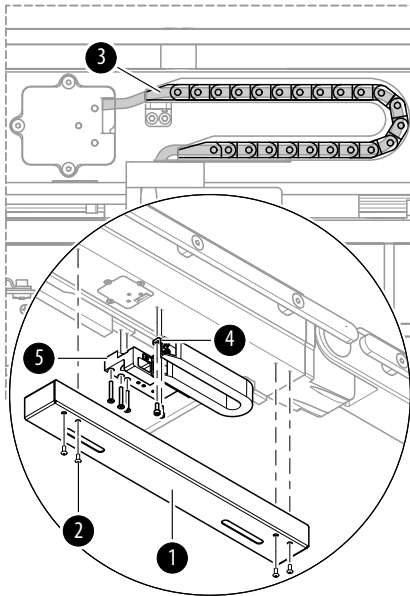


Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Unscrew the cover [1] of the power chain (4 screws [2], do not unscrew completely) and disengage.
 4. Remove the power chain on the top end [4] (2 screws).
 5. The 1st Squeeze the link [3] of the power chain and remove the power chain.
 6. Note the cable routing. Carefully open the power chain and remove the cables from the power chain through the cable openings.
 7. Note the mounting position of the power chain. Remove and extract the power chain from the bottom end [5] of the tabletop (2 screws).
-
1. Return the power chain to its original mounting position. Mount the power chain to the bottom end (2 screws).
 2. Return the cable to its original mounting position. Carefully position the cables in the power chain through the cable openings (do not cross). Ensure that the cables are not crushed.
 3. The 1st link of the power chain must be squeezed and used to secure the power chain.
 4. Mount the power chain to the upper end (2 screws).
 5. Position and install the cover for the power chain (4 screws).
 6. Put the pad in place.
 7. Connect the power supply to the operating table (Chapter 6.2).

7.9 Power chain (left side)

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column top and guide the column cover downwards (Chapter 6.5).
4. Unscrew the cover [1] of the power chain (4 screws [2], do not unscrew completely) and disengage.
5. Remove the power chain on the top end [4] (2 screws).
6. The 1st Squeeze the link [3] of the power chain and remove the power chain.
7. Note the cable routing. Carefully open the power chain and remove the cables from the power chain through the cable openings.
8. Note the mounting position of the power chain. Remove and extract the power chain from the bottom end [5] of the tabletop (3 screws).

Assembly

1. Return the power chain to its original mounting position. Mount the power chain on the left at the foot end of the end and reference switch from the tabletop (3 screws).
2. Return the cable to its original mounting position. Carefully position the cables in the power chain through the cable openings (do not cross). Ensure that the cables are not crushed.
3. The 1st link of the power chain must be squeezed and used to secure the power chain.
4. Mount the power chain to the upper end (2 screws).
5. Position and install the cover for the power chain (4 screws).
6. Guide the column cover upwards and close (Chapter 6.6).
7. Put the pad in place.
8. Connect the power supply to the operating table (Chapter 6.2).

7.10 Linear guide

No repair work of the linear guides is performed at the customer's site. The repairs are carried out at Trumpf Medizin Systeme. Please contact the Trumpf Medizin Systeme Technical Customer Service in the event of a defect. The operating table is replaced entirely.



7.11 Tooth rod

No repair work of the tooth rod is performed at the customer's site. The repairs are carried out at Trumpf Medizin Systeme. Please contact the Trumpf Medizin Systeme Technical Customer Service in the event of a defect. The operating table is replaced entirely.

8 Tabletop electric components

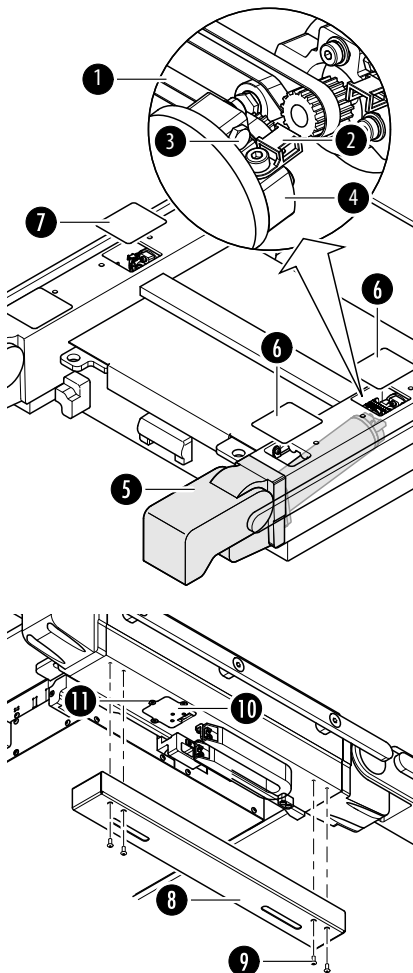
8.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

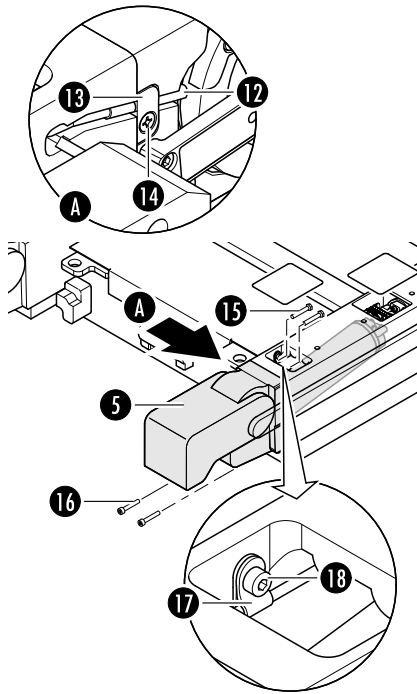
8.2 Drive unit for leg section

Attention: the drive unit requires a serial number. Observe Chapter 1.9 when replacing the drive unit.

Removal



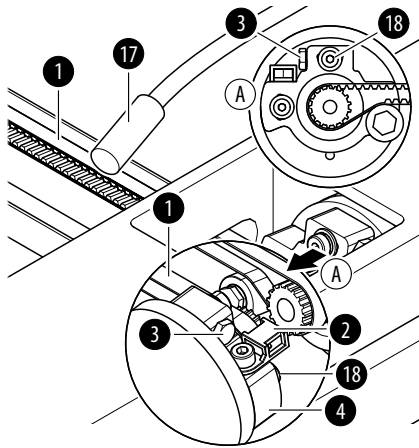
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the self-adhesive protective sheet [6] from the foot-end and centre opening on the strut.
5. Pull the self-adhesive protective sheet [7] off the centre opening of the opposing strut.
6. Release the tensioning device [4] for the belts on both leg section drive units [5] (2 screws each).
7. Release the cable clip [2] on a drive unit [5] (1 screw).
8. Slightly loosen the tensioning screw [3] on the clamping device [4]. Where necessary, ensure that the tensioning screw on the other clamping device is also slightly loosened.
9. Note the mounting position of the cogged belt. Do not twist the sprocket on the motor.
Disengage the cogged belt [1] from the drive unit [5].
10. Unscrew the cover [8] of the power chain (4 screws [9], do not unscrew completely) and disengage.
11. Remove the cover [10] next to the power chain (3 screws [11]).
12. Note the cable routing. Disconnect the plug of the motor power supply cable through the opening on the underside of the strut.



Assembly

13. Remove the cable clip [17] in the foot-end opening of the seat section bar (1 screw [18]).
14. Note the cable routing. Pull the plug of the sensor cable W520 from the socket of cable W220/W320 through the opening in the strut.
15. Remove the leg section hinge sensor [12] and the retaining plate [13] (1 screw [14]).
16. Guide the plug of the sensor cable through the side opening in the strut.
17. Unscrew the drive unit [5] from the strut (2 screws [15] from above and 2 screws [16] from below).
18. Pull the drive unit [5] with the hinge off the strut and place it safely on a level work surface.

1. Carefully push the drive unit into the strut up to the position stop and mount (2 screws from above and 2 screws from below).
Ensure that the cables are not crushed.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Connect the plug of the motor power supply cable.
3. Carefully guide the plug of the sensor cable through the side opening in the strut.
Make sure that the insulation of cable is not damaged.
4. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Insert the plug of sensor cable W220/W320 into the W520 cable bushing.
5. Carefully remove slack from the sensor cable and mount the cable clip in the opening in the seat section bar (1 screw).
6. Mount the sensor leg section hinge and the retaining plate (1 screw).
7. Attach the cover next to the power chain (3 screws).
8. Position and install the cover for the power chain (4 screws).
9. Check the alignment of the right and left hinges in relation to each other. The two hinges must be at the same height.
Adjust the hinges if necessary (Chapter 16.2).
10. Switch on the operating table using the switch at the running gear.
11. Adjust the sensor leg section hinge.
The zero position of the leg section hinge is set on the left hinge and the end position of the leg section hinge is set on the right hinge.
 - a) Carefully shift the leg section hinge into the switching position.

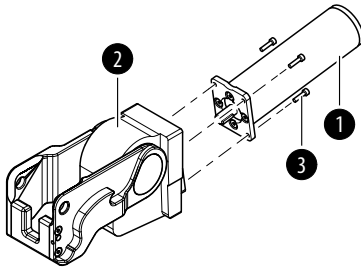


- b) The gap between the sensor and hinge must be 0.3 mm to 0.5 mm. Position the sensor accordingly.
12. Switch off the operating table using the switch at the running gear.
13. Suspend the cogged belt.
Ensure that the cogged belt is properly guided over the clamp roller. The cogged belts must run parallel.
14. Adjust the cogged belt.
Evenly tension the cogged belt [1] on both sides.
 - a) Screw in the tensioning screw [3] on both clamping devices [4].
 - b) Determine the cogged belt oscillation frequency using a tension meter device [17] and readjust the cogged belt tension where necessary using the tensioning screws [3] (pre-tensioning $49 \text{ Hz} \pm 3 \text{ Hz}$, check 3x in succession).
 - c) Mount the clamping device [4] for the belts onto both drive units for the leg section hinge (2 screws [18]).
15. Attach the cable clip [2] onto the drive unit (1 screw).
16. Apply new self-adhesive protective sheets to each of the openings on both struts.
17. Mount the pad plate onto the strut (Chapter 7.2).
18. Put the pad in place.
19. Connect the power supply to the operating table (Chapter 6.2).
20. Update the firmware of the operating table.

8.3 Motor for leg section hinge

Attention: the motor requires a serial number. Observe Chapter 1.9 when replacing the motor.

Removal



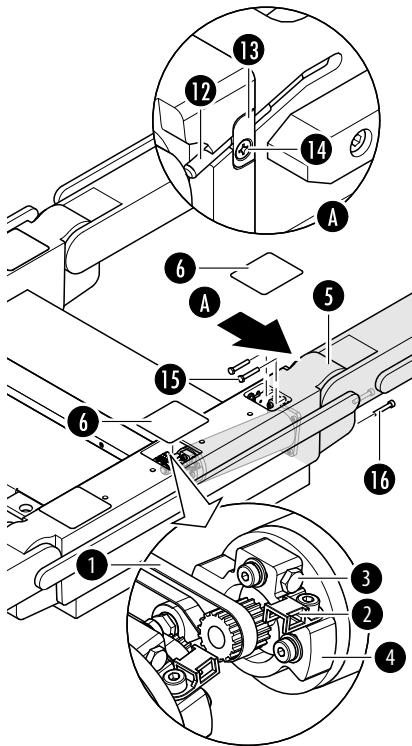
Assembly

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the drive unit leg section (Chapter 8.2).
5. Note the mounting position of the motor. Unscrew the motor [1] from the leg section gear [2] (4 screws [3]) and remove.
1. Restore the motor to its original mounting position. Mount the motor onto the leg section gear (4 screws).
2. Mount the leg section drive unit onto the seat section bar (Chapter 8.2).
3. Align the hinges (Chapter 16.2).
4. Mount the pad plate onto the strut (Chapter 7.2).
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).
7. Update the firmware of the operating table.

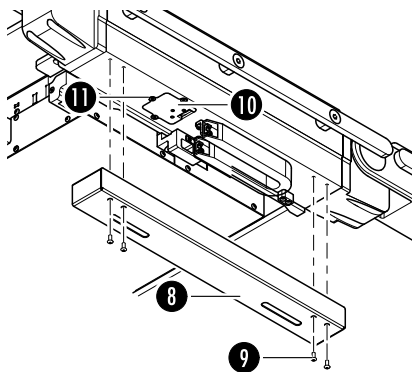
8.4 Drive unit for back section

Attention: the drive unit requires a serial number. Observe Chapter 1.9 when replacing the drive unit.

Removal

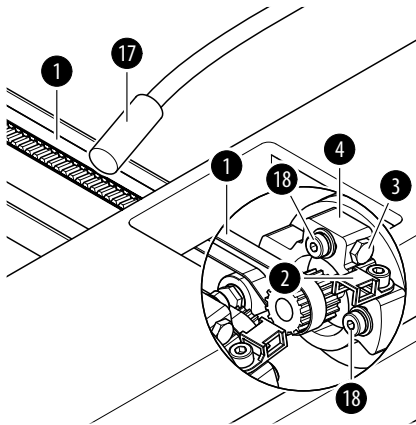


1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section and the back section (Chapter 7.2).
4. Remove the self-adhesive protective sheet [6] from the head-end and centre opening on the strut.
5. Remove the self-adhesive protective sheet from the centre opening on the opposite strut.
6. Release the tensioning device [4] for the belts on both back section drive units [5] (2 screws each).
7. Release the cable clip [2] on a drive unit [5] (1 screw).
8. Slightly loosen the tensioning screw [3] on the clamping device [4]. Where necessary, ensure that the tensioning screw on the other clamping device is also slightly loosened.
9. Note the mounting position of the cogged belt. Do not twist the sprocket on the motor. Disengage the cogged belt [1] from the drive unit [5].



Assembly

10. Unscrew the cover [8] of the power chain (4 screws [9], do not unscrew completely) and disengage.
11. Remove the cover [10] next to the power chain (3 screws [11]).
12. Note the cable routing. Pull the plug of the motor power supply cable through the opening in the strut.
13. Remove the back section hinge sensor [12] and the retaining plate [13] (1 screw [14]).
14. Unscrew the drive unit [5] from the strut (2 screws [15] from above and 2 screws [16] from below).
15. Pull the drive unit [5] with the hinge off the strut and place it safely on a level work surface.
1. Carefully push the drive unit into the strut up to the position stop and mount (2 screws from above and 2 screws from below). Ensure that the cables are not crushed.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect the plug of the motor power supply cable.

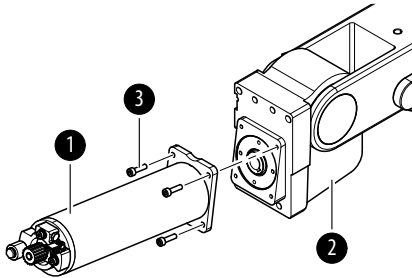


3. Mount the sensor back section hinge and the retaining plate (1 screw).
4. Attach the cover next to the power chain (3 screws).
5. Position and install the cover for the power chain (4 screws).
6. Check the alignment of the right and left hinges in relation to each other. The two hinges must be at the same height. Adjust the hinges if necessary (Chapter 16.2).
7. Switch on the operating table using the switch at the running gear.
8. Adjust the sensor back section hinge.
The end position of the back section hinge is set on the left hinge and the zero position of the back section hinge is set on the right hinge.
 - a) Carefully shift the back section hinge into the switching position.
 - b) The gap between the sensor and hinge must be 0.3 mm to 0.5 mm. Position the sensor accordingly.
9. Switch off the operating table using the switch at the running gear.
10. Suspend the cogged belt.
Ensure that the cogged belt is properly guided over the clamp roller. The cogged belts must run parallel.
11. Adjust the cogged belt.
Evenly tension the cogged belt [1] on both sides.
 - a) Screw in the tensioning screw [3] on both clamping devices [4].
 - b) Determine the cogged belt oscillation frequency using a tension meter device [17] and readjust the cogged belt tension where necessary using the tensioning screws [3] (pre-tensioning $49 \text{ Hz} \pm 3 \text{ Hz}$, check 3x in succession).
 - c) Mount the clamping device [4] for the belts onto both drive units for the back section hinge (2 screws [18]).
12. Attach the cable clip [2] onto the drive unit (1 screw).
13. Apply new self-adhesive protective sheets to each opening on both struts.
14. Align struts lengthwise (Chapter 16.1).
15. Mount the pad plates onto the strut (Chapter 7.2).
16. Put the pad in place.
17. Connect the power supply to the operating table (Chapter 6.2).
18. Update the firmware of the operating table.

