

Installation Manual

REVISION HISTORY

REVIEW DATE	RELEASE DATE	MODIFICATIONS	Revision
February 2021	04/02/2021	First release	A
June 2021	08/07/2021	Installation details information	B
September 2021	30/09/2021	Detector holder mechanical adjustment Tube and collimator assembly Tools list update Tube bracket reassembly Console power supply information	C
July 2022	28/07/2022	In room console management Compression mechanical mounting Chain tension Change 4343 FL from Model 3 to Model 4 Main console wiring & joystick guides	D
July 2024	26/07/2024	Camera configuration Forcing Mode Cable assembly Symbol Camera and cover camera assembly New joystick cross limiters Pin connecting shaft (Lateral Bar) Exposition handswitch connection End-of-installation tests	E

The manufacturer constantly strives to improve its products and, therefore, reserves the right to deliver, without prior notice, machines whose characteristics differ from those described here: nonetheless, these machines are still guaranteed to comply with regulations in force.

All rights reserved

GUARANTEE CONDITIONS

It is the responsibility of the user to ensure that the government regulations respecting installation and operation of the equipment are observed.

Incorrect operation or failure of the user to maintain the equipment in accordance with the schedule of maintenance relieves the manufacturer or its agent from all responsibility for consequent non-compliance, damage, injury, defects and or other malfunction.

The installation and equipment must not be used if any mechanical, electrical or radiation-emitting component is defective, or if the procedures described in the schedule of maintenance have not been carried out.

Changes and additions to the equipment may only be carried out by the manufacturer or by third parties expressly authorized by the manufacturer to do so. Such changes must comply with local regulations and accepted standards of good practice.

In case the power lines do not meet the specifications given in section A "Preinstallation" of the Service Manual, the table cannot reach its maximum performance and the standard use cannot be guaranteed.

Technical files (diagram, parts list, measurement procedure and so on) are available on request to the manufacturer.

TRANSPORTATION CONDITIONS

Goods travel at owner's risk.

No contestations shall be taken into account unless written reservations have been made on the consignment note, face to face to the carrier, upon receipt of the goods in case of apparent loss or damage.

During transportation and storage, the black cap of the H.T. tank must be neither unscrewed nor removed.

Crates and packing means made by the manufacturer cannot be used for other purposes than carriage.

SAFETY AND PROTECTION

X-rays are not innocuous and can be dangerous if used badly. Therefore you must follow the instructions provided in this manual very carefully.

These X-ray units comply with the strictest safety standards in force throughout the world (Europe, Japan, USA, etc.). They guarantee optimum protection against radiation risks.

Nonetheless, you are handling a unit specifically designed to generate X-rays or allow medical diagnosis on a film or using a digital imaging system. Consequently, despite the inherent safety of our equipment, we recommend using conventional commercially-available equipment to protect yourself and your patient against scattered radiation risks.

↳ The following instructions must be strictly observed

- Use the smallest as possible X-ray field
- Use the shortest possible fluoroscopy time
- Use focal spot to skin distances as large as possible in order to keep the absorbed dose to the patient as low as reasonably achievable.
- Maintain the X-ray tube and flat panel detector in good condition.
- Keep as far away from the beam as possible.
- During exposure, staff members not directly involved with the patient must stand behind lead or lead-glass shielding.

↳ Should any part of the equipment be damaged, it must be repaired or replaced before the equipment is returned to service.

↳ Equipment described herein is unsuitable for operation where and when flammable gasses or vapors are present.

↳ The user must always electrically disconnect the equipment from the mains before cleaning or disinfecting.

↳ Do not allow water or any liquid to enter in the equipment, as such liquid may cause short circuits and/or some corrosion.

↳ It must be noted that some disinfectants vaporize, forming potentially explosive mixtures. Should such disinfectants be used, the vapors must first be allowed to disperse before the equipment is returned to use.

↳ Note that the equipment is not protected against anesthetic gases.

- ↪ In addition, it is important that the assembly, extension, adjustments, modifications and repairs be carried out by an authorized manufacturer distributor. Also your radiological unit must be installed in premises that comply with IEC provisions and the standards in force.
- ↪ Due care must be taken to prevent injury to the patient. Ensure that patient's clothing cannot be trapped in the equipment. It is important that the patient hands remain on the tabletop.
- ↪ While declining the table, the patient must be either fastened or secured using handgrips, footrest, straps...
- ↪ The user must always ensure that there are no obstacles that would interfere with the table. Ensure that accessories such as shoulder supports, leg supports or footrest are correctly fixed to the table.
- ↪ It is important that all persons dealing with X-radiation be fully acquainted with the radiation protection.

In the event of failure to comply with these instructions, the manufacturer shall not be held responsible for the safety, reliability and characteristics of the machine.

Your distributor will be pleased to help you with the initial use of your unit and to answer any subsequent questions you may have.



The CE mark on the remote controlled table indicates that the unit is in compliance with the European Directive 93/42/CEE of the 14/06/93 concerning the medical devices.

Original language: ENGLISH

NOTE TO THE USER

You have just purchased our remote controlled table. We congratulate you on your choice, and are sure you will be fully satisfied with its use and diagnostic capabilities.

This remote control table is an universal X-ray examination table with variable height fully digitized & microprocessor controlled and developed for easy and fast examinations in fluoroscopy and radiography.

The table is suited for functional and for anatomical examinations with the patient in any position.

This multipurpose table is designed for performing following examination on adults, children and babies:

➤ ***With the detector inserted in the table:***

- General x-ray procedures: skull, chest, abdomen, pelvis, spine, extremities ...
- Stitching
- Tomography
- Tomosynthesis

➤ ***With the detector inserted in the table, in dynamic mode:***

- Full digestive tract
- Uro-genital system
- Endoscopy
- Arthrography
- Myelography
- Paediatrics

➤ ***With an optionnal detector outside the table:***

- Extremities (skyline patella, weight bearing exams ...)
- Paediatrics (baby pelvis ...)
- Direct exposures in the room (on stretcher, wheelchair ...)

This list of procedures is not an exhaustive one, but gives an idea of the wide range of possibilities that the system offers.

The manufacturer units offer high quality and advanced technology.

We recommend reading the user's manual carefully before using your unit, to become familiar with its operation and make the most of its performance.

Keep this manual in a safe place so that you can easily refer to it in the future.

Thank you for placing your confidence in the manufacturer.

REGLEMENTARY INFORMATIONS

Some reglementary informations must be present in accompanying documents; this is the exhaustive list of items requested by the standard:

“WARNING: No modification of this equipment is allowed.”

“WARNING: Do not modify this equipment without authorization of the manufacturer.”

“WARNING: If this equipment is modified, appropriate inspection and testing must be conducted to ensure continued safe use of the equipment.”

The assembly of medical equipment systems and modifications during the actual service life require evaluation to the requirements of the standard IEC 60601-1 3rd edition.

This table indicates the symbols that are used on the system.

Symbol	Description
	Three-phase alternating current with neutral conductor
	Alternating current
	Type B applied part
	Protective ground
	Ground
	“ OFF “ (power supply)
	“ ON “ (power supply)
	Dispose of electronic and electrical equipment separately from normal waste
	Dangerous voltage
	Warning: dangerous voltage
	Manufacturer
	Date of manufacture
	This system transmits RF (Radio Frequency) energy and non-ionizing radiation
	Caution – X-rays
	Caution
	Operating instructions
	Refer to instruction manual / booklet
	General warning sign
	Catalogue number
	Serial number
	Medical Device

IPx6	IP stands for dust protection and waterproofness. The first number indicates the level of protection against dust, and the second number indicates watertightness: X: No specified protection against dust. 6: Protected against strong water jets from any direction. Note: Where it is not required to specify a numerical, it is replaced by the letter "X" ("XX" if both digits are omitted).
IPx7	IP stands for dust protection and waterproofness. The first number indicates the level of protection against dust, and the second number indicates watertightness: X: No specified protection against dust. 7: Protected against the effects of temporary immersion in water. Note: Where it is not required to specify a numerical, it is replaced by the letter "X" ("XX" if both digits are omitted).

1. INSTALLATION TOOLS REQUIRED	14
2. DETAILED LISTS OF ASSEMBLY PROCEDURES	15
3. GENERAL – ASSEMBLY LAYOUT	16
4. INSTALLATION KIT	18
5. TABLE FOOT	20
6. TABLE FRAME ASSEMBLY	66
7. CARRIAGE	73
8. COLUMN	75
9. TUBE BRACKET	77
10. LATERAL BAR	79
11. RF 4343 FL ASSEMBLY INSIDE DETECTOR HOLDER	81
12. DETECTOR HOLDER ASSEMBLY	84
12.1 Trixell detector holder	84
12.2 Canon B1 detector holder	90
12.3 Adjustment of the detector holder horizontality (for all detectors)	100
13. TABLE ELECTRICAL CONNECTION	102
14. CONSOLE ELECTRICAL CONNECTION	105
14.1 Wiring of main console (console side)	105
14.2 Wiring of main console (table side)	112
15. PEDALS AND EXPOSITION HANDSWITCH CONNECTION	113
15.1 Pedals connection	113
15.2 Exposition handswitch connection	114
16. FIRST SWITCHING ON	116
17. CONNECTORS SUPPORT	117
18. GENERATOR CONNECTION	118
19. TABLE CONFIGURATION (TECHMODE)	120
19.1 TechMode access	120
19.2 TechMode contents	122
20. LED LIGHTS	141
20.1 General configuration	141
20.2 Status LED state	141
21. ROOM CONFIGURATION	142
22. TABLE TOP	144
23. POTENTIOMETERS AND ENCODERS ADJUSTMENTS	150
23.1 Elevation	151
23.2 Tilting	153
23.3 Carriage	157
23.4 Column angulation	160
23.5 S.I.D.	164
23.6 Lateral table top	172
23.7 Longitudinal table top	175
24. RETRACTABLE COMPRESSION DEVICE – MECHANICAL REMOUNTING	178
25. RETRACTABLE COMPRESSION DEVICE – ADJUSTMENTS	183

25.1 Preliminary modification to the settings:	183
25.2 Validate axis and check direction of movement	186
25.3 Position Potentiometer adjustment.....	189
25.4 Retract Position settings.....	190
25.5 Parking position and limit switch adjustment.....	192
25.6 Mechanical adjustment of output position parallelism	193
25.7 Mechanical parallelism adjustment in retracted position	195
25.8 Resting gauge return adjustment	198
25.9 Lower limit and end position adjustment	199
25.10 Checking limit switches	201
25.11 Checking gauge feedback at rest.....	203
25.12 Controls the switching of the horizontal/vertical relays on the distribution board to set the safety threshold. 203	
25.13 Installation of force measurement tools	204
25.14 Final setting of safety thresholds.....	204
25.15 Patient detection setting at 6 Kg.....	205
25.16 Max. compression adjustment at 13 Kg	206
25.17 Final inspection.....	207
25.18 Installation of force measurement tools	208
26. TUBE AND COLLIMATOR ASSEMBLY	213
26.1 Mechanical assembly	213
26.2 Cable assembly	222
27. COLLIMATOR RALCO R225 SETTINGS	225
28. GRIDS	225
29. CAMERA	226
29.1 Mechanical assembly	226
29.2 Configuration and Settings for camera with RASPBERRY or ASUS boards	227
30. COVERS ASSEMBLY	228
30.1 Colum covers.....	228
30.2 Tube bracket covers	240
30.3 Camera cover	244
30.1 Guard bars.....	247
30.2 Carriage band.....	248
30.3 Foot covers	251
30.4 Detector holder cover	259
31. X-RAYS ALIGNMENT	260
31.1 Reminder	260
31.2 Light Field / X-Rays beam	261
31.3 Tube Centering.....	264
31.4 Center the X-ray Field on the detector	266
31.5 Rotary collimator option.....	269
32. SECONDARY CONSOLE SETTINGS AND WIRING (OPTIONAL).....	270
32.1 Wiring of the secondary console (table side)	270
32.2 Wiring of the secondary console (console side).....	274
32.3 Checking of the good operation	284
33. SAFETY KIT FOR CEILING SUSPENSION (OPTIONAL).....	285
33.1 Cable connection.....	285

33.2 Mounting bracket286

33.3 Reflector287

33.4 Detector adjustment (depends on detector model)287

33.5 Safety kit test290

34. COMMISSIONING291

34.1 Emergency switches.....291

34.2 Hardware safety292

34.3 End-of-installation tests292

1. INSTALLATION TOOLS REQUIRED

You will find below a list of tools required to fix and assemble the different element of the table:

- Hammer drill with Ø12 & Ø14 drills
- Brush & Blower pump & Pump injection for anchor
- Anchor tester kit
- Torque wrenches 3Nm to 230Nm (refer to the PROL041 document if necessary)
- Hex key set
- Torx key set
- Wrench set
- Electronic level
- Multimeter
- Adjustable plier
- Pallet truck
- Screwdriver set
- Meter
- Cutting plier

2. DETAILED LISTS OF ASSEMBLY PROCEDURES

Depending on the installation constraints, the remote controlled table will be delivered disassembled with different packing size.

Contact your local representative for detailed packing size and installation instructions.

3. GENERAL – ASSEMBLY LAYOUT

The following procedure is a simplified procedure to explain the mechanical assembly of the table. You can find at chapter 1, the detailed list of the different assembly procedures according to the disassembly type chosen.

- Check the room according to the preinstallation data and the room layout.
- Check the place of the cable ducts and of the floor plate, the horizontality and flatness of the floor.
- Bring each crate following the same sequence as the assembly and if possible when required.

All informations about clamping torque are summarized in appendix. (PRO L 041)

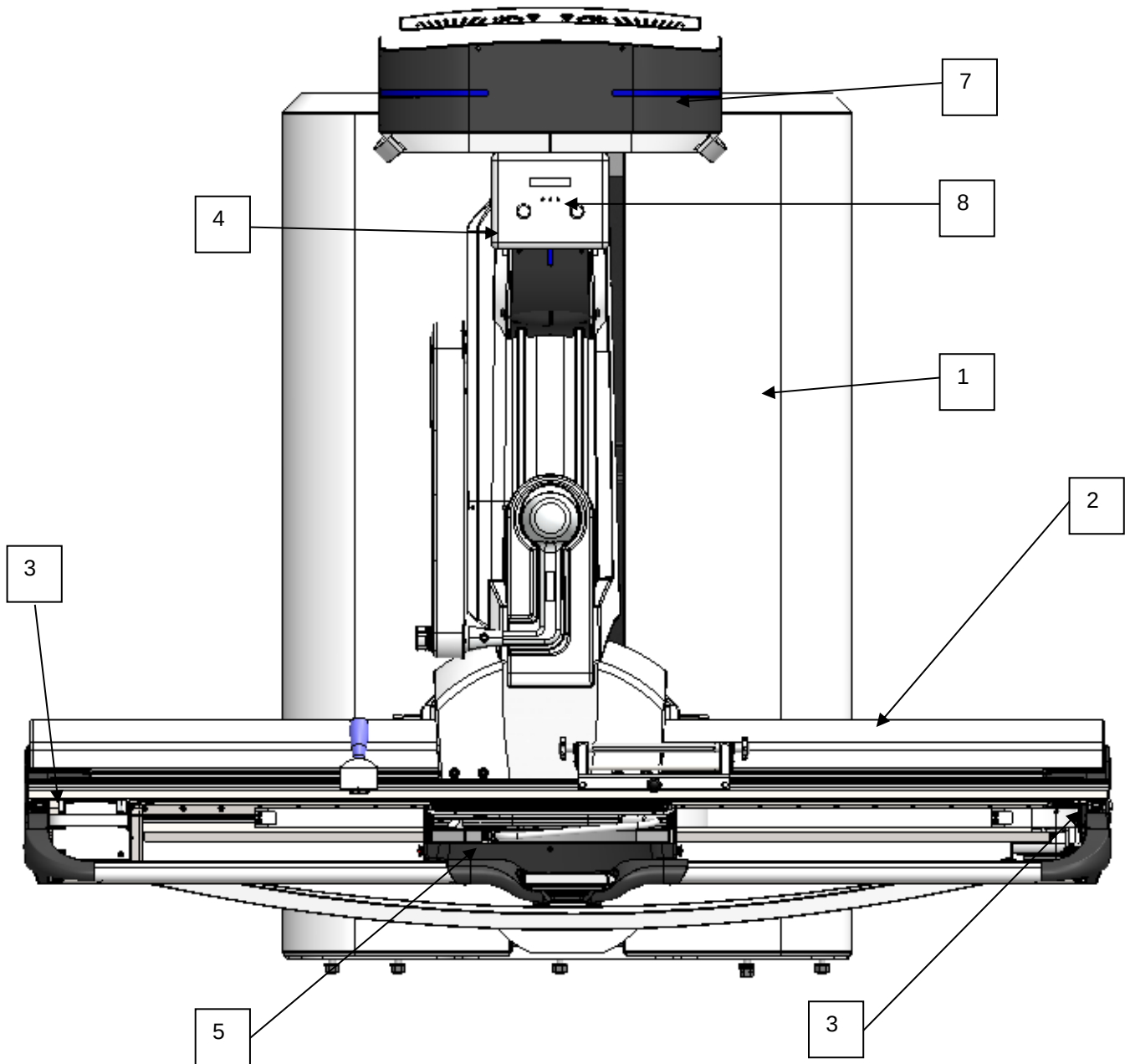
The assembly layout is the following:

- (1) Table stand positioning
- (2) Rear girder mounting
- (3) Arms mounting
- (4) Column mounting
- (5) Detector holder mounting
- (6) First switching on
- (7) Tube housing mounting
- (8) Collimator mounting
- (9) Commissioning, see section C
- (10) Table top mounting
- (11) Covers mounting
- (12) Floor plate fixing

NOTE: *To make the figures clearer, cables already mounted in the various mechanical parts are not always shown. Anyway, take an extreme care of the cables while assembling.*

9090 REMOTE CONTROLLED TABLE

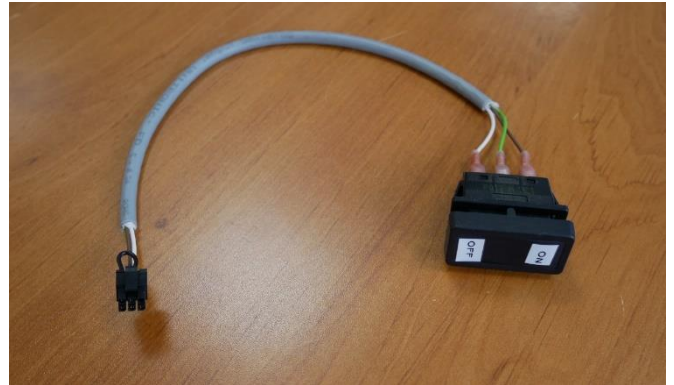
Installation



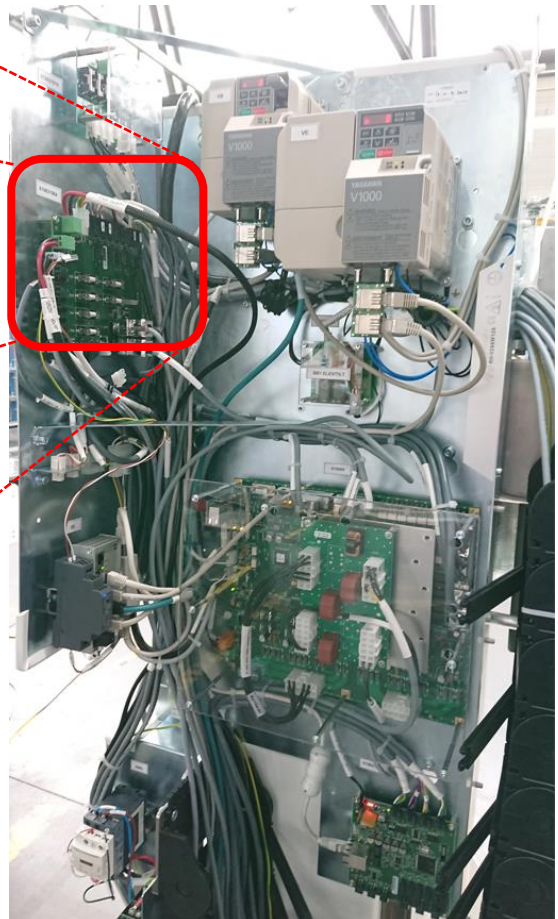
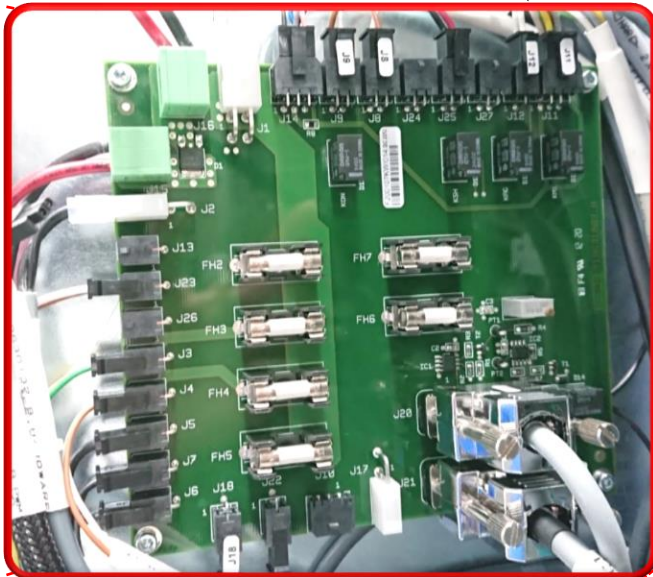
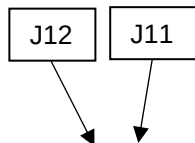
4. Installation kit

In order to switch on the table while all electrical and mechanical parts are not entirely assembly, a commissioning kit is available composed of an ON-OFF button, an emergency switch shunt and a tabletop potentiometer simulator.

The ON-OFF button is connected on J11 of the dispatching board, it is possible to switch on or off the table without the console :



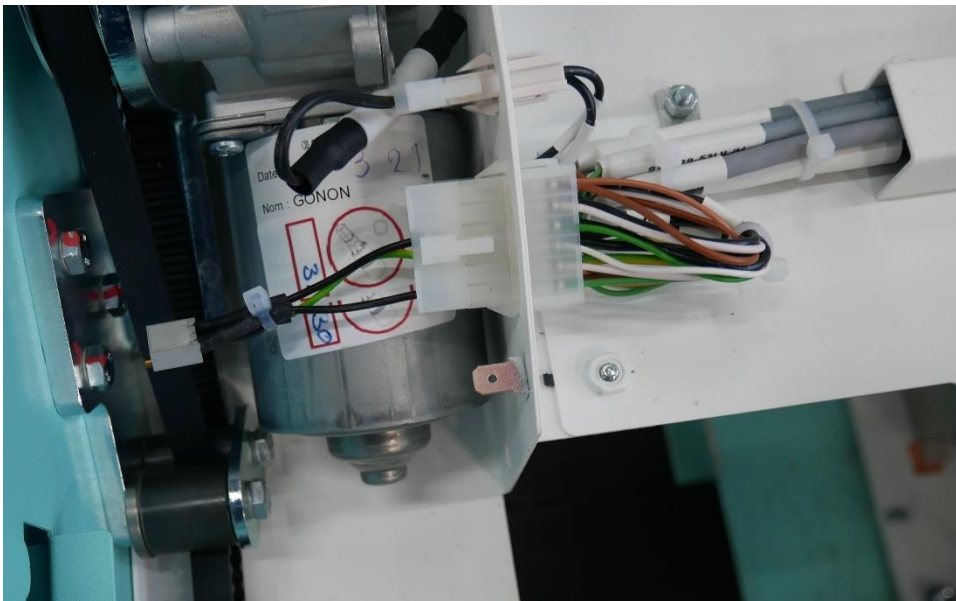
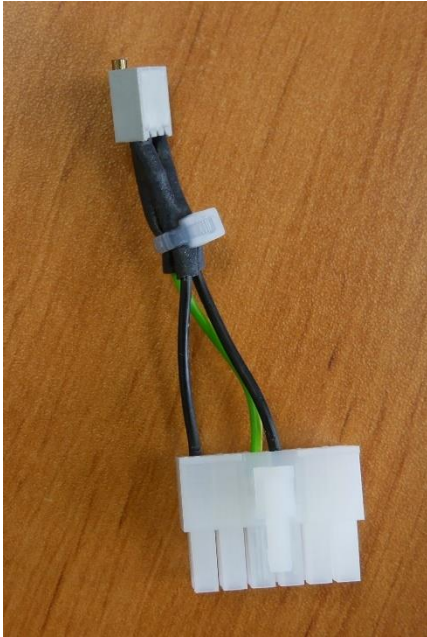
The emergency switch shunt is connected to J12 of the dispatching board. It must be used until the detector holder is entirely mounted and connected to the table. If not, it is not possible to switch on the table :



9090 REMOTE CONTROLLED TABLE

Installation

The longitudinal tabletop potentiometer simulate the tabletop position in center position in order to tilt the table without clearance error about tabletop:



5. TABLE FOOT

If the concrete floor is thick and strong enough (cracked or uncracked and thickness minimum 120mm), the equipment can be fixed to the floor using 6x threaded rod Ø12mm (Ø14mm drilling) HILTI chemical anchors and 2x M8x40 (Ø12mm drilling) HILTI HSL-3 mechanical anchors. The selected chemical anchors must be chosen in the following table:

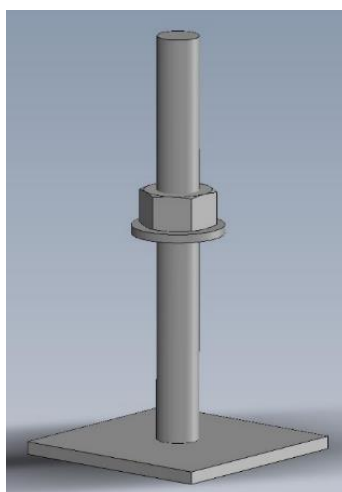
Concrete quality	Concrete state	Selected anchorage
C20/25 ou supérieur	Cracked	HIT-HY 200-A + thread rod class 8.8
C20/25 ou supérieur	Uncracked	HIT-HY 200-A + thread rod class 8.8
C20/25 ou supérieur	Unknown	HIT-HY 200-A + thread rod class 8.8
C16/20	Cracked	HIT-HY 200-A + thread rod class 8.8
C16/20	Uncracked	HIT-HY 200-A + thread rod class 8.8
C16/20	Unknown	HIT-HY 200-A + thread rod class 8.8
C12/15	Cracked	Not possible directly on the ground / Possible with an adaptation pallet
C12/15	Uncracked	HIT-HY 200-A + thread rod class 8.8
C12/15	Unknown	Not possible directly on the ground / Possible with an adaptation pallet

If the concrete floor thickness is less than 120mm but more than 70mm and the quality of the concrete is at least C12/15 cracked or not cracked it is possible to install the foot with an adaptation pallet.

If the concrete floor thickness is less than 70mm or the quality of the concrete is less than C12/15 it is not possible to install the foot.

WARNING : read carefully anchors datasheet and instruction before use

If it is not possible to use the different fixing types previously explained, then it is possible to use metal plate and threading rods to fix the equipment from side to side of the floor. (See picture hereafter).



If the floor is not strong enough to support the loading of the table an optional dispatching plate can be ordered. Please contact your reseller for more details.

9090 REMOTE CONTROLLED TABLE

Installation

Tools needed to fix the table directly to the floor or with an adaptation pallet:

Designation	Quantity
Hammer drill	1
Ø12 Drill bit – Depth mini 120	1
Ø14 Drill bit – Depth mini 230	1
HIT-RB Brush	1
HIT Blower pump	1
Manual injection pump dispenser HDM 500 + Cartridge holder HIT-CR 500 + HIT-RE-M Mixer	1
KIT - HAT-28 Tester	1
Gloves	1 pair
Protective glasses	1

Set the table foot position according to the room layout.

Be careful about the direction of the table foot.

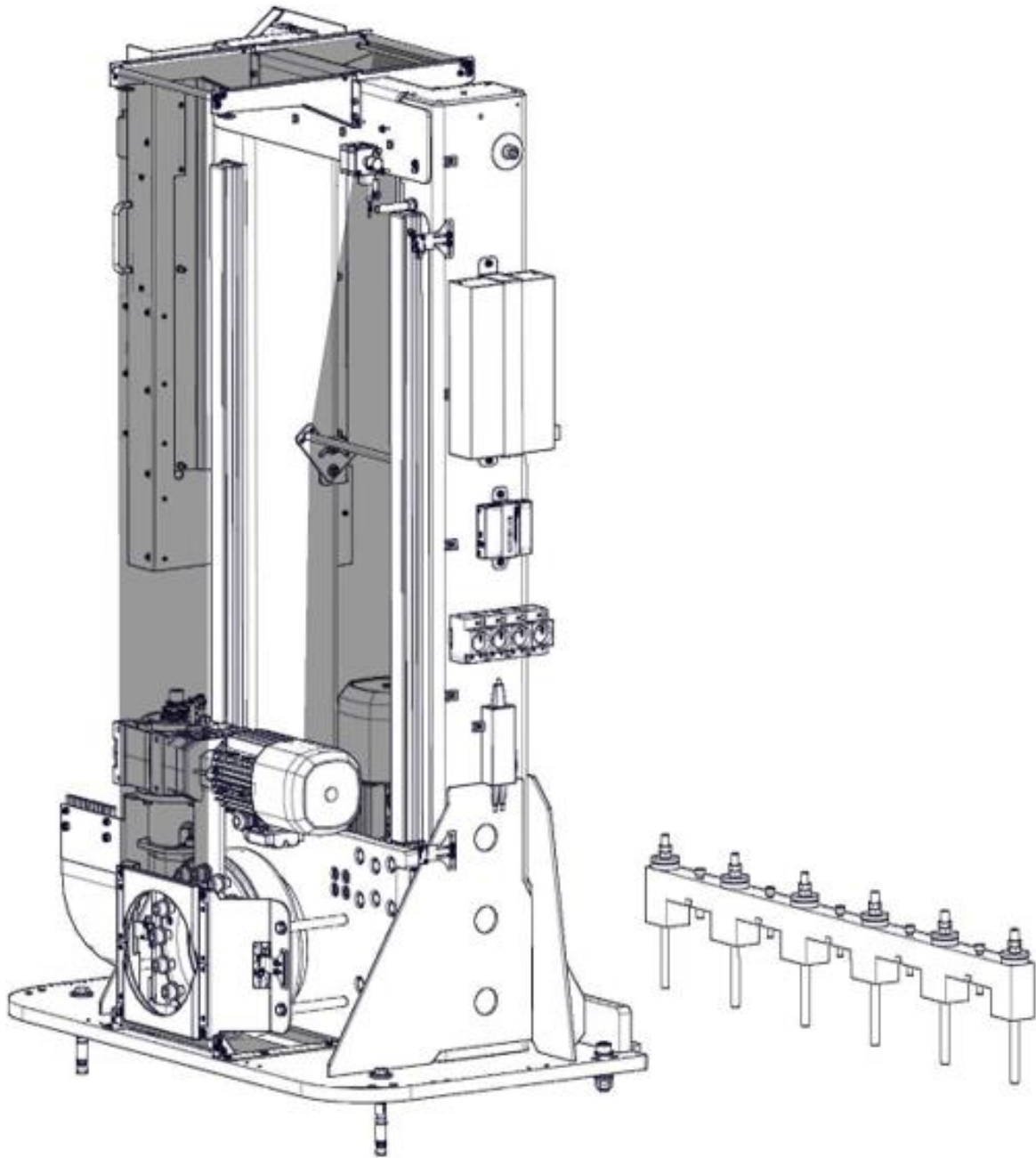
When the position of the table is defined, mark the floor and remove the table foot.

The first step is to anchor the fixing bar or the adaptation pallet.

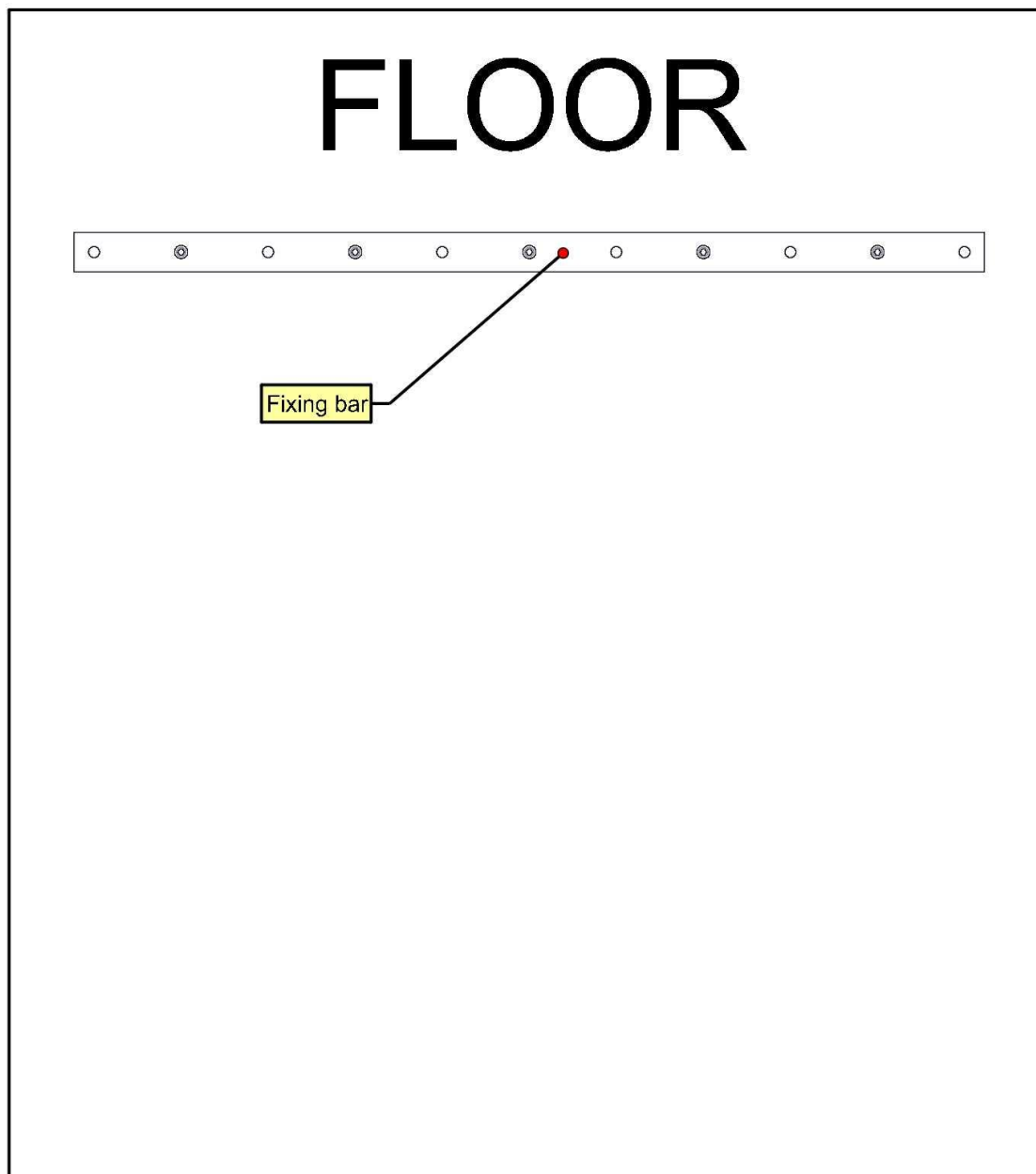
9090 REMOTE CONTROLLED TABLE

Installation

DIRECT FIXATION TO THE CONCRETE FLOOR

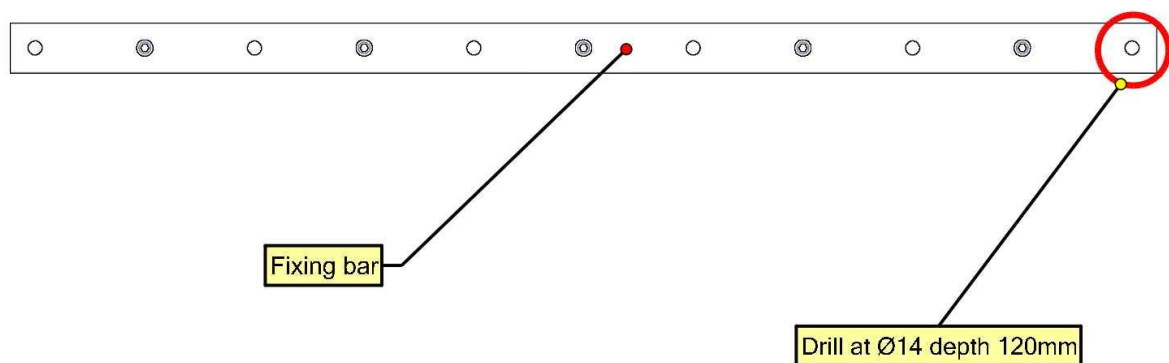


Position with accurate the fixing bar on the floor at the intended siting area.
The fixing bar is used as drilling template (accurate position and orientation).



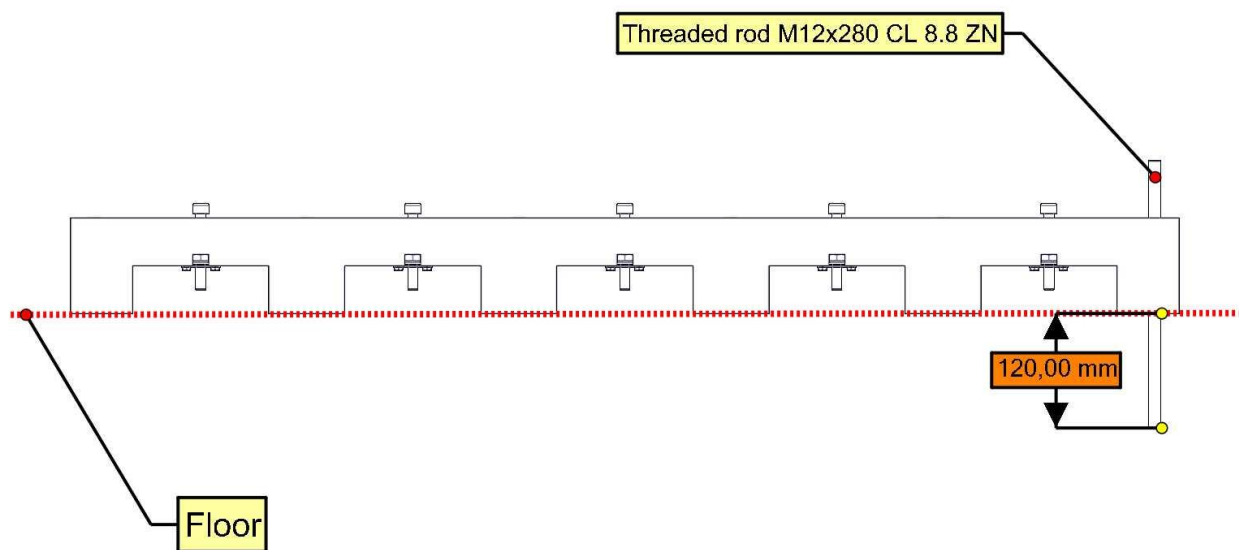
Drill the first hole at the extremity of the fixing bar with a drill bit Ø14 to a 120mm depth in the floor or 220mm including fixing bar.

For drilling leave the fixing bar as a guide.

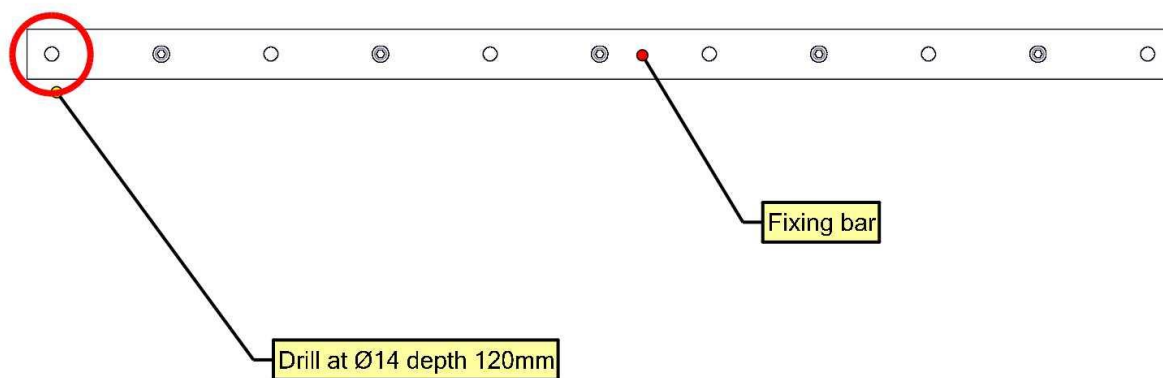


The 6 holes must be drilled to the same diameter and depth.
The bar must always be in place when drilling to serve as a guide.

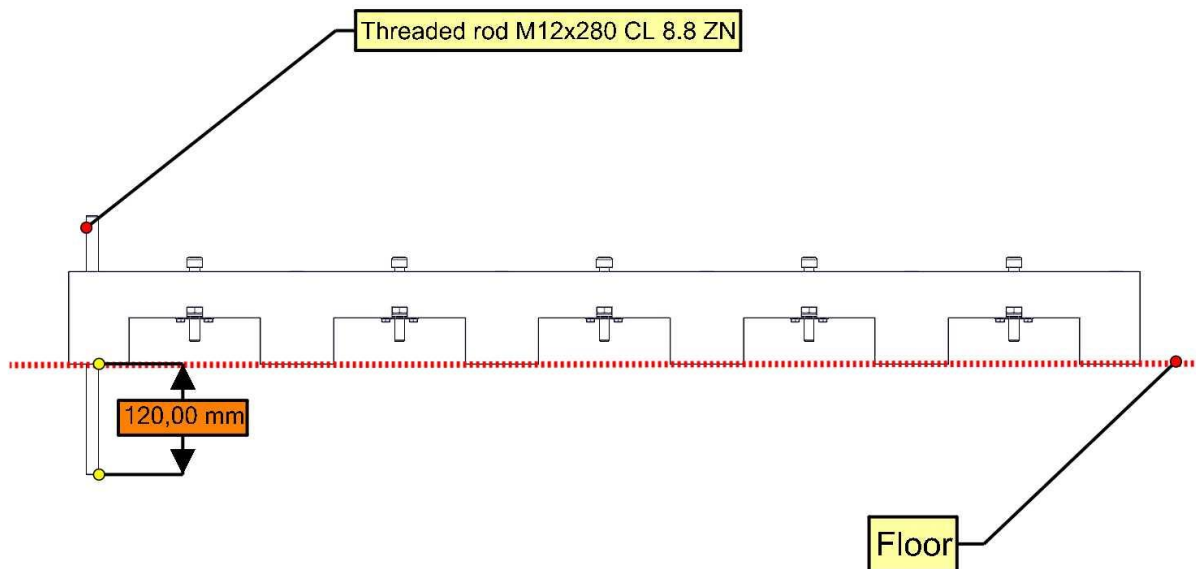
Implement the first threaded rod to keep the fixing bar in position without the resin.



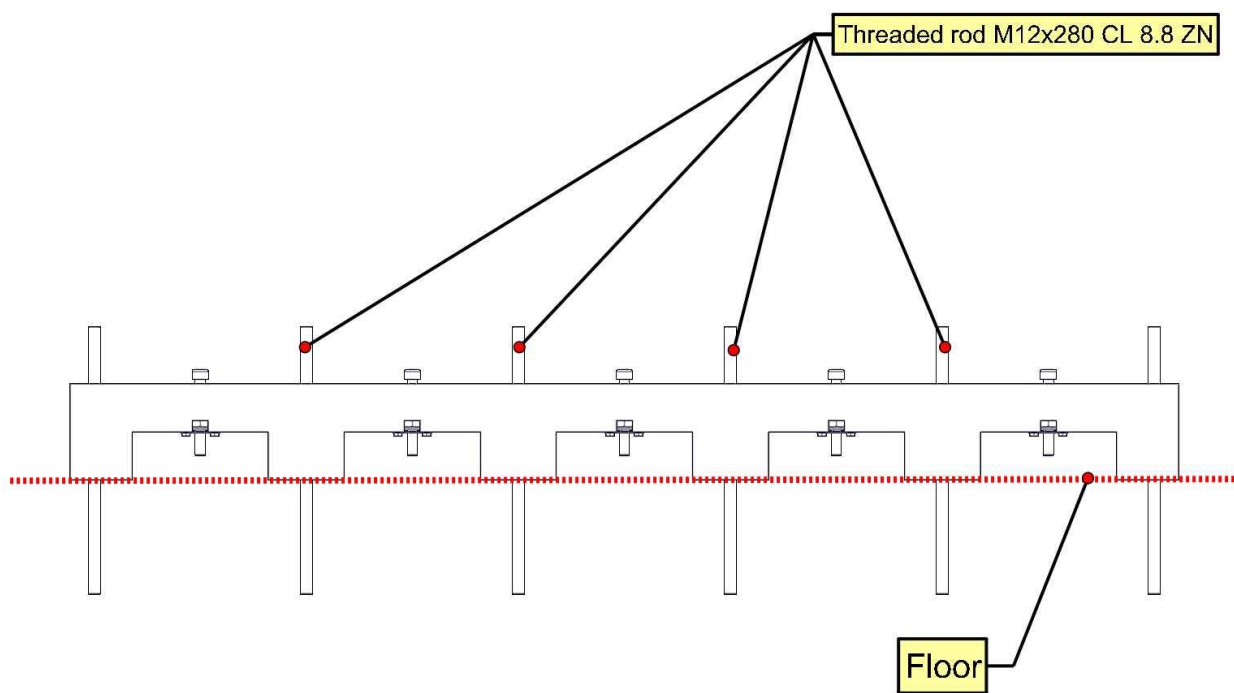
Drill the second hole at the over extremity of the fixing bar.



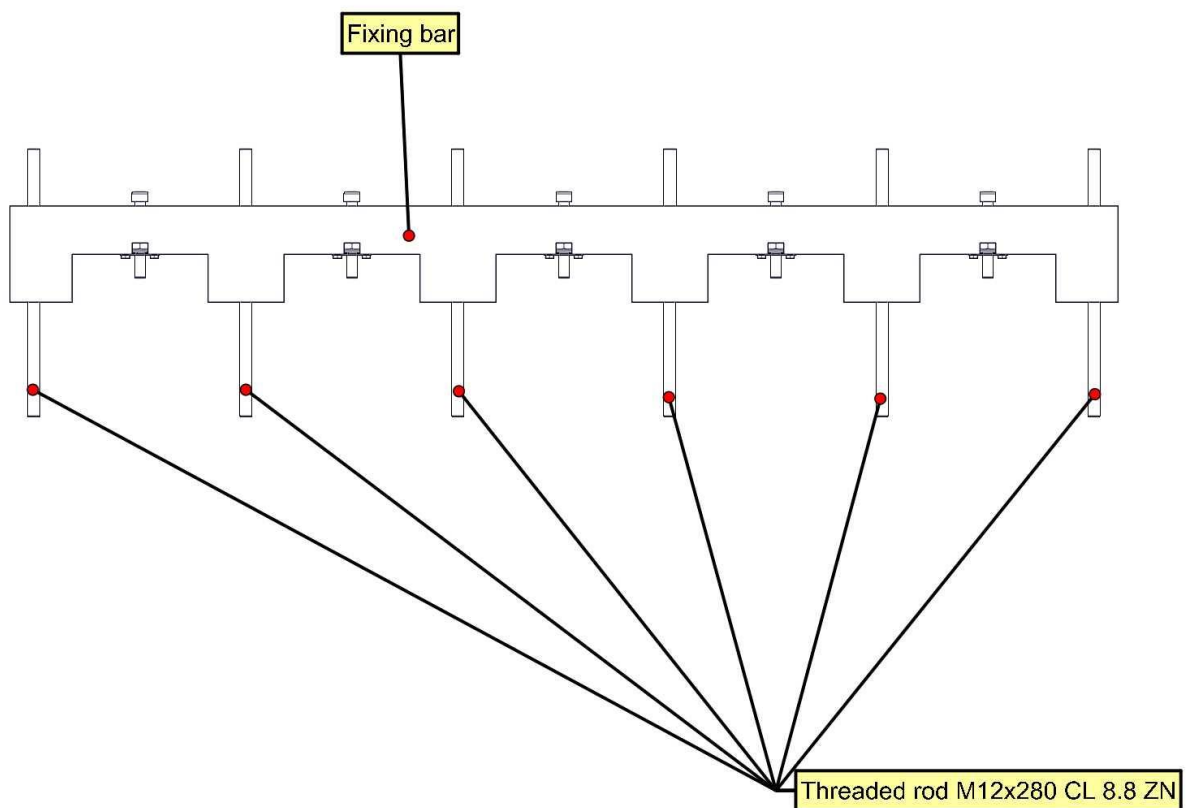
Implement the second threaded rod to keep the fixing bar in position without the resin.



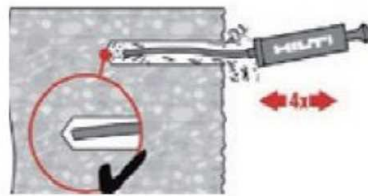
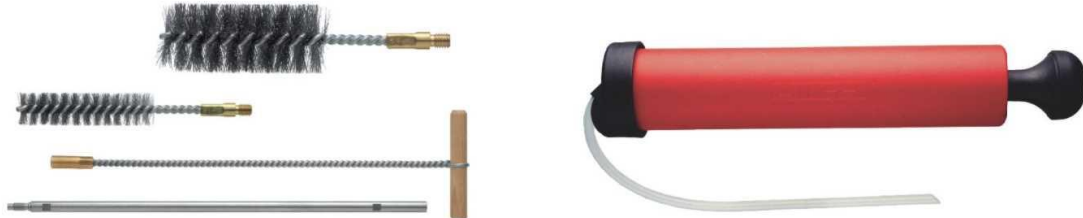
Repeat the procedure for the other 4 holes.
For each drilled hole, place the threaded rod without resin
before drilling the next hole.



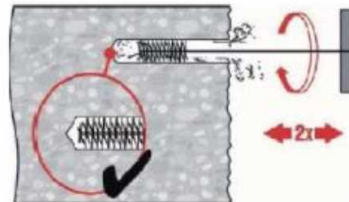
Remove the fixing bar and the 6 threaded rods.



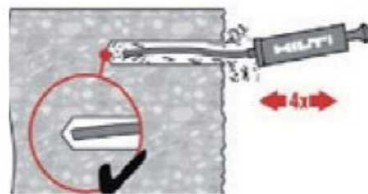
Clean the 6 holes using the brush and the blower pump as shown below:



Minimum 4 x
Blower pump



Minimum 2 x
Backwards and forwards
rotating movement



Minimum 4 x
Blower pump

Dust the 6 threaded rods.

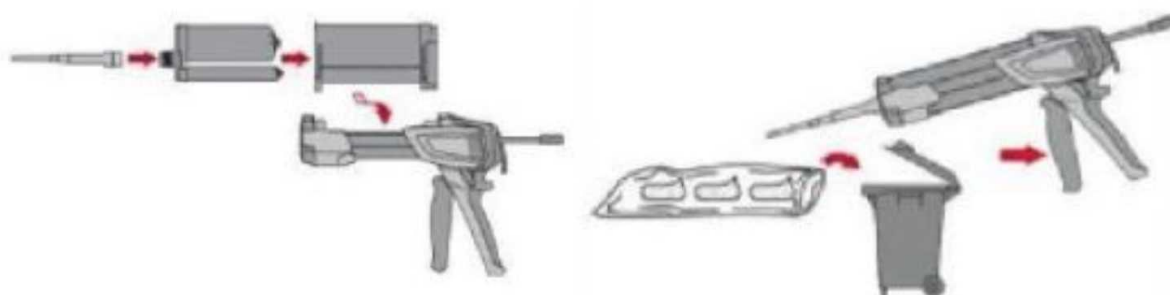
Caution: this procedure must be absolutely respected to obtain a maximum resistance of the fastener.

Do not neglect this step.

Preparation of the injection:

Insert the HIT-HY 200-A canister into the pump, screw the cap and add the hose. Then press the trigger until the chemical mixture comes out of the hose.

Press the trigger again on his full stroke to 3 time to delete the beginning of the mixture.



Use always the HILTI injection resin reference HIT-HY-200-A.

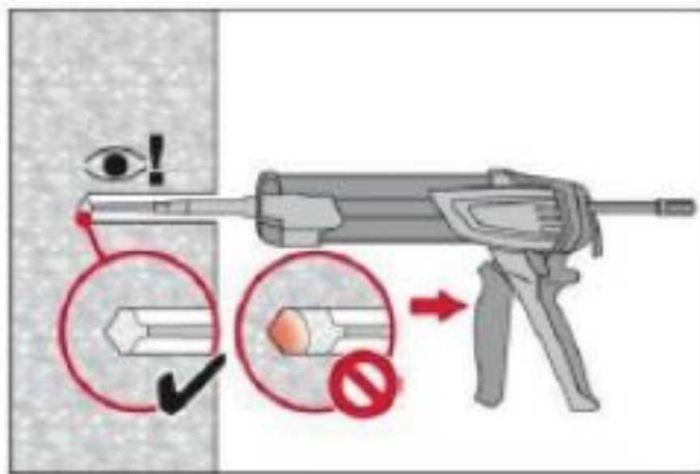
In the case of the use of another resin or seal chemical reference, and in case of fixation problem, the person performing the installation will be bound solely responsible.



A 500ml canister allows the implantation of the 6 threaded rods.
Do not wait to use the resin, the time of use after mixing is between 4 and 7 minutes. Then the resin begins to solidify.

Resin injection:

Inject the resin into the first hole from the bottom of the hole and going up to the surface to avoid any air bubbles.

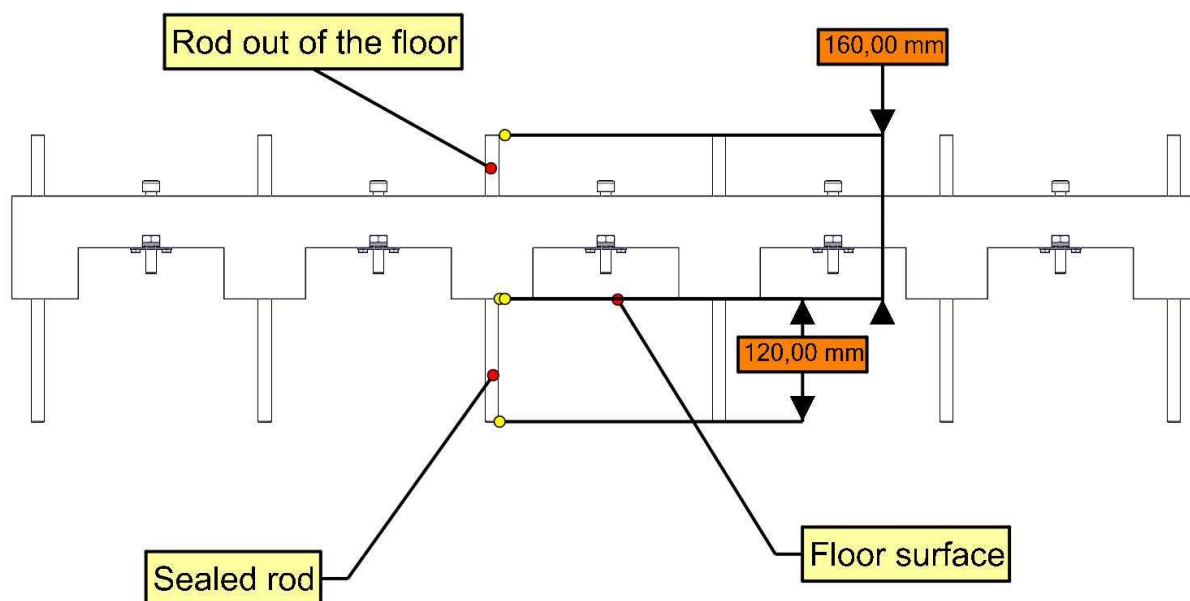


Insert the threaded rod into the hole at a depth of 120mm then wipe immediately the excess resin.

The length of the out threaded rod should be around 160mm.

You have 4 minutes from the placement of the resin to insert the threaded rod. After this delay, you must no longer solicit the rods or resin.

Repeat on the other 5 holes.



Do not install the fixing bar at this moment.



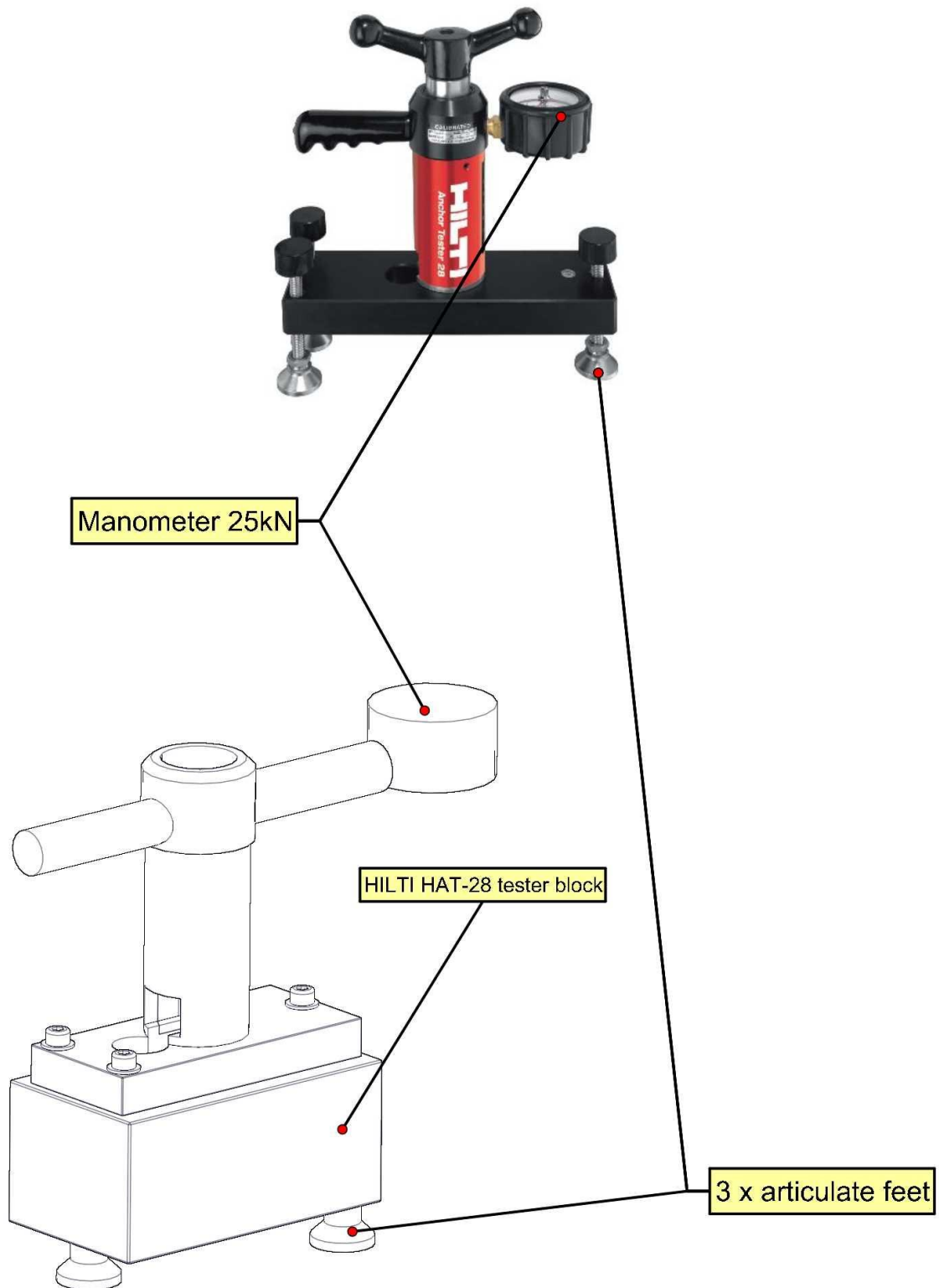
Cure time:



Before applying any effort to the threaded rods you must
must respect a drying time:
1 hour minimum for concrete temperatures above 10°
2 hours minimum for concrete temperatures below 10°

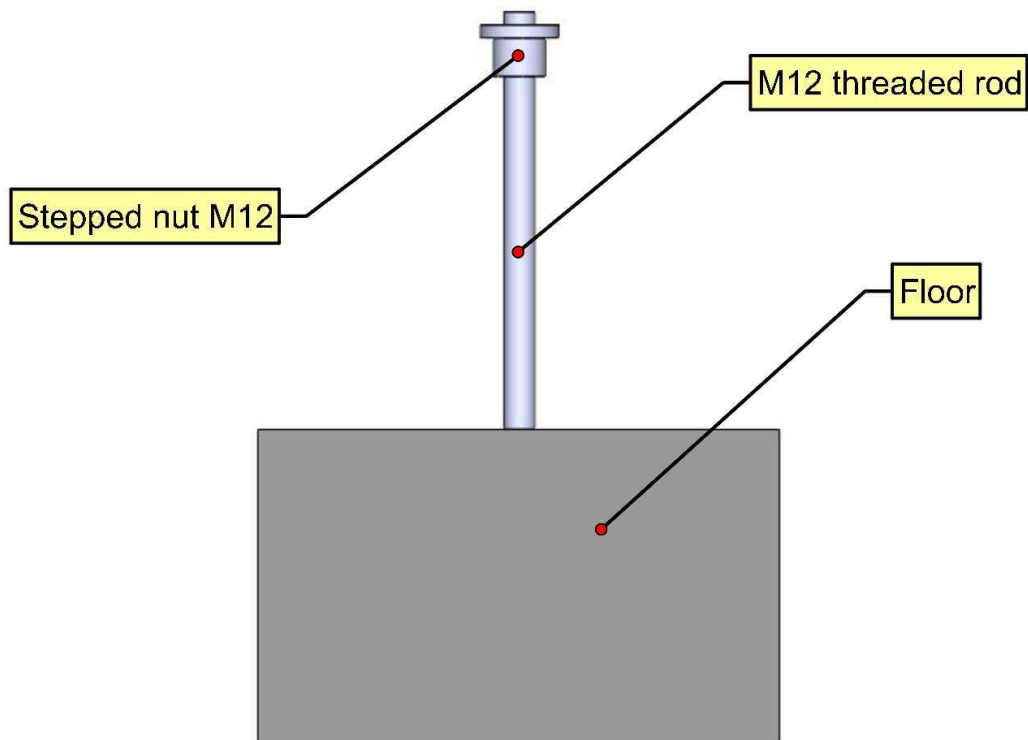


Assemble the HILTI HAT-28 anchor tester using the manometer with the test range of 25kN and the tester block with articulate feet.

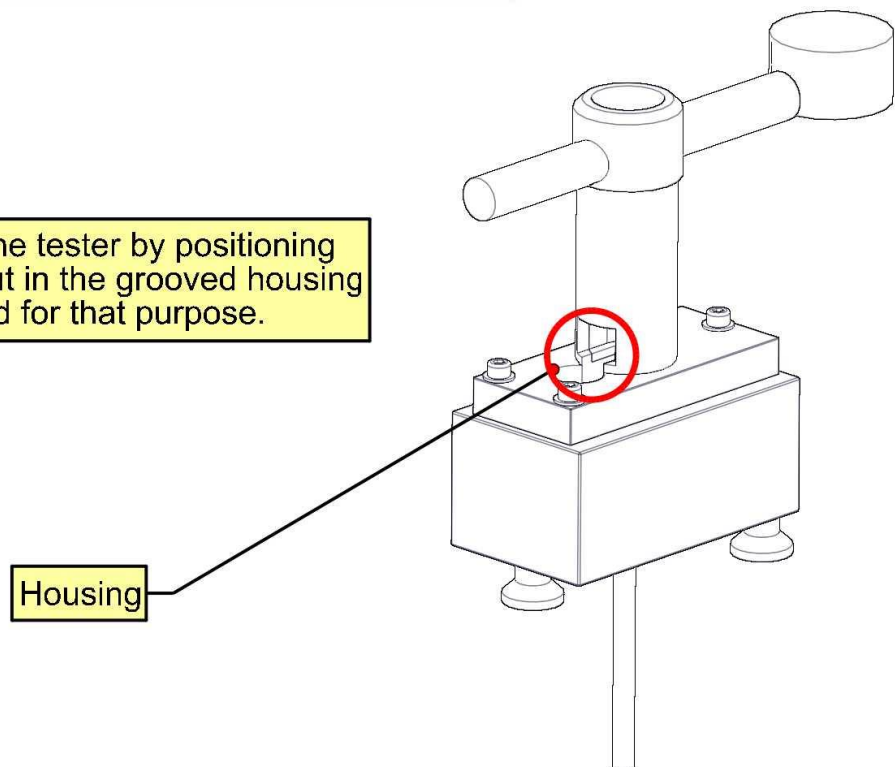


When the minimum cure time is reached, perform the resistance test of the 6 anchors.

Screw the M12 stepped nut supplied in the kit to the end of the threaded rod.



Implement the tester by positioning the stepped nut in the grooved housing provided for that purpose.



Perform the test.

Position the landmark needle (black color) at 0.
Turn the handle by observing the manometer until it reaches 11500N or 11.5kN.
Wait 1 minute and check that the red needle still shows the same value as the black landmark needle.

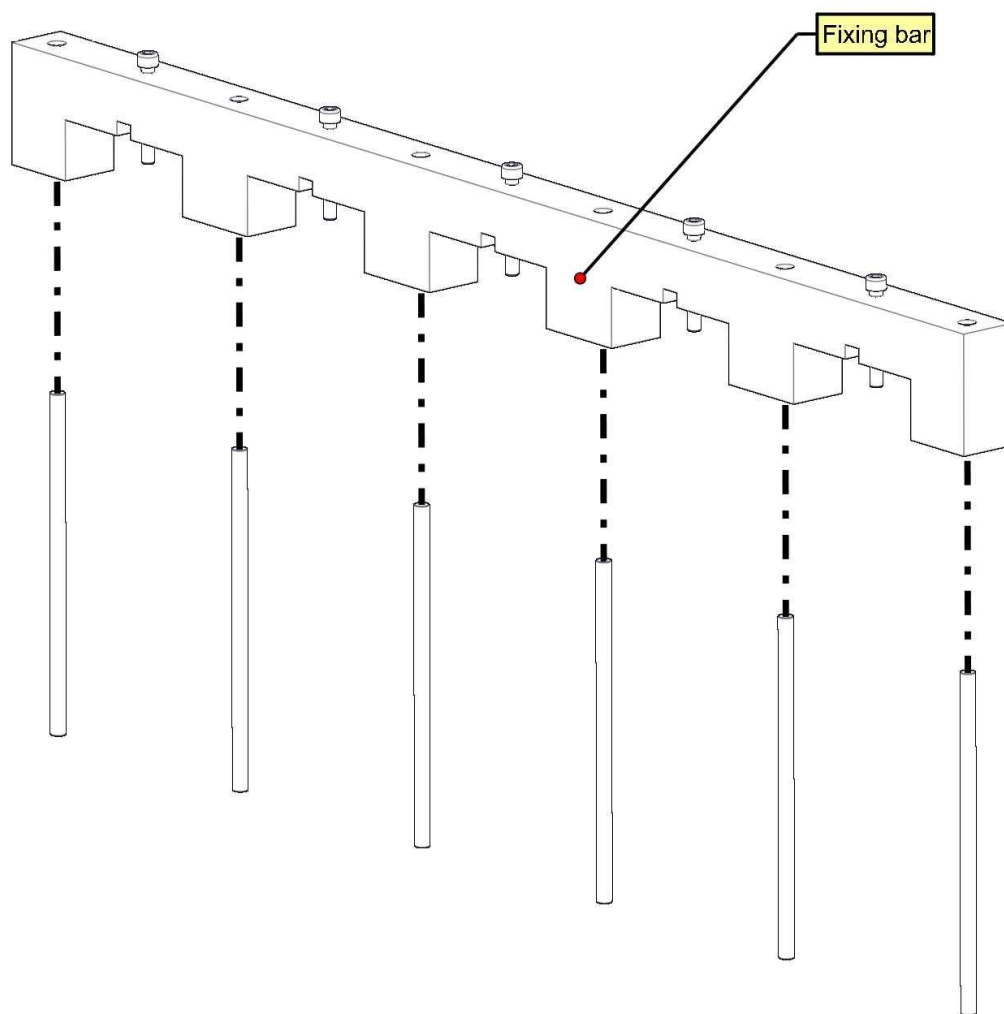


Remove the tester and visually check that the anchor is intact (no cracks in the floor).

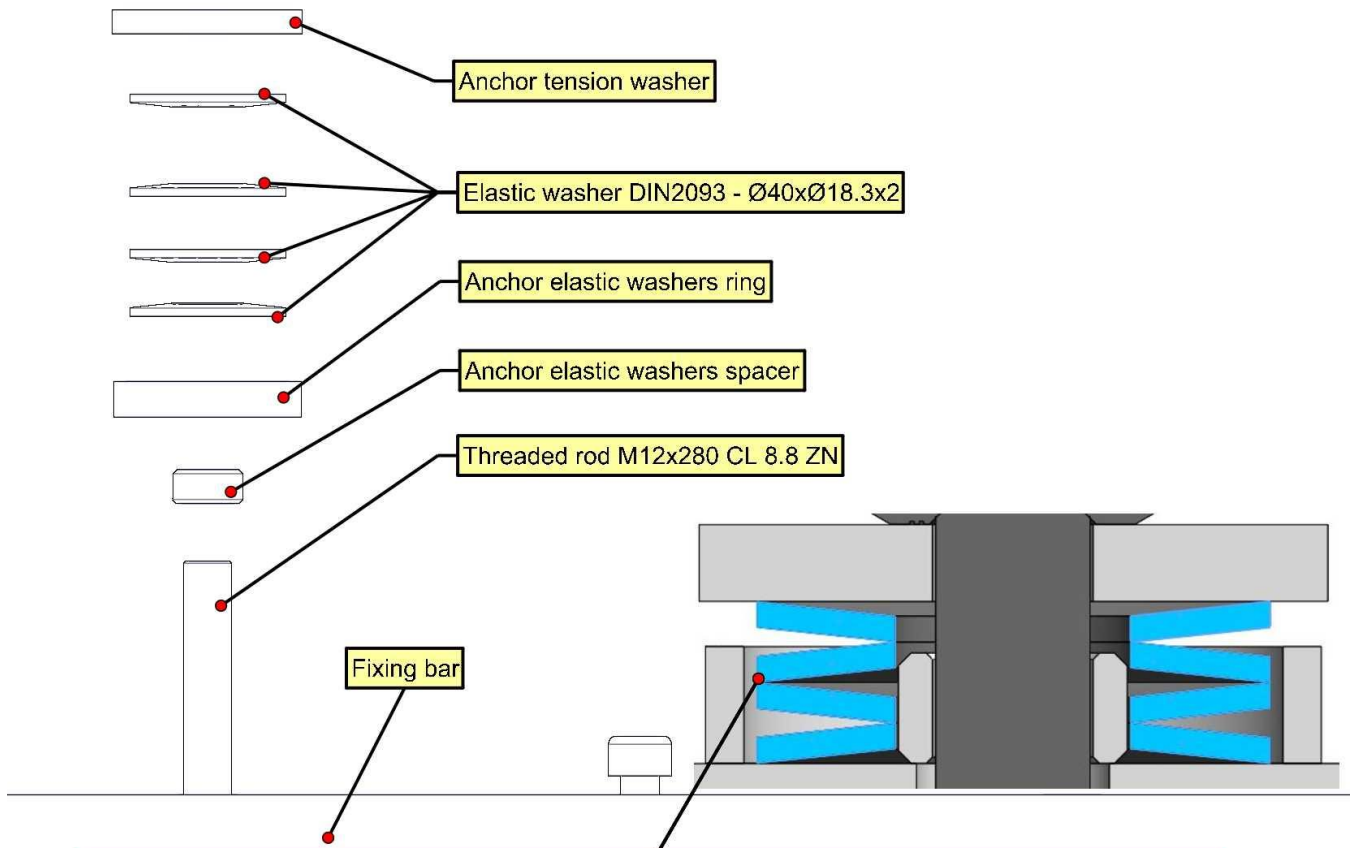
Repeat on the other 5 anchors.