8.5 Motor for back section hinge

Attention: the motor requires a serial number. Observe Chapter 1.9 when replacing the motor.

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section and the back section (Chapter 7.2).
4. Remove the back section drive unit (Chapter 8.4).
5. Note the mounting position of the motor. Unscrew the motor [1] from the back section gear [2] (4 screws [3]) and remove.

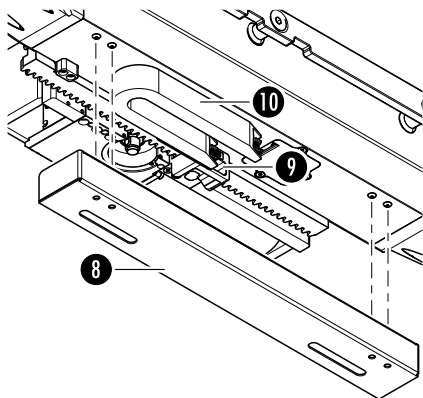
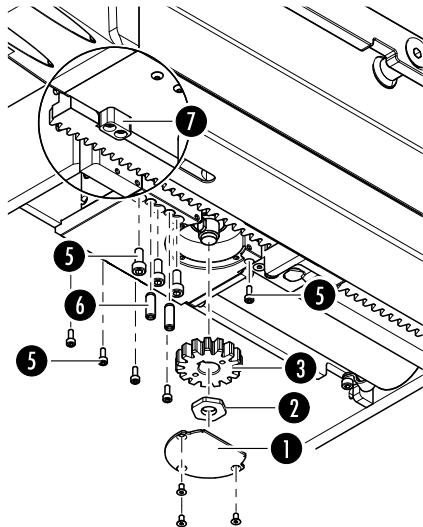
Assembly

1. Restore the motor to its original mounting position. Mount the motor onto the back section gear (4 screws).
2. Mount the back section drive unit onto the seat section bar (Chapter 8.2).
3. Align the hinges (Chapter 16.2).
4. Align struts lengthwise (Chapter 16.1).
5. Mount the pad plates onto the strut (Chapter 7.2).
6. Put the pad in place.
7. Connect the power supply to the operating table (Chapter 6.2).
8. Update the firmware of the operating table.

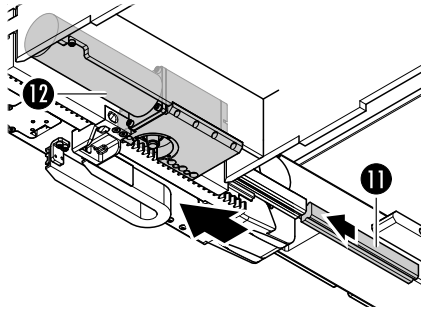
8.6 Longitudinal slide drive unit

Attention: the drive unit requires a serial number. Observe Chapter 1.9 when replacing the drive unit.

Removal



1. Prepare the operating table (Chapter 5).
CAUTION! The tabletop must be in horizontal position. If the tabletop is tilted, the tabletop will independently slide to the mechanical end stop while removing the drive.
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the column head cover (Chapter 9.3).
5. Open the column top and guide the column cover downwards (Chapter 6.5).
6. Note the cable routing. Pull the plug of the motor connecting cable (longitudinal slide) out of the W305 cable socket.
7. Note the cable routing. Remove the cable fastening from the connecting cable (1 screw).
8. Remove the cover of the gear wheel [1] (3 screws).
9. Remove the nut [2].
10. Remove the gear wheel [3] with the gear wheel extractor (#2067884).
11. Switch on the operating table using the switch at the running gear.
12. Shift the longitudinal slide of the tabletop to end position on the foot-end.
13. Switch off the operating table using the switch at the running gear.
14. Unscrew the longitudinal slide drive unit from the column head (8 screws [5] and 2 pins [6]).
15. Note the mounting position of the end stops. Remove the end stops [7] from the column head on the head end of the tabletop on both sides (2 screw each).
16. Unscrew the covers [8] of the power chain on both sides of the tabletop (4 screws each, do not unscrew completely) and disengage.
17. Remove the power chain [9] on both sides of the tabletop at the bottom end [10] from the tabletop (3 screws each).



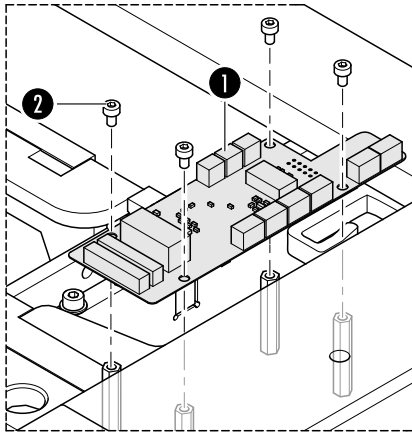
Assembly

18. Slowly move the longitudinal slide of the tabletop manually in the direction of the foot end. At the same time, the dummy linear guides on both sides (#2067885) [11] must be inserted as soon as the guide rail of the linear guide releases the running groove of the track carriage. Slowly continue to move the longitudinal slide of the tabletop manually until the drive can be removed.
 19. Hold the longitudinal slide motor tight and remove the drive unit of the longitudinal slide [12] towards the bottom.
-
1. Insert the drive unit longitudinal slide from the bottom into the tabletop.
 2. Slowly move the longitudinal slide of the tabletop manually in the direction of the head end. The dummy linear guides must be removed from both ends at the same time. While moving the slide, ensure that the guide rail of the linear guide correctly engages with the running groove of the track carriage.
 3. Return the power chain to its original mounting position. Mount the power chain on the right at the foot end at the tabletop (3 screws).
 4. Return the power chain to its original mounting position. Mount the power chain on the left at the foot end of the end and reference switch from the tabletop (3 screws).
 5. Engage and mount (4 screws each) the covers of the power chain on both sides of the tabletop.
 6. Mount the end stops on the column head on both sides of the head end of the tabletop (2 screws each).
 7. Mount the longitudinal slide drive unit on the column head (8 screws and 2 pins).
 8. Switch on the operating table using the switch at the running gear.
 9. Shift the longitudinal slide of the tabletop to the head end position.
 10. Switch off the operating table using the switch at the running gear.
 11. Insert the gear wheel and mount (1 nut).
 12. Mount the gear wheel cover (3 screws).
 13. Restore the original cable routing. Mount the cable fastening on the connecting cable drive unit longitudinal slide.
 14. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Insert the plug of connecting cable into the W305 cable bushing.
 15. Guide the column cover upwards and close (Chapter 6.6).
 16. Mount the column head cover (Chapter 9.3).
 17. Mount the pad plate onto the strut (Chapter 7.2).
 18. Put the pad in place.
 19. Connect the power supply to the operating table (Chapter 6.2).
 20. Update the firmware of the operating table.

8.7 PCBA distributor board

Attention: the distributor board requires a serial number. Observe Chapter 1.9 when replacing the distributor board.

Removal



Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
 4. Remove the column head cover (Chapter 9.3).
 5. Switch on the operating table using the switch at the running gear.
 6. Shift the longitudinal slide of the tabletop to the zero position.
 7. Switch off the operating table using the switch at the running gear.
 8. Note the cable routing. Disconnect all plugs from the PCBA distributor board [1].
 9. Remove the PCBA distributor board [1] (4 screws [2]).
-
1. Insert and install the PCBA distributor board (4 screws).
 2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Connect all plugs to the PCBA distributor board.
 3. Mount the column head cover (Chapter 9.3).
 4. Mount the pad plate onto the strut (Chapter 7.2).
 5. Put the pad in place.
 6. Connect the power supply to the operating table (Chapter 6.2).
 7. Calibrate the tilt sensor with the service software.
 8. Update the firmware of the operating table.



9 Column mechanical components

9.1 Safety

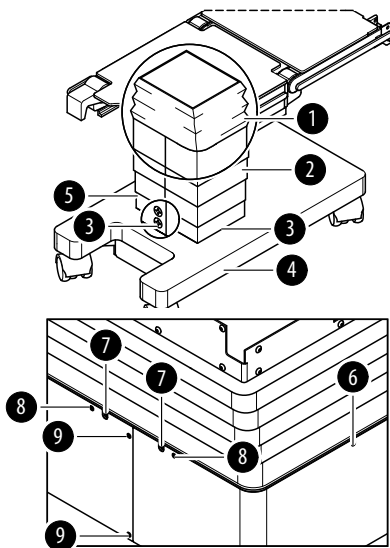
- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

9.2 Column cover

The column cover consists of 4 rings that are not firmly connected to each other. A ring consists of 2 segments.

The column cover is bolted to the frame of the guide column on top and to the casing of the running gear at the bottom.

Removal



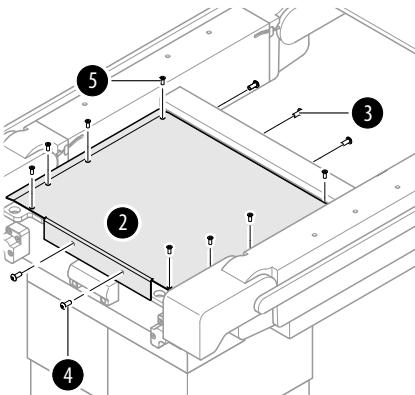
Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Unscrew the lowest column cover [5] from the running gear [4] (4 screws [3]).
 4. Release the bellows [1] from the column cover [2] (1 screw [6] on both the left and the right below the bellows).
 5. Loosen the bellows from the guide column (both the inner screws [7] below the bellows at the head and foot end).
 6. Note the mounting position of the flat conductor. Pull the bellows upwards and unplug the flat conductor of the column keypad from the main board (Main Controller Unit). The flat conductor is clamped to the plug. First push the small pins at the edge of the plug downwards and then pull the cable out of the plug.
 7. Unscrew the column cover from the frame (4 screws, 1 screw per side) and place it down on the running gear.
Attention - the column cover will slide down as soon as all the screws have been removed.
 8. Remove the column cover from the outside in segments (2 screws [9] at both the head end and foot end).
-
1. Position the column cover on the column in segments and install them from the inside to the outside (2 screws at both the head end and foot end).
 2. Guide the column cover upwards and mount it at the head and foot end of both guide column brackets (2 screws each).
 3. Return the flat conductor to its original mounting position. Pull the bellows upwards and push the flat conductor of the column keypad into the plug of the main board (Main Controller Unit) and engage. Push the small pins at the edge of the plug upwards for this purpose.
 4. Mount the lower frame of the bellows on both guide column brackets at the head and foot end (2 screws each).
 5. Mount the bellows on the column cover (1 screw each on the left and right below the bellows).
 6. Mount the lowest column cover on the running gear (4 screws).
 7. Put the pad in place.
 8. Connect the power supply to the operating table (Chapter 6.2).

9.3 Column head cover

Removal

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the cassette rails on the foot end from both seat section struts (2 screws each) so that the screws of the column head cover become accessible.
5. Switch on the operating table using the switch at the running gear.
6. Shift the longitudinal slide of the tabletop to the extreme head end position to expose the column head cover.
7. Switch off the operating table using the switch at the running gear.
8. Remove the column head cover [2] (8 screws [5] from above, 4 screws [3] at the head end and 2 screws [4] at the foot end).

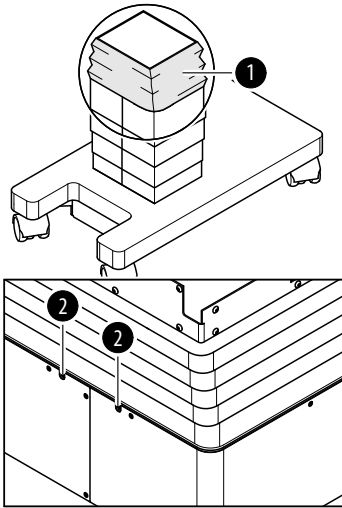


Assembly

1. Mount the column head cover (8 screws from above, 4 screws at the head end and 2 screws at the foot end). If necessary, switch on the operating table at the switch and move the tabletop longitudinal slide in such a way that all 8 holes of the column head cover are accessible.
2. Mount the foot-end cassette rails on both seat section struts (2 screws each).
3. Mount the pad plate onto the strut (Chapter 7.2).
4. Put the pad in place.
5. Connect the power supply to the operating table (Chapter 6.2).

9.4 Bellows

Removal



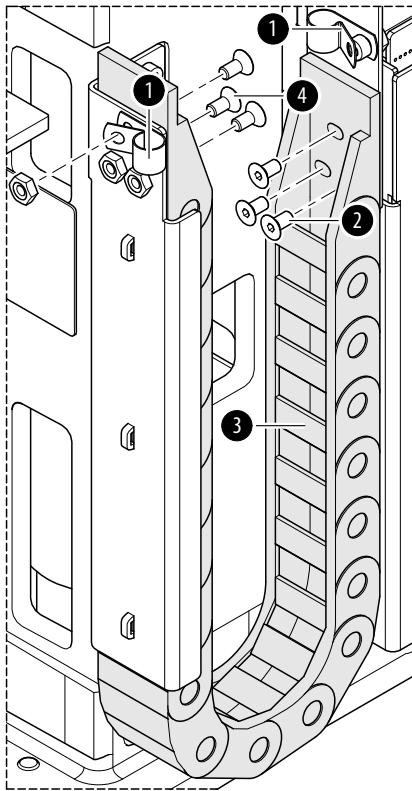
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column top and guide the column cover downwards (Chapter 6.5).
4. Remove the tabletop (Chapter 7.3).
5. Release the bellows [1] from the guide column (both the inner screws [2] below the bellows at the head and foot end).
6. Note the mounting position of the bellows. Pull the bellows [1] along with the frame up from the column.

Assembly

1. Restore the bellows to their original mounting position. Pull the bellows along with the frame onto the column.
2. Mount the lower frame of the bellows on both guide column brackets at the head and foot end (2 screws each).
3. Mount the tabletop (Chapter 7.3).
4. Guide the column cover upwards and close (Chapter 6.6).
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

9.5 Power chain

Removal



Assembly

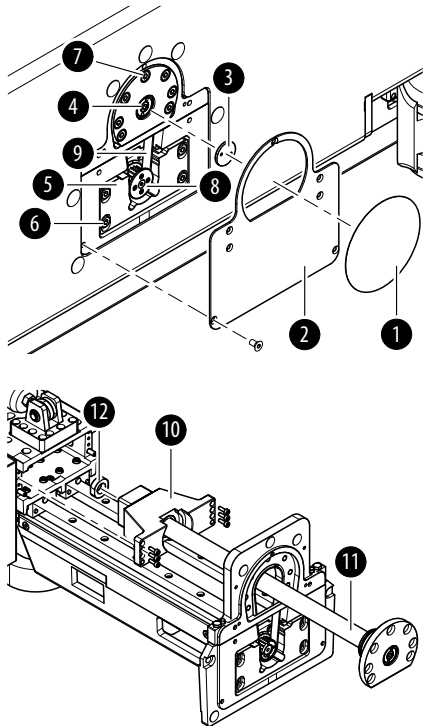
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Remove the cable fastenings [1] (1 screw each).
5. Release the power chain at the ends (3 screws each [2]/[4]).
6. Open up all cable holders [3] on the power chain.
7. Note the cable routing. Lay the cables in such a way so that the power chain is free of any cables.
8. Pull out the power chain.