**If all steps have been respected the fixation is validated.
Otherwise, the fixation is not validated.
The table cannot be installed.**

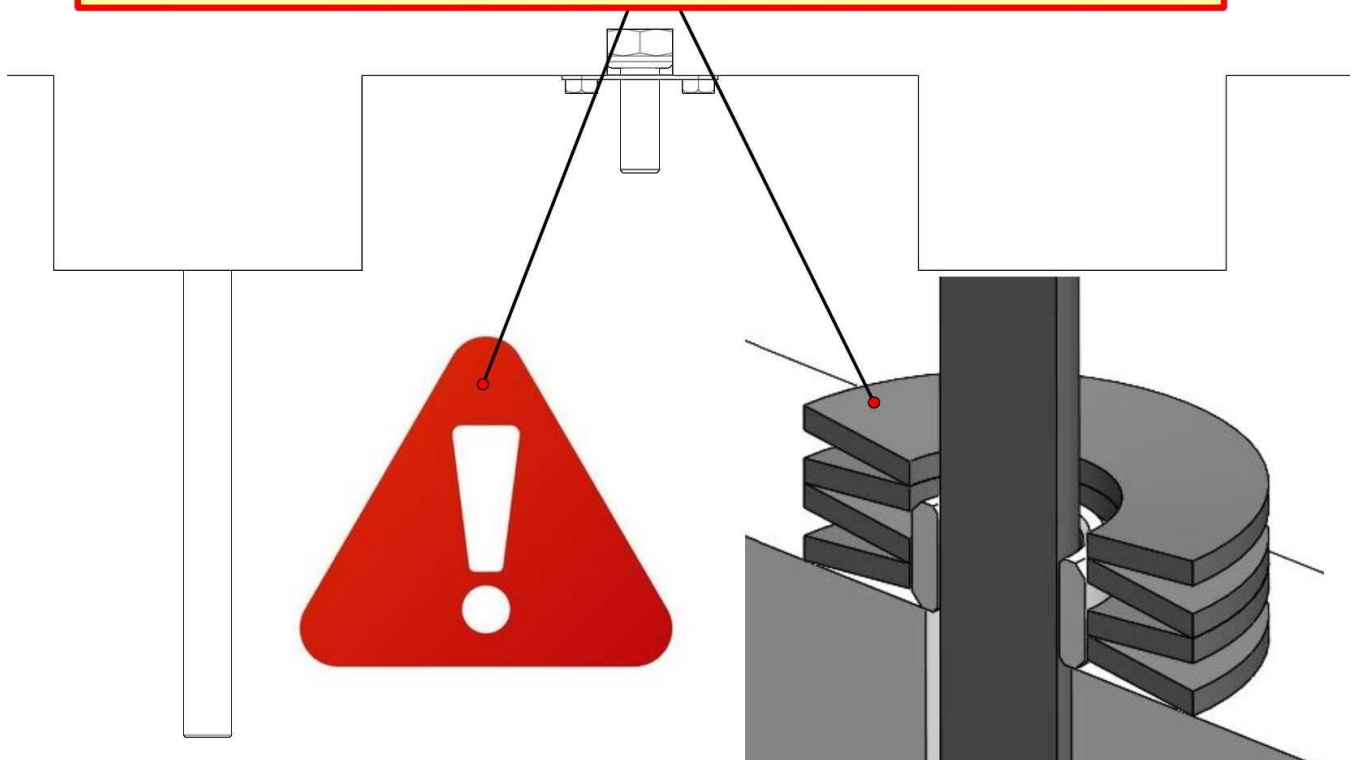
Install the fixing bar.



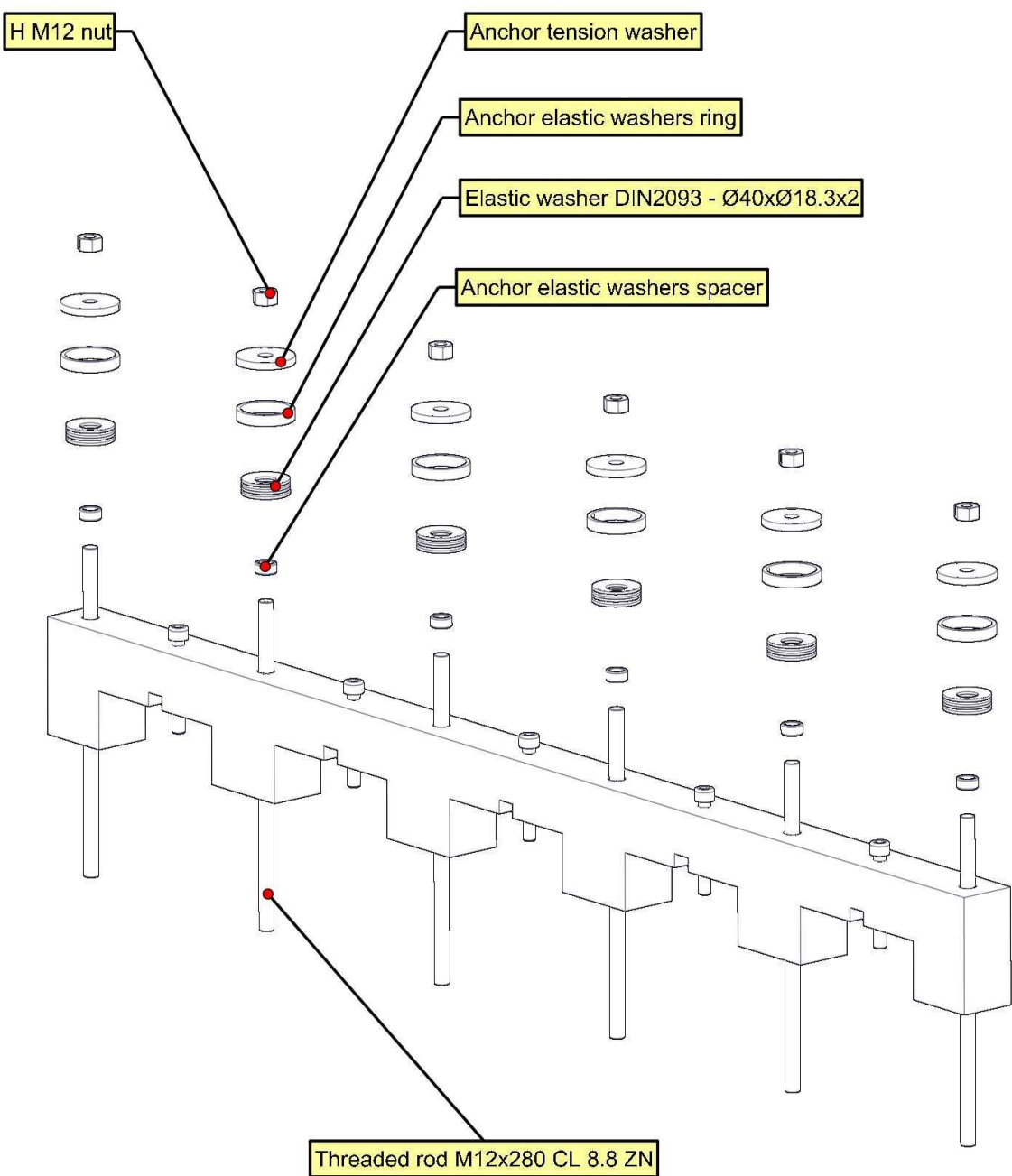
Assemble the spacers and elastic washers in strict compliance to the following indications.

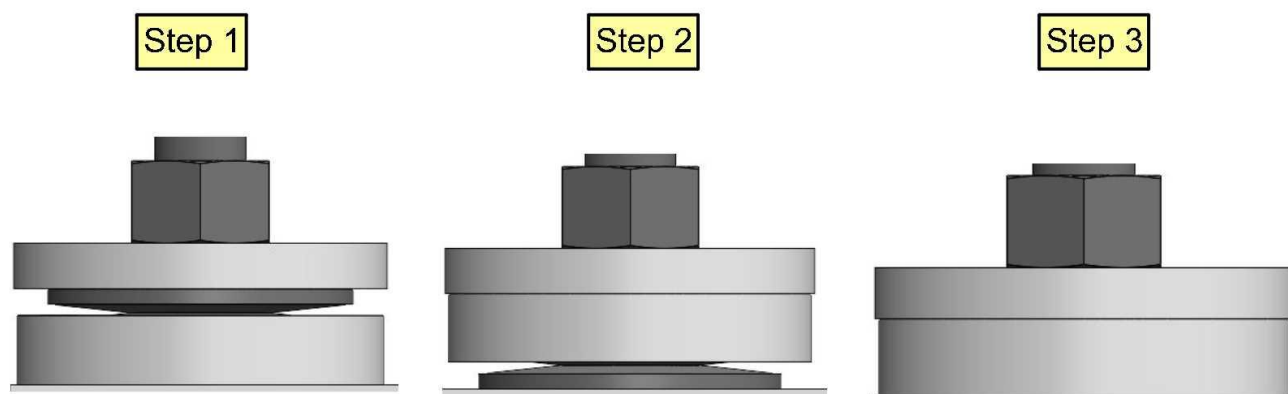
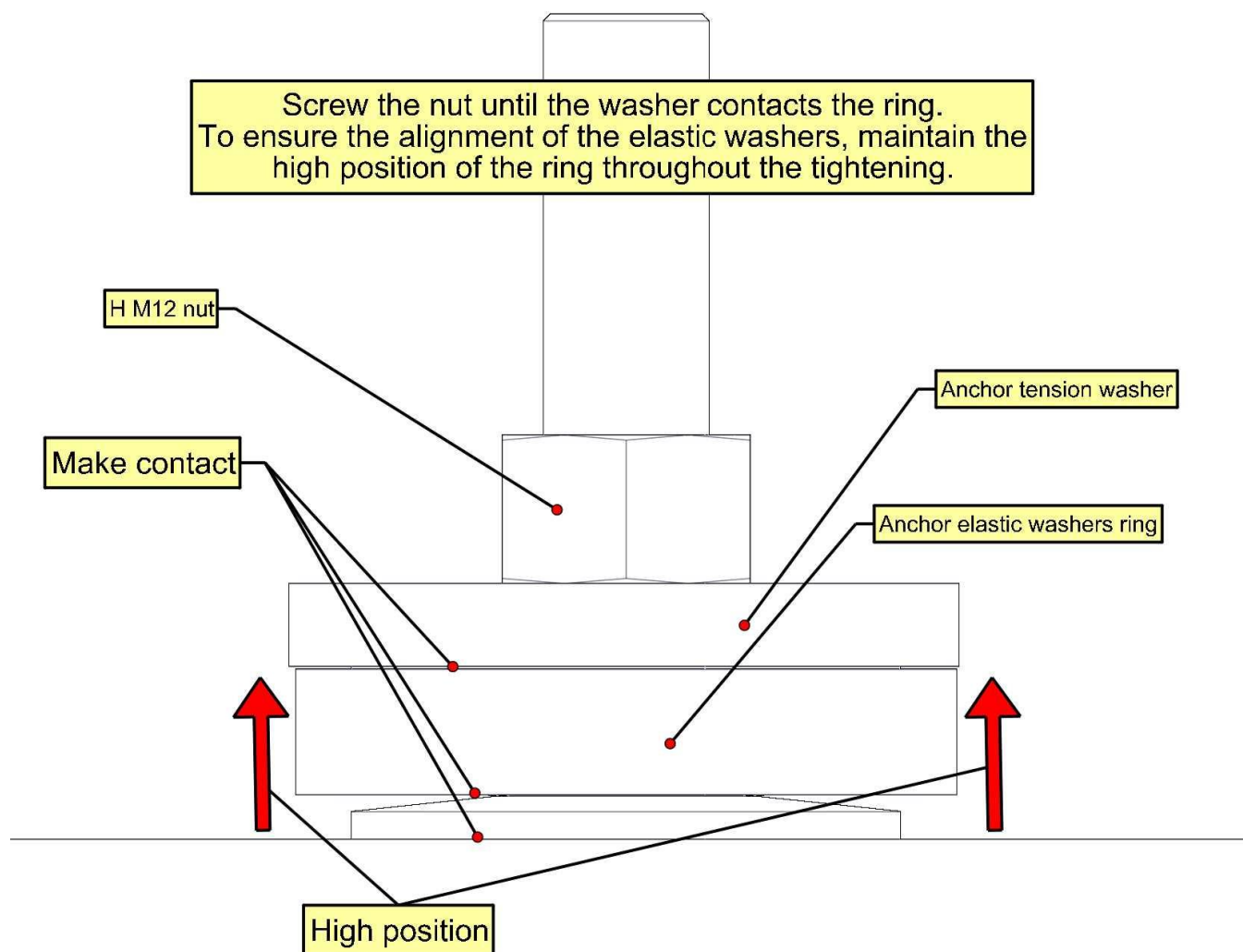


Respect the stacking in opposition of the 4 elastic washers



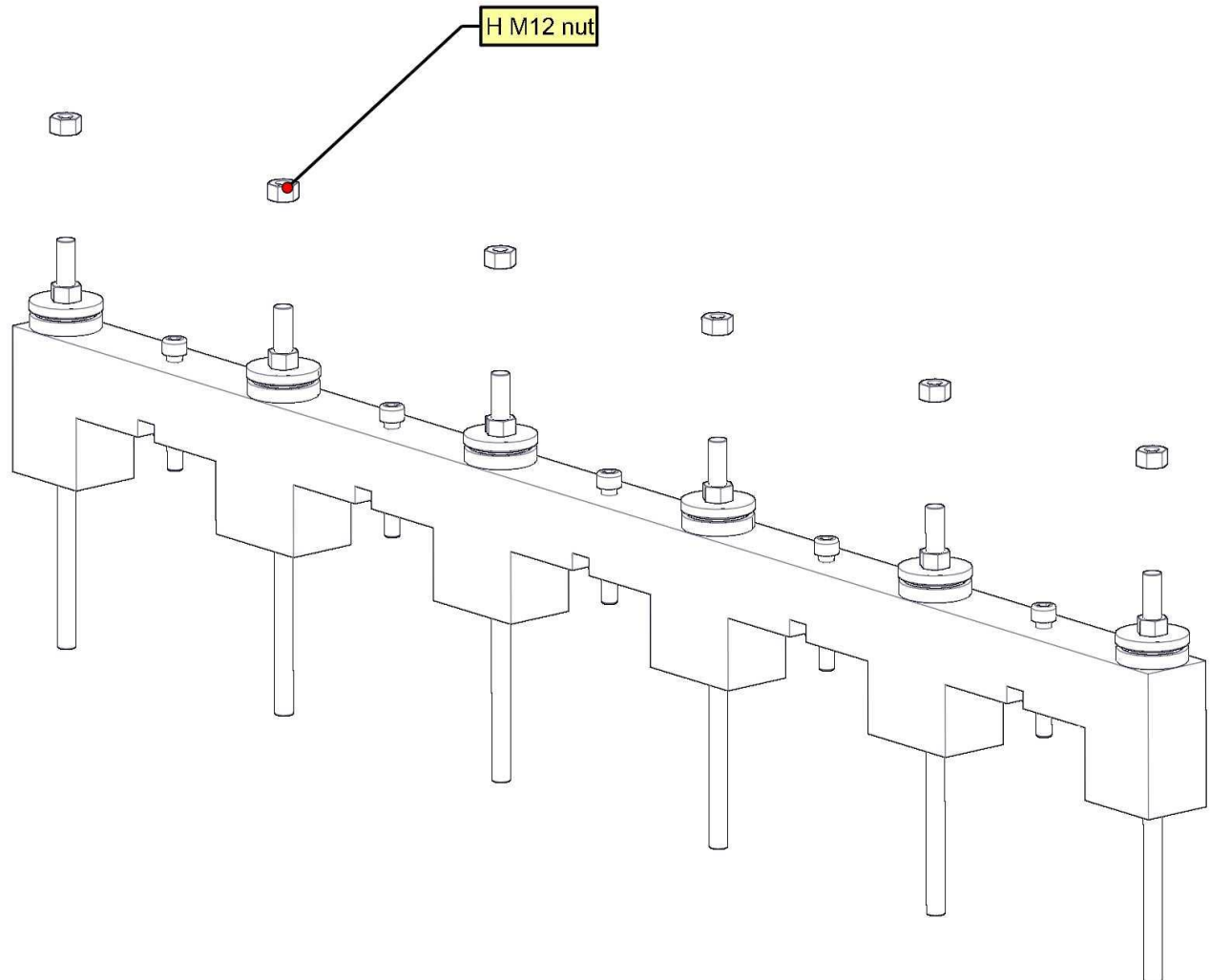
Repeat on all threaded rods and install a nut.



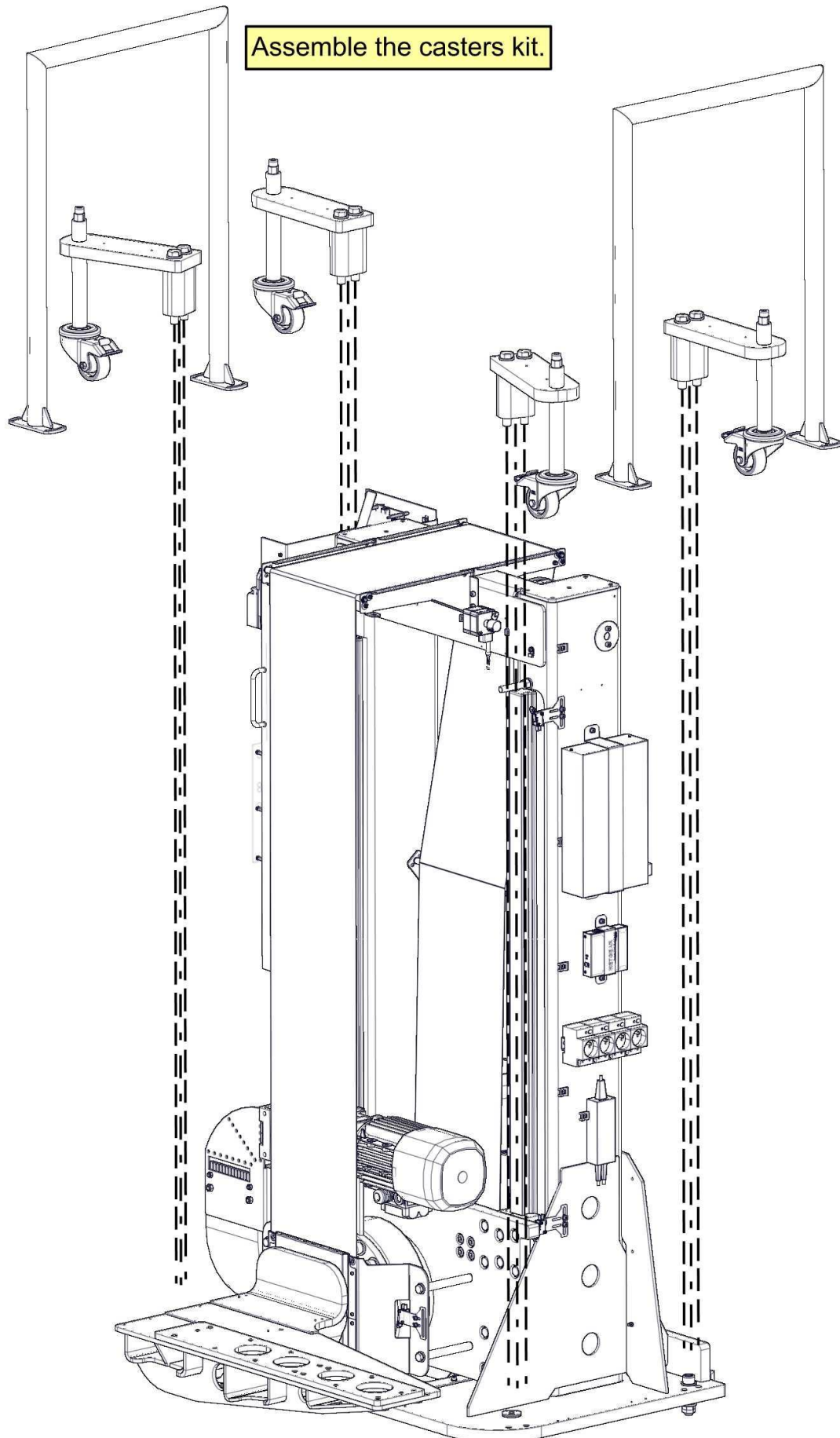


The tightening of the nut must not exceed 25Nm.
If the elements are not in contact when this couple is reached
elastic washers are crooked or not piled in the right direction.
Start again the operation.

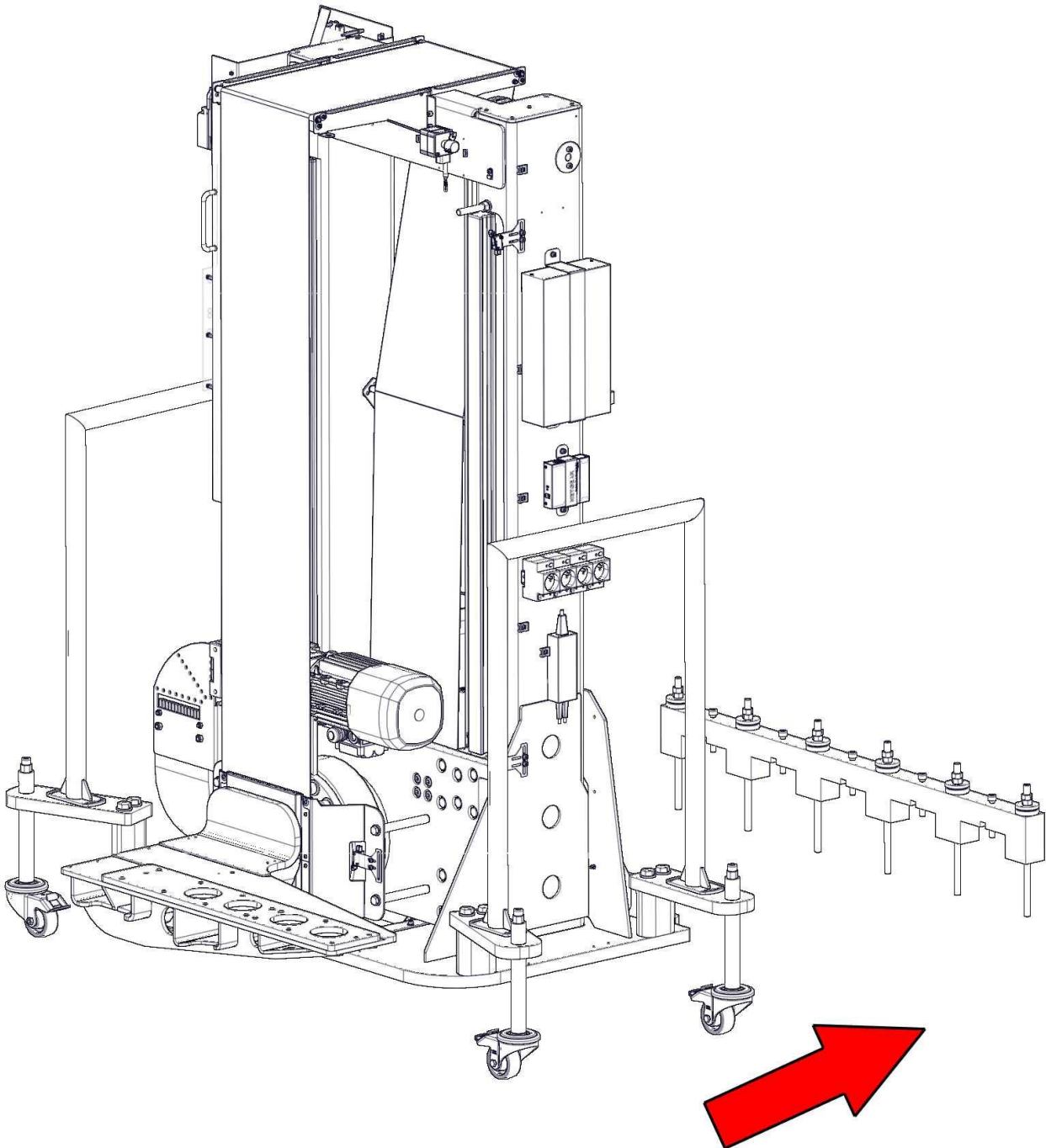
Repeat on all threaded rods and add a lock nut.



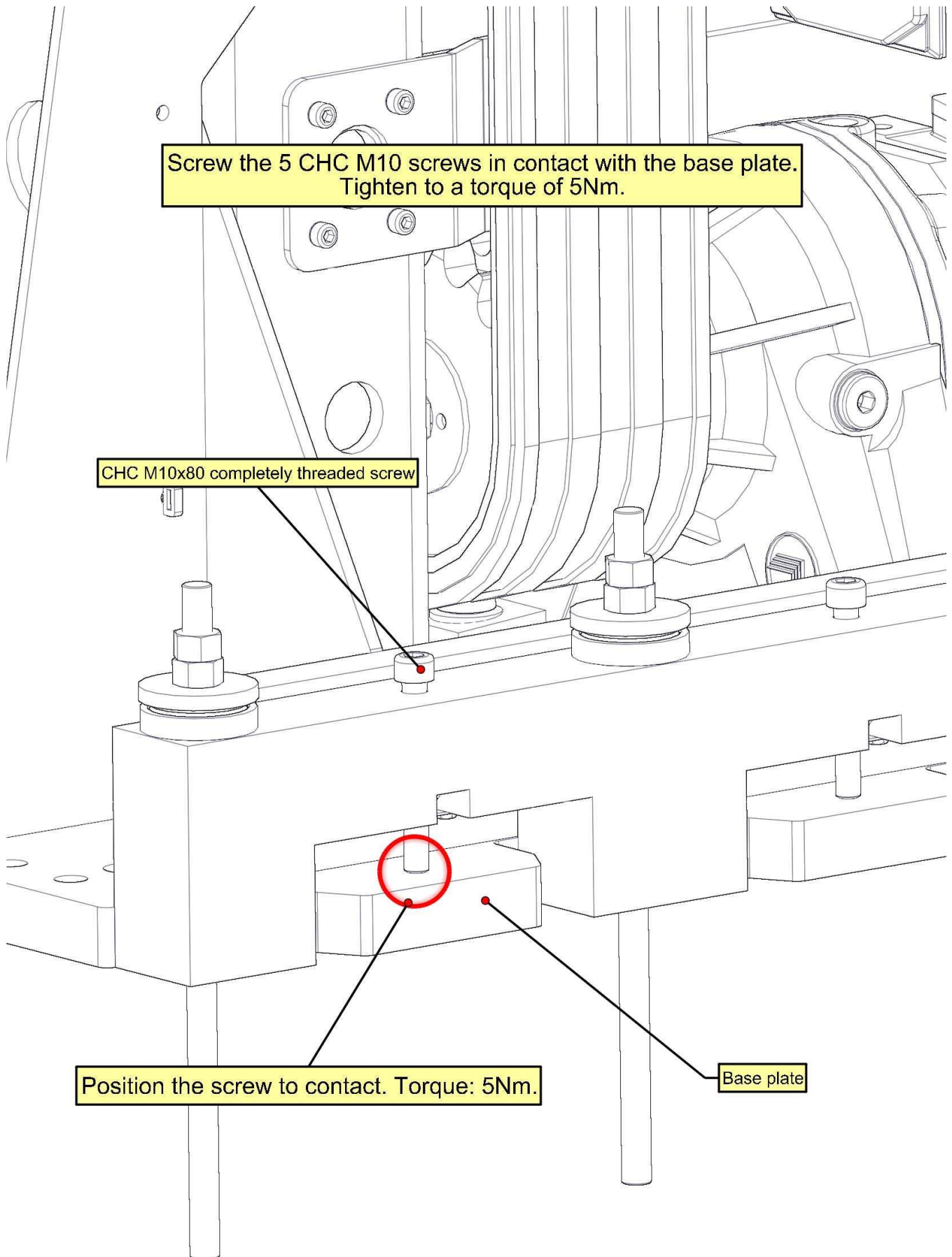
The fixing bar is rigidly fixed to the floor.



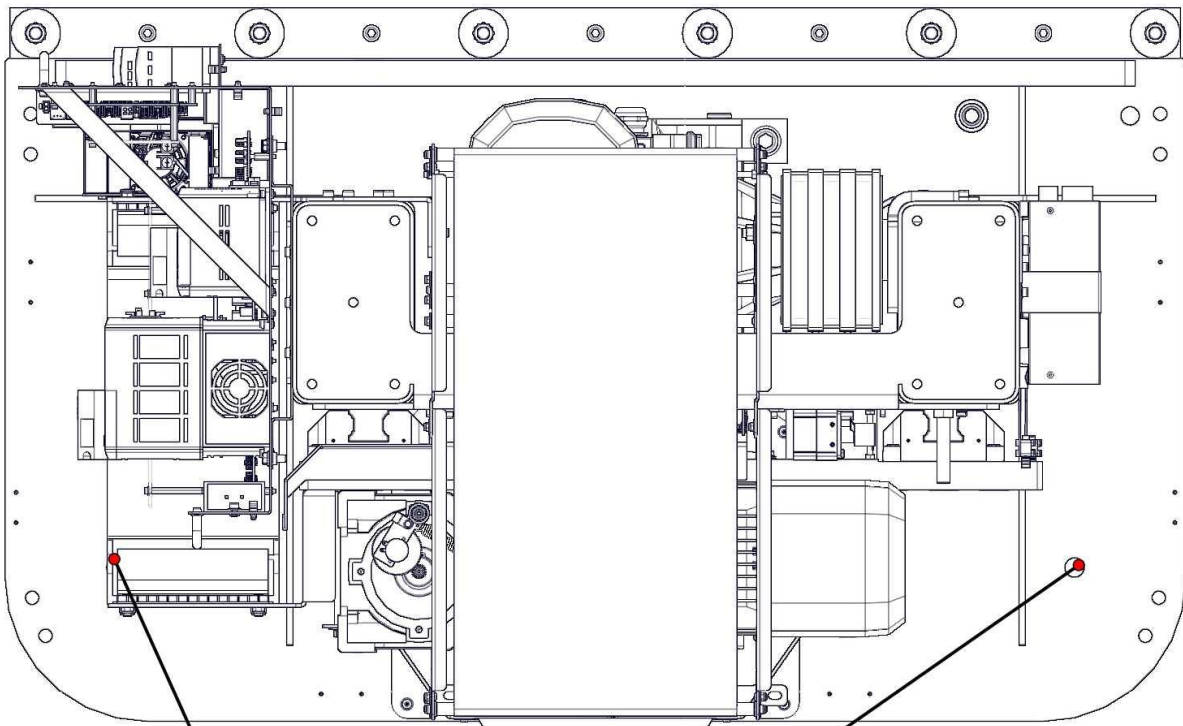
Adjust the height of the foot by turning the M30 screws of the casters kit to allow a gap between the floor and the underside of the foot of about 10mm.



Slide foot crenelations into fixing bar crenelations and place the foot on the ground.



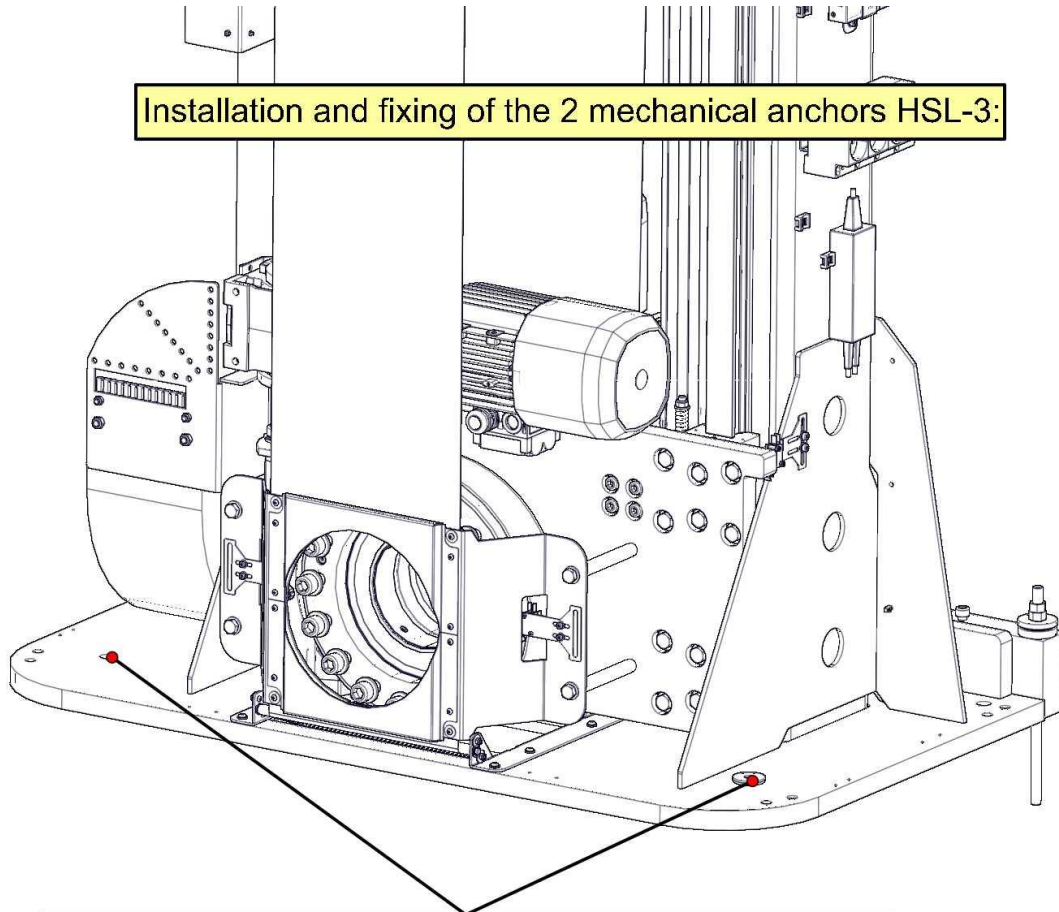
Fastening of the 2 mechanical anchors to the front of the foot:



Drill at Ø12.

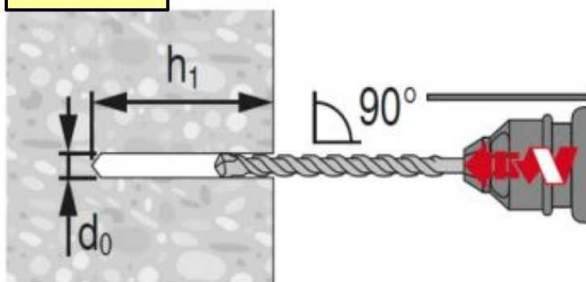
Depth 100mm from the ground.
Depth 130mm above the base plate.

Installation and fixing of the 2 mechanical anchors HSL-3:

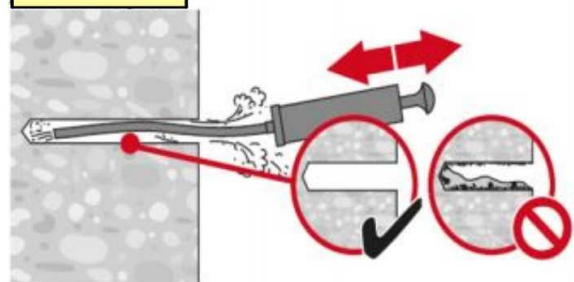


HSL-3 + 2 x Ø12 LL flat washer under each head screw.

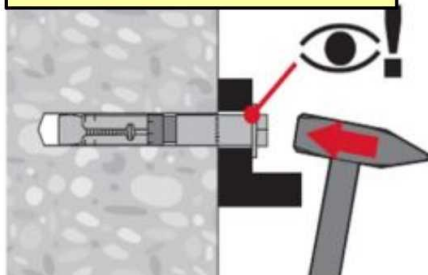
1. Drill



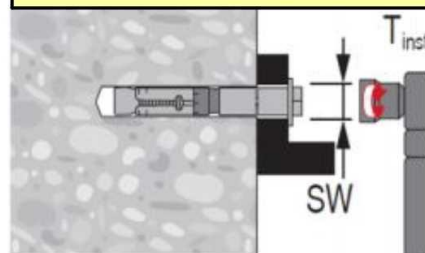
2. Clean



3. Set up the anchor

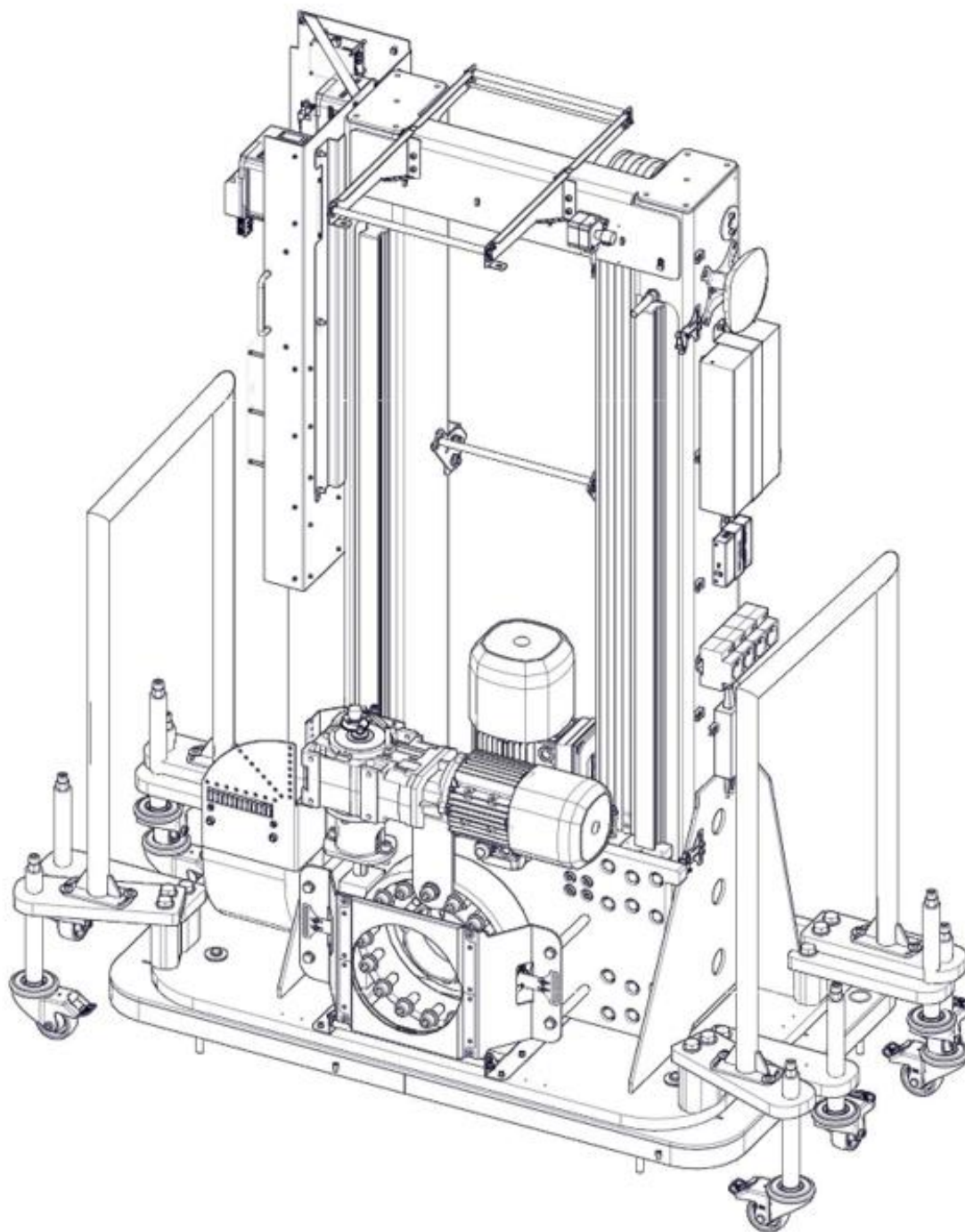


4. Apply the tightening torque



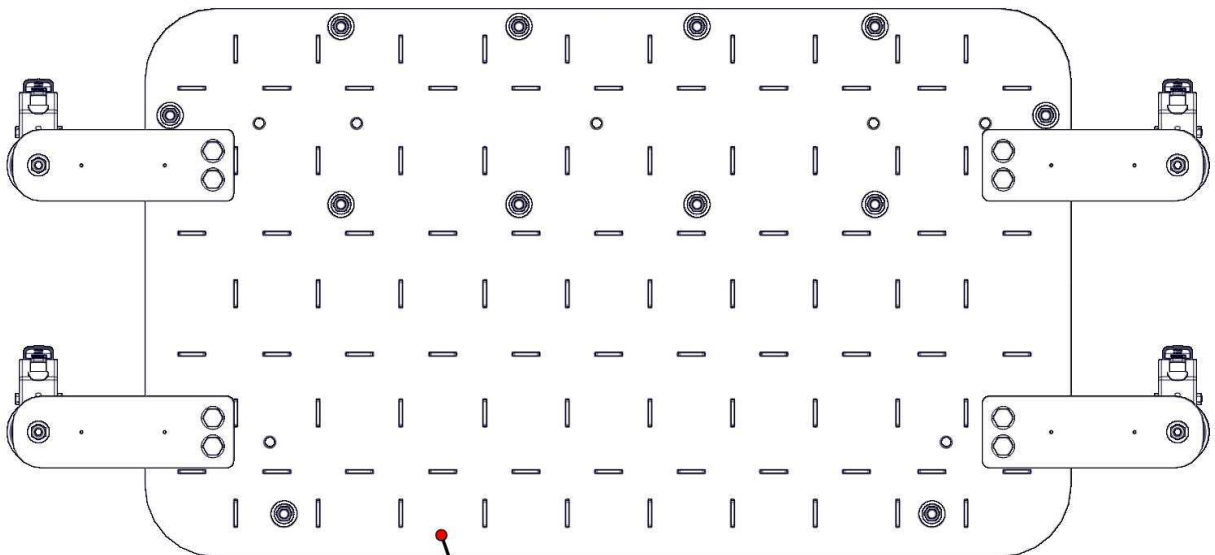
Tighten at the torque of 25Nm.

FIXATION TO THE CONCRETE FLOOR WITH AN ADAPTATION PALLET



Position with accurate the pallet on the floor at the intended siting area.
The pallet is used as drilling template (accurate position and orientation).

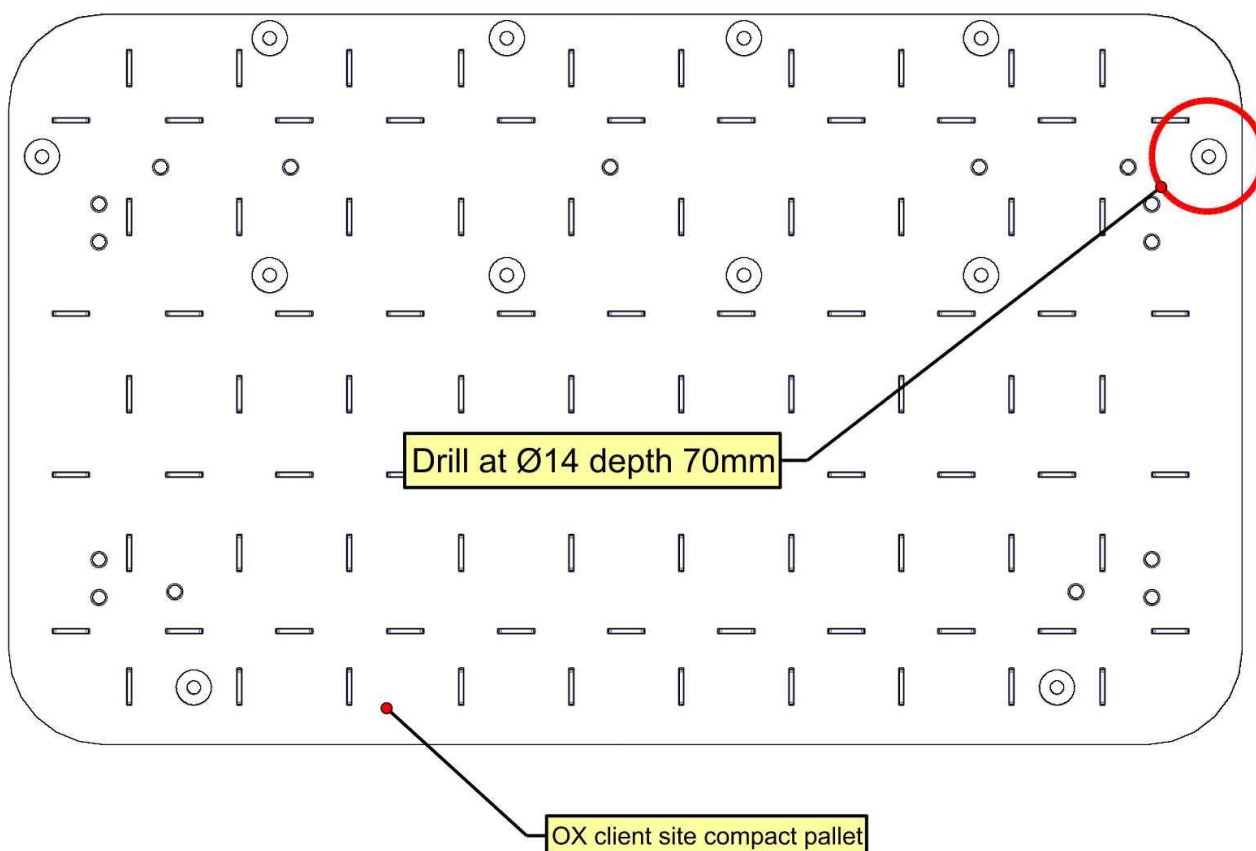
FLOOR



OX client site compact pallet

Drill the first hole at the extremity of the pallet with a drill bit Ø14 to a 70mm depth in the floor.

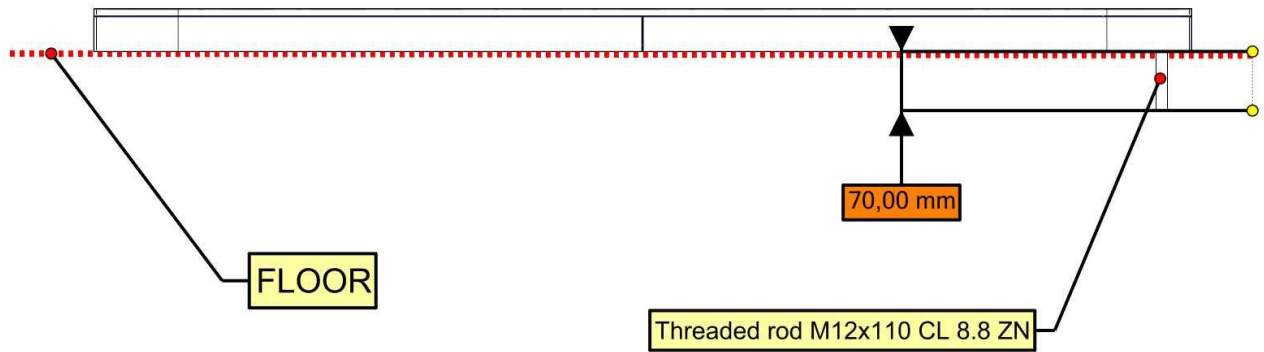
For drilling leave the pallet as a guide.



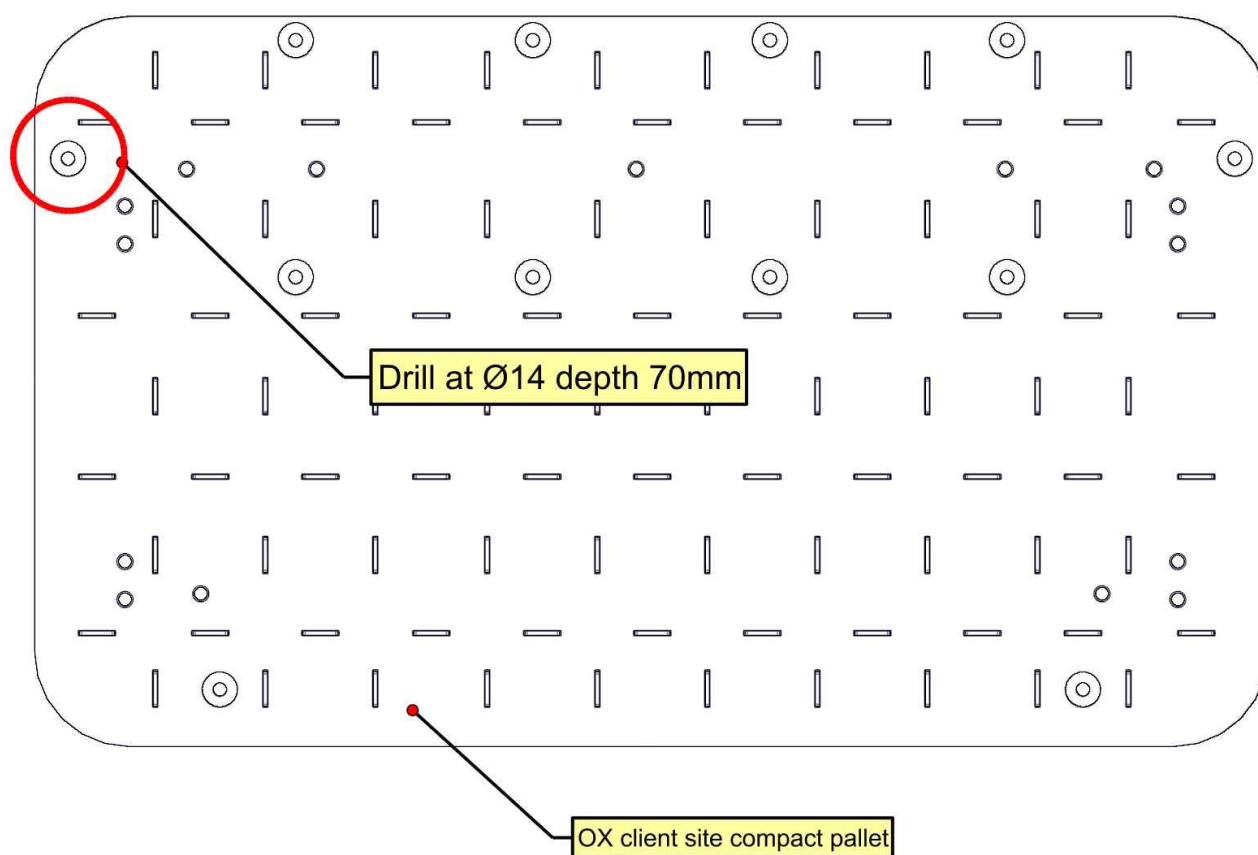
The 12 holes must be drilled to the same diameter and depth. The pallet must always be in place when drilling to serve as a guide.

Caution: drill only the first hole at this step.

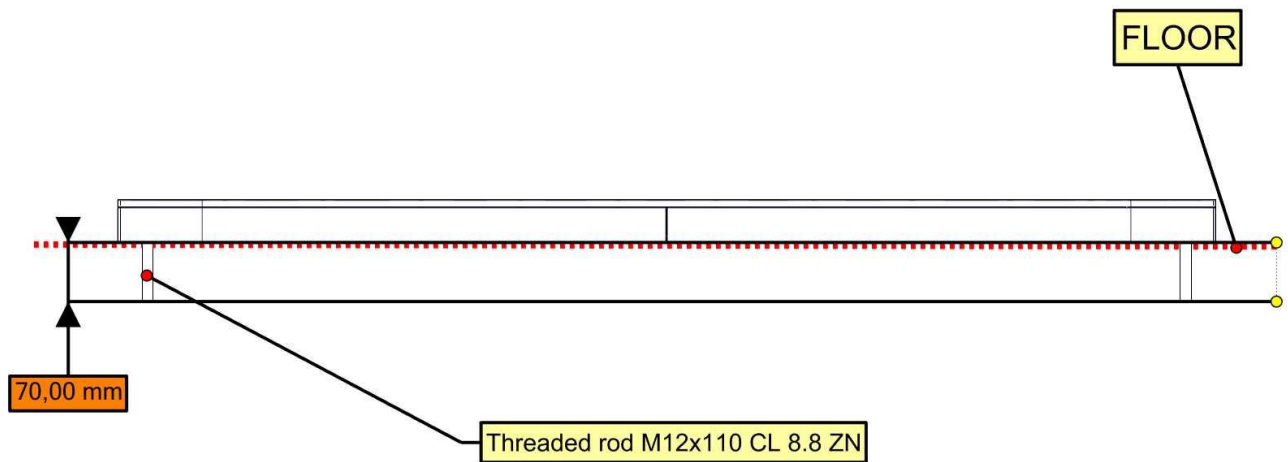
Implement the first threaded rod to keep the pallet in position without the resin.



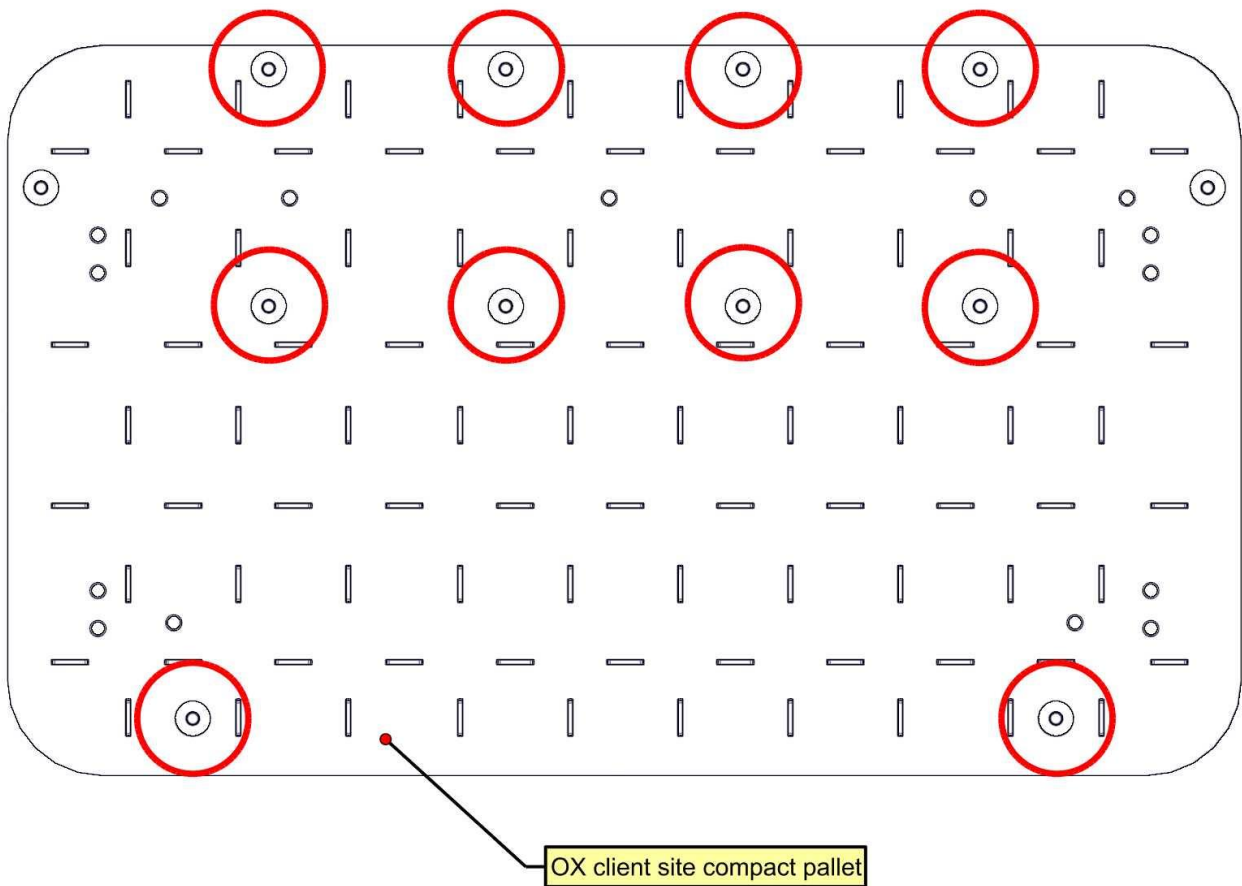
Drill the second hole at the over extremity of the palette.



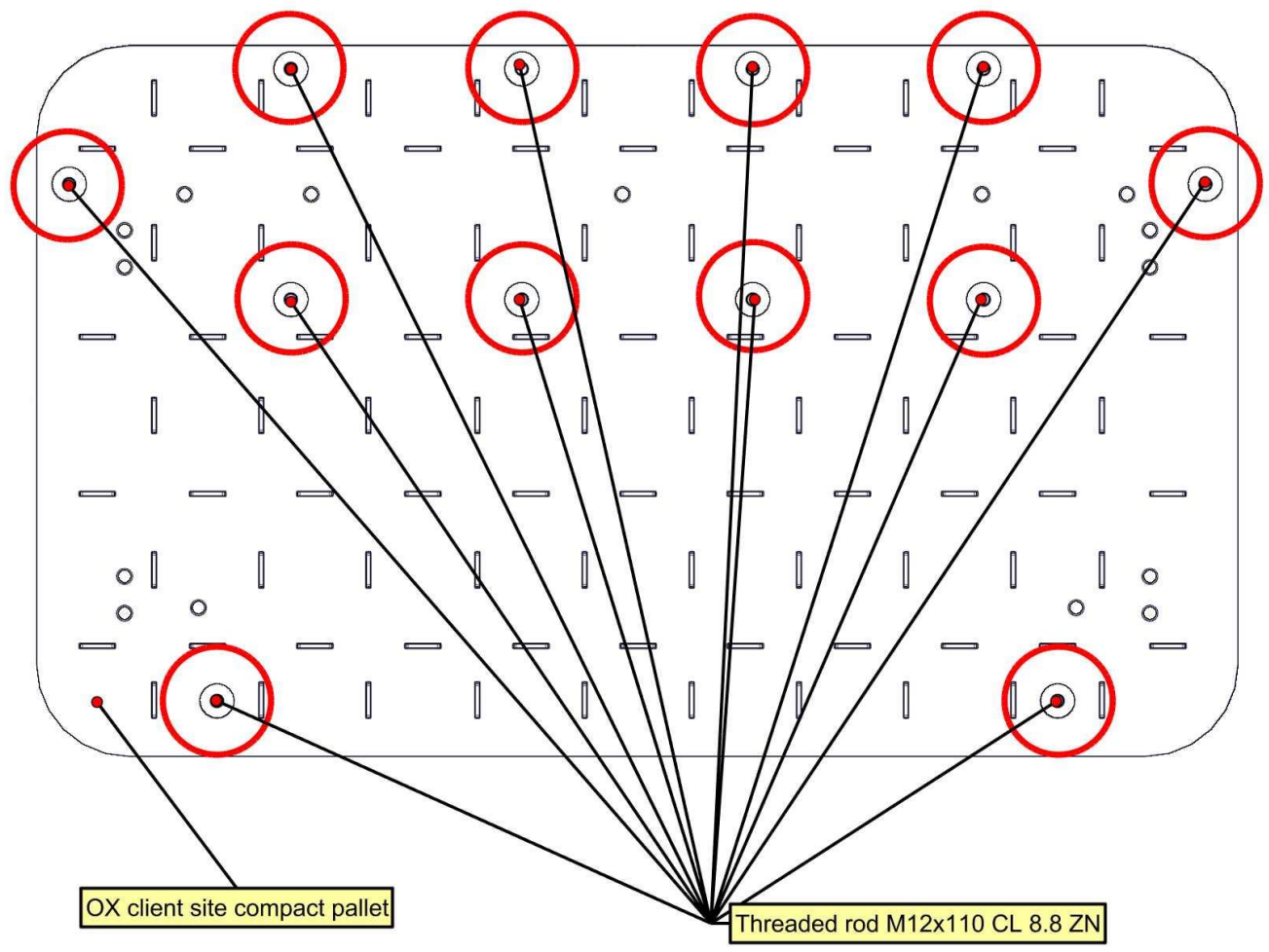
Implement the second threaded rod to keep the pallet in position without the resin.



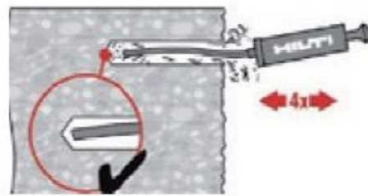
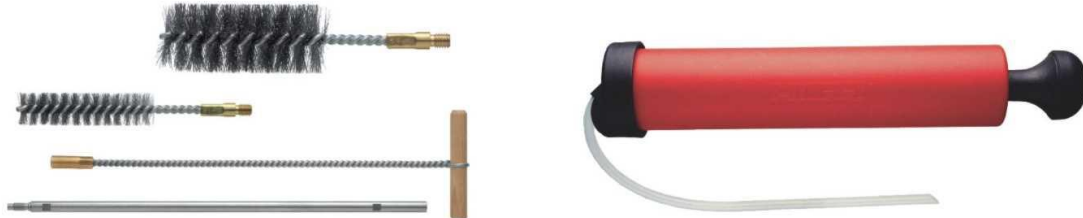
Repeat the procedure for the other 10 holes.
For each drilled hole, place the threaded rod without resin
before drilling the next hole.



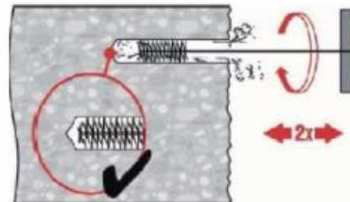
Remove the pallet and the 12 threaded rods.



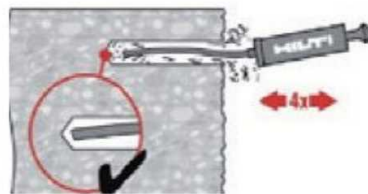
Clean the 12 holes using the brush and the blower pump as shown below:



Minimum 4 x
Blower pump



Minimum 2 x
Backwards and forwards
rotating movement



Minimum 4 x
Blower pump

Dust the 12 threaded rods.

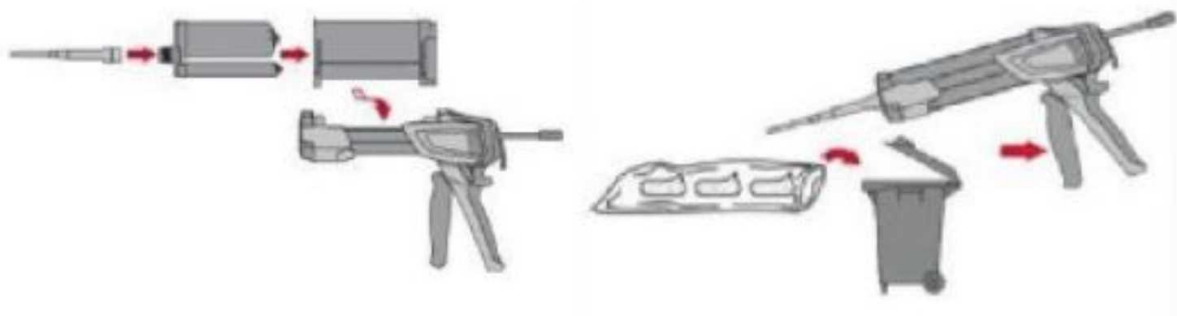
Caution: this procedure must be absolutely respected to obtain a maximum resistance of the fastener.

Do not neglect this step.

Preparation of the injection:

Insert the HIT-HY 200-A canister into the pump, screw the cap and add the hose. Then press the trigger until the chemical mixture comes out of the hose.

Press the trigger again on his full stroke to 3 time to delete the beginning of the mixture.



Use always the HILTI injection resin reference HIT-HY-200-A.

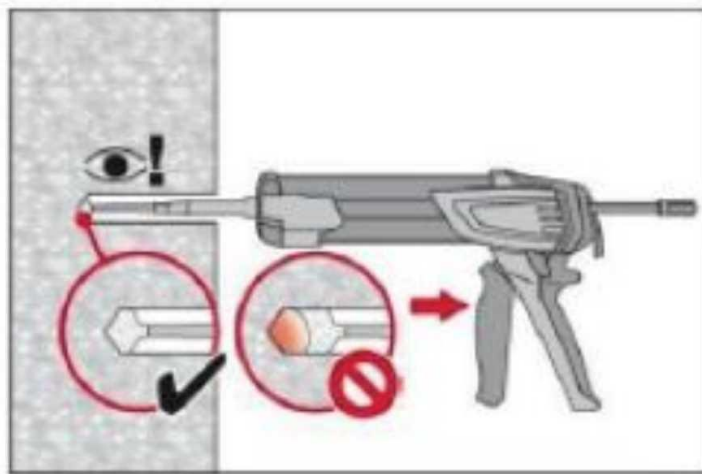
In the case of the use of another resin or seal chemical reference, and in case of fixation problem, the person performing the installation will be bound solely responsible.



A 500ml canister allows the implantation of the 12 threaded rods. Do not wait to use the resin, the time of use after mixing is between 4 and 7 minutes. Then the resin begins to solidify.

Resin injection:

Inject the resin into the first hole from the bottom of the hole and going up to the surface to avoid any air bubbles.

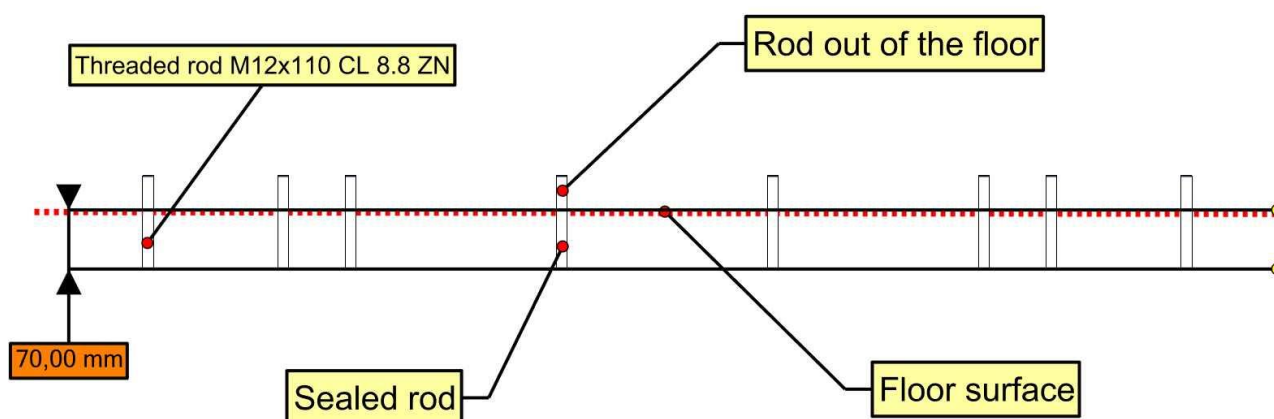


Insert the threaded rod into the hole at a depth of 70mm then wipe immediately the excess resin.

The length of the out threaded rod should be around 40mm.

You have 4 minutes from the placement of the resin to insert the threaded rod. After this delay, you must no longer solicit the rods or resin.

Repeat on the other 11 holes.



Do not install the fixing bar at this moment.