1. Mount the power chain at the ends (3 screws each).
2. Return the cable to its original mounting position. Position the cables in the power chain (do not cross). Ensure that the cables are not crushed.
3. Close all cable holders on the power chain.
4. Mount any removed cable fastenings.
5. Guide the column cover downwards and close on the running gear (Chapter 6.4).
6. Put the pad in place.
7. Connect the power supply to the operating table (Chapter 6.2).

9.6 Lift spindle

Attention: the lift spindle requires a serial number. Observe Chapter 1.9 when replacing the lift spindle.

Removal

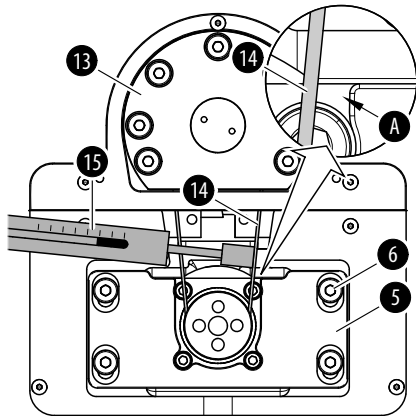


1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Turn over the operating table (Chapter 6.7).
4. Remove the protective sheet [1] from the bottom of the running gear.
5. Remove the base cover [2] from the running gear (7 screws).
6. If manual adjustment of the lift position is required, remove the cover plate [3] from the spindle end (securing ring pliers) and crank the lift spindle [4] up using a socket wrench.
7. Loosen the lift motor assembly [5] (4 screws [6]).
8. Remove the 7 screws [7] on the bearing housing of the spindle. The screws attach the spindle foot to the base of the operating table.
9. Remove the cover plate [8] from the cogged belt (lift motor) (5 screws).
10. Disengage the cogged belt [9] from the lift motor.
11. Release the bearing block [10] of the spindle [11] from the column duct (6 screws).
12. Carefully remove the spindle [11] and the bearing block [10] from the column duct.
13. Remove the cap [12] from the upper spindle end.
14. Turn the bearing block [10] off the spindle [11].
15. Remove the spindle [11] from the base of the operating table.

Assembly

If a new spindle is to be installed, apply ISOFLEX TOPAS NCA 52 special grease along the entire length of the spindle before installing it. After installation, operate the lift function a couple of times and then apply a coat of POLYLUB 151 lubricant along the entire length of the spindle.

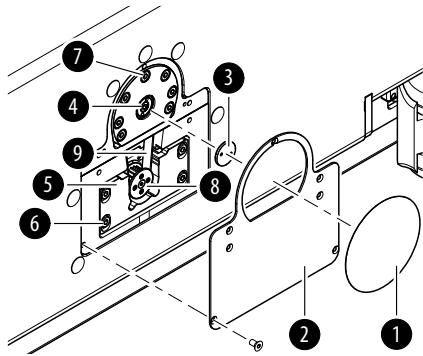
1. Place the bearing block on the column base.
2. Ensure that the mounting position is correct. Screw the lift spindle into the bearing block through the opening in the running gear.
3. Apply omniFIT 100M thread locking agent to the internal thread of the cap and mount the cap to the upper end of the spindle (pliers).
4. The thread locking agent takes 30 minutes to cure until it locks properly. Wait 30 minutes until the next step can take place.
5. Carefully align the spindle with the bearing block in the column duct.
6. Mount the bearing block on the column duct (6 screws). Tighten the screws with a torque of 2.5 Nm.



7. Place the cogged belt around the toothed washer of the spindle. Be careful that the teeth of the sprocket and on the cogged belt grip securely into each other (and tooth-to-tooth contact is avoided).
8. Mount the cover plate on the sprocket (lift motor) (5 screws).
9. Fix the lift motor into place on the column end (4 screws, do not tighten yet!). The motor mounting bracket must still be easy to move.
10. Install the bearing housing of the spindle on the base of the operating table (7 screws). Tighten the screws with a torque of 10 Nm.
11. Tighten the cogged belt.
 - a) A second person is required for tensioning the cogged belt and mounting the lift motor assembly.
 - b) Press the spring scale [15] against the cogged belt [14] from the inside, in accordance with the diagram.
 - c) Press the spindle [13] and lift motor assembly [5] apart using a tommy bar.
 - d) Adjust the distance between the spindle and the lift motor assembly in such a way that the force applied reads between 15 N and 20 N on the spring scale, and that there is only a light gap at the marked location [A].
 - e) Tighten the 4 screws [6] on the lift motor assembly.
12. Attach the underbody cover on the running gear (7 screws).
13. Glue a new protective sheet over the bearing housing of the spindle.
14. Restore the operating table to the upright position (Chapter 6.8).
15. Put the pad in place.
16. Connect the power supply to the operating table (Chapter 6.2).

9.7 Lift spindle cogged belt

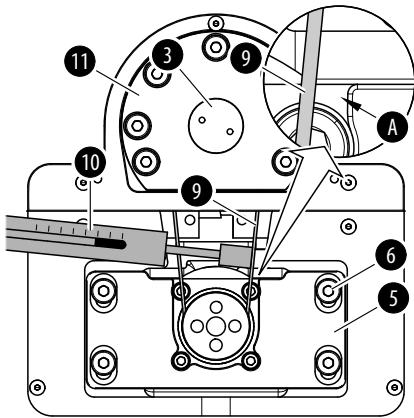
Removal



1. As far as is still possible, prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Turn over the operating table (Chapter 6.7).
4. Remove the protective sheet [1] from the bottom of the running gear.
5. Remove the base cover [2] from the running gear (7 screws).
6. If manual adjustment of the lift position is required, remove the cover plate [3] from the spindle end (securing ring pliers) and crank the lift spindle [4] up using a socket wrench.
7. Loosen the lift motor assembly [5] (4 screws [6]).
8. Remove the 7 screws [7] on the bearing housing of the spindle. The screws attach the spindle foot to the base of the operating table.
9. Remove the cover plate [8] from the cogged belt (lift motor) (5 screws).
10. Disengage the cogged belt [9] from the sprocket on the lift motor [5].
11. Remove the cover plate [3] from the spindle end
12. Use a socket wrench to crank up the lift spindle [4]. During this operation, the spindle foot will slide out of the running gear and the cogged belt will become accessible.
13. Remove the cogged belt.

Assembly

1. Place the cogged belt around the sprocket of the lift spindle. Be careful that the teeth of the sprocket and on the cogged belt grip securely into each other (and tooth-to-tooth contact is avoided).
2. Use a socket wrench to crank down the lift spindle until the spindle foot touches the floor of the operating table. In doing so, route the drive belt under the brace of the base plate.
3. Place the cogged belt around the sprocket on lift motor. Be careful that the teeth of the sprocket and on the cogged belt grip securely into each other (and tooth-to-tooth contact is avoided).
4. Mount the cover plate on the sprocket (lift motor) (5 screws).
5. Fix the lift motor into place on the column end (4 screws, do not tighten yet!). The motor mounting bracket must still be easy to move.
6. Install the bearing housing of the spindle on the base of the operating table (7 screws). Tighten the screws with a torque of 10 Nm.



7. Tighten the cogged belt.
 - a) A second person is required for tensioning the cogged belt and mounting the lift motor assembly.
 - b) Press the spring scale [10] against the cogged belt [9] from the inside, in accordance with the diagram.
 - c) Press the spindle [11] and lift motor assembly [5] apart using a tommy bar.
 - d) Adjust the distance between the spindle and the lift motor assembly in such a way that the force applied reads between 15 N and 20 N on the spring scale, and that there is only a light gap at the marked location [A].
 - e) Tighten 4 screws [6] on the lift motor assembly.
8. If all work on the lift is complete, fasten the cover plate [3] to the spindle end (securing ring pliers and omniFIT 100M thread locking agent).
9. Attach the underbody cover on the running gear (7 screws).
10. Glue a new protective sheet over the bearing housing of the spindle.
11. Restore the operating table to the upright position (Chapter 6.8).
12. Put the pad in place.
13. Connect the power supply to the operating table (Chapter 6.2).

10 Column electric components

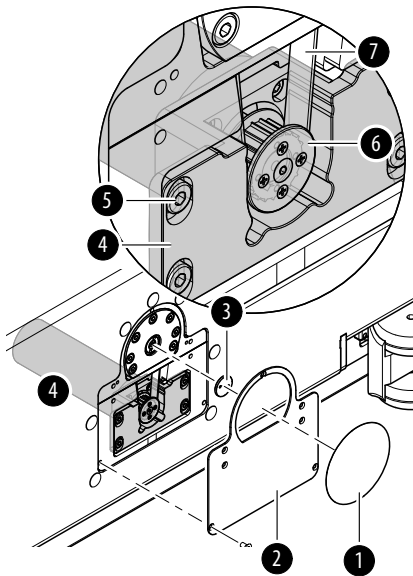
10.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

10.2 Lift motor assembly

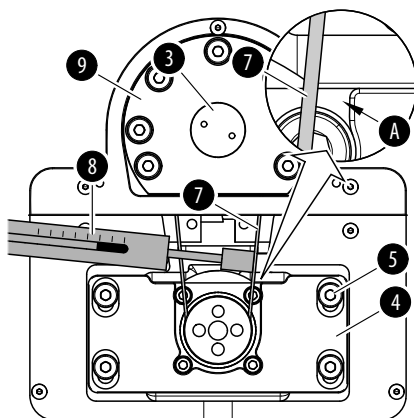
Attention: the lift motor assembly requires a serial number. Observe Chapter 1.9 when replacing the assembly.

Removal



1. As far as is still possible, prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Turn over the operating table (Chapter 6.7).
4. Remove the protective sheet [1] from the bottom of the running gear.
5. Remove the base cover [2] from the running gear (7 screws).
6. If manual adjustment of the lift position is required, remove the cover plate [3] from the spindle end (securing ring pliers) and crank the lift spindle [4] up using a socket wrench.
7. Loosen the lift motor assembly [4] (4 screws [5]).
8. Note the cable routing. Disconnect the plug of the motor connection cable W102 from the main board.
9. Remove the cover plate [6] from the cogged belt (lift motor) (5 screws).
10. Disengage the cogged belt [7] from the sprocket on the lift motor.
11. Hold the lift motor assembly [4] securely and unscrew from the column base (4 screws [5]).
12. Note the mounting position of the lift motor assembly. Carefully remove the lift motor assembly [4] from the column.

Assembly



1. Restore the original mounting position of the lift motor assembly (position of the motor mount). Insert the lift motor assembly and precisely place the cogged belt around the sprocket. Be careful that the teeth of the sprocket and on the cogged belt grip securely into each other (and tooth-to-tooth contact is avoided). If necessary, move the motor back and forth a little.
2. Fix the lift motor into place on the column end (4 screws, do not tighten yet!). The motor mounting bracket must still be easy to move.
3. Tighten the cogged belt.
 - a) A second person is required for tensioning the cogged belt and mounting the lift motor assembly.
 - b) Press the spring scale [8] against the cogged belt [7] from the inside, in accordance with the diagram.
 - c) Press the spindle [9] and lift motor assembly [4] apart using a tommy bar.
 - d) Adjust the distance between the spindle and the lift motor assembly in such a way that the force applied reads between 15 N and 20 N on the spring scale, and that there is only a light gap at the marked location [A].
 - e) Tighten 4 screws [5] on the lift motor assembly.

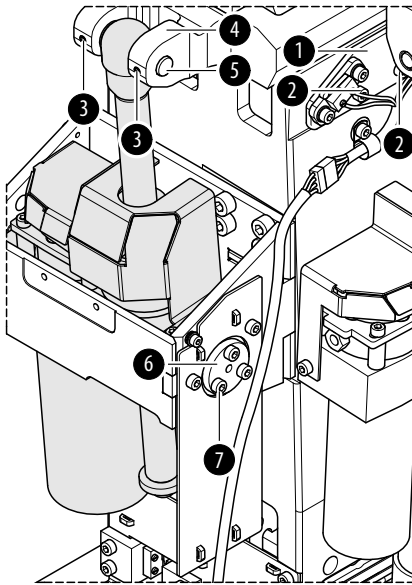
4. If all work on the lift is complete, fasten the cover plate [3] to the spindle end (securing ring pliers and omniFIT 100M thread locking agent).
5. Attach the underbody cover on the running gear (7 screws).
6. Glue a new protective sheet over the bearing housing of the spindle.
7. Restore the operating table to the upright position (Chapter 6.8).
8. Put the pad in place.
9. Connect the power supply to the operating table (Chapter 6.2).
10. Update the firmware of the operating table.

10.3 Trendelenburg assembly

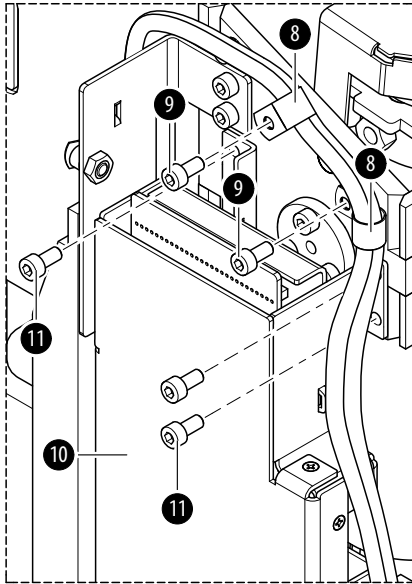
Attention: the Trendelenburg assembly requires a serial number. Observe Chapter 1.9 when replacing the assembly.

The Trendelenburg assembly must be replaced in each case, if the incline sensor and 1 limit switch are defective. The assembly drive may have travelled against the position stop of the spindle and may be defective.

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the column head cover (Chapter 9.3).
5. Switch on the operating table using the switch at the running gear.
6. Shift the longitudinal slide of the tabletop to the zero position.
7. Switch off the operating table using the switch at the running gear.
8. Open the column top and guide the column cover downwards (Chapter 6.5).
9. Unscrew the sensor plate [1] for the Trendelenburg end stops (2 screws [2]) and carefully allow it to hang down.
10. Switch on the operating table using the switch at the running gear.
11. Move the edging of the tabletop 13° to the right (control side).
12. Switch off the operating table using the switch at the running gear.
13. **CAUTION!** The operating tabletop may tip over if the Trendelenburg assembly is loosened. Before continuing disassembly, secure the tabletop from tipping over using lashing straps, chocks or suitable auxiliary tools.
14. Unscrew 2 screws [3] from the fork mount [4].
15. Knock the Trendelenburg bolt [5] out of the fork mount [4].



Assembly

16. Remove 2 cable clips [8] above the Main Controller Unit [10] (1 screw each [9]).
17. Loosen the Main Controller Unit [10] from the Trendelenburg mount (3 screws [11]).
18. Note the cable routing. Disconnect the plug of the Trendelenburg assembly connecting cable from the main board in the Main Controller Unit [10].
19. Secure the Trendelenburg assembly to the column with cable ties.
20. Remove 5 screws [7] on both Trendelenburg bearing pivots [6].
21. Securely hold the Trendelenburg assembly.
22. Remove both Trendelenburg bearing pivots [6] using the pin remover.
23. Remove the cable ties.
24. Remove the Trendelenburg assembly and safely place on a level work surface.

1. Remove the cogged belt cover from the new Trendelenburg assembly (3 screws).
2. Insert the Trendelenburg assembly and fix to the column with cable ties.
3. Mount both Trendelenburg bearing pivots (5 screws each).
4. Check the tension of the cogged belt and tighten if necessary (Chapter 16.3).
5. Mount the cogged belt cover (3 screws).
6. Restore the original cable routings and cable fastenings.
7. Check the cable routing and fastening and make sure that the cable cannot get between moving parts.
8. Mount the Main Controller Unit (3 screws).
9. Mount 2 cable clips above the Main Controller Unit (1 screw each).
10. Reattach any cable fastenings that have been removed.
11. Switch on the operating table using the switch at the running gear.
12. Move the edging of the tabletop 13° to the left.
13. Switch off the operating table using the switch at the running gear.
14. Insert the bolt vertically into the fork mount so that the set screws meet the flat surface of the bolt.
15. Punch the bolt into the fork mount.
16. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect the plug of the Trendelenburg assembly connecting cable to the main board (Main Controller Unit).
17. Fit the 2 screws to the fork mount.
18. Remove the tabletop fixing.
19. Switch on the operating table using the switch at the running gear.
20. Move the edging of the tabletop 13° to the right (control side).

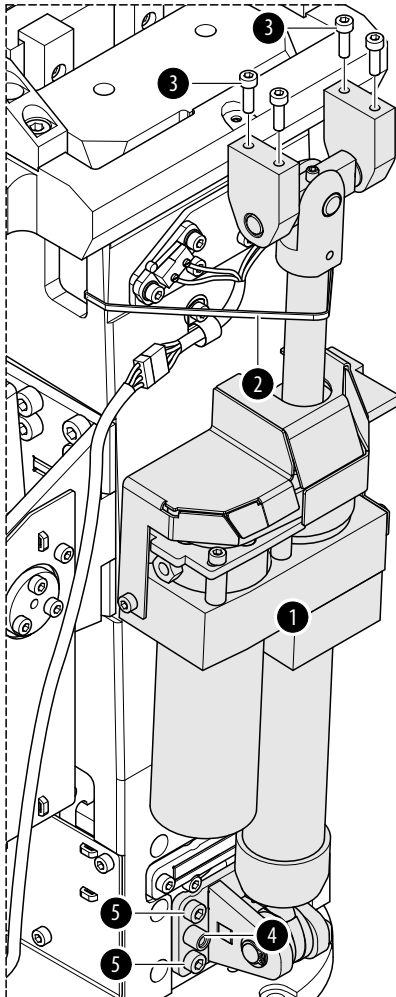


21. Switch off the operating table using the switch at the running gear.
22. Mount the sensor plate for the Trendelenburg end stops (2 screws).
23. Guide the column cover upwards and close (Chapter 6.6).
24. Mount the column head cover (Chapter 9.3).
25. Mount the pad plate onto the strut (Chapter 7.2).
26. Put the pad in place.
27. Connect the power supply to the operating table (Chapter 6.2).
28. Update the firmware of the operating table.

10.4 Edging assembly

Attention: the edging assembly requires a serial number. Observe Chapter 1.9 when replacing the assembly.

Removal



Assembly

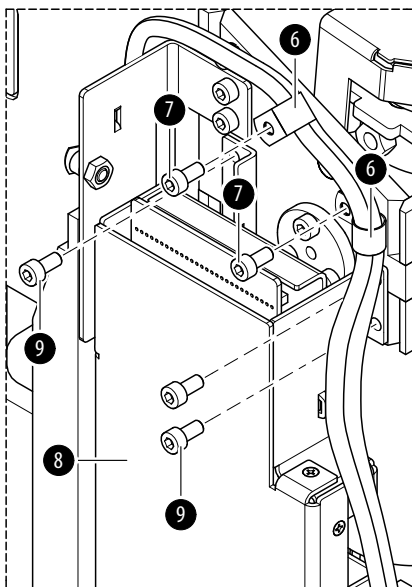
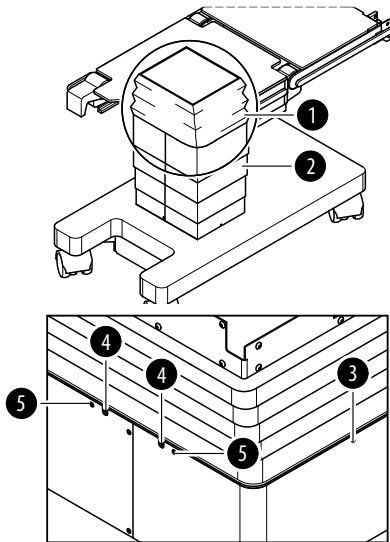
1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
 4. Remove the column head cover (Chapter 9.3).
 5. Open the column top and guide the column cover downwards (Chapter 6.5).
 6. Switch on the operating table using the switch at the running gear.
 7. Move the tabletop edging to the right (end position) if possible.
 8. Switch off the operating table using the switch at the running gear.
 9. Note the cable routing. Remove the cable fastening from the edging assembly.
 10. Note the cable routing. Disconnect the plug of the tilting assembly connecting cable from the main board in the Main Controller Unit.
 11. Secure the edging assembly [1] to the column using cable ties [2].
 12. **CAUTION!** The operating tabletop may tip over if the edging assembly is loosened. Before continuing disassembly, secure the tabletop from tipping over using lashing straps, chocks or suitable auxiliary tools.
 13. Remove the edging assembly [1] from the top of the tabletop (4 screws [3]).
 14. Securely hold the edging assembly.
 15. Release the bottom of the edging assembly plate.
 - a) Pull out both bolts [4] (lifting aid).
 - b) Remove 8 screws [5] with nuts.
 16. Remove the cable tie [2].
 17. Remove the edging assembly [1] and safely place on a level work surface.
-
1. Fix the lower edging assembly plate into place (8 screws with nuts, do not tighten).
 2. Punch both bolts into the lower edging assembly plate.
The bolts must still protrude about 5 mm. In the case of bolts that have been punched in too far, there is a risk of colliding with lift spindle bearing block.
 3. Mount the lower edging assembly plate onto the column (8 screws with nuts, tighten).
 4. Fix the edging assembly to the column using cable ties.
 5. Mount the edging assembly on top of the tabletop (4 screws).
Tighten the screws with a torque of 10 Nm.

6. Check the tension of the cogged belt and tighten if necessary (Chapter 16.3).
7. Attention: Do not interchange the plug connections. Observe the wiring diagram.
Restore the original cable routing. Connect the plug of the tilt assembly connecting cable to the main board (Main Controller Unit).
8. Restore the original cable routings and cable fastenings.
9. Check the cable routing and fastening and make sure that the cable cannot get between moving parts.
10. Guide the column cover upwards and close (Chapter 6.6).
11. Mount the column head cover (Chapter 9.3).
12. Mount the pad plate onto the strut (Chapter 7.2).
13. Put the pad in place.
14. Connect the power supply to the operating table (Chapter 6.2).
15. Update the firmware of the operating table.

10.5 Main Controller Unit

Attention: the Main Controller Unit assembly requires a serial number. Observe Chapter 1.9 when replacing the Main Controller Unit.

Removal



Assembly

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Release the bellows [1] from the column cover [2] (1 screw [3] on both the left and the right below the bellows).
4. Loosen the bellows from the guide column (both the inner screws [4] below the bellows at the head and foot end).
5. Note the mounting position of the flat conductor. Pull the bellows upwards and unplug the flat conductor of the column keypad from the main board (Main Controller Unit). The flat conductor is clamped to the plug. First push the small pins at the edge of the plug downwards and then pull the cable out of the plug.
6. Unscrew the column cover from the frame. Attention - the column cover will slide down as soon as all the screws have been removed. Remove 2 screws [5] from the head and foot of the column cover [2].
7. Guide the column cover [2] downwards and place on the running gear.
8. Remove 2 cable clips [6] above the Main Controller Unit [8] (1 screw each [7]).
9. Note the cable routing. Remove the cable fastenings on the Main Controller Unit [8].
10. Note the cable routing. Remove all protective conductors from the main board (Main Controller Unit).
11. Note the cable routing. Disconnect all cables from the main board (Main Controller Unit).
12. Remove the Main Controller Unit [8] (3 screws [9]).

1. Mount the Main Controller Unit (3 screws).
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect all plugs to the main board (Main Controller Unit) and mount all protective conductors.
3. Restore the original cable routings and cable fastenings.
4. Check the cable routing and fastening and make sure that the cable cannot get between moving parts.



5. Mount the 2 cable clips above the Main Controller Unit (1 screw each).
6. Reattach any cable fastenings that have been removed.
7. Guide the column cover upwards and mount it at the head and foot end of both guide column brackets (2 screws each).
8. Return the flat conductor to its original mounting position. Pull the bellows upwards and push the flat conductor of the column keypad into the plug of the main board (Main Controller Unit) and engage. Push the small pins at the edge of the plug upwards for this purpose.
9. Mount the lower frame of the bellows on both guide column brackets at the head and foot end (2 screws each).
10. Mount the bellows on the column cover (1 screw each on the left and right below the bellows).
11. Put the pad in place.
12. Connect the power supply to the operating table (Chapter 6.2).
13. Configure the new main electronic unit with the service software.
14. Update the firmware of the operating table.

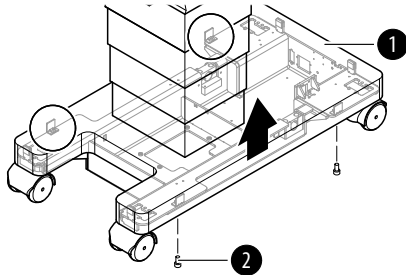
11 Running gear mechanical parts

11.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

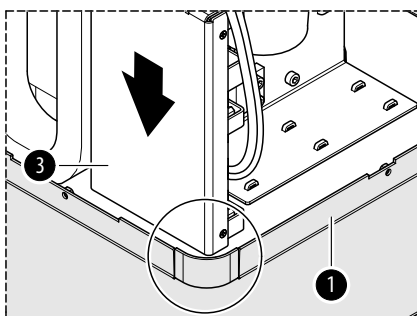
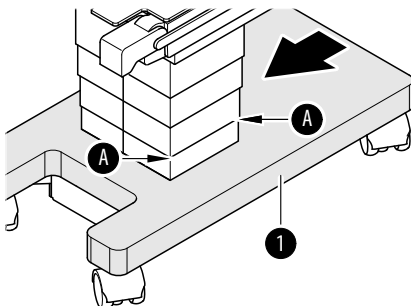
11.2 Running gear metal cover

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the column cover (Chapter 9.2).
4. Remove the tabletop (Chapter 7.3).
5. Remove the bellows (Chapter 9.4).
6. Loosen the running gear metal cover [1] (4 screws [2]).
7. Attach the running gear metal cover.
 - a) A second person is required for removing the running gear metal cover.
 - b) Note the original mounting position of the running gear metal cover. Pull the running gear metal cover [1] upwards.

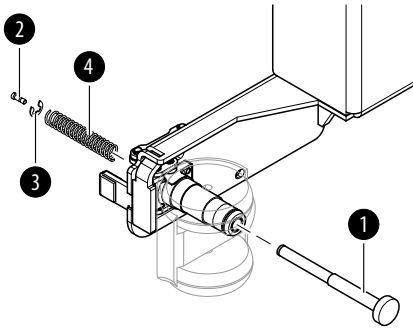
Assembly



1. Remove the running gear metal cover.
 - a) A second person is required for mounting the running gear metal cover.
 - b) Return the running gear metal cover to its original mounting position. Place the metal cover running gear onto the running gear above the column.
2. Mount the bellows (Chapter 9.4).
3. Mount the tabletop (Chapter 7.3).
4. Mount the column cover (Chapter 9.2).
5. From the head end, slide the running gear metal cover [1] lengthwise along the running gear, so that the play [A] between the lowest column cover and the one above it is the same at the head and foot end.
6. Mount the metal cover running gear [1] on the running gear (4 screws).
7. Open the column cover on the running gear (Chapter 6.3).
8. Connect the power supply to the operating table (Chapter 6.2).
9. Slowly move the tabletop down and check whether the Main Controller Unit [3] moves safely past the running gear metal cover [1] down into the running gear. If necessary, move the running gear metal cover [1] again.
10. Guide the column cover downwards and close on the running gear (Chapter 6.4).
11. Put the pad in place.

11.3 Retractable feet on the wheel

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Turn over the operating table (Chapter 6.7).
4. Remove the screw [2] on the frame (slot screwdriver).
5. **CAUTION!** The spiral spring is tensioned and may unwind erratically when released. Remove the safety ring [3].
6. Remove the spiral spring [4].
7. Remove the retractable foot [1] from below.

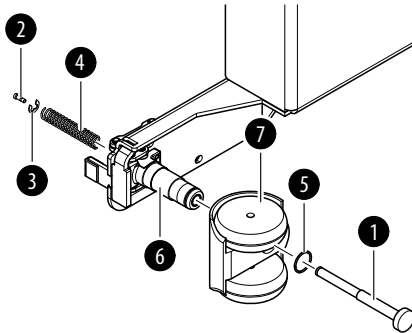
Assembly

1. Insert the retractable foot.
2. Insert the spiral spring.
3. Mount the securing ring.
4. Fit the screw into the frame (slotted screwdriver).
5. Restore the operating table to the upright position (Chapter 6.8).
6. Put the pad in place.
7. Connect the power supply to the operating table (Chapter 6.2).

11.4

Wheel

Removal

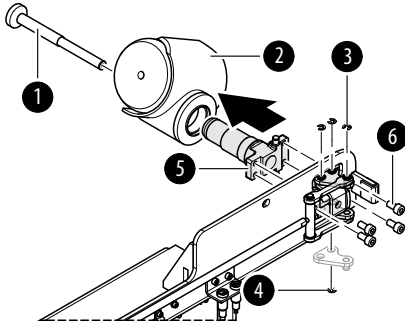


Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Turn over the operating table (Chapter 6.7).
 4. Remove the retractable foot [1]:
 - a) Remove the screw [2] on the frame (slot screwdriver).
 - b) **CAUTION!** The spiral spring is tensioned and may unwind erratically when released.
Remove the safety ring [3].
 - c) Remove the spiral spring [4].
 - d) Remove the retractable foot [1] from below.
 5. Remove the safety ring [5] from the wheel suspension [6].
 6. Pull off the wheel [7].
-
1. Push the wheel onto the wheel suspension.
 2. Mount the safety ring on the wheel suspension.
 3. Mount the retractable foot:
 - a) Insert the retractable foot.
 - b) Insert the spiral spring.
 - c) Mount the securing ring.
 - d) Fit the screw into the frame (slotted screwdriver).
 4. Restore the operating table to the upright position (Chapter 6.8).
 5. Put the pad in place.
 6. Connect the power supply to the operating table (Chapter 6.2).

11.5 Wheel suspension

Removal



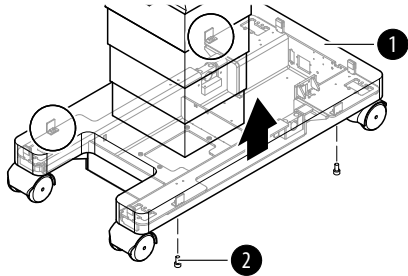
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Turn over the operating table (Chapter 6.7).
4. Remove the retractable foot [1] (Chapter 11.3).
5. Remove the wheel [2] (Chapter 11.4).
6. Remove the 3 securing rings [3] on the rod system (outside).
7. Remove the 1 securing ring [4] on the rod system (inside).
8. Note the mounting position of the wheel suspension. Remove the wheel suspension [5] (4 screws [6]).