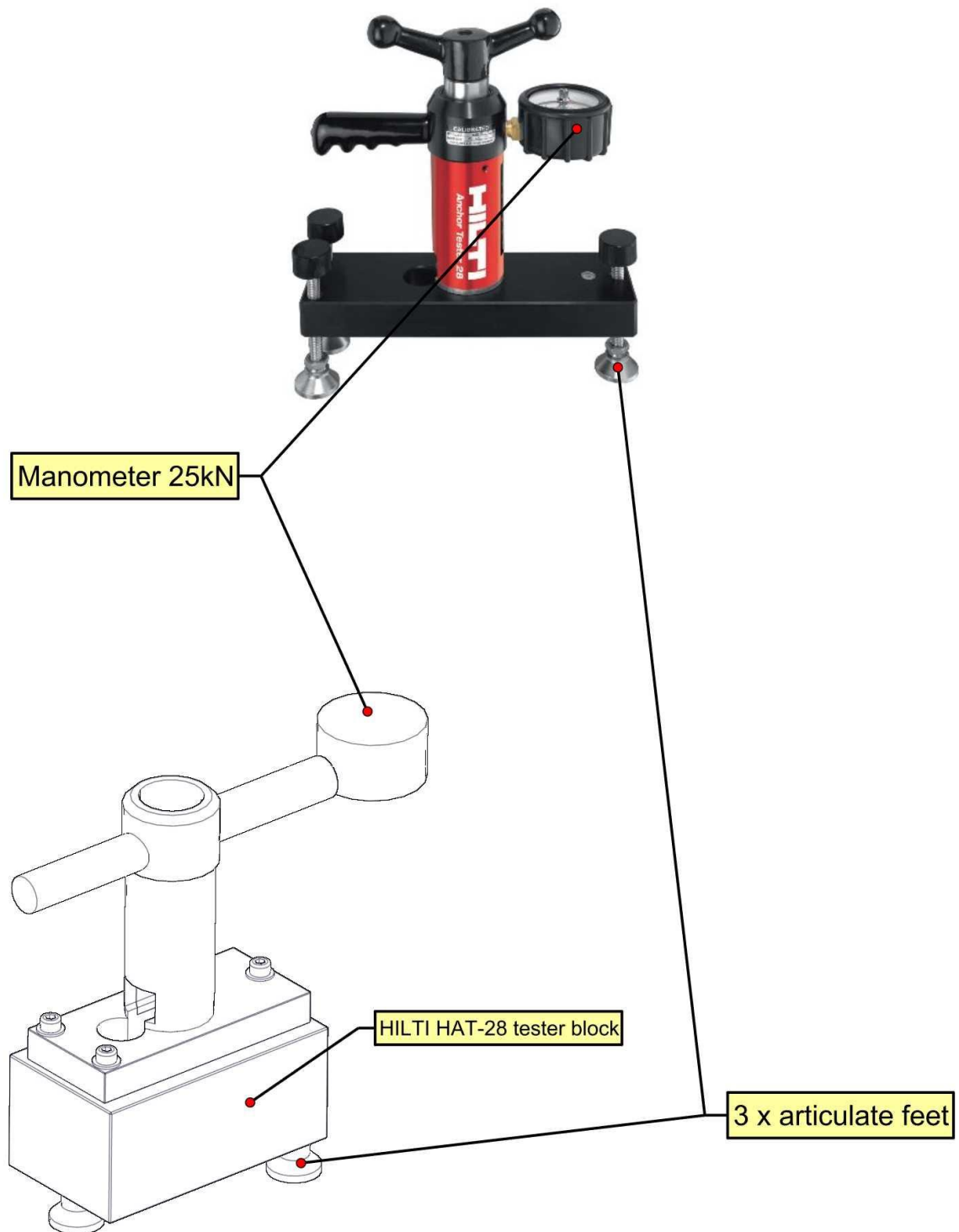
Cure time:



Before applying any effort to the threaded rods you must
must respect a drying time:
1 hour minimum for concrete temperatures above 10°
2 hours minimum for concrete temperatures below 10°

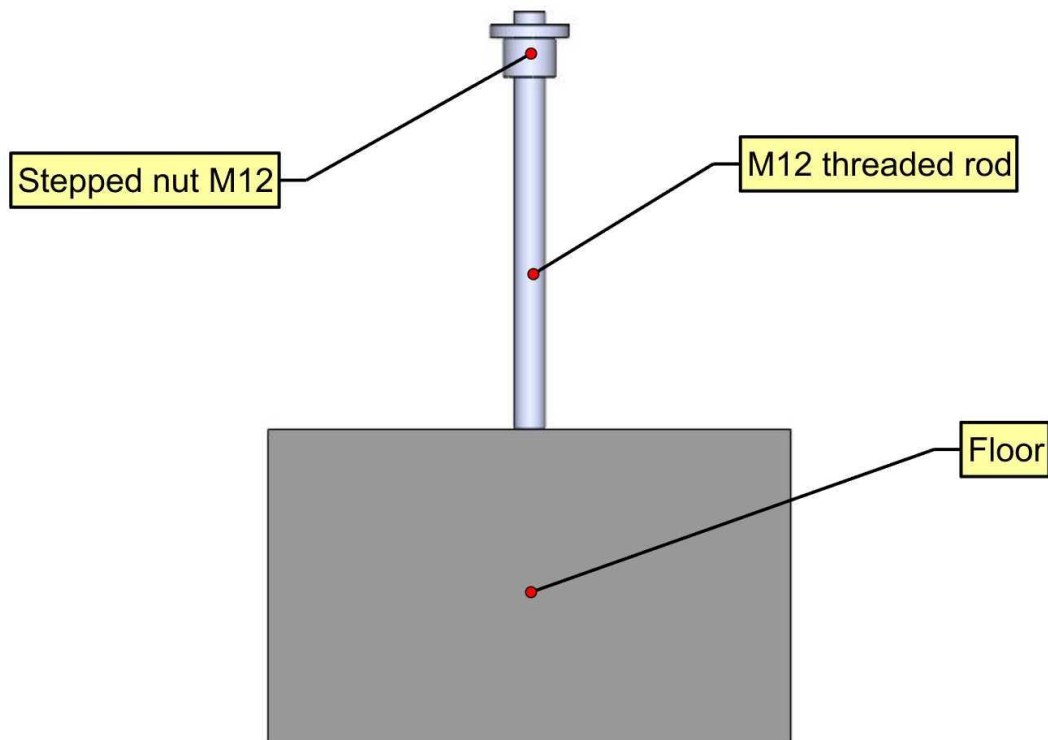


Assemble the HILTI HAT-28 anchor tester using the manometer with the test range of 25kN and the tester block with articulate feet.

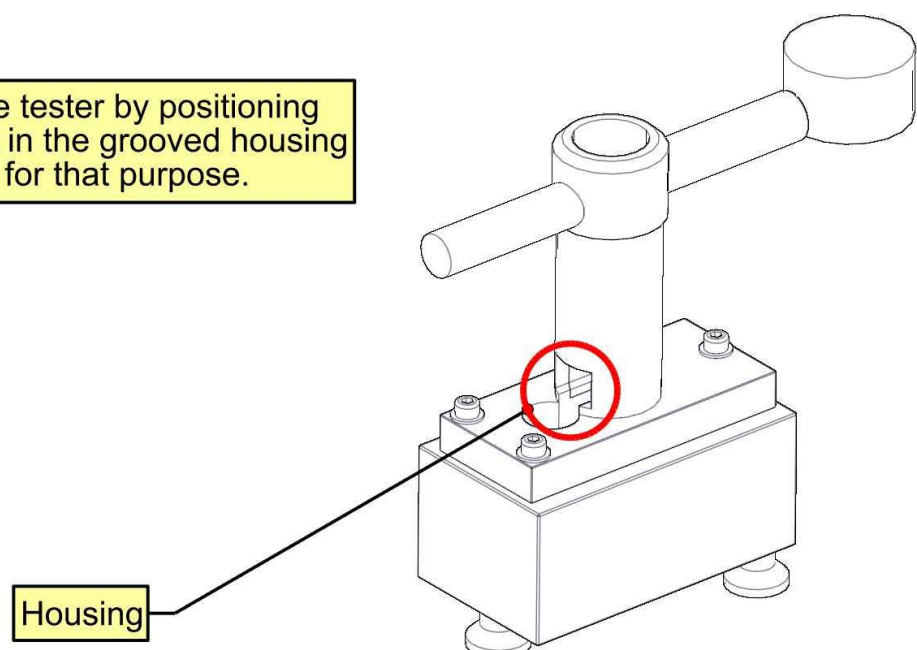


When the minimum cure time is reached, perform the resistance test of the 12 anchors.

Screw the M12 stepped nut supplied in the kit to the end of the threaded rod.



Implement the tester by positioning the stepped nut in the grooved housing provided for that purpose.



Perform the test.

Position the landmark needle (black color) at 0.
Turn the handle by observing the manometer until it reaches 6500N or 6.5kN.
Wait 1 minute and check that the red needle still shows the same value as the black landmark needle.



Remove the tester and visually check that the anchor is intact (no cracks in the floor).

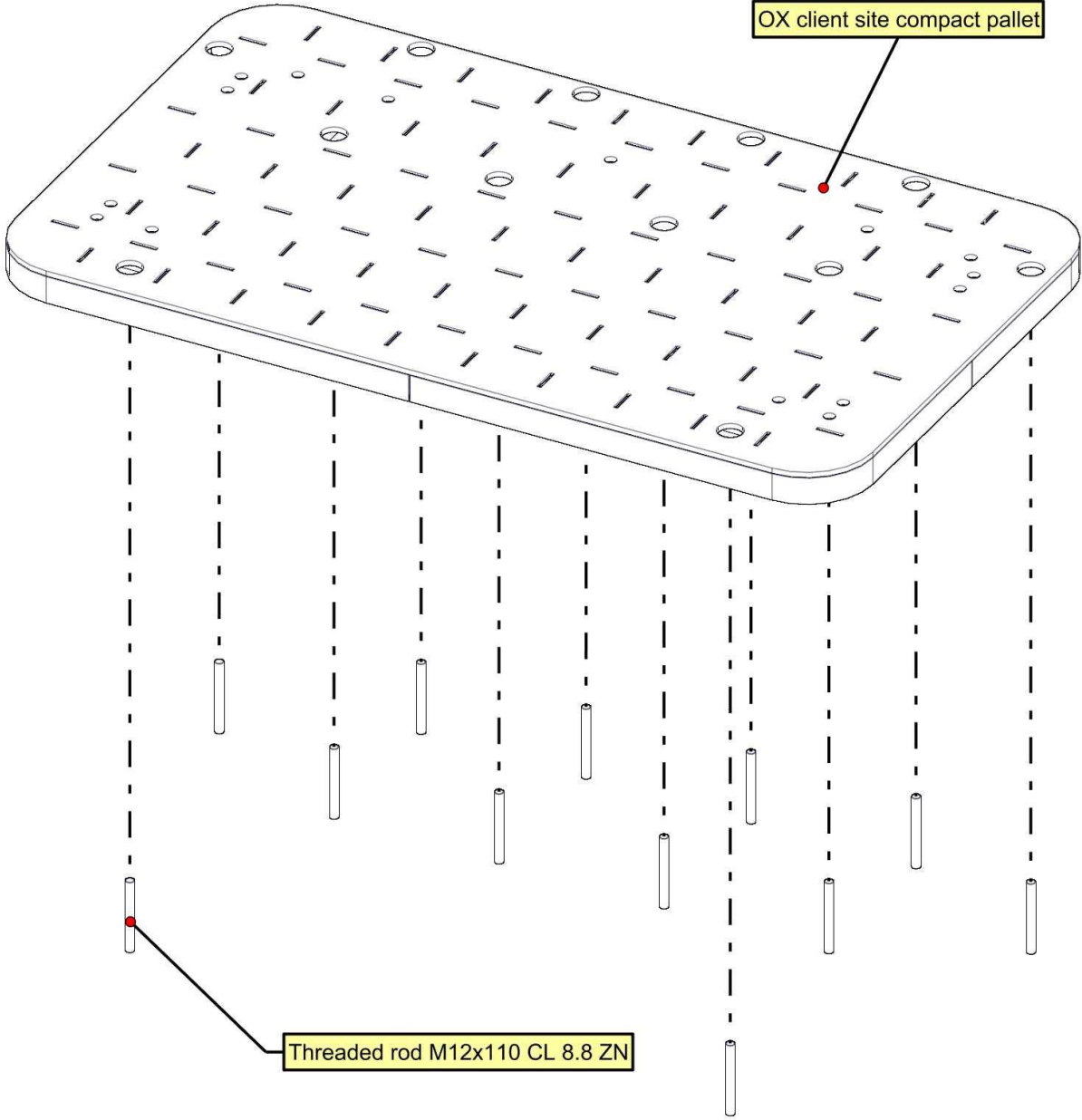
Repeat on the other 11 anchors.

**If all steps have been respected the fixation is validated.
Otherwise, the fixation is not validated.
The table cannot be installed.**

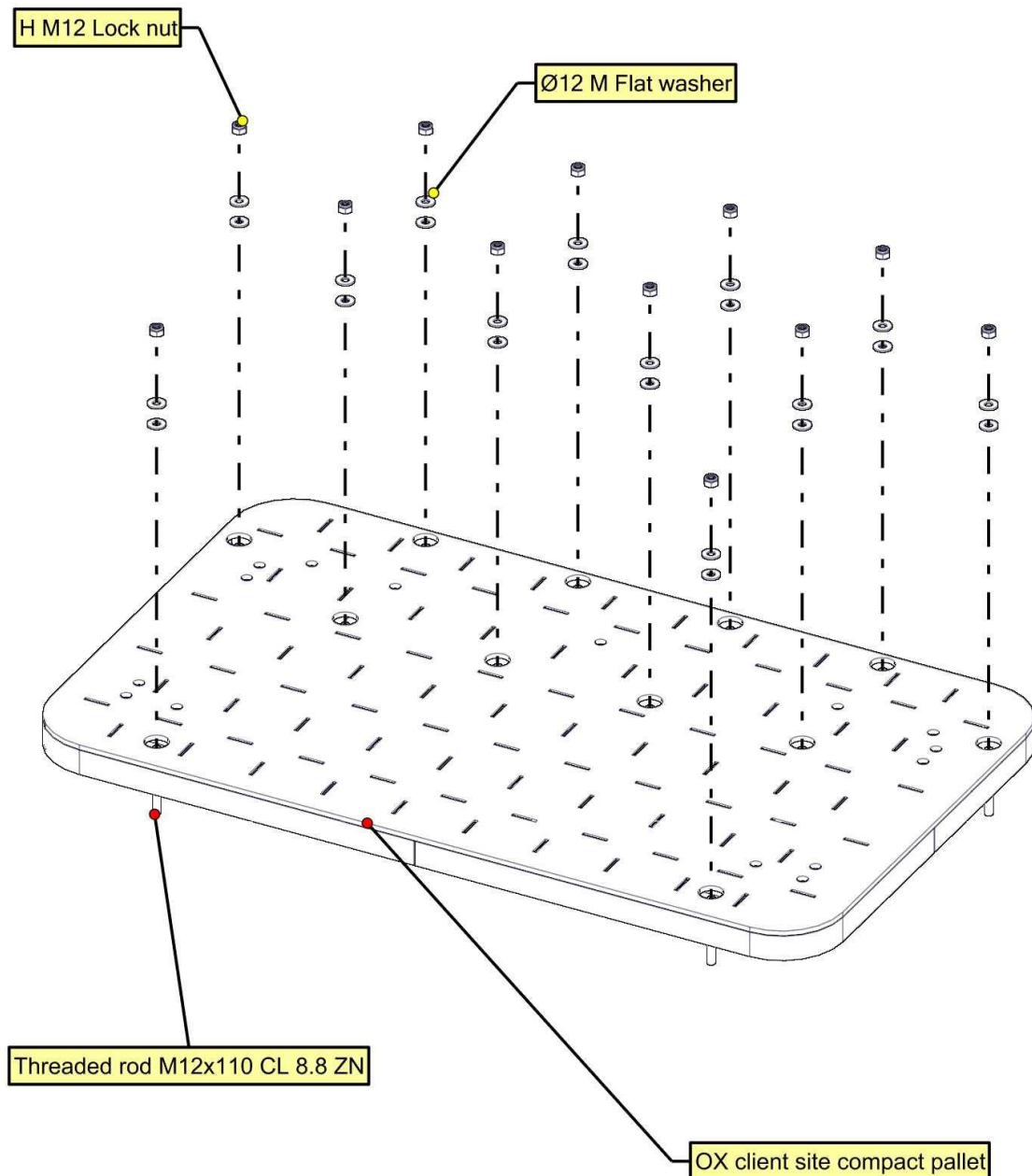
9090 REMOTE CONTROLLED TABLE

Installation

Install the pallet.
Use the installation caster kit.

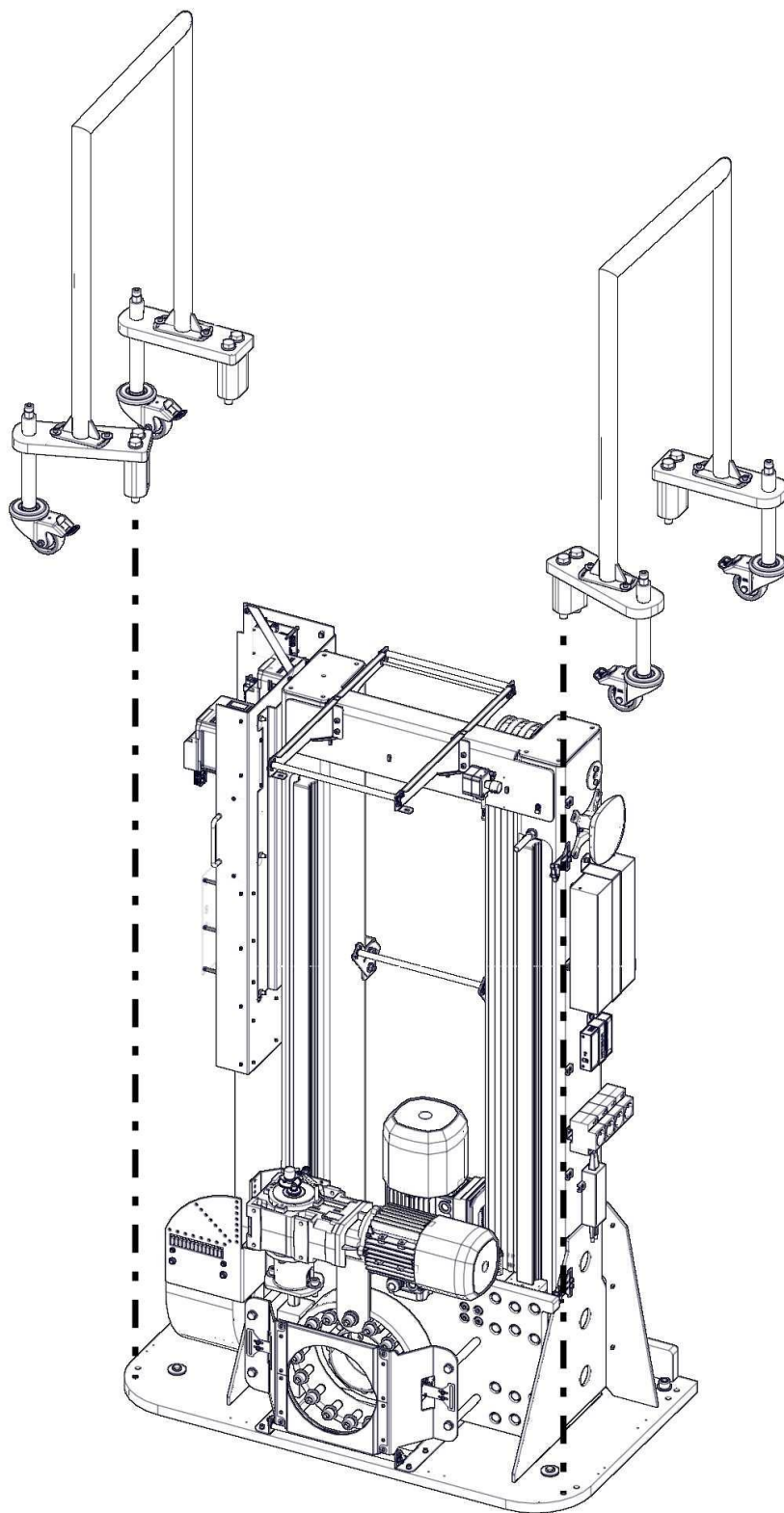


Fasten the pallet with a lock nut and 2 flat washers.



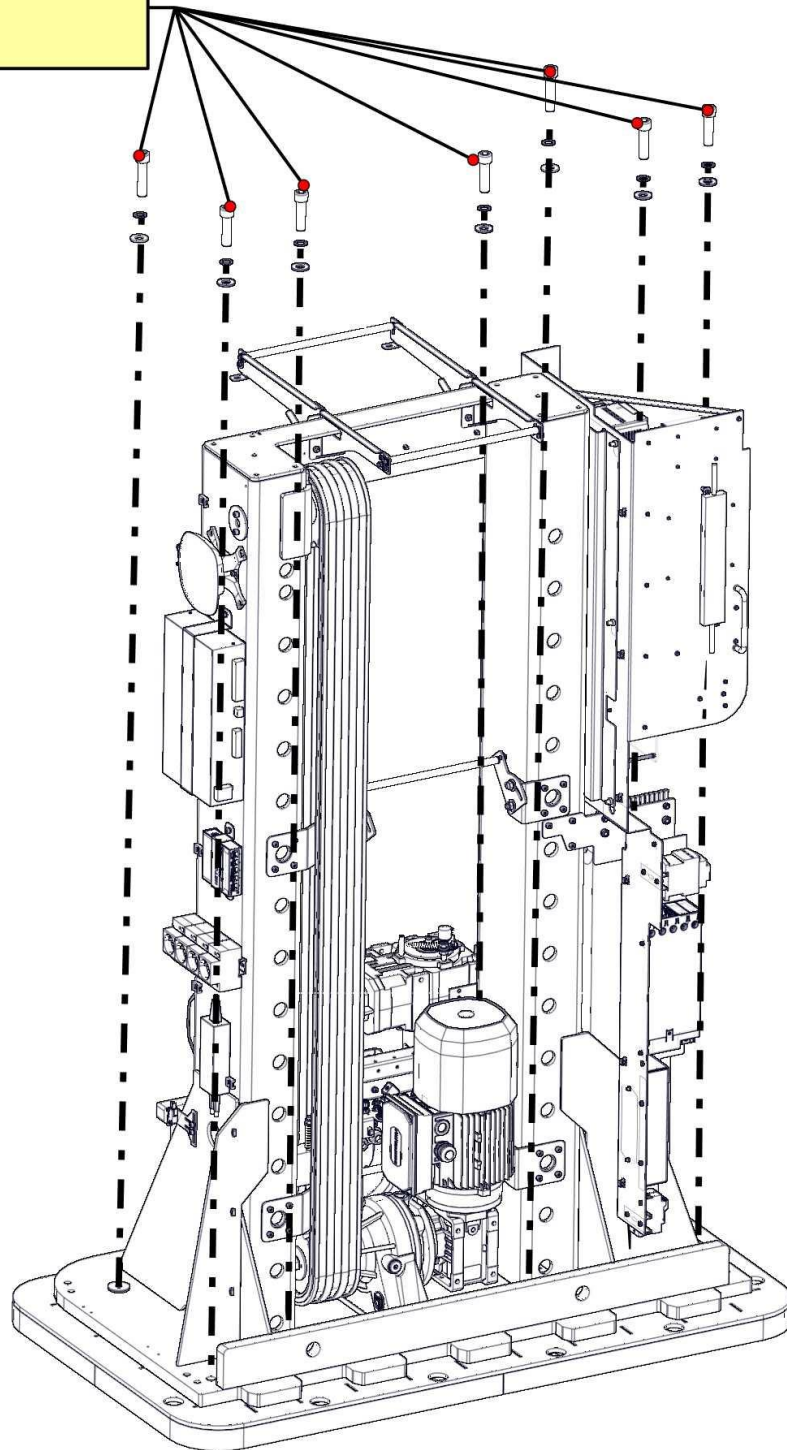
TIGHTENING TORQUE : 12 Nm

Assemble the casters kit.



Fasten the foot on the pallet.

CHC M16x60 CL 8.8 ZN screws
+ Ø16 Schnorr
+ Ø16 M Flat washer



TIGHTENING TORQUE : 151 Nm

6. TABLE FRAME ASSEMBLY

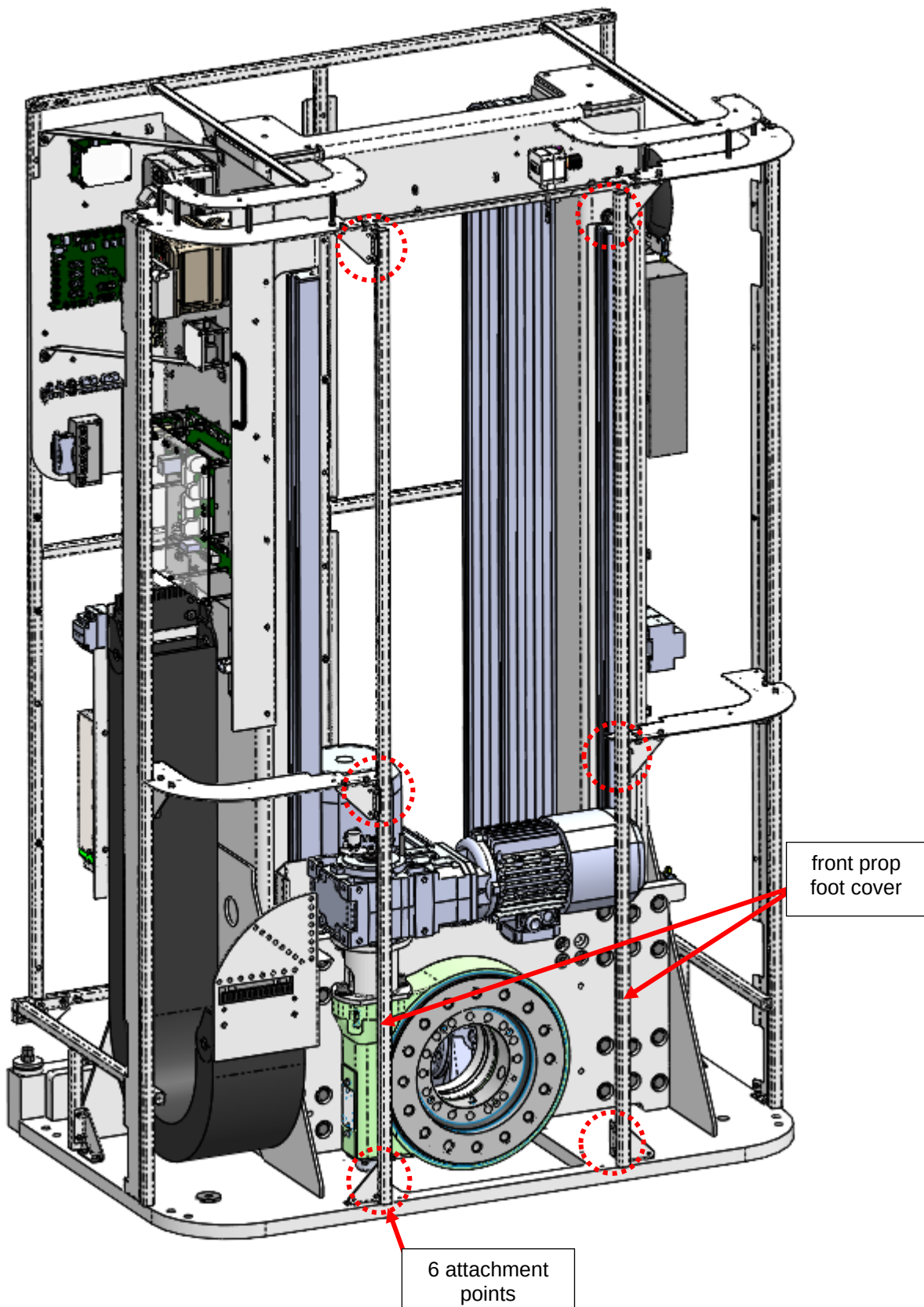
The table frame is made up of 4 elements which must be assembled in the following order:

- 1) The tilting bracket with the slew drive
- 2) The left arm with the main girder / The right arm with the main girder
- 3) The central girder with the arms

9090 REMOTE CONTROLLED TABLE

Installation

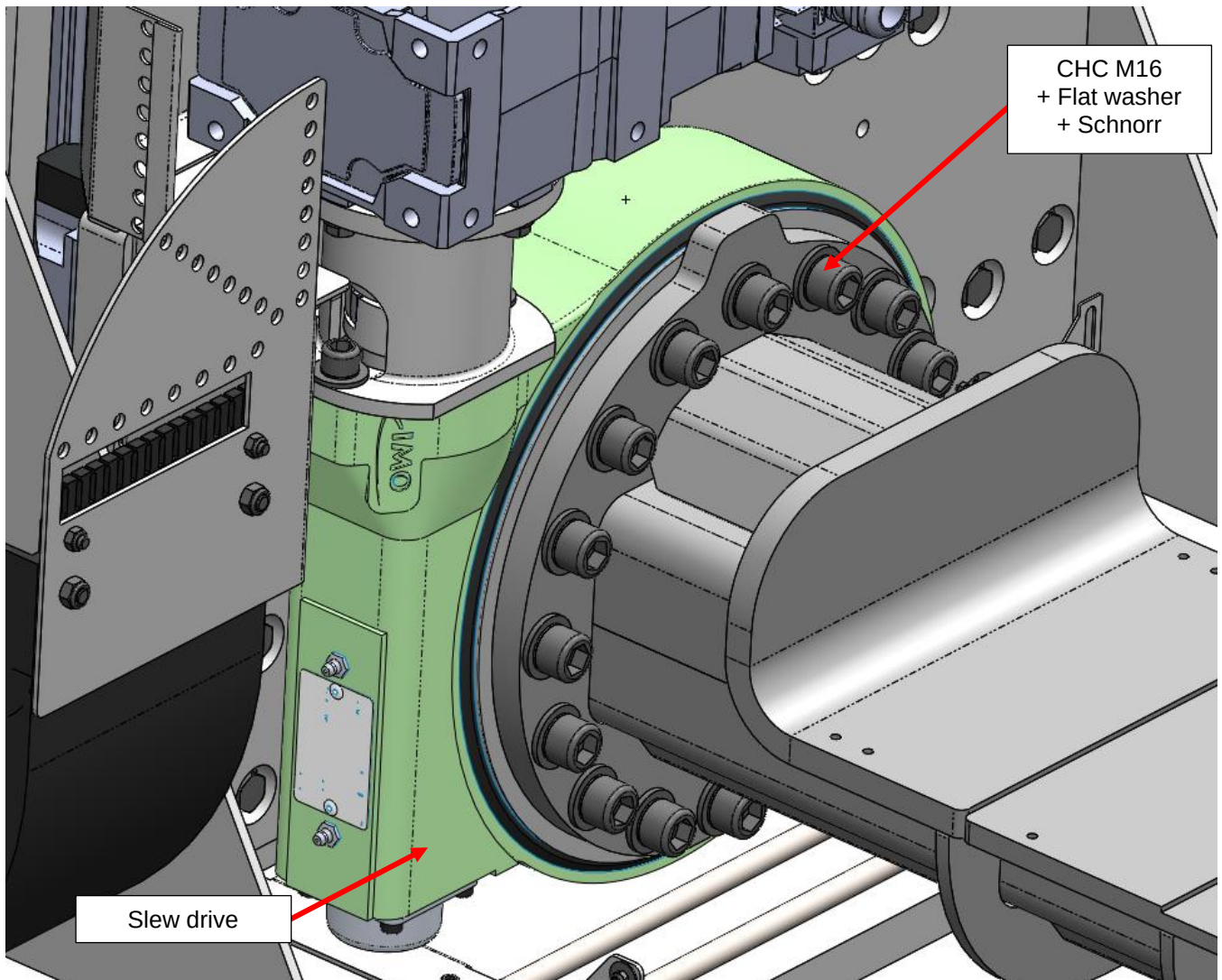
- 1) Before the assembly of the table frame, remove the two front props foot cover by unscrewing the 6 attachment points as shown below:



9090 REMOTE CONTROLLED TABLE

Installation

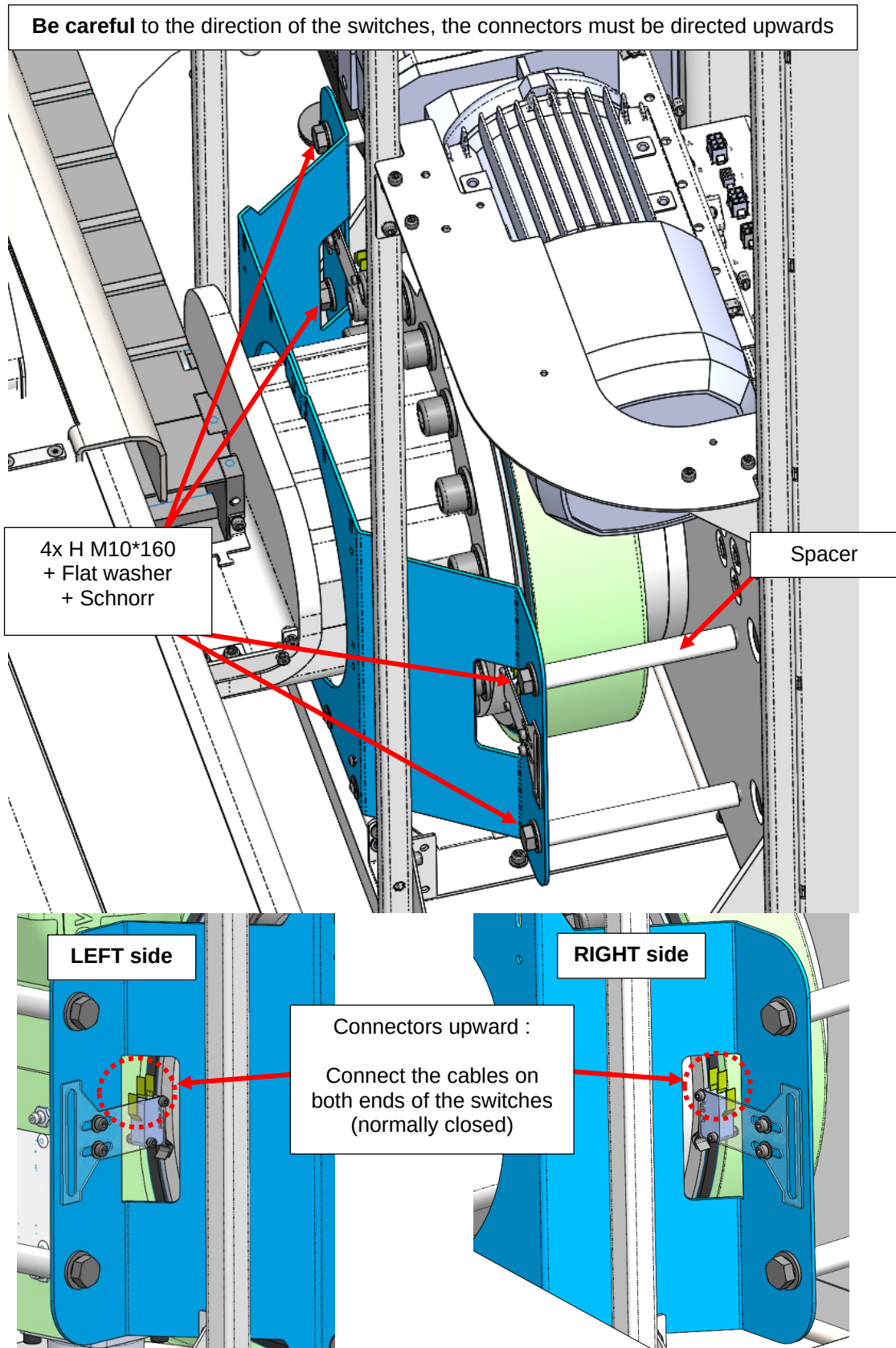
Assemble the tilting bracket on the slew drive with 16x CHC M16x45 CL10.9 screws with flat washer and Schnorr.
Tightening torque: 222Nm.



9090 REMOTE CONTROLLED TABLE

Installation

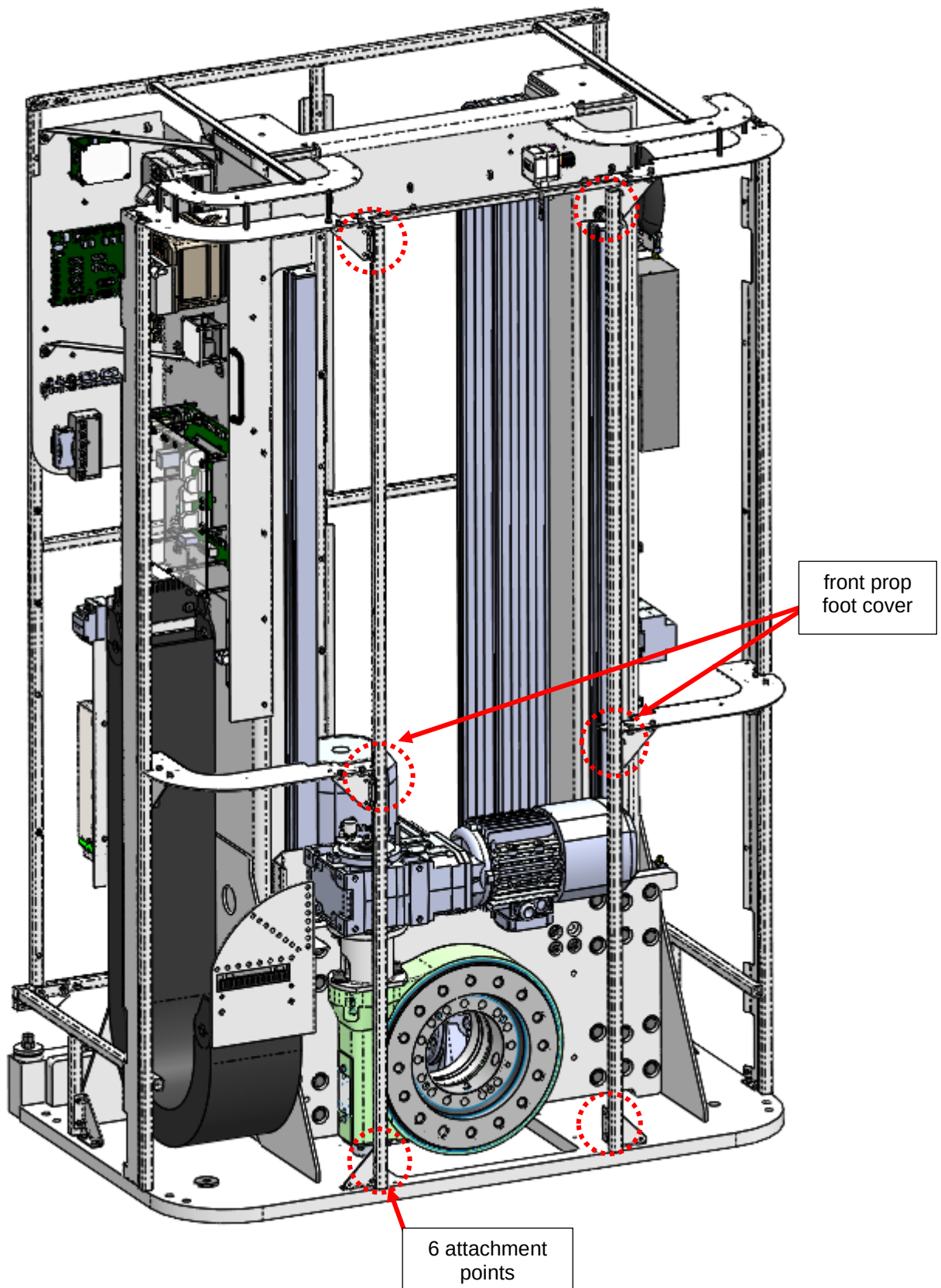
At this step, when the tilting bracket is screwed, assemble the elevation band fixing plate by screwing the 4x H M10x160 through the spacer as shown below:



9090 REMOTE CONTROLLED TABLE

Installation

Reassemble the two front props foot cover by screwing the 6 attachment points as shown below:



9090 REMOTE CONTROLLED TABLE

Installation

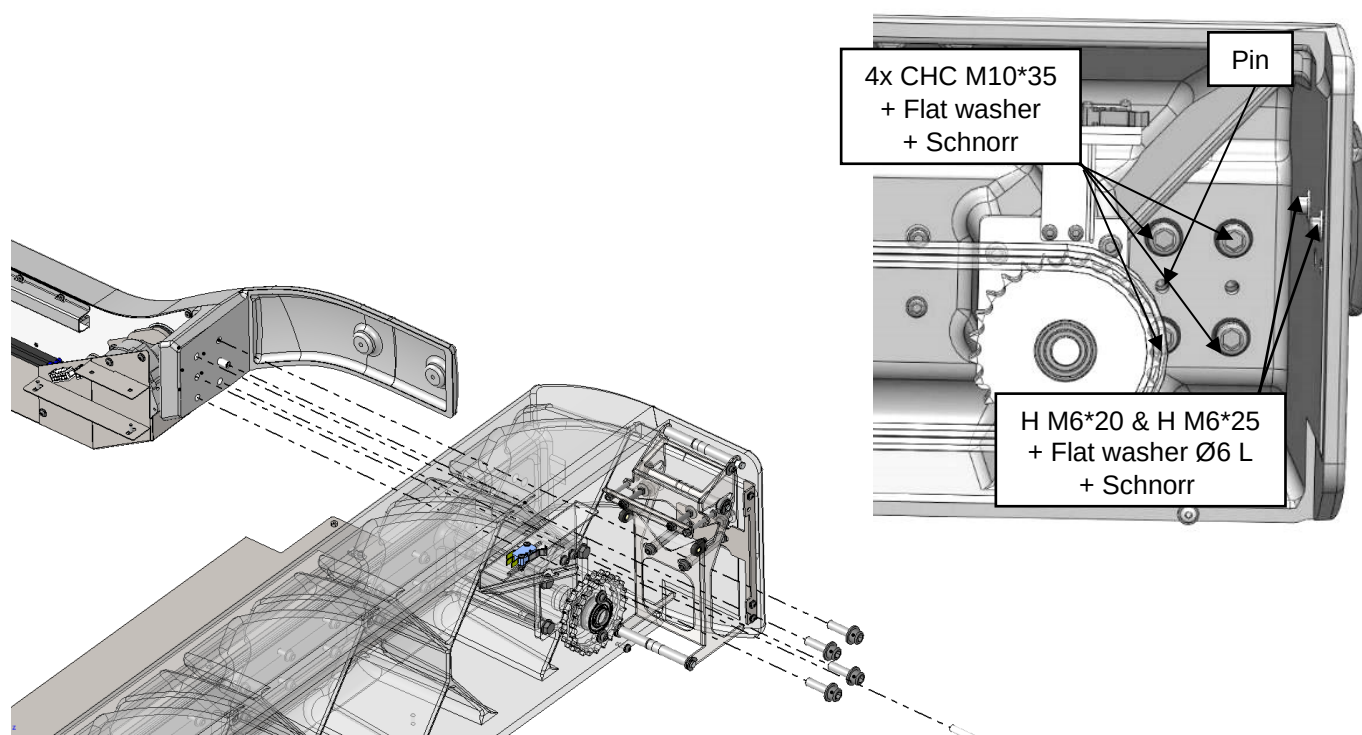
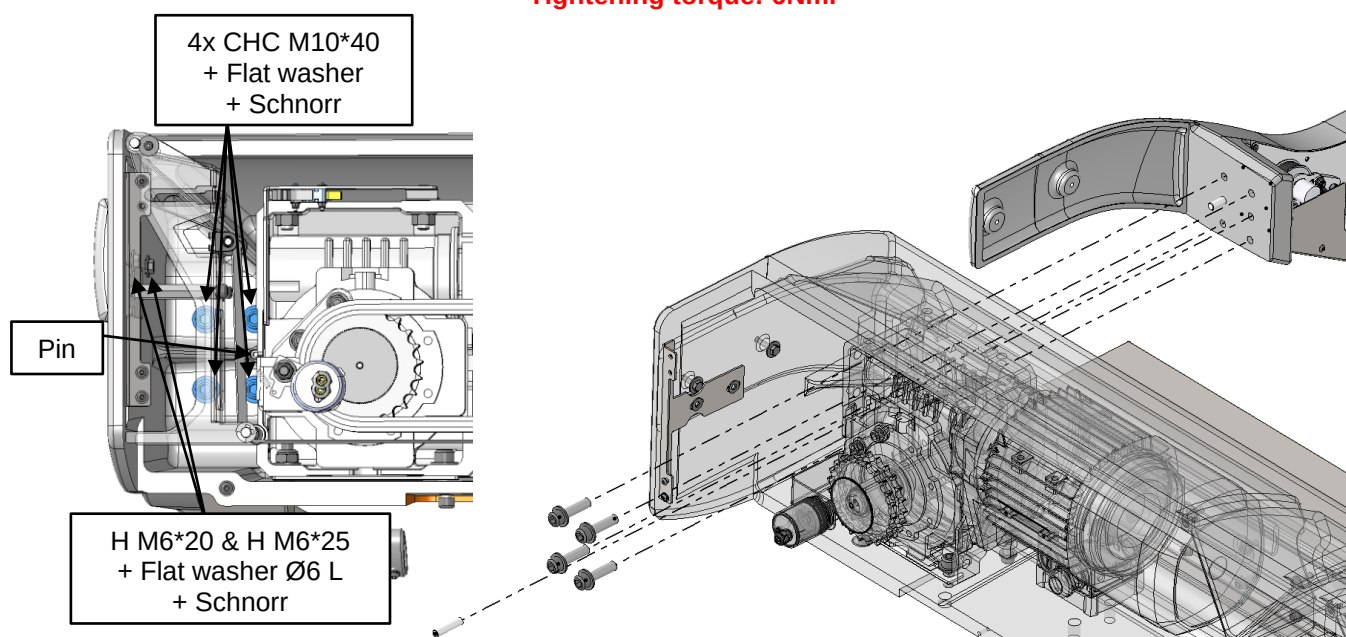
2) The arms must be assembly as shown on the following drawings:

Remove on each arm the pin located on the inside of the table (without through hole allowing accessibility to the rear of the main girder) before insert in position on the main girder. Pre-screw the 4 CHC M10 screws CL12.9 on each arm (length 35mm for the left arm and length 40mm for the right arm). Grease and assemble the previously removed pins. Make sure to assemble the pins so that the tapped extraction hole is accessible from the inside of the main girder. Tighten the 2x 4 screws to secure the arms.

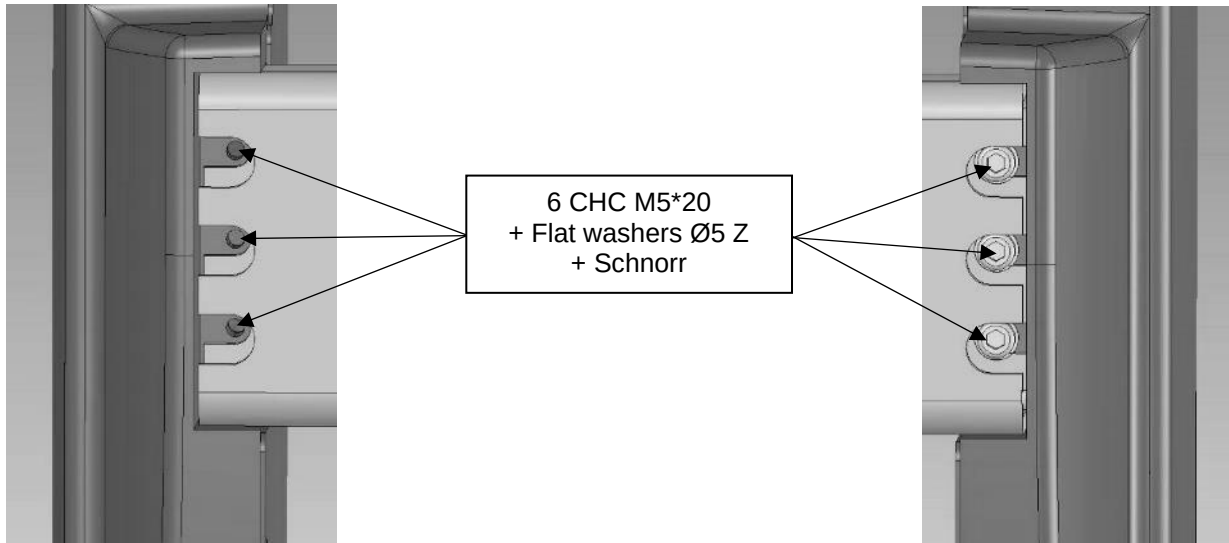
Tightening torque: 79Nm.

Then, screw the H M6x20 and the H M6x25 screws to stick arms on the main girder.

Tightening torque: 6Nm.

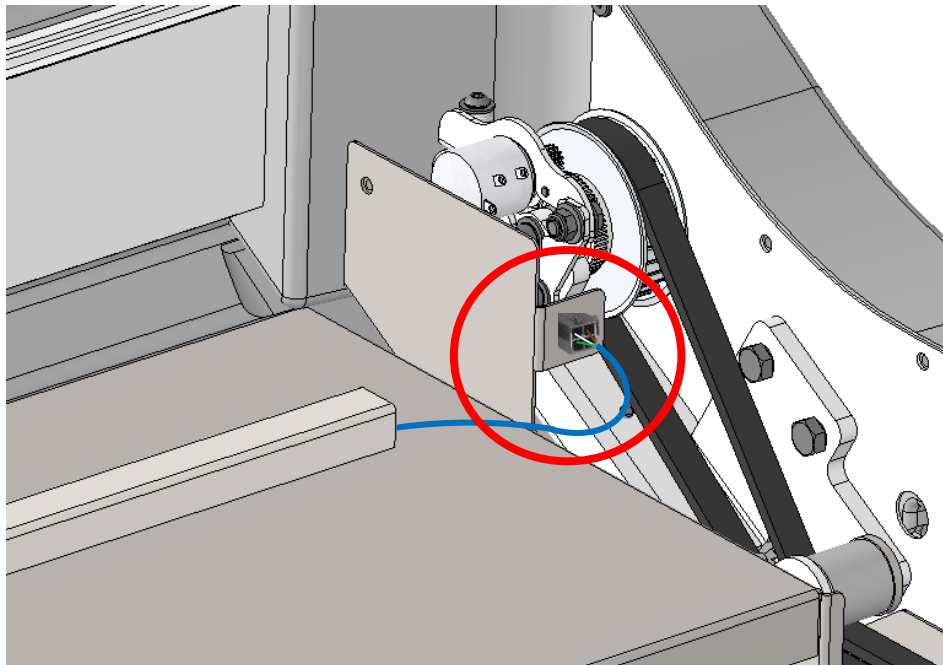


- 3) Position the central girder inside the intended notches, between the two arms. Fasten it with 6 screws as indicated hereafter:



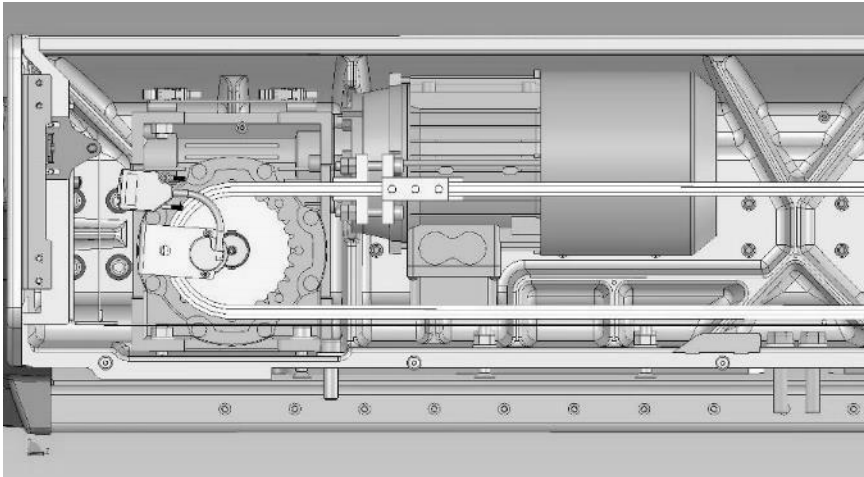
Tightening torque: 4.5Nm.

- 4) To the right side, connect the connector for the remote control wireless charger:

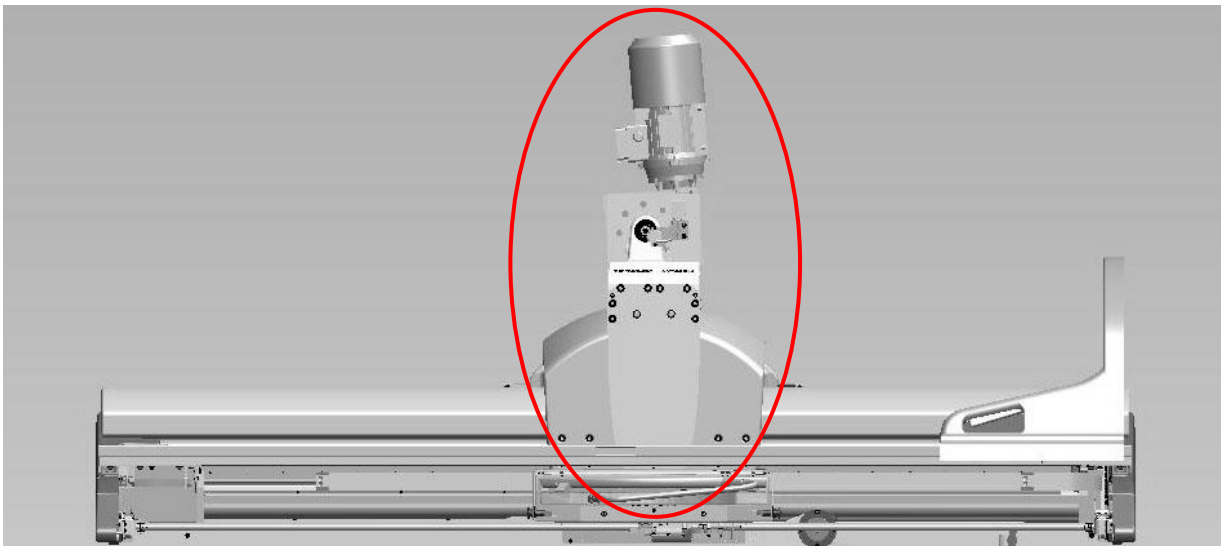


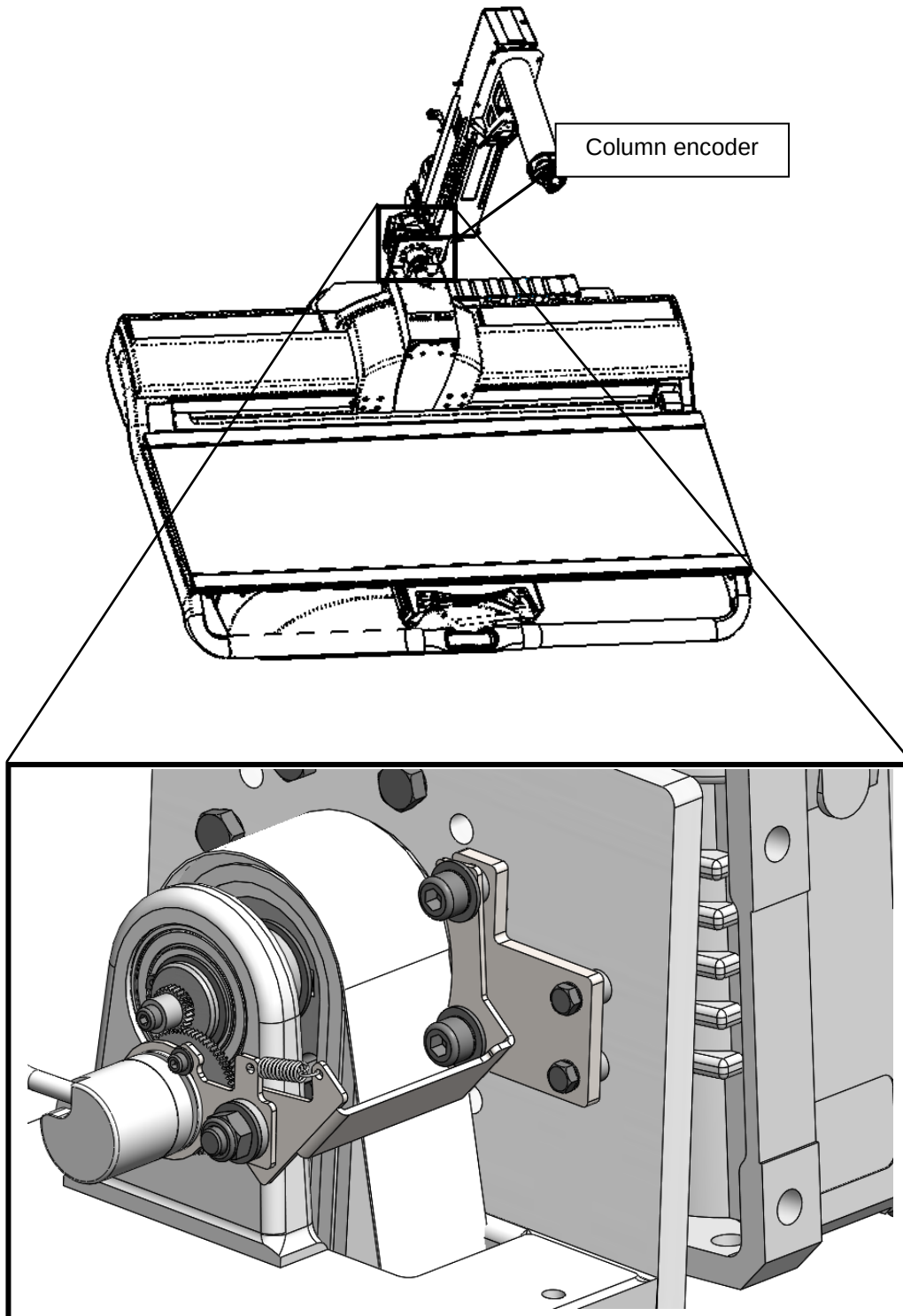
7. CARRIAGE

The carriage motor is already installed inside the rear girder.



The carriage is already mounted on the rear girder at the factory (see the following photo)

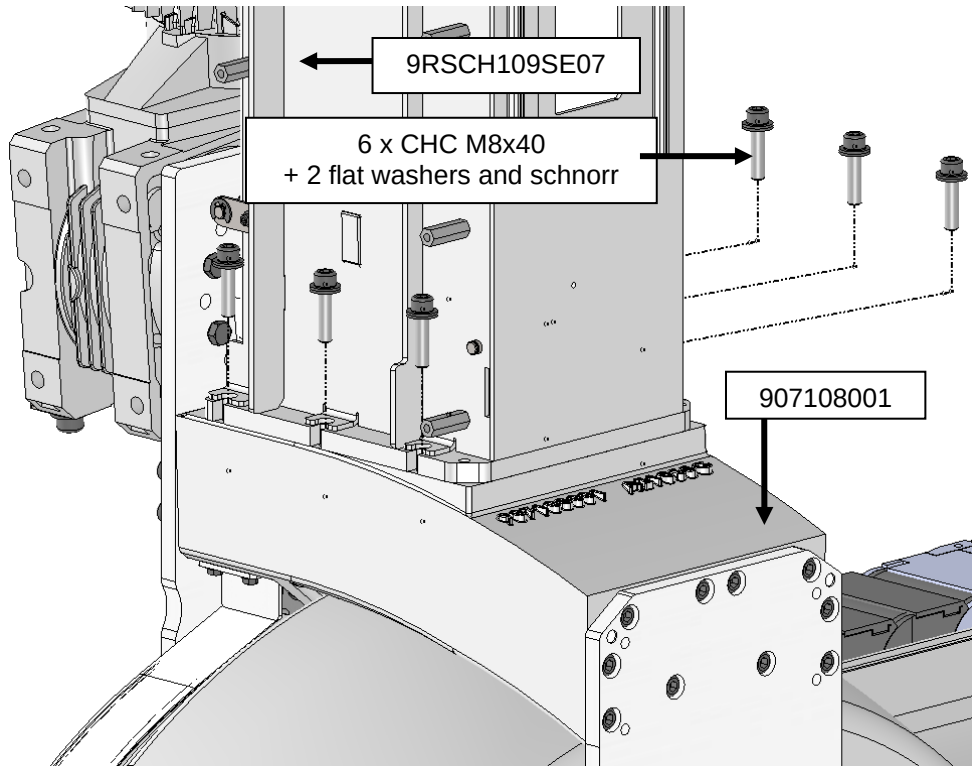




8. COLUMN

With the help of 2 people, lift the column on the column holder (pay attention to the encoder located on the column holder).

Fasten the column (9RSCH109SE07) on its holder (907108001) using 6 screws CHC M8*40 + 2 flat washers + schnorr.

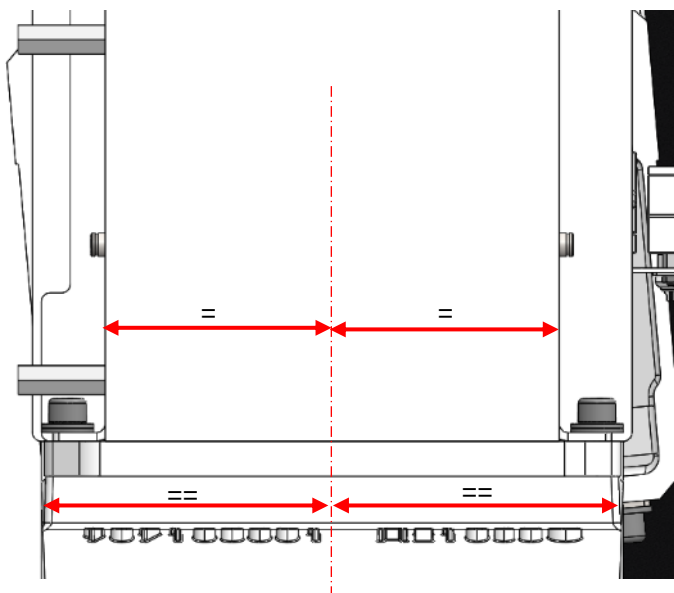


CAUTION: Do not tighten the screws for the moment.

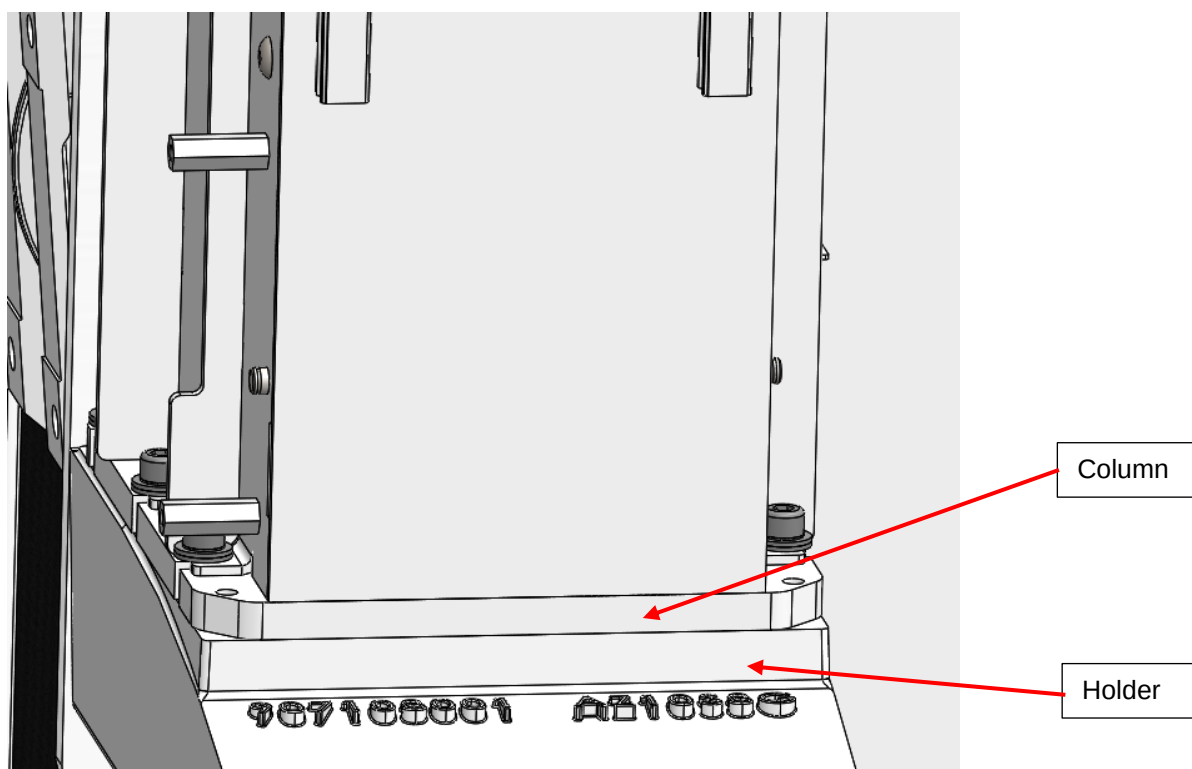
9090 REMOTE CONTROLLED TABLE

Installation

Center the column on its holder. To do this, adjust the position of the column so that it has the same distance on either side of the column and its holder:



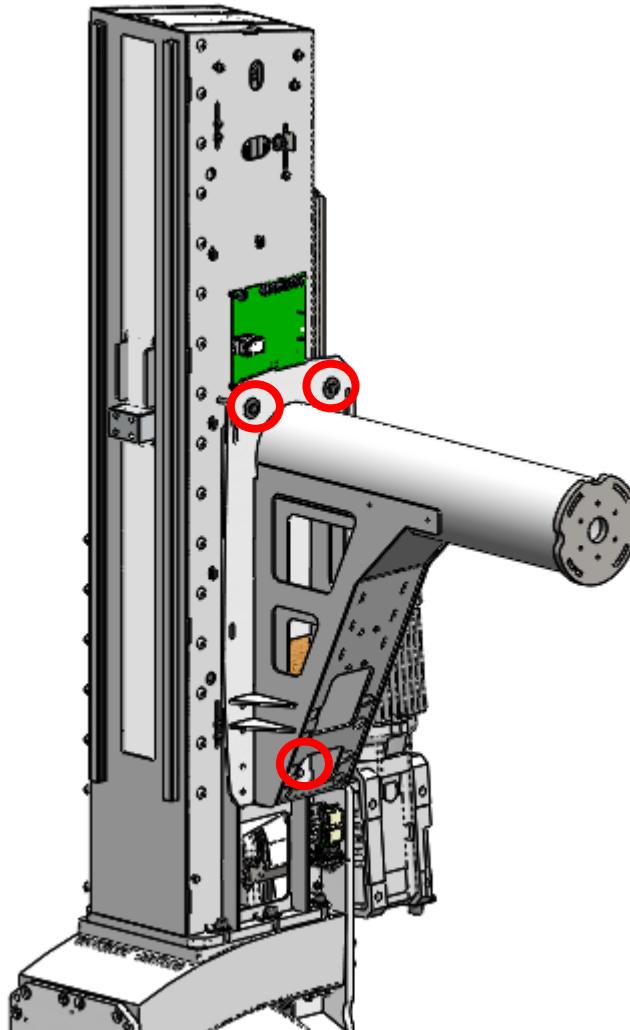
Align the column center and the column holder center:



Once the position of the column adjusted, tighten the 6 screws CHC M8x40 + 2 flat washers and schnorr.
Tightening torque: 24Nm.

9. TUBE BRACKET

Unscrew the 3x H M6 screws.



Turn the tube bracket at 90° and slide the ball runner block onto the rails.

Caution:

- Do not remove the plastics from the balls runner block before placing them on the rails to avoid losing the balls from the balls runner block. It will eject himself.



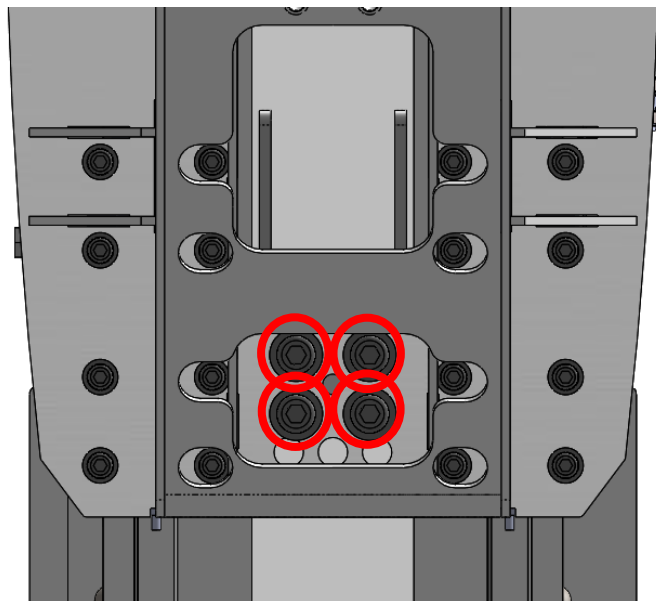
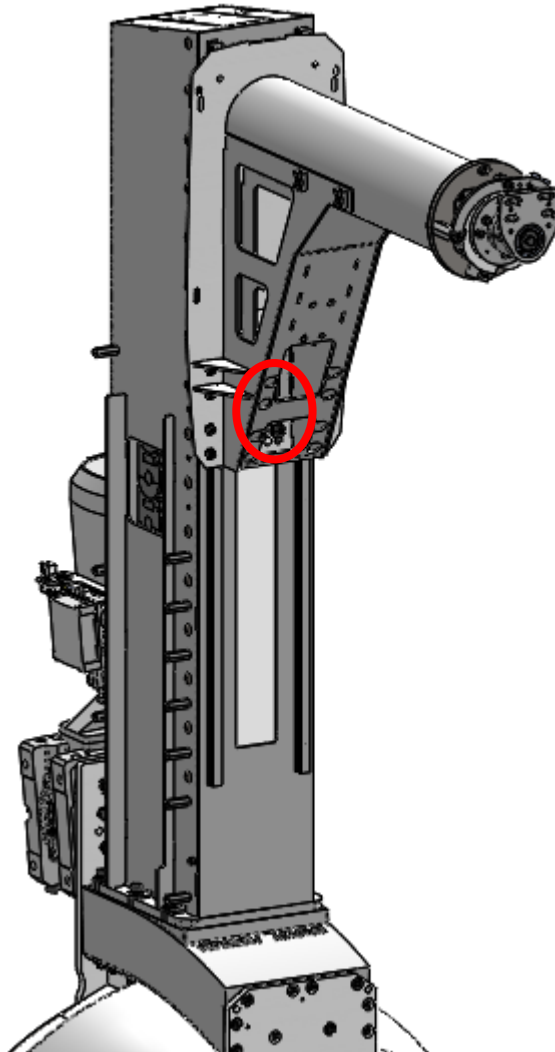
- Do not damage cables.

9090 REMOTE CONTROLLED TABLE

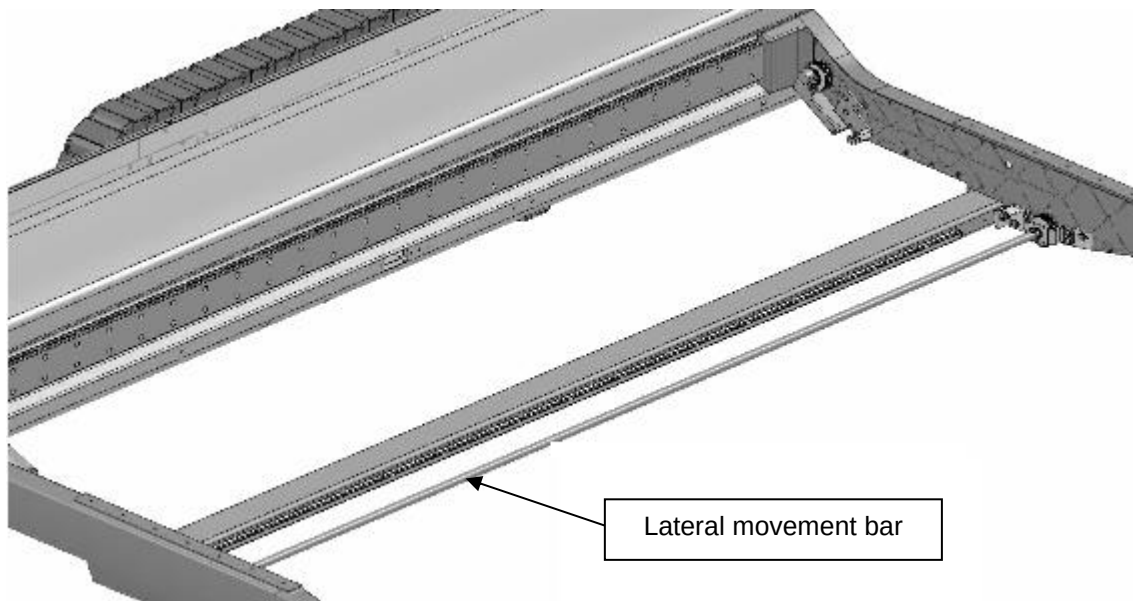
Installation

Then, screw the 4x CHC M8x16 + flat washer + Schnorr + medium thread locking glue 243.

Tightening torque: 26Nm.