Assembly

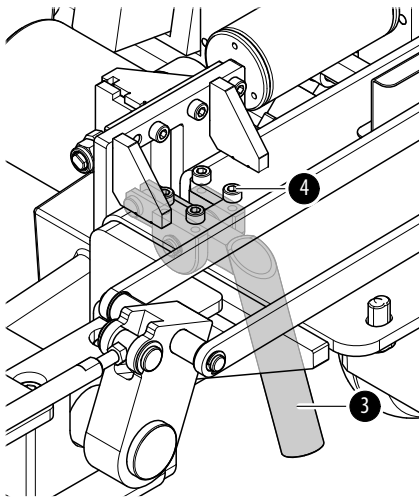
1. Return the wheel suspension to its original mounting position. Mount the wheel suspension (4 screws).
2. Fit the 1 securing ring on the rod system (inner).
3. Fit the 3 securing rings on the rod system (outer).
4. Mount the wheel (Chapter 11.4).
5. Mount the retractable foot (Chapter 11.3).
6. Restore the operating table to the upright position (Chapter 6.8).
7. Put the pad in place.
8. Connect the power supply to the operating table (Chapter 6.2).

11.6 Emergency release lever

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Loosen the running gear metal cover [1] (4 screws [2]).
5. Push up the running gear metal cover [1] and fix in the upper position.



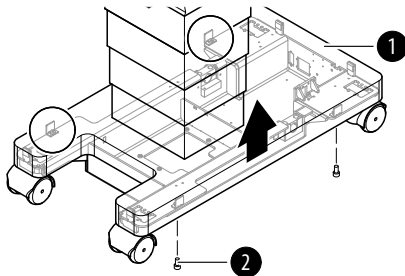
6. Remove the emergency release lever [3] (4 screws [4]).

Assembly

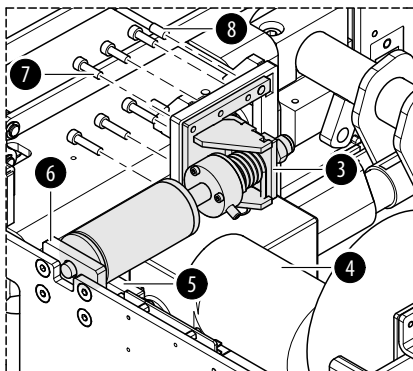
1. Mount the emergency release lever (4 screws).
2. Mount the running gear metal cover on the running gear (Chapter 11.2).
3. Guide the column cover downwards and close on the running gear (Chapter 6.4).
4. Put the pad in place.
5. Connect the power supply to the operating table (Chapter 6.2).

11.7 Emergency release for jack-up unit

Removal



1. Prepare the operating table (Chapter 5).
2. Release the parking brake of the operating table.
3. Disconnect the power supply on the operating table (Chapter 6.1).
4. Open the column cover on the running gear (Chapter 6.3).
5. Loosen the running gear metal cover [1] (4 screws [2]).
6. Push up the running gear metal cover [1] and fix in the upper position.
7. Remove the emergency release lever (Chapter 11.6).



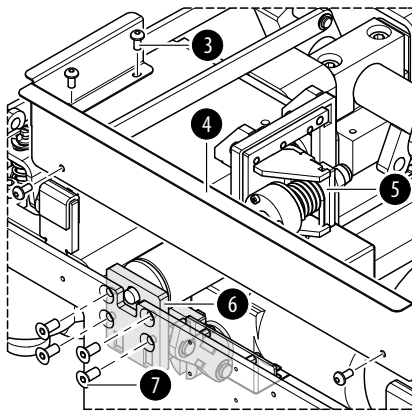
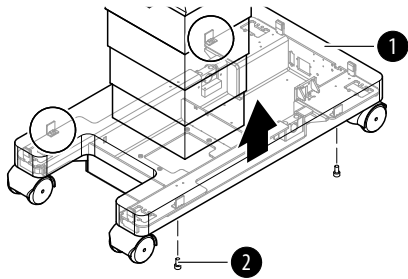
8. Remove the jack-up unit emergency release [3] from the running gear (6 screws [7], 2 dowel pins [8]).
9. Pull the jack-up unit emergency release [3] from the holding bar locking bolt [6] and disconnect from the linear drive [4] at the locking bolt [5].

Assembly

1. Place the emergency release for the jack-up unit onto the locking bolt of the linear drive and insert into the holding bar locking bolt.
2. Mount the jack-up unit emergency release on the running gear (6 screws, 2 dowel pins). Tighten the screws with a torque of 8 Nm.
3. Mount the emergency release lever (4 screws).
4. Mount the running gear metal cover on the running gear (Chapter 11.2).
5. Guide the column cover downwards and close on the running gear (Chapter 6.4).
6. Apply the parking brake of the operating table.
7. Put the pad in place.
8. Connect the power supply to the operating table (Chapter 6.2).

11.8 Locking bolt/locking bolt hinge jack-up unit

Removal



Assembly

1. Prepare the operating table (Chapter 5).
 2. Release the parking brake of the operating table.
 3. Disconnect the power supply on the operating table (Chapter 6.1).
 4. Open the column cover on the running gear (Chapter 6.3).
 5. Loosen the running gear metal cover [1] (4 screws [2]).
 6. Push up the running gear metal cover [1] and fix in the upper position.
 7. Remove the emergency release lever (Chapter 11.6).
 8. Remove the deflector plate [4] at the top of running gear (6 screws [3]).
 9. Remove the jack-up unit linear drive (Chapter 12.2).
 10. Remove the emergency release for jack-up unit [5] (Chapter 11.7).
 11. Remove the locking bolt/locking bolt hinge [6] from the running gear (4 screws [7]).
-
1. Mount the locking bolt/locking bolt hinge on the running gear (4 screws).
 2. Mount the emergency release for jack-up unit (Chapter 11.7).
 3. Mount the deflector plate at the top of running gear (6 screws).
 4. Mount the jack-up unit linear drive (Chapter 12.2).
 5. Mount the emergency release lever (4 screws).
 6. Mount the running gear metal cover on the running gear (Chapter 11.2).
 7. Guide the column cover downwards and close on the running gear (Chapter 6.4).
 8. Apply the parking brake of the operating table.
 9. Put the pad in place.
 10. Connect the power supply to the operating table (Chapter 6.2).

12 Running gear electric components

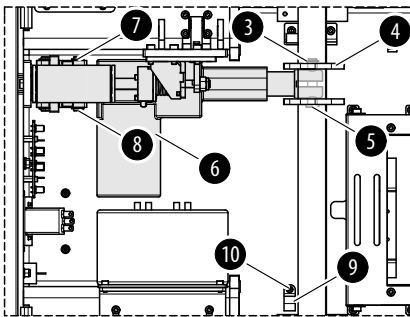
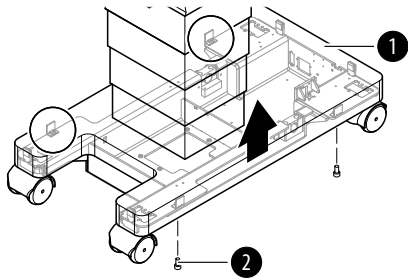
12.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

12.2 Jack-up unit linear drive

Attention: The jack-up unit linear drive requires a serial number. Observe Chapter 1.9 when replacing the jack-up unit linear drive.

Removal

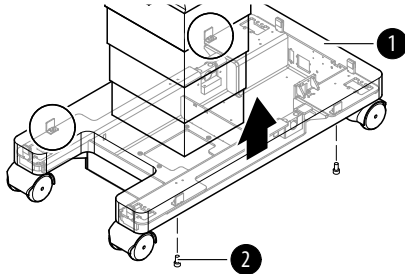


Assembly

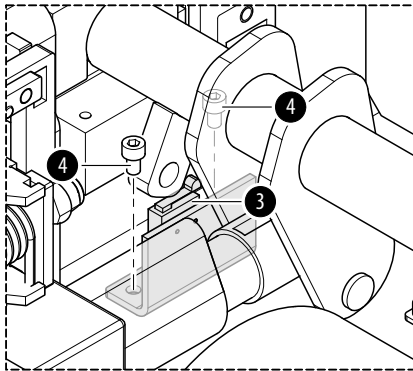
1. Prepare the operating table (Chapter 5).
2. Release the parking brake of the operating table or if necessary operate the emergency release of the operating table running gear.
3. Disconnect the power supply on the operating table (Chapter 6.1).
4. Open the column cover on the running gear (Chapter 6.3).
5. Loosen the running gear metal cover [1] (4 screws [2]).
6. Push up the running gear metal cover [1] and fix in the upper position.
7. Remove the safety ring [3] at the bottom of the eccentric tappet [4].
8. Pull the bolts [5] out of the eccentric tappet [4].
9. Remove both safety rings [7] from the head end of the linear drive [6] on the bolts [8].
10. Remove the bolts [8] from the head end of the linear drive [6].
11. Note the cable routing. Remove the cable clip [9] (1 screw [10]) and cable ties from the connecting cable.
12. Note the cable routing. Remove the plug of the connecting cable.
13. Remove the jack-up unit linear drive assembly and safely place on a level work surface.
14. Update the firmware of the operating table.
1. Insert the jack-up unit linear drive assembly.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect the plug of the connecting cable.
3. Restore the original cable routing. Mount the cable clip (1 screw) and cable ties of the connecting cable.
4. Mount the linear drive to the top end (1 bolt with 2 safety rings).
5. Insert the bolt on the eccentric tappet.
6. Secure the bolt with the securing ring at the base of the eccentric tappet.
7. Mount the running gear metal cover on the running gear (Chapter 11.2).
8. Guide the column cover downwards and close on the running gear (Chapter 6.4).
9. Apply the parking brake of the operating table.
10. Put the pad in place.
11. Connect the power supply to the operating table (Chapter 6.2).

12.3 Limit switch for jack-up unit (W703)

Removal



1. Prepare the operating table (Chapter 5).
2. Release the parking brake of the operating table.
3. Disconnect the power supply on the operating table (Chapter 6.1).
4. Open the column cover on the running gear (Chapter 6.3).
5. Loosen the running gear metal cover [1] (4 screws [2]).
6. Push up the running gear metal cover [1] and fix in the upper position.



7. Note the cable routing. Remove the cable fastenings from the connecting cable for the limit switch W703 [3].
8. Note the cable routing. Pull the plug of cable W703 from the W103 cable bushing.
9. Remove the limit switch [3] (2 screws [4]).

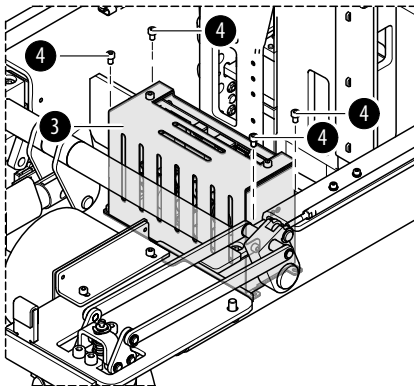
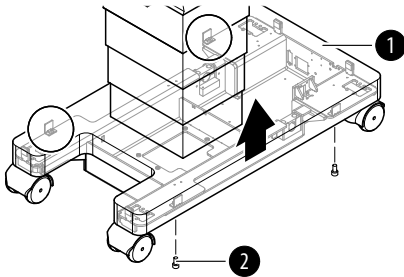
Assembly

1. Mount the limit switch (2 screws).
2. Restore the original cable routing. Insert the plug of cable W703 into the W103 cable bushing.
3. Restore the original cable routing. Mount the cable fastenings on the connecting cable for the limit switch W703.
4. Mount the running gear metal cover on the running gear (Chapter 11.2).
5. Guide the column cover downwards and close on the running gear (Chapter 6.4).
6. Apply the parking brake of the operating table.
7. Put the pad in place.
8. Connect the power supply to the operating table (Chapter 6.2).

12.4 Power supply unit

Attention: the power supply unit requires a serial number. Observe Chapter 1.9 when replacing the power supply unit.

Removal

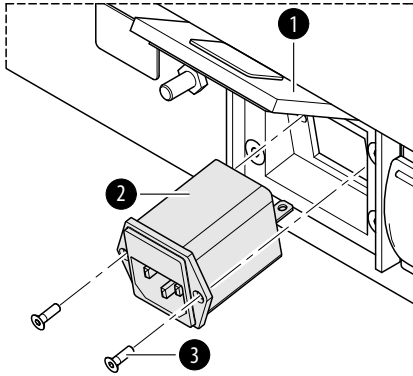


Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Open the column cover on the running gear (Chapter 6.3).
 4. Loosen the running gear metal cover [1] (4 screws [2]).
 5. Push up the running gear metal cover [1] and fix in the upper position.
 6. Remove both fuses from the battery (Chapter 12.11).
 7. Note the cable routing. Remove the cable fastenings for the cables to the power supply unit [3] as required.
 8. Note the cable routing. Pull out all plugs from the power supply unit [3].
 9. Remove the power supply unit [3] (4 screws [4]).
-
1. Mount the power supply unit (4 screws).
 2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect all plugs to the power supply unit.
 3. Restore the original cable routing. Fit any removed cable fastenings to the cables of the power supply unit.
 4. Insert both fuses from the battery (Chapter 12.11).
 5. Mount the running gear metal cover on the running gear (Chapter 11.2).
 6. Guide the column cover downwards and close on the running gear (Chapter 6.4).
 7. Put the pad in place.
 8. Connect the power supply to the operating table (Chapter 6.2).
 9. Update the firmware of the operating table.

12.5 Mains bushing

Removal



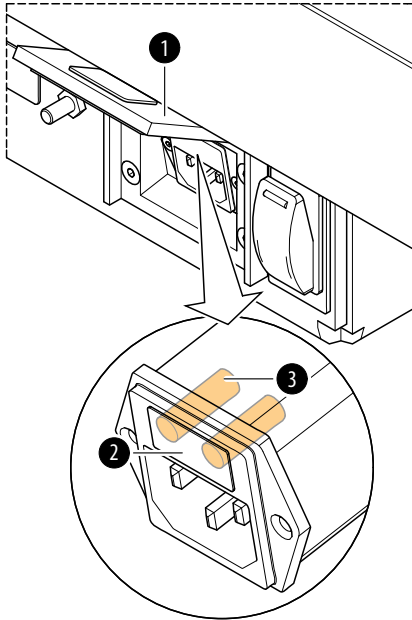
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Raise the cover [1] from the mains socket on the running gear and remove the 2 screws [3] on the mains socket [2].
4. Carefully remove the mains socket [2] from the housing until the connections are accessible.
5. Note connection assignments. Pull out all three cables and remove the mains socket [2].

Assembly

1. Check the fuses in the mains bushing and replace if necessary.
2. Attention: Mains connection wiring connections must not be interchanged. Potential equalization must be connected in the centre. Pay attention to the wiring diagram on page 64. Restore mains connection wiring to its original connection assignments.
 - a) Clamp both connections of the cables to L and N.
 - b) Clamp the protective conductor to PE.
3. Return the mains socket to its original mounting position. Lift the lid of the mains socket on the running gear and carefully insert and fit the mains socket into the filter housing with the fuse shaft upwards (4 screws).
4. Close the lid on the mains socket.
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

12.6 Fuses for mains input

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Lift the lid [1] of the mains socket on the running gear.
4. Pull out the fuse shaft [2], fold out and remove the fuse [3].
5. Check the fuses individually and replace if necessary.

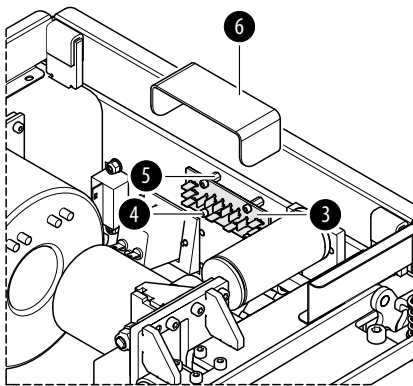
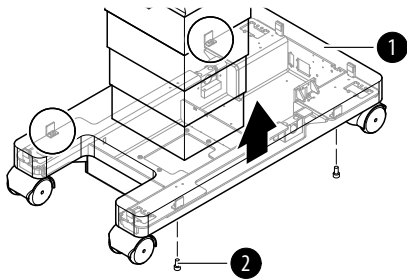
Assembly

1. Lift the lid of the mains socket on the running gear.
2. Pull out the fuse shaft, fold out and insert the tested fuses (fuse layout Chapter 18).
3. Fold shut and insert the fuse shaft.
4. Close the lid on the mains socket.
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

12.7 Voltage selector circuit board

Attention: the voltage selector circuit board requires a serial number. Observe Chapter 1.9 when replacing the circuit board.

Removal

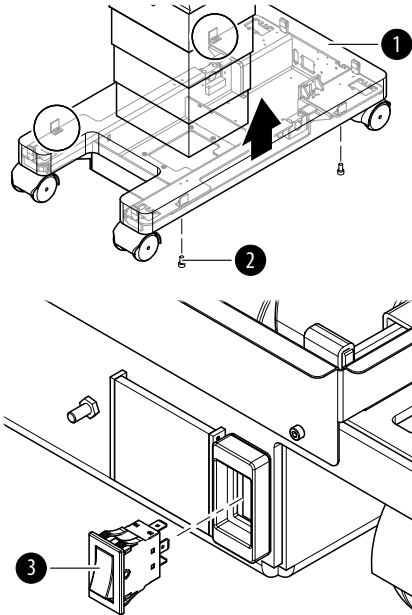


Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Open the column cover on the running gear (Chapter 6.3).
 4. Loosen the running gear metal cover [1] (4 screws [2]).
 5. Push up the running gear metal cover [1] and fix in the upper position.
 6. Remove the cover [6] of the circuit board from the spacers [5].
 7. Note the cable routing. Remove the cable fastenings for the cables to the voltage selector circuit board [3] if necessary.
 8. Note the cable routing. Disconnect all plugs from the voltage selector circuit board [3].
 9. Remove the voltage selector circuit board [3] (4 screws [4]).
 10. Remove the spacer [5] from the circuit board.
-
1. Mount the spacer on the circuit board.
 2. Mount the voltage selector circuit board (4 screws).
 3. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect all plugs to the voltage selector circuit board.
 4. Restore the original cable routing. Mount any cable fastenings removed from the cables of the voltage selector circuit board.
 5. Press the cover of the circuit board onto the spacers until you feel it lock in place.
 6. Mount the running gear metal cover on the running gear (Chapter 11.2).
 7. Guide the column cover downwards and close on the running gear (Chapter 6.4).
 8. Put the pad in place.
 9. Connect the power supply to the operating table (Chapter 6.2).

12.8 Main Switch

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Loosen the running gear metal cover [1] (4 screws [2]).
5. Push up the running gear metal cover [1] and fix in the upper position.
6. Note the cable routing. Pull out all plugs from the main switch [3].
7. Pull the main switch [3] out of the running gear from the outside.

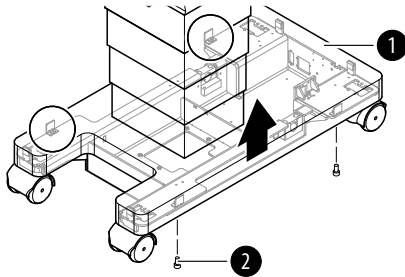
Assembly

1. Insert the main switch (plate with button) into the housing from the outside.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect all plugs to the mains switch.
3. Mount the running gear metal cover on the running gear (Chapter 11.2).
4. Guide the column cover downwards and close on the running gear (Chapter 6.4).
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

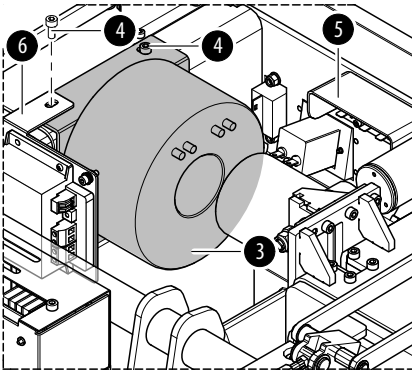
12.9 Transformer

Attention: the transformer requires a serial number. Observe Chapter 1.9 when replacing the transformer.

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Loosen the running gear metal cover [1] (4 screws [2]).
5. Push up the running gear metal cover [1] and fix in the upper position.



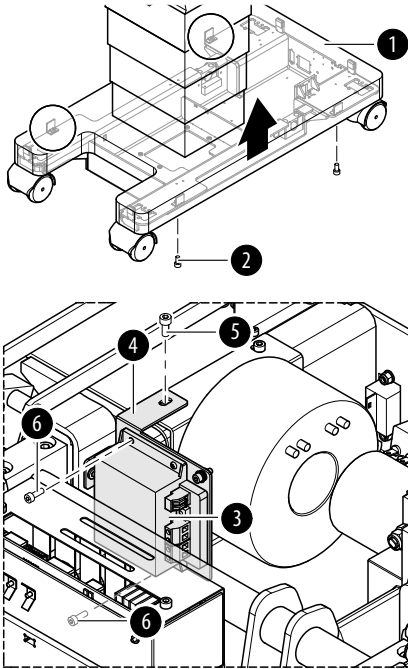
6. Remove the cover [5] of the circuit board from the spacers.
7. Note the cable routing. Disconnect all plugs from the transformer [3] to the voltage selector circuit board.
8. Note the cable routing. Disconnect all plugs from transformer [3] to the power supply unit.
9. Remove the transformer [3] from the running gear (2 screws [4]).
10. Note the installation position of the transformer. Slightly raise the switching relay [6] and remove the transformer.

Assembly

1. Return the transformer to its original installation position. Insert the transformer and fit it on the running gear (2 screws).
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect all plugs from the transformer to the power supply unit.
3. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect all the transformer plugs to the voltage selector circuit board.
4. Press the cover of the circuit board onto the spacers until you feel it lock in place.
5. Mount the running gear metal cover on the running gear (Chapter 11.2).
6. Guide the column cover downwards and close on the running gear (Chapter 6.4).
7. Put the pad in place.
8. Connect the power supply to the operating table (Chapter 6.2).

12.10 Switching relay transformer

Removal



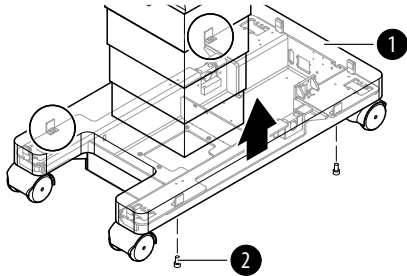
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Loosen the running gear metal cover [1] (4 screws [2]).
5. Push up the running gear metal cover [1] and fix in the upper position.
6. Remove the retaining plate [4] from the running gear (1 screw [5]) and slightly raise the switching relay.
7. Note the cable routing. Disconnect cable W721 from the switching relay [3].
8. Note the cable routing. Disconnect cable W720 from the switching relay [3].
9. Note the cable routing. Remove the earth connection on the retaining plate of the switching relay (1 screw with 2 serrated lock washers and 1 washer).
10. Remove the switching relay with retaining plate and place safely on a level work surface.
11. Remove the retaining plate [4] from the switching relay (2 screws [6]).
12. Unclamp the jumper bar on the switching relay from the connections S1 and S2.

Assembly

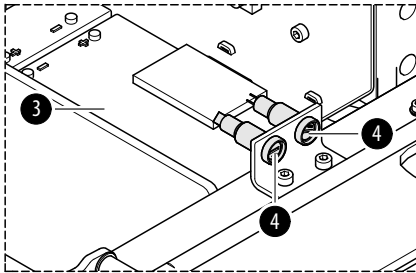
1. Clamp the jumper bar onto the switching relay at the connections S1 and S2.
2. Set the correct transformer type to the potentiometer of the switching relay.
3. Mount the retaining plate on the switching relay (2 screws).
4. Restore the original cable routing. Mount the earth connection on the retaining plate of the switching relay (1 screw with 2 serrated lock washers and 1 washer).
5. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect cable W720 on the switching relay.
6. Restore the original cable routing. Connect cable W721 on the switching relay.
7. Insert the switching relay with retaining plate and fit the retaining plate on the running gear (1 screw).
8. Mount the running gear metal cover on the running gear (Chapter 11.2).
9. Guide the column cover downwards and close on the running gear (Chapter 6.4).
10. Put the pad in place.
11. Connect the power supply to the operating table (Chapter 6.2).

12.11 Battery fuses

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Loosen the running gear metal cover [1] (4 screws [2]).
5. Push up the running gear metal cover [1] and fix in the upper position.



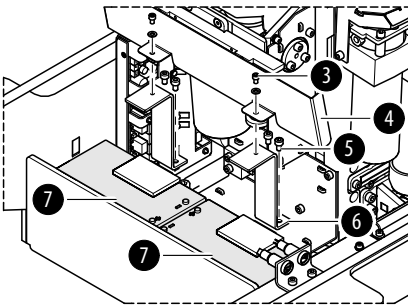
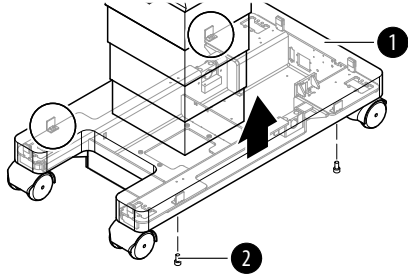
6. Pull out the positive connection on both batteries [3].
7. Remove both fuses [4] one by one; test, and replace if necessary.

Assembly

1. Insert the tested fuses (fuse layout Chapter 18).
2. Restore the positive connection on both batteries.
3. Mount the running gear metal cover on the running gear (Chapter 11.2).
4. Guide the column cover downwards and close on the running gear (Chapter 6.4).
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

12.12 Battery

Removal



Assembly

1. Prepare the operating table (Chapter 5).
 2. Disconnect the power supply on the operating table (Chapter 6.1).
 3. Open the column cover on the running gear (Chapter 6.3).
 4. Loosen the running gear metal cover [1] (4 screws [2]).
 5. Push up the running gear metal cover [1] and fix in the upper position.
 6. Remove both battery fuses (Chapter 12.11).
 7. Note the connection assignments. Pull out two connecting cables for each battery [7] (on the battery set).
 8. Remove the deflector plate [4] at the foot end of the running gear (2 screws [3] with washer).
 9. Remove both battery attachment frames [6] (2 screws [5] each).
 10. Note the mounting position of the battery set. Remove the complete battery set.
-
1. Return the batteries to their original mounting position. Insert the new battery set and position correctly.
 2. Mount both battery attachment frames (2 screws each).
 3. Mount the deflector plate at the foot end of the running gear (2 screws with washer).
 4. Attention: do not interchange the battery connections. Pay attention to the wiring diagram on page 64. Restore the original connections. Connect two connection cables to each battery. The voltage between brown and white is 24 VDC.
 5. Insert both battery fuses (Chapter 12.11).
 6. Mount the running gear metal cover on the running gear (Chapter 11.2).
 7. Guide the column cover downwards and close on the running gear (Chapter 6.4).
 8. Put the pad in place.
 9. Connect the power supply to the operating table (Chapter 6.2).

13 Tabletop cables

13.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.



13.2 **Tabletop cables**

Removal

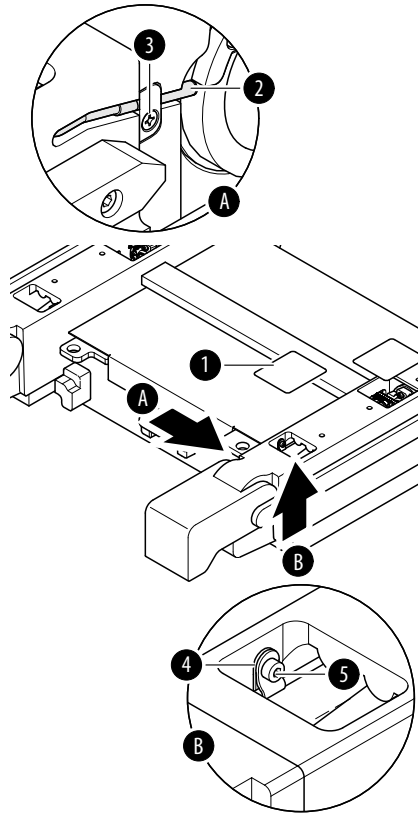
1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the column head cover (Chapter 9.3).
5. Switch on the operating table using the switch at the running gear.
6. Shift the longitudinal slide of the tabletop to the zero position.
7. Switch off the operating table using the switch at the running gear.
8. Note the cable positions and cable fastenings. Remove the cable fastenings along the cable. If necessary, open the power chain and remove the earth connection.
9. Pull out both plugs of the cable.
10. Remove the cable.

Assembly

1. Restore the original cable routing. Route the cable and cable fastenings and restore any earth connection. Close the opened power chain.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Connect both plugs for the cable.
3. Mount the column head cover (Chapter 9.3).
4. Mount the pad plate onto the strut (Chapter 7.2).
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

13.3 Leg section hinge sensor (W503/W506)

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the self-adhesive protective sheet [1] from the foot-end and centre opening on the strut.
5. Remove the leg section hinge sensor [2] and the retaining plate (1 screw [3]).
6. Remove the cable clip [4] in the seat section bar through the opening (1 screw [5]).
7. Note the cable routing. Pull the plug of the sensor cable W503/W506 [2] from the socket of cable W203/W302 through the opening in the seat section bar.
8. Return the sensor to the strut and take out through the opening in the seat section bar.

Assembly

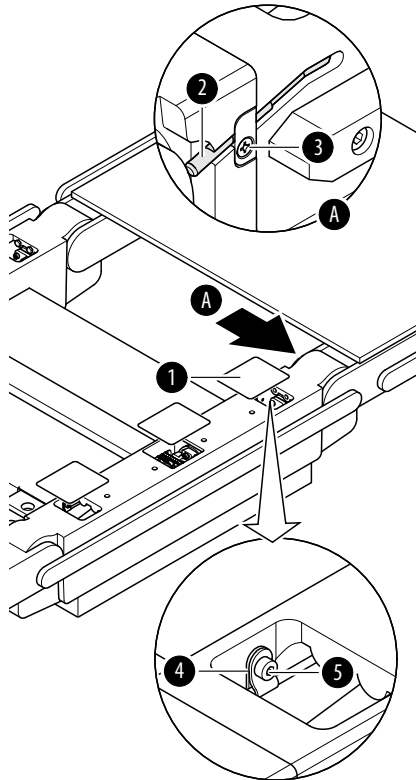
1. Carefully guide the sensor through the opening in the seat section bar into the strut.
Make sure that the insulation of cable is not damaged.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Insert the plug of sensor cable W503/W506 into the W203/W302 cable bushing.
3. Switch on the operating table using the switch at the running gear.
4. Adjust the sensor leg section hinge.
The zero position of the leg section hinge is set on the left hinge and the end position of the leg section hinge is set on the right.
 - a) Carefully shift the leg section hinge into the switching position.
 - b) The gap between the sensor and hinge must be 0.3 mm to 0.5 mm. Position the sensor accordingly.
5. Switch off the operating table using the switch at the running gear.



6. Mount the sensor leg section hinge and the retaining plate (1 screw).
7. Mount the cable clip in the seat section bar through the opening (1 screw).
8. Apply new self-adhesive protective sheets to the openings on the strut.
9. Mount the pad plate onto the strut (Chapter 7.2).
10. Put the pad in place.
11. Connect the power supply to the operating table (Chapter 6.2).