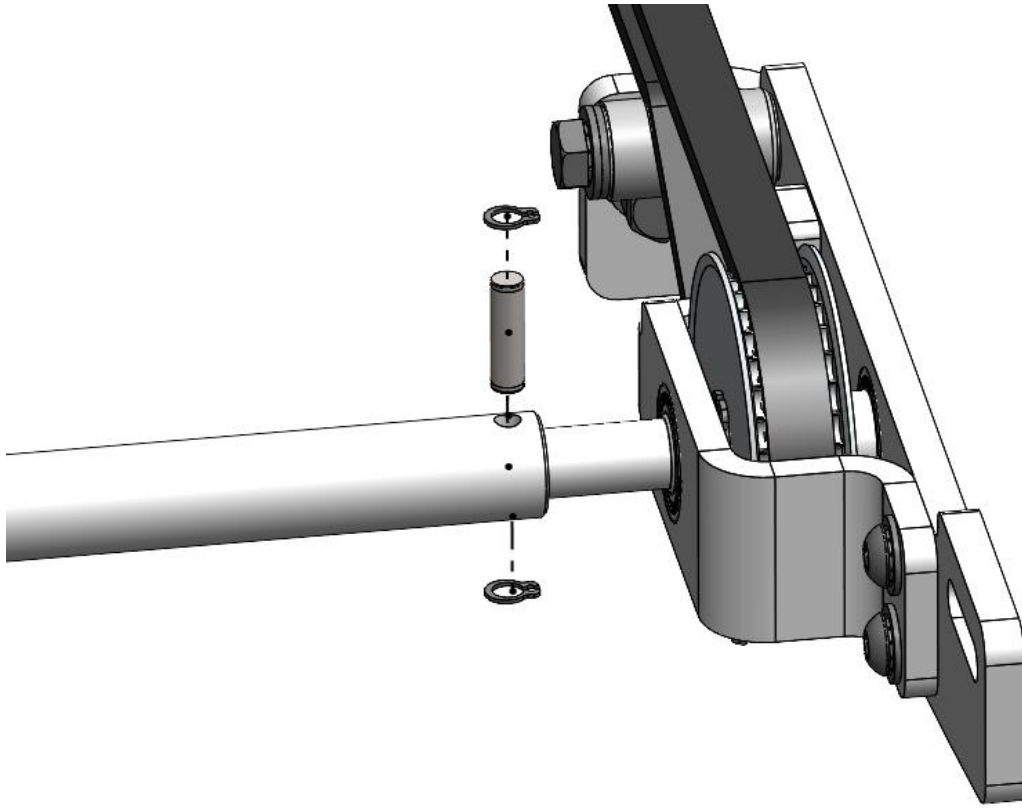


10. LATERAL BAR



When installing the lateral bar adjust the position according to the arrows:



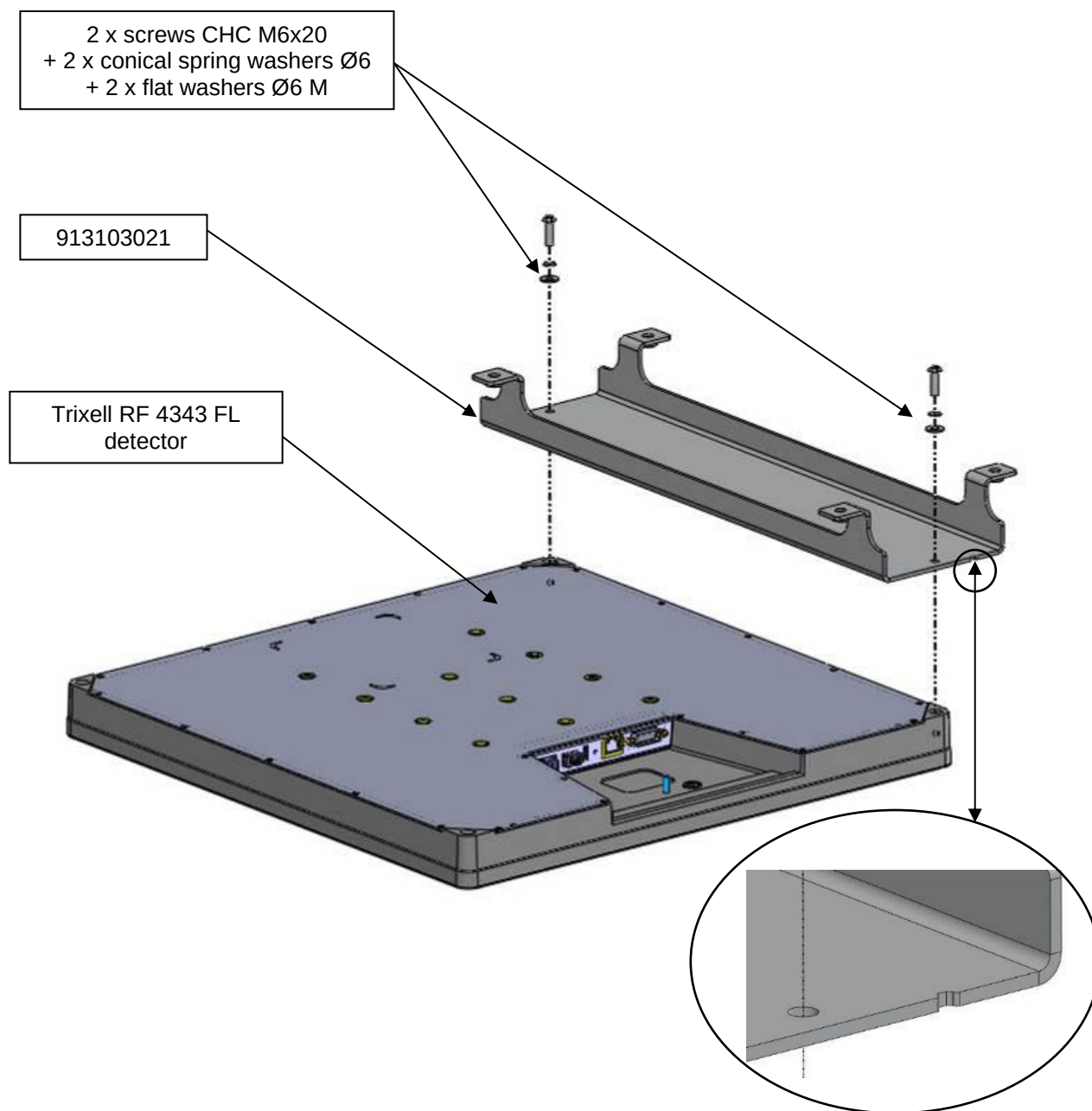


Repeat the same procedure on the left side.

11. RF 4343 FL assembly inside detector holder

- Assemble the rear mounting omega Trixell RF 4343 FL (913103021) on the Trixell RF 4343 FL detector using 2 screws CHC M6x20 + conical spring washers Ø6 + flat washers Ø6M.

Be careful to the mounting direction of the omega (913103021) on the detector Trixell RF 4343 FL (**keyed** see image hereafter):

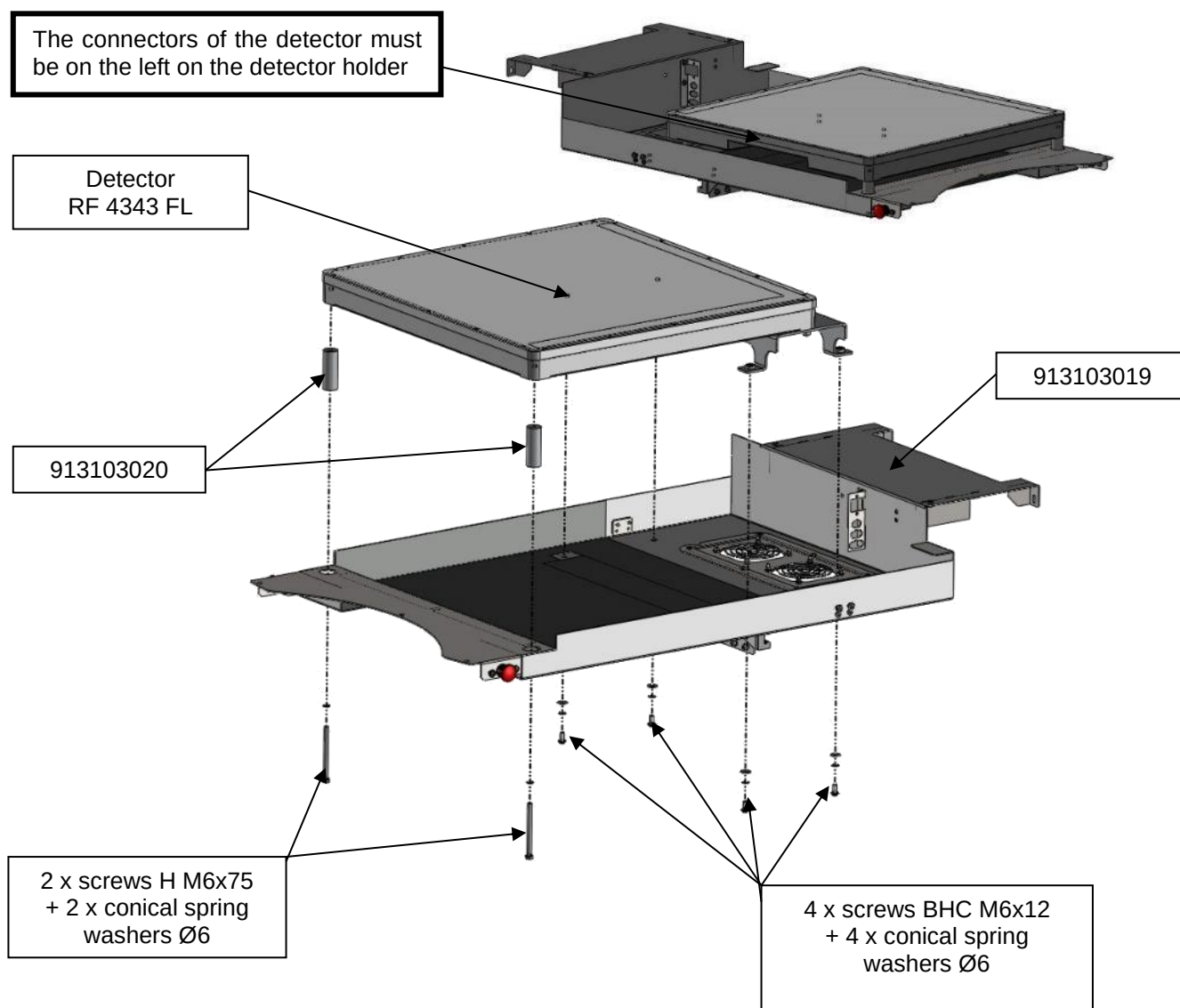


- Assemble the Trixell RF 4343 FL detector mounted on the rear mounting omega on the detector holder Trixell RF 4343 FL (913103019) by inserting 2 spacers (913103020) in the 2 holes located in the front of the frame.

9090 REMOTE CONTROLLED TABLE

Installation

- In a first time, fix the front of the detector with the spacers and using 2 screws H M6x75 + conical spring washers Ø6.
Then, fix the omega using 4 screws BHC M6x12 + conical spring washers Ø6 + flat washer Ø6:

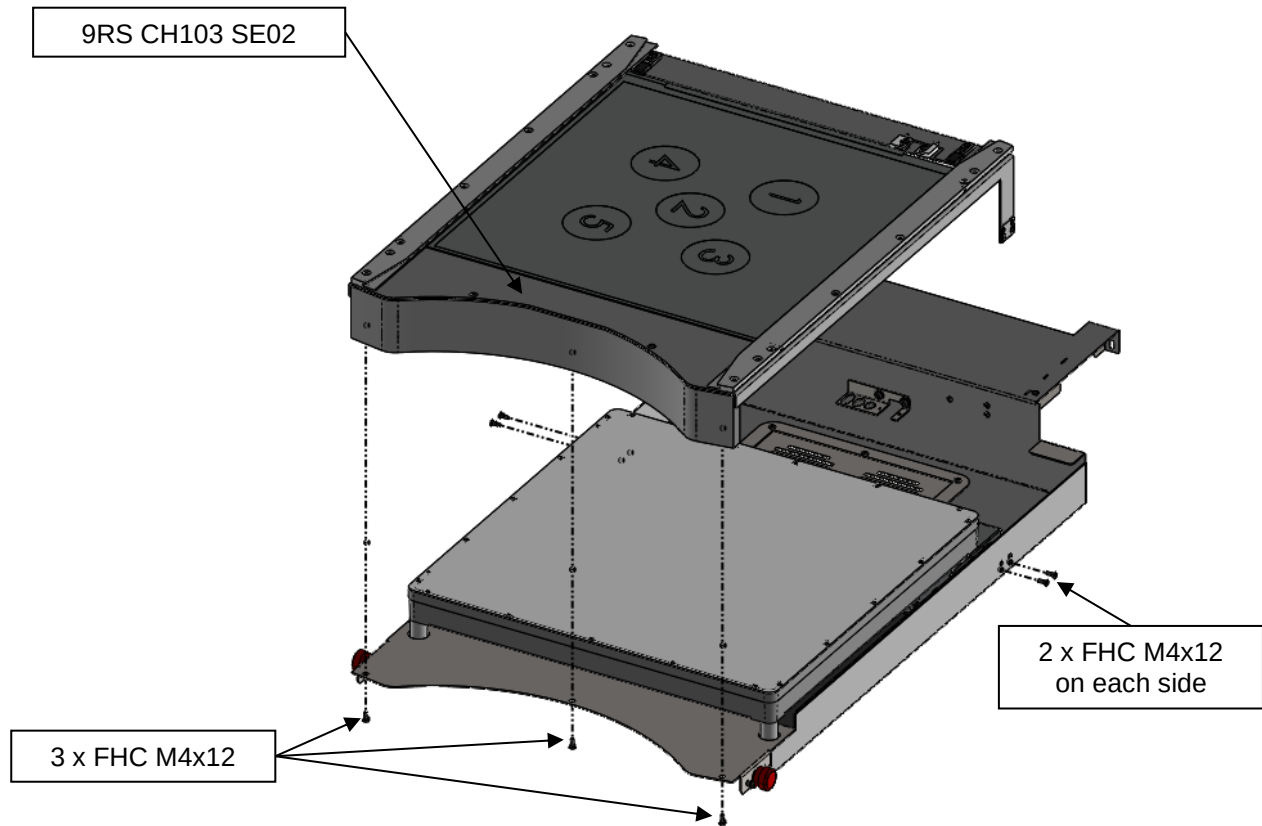


- Connect the detector following the recommendations of the TRIXELL service manual.

9090 REMOTE CONTROLLED TABLE

Installation

- Fix the ionization chamber holder (9RS CH103 SE02) on the detector holder (913103019). Use 2 x 2 screws FHC M4x12 on each side of the detector holder and 3 screws FHC M4x12 on the front of the ionization chamber holder (9RS CH103 SE02) :



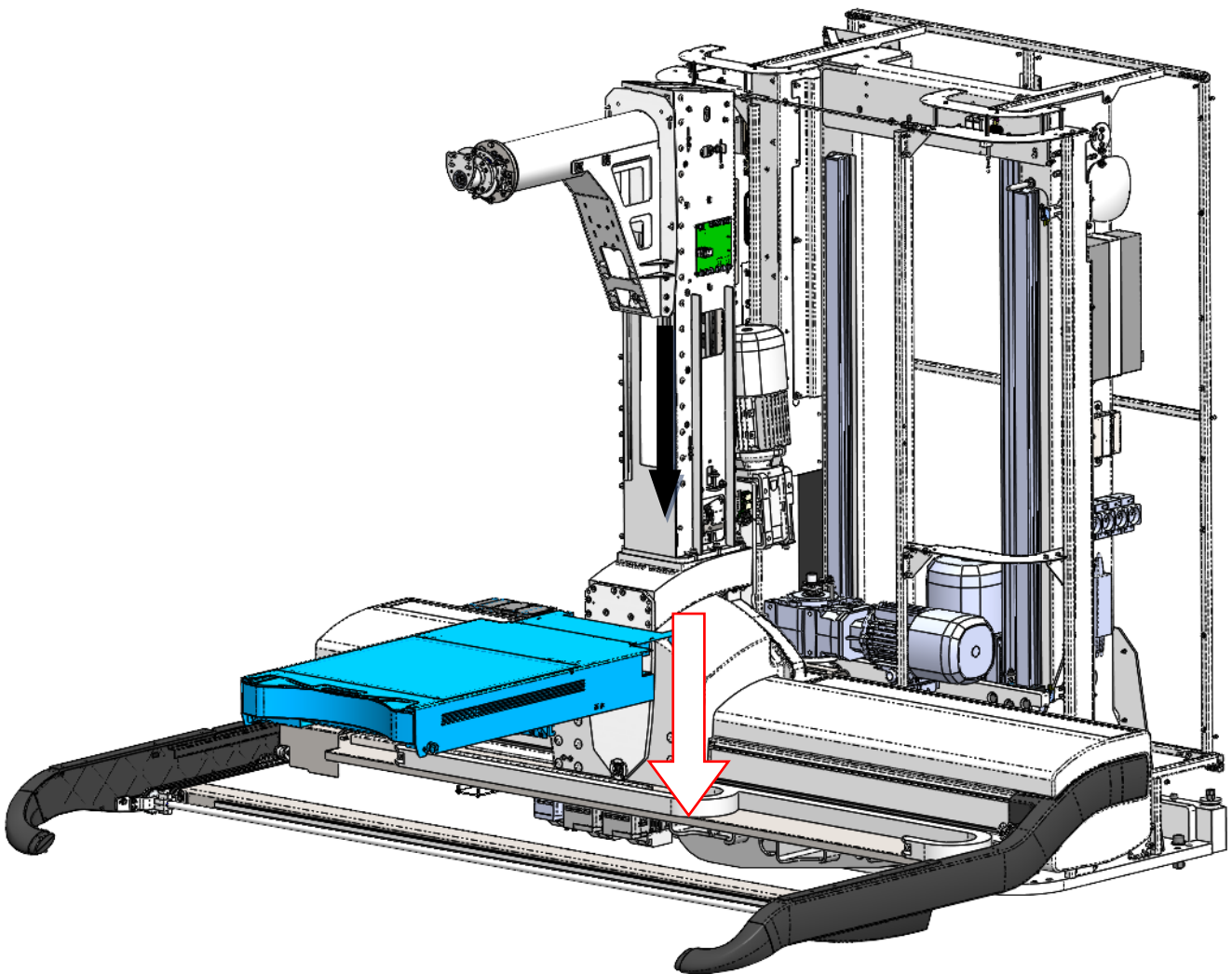
12. DETECTOR HOLDER ASSEMBLY

12.1 Trixell detector holder

Use the following instruction only if your system is provided with an RF43 Trixell detector.
Install the detector holder; put it in place in front of the carriage assembly.

Slide the ball runner block on the rail located on the central girder in order to position the ball runner block in front of the mounting bracket located under the detector holder.

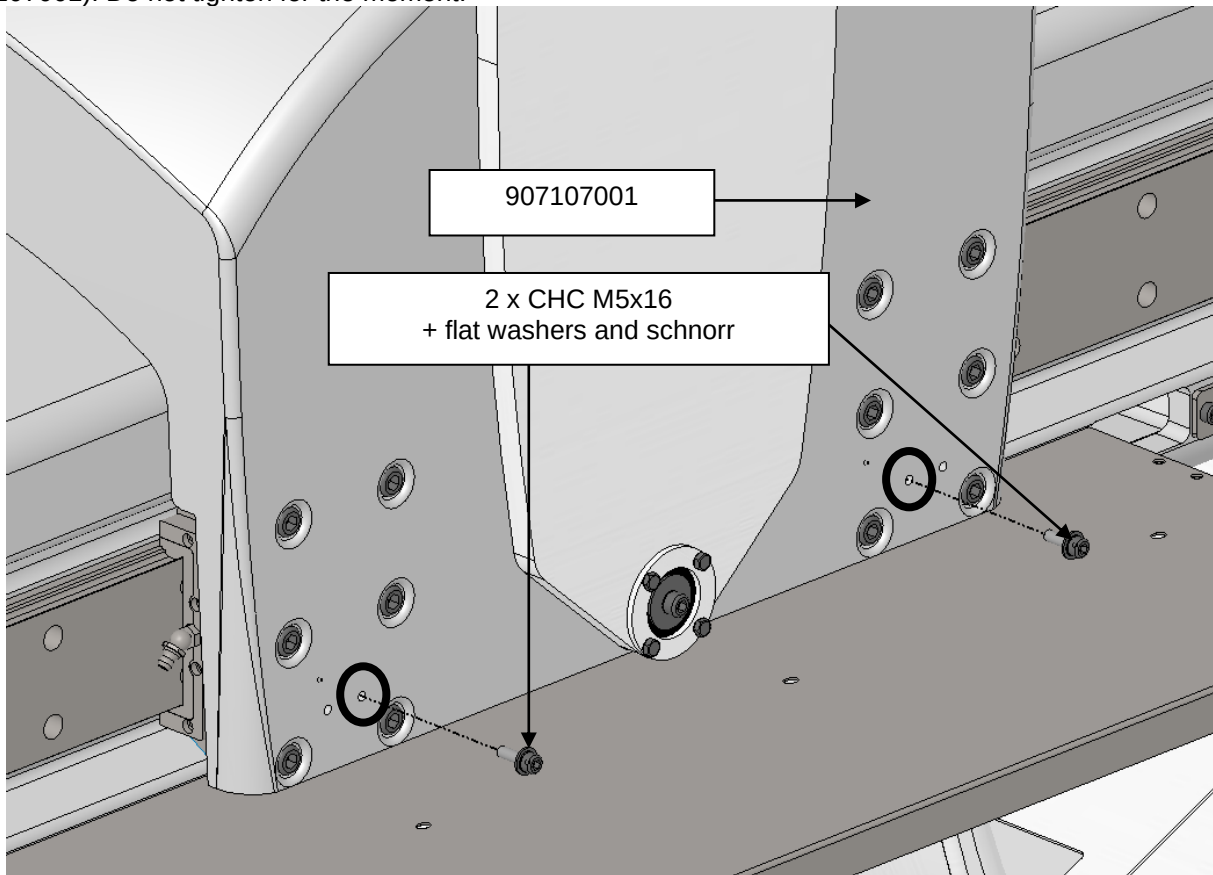
Fasten the detector holder as indicated below:



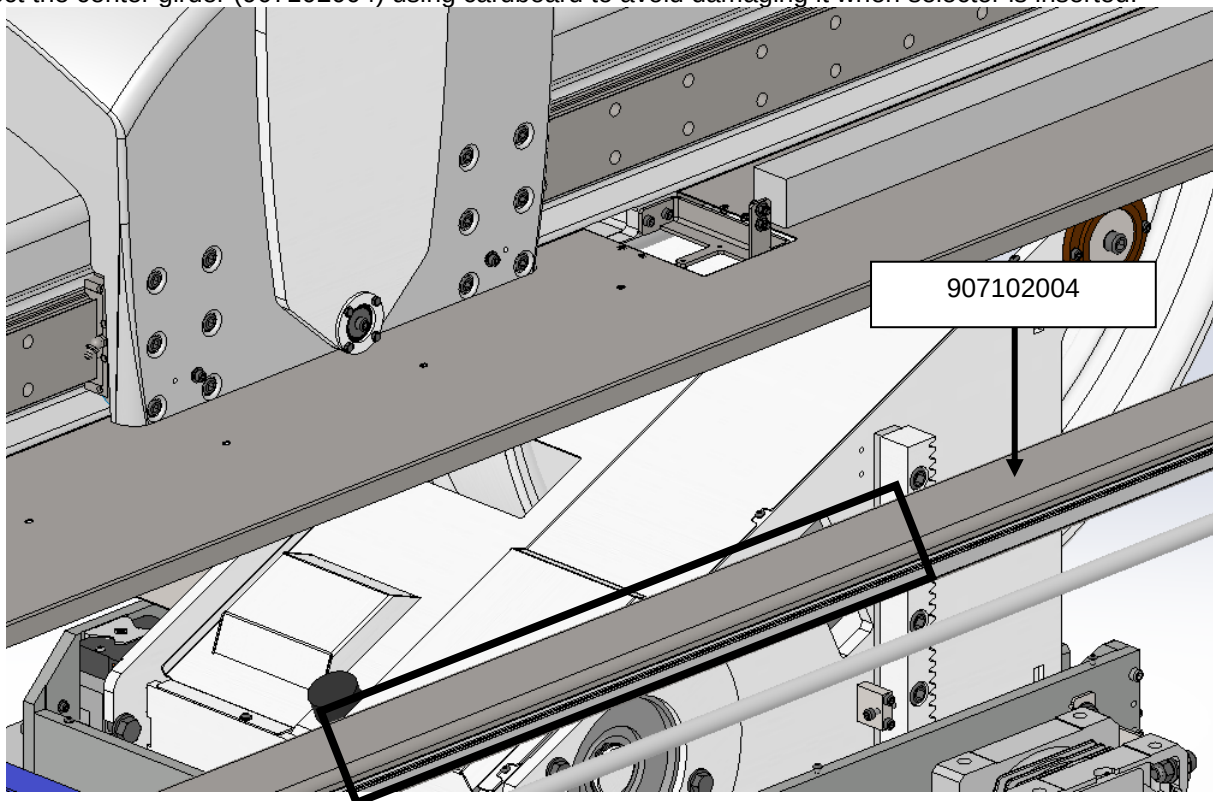
9090 REMOTE CONTROLLED TABLE

Installation

Insert 2 screws CHC M5x16 + flat washers and schnorr inside the innermost threaded holes of the carriage (907107001). Do not tighten for the moment.



Protect the center girder (907102004) using cardboard to avoid damaging it when selector is inserted.

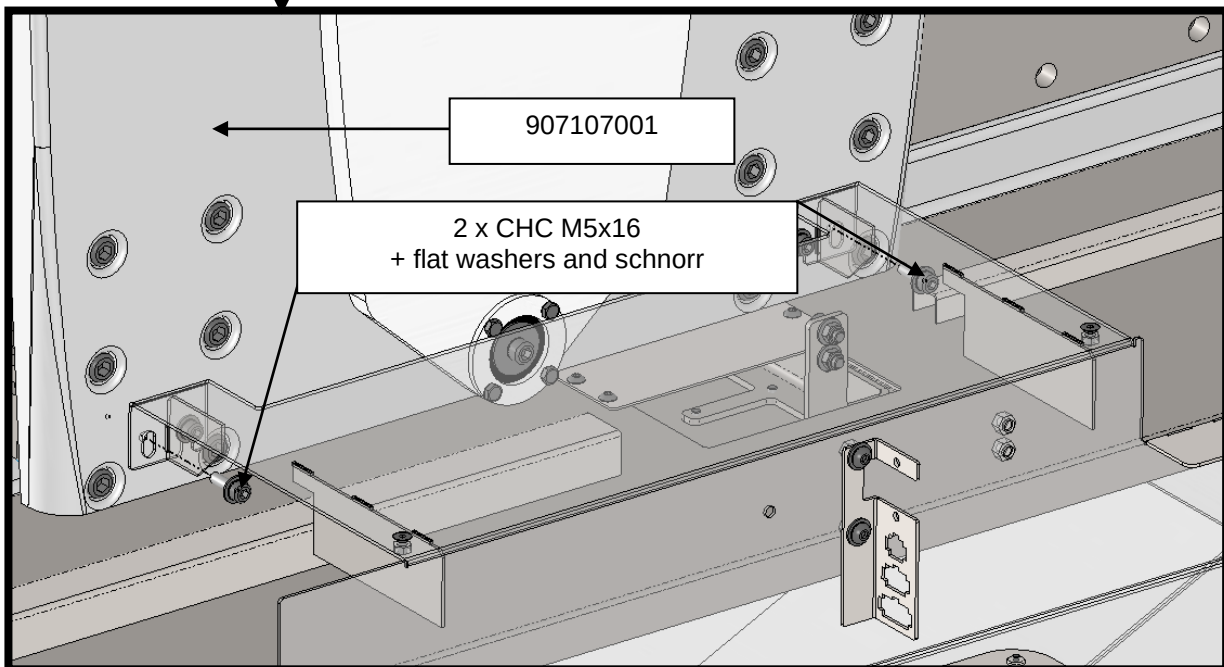
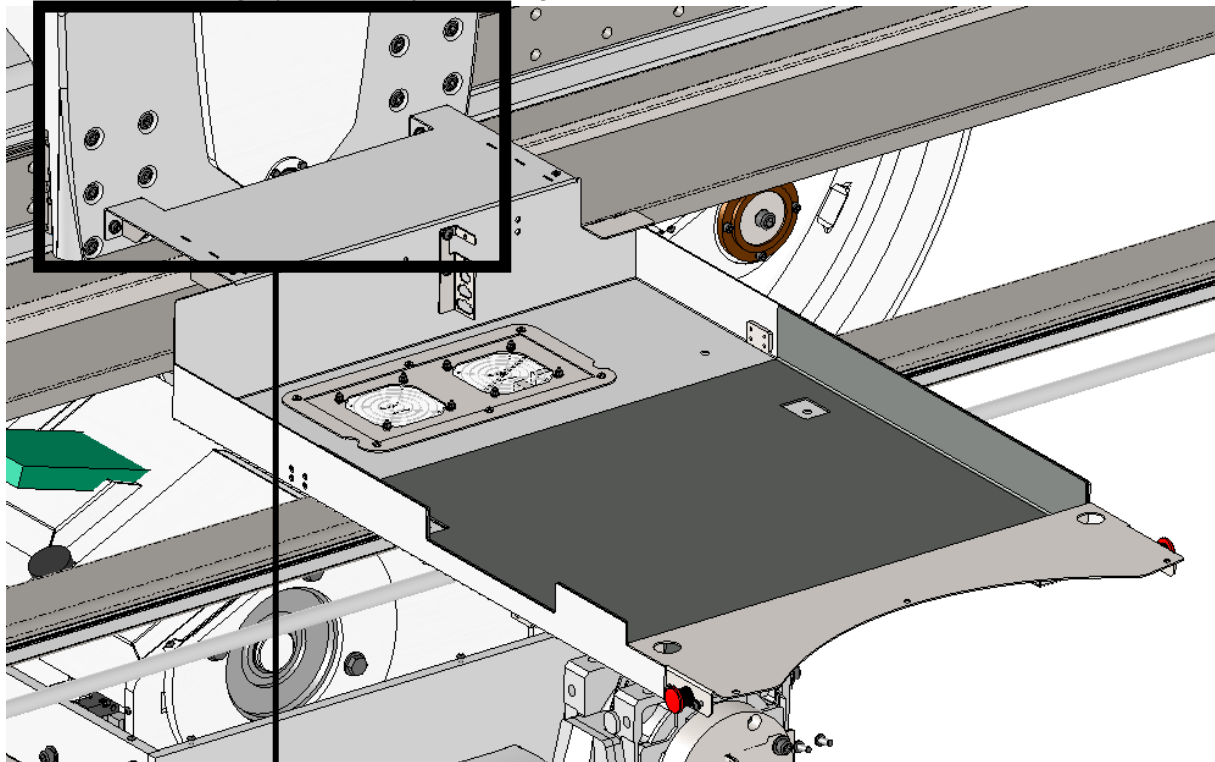


9090 REMOTE CONTROLLED TABLE

Installation

Install the selector (9RSCH103SE05) on the remote controlled table passing the frame around the 2 previously mounted screws.

Support the selector in the front so that it does not fall and place the last 2 screws CHC M5x16 + flat washers and schnorr in the carriage (907107001). Do not tighten for the moment.

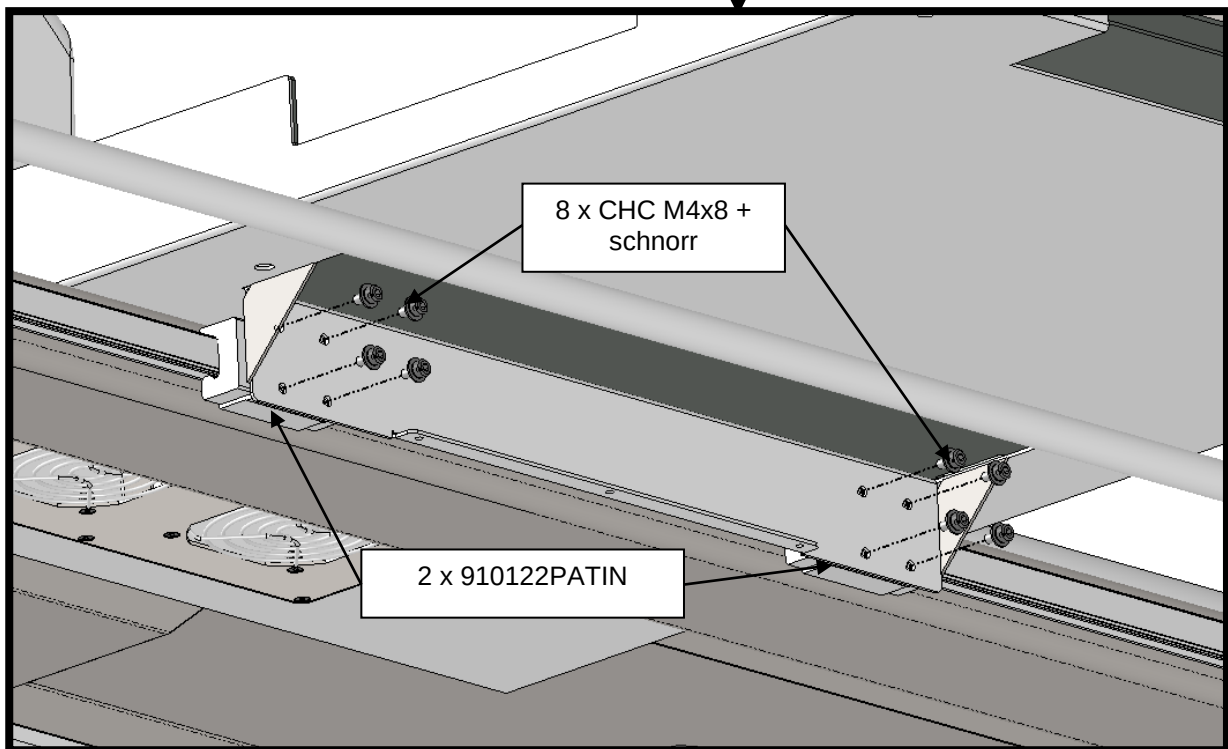
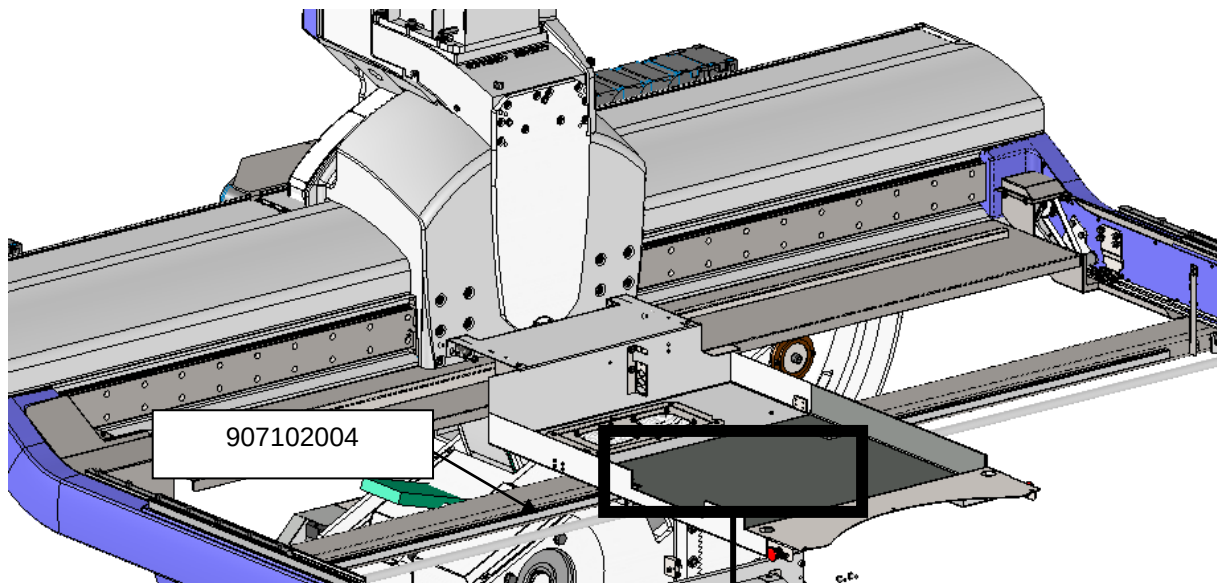


9090 REMOTE CONTROLLED TABLE

Installation

Using 8 screws CHC M4x8 + schnorr, lock the selector on the 2 balls runner blocks (910122PATIN) already present on the rail of the center girder (907102004).

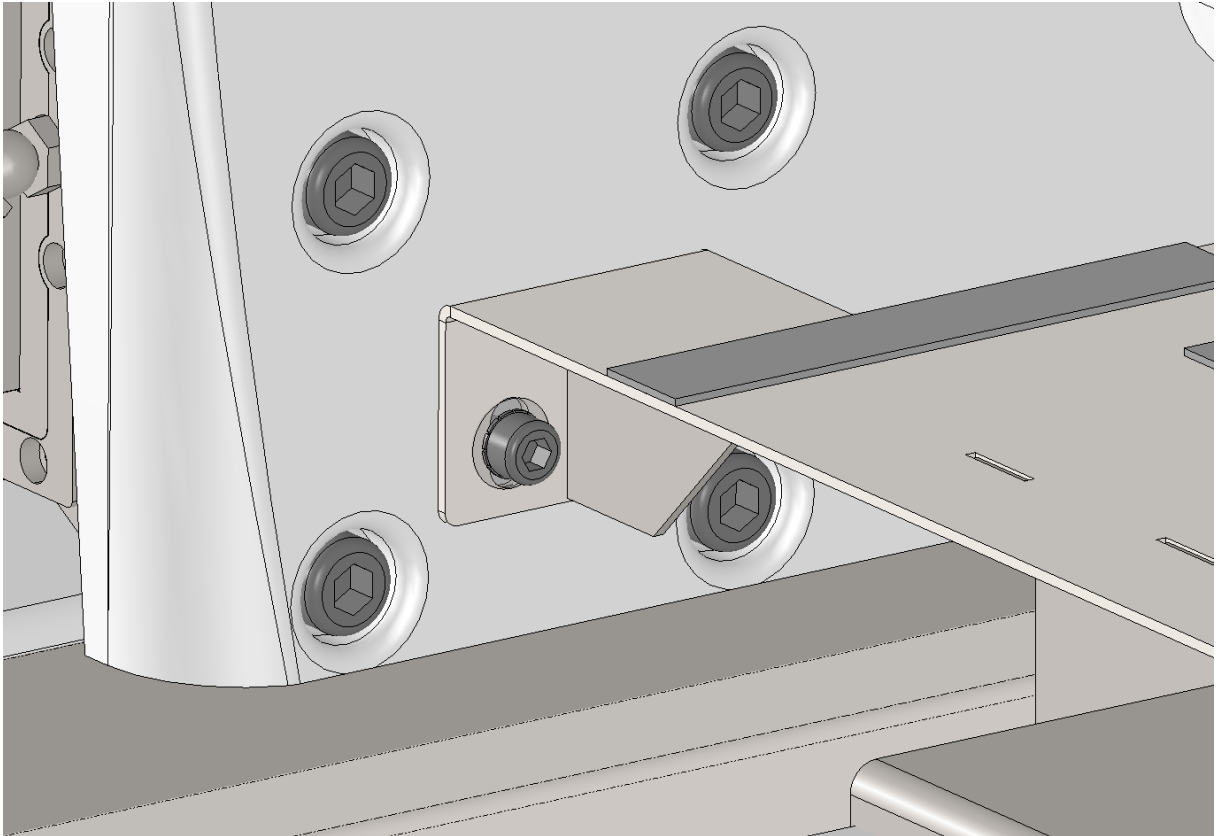
Tightening torque: 3.5Nm.



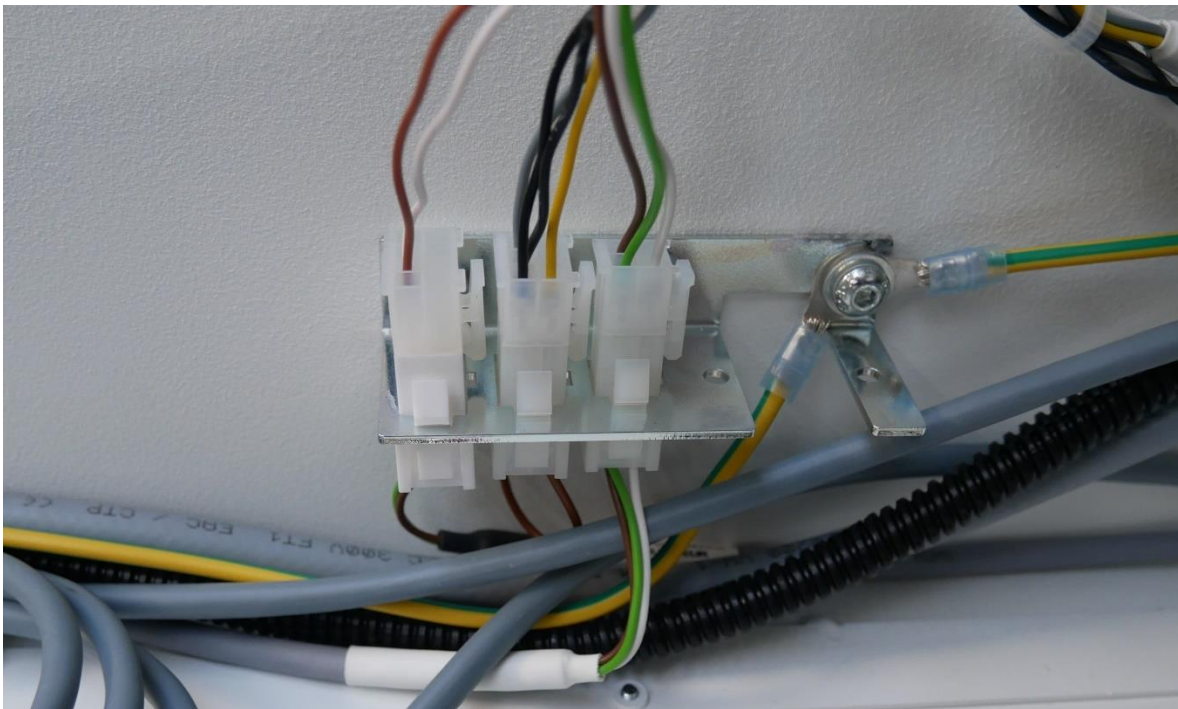
9090 REMOTE CONTROLLED TABLE

Installation

Tighten the 4 screws CHC M5x16 + flat washers and schnorr so that the 2 outer screws are centered on the 2 outer oblong holes of the detector holder as shown hereafter:



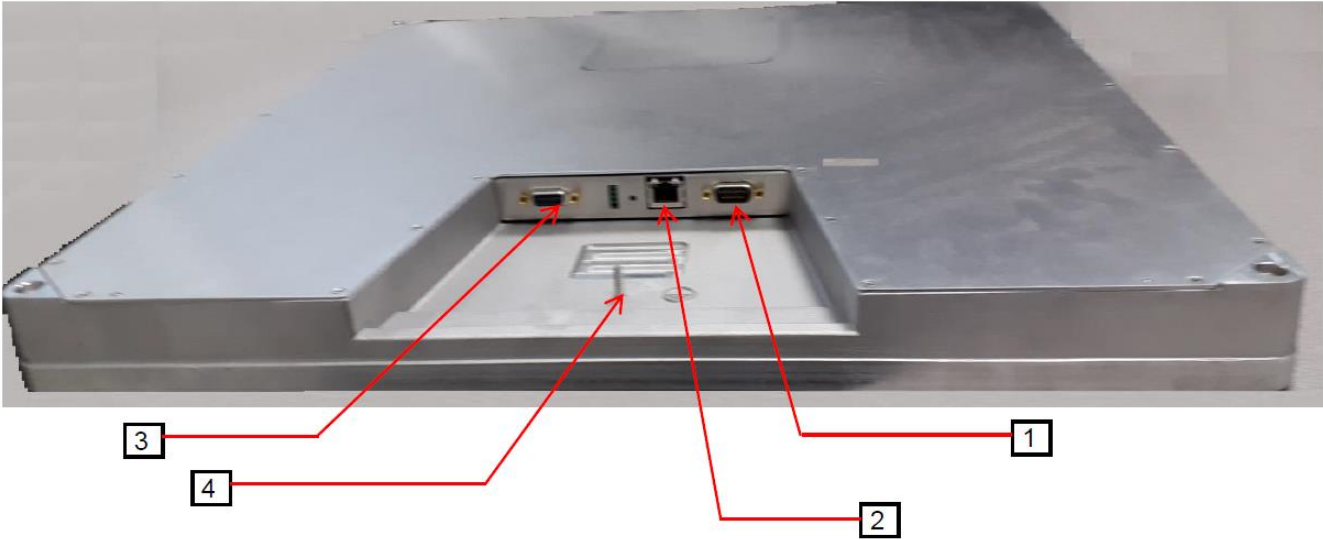
Then, connect the different connectors located at the back of the detector holder.



9090 REMOTE CONTROLLED TABLE

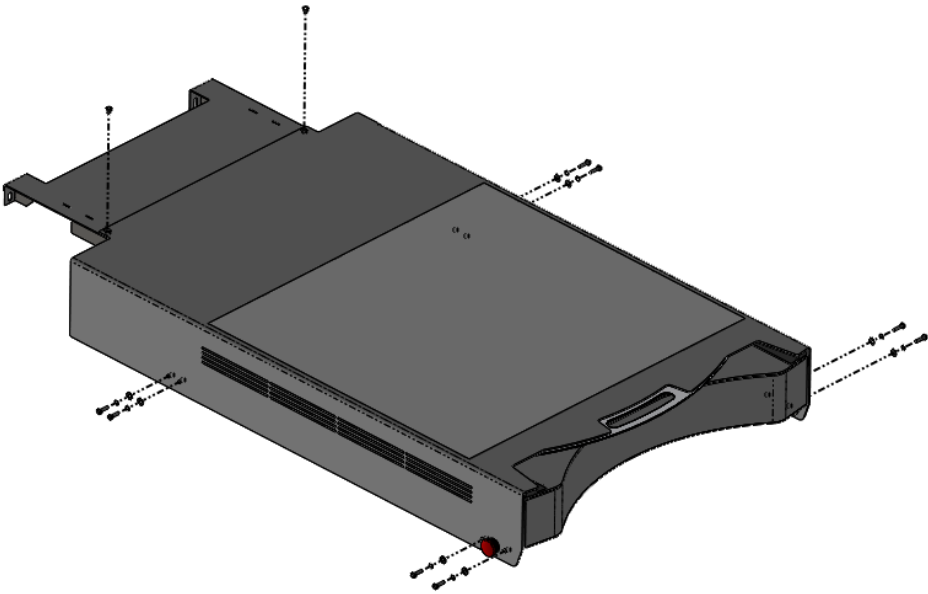
Installation

The following picture describes the connectors located at the rear side of the **Pixium 4343 FL**:



Number	Description
1	Power Supply (DB9)
2	Ethernet link
3	Command signals (Frame request, X-ray Enable, ValidXRAY)
4	Ground stud

Assemble the selector cover (9RSCH103SE03) on the selector using 2 screws FHC M4x8 and 8 screws CHC M4x16 each with Schnorr Ø4 and flat washers Ø4 M. Start by mounting 8 screws CHC without tightening them. Then, by lifting the front of the selector, tighten the 2 screws FHC. Finish by tightening the 4 screws CHC located at the back without completely tightening the 4 screws CHC at the front.

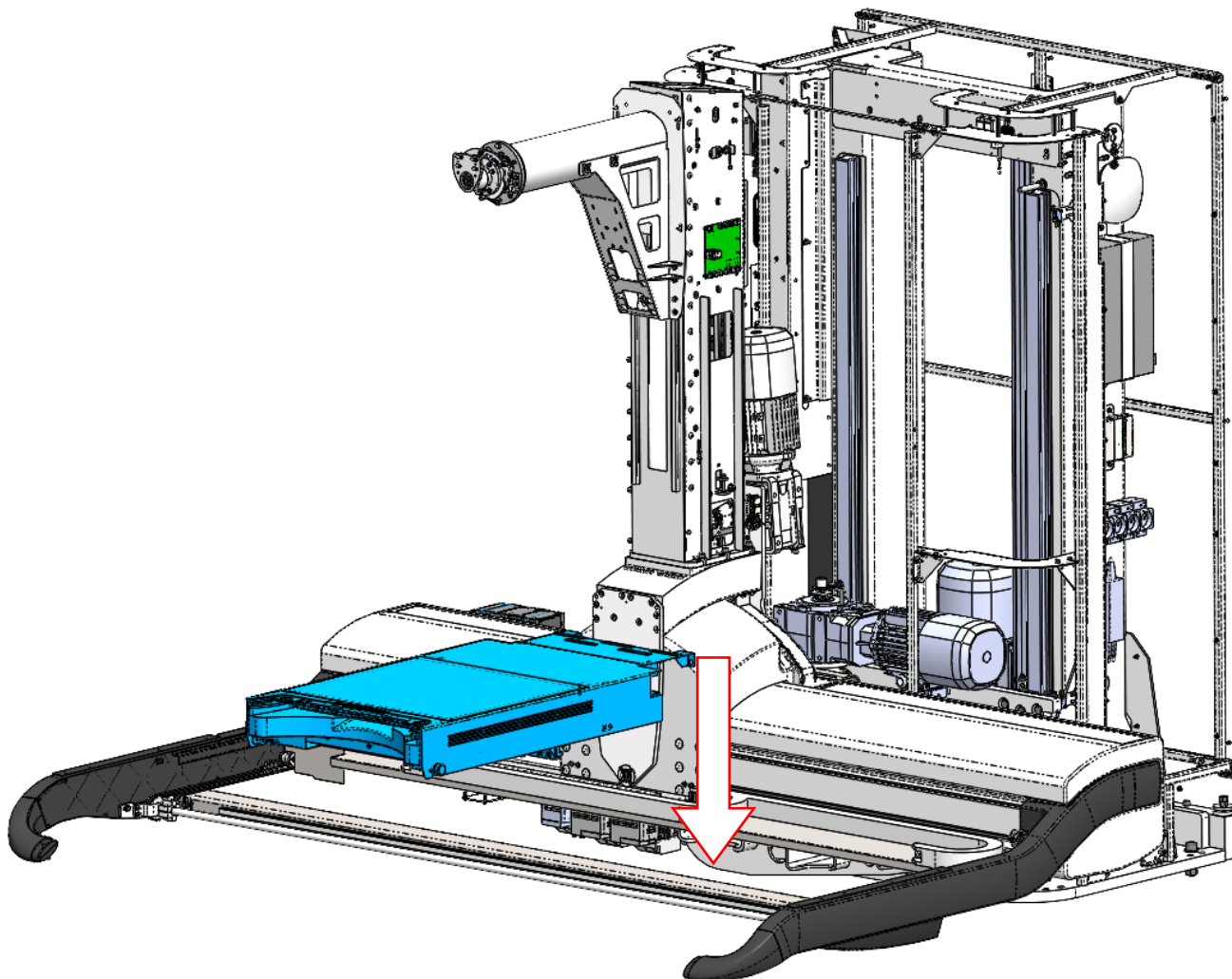


12.2 Canon B1 detector holder

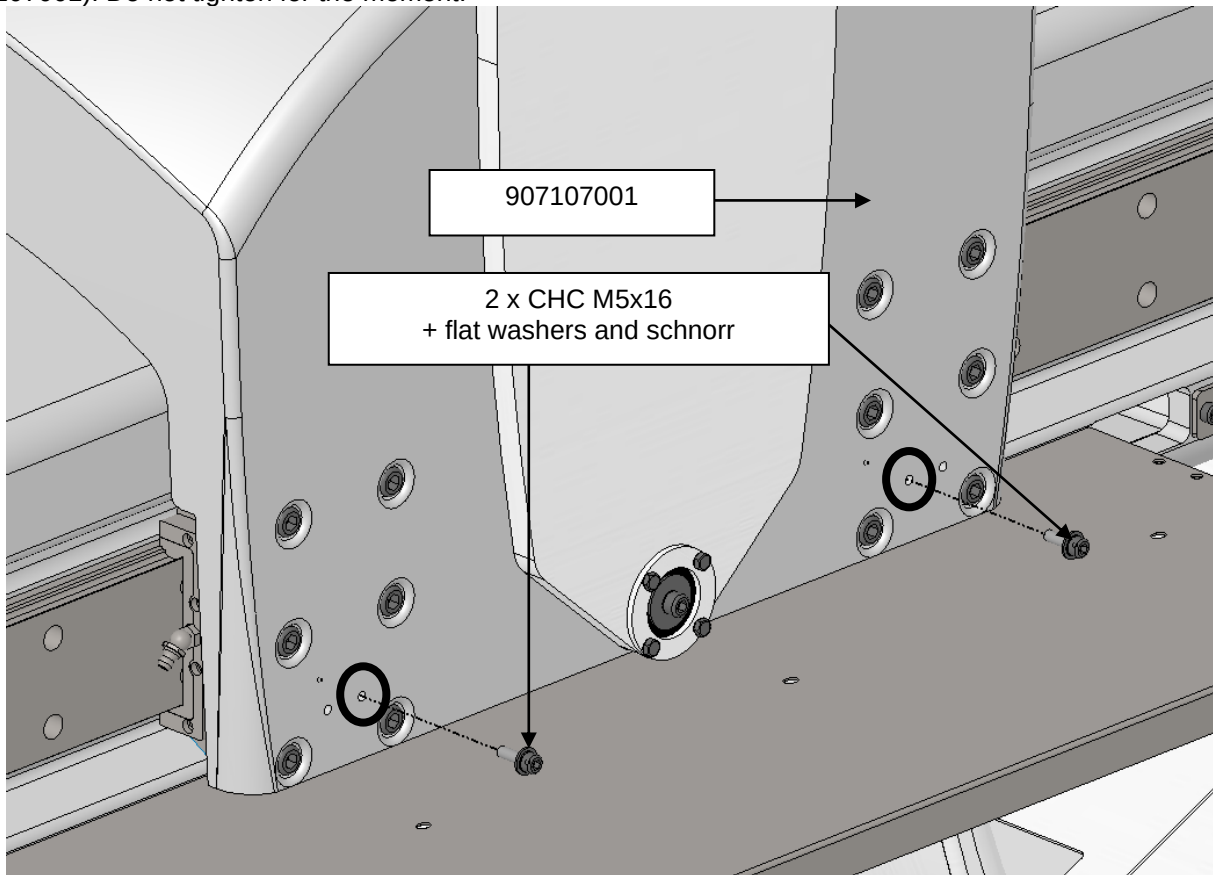
Use the following instruction only if your system is provided with a Canon B1 detector.
Install the detector holder; put it in place in front of the carriage assembly.

Slide the ball runner block on the rail located on the central girder in order to position the ball runner block in front of the mounting bracket located under the detector holder.

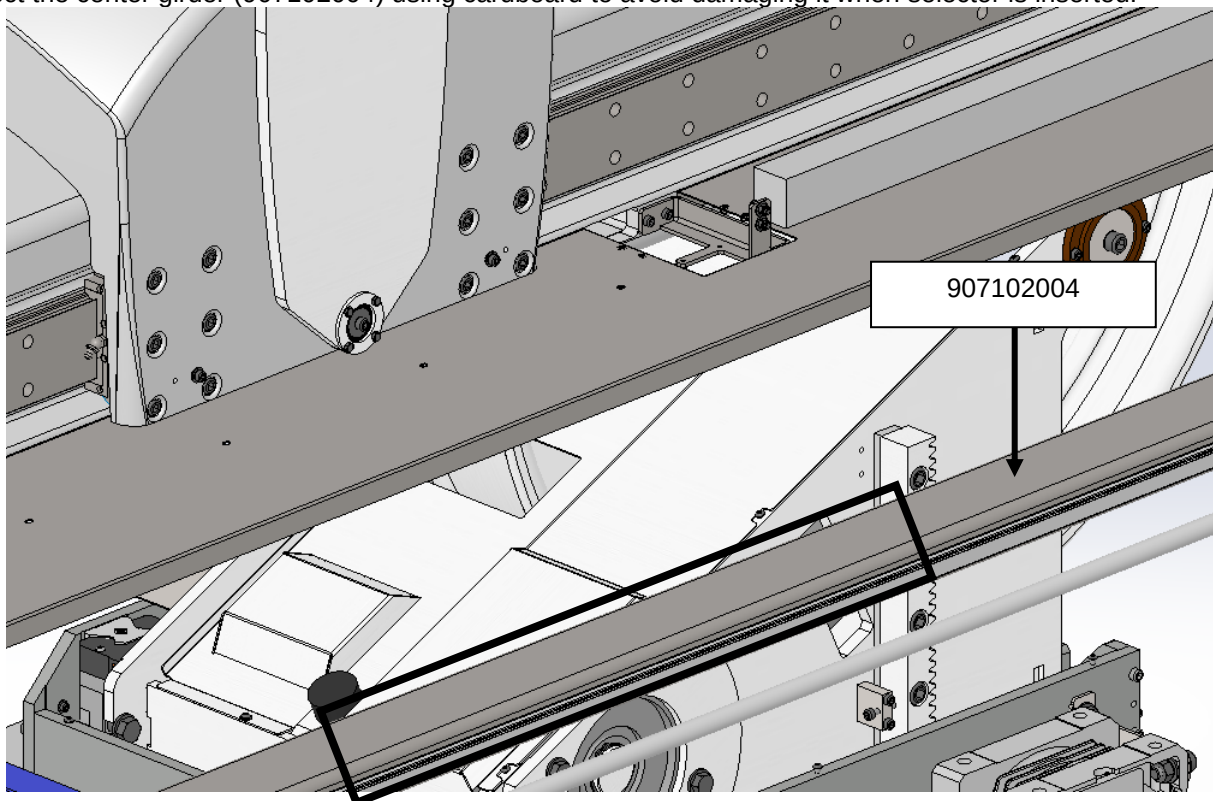
Fasten the detector holder as indicated below:



Insert 2 screws CHC M5x16 + flat washers and schnorr inside the innermost threaded holes of the carriage (907107001). Do not tighten for the moment.



Protect the center girder (907102004) using cardboard to avoid damaging it when selector is inserted.

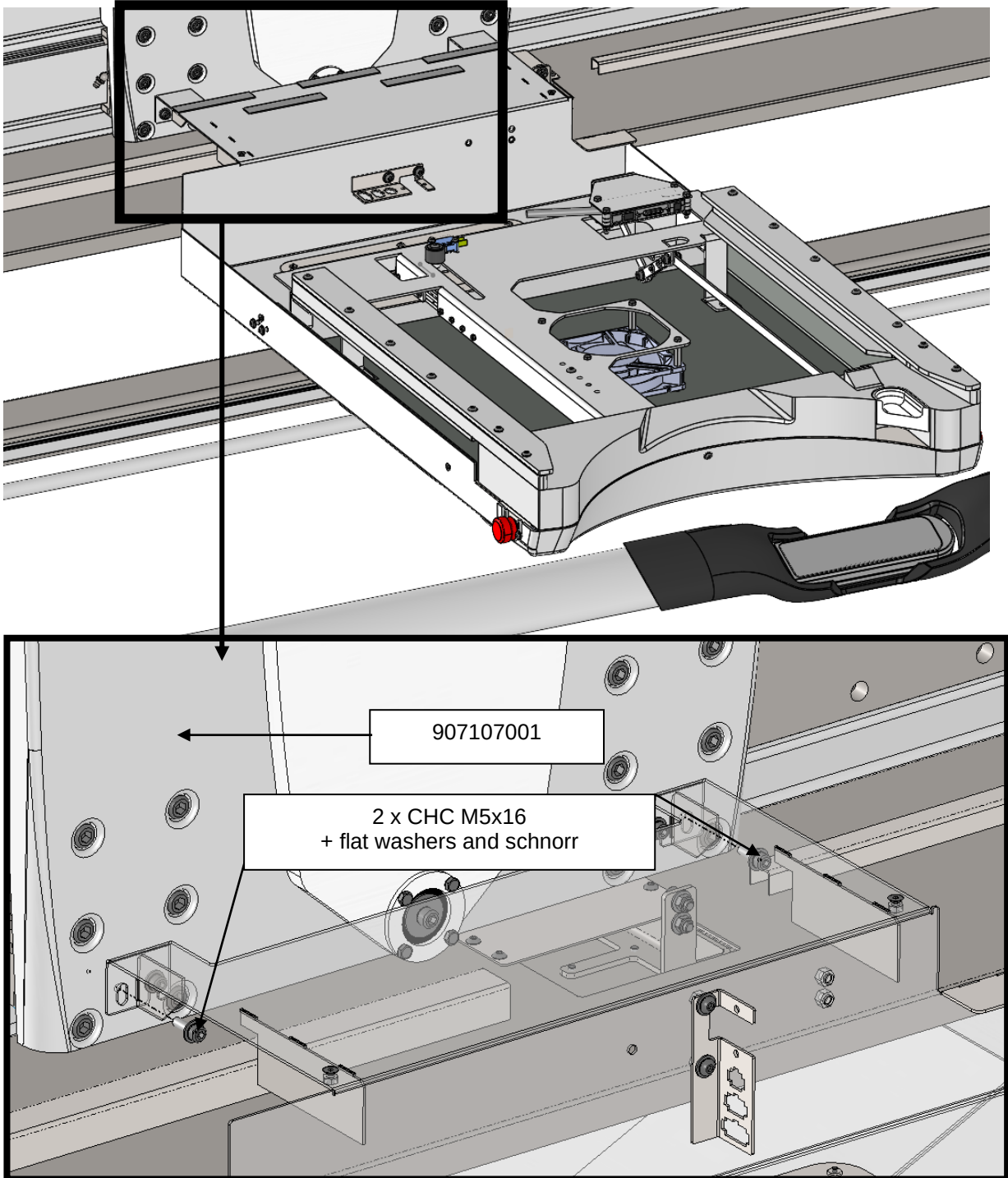


9090 REMOTE CONTROLLED TABLE

Installation

Install the detector holder (9RSCH103SE05) on the remote controlled table passing the frame around the 2 previously mounted screws.

Support the detector holder in the front so that it does not fall and place the last 2 screws CHC M5x16 + flat washers and schnorr in the carriage (907107001). Do not tighten for the moment.

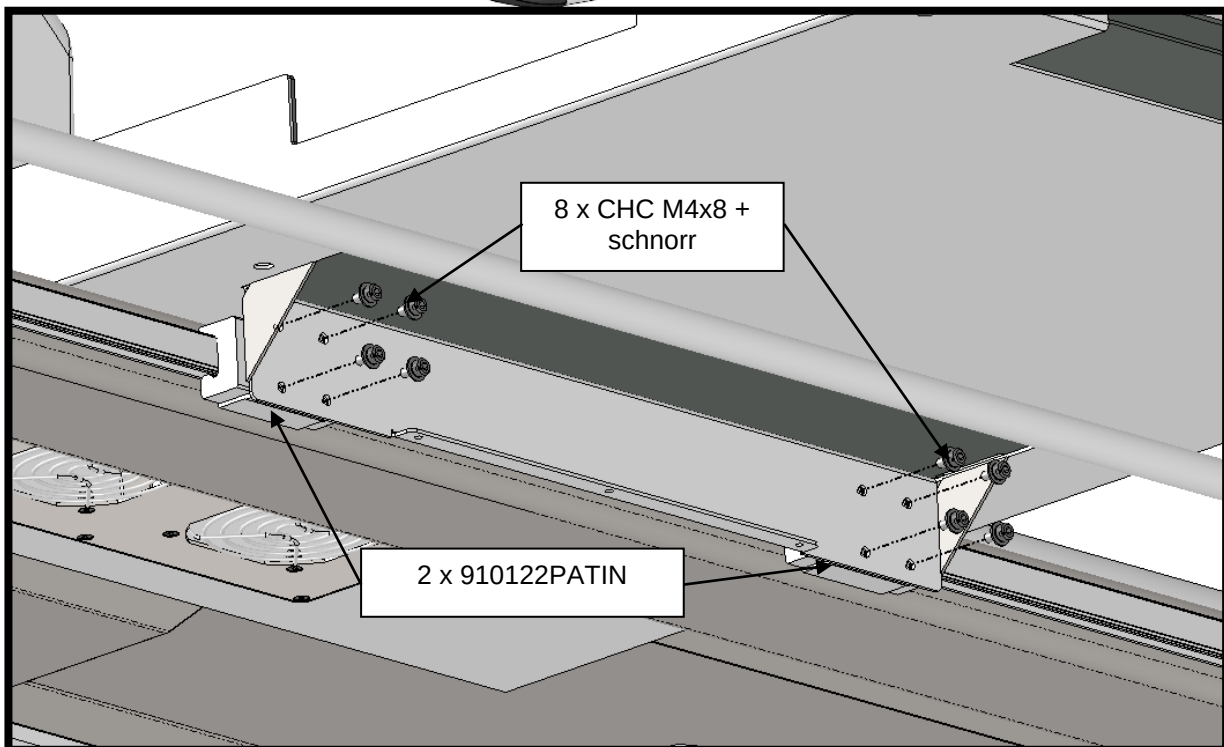
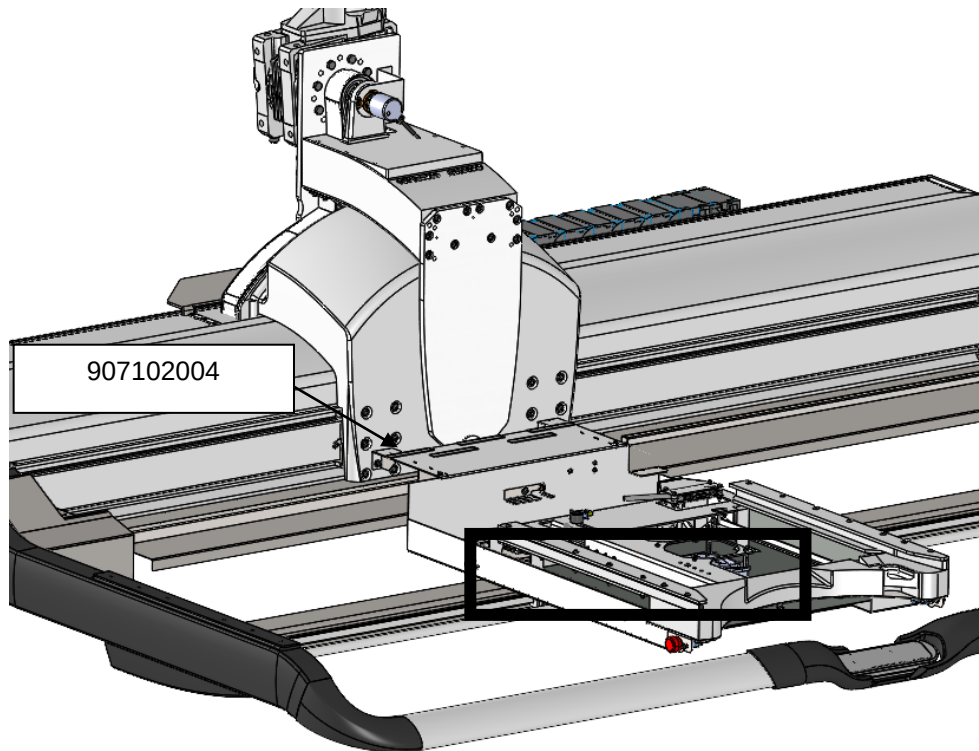


9090 REMOTE CONTROLLED TABLE

Installation

Using 8 screws CHC M4x8 + schnorr, lock the selector on the 2 balls runner blocks (910122PATIN) already present on the rail of the center girder (907102004).

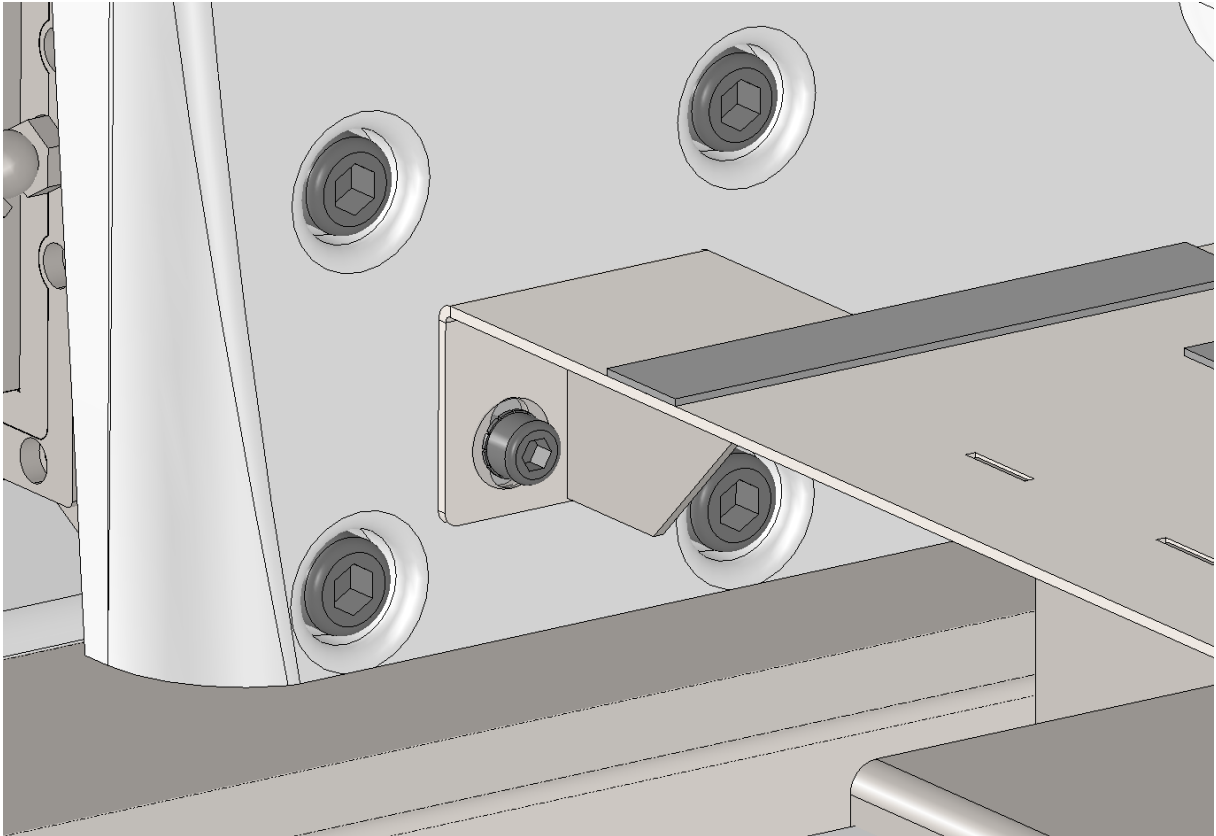
Tightening torque: 3.5Nm.