13.4 Back section hinge sensor (W502/W507)

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the self-adhesive protective sheet [1] from the head-end and centre opening on the strut.
5. Remove the back section hinge sensor [2] and the retaining plate (1 screw [3]).
6. Remove the cable clip [4] in the seat section bar through the opening (1 screw [5]).
7. Note the cable routing. Pull the plug of the sensor cable W502/W507 [2] from the socket of cable W202/W303 through the opening in the seat section bar.
8. Return the sensor to the strut and take out through the opening in the seat section bar.

Assembly

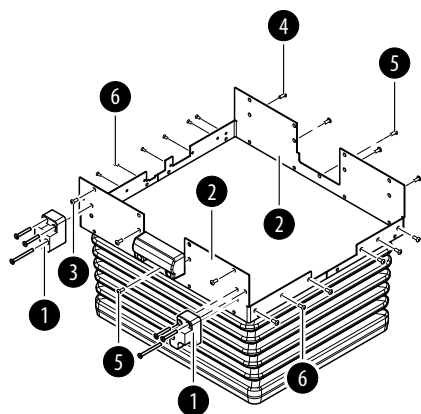
1. Carefully guide the sensor through the opening in the seat section bar into the strut.
Make sure that the insulation of cable is not damaged.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Insert the plug of sensor cable W502/W507 into the W202/W303 cable bushing.
3. Switch on the operating table using the switch at the running gear.
4. Adjust the sensor back section hinge.
The end position of the back section hinge is set on the left hinge and the zero position of the back section hinge is set on the right hinge.
 - a) Carefully shift the back section hinge into the switching position.
 - b) The gap between the sensor and hinge must be 0.3 mm to 0.5 mm. Position the sensor accordingly.
5. Switch off the operating table using the switch at the running gear.
6. Mount the sensor back section hinge and the retaining plate (1 screw).



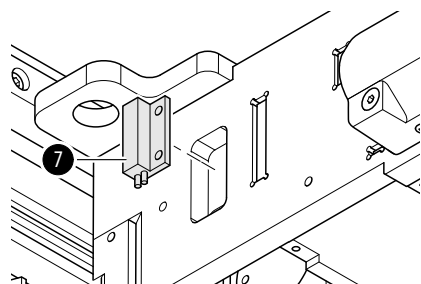
7. Mount the cable clip in the seat section bar through the opening (1 screw).
8. Apply new self-adhesive protective sheets to the openings on the strut.
9. Mount the pad plate onto the strut (Chapter 7.2).
10. Put the pad in place.
11. Connect the power supply to the operating table (Chapter 6.2).

13.5 Replace the operating sensor (W508)

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the column head cover (Chapter 9.3).
5. Switch on the operating table using the switch at the running gear.
6. Shift the longitudinal slide of the tabletop to the zero position.
7. Remove both carrier blocks [1] for the extension adapter (3 screws each).
8. Switch on the operating table using the switch at the running gear.
9. Release the two cover plates [2] from the head and foot of the column head.
Move the longitudinal slide of the operating tabletop as necessary, so that the lateral screws on the cover plates are accessible.
 - a) Remove the upper 4 screws [3] from the foot end of the column head.
 - b) Remove the upper 4 screws [4] from the head end of the column head.
 - c) Remove 1 screw [5] below the bushing strip at both the head and foot end of the column head.
 - d) Remove the upper 6 screws [6] from the left-hand side of the column head.
 - e) Remove the upper 8 screws [6] from the right-hand side of the column head (operator side).
10. Switch off the operating table using the switch at the running gear.
11. Loosen the bellows and carefully push downwards.
12. Note the cable positions and cable fastenings. Remove cable fastenings along the sensor cable from the sensor [7] to the plug connection.
13. Pull the plug of sensor cable W508 from the W304 cable bushing.
14. Remove the operating sensor [7] with the sensor cable.



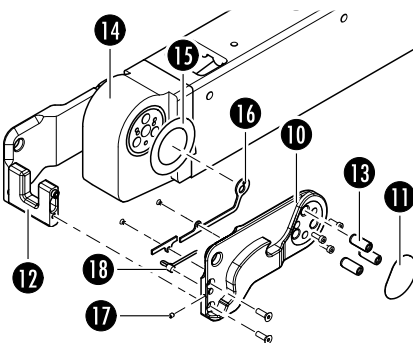
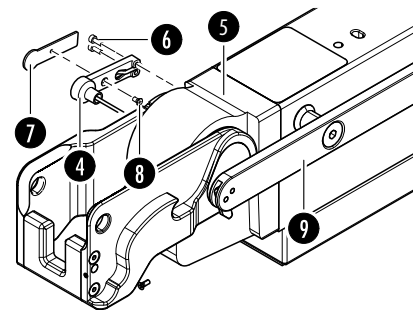
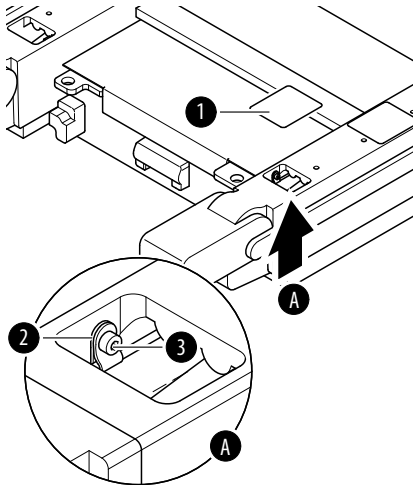
Assembly

1. Insert the operating sensor and use adhesive tape to stick down.
2. Restore the original cable routing. Lay the sensor cable and restore the cable fastenings.
3. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Insert the plug of sensor cable W508 into the W304 cable bushing.
4. Carefully guide the bellows with the cover plates upwards.

5. Switch on the operating table using the switch at the running gear.
6. Mount the bellows with the head-end and foot-end cover plates on the column head.
Ensure that the cover plates fit underneath the column head cover. Move the longitudinal slide of the operating tabletop as necessary, so that the lateral screws on the cover plates are accessible.
 - a) 5 screws at the foot end
 - b) 5 screws at the head end
 - c) 8 screws on the right side
 - d) 6 screws on the left side
7. Switch off the operating table using the switch at the running gear.
8. Mount both support blocks for the extension adapter on the column head (3 screws each).
9. Mount the column head cover (Chapter 9.3).
10. Mount the pad plate onto the strut (Chapter 7.2).
11. Put the pad in place.
12. Connect the power supply to the operating table (Chapter 6.2).

13.6 Hook sensor (W520)

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Remove the pad plate from the seat section (Chapter 7.2).
Attention: Leave the pad plate on the back section attached so that the adjustment of the struts is maintained.
4. Remove the self-adhesive protective sheet [1] from the foot-end and centre opening on the strut.
5. Remove the cable clip [2] (1 screw [3]) and cable ties through the opening in the seat section bar.
6. Remove the leg section hinge sensor W503/W506 (Chapter 13.3).
7. Note the cable routing. Pull the plug of the sensor cable W520 from the socket of cable W220/W320 through the opening in the strut.
8. Guide the plug of the sensor cable through the side opening in the strut.
9. Unscrew the cable housing [4] from the drive unit of the leg section [5] (2 screws [6]).
10. Remove the cover [7] from the cable housing [4] (1 screw [8]).
11. Remove the side rail [9] from the seat section (3 screws).
12. Remove the self-adhesive protective sheet [11] from the outer coupling plate [10].
13. Separate the outer coupling plate [10] from the encoding bracket [12] (2 screws).
14. Remove 3 pins [13] from the outer coupling plate [10] using a pin remover.
15. Attention - there is a sliding washer [15] between the coupling plate [10] and the gear unit [14]. Make sure that the sliding washer is not lost. Remove the outer coupling cover (3 screws).
16. Remove the two cable covers [16] from the outer coupling plate [10] (2 screws).
17. Remove the threaded pin [17] from the outer coupling plate [10].
18. Note the cable routing. Pull the sensor [18] out of the outer coupling plate and the sensor cable from the remaining parts.

**Assembly**

1. Remove any adhesive residue from the outer coupling plate and degrease.
2. Restore the original cable routing.
Insert the sensor into the outer coupling plate and secure with the threaded pin. The sensor must end flush with the coupling plate.
3. Place the sensor cable into the opening of the outer coupling plate and mount the two cable covers (2 screws).
4. Check sliding washer and replace if worn or damaged.
5. Pull the sensor cable through the disassembled parts (sliding washer - gear with inner coupling plate - cable housing).
6. Push the sliding washer onto the lip seal of the gear and press in the outer coupling plate onto the gear.
Make sure the sliding washer is properly positioned. Make sure that the sensor cable is not pinched.
7. Knock 3 pins into the gear unit at the outer coupling plate.
8. Mount the outer coupling plate (3 screws).
9. Mount the outer coupling plate on the encoding bracket (2 screws).
10. Stick a new protective self-adhesive sheet onto the outer coupling plate.
Pay attention to the positioning. The screws of the coupling plate must be covered.
11. Attach the side rail to the seat section (3 screws).
12. Restore the original cable routing. Place the sensor cable into the cable housing.
13. Mount the cover to the cable housing (1 screw).
Make sure that the cable does not become pinched.
14. Mount the cable housing to the drive unit for leg section (2 screws).
15. Carefully guide the plug of the sensor cable through the side opening in the strut.
Make sure that the insulation of cable is not damaged.
16. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64.
Restore the original cable routing. Insert the plug of sensor cable W220/W320 into the W520 cable bushing.
17. Mount the leg section hinge sensor W503/W506 (Chapter 13.3).
18. Carefully remove slack from the sensor cables and fit the cable clip (1 screw) and a cable tie through the opening in the seat section bar.
19. Apply new self-adhesive protective sheets to the openings on the strut.
20. Mount the pad plate onto the strut (Chapter 7.2).
21. Put the pad in place.
22. Connect the power supply to the operating table (Chapter 6.2).

14 Column cables

14.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.



14.2 Column cables

Removal

1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column top and guide the column cover downwards (Chapter 6.5).
4. Note the cable positions and cable fastenings. Remove the cable fastenings along the cable. If necessary, open the power chain and remove the earth connection.
5. Pull out both plugs of the cable.
6. Remove the cable.

Assembly

1. Restore the original cable routing. Route the cable and cable fastenings and restore any earth connection. Close the opened power chain.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect both plugs for the cable.
3. Guide the column cover upwards and close (Chapter 6.6).
4. Put the pad in place.
5. Connect the power supply to the operating table (Chapter 6.2).

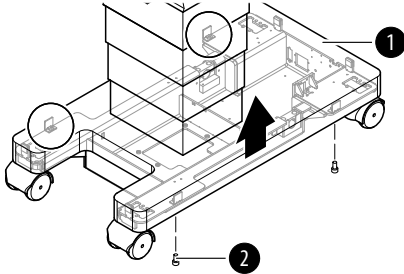
15 Running gear cables

15.1 Safety

- Prior to performing any repair or maintenance work, disconnect the operating table from the external power supply.
- Do not allow screws, nuts or other parts to fall into the operating table. Loose parts could damage other components or cables when adjustments are made to the operating table. Parts that fall inside must immediately be removed. The operating table may not be released to the customer if parts have fallen into the operating table and have not been removed.
- Risk of injury due to live parts or moving parts! The operating table must be switched off while work is being carried out on it. Switch on the operating table only when it is explicitly required. Take extra when working on live parts and take the appropriate safety measures. Secure the work area to prevent access by other people.
- After performing the work, reattach all protective devices and replace them if necessary. This includes, for example, covers, cable ties, cable brackets, cable shields, ground/earthing and power connections. Check the connection of the equipotential bonding conductor / earth conductor in accordance with the applicable standards.
- Restore the original installation position and attachment of cables and hoses. Ensure that the cables and hoses are not squeezed or damaged when the operating table is adjusted (e.g. at abrasion points).
Check the cable connections against the wiring diagram and the hose connections against the hydraulic plan before carrying out a function test.
- There is a risk of crushing posed by falling parts when removing bearing components.

15.2 Running gear cables

Removal



1. Prepare the operating table (Chapter 5).
2. Disconnect the power supply on the operating table (Chapter 6.1).
3. Open the column cover on the running gear (Chapter 6.3).
4. Loosen the running gear metal cover [1] (4 screws [2]).
5. Push up the running gear metal cover [1] and fix in the upper position.
6. Note the cable positions and cable fastenings. Remove the cable fastenings along the cable. If necessary, remove the earth connection.
7. Pull out both plugs of the cable.
8. Remove the cable.

Assembly

1. Restore the original cable routing. Route the cable and cable fastenings and restore any earth connection.
2. Attention: Do not interchange the plug connections. Pay attention to the wiring diagram on page 64. Restore the original cable routing. Connect both plugs for the cable.
3. Mount the running gear metal cover on the running gear (Chapter 11.2).
4. Guide the column cover downwards and close on the running gear (Chapter 6.4).
5. Put the pad in place.
6. Connect the power supply to the operating table (Chapter 6.2).

16 Adjustments

16.1 Align the struts lengthwise

The struts are joined together by pad plates and the transverse web. After loosening or removing both pad plates, the struts can be moved to a certain extent in relation to each other. If possible, loosen and remove a maximum of 1 pad plates. Even minor differences in length between the right and left strut will subsequently prevent the section segments from engaging at the coupling points. As a result, the struts must be realigned lengthwise as soon as both pad plates have been loosened or removed. Visual alignment is not sufficient.

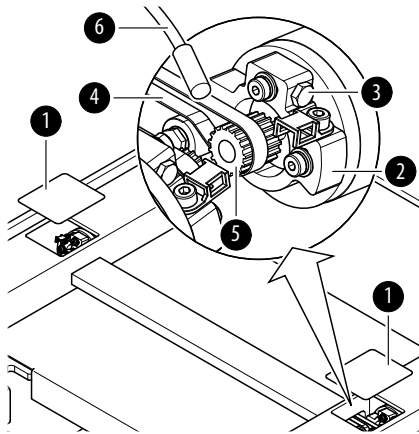
The pad plate of the seat section and back section is removed.

1. Place the seat section pad plate onto the seat section bars and attach it temporarily (8 screws). All screws must be loose. The pad plate of the back section is removed.
2. At the head or foot end of the operating table, use a ruler to measure the distance from the column head to the coupling point of the hook.
3. Position the ruler on the left strut and set exactly the same distance from the column head to the coupling point of the hook. To do this, carefully slide the left strut in the appropriate direction.
4. Fasten the screws of the seat section pad plate. The position of the struts is fixed.
5. Mount the pad plate of the back section to the struts (6 screws).

16.2 Align the hinges

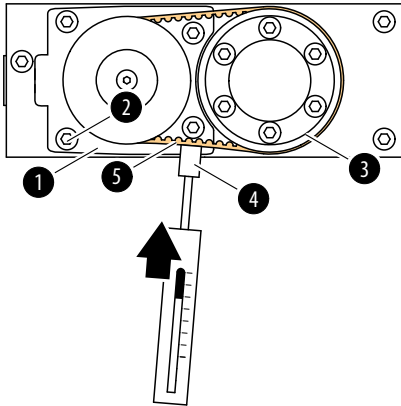
The two motors for the leg section hinge and the two motors for the back section hinge are connected by a cogged belt. Once the cogged belt or drive unit has been removed, the positions of the two associated hinges may deviate from one another. Even minor differences in height between the right and left hinge will subsequently prevent the section segments from engaging at the coupling points. Thus the height of the hinges must be realigned as soon as the cogged belt or drive unit has been removed. Visual alignment is not sufficient.

The pad plate of the seat section is removed. If the pad plate of the back section is also removed, the struts must also be adjusted afterwards.