9090 REMOTE CONTROLLED TABLE

Installation

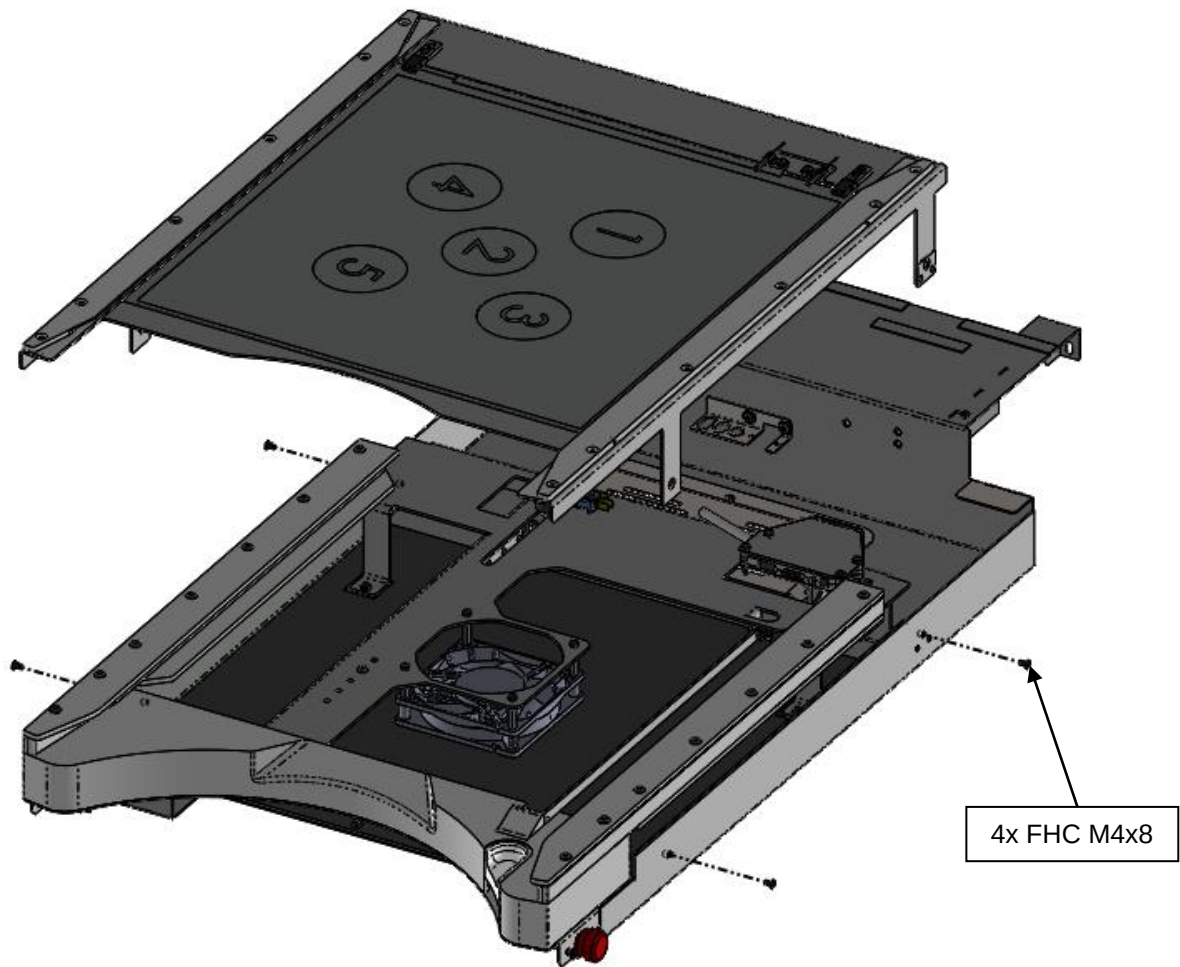
Tighten the 4 screws CHC M5x16 + flat washers and schnorr so that the 2 outer screws are centered on the 2 outer oblong holes of the selector as shown hereafter:



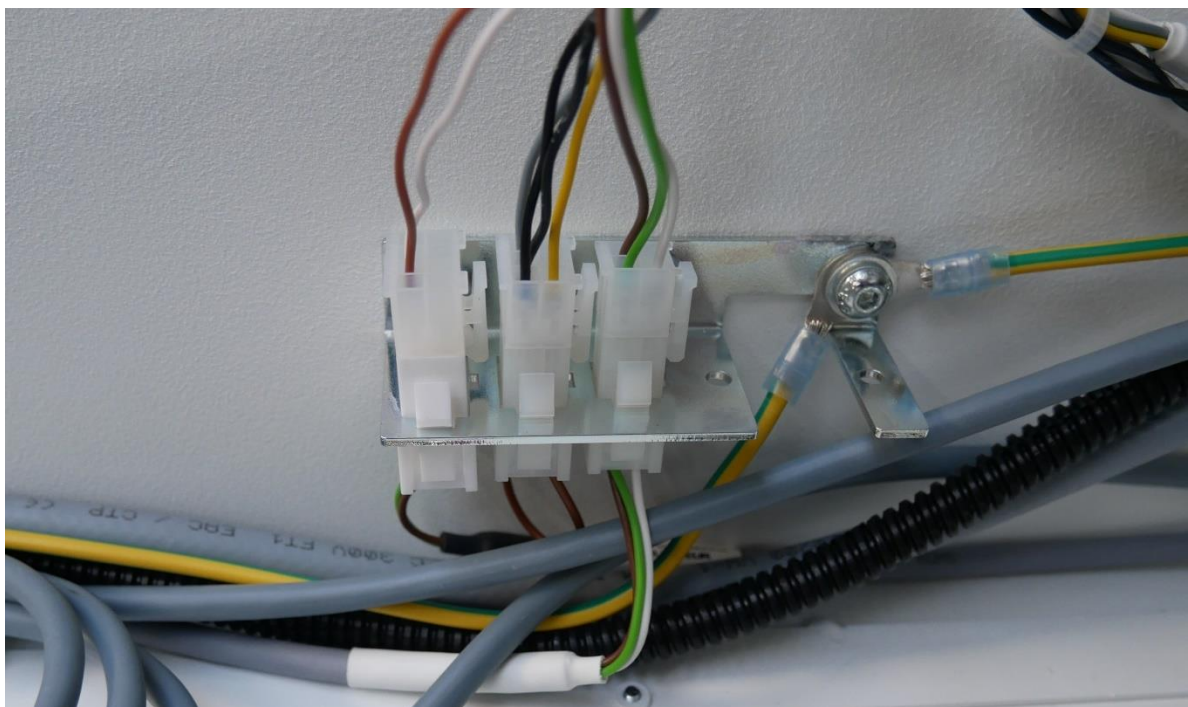
9090 REMOTE CONTROLLED TABLE

Installation

Remove the ionization chamber holder:



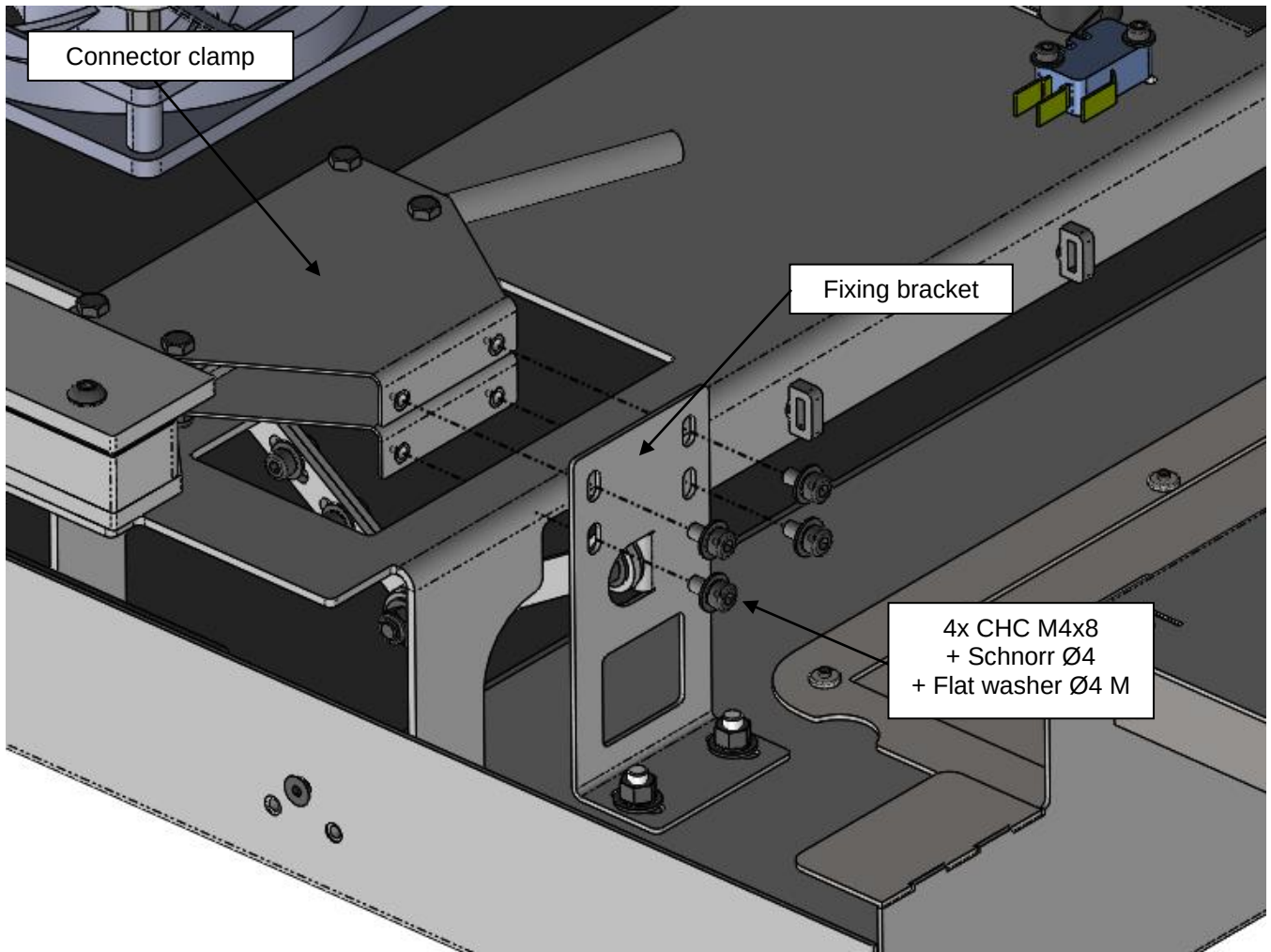
Connect the different connectors located at the back of the detector holder.



9090 REMOTE CONTROLLED TABLE

Installation

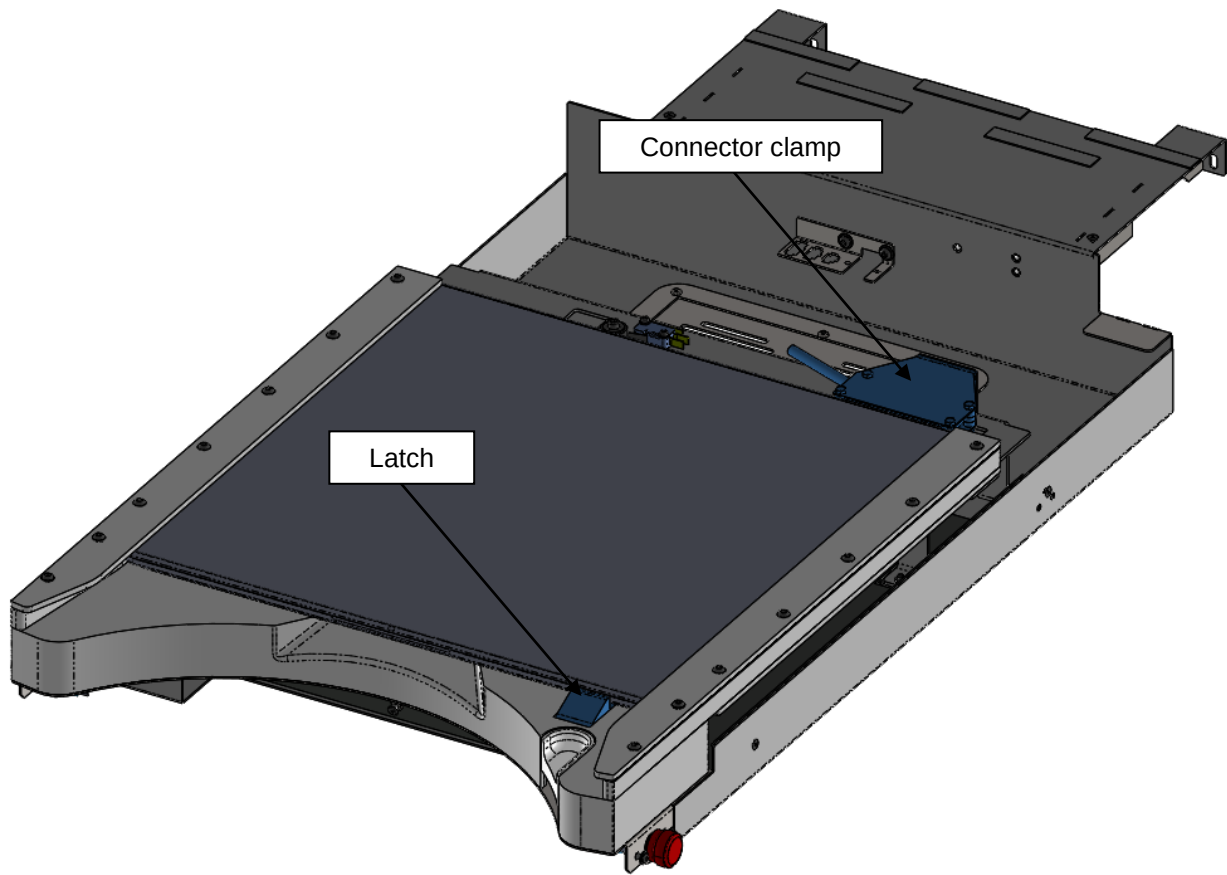
Assemble the connector clamp onto the fixing bracket without tightening the screws.
The 4 CHC screws must be in contact but have free movement clamp.



9090 REMOTE CONTROLLED TABLE

Installation

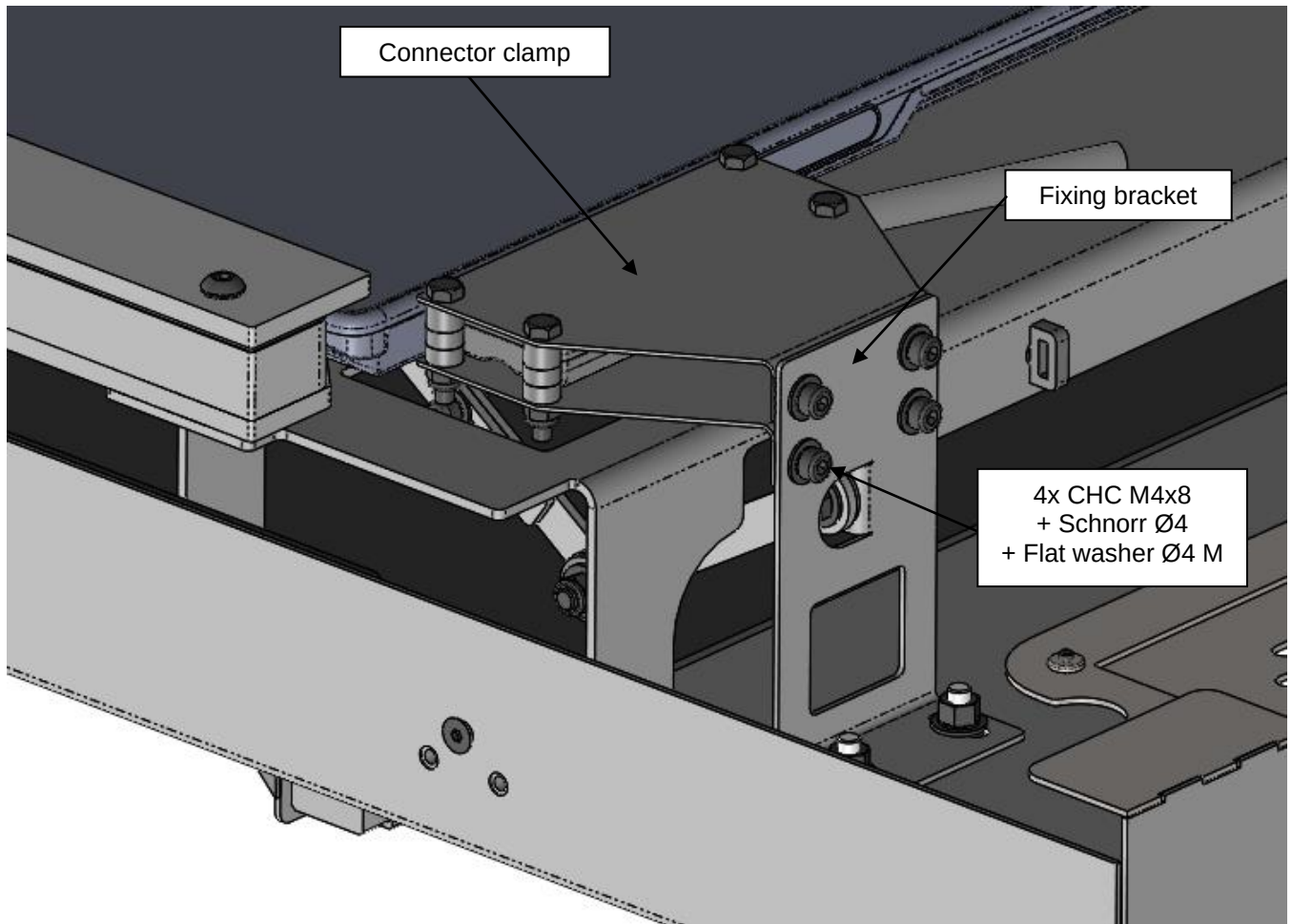
Insert the sensor, ensuring that the connector clamp is correctly magnetized and the front latch is fully up:



9090 REMOTE CONTROLLED TABLE

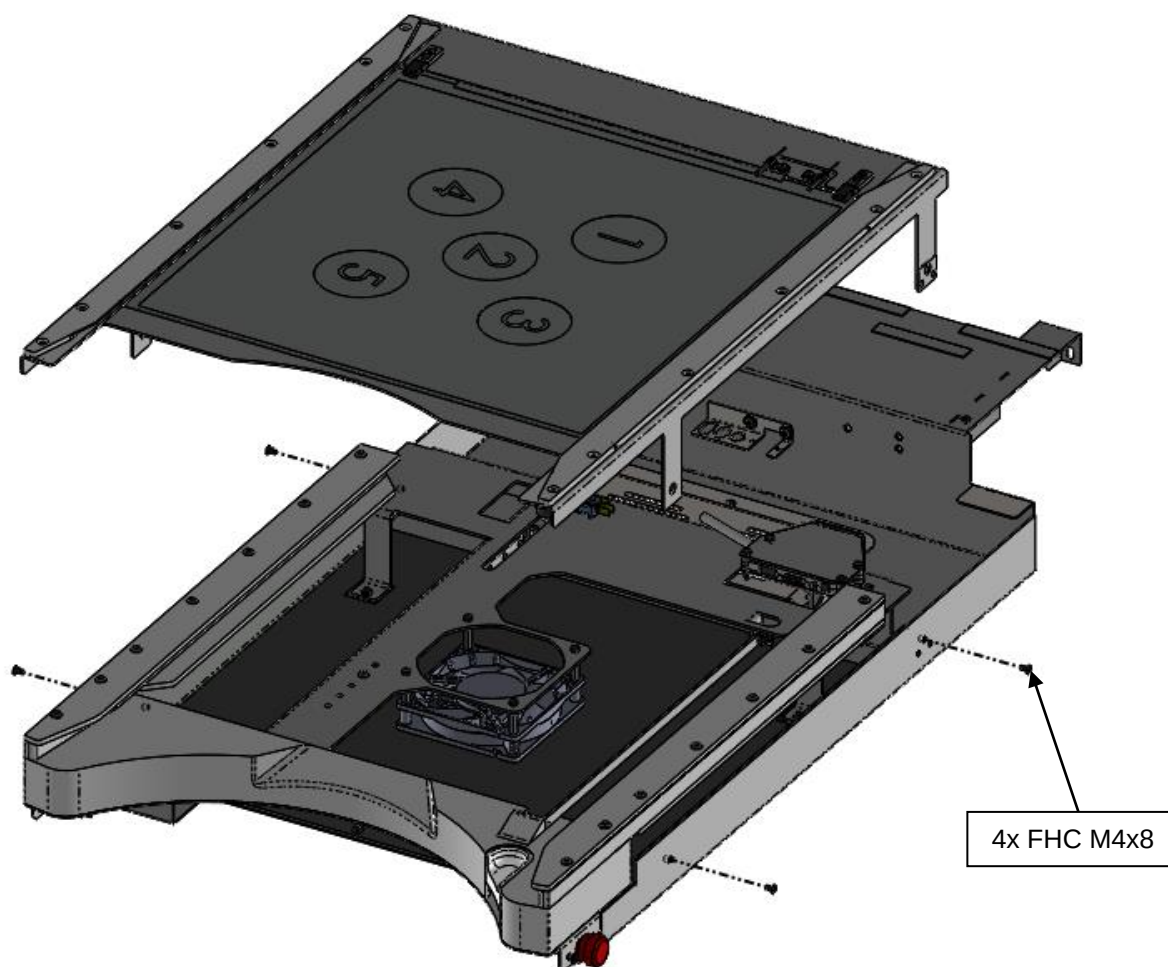
Installation

With **hand** (no tools), screw slightly the 4 CHC screws. Then, tighten the screws to block them:

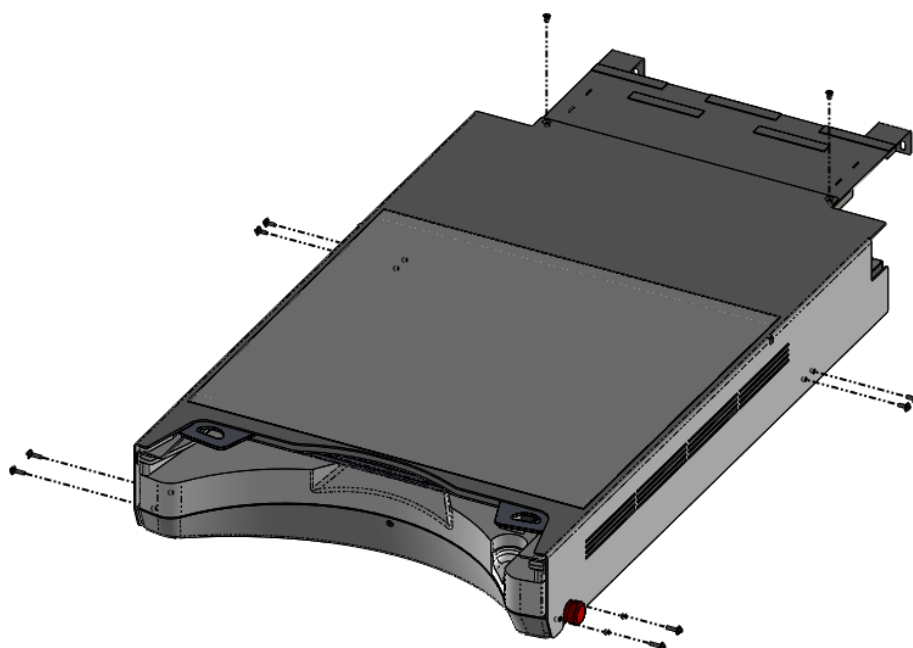


Perform ejection tests with table at 0°, -90° and +90°. If necessary, follow the instruction of section "DETECTOR EJECTION ADJUSTMENT" of MAINTENANCE service manual.

Assemble the ionization chamber holder:

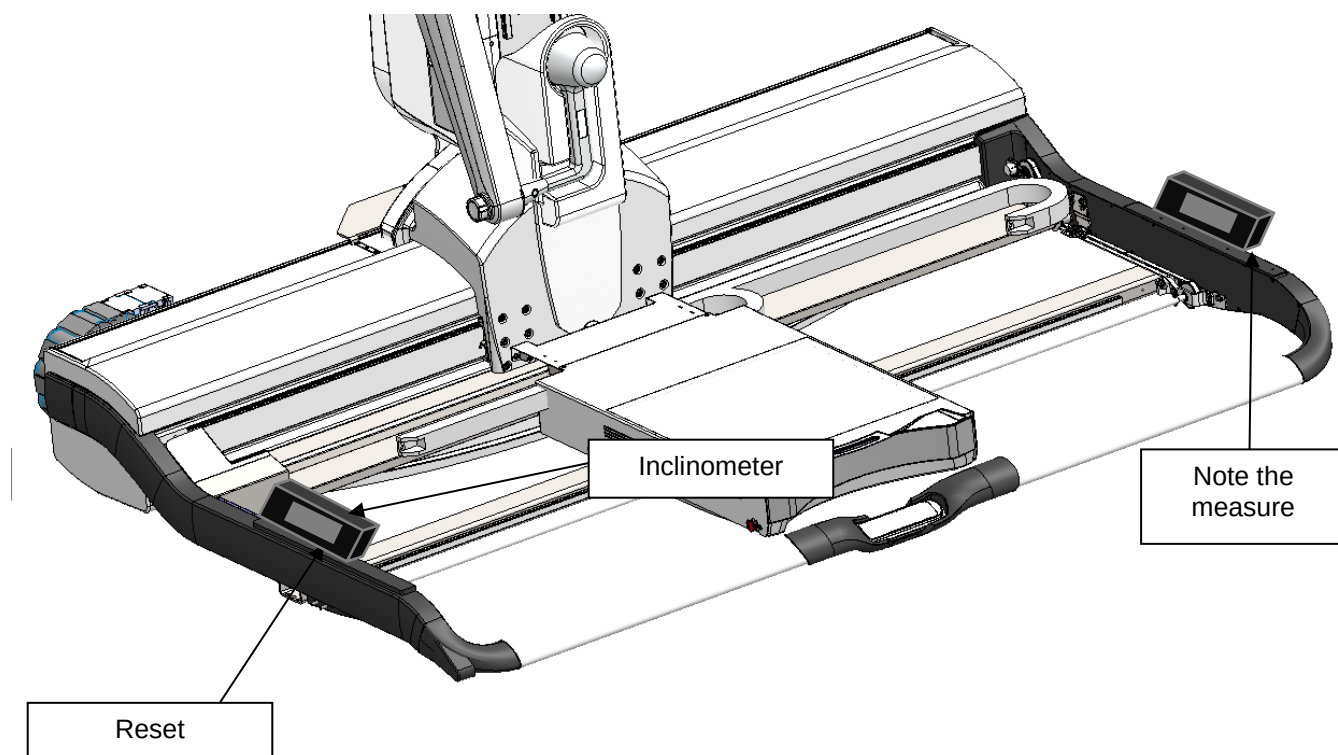


Assemble the selector cover using 2 screws FHC M4x8 and 8 screws CHC M4x16 with Schnorr Ø4 and flat washers Ø4 M. Start by mounting 8 screws CHC without tightening them. Then, by lifting the front of the selector, tighten the 2 screws FHC. Finish by tightening the 4 screws CHC located at the back without completely tightening the 4 screws CHC at the front.

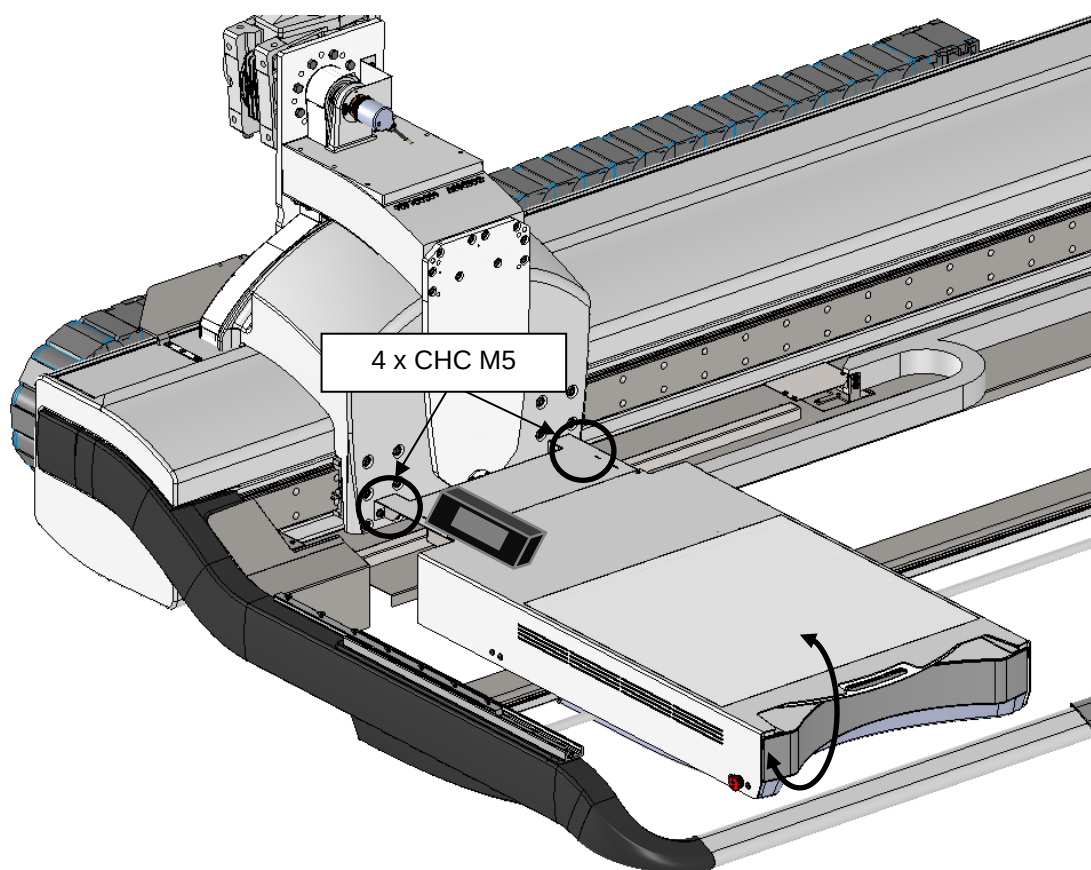


12.3 Adjustment of the detector holder horizontality (for all detectors)

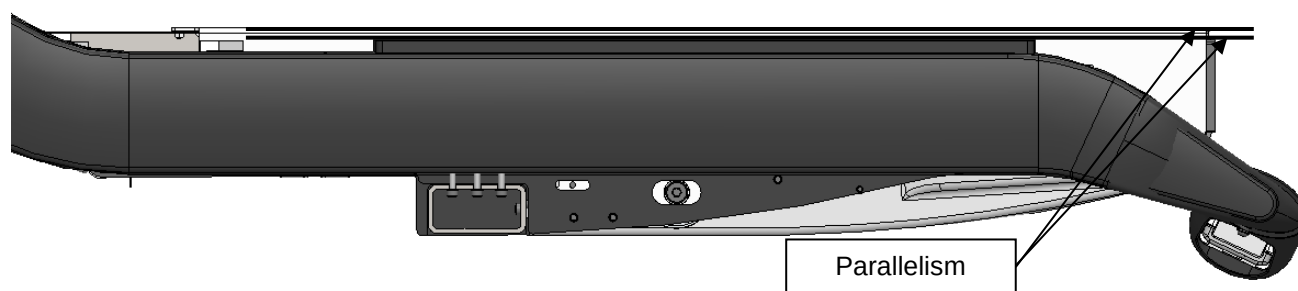
Position the electronic inclinometer on rail of the lateral table top left side and reset it. Then, position the electronic inclinometer on rail of the lateral table top right side and note the measure.



Average these values and adjust the detector holder inclination to this average $\pm 0.2^\circ$. To adjust the inclination, untighten the 4 screws CHC M5 on the carriage and use the oblong holes by tilting more or less the front of the detector holder. Finish by tightening the 4 screws CHC M5.



It is possible to check visually the detector holder horizontality by making sure that the detector holder is parallel to the 2 rails of the lateral table top on the arms:



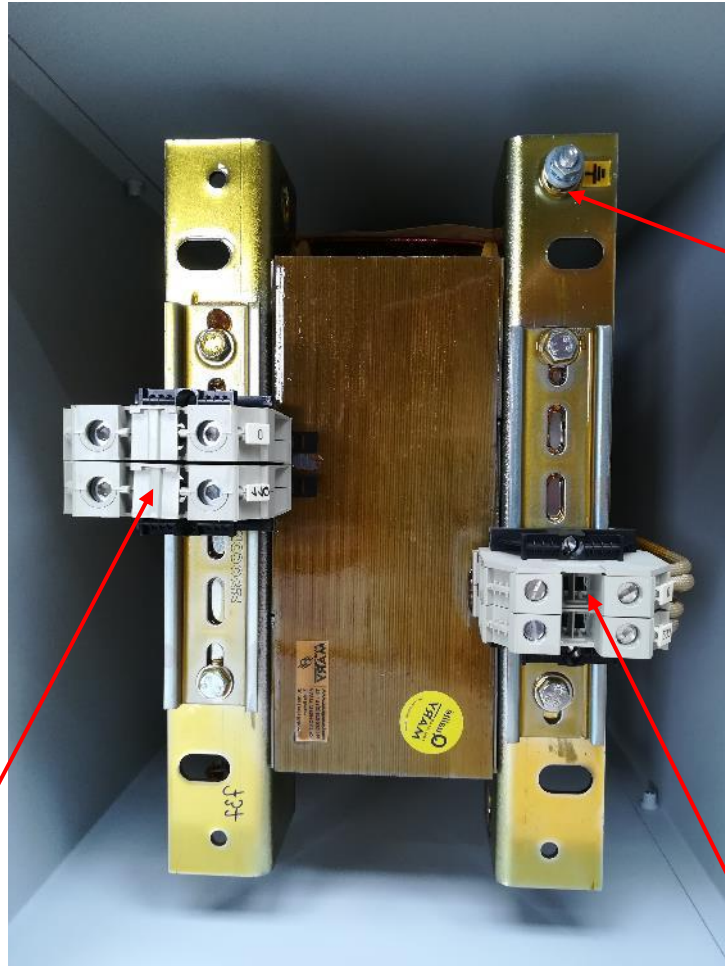
9090 REMOTE CONTROLLED TABLE

Installation

13. TABLE ELECTRICAL CONNECTION

Only for UL/CSA VERSION

Install the transformer TR in order to convert 120VAC power supply onto 230VAC power supply suitable for the table.



Ground cable

Connect the power supply cable coming from the breaker to the primary of the transformer **TR** (120VAC side)

Connect the cable 3Gx2.5² coming from the secondary of the transformer **TR** (230VAC side) on the main switch inside the foot

9090 REMOTE CONTROLLED TABLE

Installation

For both version (CE and UL/CSA)

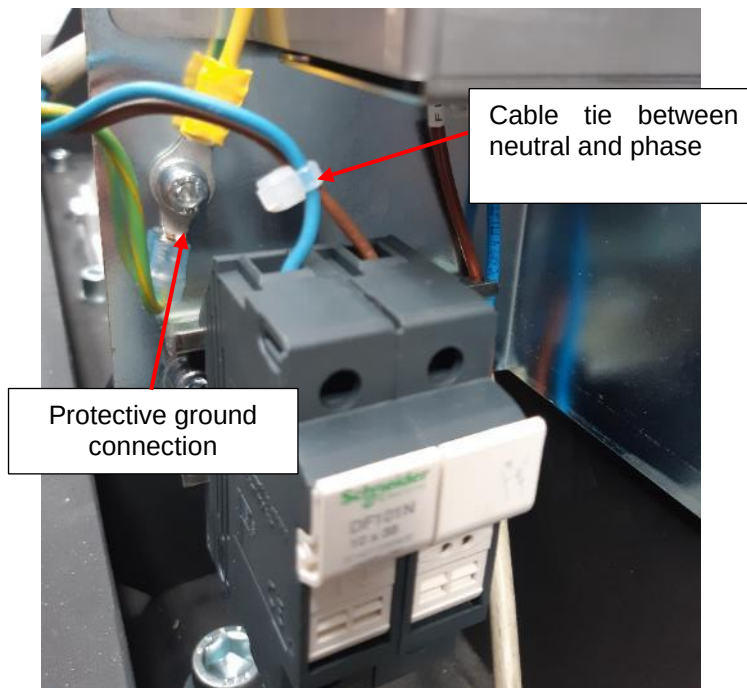
Connect the power supply cable 3Gx2.5² on the main switch.

Connect the Neutral wire in front of the N mark, and the phase on the other terminal. The ground wire must be unsheathed about 12cm long and fixed on the intended stud.

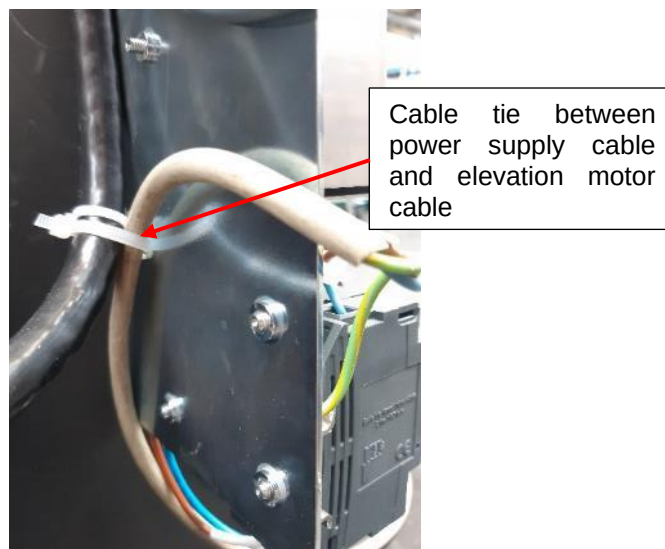


MAKE SURE THAT THE GROUND WIRE IS AT LEAST 10CM LONGER THAN PHASE/NEUTRAL WIRES.

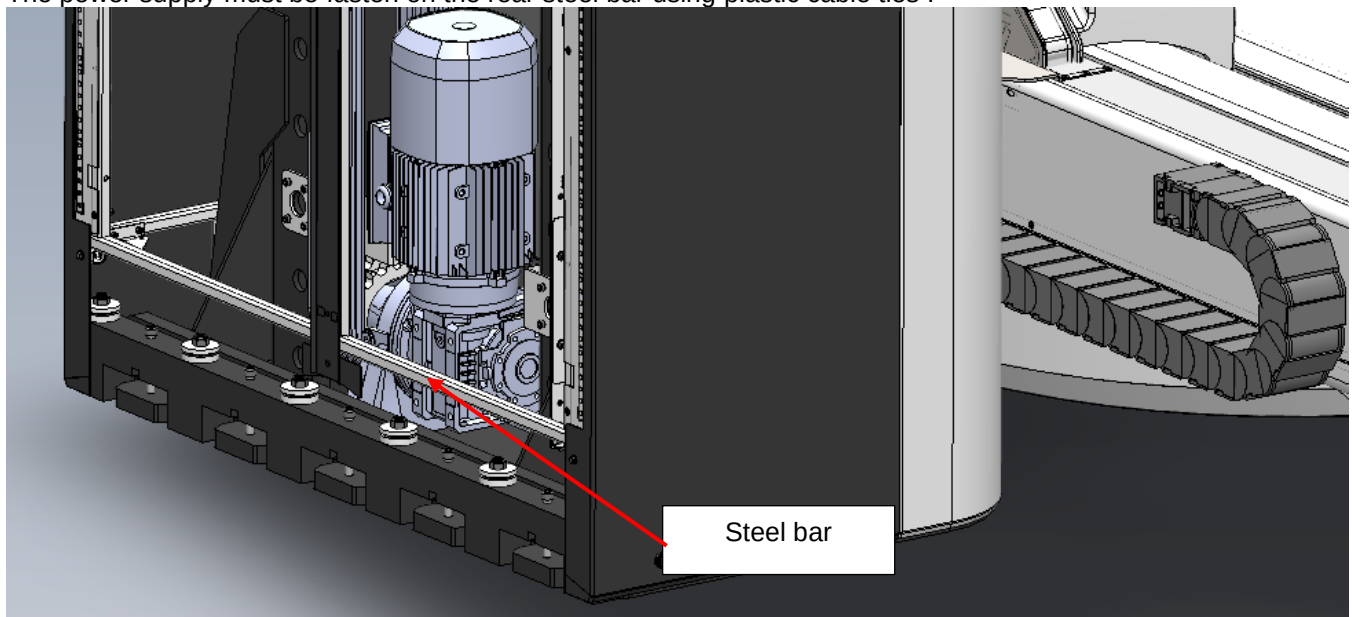
The main ground wire must be fastened at first, against the EMC metal sheet. Fasten neutral and phase cable together :



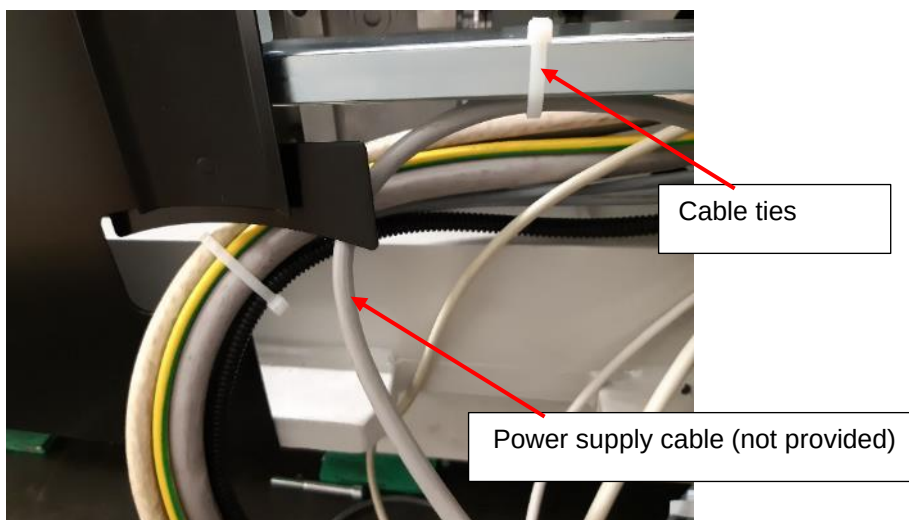
Fasten the power supply cable to the elevation motor cable:



The power supply must be fastened on the rear steel bar using plastic cable ties :



Power supply cable fastening (rear of the foot) :



14. CONSOLE ELECTRICAL CONNECTION

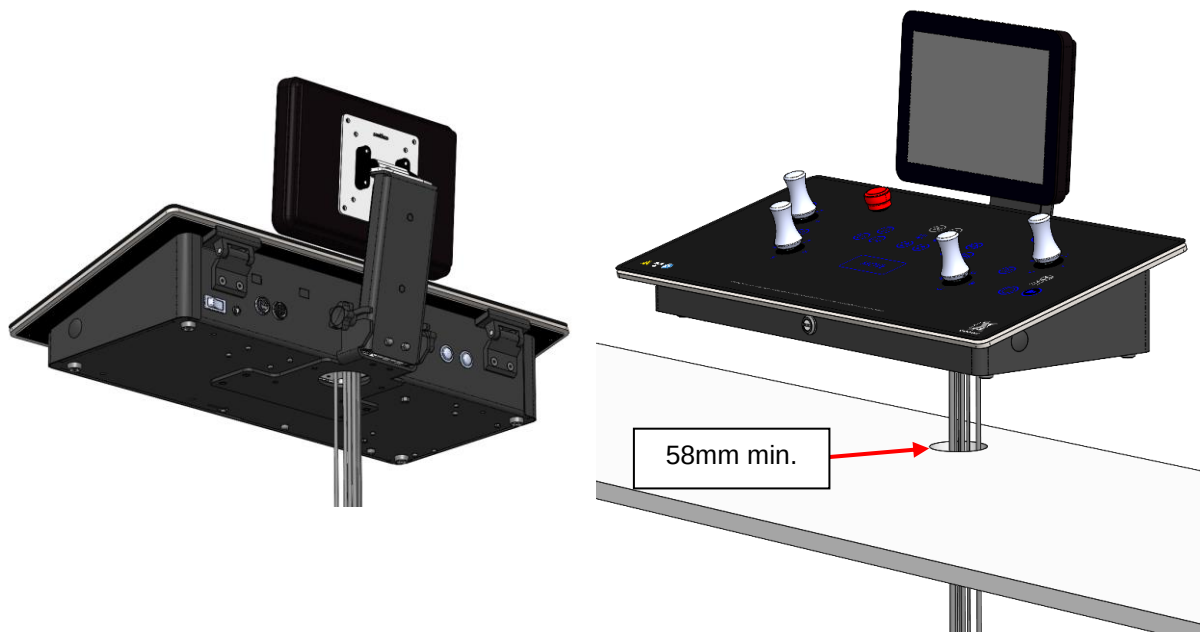
14.1 Wiring of main console (console side)

Switch off the main power supply



Fix the screen stand 9RSCH119SE05 with the 4 M6 screws and flat washer

You can run the cable through the hole on the screen stand. This way, drill a hole a least of 58mm on the table.



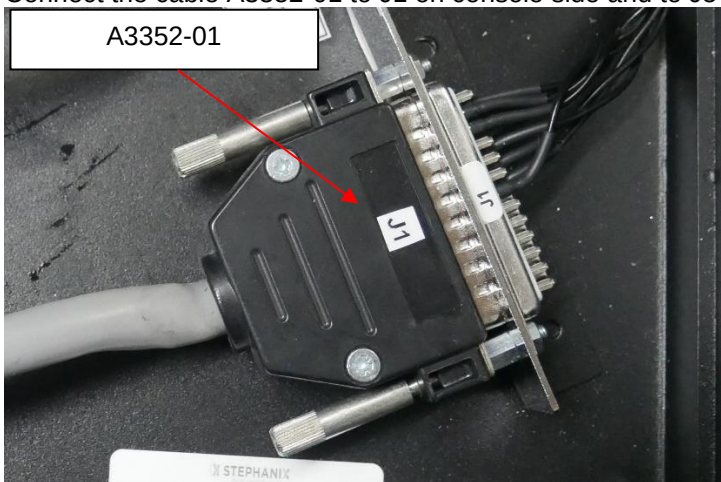
9090 REMOTE CONTROLLED TABLE

Installation

Connect the cable 923630210 EARTH CABLE CONSOLE to the ground strap of the console:



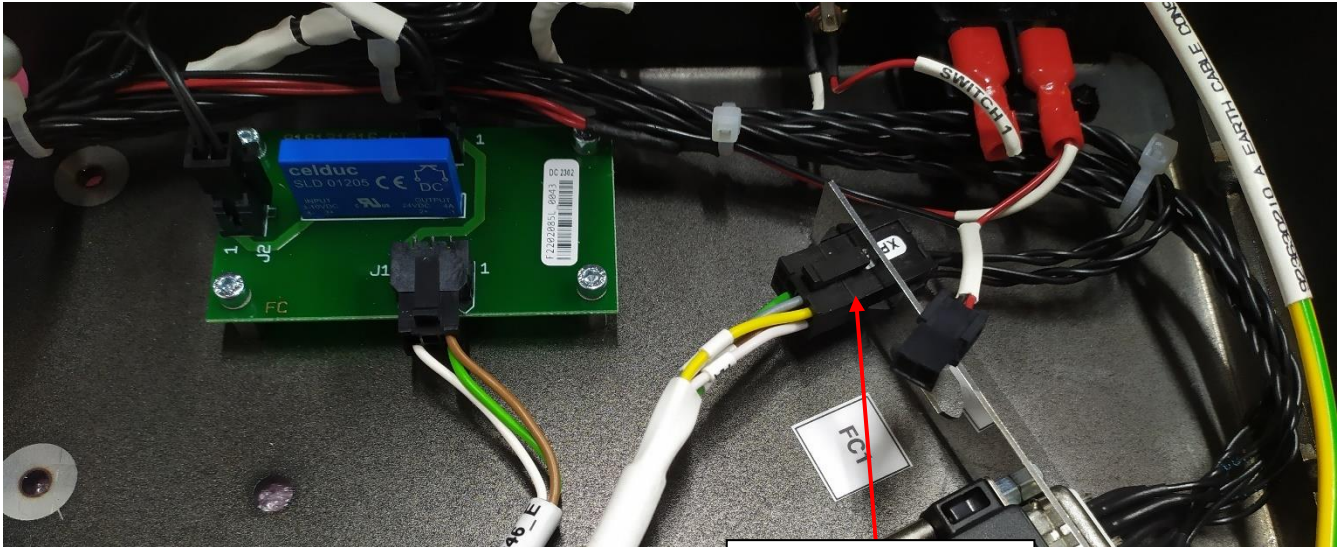
Connect the cable A3352-01 to J1 on console side and to J5 on generator side



Connect 919630137_ON-OFF TABLE cable.

9090 REMOTE CONTROLLED TABLE

Installation

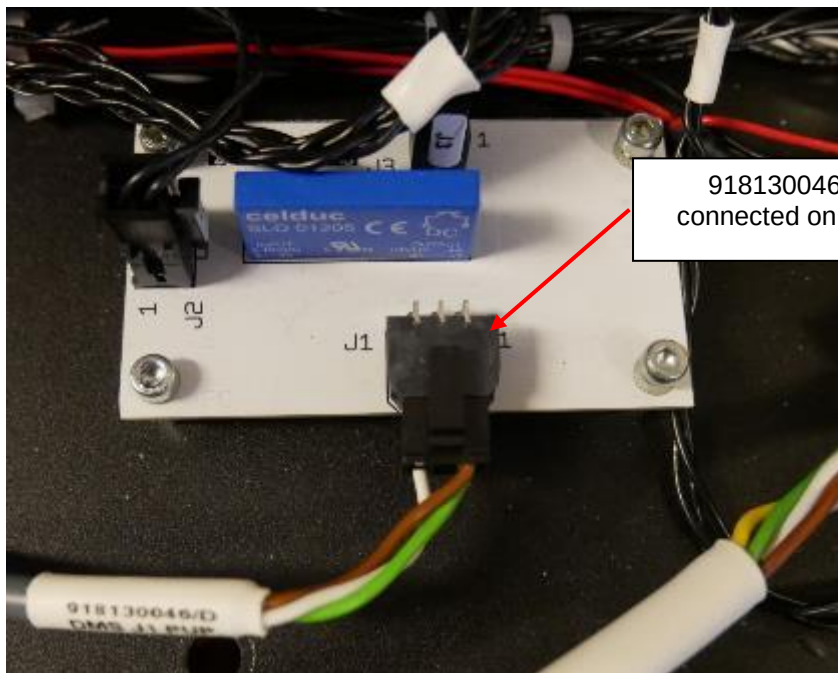


919630137

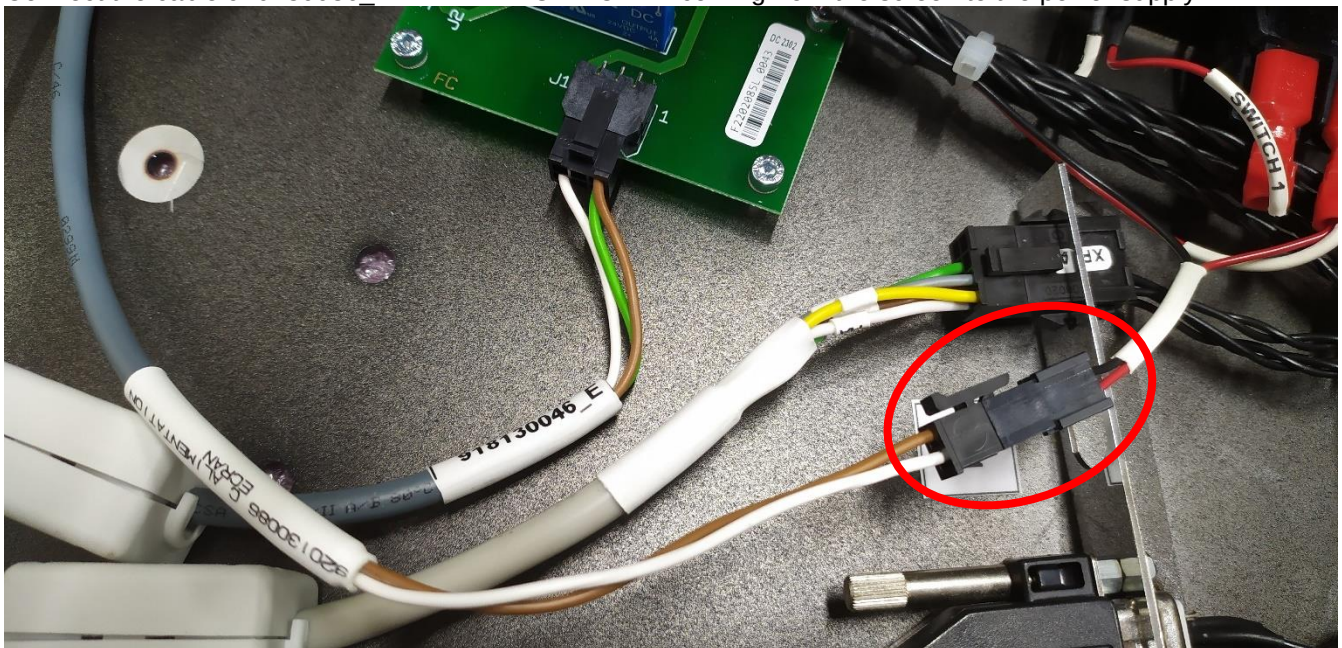
9090 REMOTE CONTROLLED TABLE

Installation

Connect the cable 918130046_CONSOLE DMS CABLE on J1 of DMS insulation board (918131016) :



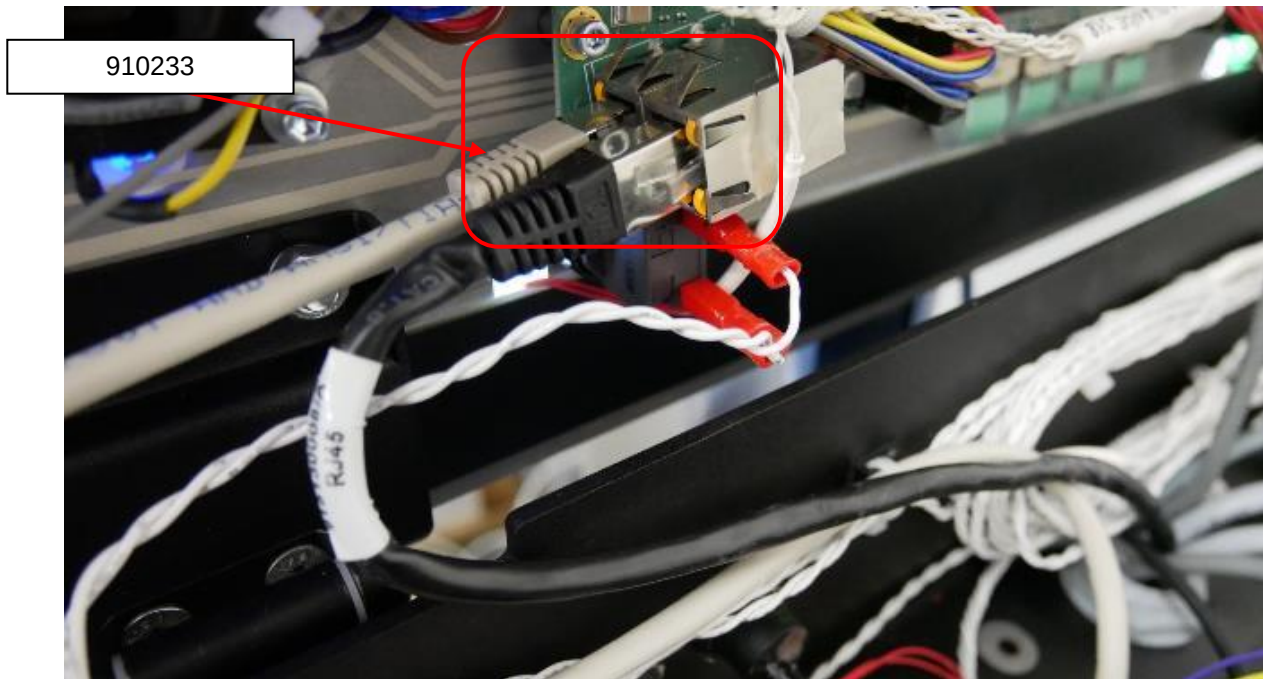
Connect the cable 920130086_ALIMENTATION ECRAN coming from the screen to the power supply



9090 REMOTE CONTROLLED TABLE

Installation

Connect the ethernet cable 910233 on the RJ45 of interface board 917131010:



connect Video and USB cables coming from screen:

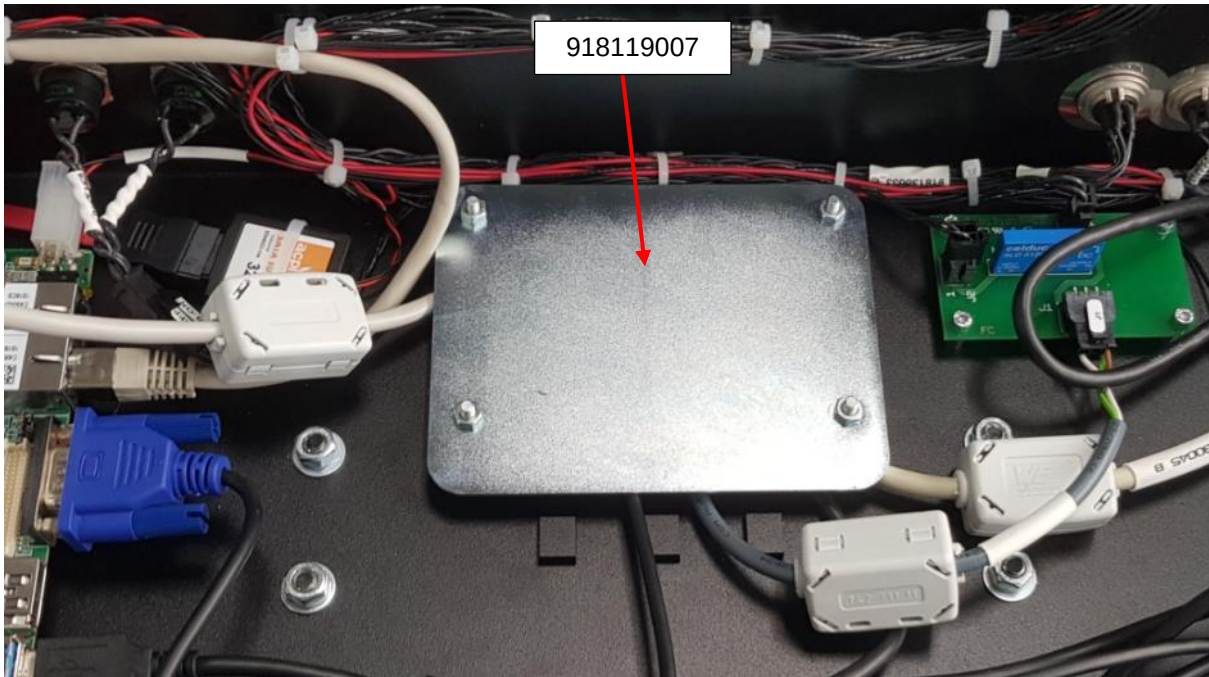
Advantec type PC board:



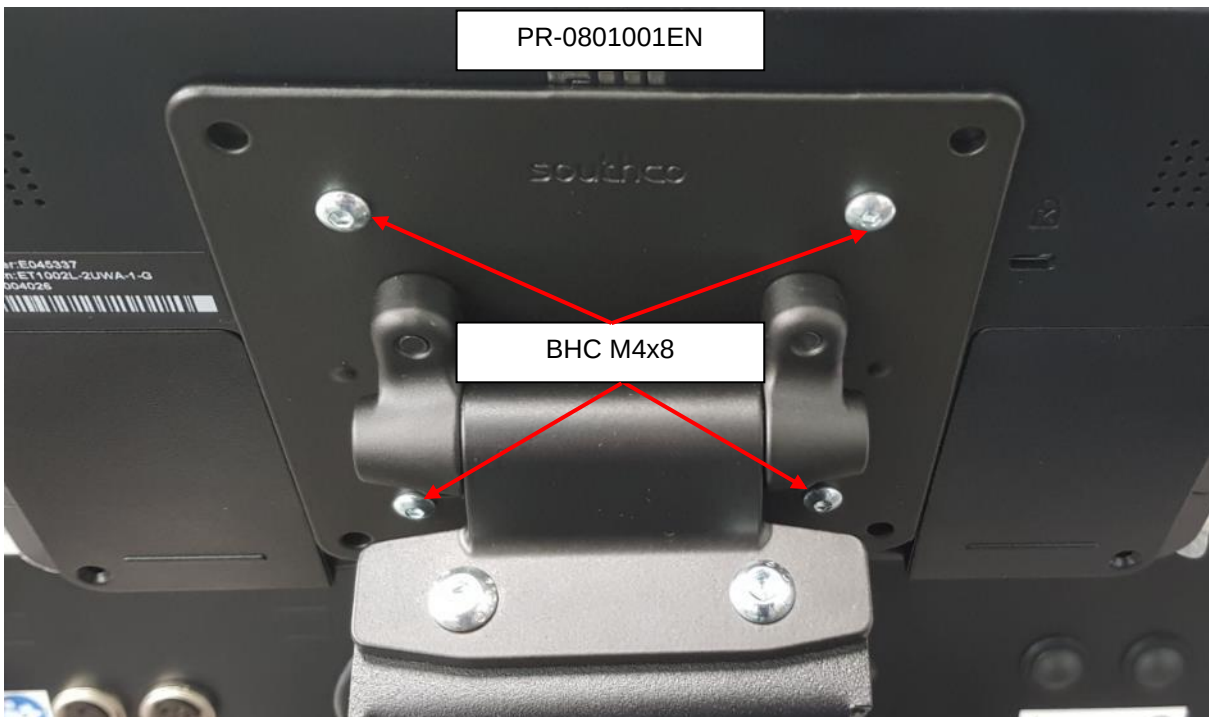
MSI type PC board:



Put back the closing plate (918119007)



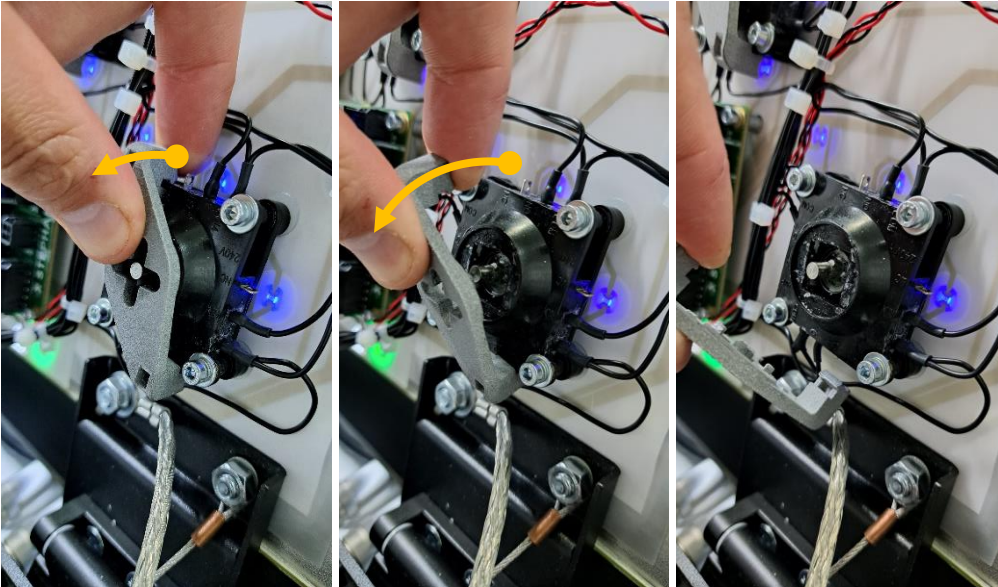
Mount the touchscreen (PR-0801003EN) with 4 BHC M4x8



9090 REMOTE CONTROLLED TABLE

Installation

The joystick cross limiters is removable if the customer doesn't want the axes of the joystick to be guided:



Connect the jack connector on the back of the console:

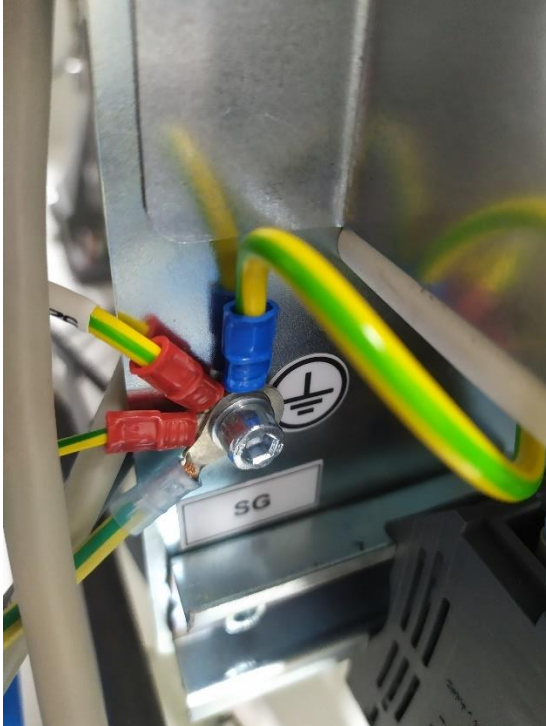


The power supply of the console is GSM60A12. **Do not use another power supply.**

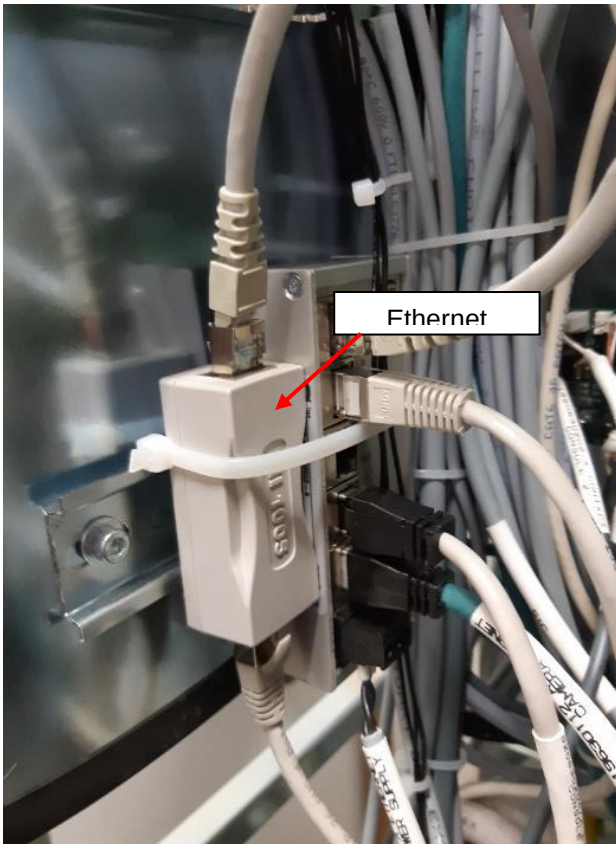


14.2 Wiring of main console (table side)

Connect the cable 923630210 EARTH CABLE CONSOLE to the ground of the foot (left side).



Connect the ethernet cable coming from console to the ethernet isolator PR-0303036EN with PR-0301050EN ethernet cable.



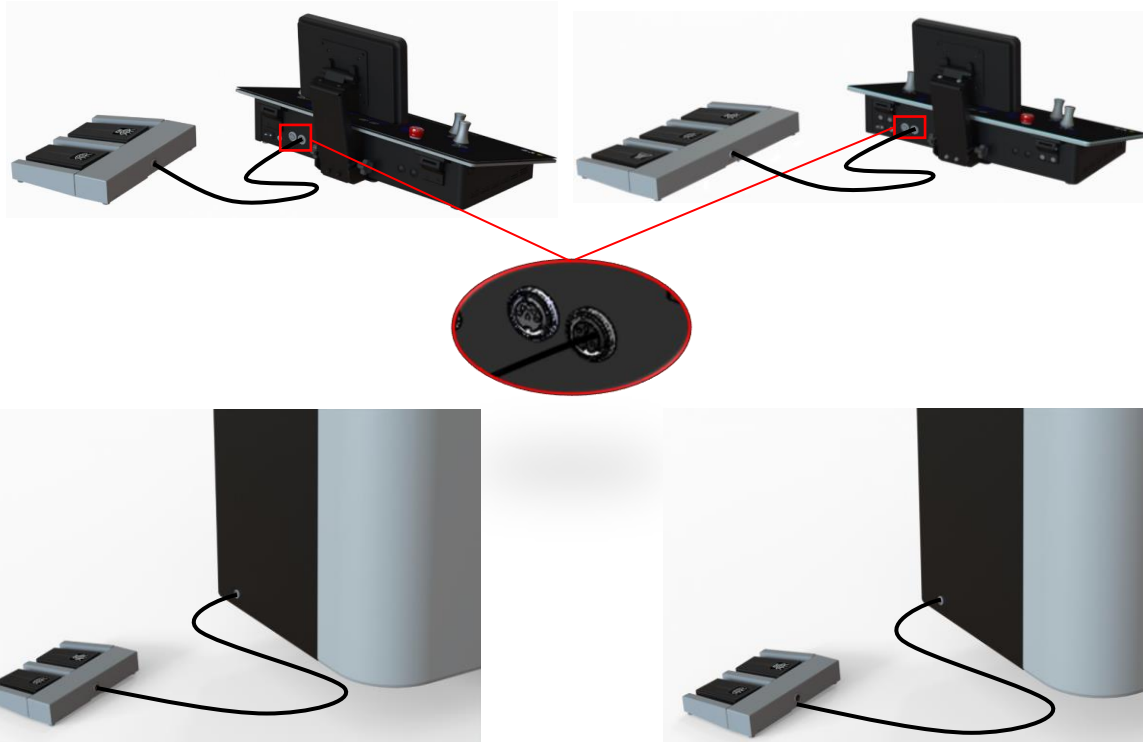
Connect 919630137 ON/OFF cable to J11 of dispatching board (919631004)

Connect 918130046 DMS cable to J9 of control board (910005)

15. PEDALS AND EXPOSITION HANDSWITCH CONNECTION

15.1 Pedals connection

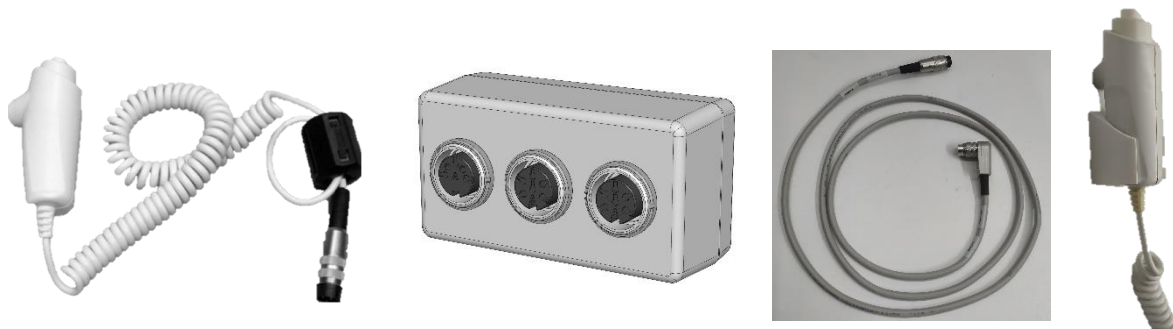
The pedals are intended to be plugged either in the main console or directly plugged on the table's foot or in the second console (if the option is selected) if used in the exam room. The pedal can also be connected to the handswitch/pedal box if the exposition handswitch option is selected (see next section).