1. Remove the self-adhesive protective sheet [1] from the centre opening on both struts.
2. Loosen the clamping device [2] for the belt on both drive units of the hinge (2 screws).
3. Slightly loosen the tensioning screw [3] on the clamping device. Where necessary, ensure that the tensioning screw on the other clamping device is also slightly loosened.
4. Note the mounting position of the cogged belt. Disengage the cogged belt [4] on both sides.
5. Position a spirit level at the height of the two hook coupling points horizontally across the two free struts.
6. Carefully move the sprocket [5] on the corresponding motor (leg section hinge/back section hinge) manually until the spirit level is horizontal. The spirit level must be correctly positioned on the struts. There must be no light gap between the spirit level and the strut.
7. Remove the spirit level.
8. Suspend the cogged belt [4] on both sides. Ensure that the cogged belt is properly guided over the clamp roller. The cogged belts must run parallel.
9. Screw the loosened tensioning screws [3] back in on the tensioning devices.
10. Determine the cogged belt oscillation frequency using a tension meter device [6] and readjust the cogged belt tension where necessary using the tensioning screws [3] (pre-tensioning $49 \text{ Hz} \pm 3 \text{ Hz}$, check 3x in succession).
11. Mount the clamping device [2] for the belt on both drive units of the hinge (2 screws [7]).
12. Apply new self-adhesive protective sheets to the openings on the seat section bar.
13. Mount the seat section pad plate on the seat section bars (8 screws).

16.3 Tightening Trendelenburg/tilting drive belt



1. Remove the cogged belt cover (3 screws).
2. Release the motor mount [1] (4 screws [2]) and push slightly in the direction of the spindle [3].
3. Press the spindle and motor apart using an assembly lever.
4. Using the spring scale [4], press directly onto the cogged belt [5] until the cogged belt is touching the first screw on the motor assembly plate. Read the force applied on the spring scale. The value must be between 30 N and 35 N.
5. Attach the motor mount [1] (4 screws [2]).
6. Mount the cogged belt cover (3 screws).

17 Control modules

No repairs of the control modules are carried out at the customer's site. The repairs are carried out at Trumpf Medizin Systeme. Please contact the Trumpf Medizin Systeme Technical Customer Service in the event of a defect.

18 Fuse layout

Material number	Designation
2072607	Fuse links 250VAC, 3.15A (T) HBC, 5x20 mm
2081731	Fuse links 400VDC, 8A, TL, 5x20 mm
2072607	Fuse links 5.0A T 5x20 mm



19 Maintenance

Maintenance must be performed using a maintenance log and taking the list of parts subject to wear and the lubrication schedule into account.

Maintenance log

The “maintenance log” can be downloaded from our online information system. After completing the maintenance, a copy of the fully completed log must be sent to the Technical Customer Service by fax or e-mail.

The following tasks provide a brief overview of the maintenance log:

Entire system using the service software

1. Read out details of the system
2. Verification of all audible and visual signals
3. Check of the remote control software and hardware

Charging unit

1. Visual inspection of housing parts for any damage
2. Visual inspection of adhesive labels for any damage and whether they are easy to read
3. Verification of charge manager

Remote control

1. Visual inspection of housing parts for any damage
2. Visual inspection of adhesive labels for any damage and whether they are easy to read
3. Verification that all control elements are functioning
4. Visual inspection of remote control cable connection for any damage
5. Check the battery and the charge manager for the cordless remote control

Electrical system

1. Verification that all output and operating elements are functioning
2. Verification of all sensors in the system
3. Verify that brake is effective
4. Visual inspection of the keys and displays for any damage
5. Verification that all control elements are functioning
6. Check the column battery (batteries) and the charge manager
7. Check all column cables for any mechanical tension and damage
8. Verification of all conductive and zero-voltage parts of the operating table for electrical safety
9. Verification of the functionality and electrical safety of all electrical coupling elements

Mechanical system

1. Visual inspection of all mechanical components of the operating table column

2. Visual inspection of adhesive labels for any damage and whether they are easy to read
3. Verification of column covers
4. Verification of bellows
5. Verification of all seals and cogged belts in the operating table
6. Verification of all mechanical coupling elements

19.1 List of parts subject to wear

1All wearing parts are to be changed as part of the regular maintenance work and if otherwise necessary.

With proper use, care and maintenance of the operating table, the following parts are declared to be high-wear parts:

Consumable	Replace if faulty
Tabletop	
All side rails	•
All cogged belts	•
All pads	•
Column	
Bellows	•
All cogged belts	•
Running gear	
Batteries	•
Jack-up unit foot plate	•
Fuses	•
Mains power cable	•

19.2 Lubrication schedule

Lubrication points	Lubricant	Application	Interval to relubricate
Tooth rod, longitudinal slide	ISOFLEX TOPAS NCA 52	with brush	2 years
Trendelenburg spindle	ISOFLEX TOPAS NCA 52	with brush	2 years
Edging spindle	ISOFLEX TOPAS NCA 52	with brush	2 years
Lift spindle	POLYLUB GLY 151	with brush	2 years
Trendelenburg bearing	ISOFLEX TOPAS NCA 52	with grease gun	2 years
Wheel suspension spring	UNIMOLY GB 2 (#2065940)	with brush	2 years
Contact surface between guide and sleeve on the emergency release	UNIMOLY GB 2 (#2065940)	with brush	2 years



20 Troubleshooting

Error	Possible cause	Fix
No operation possible via the column keyboard. Only ready for use display [a5] on the column keypad lights up.	The batteries are flat.	Connect the power supply from the mains.
	The batteries are defective.	Replace the batteries.
	The column keypad is not correctly connected to the main board (Main Controller Unit).	Check and establish cable routings/connections.
	The main board (Main Controller Unit) is defective.	Check the main board (Main Controller Unit) via the remote control. Replace the Main Controller Unit.
	The column keyboard is defective.	Check the main board (Main Controller Unit) via the remote control. Replace the column keyboard.
No operation possible via the remote control.	The connect socket is not correctly connected to the PCBA distributor board.	Check and establish cable routings/connections.
	The PCBA distributor board is not correctly connected to the main board (Main Controller Unit).	Check and establish cable routings/connections.
	The PCBA distributor board is defective.	Use the "TS3000 service application" service software to check whether the communication to the PCBA distributor board or the hardware is faulty. Replace the PCBA distributor board.
	The main board (Main Controller Unit) is defective.	Check whether it is possible to operate the operating table via the column keyboard. Replace the Main Controller Unit.
	The connector socket is defective.	Check whether it is possible to operate the operating table via the wireless remote control and cable remote control. If operation only functions with the wireless remote control, replace the connector socket.
	The remote control is defective.	Switch on the operating table and activate the remote control. Check the remote control and replace if: <ul style="list-style-type: none"> – the ready display [a5] does not illuminate – the background lighting does not illuminate – The keys do not work

Error	Possible cause	Fix
No acoustic signals sound.	The main board (Main Controller Unit) is defective.	Replace the Main Controller Unit.
The operating table cannot be charged. The Ready display [a5] does not illuminate.	The mains power cable is defective.	Check the mains power cable for visible damage and replace.
	The fuse is defective.	Check and replace the power input fuse.
	The main switch is defective.	Check and replace the main switch.
	The voltage selector circuit board is defective.	Check and replace the voltage selector circuit board.
	The transformer is defective.	Check and replace the main transformer.
	The power supply unit is defective.	Check the input/output voltage on the power supply unit. Replace the power supply unit.
	The connecting cable to the main board (Main Controller Unit) is defective.	Check and replace the connecting cable.
The operating table cannot be charged. The Ready display [a5] illuminates and the display Battery status [a1] does not illuminate correctly.	The power supply unit is defective.	Check the power supply unit using the "TS3000 service application" service software. Replace the power supply unit.
	The batteries are not connected or are defective.	Check and establish cable routings/connections. Check the batteries using the "TS3000 service application" service software. Replace the batteries.
	The battery fuses are defective.	Check the battery fuses using the "TS3000 service application" service software. Replace the battery fuses.
The operating table discharges fully after a short time.	The batteries have reached end of life.	Check the date of manufacture of the batteries. Replace the batteries.
	The batteries are too cold.	To charge the batteries, the temperature should be above 0°C.
	The batteries are defective.	Replace the batteries.

21 Functional overview of electrical components

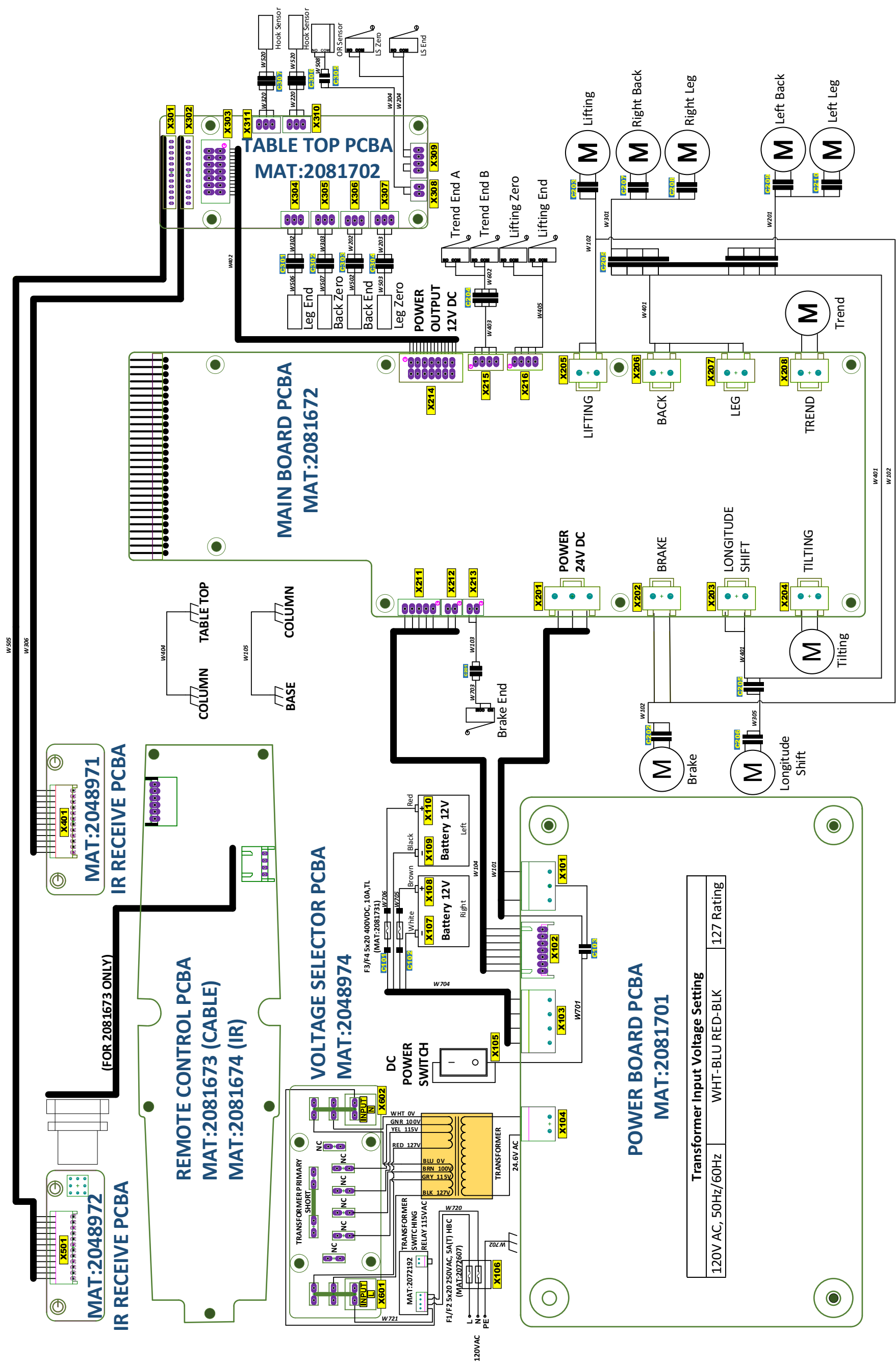
Component	Function
Tabletop	
PCBA distributor board	<ul style="list-style-type: none"> – Provides the interfaces for communicating with the operating table system – Connection for switches of the longitudinal slide – Connect the sensors of the leg section hinge – Connect the sensors of the back section hinge – Connection for control devices – Monitors collision limits
Incline sensor	– Limits the travel distance for Trendelenburg and edging
Trendelenburg limit switch	– Limits the travel distance for Trendelenburg
Longitudinal slide motor	<ul style="list-style-type: none"> – Provides longitudinal movement of the operating tabletop – DC motor
Zero and end position switch for longitudinal slide	<ul style="list-style-type: none"> – Determines the zero position – Limits the travel distance for the longitudinal slide
Motor for right and left leg section hinge	<ul style="list-style-type: none"> – Provides upward / downward movement of leg section hinge – DC motor
End position sensor for leg section hinge	– Induction sensor for monitoring the hinge position
Motor for right and left back section hinge	<ul style="list-style-type: none"> – Provides upward / downward movement of back section hinge – DC motor
End position sensor for back section hinge	– Induction sensor for monitoring the hinge position
Remote control bushing (head end)	– Connector socket for cable remote control
IR module (head and foot end)	– Communication with the wireless remote control
OR sensor	<ul style="list-style-type: none"> – Detects a secured extension adapter on the operating table – Reed sensor
Hook sensor	<ul style="list-style-type: none"> – Detects a secured long tabletop section on the operating table – Reed sensor

Component	Function
Column	
Main board (Main Controller Unit)	<ul style="list-style-type: none"> - Connection basis for edging, Trendelenburg, longitudinal slide and lift motors - Connection basis for motors for the leg section hinge, back section hinge and brake - Connection for switches from lift motor and brake - Interface for communicating with the PCBA distributor board - Converts the column keypad input signals into visual and audio signals - Ensures the basic operating functions of the operating table in emergency mode - Central operating table control - Monitors the end position of the jack-up unit - Error memory
Column keypad	<ul style="list-style-type: none"> - Operating keypad on the operating table column
Edging motor	<ul style="list-style-type: none"> - Tilts the tabletop to the side, left and right - DC motor
Trendelenburg motor	<ul style="list-style-type: none"> - Tilts the tabletop towards the head or foot end - DC motor
Lift motor	<ul style="list-style-type: none"> - Vertical lifting motion of the operating table column - DC motor
Lift zero and end position switch	<ul style="list-style-type: none"> - Monitors the travel distance for lift adjustment
Running gear	
Mains bushing	<ul style="list-style-type: none"> - Base for connecting external mains power - Integrated mains fuses
Battery (x2)	<ul style="list-style-type: none"> - Provides an autonomous power supply - Lead-acid 12 V/14 Ah
Power supply unit (PSU)	<ul style="list-style-type: none"> - Supplies power to all operating table components - Includes management of battery charging - Switching power supply - Attention, the transformer must be configured: <ul style="list-style-type: none"> - 100 VAC, 50 Hz/60 Hz - 110 VAC, 50 Hz/60 Hz - 115 VAC, 50 Hz/60 Hz - 120 VAC, 50 Hz/60 Hz - 127 VAC, 50 Hz/60 Hz - 220–230 VAC, 50 Hz/60 Hz - 240 VAC, 50 Hz/60 Hz - Short-circuit protection - Rated voltage 24 V without load
Jack-up unit linear drive	<ul style="list-style-type: none"> - Activate and release the parking brake of the running gear
Jack-up unit end position sensor	<ul style="list-style-type: none"> - Limits the edging to $\pm 5^\circ$ via the control



Component	Function
Transformer	<ul style="list-style-type: none">– Transforms the power supply– Adjust the transformer to the power supply with a specific configuration
Switching relay transformer	<ul style="list-style-type: none">– Electronic relay to switch transformers– Switches the transformer without an inrush current

22 Wiring diagram



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