Two types of pedals are available: the double pedals and the triple pedals.

15.2 Exposition handswitch connection

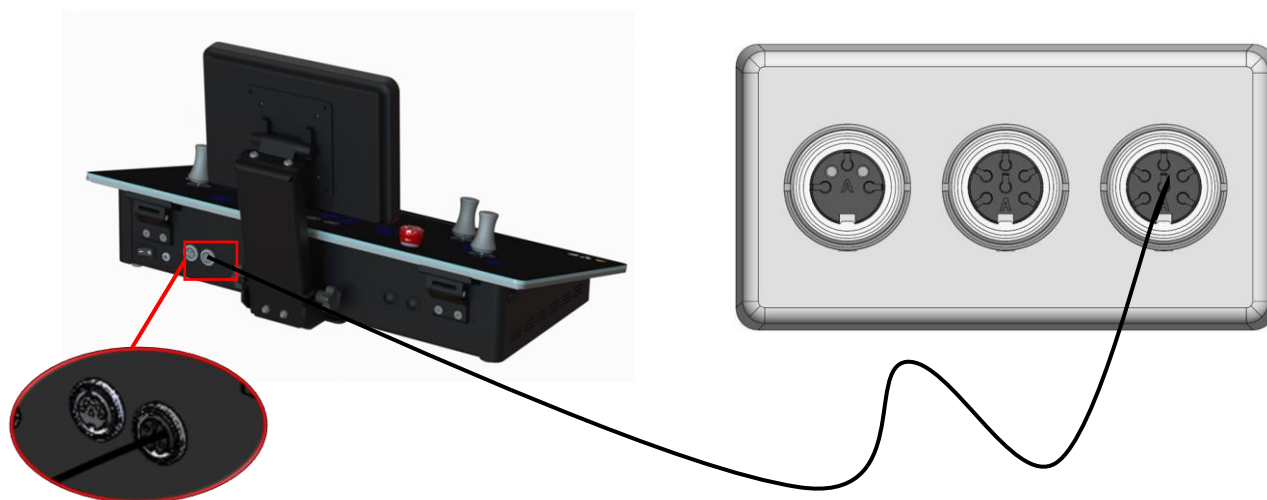
The exposition handswitch is provided with the handswitch/pedals box, its cable and its holder.



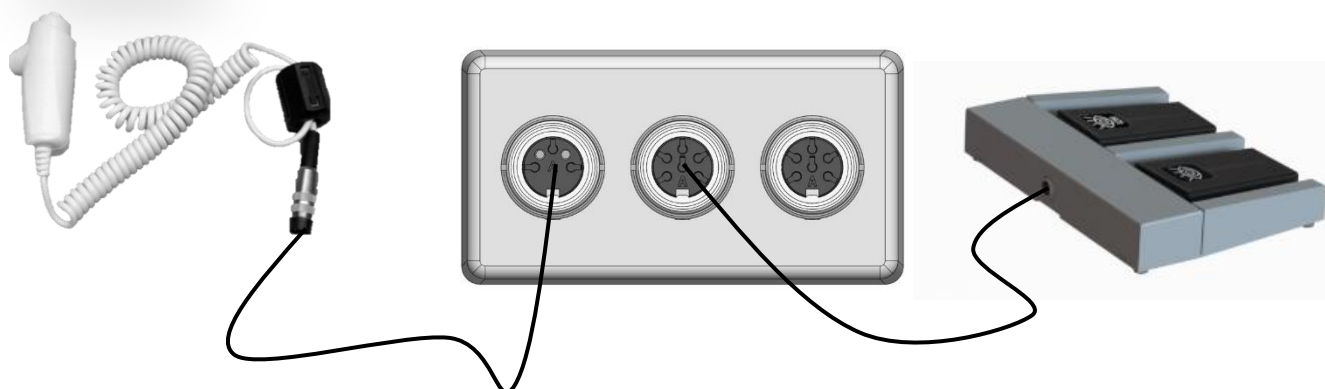
The exposition handswitch is intended to be connected to the main control console.

To connect the exposition handswitch:

- Plug the box in the main console on the footswitch connector (see previous section), using the cable supplied.



- Plug the exposition handswitch and the footswitch in the box.



The box must be positioned at least one meter above the floor

9090 REMOTE CONTROLLED TABLE

Installation

The exposition handswitch must be positioned behind the leaded screen on the wall/glass facing the user, at a height of at least 35cm from the table. When the handswitch is not used, it must be placed on its support.

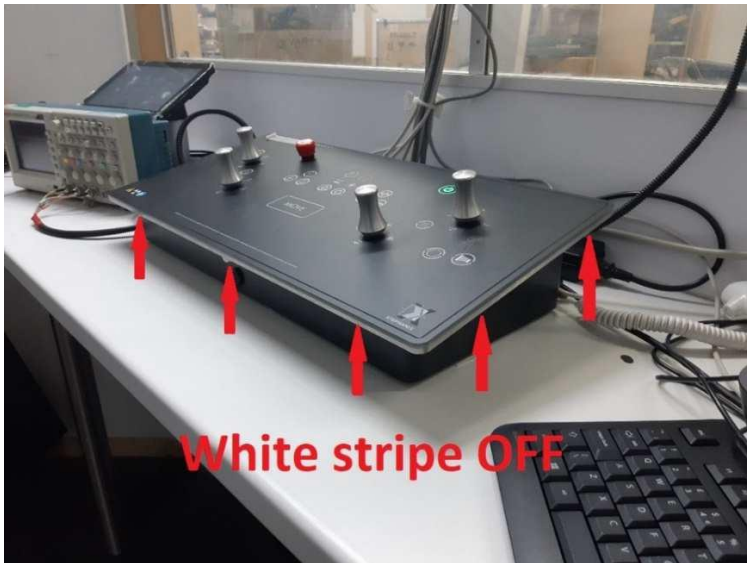


16. FIRST SWITCHING ON

- Switch off the main switch.
- Check the AC power supply (1 phase 230V)
- Check that all connectors are correctly plugged in.
- Once these checkings done, switch on the main switch.

At the beginning of the D2RS installation “POSITIONNER” and “PUPITRE” applications are not launched.

The console is not connected to the table PLC board (the white LED strip is not lit). So, NO TABLE MOVEMENTS ARE POSSIBLE.



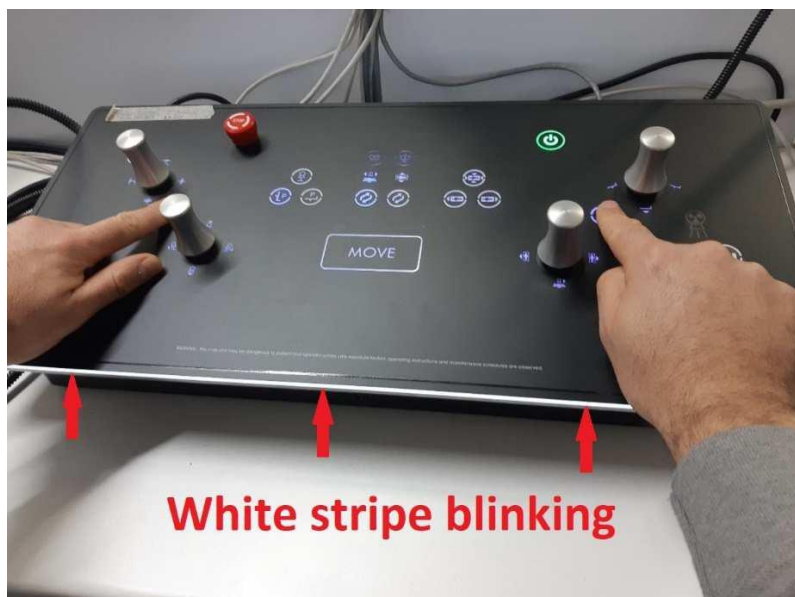
From Release STX26, it is possible to move the table with the console in “forcing mode”.

In FORCING MODE and without POSITIONNER AND PUPITRE applications, the table movements are then allowed.

It needs to press simultaneously the left and right collimator light center buttons for 3 seconds on Capacitive Console or collimator light and AUTO key on the previous console.



WARNING: YOU HAVE 20 SECONDS AFTER THE STARTING OF THE TABLE TO ENTER IN “FORCING MODE”



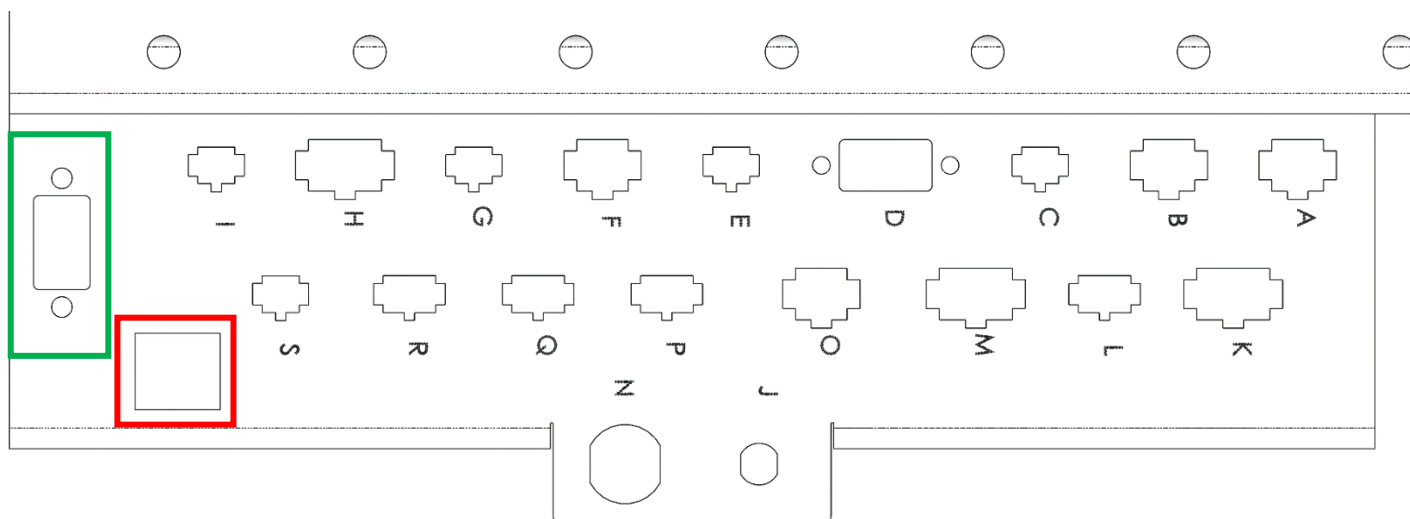
The white stripe blinks and the console switches to “forced table control” mode.

NOW, THE TABLE MOVEMENTS ARE POSSIBLE.

If you want to exit from the “forced mode”, please restart the table. Anyway, “forced mode” is deactivated after 20min.

17. CONNECTORS SUPPORT

Connect all the connectors on the support following the table below :



919630101	919630001	A	Carriage & angulation brake
919630102	919630002	B	Inverters power supply
919630103	919630003	C	Emergency stop
919630104	919630004	D	SID & Long T.T potentiometer
919630105	919630005	E	DMS remote
919630106	919630006	F	Tube fans
919630107	919630007	G	Remote board
919630108	919630008	H	Tube brake & camera
919630111	919630011	I	Collimator
919630112	919630012		Camera
919630113	919630013	J	Lateral T.T potentiometer
919630114	919630014	K	SID & Lat T.T motor
919630116	919630016	L	SID EOT
919630116	919630054	P	Grid sensor
919630118	919630018	M	Gauge & Compression
919630119	919630019	N	Compression potentiometer
919630121	919630021	O	Compression motor
919630160	919630060	Q	Column LED
919630161	919630061	R	Tube LED
919630162	919630062	S	Detector holder fan

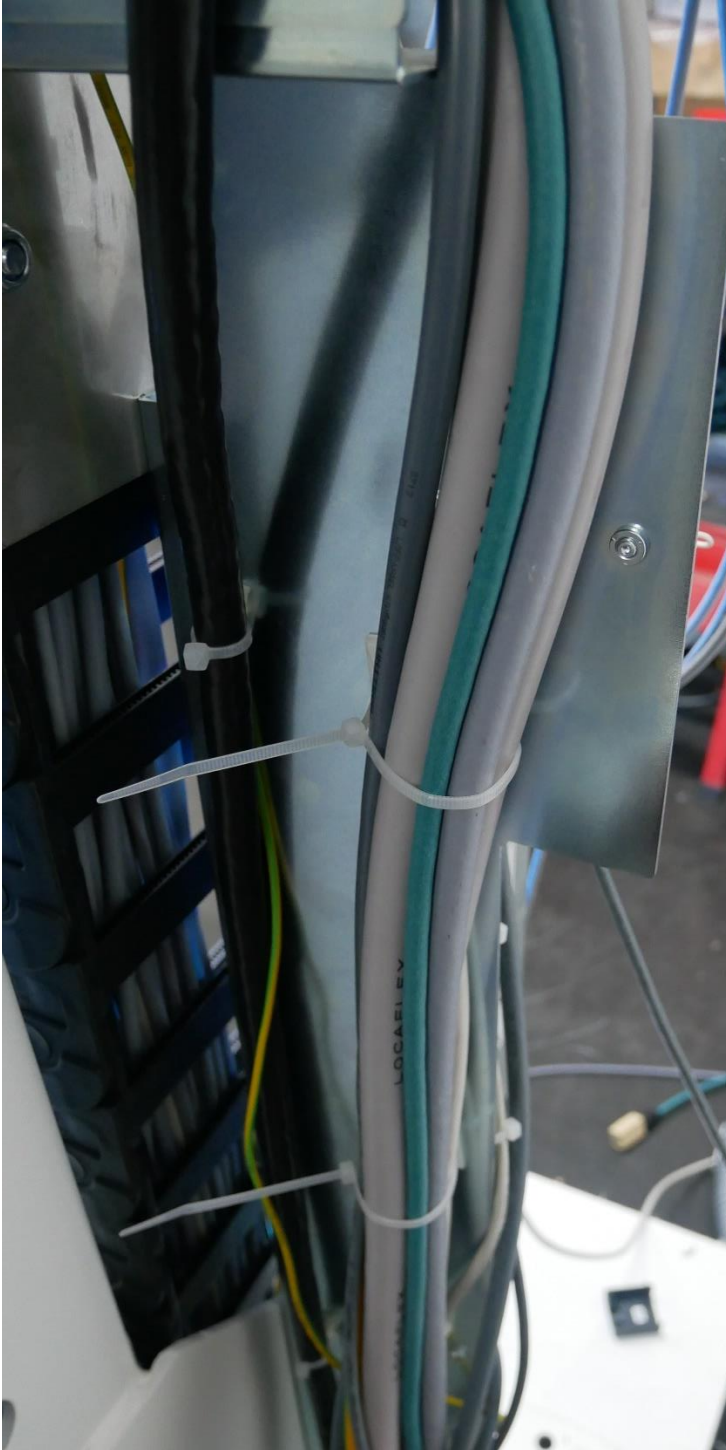
Cables 919630112 & 919630012 are connected on the RJ45 coupler in red on the drawing.

Cables 918130044 & PR-0301073EN are connected on the DSUB/RJ45 board in green on the drawing.

18. GENERATOR CONNECTION

Connect all the cables from the X-ray tube to generator (high voltage cable, anode cable and earth cable). Follow the cable run as indicated below :





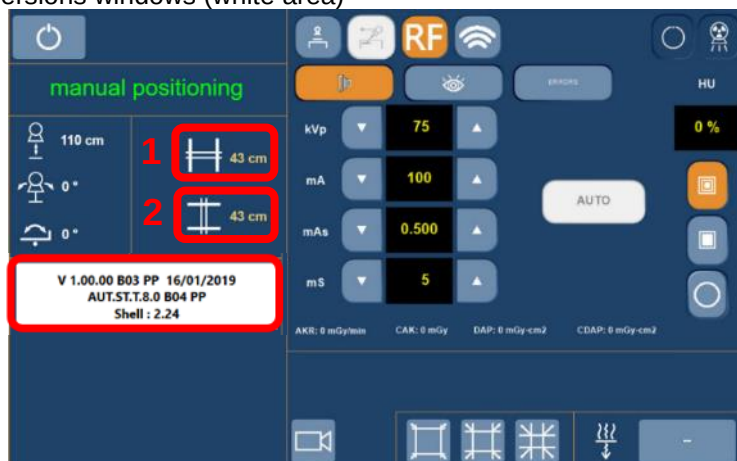
Then use the covers aperture at the back of the table.

19. TABLE CONFIGURATION (TECHMODE)

19.1 TechMode access

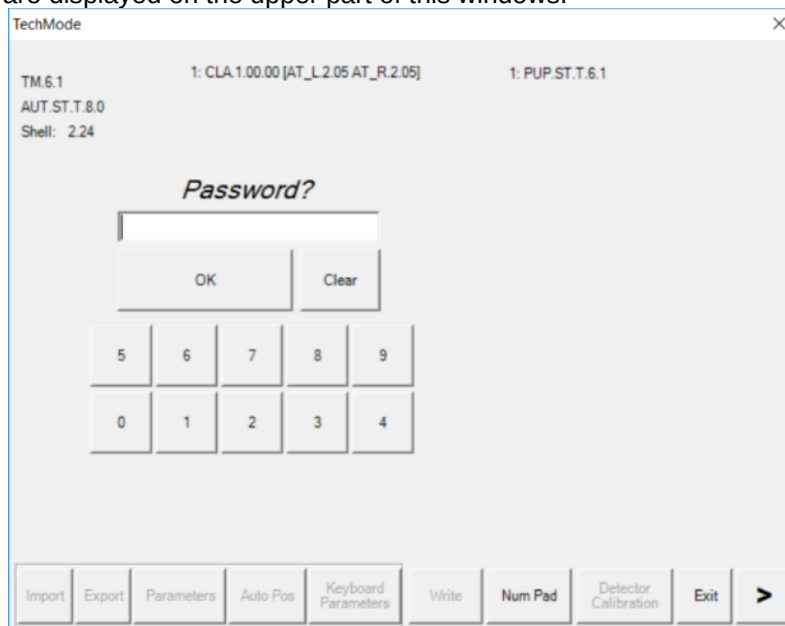
To access the “technical mode” from the console,

- press on area 1 then area 2 then area 1
- double-click on versions windows (white area)



The following screen is displayed:

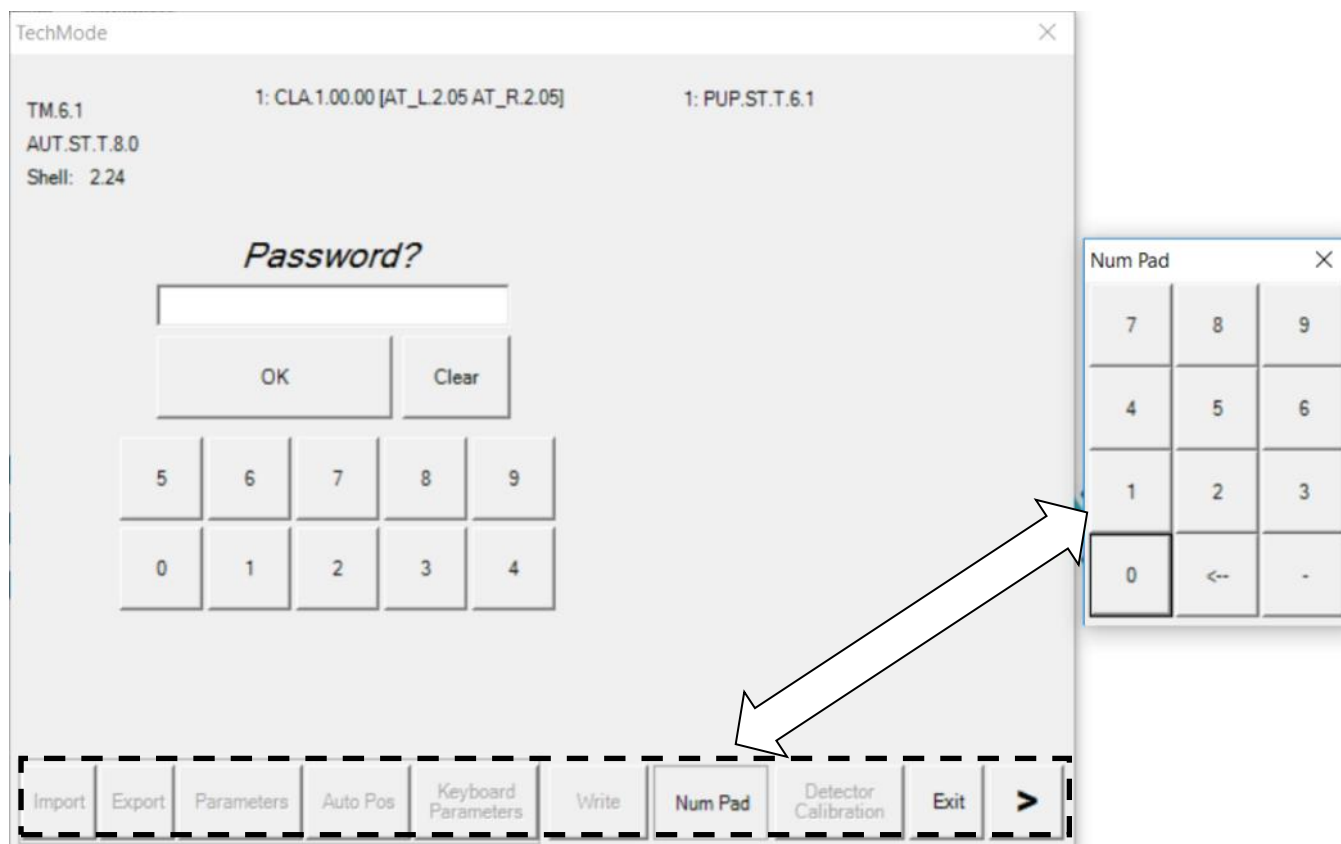
The software releases are displayed on the upper part of this windows.



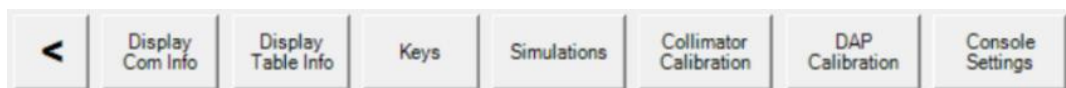
9090 REMOTE CONTROLLED TABLE

Installation

Enter the password corresponding to the after sales engineer level **78945**. If you did not connect a keyboard on the console, you may use the Num Pad of the activ window or the “Num Pad touch” that display a new keyboard.



This window allow you to select other tabs when you press > :



On the Num Pad you can find the key “-” to enter negative values and the key “←” which is the “Back Space” key.

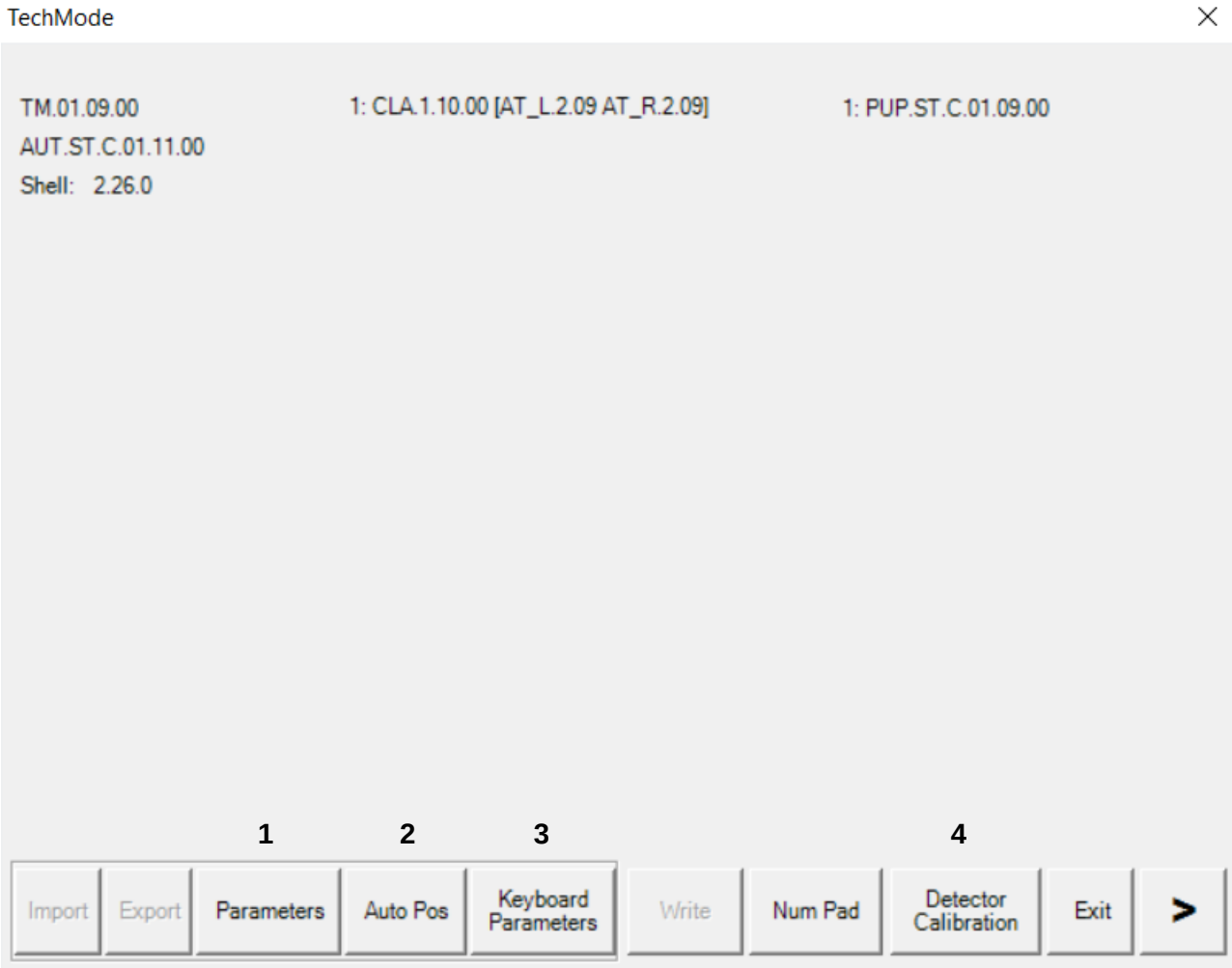
You can move this keyboard inside the window, open it or close it at any time by using the icon “Num Pad”.

19.2 TechMode contents

After entering the password, you can access on the first window to:

- A parameters editor (1)
- An aut positioning editor (2)
- A keyboard parameters editor (3)
- Detector calibration (4)

You are allowed at any time to exit “Technical mode” by pressing the icon “Exit”.



9090 REMOTE CONTROLLED TABLE

Installation

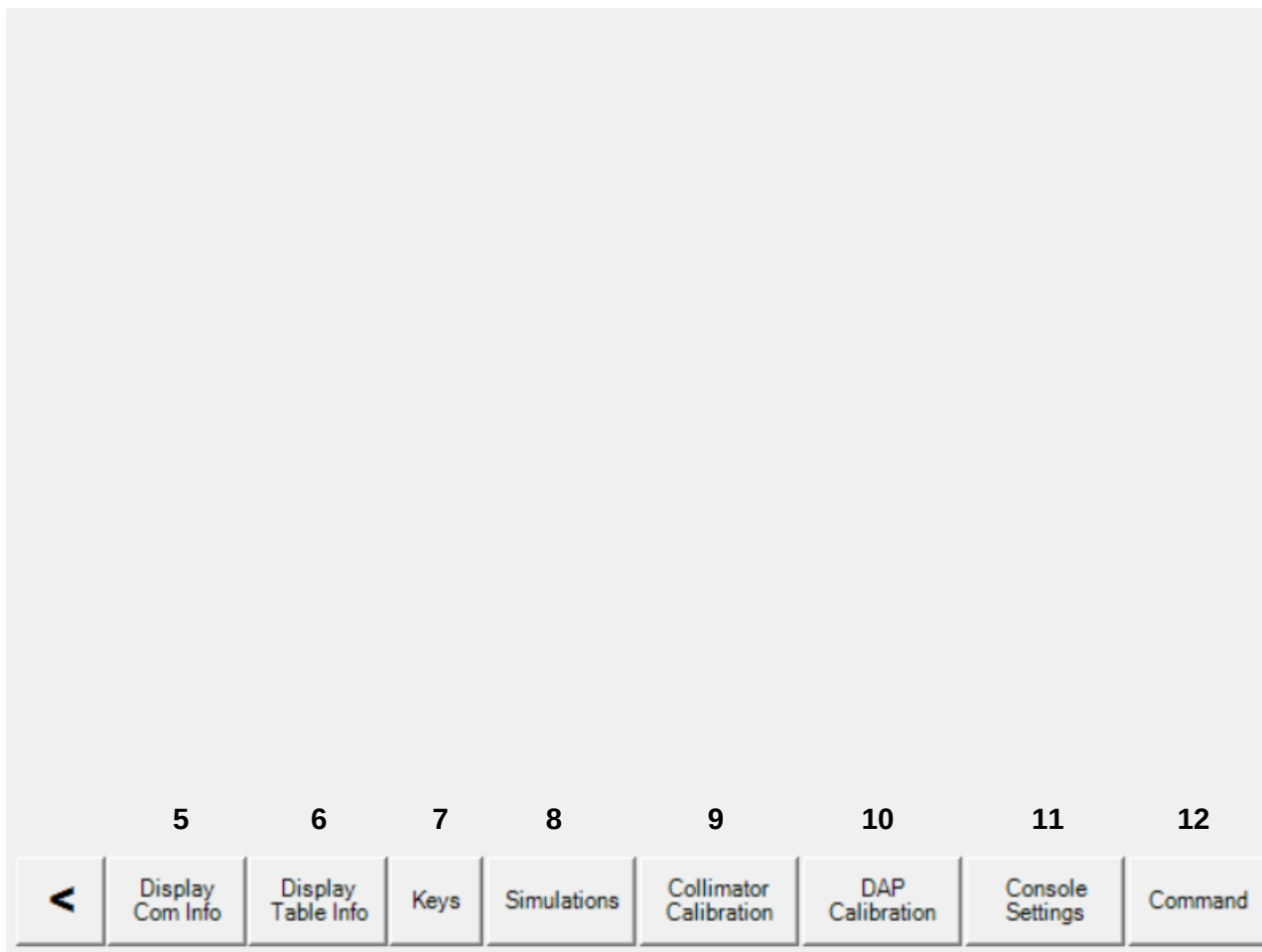
If you clic on the



button you can access on the next window to :

- Diagnostic communication tool (**5**)
- Diagnostic I/O and axis positions tool (**6**)
- Keys console information (**7**)
- Simulation software (axis by axis or table) (**8**)
- Collimator calibration tool (**9**)
- Calibration for measuring dose tool (**10**)
- Console settings (**11**)
- Command (**12**)

TechMode



9090 REMOTE CONTROLLED TABLE

Installation

If you change the value of a parameter, this value is not taken into account as long as the file is not written. To write a file, press the "Write". Then the system reboots. A dialog box appears to inform you about success of the operation.

TechMode

×

Axis	N°	Value	Description
Carriage	1	1000	Acceleration (ms)
	2	400	Deceleration (ms)
Column Angulation	3	15	Speed (cm/s)
	4	3500	Min Position (1/10mm)
Tilting	5	16850	Max Position (1/10mm)
	6	38	Closed Loop Proportional Gain
Table Height	7	700	Closed Loop Integral Gain
	8	5000	Integral Limit
Long. Table Top	9	10	Inverter Min Step (RPM)
	10	1650	Max tracking Error (steps)
S.I.D.	11	150	Stop Window (steps)
	12	8398388	Encoder Min Position (steps)
	13	8491401	Encoder Max Position (steps)
	14	3340	Absolut Min Position (1/10mm)
Lateral Table Top	15	17210	Absolut Max Position(1/10mm)
	16	7	Manual Positioning Low Speed (cm/s)
Compressor	17	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

1stPosition
Reading

2ndPosition

2ndPosition
Reading

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

19.2.1. Parameters

When pressing "Parameters", the next window opens. The parameters are divided in seven groups.

By clicking on "Axis Parameters", you have access to typical parameters of each axis (travel limit, servo tuning). You can switch to another axis through the buttons on the left.

TechMode ×

Axis

Carriage

Column Angulation

Tilting

Table Height

Long. Table Top

S.I.D.

Lateral Table Top

Compressor

N°	Value	Description
1	1000	Acceleration (ms)
2	400	Deceleration (ms)
3	15	Speed (cm/s)
4	3500	Min Position (1/10mm)
5	16850	Max Position (1/10mm)
6	38	Closed Loop Proportional Gain
7	700	Closed Loop Integral Gain
8	5000	Integral Limit
9	10	Inverter Min Step (RPM)
10	1650	Max tracking Error (steps)
11	150	Stop Window (steps)
12	8398388	Encoder Min Position (steps)
13	8491401	Encoder Max Position (steps)
14	3340	Absolut Min Position (1/10mm)
15	17210	Absolut Max Position(1/10mm)
16	7	Manual Positioning Low Speed (cm/s)
17	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

1stPosition Reading

2ndPosition

2ndPosition Reading

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on "Table Parameters", you have access to main parameters of the table. Parameter 215 is the table configuration (Right side for +90° or Left side for -90°). Parameter 216 is the detector type (TRIXELL RF43 or CANON B1). It is possible to adjust the table height when tilting on left side (parameter 147) and right side (parameter 148).

TechMode

×

N°	Value	Description
144	625	FPD Foot Side Landscape Position TABLE_0° (steps)
145	2035	FPD Portrait Position Coming From FOOT TABLE_0° (steps)
150	2045	FPD Portrait Position Coming From HEAD TABLE_0° (steps)
146	3490	FPD Head Side Landscape Position TABLE_0° (steps)
151	625	FPD Foot Side Landscape Position TABLE_90° (steps)
153	2035	FPD Portrait Position Coming From FOOT TABLE_90° (steps)
152	3500	FPD Head Side Landscape Position TABLE_90° (steps)
154	2035	FPD Portrait Position Coming From HEAD TABLE_90° (steps)
143	1500	Carriage Clearance for Sensor Rotation (1/10mm)
149	10000	Carriage Position For Sensor Rotation To Head Side (1/10mm)
147	11700	Min Height for Left Side Tilting (1/10mm)
148	11700	Min Height for Right Side Tilting (1/10mm)
155	3600	Centered Table Height (1/10mm)
156	-7	Right Tilting Correction Angle for Table Centering (1/10°)
157	-3	Left Tilting Correction Angle for Table Centering (1/10°)
189	0	Table Top Lateral Position For Sensor In/Out (1/10mm)
0	0	

Machine type (215)

☐ D2RS

☐ D2RS 9090 right side

☒ D2RS 9090 left side

TRIXELL RF43 FL (216)

English

▼

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on “Axis Validation”, you can allow or forbid a movement. All you need to do is to click on the axis you want to validate. A ticked axis allows the movement.

An invalid axis:

- Will never be put in motion.
- Will not be monitored (no feedback position on the main screen).

TechMode ✕

N°	Value		Description	
175	1	☒	Carriage Validation	☐ Allow when IN18 = ON
176	1	☒	Angulation Validation	☐ Allow when IN18 = ON
177	1	☒	Tilting Validation	☐ Allow when IN18 = ON
178	1	☒	Table Height Validation	☐ Allow when IN18 = ON
179	0	☐	Longitudinal Table Top Validation	☐ Allow when IN18 = ON
180	1	☒	S.ID. Height Validation	☐ Allow when IN18 = ON
181	0	☐	F.P.D. Validation	☐ Allow when IN18 = ON
182	1	☒	Lateral Table Top Validation	☐ Allow when IN18 = ON
183	0	☐	Retractable Compressor	☐ Allow when IN18 = ON
	0	☐	Up Down Compressor 1	☐ Allow when IN18 = ON
185	9		Collimator Validation Bit0:Collimator Bit1:DAP 1 Bit2:DAP 2	
213	0	☐	enabled remote control	
	0			☒ Collimator
	0			☐ DAP 1
	0			☐ DAP 2
	0			☒ VirtualCollimation

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on "Zoom", you can set the collimator size X and Y (square) in mm for each zoom key.

TechMode

×

N°	Value	Description
186	320	zoom1 (1/10mm)
187	250	zoom2 (1/10mm)
188	200	zoom3 (1/10mm)
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on "Parallax parameters", you have access to parallax parameters. The validation of parallax correction is configured with parameter 194.

TechMode ✕

N°	Value	Description
190	16	Parallax Closed Loop Proportional Gain
191	6	Parallax Closed Loop Integral Gain
192	1	Parallax Stop Window (steps)
193	715	Distance Angulation Pivot / Table Top (1/10mm)
194	1	Parallax Correction Validation
207	-70	RX Request Tomography Starting angle offset SS (1/10°)
208	0	RX Request Tomography Starting angle offset FS (1/10°)
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	
	0	

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on "Room configuration", you can configure all room information. **This step is very important for clearance.**

TechMode



N°	Value	Description
158	1030	Vertical Distance from Tilting Pivot to Column Pivot (1/10mm)
159	1750	Vertical Distance from Tilting Pivot to Table Top (1/10mm)
160	10900	Carriage Offset (1/10mm)
161	11400	Distance Centered Table Top Headside / Tilting Pivot (1/10mm)
162	0	Table Foot Height (1/10mm)
163	15845	S.I.D. Bracket Height (1/10mm)
164	11400	Distance Centered Table Top Footside / Tilting Pivot (1/10mm)
165	2415	Distance from Tube Focus to Tube Cover Top (1/10mm)
166	3760	Tube Cover Half Length (1/10mm)
167	0	Floor Height (1/10mm)
168	28000	Ceiling Height (1/10mm)
169	33000	Distance Tilting Pivot / Left Wall (1/10mm)
170	33000	Distance Tilting Pivot / Right Wall (1/10mm)
171	1000	Floor Margin (1/10mm)
172	1400	Ceiling Margin (1/10mm)
173	600	Left Wall Margin (1/10mm)
174	600	Right Wall Margin (1/10mm)

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on "Other parameters", you have access to clearance parameters and other parameters. Parameter 218 is the limit angle of Trendelenburg (from 10° to 30°).

TechMode

×

N°	Value	Description
195	200	S.I.D. Clearance (mm)
196	3000	Longitudinal Table Top Clearance (1/10mm)
197	4000	Carriage Clearance (1/10mm)
198	0	☐ Table Top has to be Centered before Tilting
211	1	☒ 0° Tilting Stop
209	1	☒ SPS Validation
210	50	SPS additional ceiling safety(1/10mm)
212	0	☐ Carriage reverse direction
214	0	☐ in autopose mode center all axes before tilting
217	1	☒ 0° Angulation Stop
218	150	Maximum trendelenburg angle D2RS9090 (1/10°)
219	1	Drive tube 2 SHFD 0: PREP POSE Console V2 1: Independent
220	0	Centered collimator option 0: No 1: Yes
	0	
	0	
	0	
	0	

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

19.2.2. Autopositioning

By clicking on "Auto Pos", you can configure several autopositioning. The table allows the user to modify the autopositioning loaded for each exam.

You can choose anatomical programs in the list on the left side. For each program, the axis position is defined.

To create a new anatomical program, click on "New" in the list. An additional program is created in the list. The values of axis positions are copied from the last selected program.

Enter manually axis values or place the table to the corresponding position and click on "Copy current table positions". Then click on "Write" to save the modification.

TechMode ✕

	Axis	Value
Prg 1 Prg 2 Prg 3 Prg 4 Prg 5 Prg 6 Prg 7 Prg 8 Prg 9 Prg 10 Prg 11 Prg 12 Prg 13	Carriage	16968
	Column Angulation	-300
	Elevation	5075
	Tilting	-3
	S.I.D.	1100
	Lateral TableTop	383
	Longitudinal TableTop	11
	F.P.D. IN	1
	F.P.D. Position: 1:Ldscp Foot, 2:L	3
	Fluoro X Aperture	50
	Fluoro Y Aperture	50
	RAD X Aperture	50
	RAD Y Aperture	50
	Program Type 0:TableRF 2:Direct	0
	Layer Height	700
	0	
Picture ID	6	

Parking

Parking



Copy Current Table Positions

Load AutoPos

Import
Export
Parameters
Auto Pos
Keyboard Parameters
Write
Num Pad
Detector Calibration
Exit
>

19.2.3. Keyboard parameters

By clicking on « Keyboard parameters », you have access to console and LED lights parameters.

TechMode

✕

Value	description
100	00: Buzzer volume from 0 to 100%
0	01: 0: PREP key = PREP and POSE key = POSE 1: PREP key = PREP + POSE
0	02: Waiting time before starting the generator in seconds
100	03: Light intensity of headband 0 to 100%
0	04: Key reversal carriage 0: no other: yes
0	05: Key reversal Lateral table top 0: no other: yes
6	06: Ambient LED color 0:Off 1:White 2:Purple 3:Green 4:Blue 5:Yellow 6:Turquoise 7:Pink 8:Free
100	07: Ambient color intensity 0 to 100%
6	08: Basic status LED color 0:Off 1:White 2:Purple 3:Green 4:Blue 5:Yellow 6:Turquoise 7:Pink 8:Free
100	09: Status color intensity 0 to 100%
0	10: Flashing Led Status if movement 0: no other: yes
10	11: Light intensity LED default mode
40	12: Light intensity LED joystick detection
70	13: Light intensity LED key or joystick active
30	14: Light intensity LED ON/OFF in partial stop
0	15: free
0	16: free
0	17: free
0	18: free
0	19: free

☒ Main keyboard
☐ Secondary keyboard

Import Export Parameters v.4 Auto Pos Keyboard Parameters Write Num Pad Detector Calibration Exit >

19.2.4. Detector calibration

Clic on the « detector calibration » button before to perform detector calibration instruction.

19.2.5. Display com info

By clicking on « Display com info », you have access to general system information.

TechMode

×

<u>DATA Received From Generator</u>	<u>Present State Of the Table</u>
Received Autopos Number 0	Autopos Number 1
Received Detector Rotation Undefined	Program Type DIRECT
Received X Collimation 0	ZOOM Number Zoom 0
Received Y Collimation 0	regLectPositionCollim[LAT_X] 50
Received ZOOM Number 0	regLectPositionCollim[LNG_Y] 50
	Memo_Col_X_RAD 0
	Memo_Col_Y_RAD 0
	Col_X_RAD 0
	Col_Y_RAD 0
	Colim_FormatScopie[LAT_X] 0
	Colim_FormatScopie[LNG_Y] 0
	ConsigneAutoCol[0] 0
	ConsigneAutoCol[1] 0
	Mode_X AUTO
	Mode_Y AUTO
	Collimator Direct Mode (Key turned) OFF
	Collimator Centered ON

<	Display Com Info	Display Table Info	Keys	Simulations	Collimator Calibration	DAP Calibration	Console Settings	Command
---	------------------	--------------------	------	-------------	------------------------	-----------------	------------------	---------

19.2.6. Display table info

By clicking on « Display table info », it is possible to visualize the different axis positions and digital inputs of the control board.

TechMode

✕

DMS From Console	OFF								
DMS From Remote	OFF								
Control Board Digital Outputs									
Out_0: RAD_Prep	OFF	Carriage	OFF	OFF	OFF	1317.5 mm	8464340		
Out_1: RAD_Pose	OFF	Column	OFF	OFF	OFF	0.1 °	2028		
Out_2: Fluoro_RQ	OFF	Tilting	OFF	OFF	OFF	1.4 °	5056		
Out_3: Tomo_Ready	OFF	Elevation	OFF	OFF	OFF	667.2 mm	3284		
Out_4	OFF	Long TabTop	OFF	OFF	OFF	2.3 mm	3562		
Out_5	OFF	SID	OFF	OFF	OFF	119.9 cm	2002		
Out_6: Stop_Table	OFF	Sensor Rot.	OFF	OFF	OFF	Portrait	0		
Out_7	OFF	Lat TabTop	OFF	OFF	OFF	-121.3 mm	2148		
		Compressor	OFF	OFF	OFF	874	288		
Control Board Digital Inputs									
IN_1:SID_EOT+	OFF	IN_11:Compr_ESC_EOT+	OFF	IN_21:GRID_1	OFF				
IN_2:SID_EOT-	OFF	IN_12:Compr_ESC_EOT-	OFF	IN_22:GRID_2	OFF				
IN_3	OFF	IN_13:GEN_READY	OFF	IN_23	OFF				
IN_4	OFF	IN_14:GEN_ALOE	OFF	IN_24	OFF				
IN_5	OFF	IN_15	OFF	IN_25	OFF				
IN_6	OFF	IN_16	OFF	IN_26	OFF				
IN_7:EXP_Order	OFF	IN_17:Tube Rotated	OFF	IN_27	OFF				
IN_8:PREP_Order	OFF	IN_18:Move_Forbidden	OFF	IN_28:CINE_FootSwitch	OFF				
IN_9:Compr_EOT+	OFF	IN_19	OFF	IN_29:FLUORO_FootSwitch	OFF				
IN_10:Compr_EOT-	OFF	IN_20	OFF	IN_30:Sensor_IN	OFF				
<	Display Com Info	Display Table Info	Keys	Simulations	Collimator Calibration	DAP Calibration	Console Settings	Command	

19.2.7. Keys

By clicking on « Keys » you can test all the keys and console joysticks. This allows to also test the remote controlled keys.

A red light is displayed according to the activated key. The DMS give you the source of the pressed key : Table or Remote control

TechMode ×

Keys

☐ TG1: Compressor Down

☐ TG2: Compressor UP

☐ TG3: Collimator Light

☐ TG4: Collimator Auto

☐ TG5: Center Column

☐ TG6: MOVE

☐ TS1: Horizontal positioning

☐ TS2: Vertical positioning

☐ JG1: S.I.D. UP

☐ JG2: S.I.D. Down

☐ JG3: Column Left

☐ JG4: Column Right

☐ JG5: Open Y Collimator

☐ JG6: Close Y Collimator

☐ JG7: Open X Collimator

☐ JG8: Close X Collimator

☐ TD1: Prep

☐ TD2: Pose

☐ TD3: Center Table

☐ TD4: Right Long TableTop

☐ TD5: Left Long TableTop

☐ TD6: FPD OUT

☐ TD7: FPD IN

☐ TS3: Center TableTop

☐ JD1: Table UP

☐ JD2: Table Down

☐ JD3: Left tilting

☐ JD4: Right tilting

☐ JD5: Rear Lat TableTop

☐ JD6: Front Lat TableTop

☐ JD7: Carriage Left

☐ JD8: Carriage Right

☐ DMS Table

☐ DMS Remote Control

Input TOR

Input 1

☐

Input 2

☐

Input 3

☐

Input 4

☐

Ciné

☐

Fluoro

☐

Output TOR

Output 1

☐

Output 2

☐

Output 3

☐

Output 4

☐

Output 5

☐

Output 6

☐

24

1

0

0

<

Display Com Info

Display Table Info

Keys

Simulations

Collimator Calibration

DAP Calibration

Console Settings

Command

19.2.8. Simulations

Simulation mode is only used in the factory in order to break in the table.

19.2.9. Collimator calibration

By clicking on « Collimator calibration », you can adjust maximal collimator aperture.

TechMode ×

ONLY FOR RALCO R225

You must turn the table OFF, then turn it ON while keeping the FILTER button pressed on the collimator front panel until the collimator screen reads "Wait Command...".

Cross (X) shutters opening correction factor:

-

0

%

+

Apply

Long (Y) shutters opening correction factor:

-

0

%

+

Apply

Launch R225 AUTO Config

<

Display Com Info

Display Table Info

Keys

Simulations

Collimator Calibration

DAP Calibration

Console Settings

Command

July 2024 / Rev. E

137/292

19.2.10. DAP calibration

This window is used to visualize DAP chamber information and perform DAP calibration.

TechMode

Chamber being calibrated:

Chamber 1

Actual DAP value from DAP1:
0 $\mu\text{Gy.cm}^2$
Actual AirKerma from DAP1:
0 μGy
Actual AirKerma Rate from DAP1:
0 mGy/m

Chamber 2

Actual DAP value from DAP2:
0 $\mu\text{Gy.cm}^2$
Actual AirKerma from DAP2:
0 μGy

RESET DAP chamber to factory calibration

<

Display Com Info

Display Table Info

Keys

Simulations

Collimator Calibration

DAP Calibration

Console Settings

Command

July 2024 / Rev. E

138/292

19.2.11. Console settings

By clicking on « console settings », the following window appears.

If you want to change the units of each axis from cm to inches, click on “Change Table GUI to USA GUI” and restart.

TechMode ×

☒ Log Table and Collimation (Checked = ON)
☐ Change Table GUI to USA GUI (Console Software must be restarted)
☐ Switch to Demo mode (Console Software must be restarted)
☐ This is the secondary console (Console Software must be restarted)

Generate Tomosynthesis
License Request File

Activate Tomosynthesis

Tomosynthesis Enabled

<

Display
Com Info

Display
Table Info

Keys

Simulations

Collimator
Calibration

DAP
Calibration

Console
Settings

Command

19.2.12. Command

By clicking on “Command”, you can check LED strip, console buzzer, collimator filter, autopos and collimator aperture.

TechMode ×

LED strip test

Start

Buzzer test

Start

Filter

1Al + 0.2Cu

AutoPos

Program number 1

Num Pad

Collimator

Cross (X):

5

 cm

Long (Y):

5

 cm

Send

<

Display Com Info

Display Table Info

Keys

Simulations

Collimator Calibration

DAP Calibration

Console Settings

Command

20. LED lights

20.1 General configuration

A LED light system is implemented on the table on 3 locations : tube, column and rear foot. These LED are managed by the I/O board (919631006) in order to :

- give status about the system for tube and column LED
- add an ambient lighting for rear foot LED

It's possible to set up the brightness (parameter 09) and the default color (parameter 08) for status LED between white, purple, blue, pink and turquoise.

It's possible to set up the brightness (parameter 07) and the default color (parameter 06) for ambient LED between white, purple, blue, pink, turquoise, red and orange.

You can also setup the console light headband intensity (parameter 03).

TechMode ×

Value	description
100	00: Buzzer volume from 0 to 100%
0	01: 0: PREP key = PREP and POSE key = POSE 1: PREP key = PREP + POSE
0	02: Waiting time before starting the generator in seconds
100	03: Light intensity of headband 0 to 100%
0	04: Key reversal carriage 0: no other: yes
0	05: Key reversal Lateral table top 0: no other: yes
6	06: Ambient LED color 0:Off 1:White 2:Purple 3:Green 4:Blue 5:Yellow 6:Turquoise 7:Pink 8:Free
100	07: Ambient color intensity 0 to 100%
6	08: Basic status LED color 0:Off 1:White 2:Purple 3:Green 4:Blue 5:Yellow 6:Turquoise 7:Pink 8:Free
100	09: Status color intensity 0 to 100%
0	10: Flashing Led Status if movement 0: no other: yes
30	11: Light intensity LED default mode
50	12: Light intensity LED joystick detection
70	13: Light intensity LED key or joystick active
10	14: Light intensity LED ON/OFF in partial stop
0	15: free
0	16: free
0	17: free
0	18: free
0	19: free

☒ Main keyboard
☐ Secondary keyboard

Import Export Parameters Auto Pos Keyboard Parameters

Write Num Pad Detector Calibration Exit >

20.2 Status LED state

The tube and column lights ON and OFF depending on the system status :

- When there is a fault, LED are blinking with 500ms period with its default color.
- When generator are emitting X-ray, LED are lighting with yellow color.
- When generator is ready and prep button activated, LED are lighting with green color.
- When table and console are switched on, console software is running, communication is established, detector IN is activated and an autopos is loaded, LED are lighting with its default color.
- Else, LED are switched OFF.

It is possible by validating a parameter (parameter 10) to set up another mode where LED are blinking with 2s period as long as a movement is activated.

21. ROOM CONFIGURATION

During the commissioning of the remote controlled table, the configuration of the room parameters is necessary. Adjust the values according to the room dimensions.

Parameter	Initial value	Definition	Units
167	0	Floor Height	1/10mm
168	30000	Ceiling Height	1/10mm
169	25000	Distance Tilting Pivot / Left Wall	1/10mm
170	25000	Distance Tilting Pivot / Right Wall	1/10mm

You can access these parameters using TechMode and clicking on “Room Configuration”

TechMode

✕

N°	Value	Description
158	1030	Vertical Distance from Tilting Pivot to Column Pivot (1/10mm)
159	1750	Vertical Distance from Tilting Pivot to Table Top (1/10mm)
160	10900	Carriage Offset (1/10mm)
161	11400	Distance Centered Table Top Headside / Tilting Pivot (1/10mm)
162	0	Table Foot Height (1/10mm)
163	15845	S.I.D. Bracket Height (1/10mm)
164	11400	Distance Centered Table Top Footside / Tilting Pivot (1/10mm)
165	2415	Distance from Tube Focus to Tube Cover Top (1/10mm)
166	3760	Tube Cover Half Length (1/10mm)
167	0	Floor Height (1/10mm)
168	30000	Ceiling Height (1/10mm)
169	25000	Distance Tilting Pivot / Left Wall (1/10mm)
170	25000	Distance Tilting Pivot / Right Wall (1/10mm)
171	1000	Floor Margin (1/10mm)
172	1400	Ceiling Margin (1/10mm)
173	600	Left Wall Margin (1/10mm)
174	600	Right Wall Margin (1/10mm)

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

9090 REMOTE CONTROLLED TABLE

Installation

By clicking on “Clearance parameters”, you can adjust by how much the axis will move to clear off.

TechMode×

N°	Value	Description
195	200	S.I.D. Clearance (mm)
196	3000	Longitudinal Table Top Clearance (1/10mm)
197	4000	Carriage Clearance (1/10mm)
198	0	☐ Table Top has to be Centered before Tilting
211	0	☐ 0° Tilting Stop
209	1	☒ SPS Validation
210	50	SPS additional ceiling safety(1/10mm)
212	0	☐ Carriage reverse direction
214	1	☒ in autopose mode center all axes before tilting
217	1	☒ 0° Angulation Stop
218	150	Maximum trendelenburg angle D2RS9090 (1/10°)
	0	
	0	
	0	
	0	
	0	
	0	

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Clearance Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

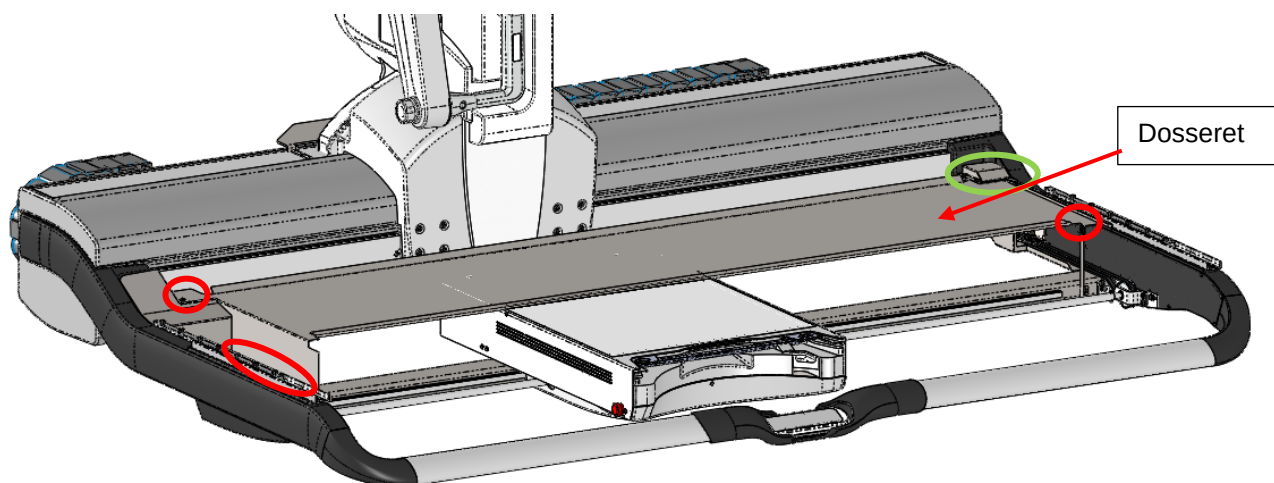
Detector Calibration

Exit

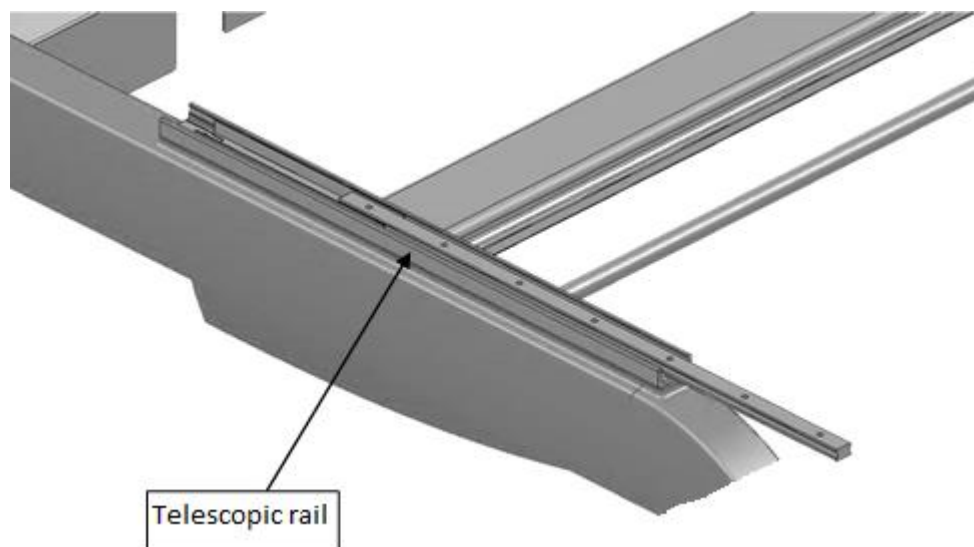
>

22. TABLE TOP

Assemble the dossieret with the 3x BHC M4 and the 2x FX M3 screws.
Then, assemble the potentiometer dep lat cover with 3x BHC M4 screws.



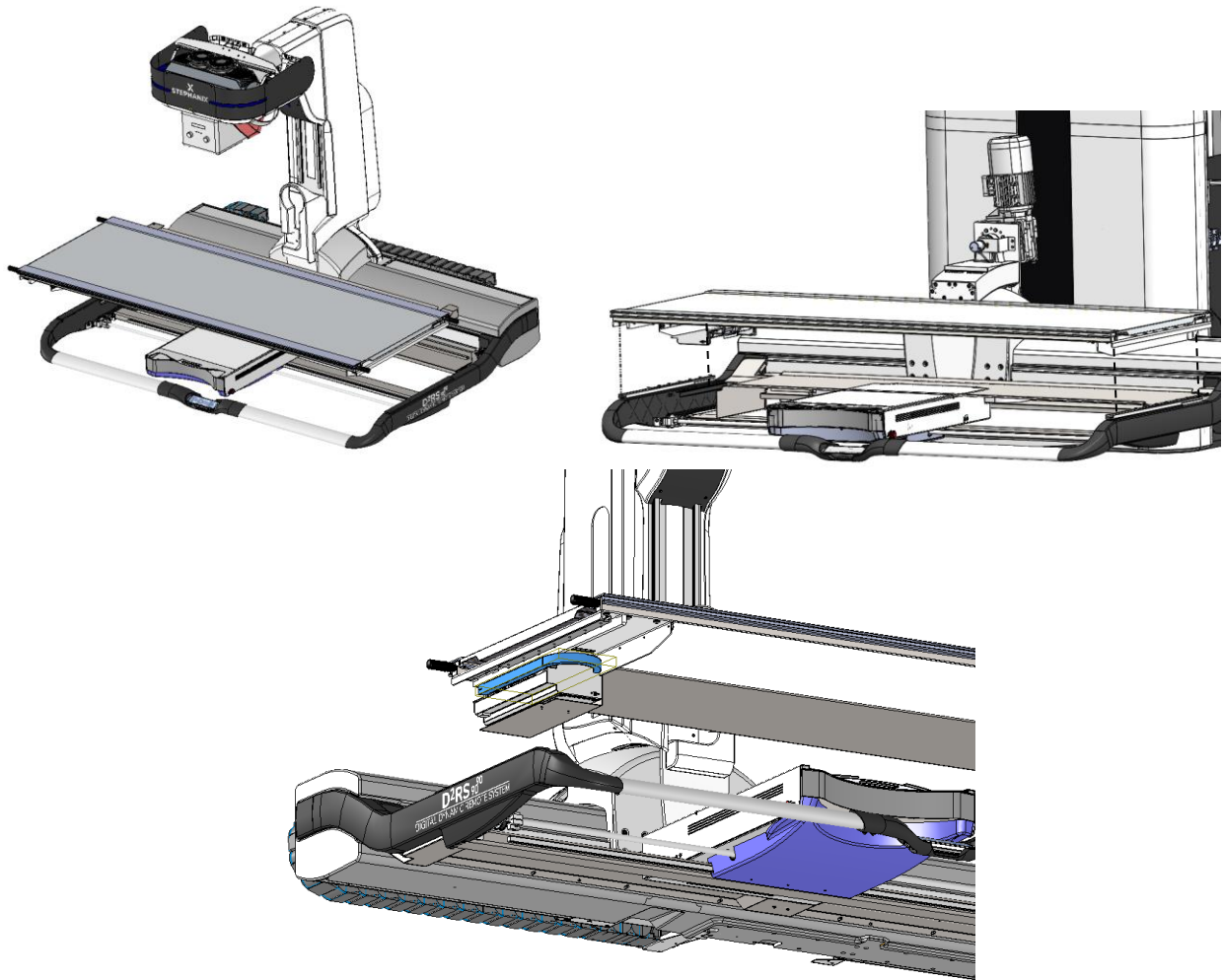
Pull out the rails on each arm like the picture below :



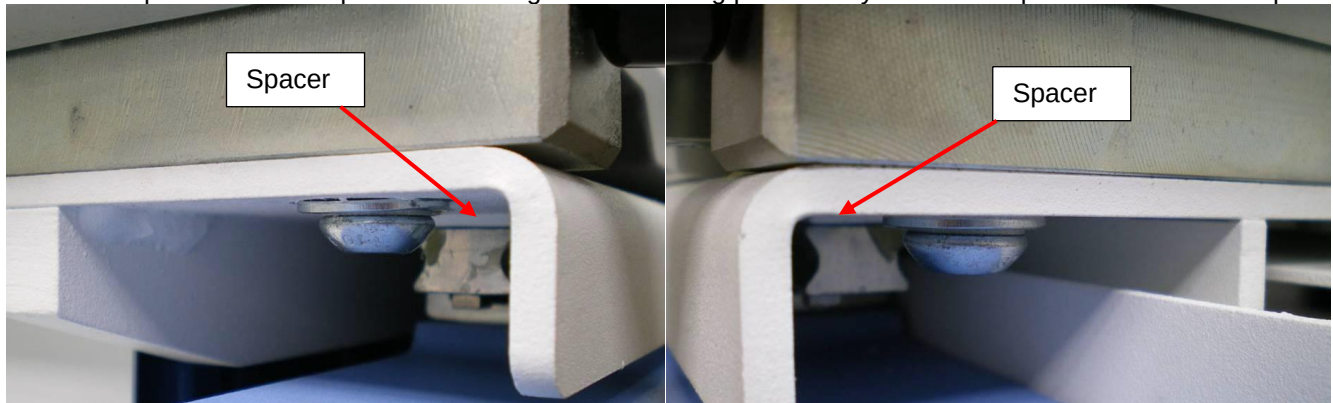
9090 REMOTE CONTROLLED TABLE

Installation

Place the tabletop on the rails making sure to position the cables chain correctly, pay attention to the passage of the cable carrier chain:



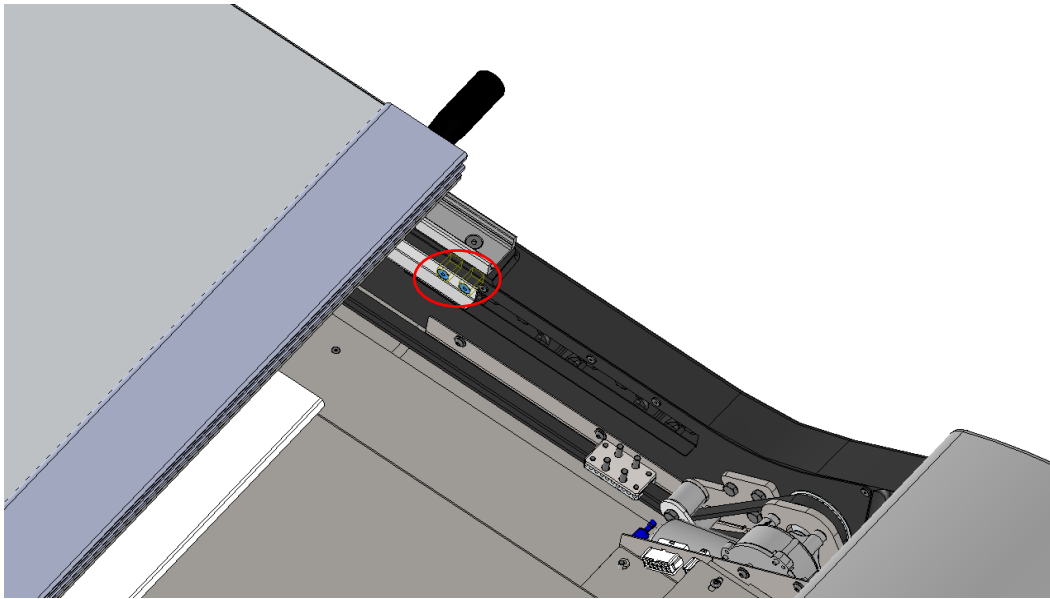
The telescopic rails shall be placed according to the following picture. Pay attention to place the rail on the spacer.



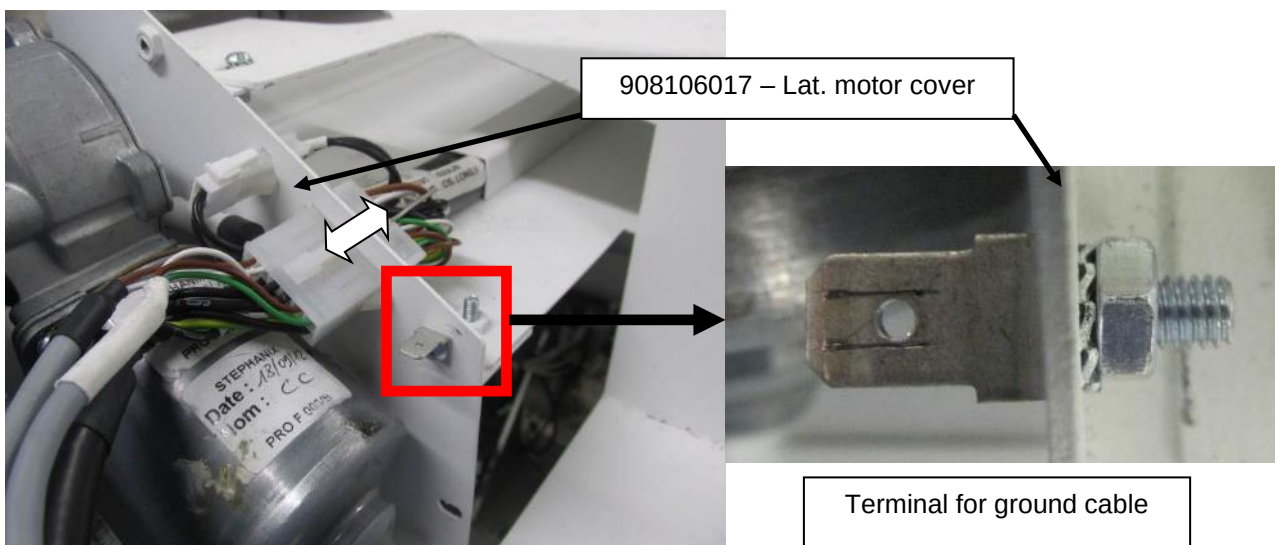
9090 REMOTE CONTROLLED TABLE

Installation

Fix the cable chain support bracket to the arm, with 2 FHC M5x16 screws:



Shut down the table and connect the longitudinal tabletop cable as indicated hereafter, do not forget to connect the ground cable on the terminal provided for this purpose (see picture below).



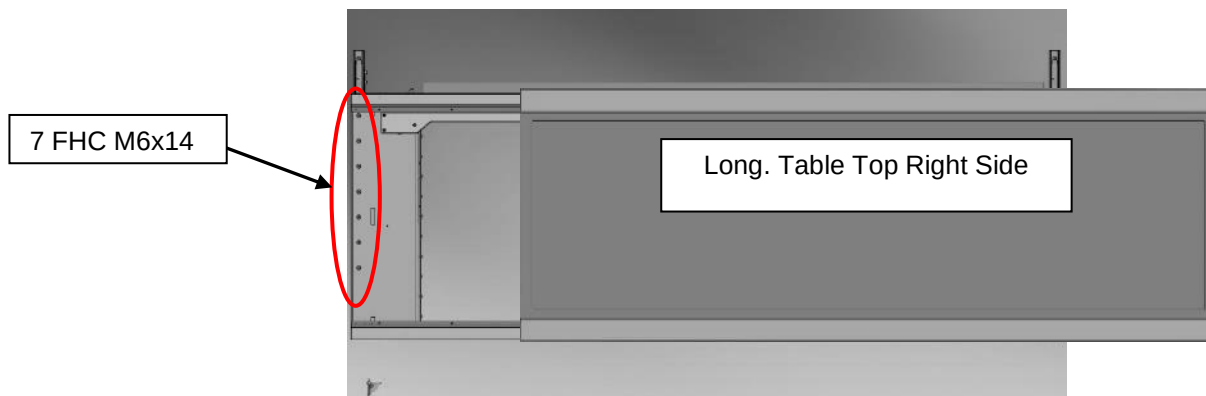
9090 REMOTE CONTROLLED TABLE

Installation

Switch on the table.

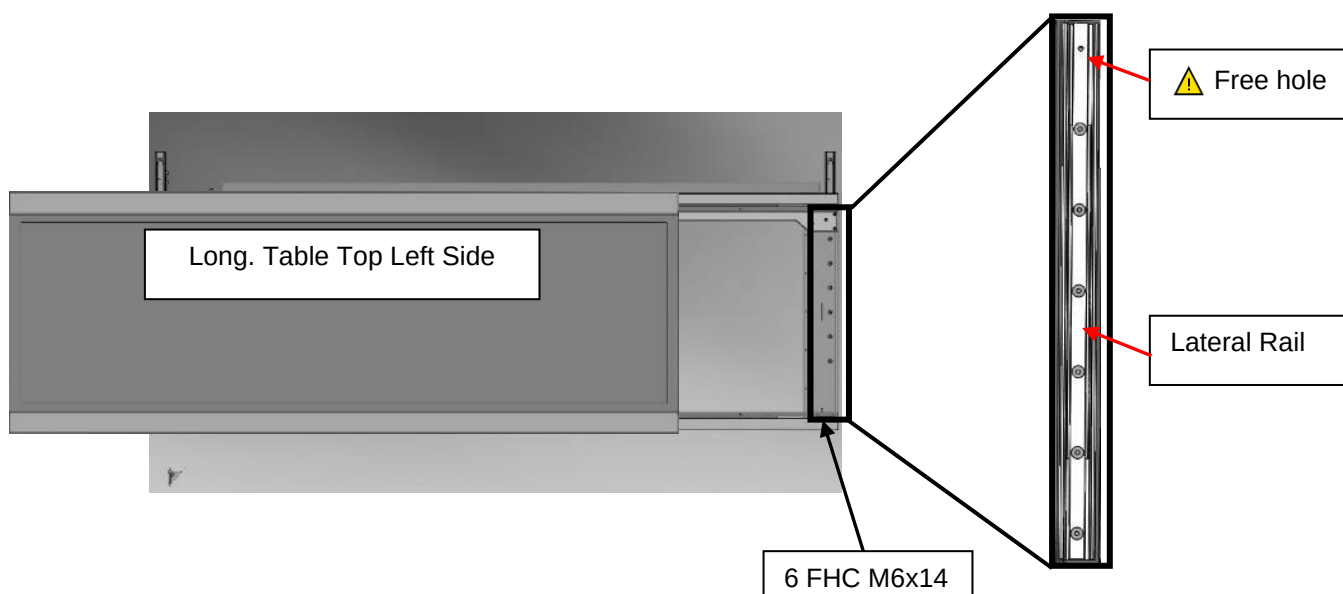
Move the longitudinal tabletop «right side » to access to the screws « left side ». Screw the tabletop on the telescopic rail using 7x FHC M6x14 CL 10.9 screws.

Tightening torque: 10Nm.



Move the longitudinal tabletop «left side » to access to the screws « right side ». Screw the tabletop on the telescopic rail using 6x FHC M6*12 CL10.9 screws.

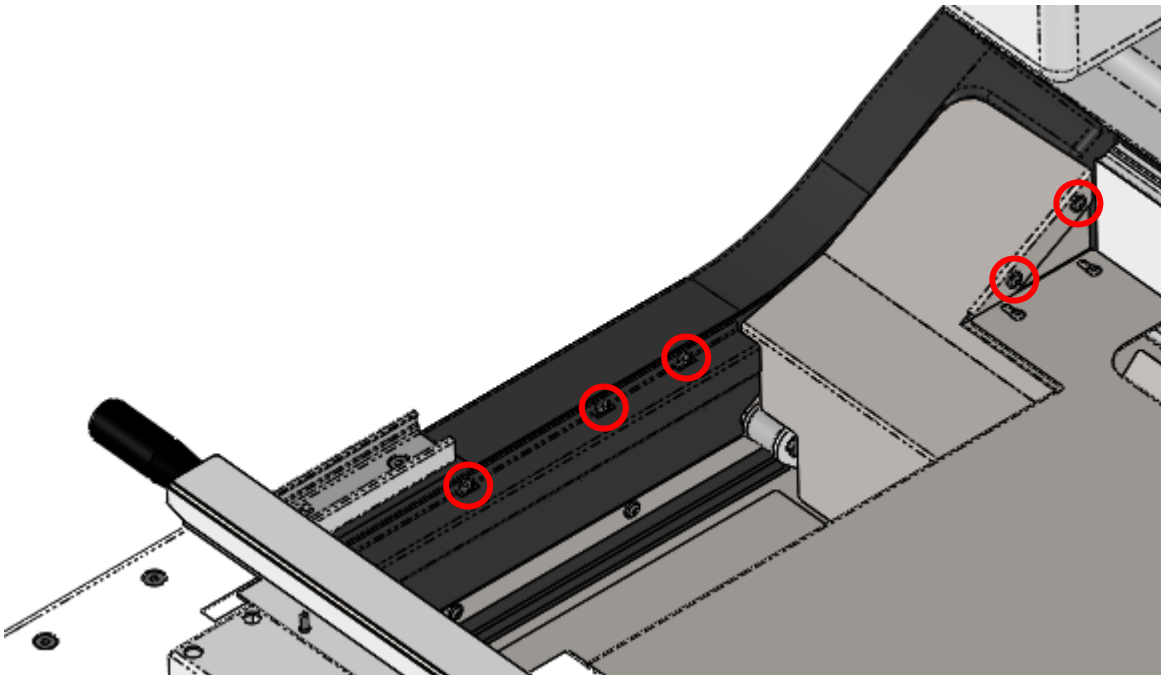
Tightening torque: 10Nm.



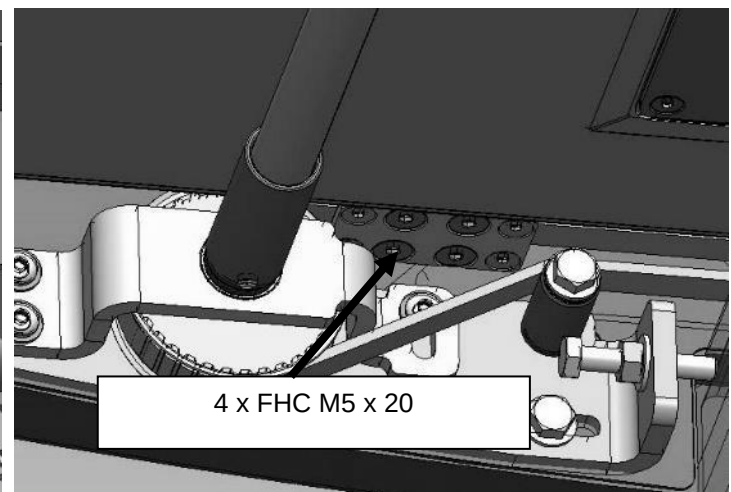
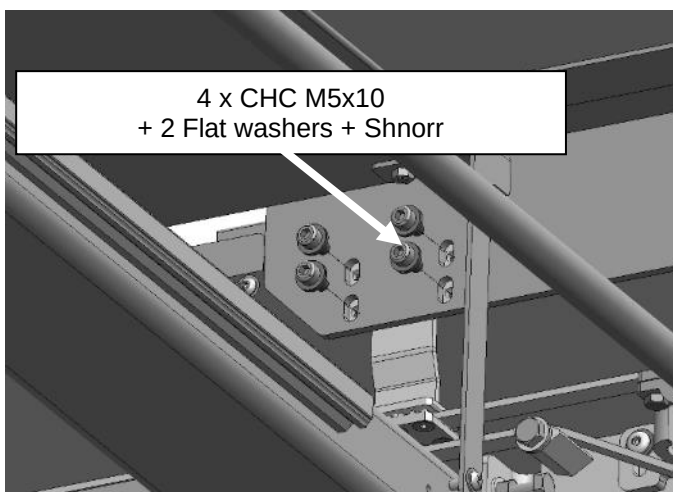
9090 REMOTE CONTROLLED TABLE

Installation

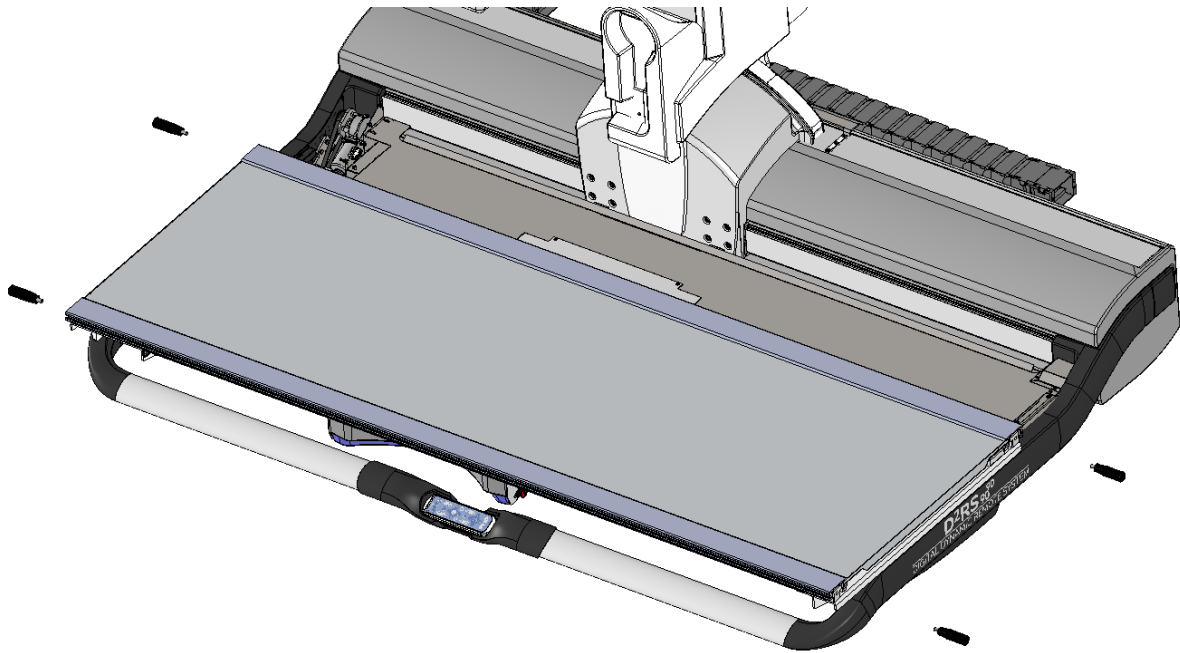
Assemble the tabletop cables cover with 3x CHC M4 extra flat and the motor dep lat cover with 2x BHC M4:



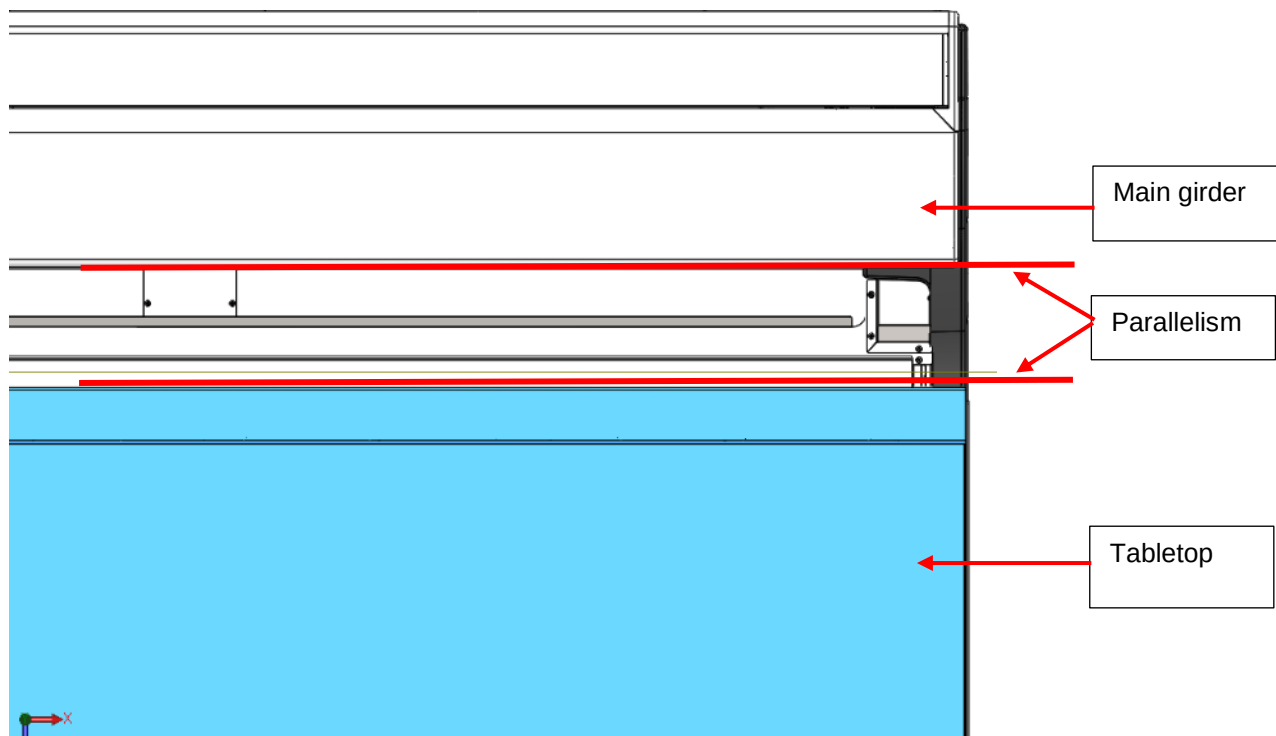
Fix the tabletop to the belt of lateral movement as indicated hereafter:



Remove the 4 handles of the panel:



Check the parallelism of the tabletop regarding the main girder:



23. POTENTIOMETERS AND ENCODERS ADJUSTMENTS

Set mechanically the axis to adjust as indicated on the pictures hereafter, set the potentiometer with the according value (This step is made in the factory). **For angulation and tilting measure, an electronic level is necessary.**

23.1 Elevation

Select « **Table height** » tab in TechMode

The tuning will be done in this windows

Clic on « **Position tuning** »

TechMode

Axis	N°	Value	Description
Carriage	52	400	Acceleration (ms)
	53	400	Deceleration (ms)
	54	8	Speed (cm/s)
Column Angulation	55	2000	Min Position (1/10mm)
	56	13000	Max Position (1/10mm)
Tilting	57	156	Closed Loop Proportional Gain
	58	500	Closed Loop Integral Gain
Table Height	59	5000	Integral Limit
	60	100	Inverter Min Step (RPM)
Long. Table Top	61	1000	Max tracking Error (1/10mm)
	62	20	Stop Window (1/10mm)
S.I.D.	63	1033	Potmeter Min Position (mV)
	64	9353	Potmeter Max Position (mV)
Lateral Table Top	65	1900	Absolut Min Position (1/10mm)
	66	13000	Absolut Max Position (1/10mm)
Compressor	67	5	Manual Positioning Low Speed (cm/s)
	68	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

1stPosition Reading

2ndPosition

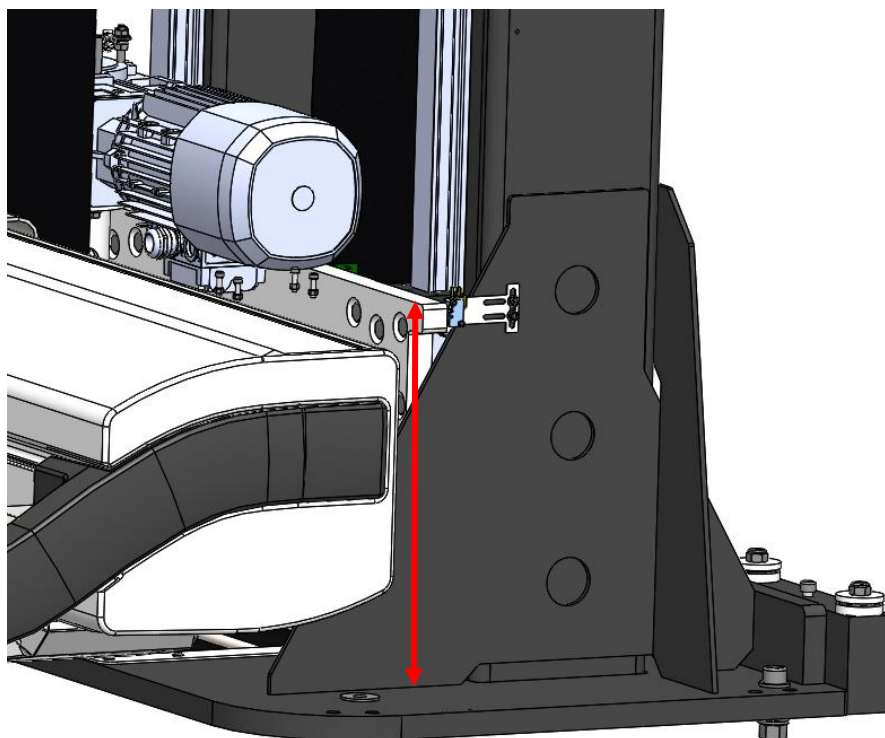
2ndPosition Reading

Axis Parameters
Table Parameters
Axis Validation
Zooms
Parallax Parameter
Room Configuration
Clearance Parameters

Import
Export
Parameters v.4
Auto Pos
Keyboard Parameters
Write
Num Pad
Detector Calibration
Exit
>

Measuring point :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.



Move the table down until the distance is equal to 432mm +/-5mm.

Enter the measured value in 1/10mm inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Move the table up until the distance is equal to 1432mm +/-5mm.

Enter the measured value in 1/10mm inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Validate by clicking on «**Compute New Values**» and «**Write**».

Parameters 55 and 56 can adjust the software limit switches.

Default values

Parameter 55 → 2000

Parameter 56 → 12000

Make table elevation movements and verify that the displayed values in « Display Info table » tab are corresponding to the measured value.

23.2 Tilting

Select « **Tilting** » tab in TechMode
The tuning will be done in this windows
Click on « **Position tuning** »

TechMode X

Axis	N°	Value	Description
Carriage	35	100	Acceleration (ms)
	36	400	Deceleration (ms)
	37	6	Speed (°/s)
Column Angulation	38	-900	Min Position (1/10°)
	39	900	Max Position (1/10°)
Tilting	40	800	Closed Loop Proportional Gain
	41	0	Closed Loop Integral Gain
Table Height	42	0	Integral Limit
	43	100	Inverter Min Step (RPM)
Long. Table Top	44	90	Max tracking Error (1/10°)
	45	5	Stop Window (1/10°)
S.I.D.	46	1145	Potmeter Min Position (mV)
	47	9180	Potmeter Max Position (mV)
Lateral Table Top	48	-900	Absolut Min Position (1/10°)
	49	900	Absolut Max Position (1/10°)
Compressor	50	40	Manual Positioning Low Speed (°/s)
	51	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

1stPosition Reading

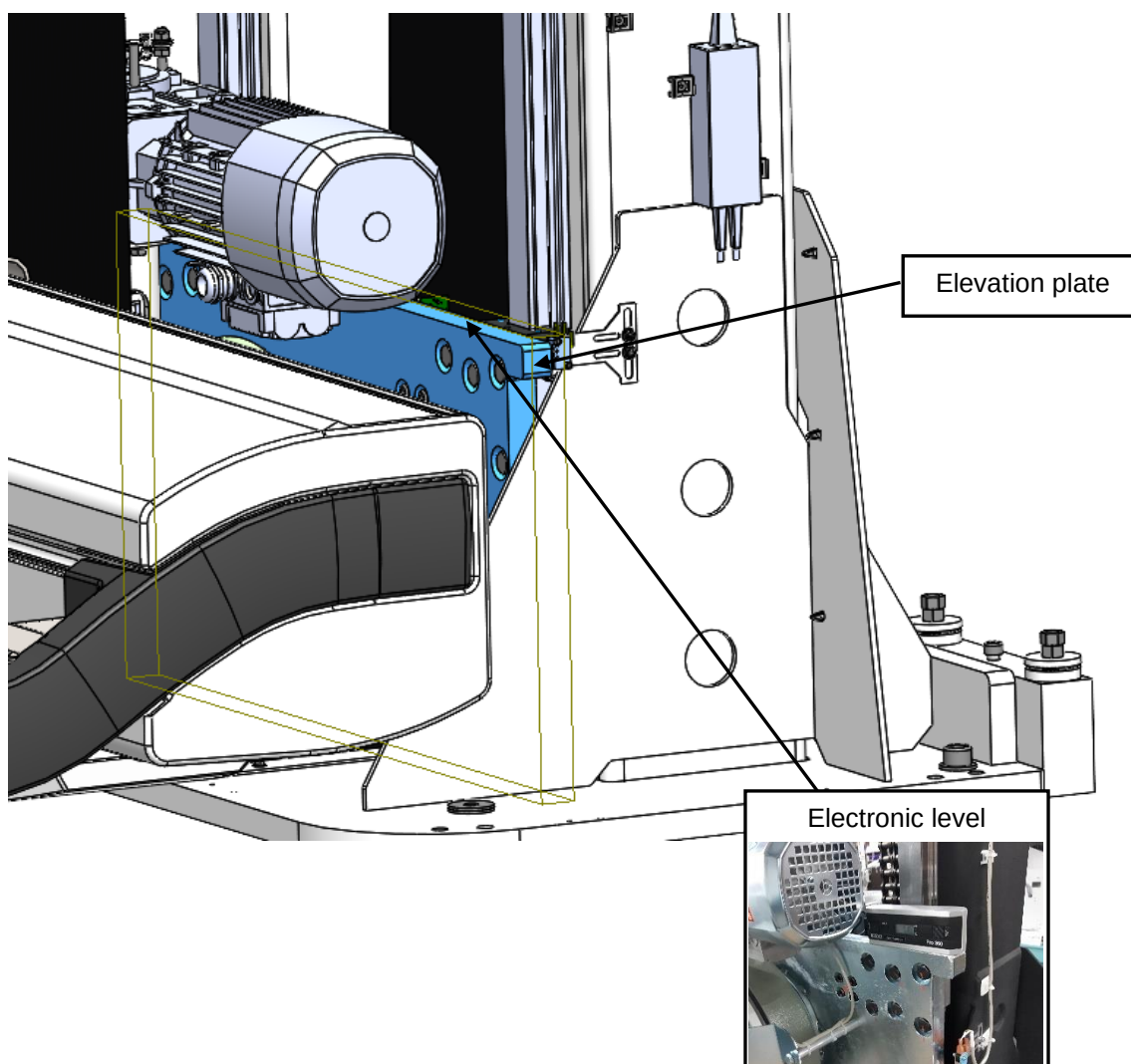
2ndPosition

2ndPosition Reading

Axis Parameters
Table Parameters
Axis Validation
Zooms
Parallax Parameter
Room Configuration
Clearance Parameters

Import
Export
Parameters v.4
Auto Pos
Keyboard Parameters
Write
Num Pad
Detector Calibration
Exit
>

Calibrate the electronic level on the elevation plate (see illustration below).

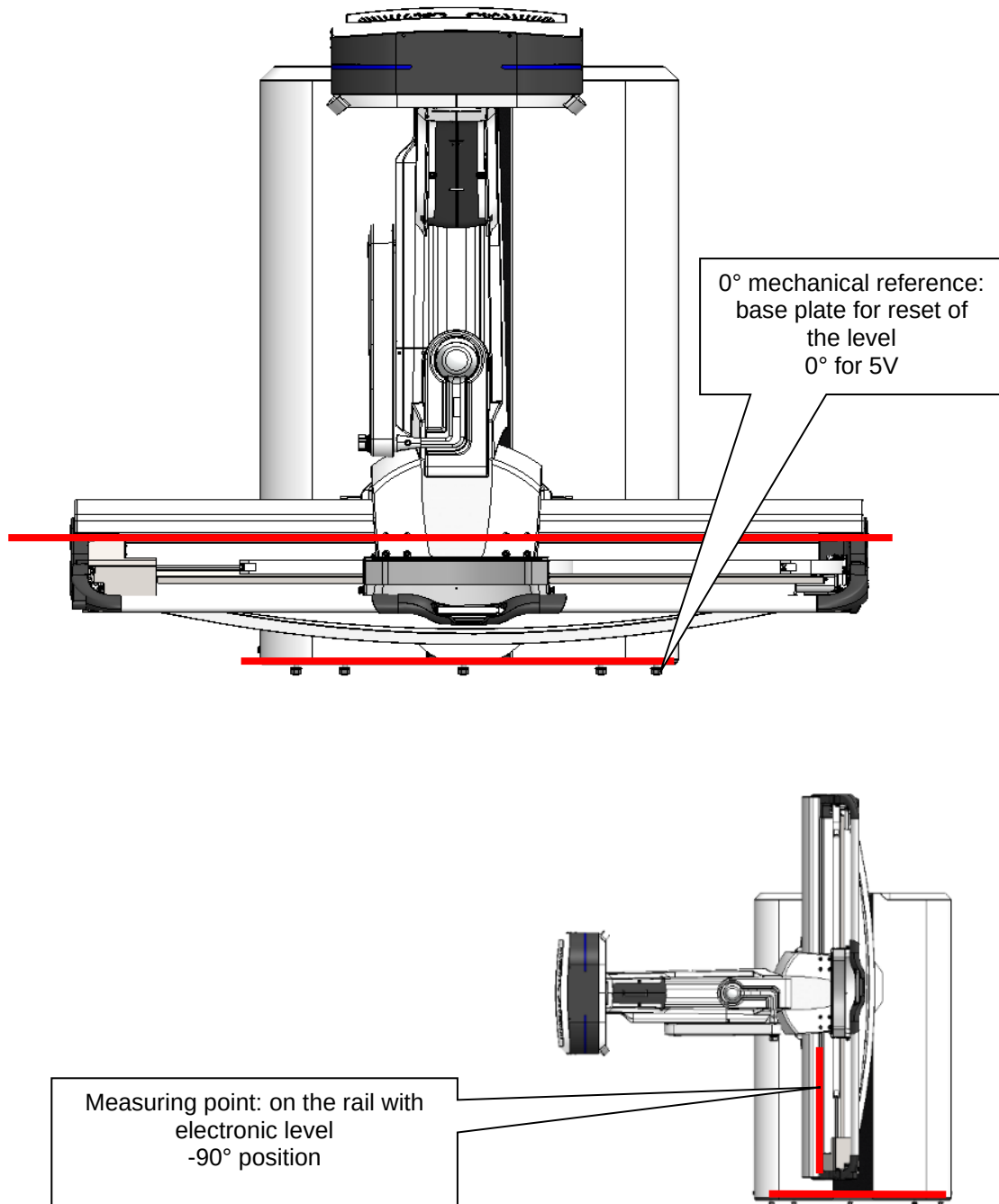


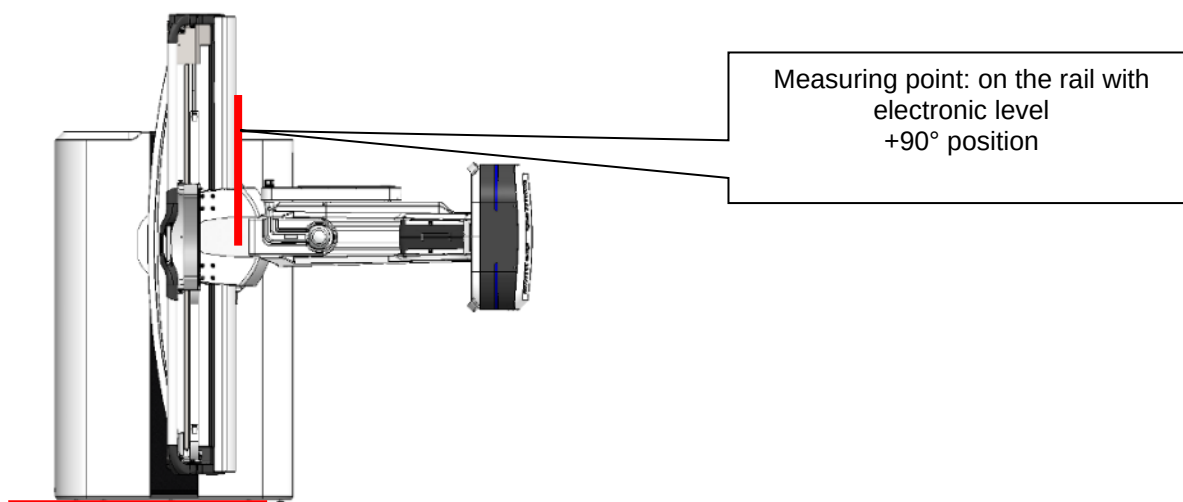
9090 REMOTE CONTROLLED TABLE

Installation

Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.





Tilt the table counter clockwise until the angle is equal to $-89^{\circ} \pm 1^{\circ}$.

Enter the measured value in $1/10^{\circ}$ inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Example : the measure is -88° , you will enter -880 inside the TextBox.

Tilt the table clockwise until the angle is equal to $89^{\circ} \pm 1^{\circ}$.

Enter the measured value in $1/10^{\circ}$ inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Example : the measure is 89° , you will enter 890 inside the TextBox.

Validate by clicking on «**Compute New Values**» and «**Write**».

Parameters 38 and 39 can adjust the software limit switches.

Default values

Parameter 38 → -900

Parameter 39 → 900

Make table tilting movements and verify that the displayed values in « **Display Info table** » tab are corresponding to the measured value.

23.3 Carriage

Select « **Carriage** » tab in TechMode
The tuning will be done in this windows
Click on « **Position tuning** »

TechMode

Axis	N°	Value	Description
Carriage	1	1000	Acceleration (ms)
	2	400	Deceleration (ms)
	3	15	Speed (cm/s)
	4	3500	Min Position (1/10mm)
	5	16970	Max Position (1/10mm)
	6	38	Closed Loop Proportional Gain
	7	700	Closed Loop Integral Gain
	8	5000	Integral Limit
	9	10	Inverter Min Step (RPM)
	10	1650	Max tracking Error (steps)
	11	150	Stop Window (steps)
	12	8387540	Encoder Min Position (steps)
	13	8480551	Encoder Max Position (steps)
	14	3340	Absolut Min Position (1/10mm)
	15	17210	Absolut Max Position(1/10mm)
	16	6	Manual Positioning Low Speed (cm/s)
	17	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

2ndPosition

1stPosition Reading

2ndPosition Reading

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Clearance Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

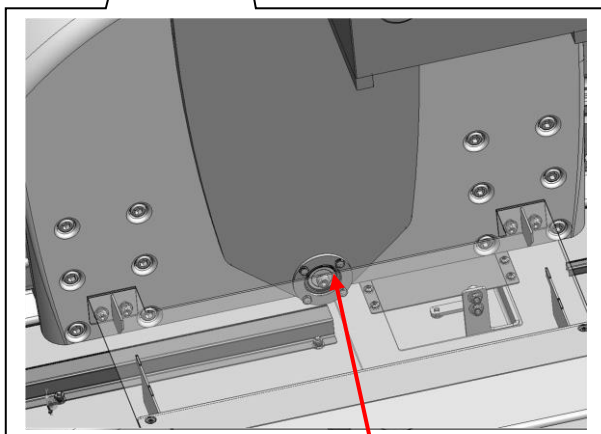
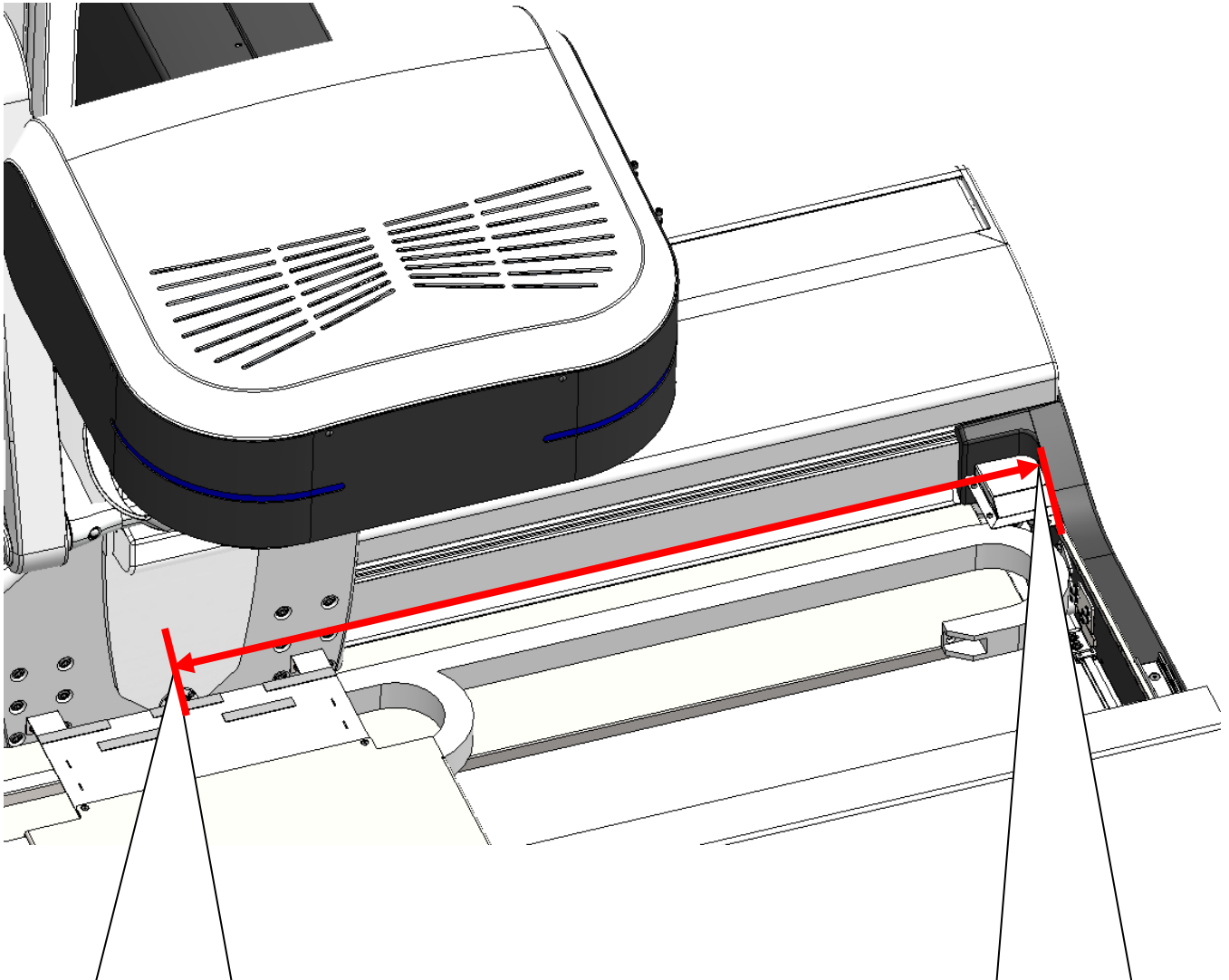
>

9090 REMOTE CONTROLLED TABLE

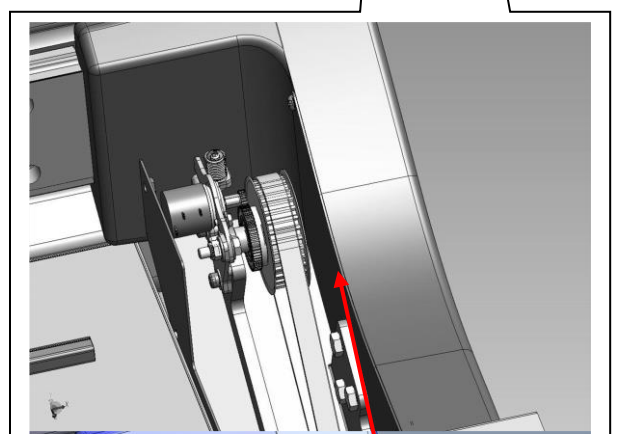
Installation

Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.



Measuring point: angulation axis, center of the screw



Mechanical reference: arm plate cover right side

Move the carriage right side until the distance is equal to 350mm +/-5mm.

Enter the measured value in 1/10mm inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Example : the measure is 340mm, you will enter 3400 inside the TextBox.

Move the carriage left side until the distance is equal to 1300mm +/-5mm.

Enter the measured value in 1/10mm inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Example : the measure is 340mm, you will enter 3400 inside the TextBox.

Validate by clicking on «**Compute New Values**» and «**Write**».

Parameters 4 and 5 can adjust the software limit switches.

Default values

Parameter 4 ➔ 3470

Parameter 5 ➔ 17020

Make carriage movements and verify that the displayed values in « **Display Info table** » tab are corresponding to the measured value.

23.4 Column angulation

Select « **Column angulation** » tab in TechMode

The tuning will be done in this windows

Clic on « **Position tuning** »

TechMode X

Axis	N°	Value	Description
Carriage	18	1000	Acceleration (ms)
	19	400	Deceleration (ms)
	20	6	Speed (°/s)
Column Angulation	21	-400	Min Position (1/10°)
	22	400	Max Position (1/10°)
Tilting	23	100	Closed Loop Proportional Gain
Table Height	24	0	Closed Loop Integral Gain
	25	200	Integral Limit
Long. Table Top	26	100	Inverter Min Step (RPM)
	27	550	Max tracking Error (steps)
S.I.D.	28	20	Stop Window (steps)
	29	142	Encoder Min Position (steps)
	30	3639	Encoder Max Position (steps)
Lateral Table Top	31	-400	Absolut Min Position (1/10°)
	32	400	Absolut Max Position (1/10°)
Compressor	33	3	Manual Positioning Low Speed (°/s)
	34	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

1stPosition Reading

2ndPosition

2ndPosition Reading

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Clearance Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

Exit

>

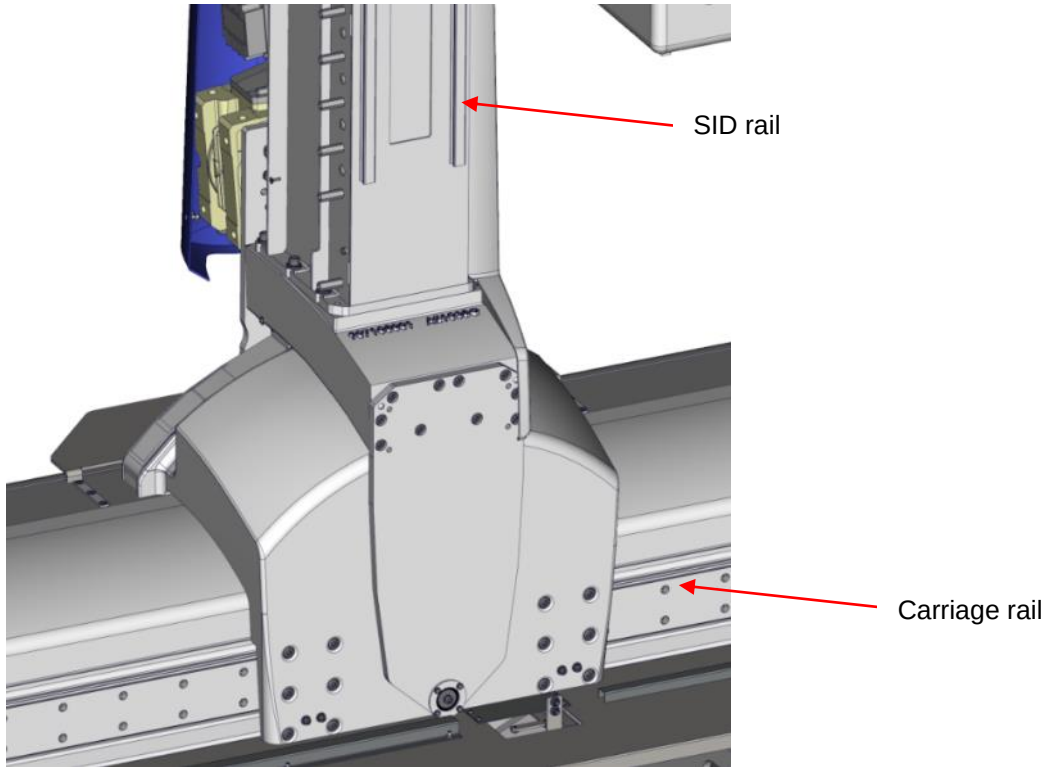
9090 REMOTE CONTROLLED TABLE

Installation

Tilt the table to 0°

Calibrate the electronic level on the carriage rail.

Move the column in order to have a right angle between the carriage rail and the SID rail.

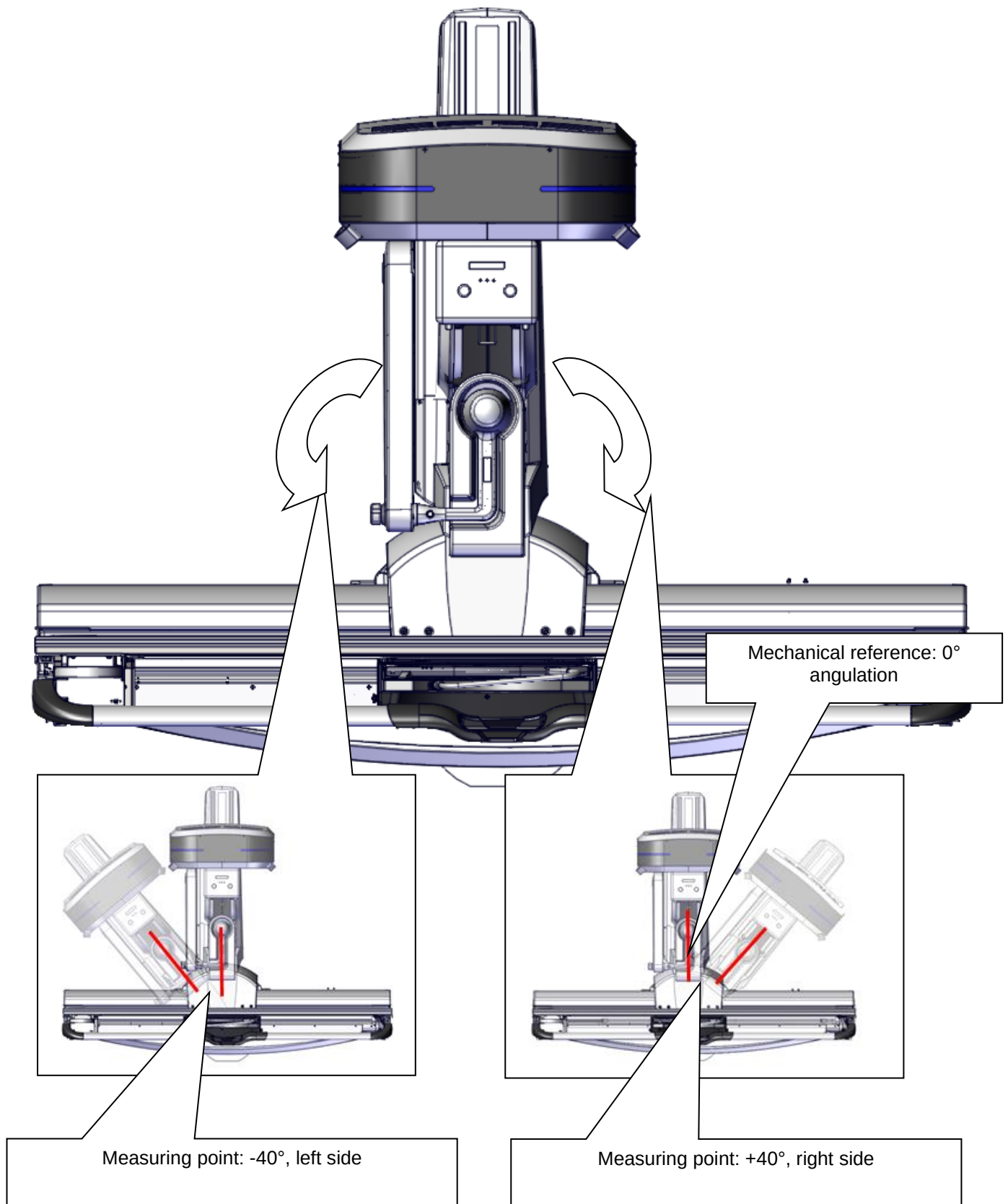


9090 REMOTE CONTROLLED TABLE

Installation

Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.



Tilt the column counter clockwise until the angle is equal to $-35^{\circ} \pm 1^{\circ}$.

Enter the measured value in $1/10^{\circ}$ inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Example : the measure is -34° , you will enter -340 inside the TextBox.

Tilt the column clockwise until the angle is equal to $35^{\circ} \pm 1^{\circ}$.

Enter the measured value in $1/10^{\circ}$ inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Example : the measure is 35° , you will enter 350 inside the TextBox.

Validate by clicking on « **Compute New Values** » and « **Write** ».

Parameters 21 and 22 can adjust the software limit switches.

Default values

Parameter 21 → -400

Parameter 22 → 400

Make table column movements and verify that the displayed values in « **Display Info table** » tab are corresponding to the measured value.

23.5 S.I.D.

For a housing tube IAE C100XT:

Select « **SID** » tab in TechMode

The settings will be done in this windows

Click on « **Position tuning** »

TechMode X

Axis	N°	Value	Description
Carriage	86	100	Acceleration (ms)
	87	150	Deceleration (ms)
Column Angulation	88	6	Speed (cm/s)
	89	1100	Min Position (mm)
Tilting	90	1800	Max Position (mm)
	91	4500	Closed Loop Proportional Gain
Table Height	92	1500	Closed Loop Integral Gain
	93	8000	Integral Limit
Long. Table Top	94	0	Inverter Min Step (PWM 0-10000)
	95	180	Max tracking Error (mm)
S.I.D.	96	4	Stop Window (mm)
	97	762	Potmeter Min Position (mV)
Lateral Table Top	98	9202	Potmeter Max Position (mV)
	99	1100	Absolut Min Position (mm)
Compressor	100	1800	Absolut Max Position (mm)
	101	1000	Manual Positioning Low Speed (cm/s)
	102	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition

1stPosition Reading

2ndPosition

2ndPosition Reading

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Clearance Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

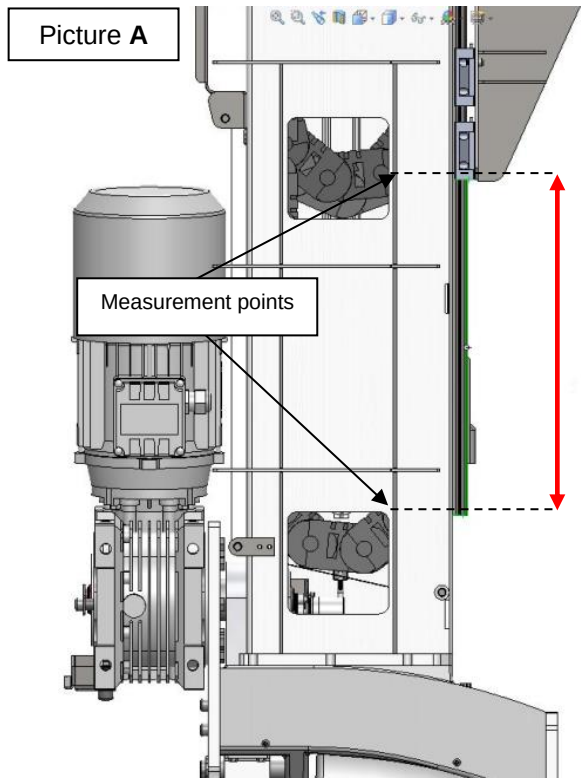
Num Pad

Detector Calibration

Exit

Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.



Measure the distance between the bottom end of the rail of the S.I.D. and the low end of the first carriage encountered on this rail.
The measured value doesn't directly correspond to parameters value. You need to use the parameters value of this table for the next steps:

Distance carriage/rail in mm	Parameter value to write
46	1100
47	1101
48	1102
49	1103
50	1104
51	1105
52	1106
53	1107
54	1108
55	1109
56	1110
736	1790
737	1791
738	1792
739	1793
740	1794
741	1795
742	1796
743	1797
744	1798
745	1799
746	1800

9090 REMOTE CONTROLLED TABLE

Installation

Move the S.I.D. until the distance is equal to 51mm +/- 5mm.

Enter the measured value according to the table inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Example : the measure is 50mm, you will enter 1104 inside the TextBox.

Move the S.I.D. until the distance is equal to 741mm +/- 5mm.

Enter the measured value in 1/10mm inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Example : the measure is 740mm, you will enter 1794 inside the TextBox.

Validate by clicking on «**Compute New Values**» and «**Write**».

Parameters 89 and 90 can adjust the software limit switches.

Default values

P89 → 1100

P90 → 1800

9090 REMOTE CONTROLLED TABLE

Installation

For a housing tube VARIAN B-147:

Select « **SID** » tab in TechMode
The settings will be done in this windows
Click on « **Position tuning** »

TechMode

Axis	N°	Value	Description
Carriage	86	100	Acceleration (ms)
	87	150	Deceleration (ms)
Column Angulation	88	6	Speed (cm/s)
	89	1100	Min Position (mm)
Tilting	90	1800	Max Position (mm)
	91	4500	Closed Loop Proportional Gain
Table Height	92	1500	Closed Loop Integral Gain
	93	8000	Integral Limit
Long. Table Top	94	0	Inverter Min Step (PWM 0-10000)
	95	180	Max tracking Error (mm)
S.I.D.	96	4	Stop Window (mm)
	97	762	Potmeter Min Position (mV)
Lateral Table Top	98	9202	Potmeter Max Position (mV)
	99	1100	Absolut Min Position (mm)
Compressor	100	1800	Absolut Max Position (mm)
	101	1000	Manual Positioning Low Speed (cm/s)
	102	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition 1stPosition Reading

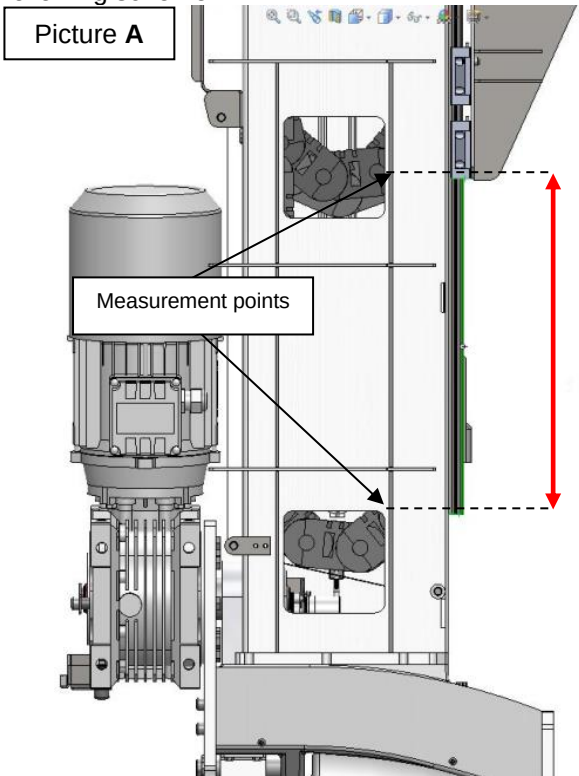
2ndPosition 2ndPosition Reading

Axis Parameters Table Parameters Axis Validation Zooms Parallax Parameter Room Configuration Clearance Parameters

Import Export Parameters v.4 Auto Pos Keyboard Parameters Write Num Pad Detector Calibration Exit >

Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.



Measure the distance between the bottom end of the rail of the S.I.D. and the low end of the first carriage encountered on this rail.

The measured value doesn't directly correspond to parameters value. You need to use the parameters value of this table for the next steps:

Distance carriage/rail in mm	Parameter value to write
52	1100
53	1101
54	1102
55	1103
56	1104
57	1105
58	1106
59	1107
60	1108
61	1109
62	1110
742	1790
743	1791
744	1792
745	1793
746	1794
747	1795
748	1796
749	1797
750	1798
751	1799
752	1800

Move the S.I.D. until the distance is equal to 57mm +/- 5mm.

Enter the measured value according to the table inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Example : the measure is 56mm, you will enter 1104 inside the TextBox.

Move the S.I.D. until the distance is equal to 747mm +/- 5mm.

Enter the measured value according to the table inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Example : the measure is 746mm, you will enter 1794 inside the TextBox.

Validate by clicking on «**Compute New Values**» and «**Write**».

Parameters 89 and 90 can adjust the software limit switches.

Default values

P89 ➔ 1100

P90 ➔ 1800

9090 REMOTE CONTROLLED TABLE

Installation

Check consistency between displayed values and measured values (+/- 5mm). In case where the values are different, repeat the previous step.

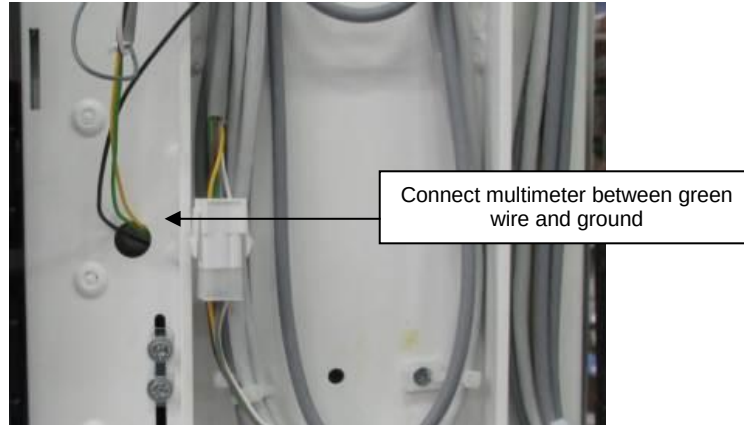
In case where the values are equal, check the adjustment of the limit end-switch up and down.

In case of S.I.D. EOT messages only:

The adjustment of the up end-limit switch must be done with table tilting at $89^{\circ} \pm 1^{\circ}$. Move the S.I.D. to the maximum. Fix the up end-limit switch at 5mm from the triggering. To do this, follow the instructions hereafter:

Up end-limit switch with table in vertical position

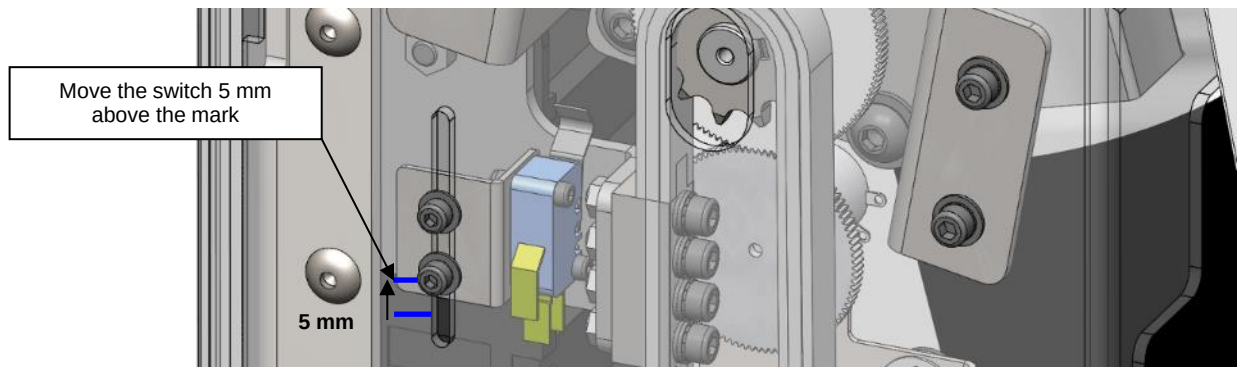
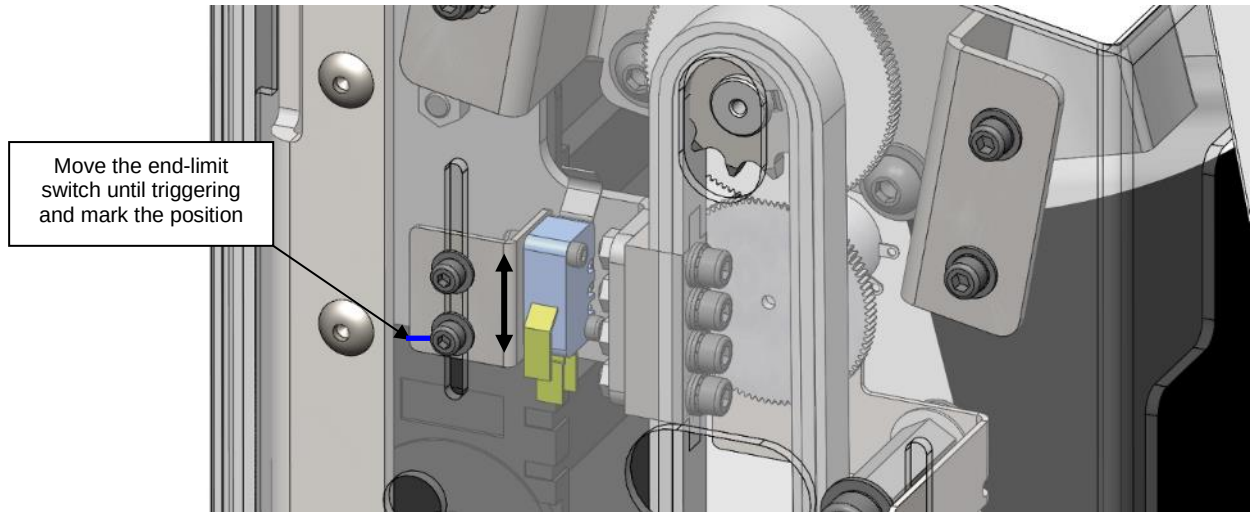
Move the S.I.D. to the max. Connect the multimeter between green wire of the MOLEX 6 points and the ground in position Ω with sound signal.



9090 REMOTE CONTROLLED TABLE

Installation

Move the end-limit switch until the multimeter no emits signal sonor. Once the multimeter is no longer issuing beep, mark the position of the switch and then move 5 mm upwards.

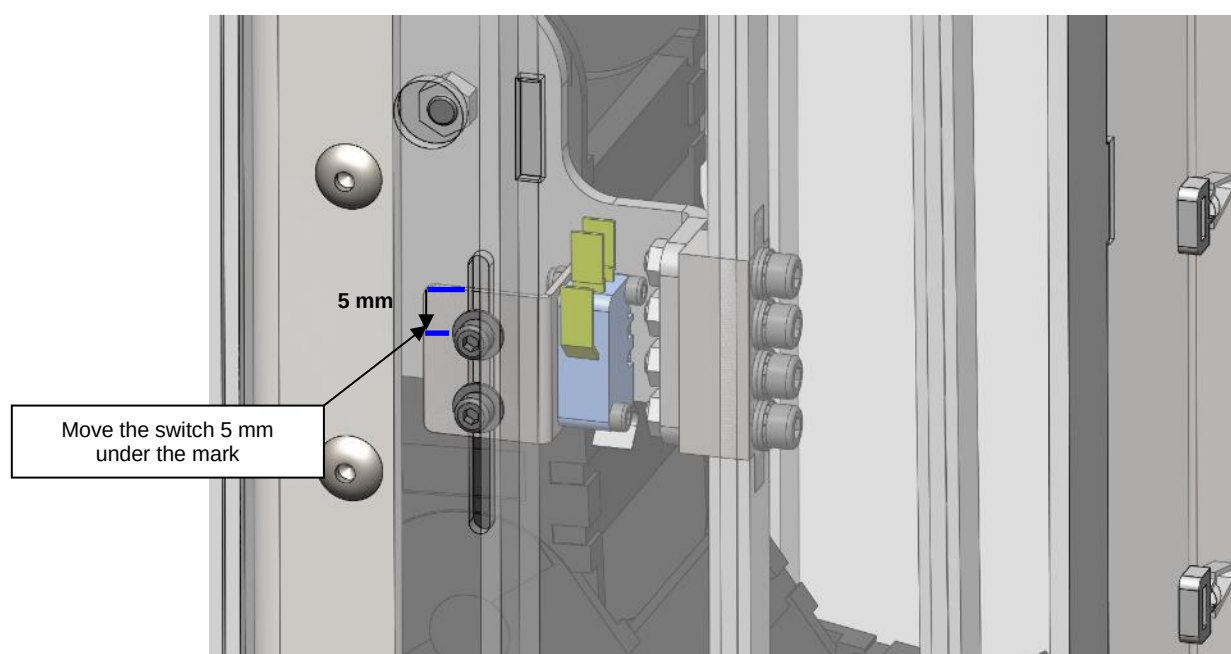
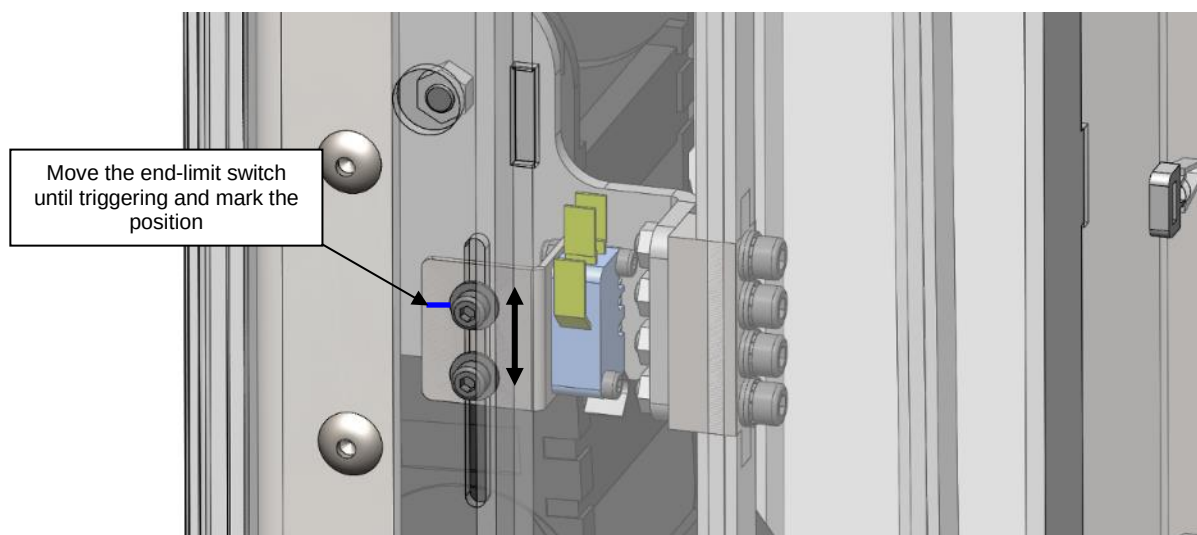


The adjustment of the down end-limit switch must be done with table tilting at $0^{\circ} \pm 1^{\circ}$. Move the S.I.D. to the minimum. Fix the down end-limit switch at 5mm from the triggering. To do this, follow the instructions hereafter:

Down end-limit switch with table in horizontal position

Move the S.I.D. to the min. Connect the multimeter between green wire of the MOLEX 6 points and the ground in position Ω with sound signal.

Move the end-limit switch until the multimeter no emits signal sonor. Once the multimeter is no longer issuing beep, mark the position of the switch and then move 5 mm downwards.



23.6 Lateral table top

Select « **Lateral tabletop** » tab in TechMode

The settings will be done in this windows

Click on « **Position tuning** »

TechMode

Axis	N°	Value	Description
Carriage	120	250	Acceleration (ms)
	121	250	Deceleration (ms)
Column Angulation	122	7	Speed (cm/s)
	123	-1650	Min Position (1/10mm)
Tilting	124	1750	Max Position (1/10mm)
	125	1300	Closed Loop Proportional Gain
Table Height	126	0	Closed Loop Integral Gain
	127	8000	Integral Limit
Long. Table Top	128	500	Inverter Min Step (PWM 0-10000)
	129	5000	Max tracking Error (1/10m)
S.I.D.	130	50	Stop Window (1/10m)
	131	874	Potmeter Min Position (mV)
	132	9398	Potmeter Max Position (mV)
	133	-1650	Absolut Min Position (1/10mm)
Lateral Table Top	134	1800	Absolut Max Position (1/10mm)
	135	2	Manual Positioning Low Speed (cm/s)
Compressor	136	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition 1stPosition Reading

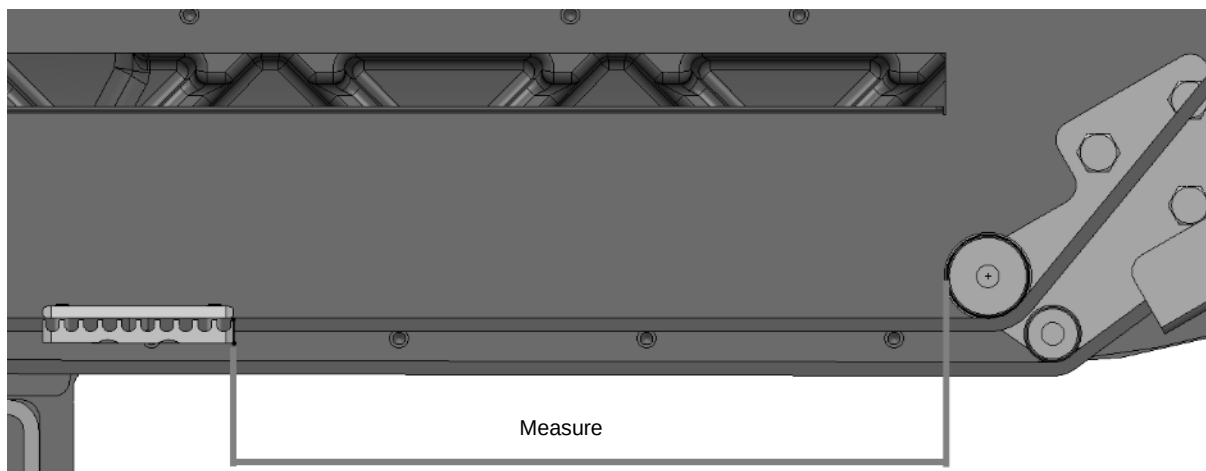
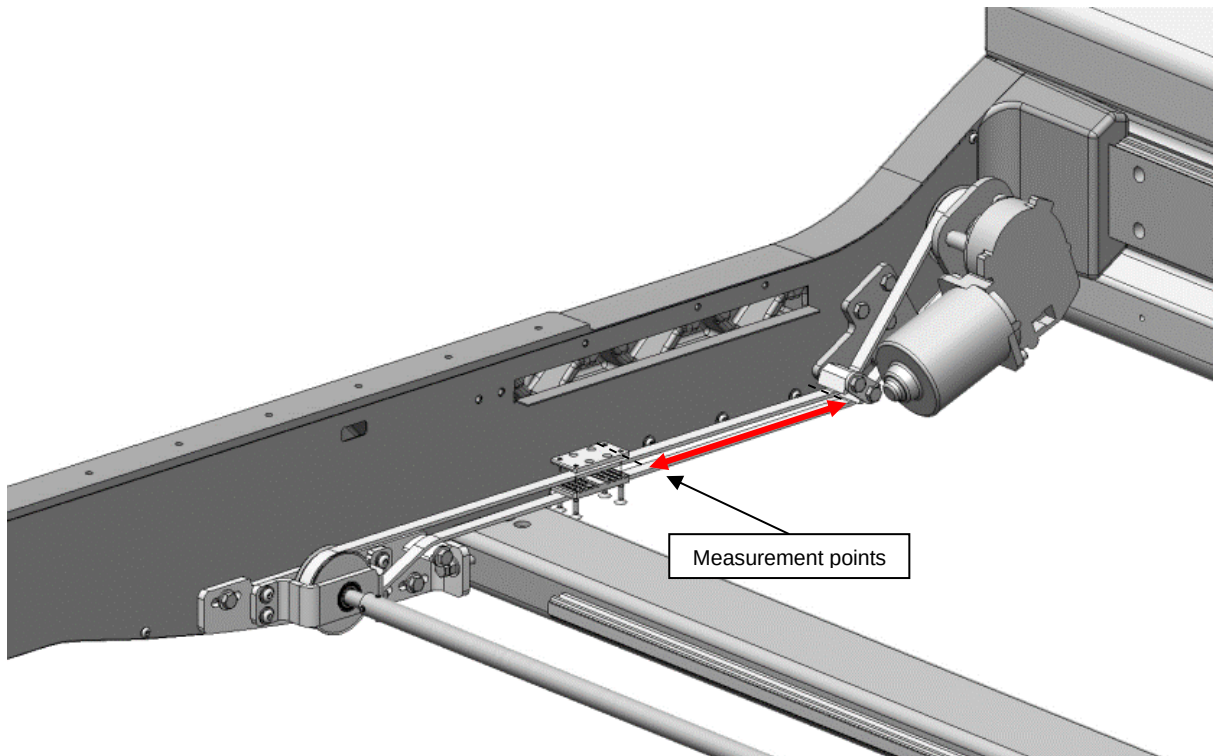
2ndPosition 2ndPosition Reading

Axis Parameters Table Parameters Axis Validation Zooms Parallax Parameter Room Configuration Clearance Parameters

Import Export Parameters v.4 Auto Pos Keyboard Parameters **Write** Num Pad Detector Calibration Exit >

Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.



Measure the distance between the fixing extremity and the pulley extremity.

9090 REMOTE CONTROLLED TABLE

Installation

The measured value doesn't directly correspond to parameters value. You need to use the parameters value of this table for the next steps:

Distance Fixing/Pulley in mm	Parameter value to write in 1/10mm
22	-1650
23	-1640
24	-1630
25	-1620
26	-1610
27	-1600
28	-1590
29	-1580
30	-1570
31	-1560
32	-1550
352	1650
353	1660
354	1670
355	1680
356	1690
357	1700
358	1710
359	1720
360	1730
361	1740
362	1750

Move the lateral tabletop to rear girder direction until the distance is 27mm +/-5mm.
Enter the measured value according to the table inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.
Example : the measure is 26mm, you will enter -1610 inside the TextBox.

Move the lateral tabletop in the reverse direction until the distance is 357mm +/-5mm.
Enter the measured value according to the table inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.
Example : the measure is 356mm, you will enter 1690 inside the TextBox.

Validate by clicking on «**Compute New Values**» and «**Write**».
Parameters 123 and 124 can adjust the software limit switches.

Default values
P123 → -1650
P124 → 1800

Make lateral tabletop movements and verify that the displayed values in « **Display Info table** » tab are corresponding to the measured value.

23.7 Longitudinal table top

Select « **Longitudinal tabletop** » tab in TechMode

The settings will be done in this windows

Click on « Position tuning »

TechMode

Axis	N°	Value	Description
Carriage	69	500	Acceleration (ms)
	70	100	Deceleration (ms)
	71	8	Speed (cm/s)
Column Angulation	72	-6000	Min Position (1/10mm)
	73	12000	Max Position (1/10mm)
Tilting	74	150	Closed Loop Proportional Gain
Table Height	75	0	Closed Loop Integral Gain
	76	1000	Integral Limit
Long. Table Top	77	100	Inverter Min Step (RPM)
	78	20000	Max tracking Error (1/10mm)
S.I.D.	79	70	Stop Window (1/10mm)
	80	551	Potmeter Min Position (mV)
Lateral Table Top	81	9644	Potmeter Max Position (mV)
	82	-6000	Absolut Min Position (1/10mm)
Compressor	83	12000	Absolut Max Position (1/10mm)
	84	1000	Manual Positioning Low Speed (cm/s)
	85	0	Manual Positioning Low Speed Duration (ms)

Position Tuning

1stPosition: [Orange Bar] 1stPosition Reading

2ndPosition: [Orange Bar] 2ndPosition Reading

Write

The longitudinal tabletop is available with 2 options depending on the table configuration. This configuration can't be changed by end user.

In order to know which option is available for your table you can check parameters 72 and 73

Longitudinal tabletop with 120cm left side :

- parameter 72 is set to -6000
- parameter 73 is set to 12000

Longitudinal tabletop with 120cm right side :

- parameter 72 is set to 12000
- parameter 73 is set to -6000

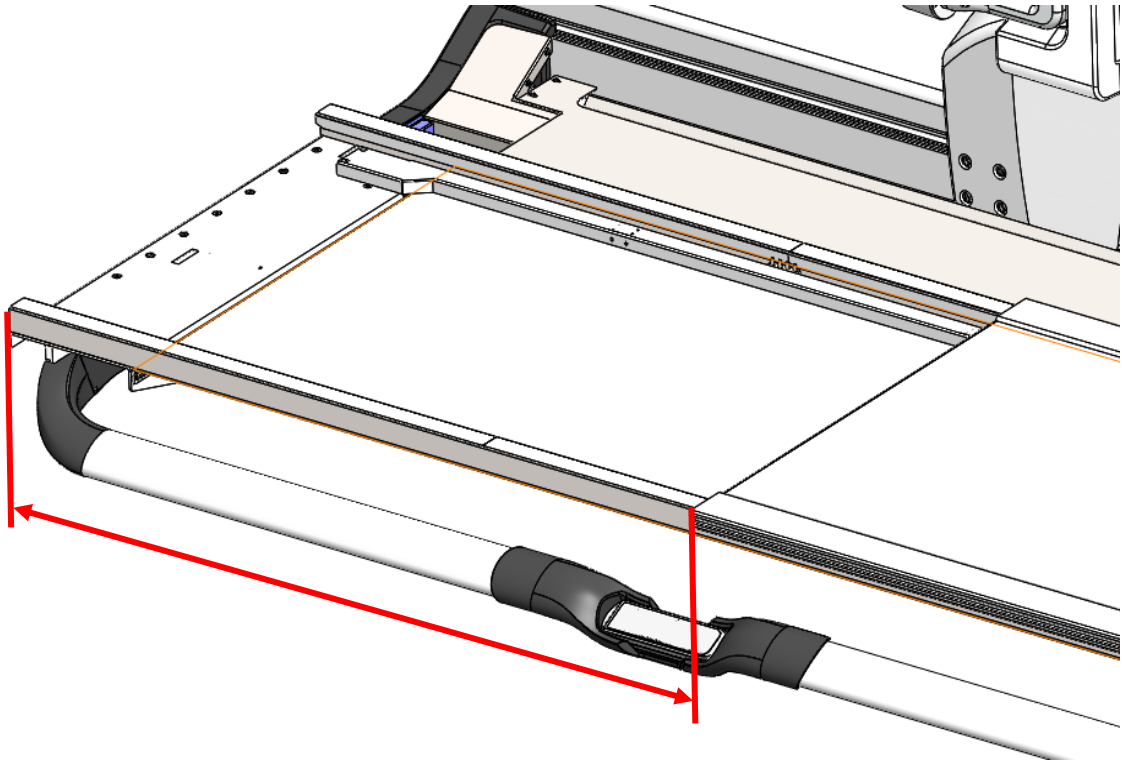
9090 REMOTE CONTROLLED TABLE

Installation

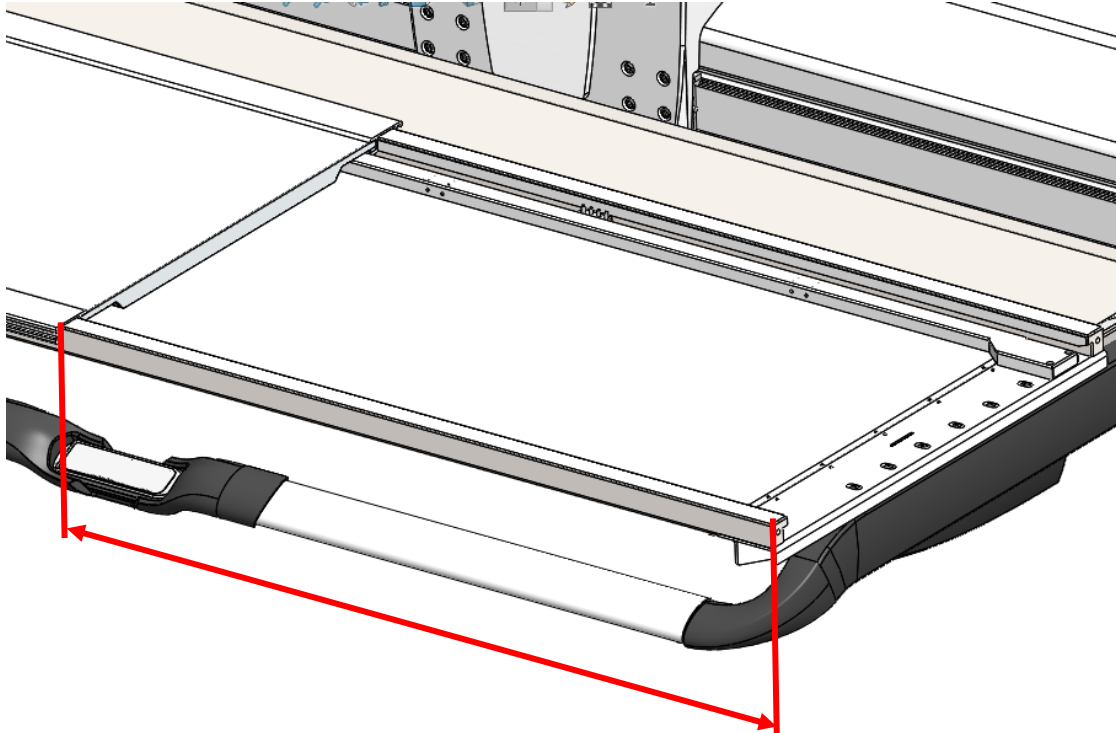
Measuring points :

During the tuning some measure have to be done. For this movement the measures are done according to the following scheme.

1st Position measure



2nd position measure



- Longitudinal tabletop with 120cm left side :

Move the longitudinal tabletop on the 1st position, the measure shall be closed to -600mm

Enter the measured value in 1/10mm inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Move the longitudinal tabletop on the 2nd position, the measure shall be closed to 1200mm

Enter the measured value in 1/10mm inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

- Longitudinal tabletop with 120cm right side :

Move the longitudinal tabletop on the 1st position, the measure shall be closed to -1200mm

Enter the measured value in 1/10mm inside the TextBox near the button « **1st Position Reading** » and clic on the button to validate the value.

Move the longitudinal tabletop on the 2nd position, the measure shall be closed to 600mm

Enter the measured value in 1/10mm inside the TextBox near the button « **2nd Position Reading** » and clic on the button to validate the value.

Clic on the write button to save the values.

Move the longitudinal tabletop in both direction and verify that the displayed values in « **Display Info table** » tab are corresponding to the measured value.

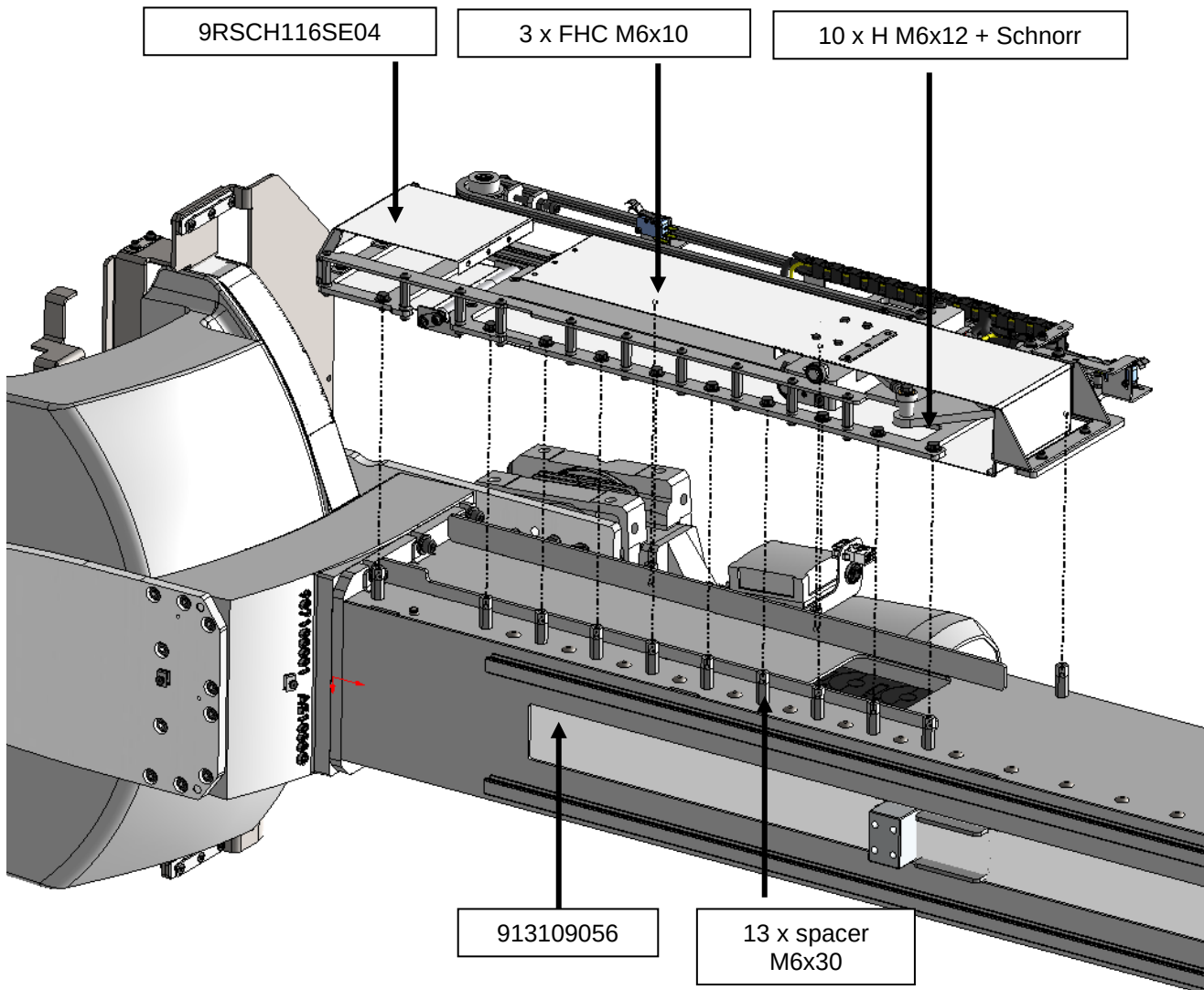
Verify that the tabletop is centering without command during tilting if option is validated.

WARNING : verify that the tabletop doesn't hit the floor during these movements

24. RETRACTABLE COMPRESSION DEVICE – MECHANICAL REMOUNTING

Fix the retractable compressor subassembly (9RSCH116SE04) on the 13 spacers M6x30 (PR-0705047EN + 910046) of the riveted column (913109056) using 3 screws FHC M6x10 and 10 screws H M6x12 + Schnorr.

Install all the screws and first tighten the 3 FHC screws, then tighten 10 other H screws.

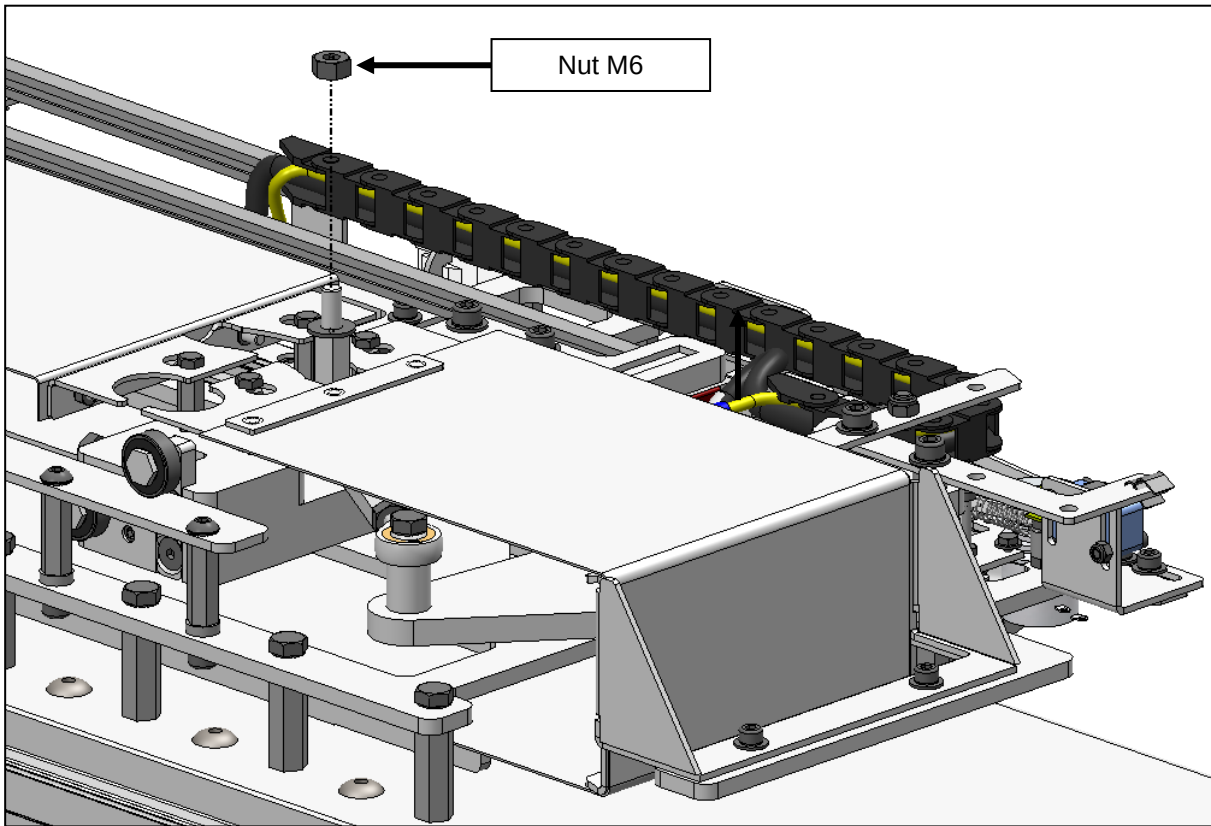


9090 REMOTE CONTROLLED TABLE

Installation

Remove the M6 nut in order to access to the Ø6 flat washer.

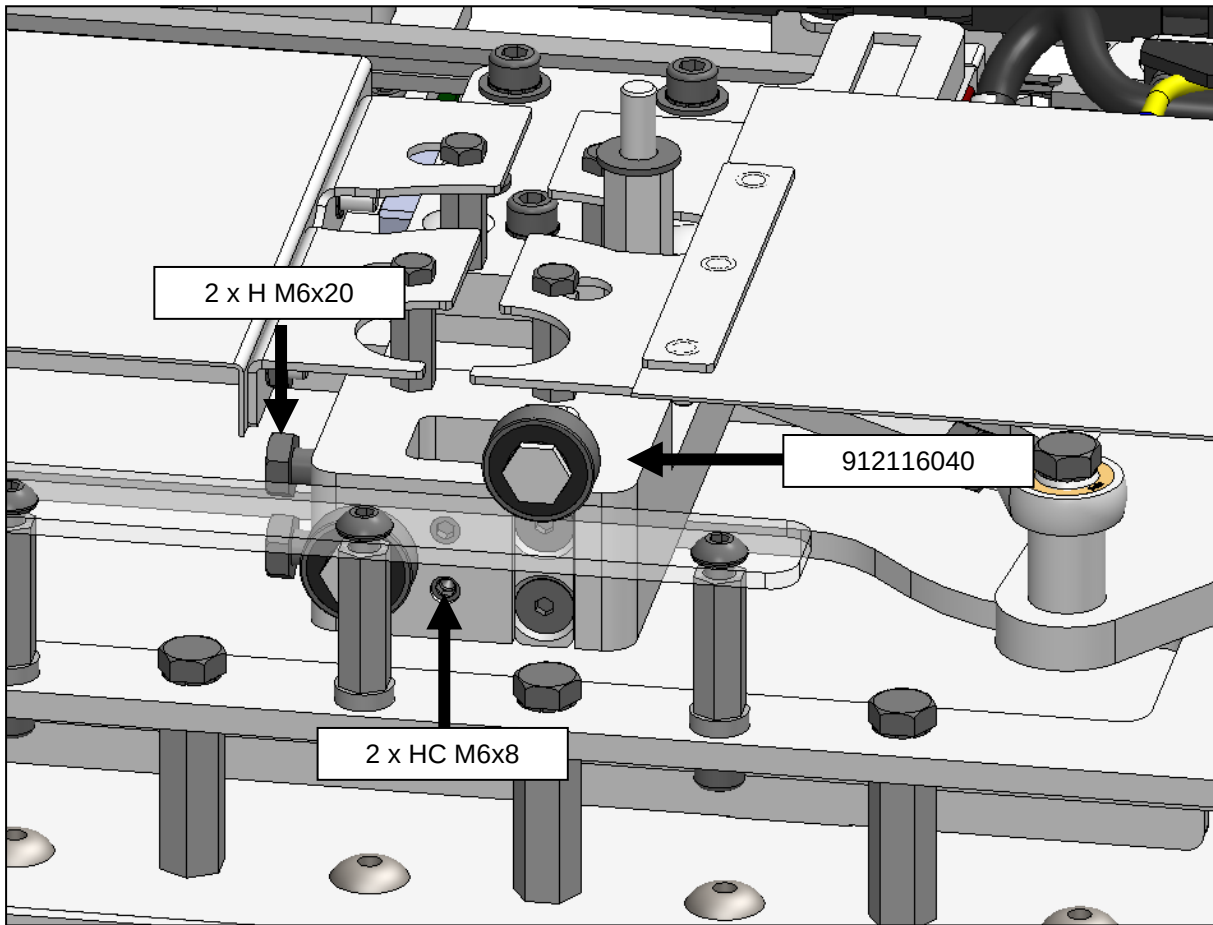
LEAVE THE FLAT WASHER IN PLACE.



9090 REMOTE CONTROLLED TABLE

Installation

Unlock 2 screws HC M6x8 and 2 screws H M6x20 screwed on the arm axis holder (912116040).

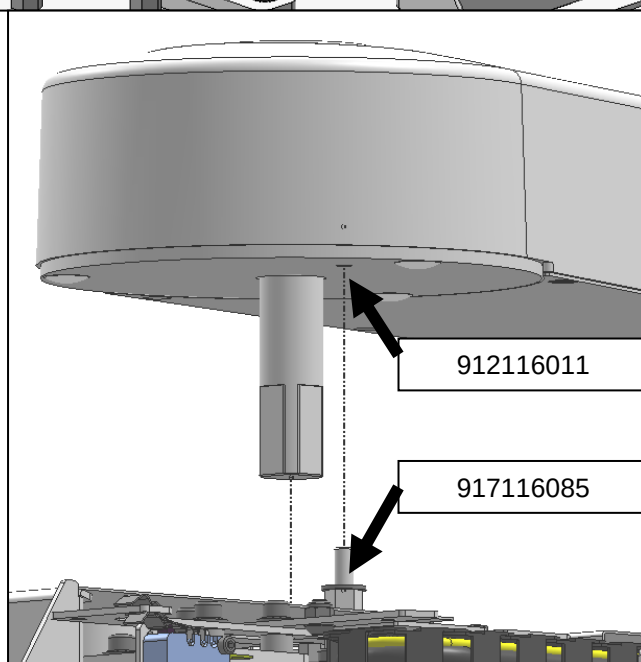
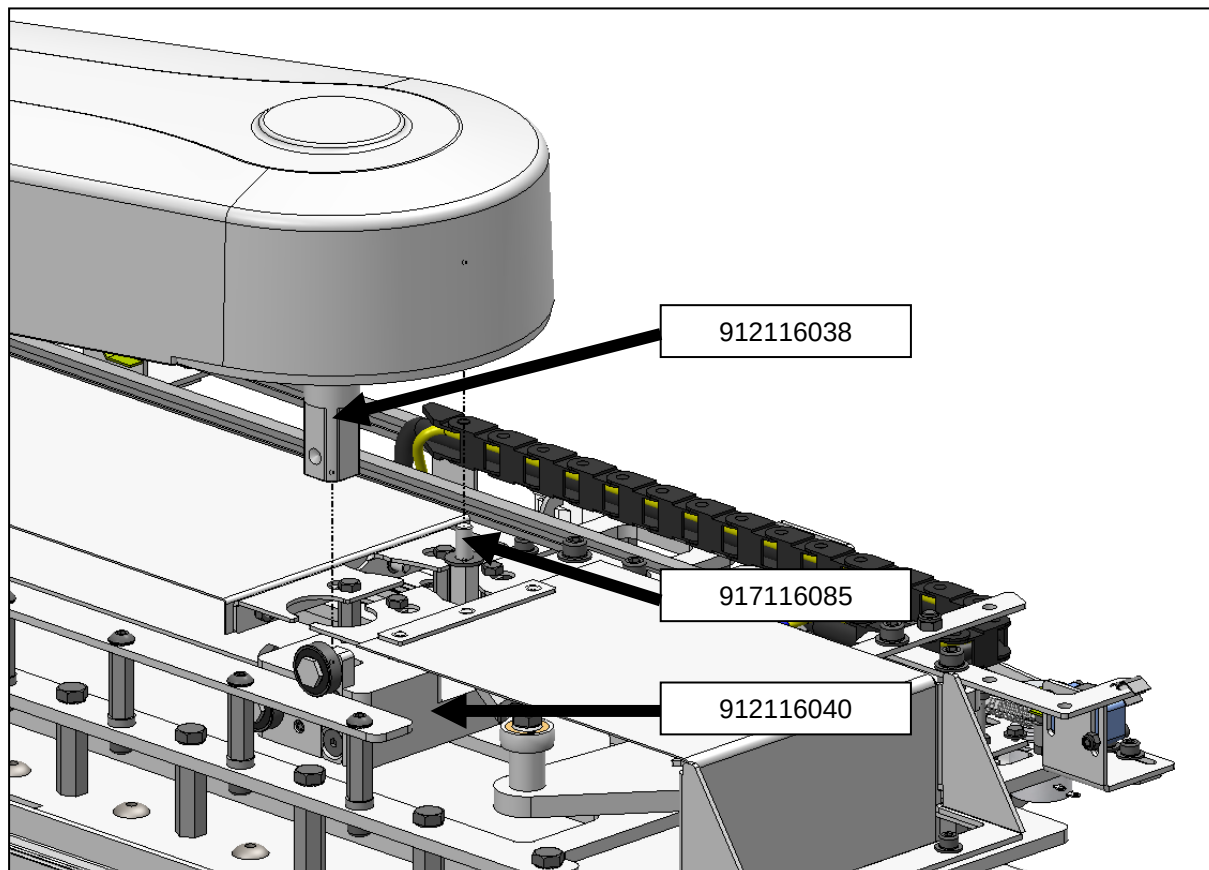


9090 REMOTE CONTROLLED TABLE

Installation

Insert the arm axis (912116038) in the arm axis holder (912116040) so that the « drill point » machining is towards front direction. Position the arm fixing (917116085) in front of the threaded hole in the arm bearing housing (912116011). Once the arm axis inserted and the arm fixing in front of the threaded hole, screw the arm fixing (917116085) into the the arm bearing housing (912116011).

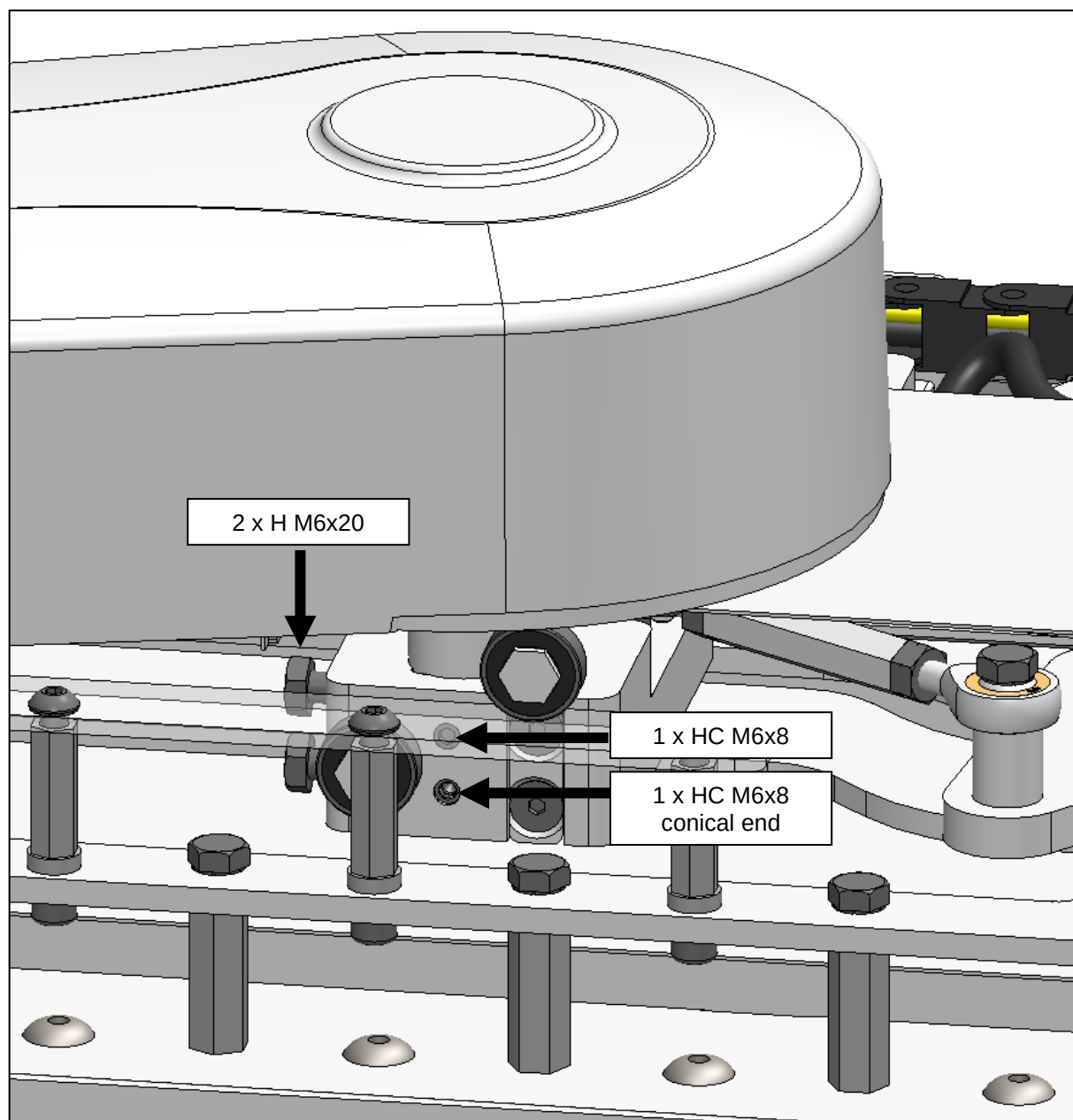
DO NOT FORGET THE FLAT WASHER BETWEEN THE ARM FIXING AND THE BEARING HOUSING.



9090 REMOTE CONTROLLED TABLE

Installation

Lock the assembly by first screwing HC M6x8 conical end. Then tighten HC M6x8 screws and 2 H M6x20 screws.



25. RETRACTABLE COMPRESSION DEVICE – ADJUSTMENTS

25.1 Preliminary modification to the settings:

Before carrying out this procedure, procedure PRO I D109 (Retractable compression assembly) must have been performed. This means that, at the start of adjustment, compression is in an intermediate position.

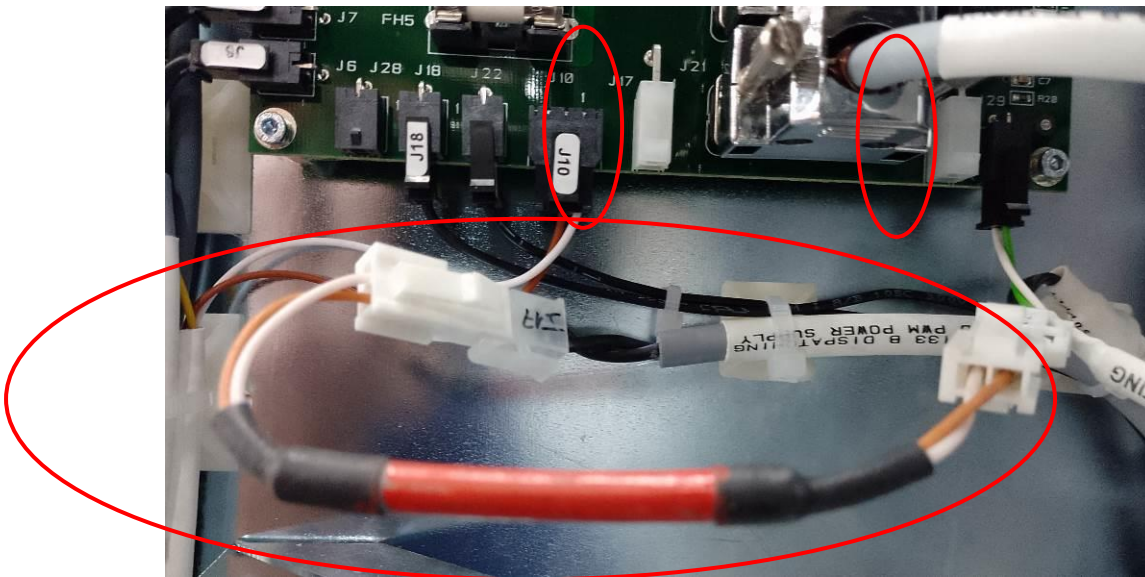


With the table switched off, disconnect the 919630133 cable from J17 and the 919630121 cable from J19 on the distribution board. Then wire the bridge between 919630133 and 919630121.

Bridge consisting of two minifit 2-pin female connectors.



This is to drive the compression motor without using the relay K2 contact on the distribution board. We will no longer open the load during power control (PWM) at the safety threshold of 19 Kg, as there is too great a risk of damaging the MOSFET transistors on the PLC board during set-up and testing.



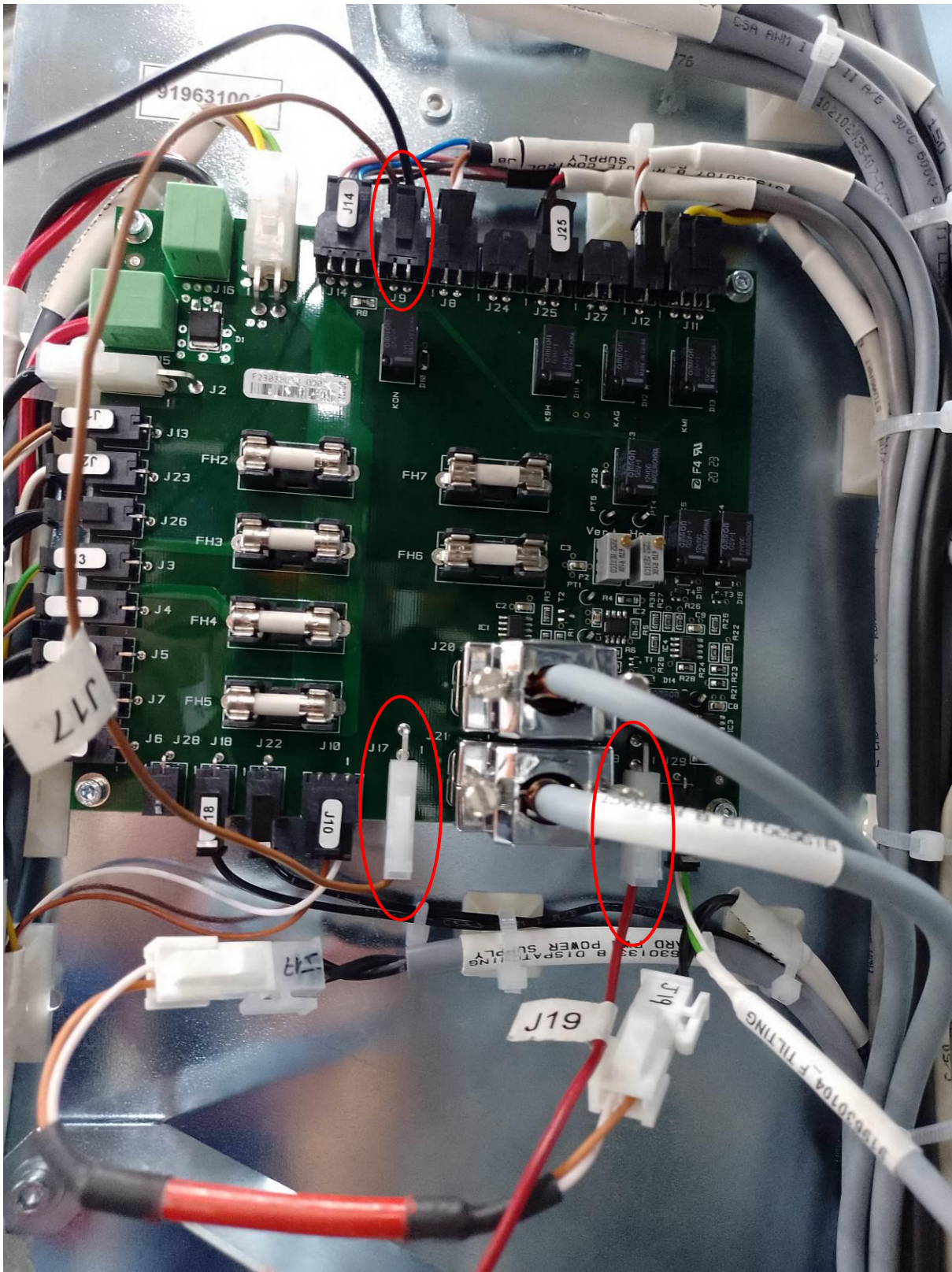
9090 REMOTE CONTROLLED TABLE

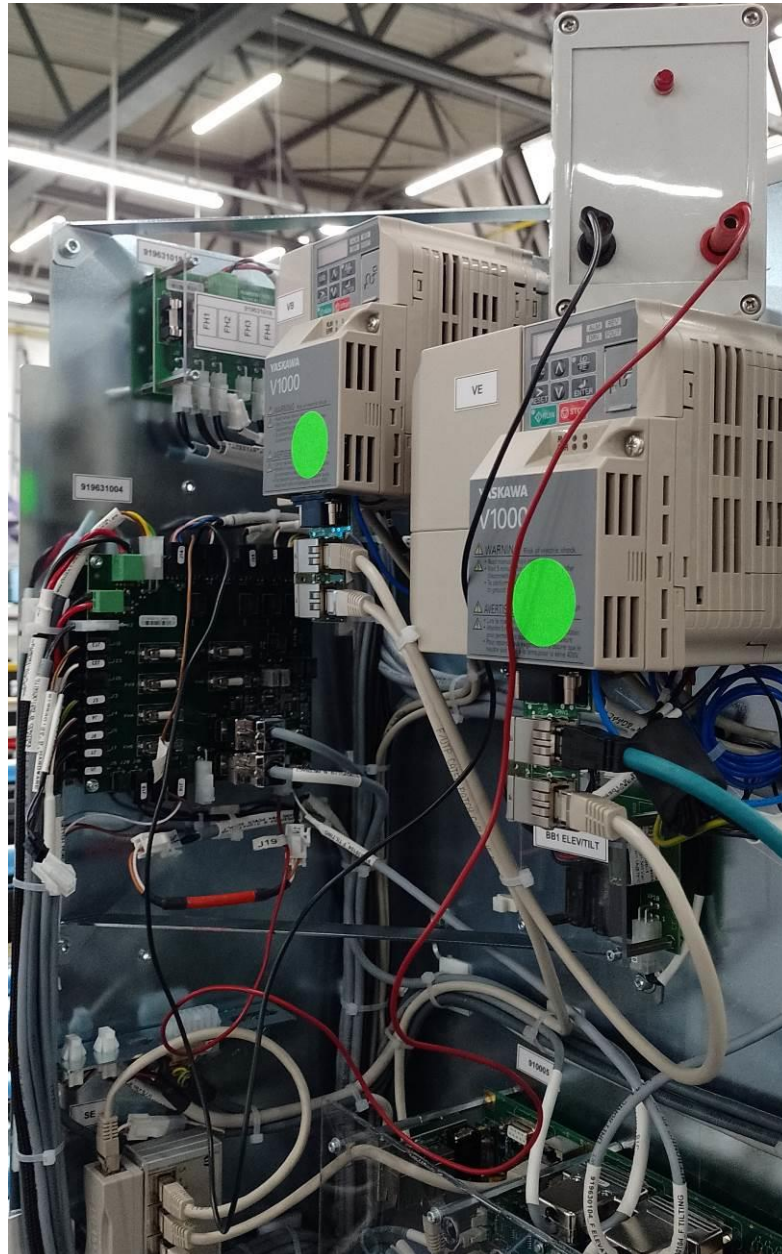
Installation

Installation of the "LED box" tool for relay status indication :

Connect the red wire to the red terminal on the box and to J19 on the distribution board.

Connect the black wire to the black terminal on the box and the microfit 4-pin connector to J9 on the distribution board and the Molex minifit 2-pin connector to J17.





When the LED is lit, the box indicates that movement is possible (safety is OFF). If it goes out, safety is activated and movement is no longer possible in user mode.

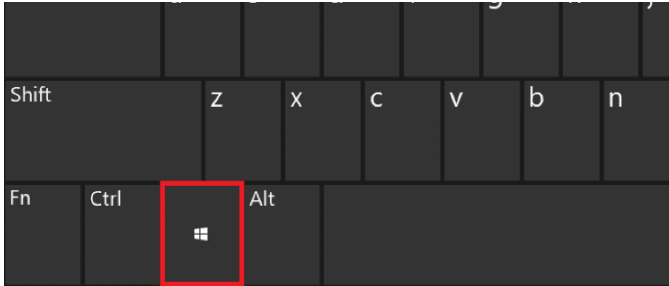
Note:

If compression adjustment is selected at the start of electrical adjustment, you must at least have set the incidence encoder, otherwise compression may go up but not down. You'll also need to have set the tilt to be able to set the 2 thresholds.

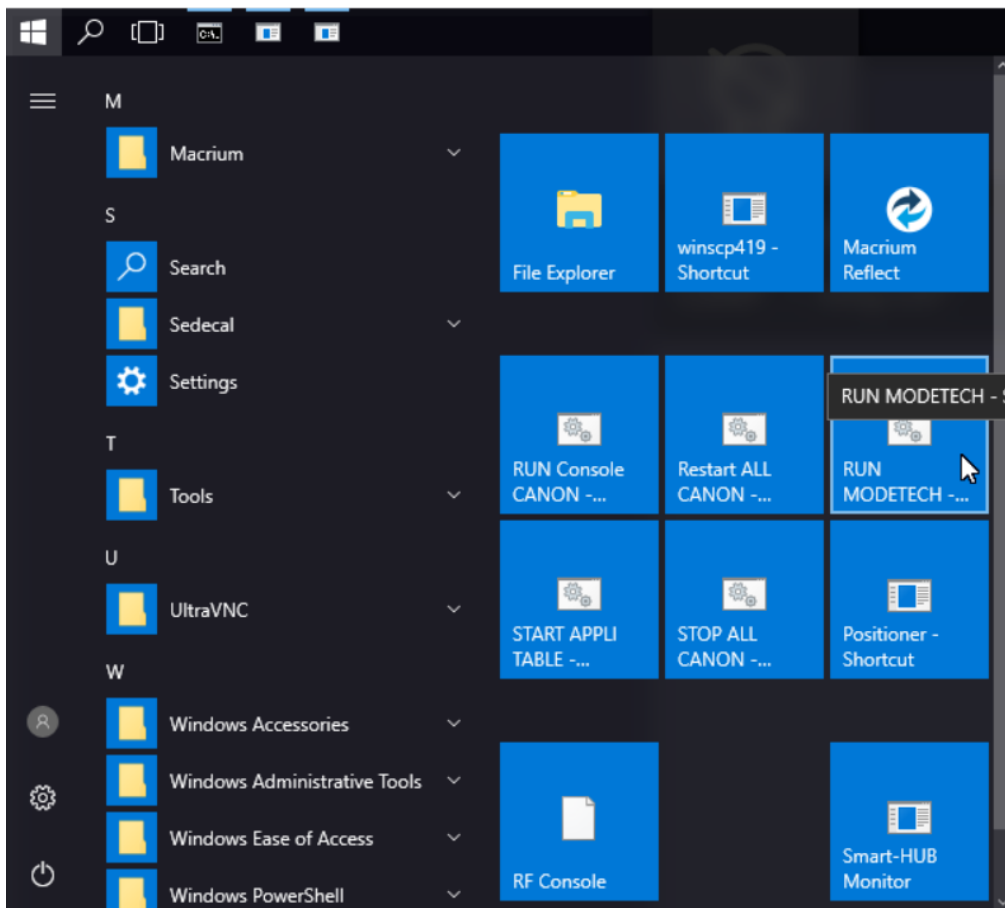
25.2 Validate axis and check direction of movement

Start the table, then tilt it to 0° with incidence centered and compression in parking position (retracted).

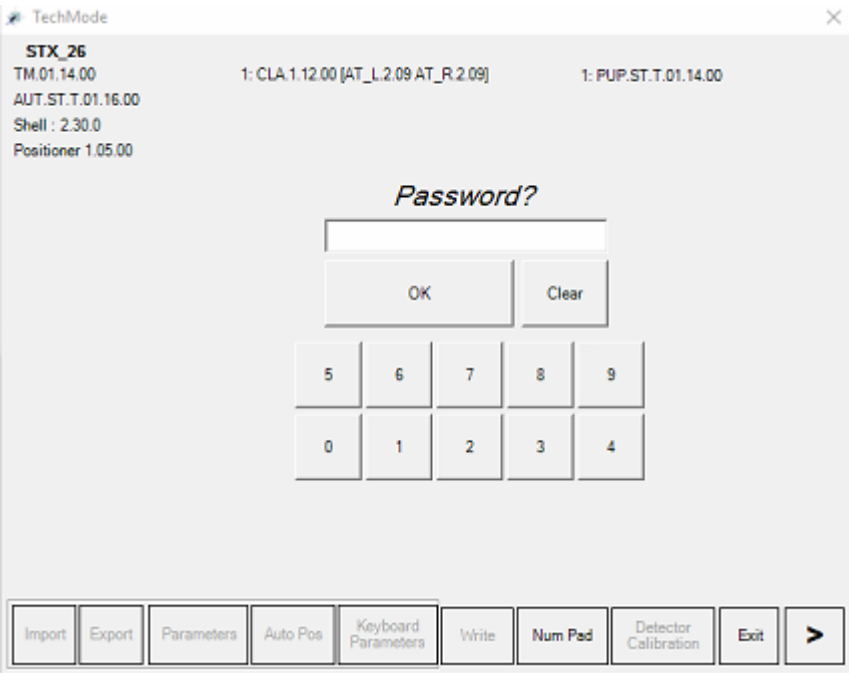
To access technician mode, connect a USB keyboard to the console's PC board, then press the "Window" button on the keyboard.



Then click on "RUN MODETECH":

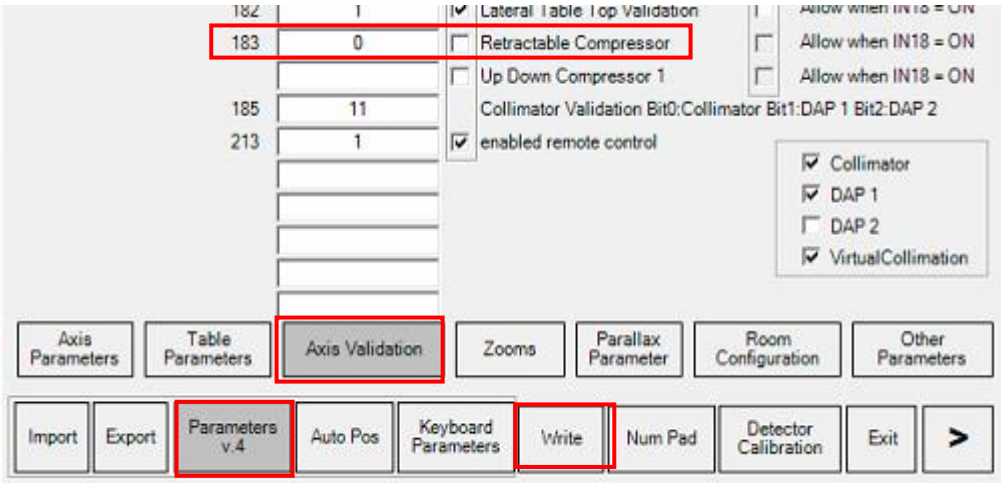


Technician mode is displayed. Enter password: **78945**.

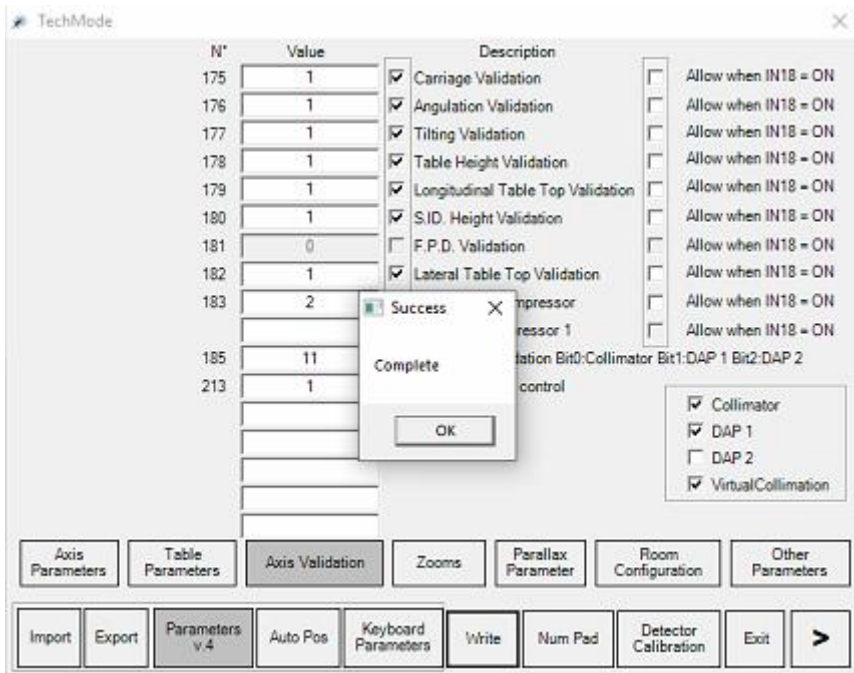


Press the **"Parameters"** button. In the new window, press the **"Axis Validation"** button and check the box for parameter 183 (Validation Compres Escamot).

Confirm with "Write".



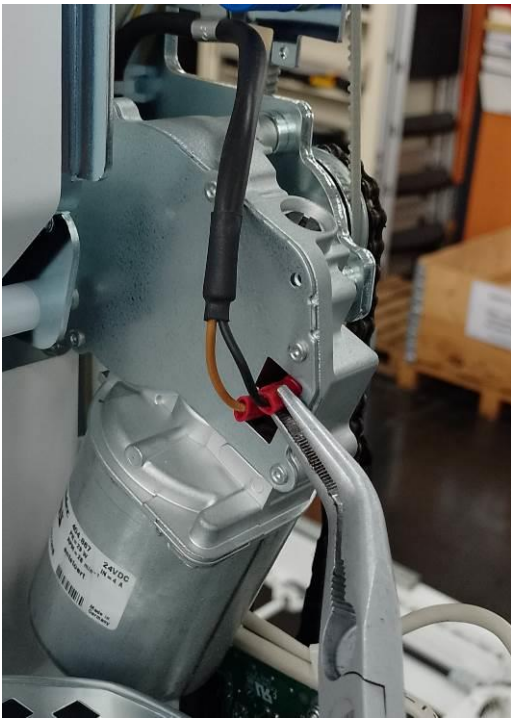
Once the "success" message appears, click OK.



To check the direction of movement: compression is necessarily in an intermediate position at this point.

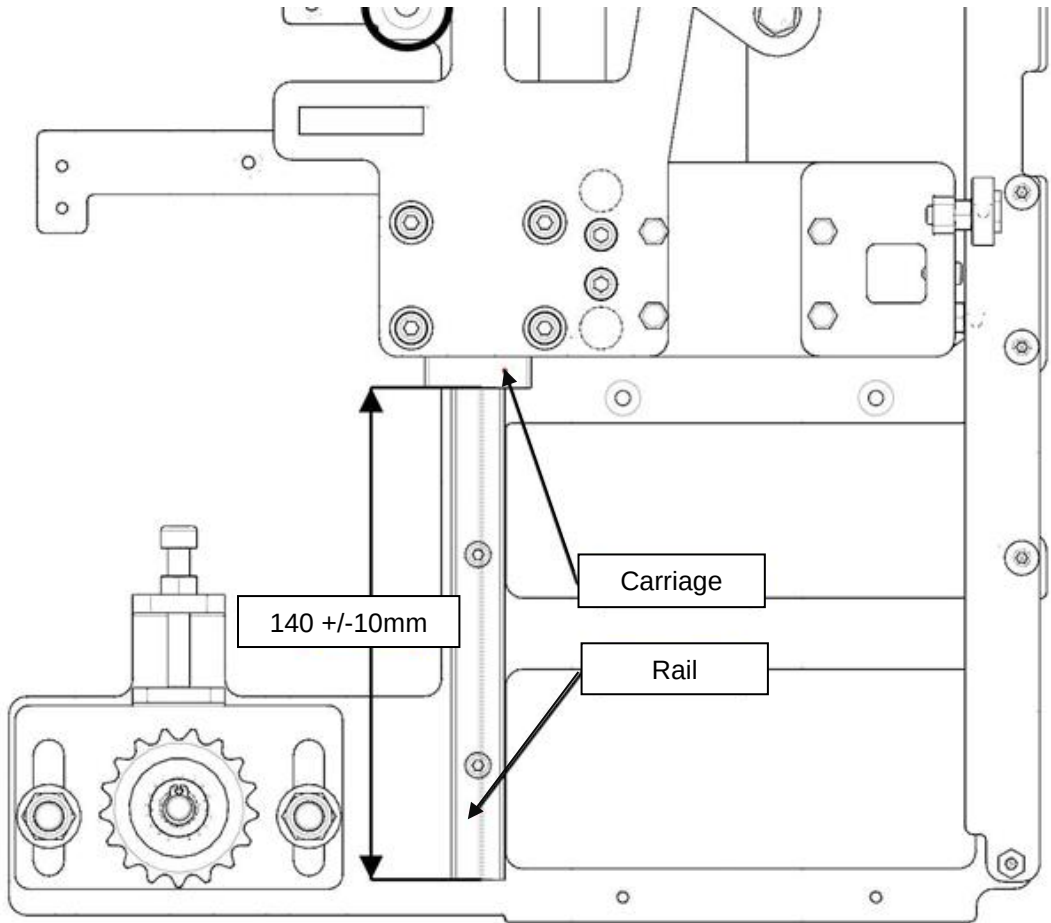


Use button  to lower the compression (downward movement). If the compression rises, switch off the table and invert the 2 motor terminals (then repeat the previous check), otherwise the motor is wired in the right direction.

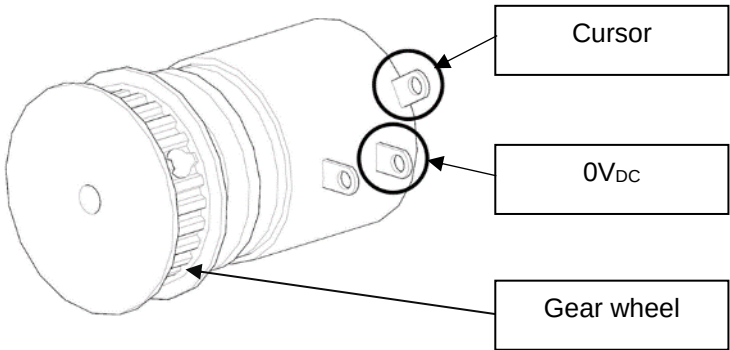


25.3 Position Potentiometer adjustment

Check potentiometer setting. To do this, move the compression to a distance of **140mm ± 10mm** between the bottom of the shoe and the bottom of the rail. Then switch off the table:



Disconnect the **CJ** connector (DIN socket) of the gauge board then measure the potentiometer feedback in Ohms. If the measured value does not match the table, readjust it by turning the gear wheel.



POSITION-REGLEE (mm) ^a	VALEUR-POTENTIOMETRE (kΩ) ^a
130 ^a	6.373 ^a
131 ^a	6.357 ^a
132 ^a	6.340 ^a
133 ^a	6.323 ^a
134 ^a	6.306 ^a
135 ^a	6.290 ^a
136 ^a	6.273 ^a
137 ^a	6.256 ^a
138 ^a	6.239 ^a
139 ^a	6.223 ^a
140 ^a	6.206 ^a
141 ^a	6.189 ^a
142 ^a	6.173 ^a
143 ^a	6.156 ^a
144 ^a	6.139 ^a
145 ^a	6.122 ^a
146 ^a	6.106 ^a
147 ^a	6.089 ^a
148 ^a	6.072 ^a
149 ^a	6.055 ^a
150 ^a	6.039 ^a

Reconnect **CJ** connector to its DIN socket on the gauge board.

25.4 Retract Position settings

Press the **"Parameters"** button and then **"Axis Parameters"**. In the new window, press the **"Compression"** button.

Axis	N°	Value	Description
Carriage	137	30	Input Speed (% max speed)
	138	70	Down Speed (% max speed)
	139	50	Output Speed (% max speed)
Column Angulation	140	260	P0 Park Position (steps)
	141	730	P1 Full exit Position (steps)
	142	330	P2 Lower limit Position (steps)
Tilting	199	240	Max compression (steps)
	200	13000	Max compression strength (g)
Table Height	201	240	Patient detection level (steps)
	202	5000	Patient detection strength (g)
Long. Table Top	203	0	
	204	0	
S.I.D.	205	0	
	206	65764	
Lateral Table Top		0	
		0	
Compressor		0	
		0	

Position Tuning

1stPosition

1stPosition Reading

2ndPosition

2ndPosition Reading

Axis Parameters
Table Parameters
Axis Validation
Zooms
Parallax Parameter
Room Configuration
Other Parameters

Import
Export
Parameters v.4
Auto Pos
Keyboard Parameters
Write
Num Pad
Detector Calibration
Exit
>

Parameters 140, 141, 142, 199 and 201 will be set in the following steps. Preset them to the values shown in the table above.

Warning: It is important to preset parameters 199 and 201.

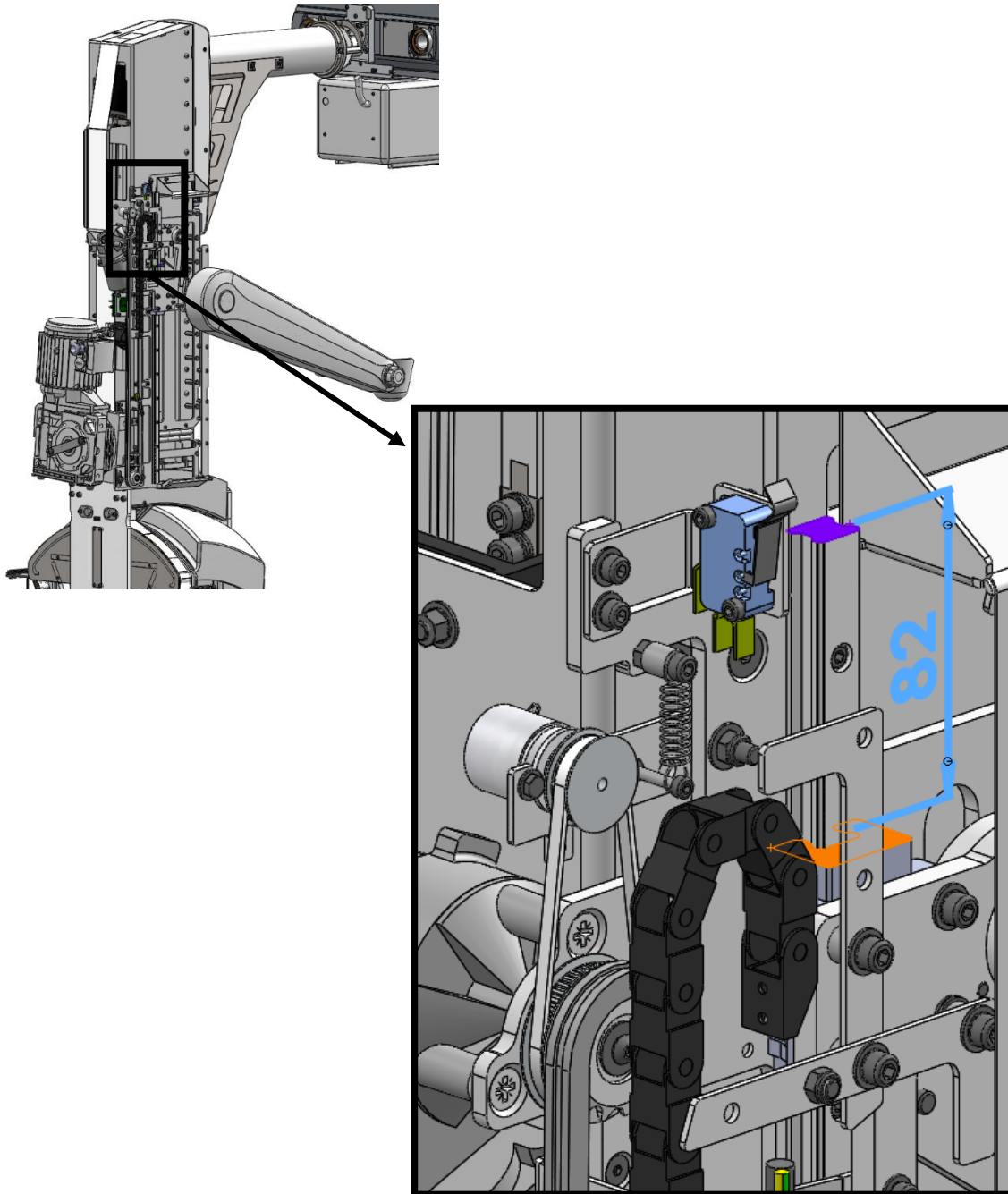
Validate parameter 199 with a value of **2400 pts**.

Validate parameter 201 with a value of **2400 pts**.

9090 REMOTE CONTROLLED TABLE

Installation

Place the table in horizontal position, with the carriage on the left side, and raise the compression to 82mm $\pm$ 2mm (**there's a stop before the arm folds back**, corresponding to a distance between the skate and the end of the rail = 82mm). If you don't reach 82mm at the stop, return to TechMode and modify parameter 141 in 10 point increments.

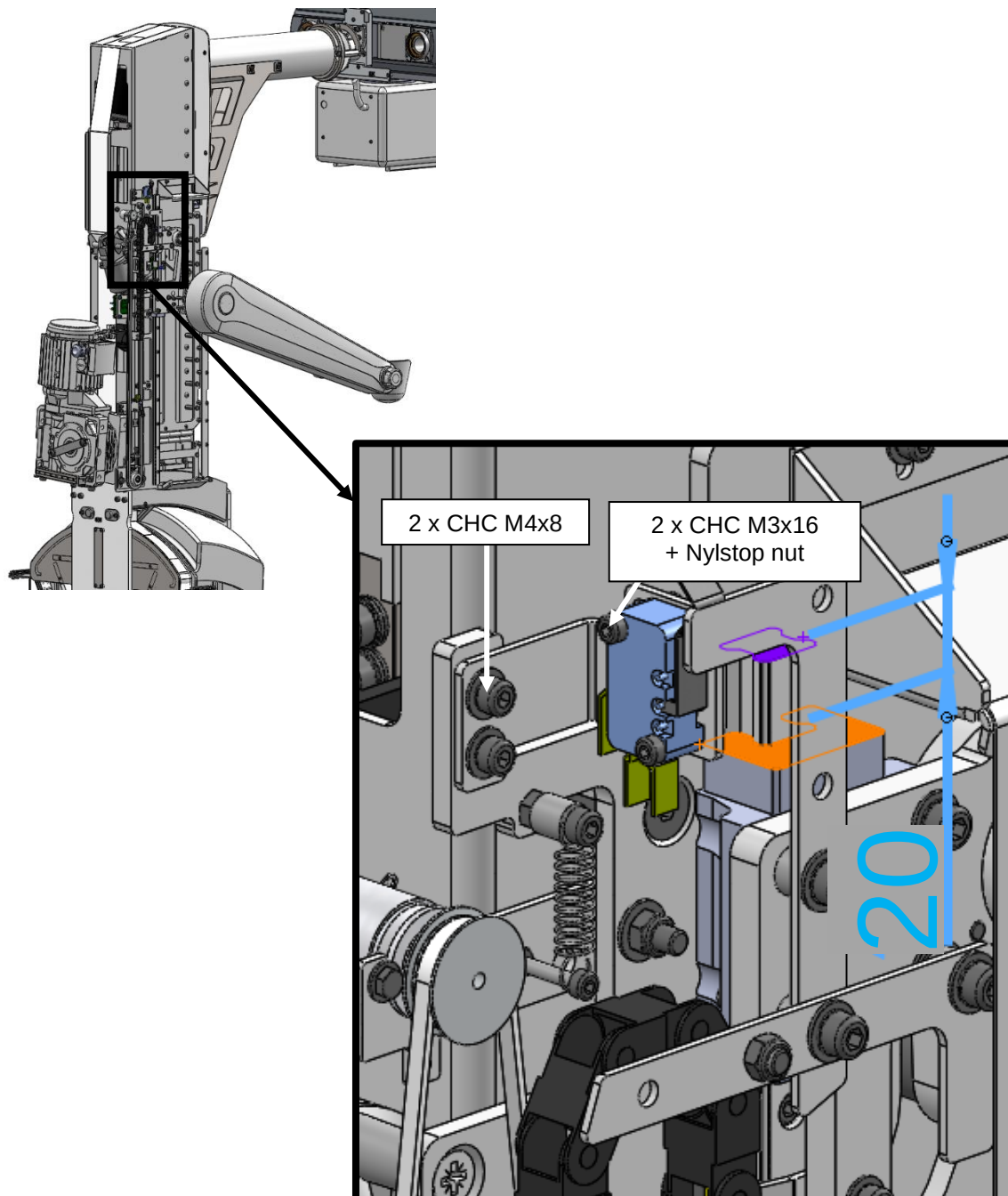


25.5 Parking position and limit switch adjustment

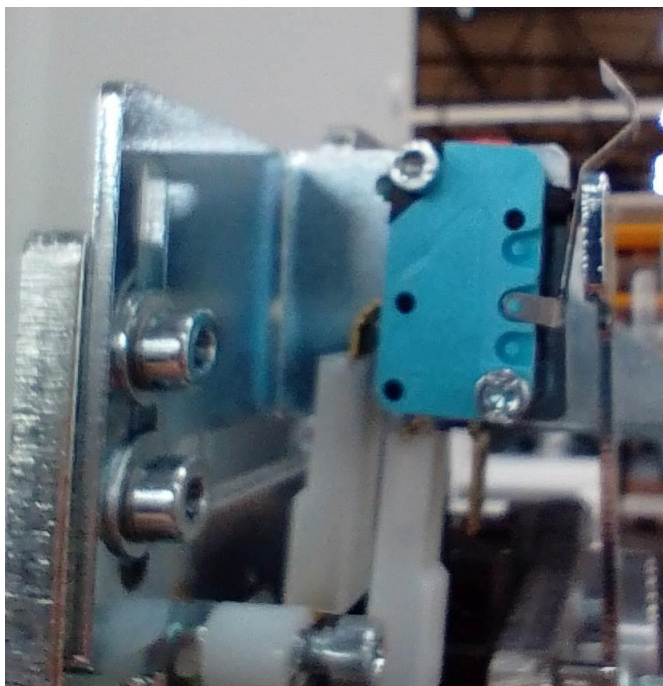
Fold back the compression and adjust the value of **parameter 140 "Potentiometer P0"** to reach the value of **20mm (+2 / -0 mm)** between the top of the pad and the top of the rail. Between each test, always validate changes by "Write". Proceed with caution.

Information:

A variation of 100 points is equivalent to a variation of about 15mm.



Once P0 has been set, adjust the limit switch to the triggering limit: slightly tilt the position of the micro-switch on its mounting. Position the micro-switch reed 0.5 mm from the actuating part, then secure with 2 M4x8 socket head cap screws and 2 M3x16 socket head cap screws + Nylstop nut.

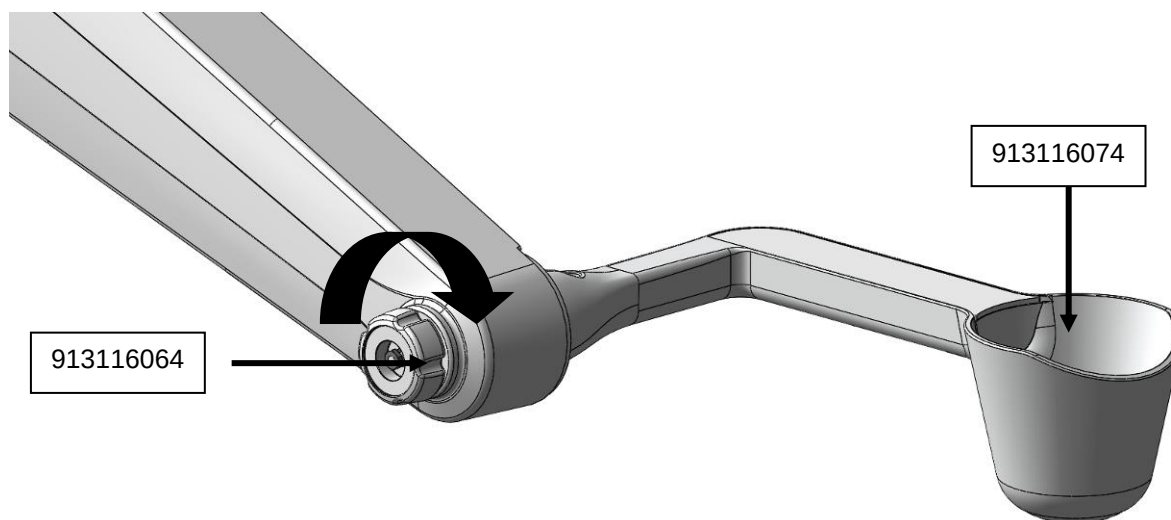


25.6 Mechanical adjustment of output position parallelism

Move to retracted exit position.

If the clutch release handle (913116064) is not locked, lock it manually by turning it clockwise.

When tightening, do not push on the retractable compression ladle (913116074) with your other hand. Leave the ladle free, and it will naturally fall into place once the handle is locked.



Using a level, check the inclination of the retractable compression ladle (913116074) so that the top of the ladle is parallel to the arm rail or tabletop ($0^\circ \pm 0.5^\circ$).

9090 REMOTE CONTROLLED TABLE

Installation

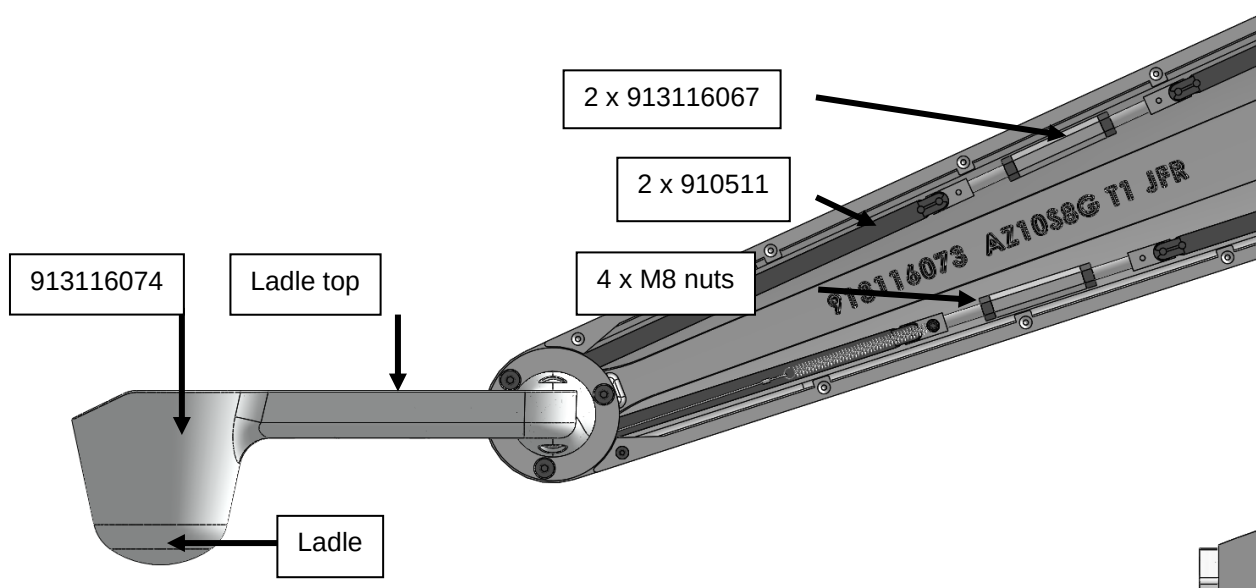
Make 0 on a rail or on the tabletop:



And compare on the flat part of the ladle:

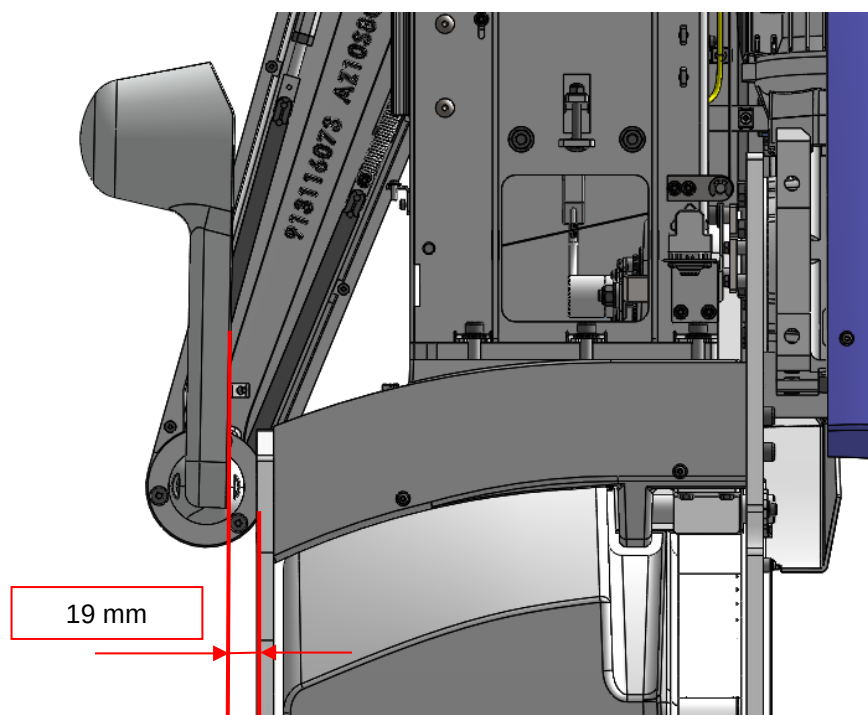


If you are not $\pm 0.5^\circ$ parallel, you need to adjust the arm chain tension:
Screw or unscrew the 2 arm chain tighteners (913116067). To ensure that the 2 chains (910511) are sufficiently tightened (approx. 1/2 link tension), the ladle must not have any angular play in relation to the arm when force is applied to the ladle.

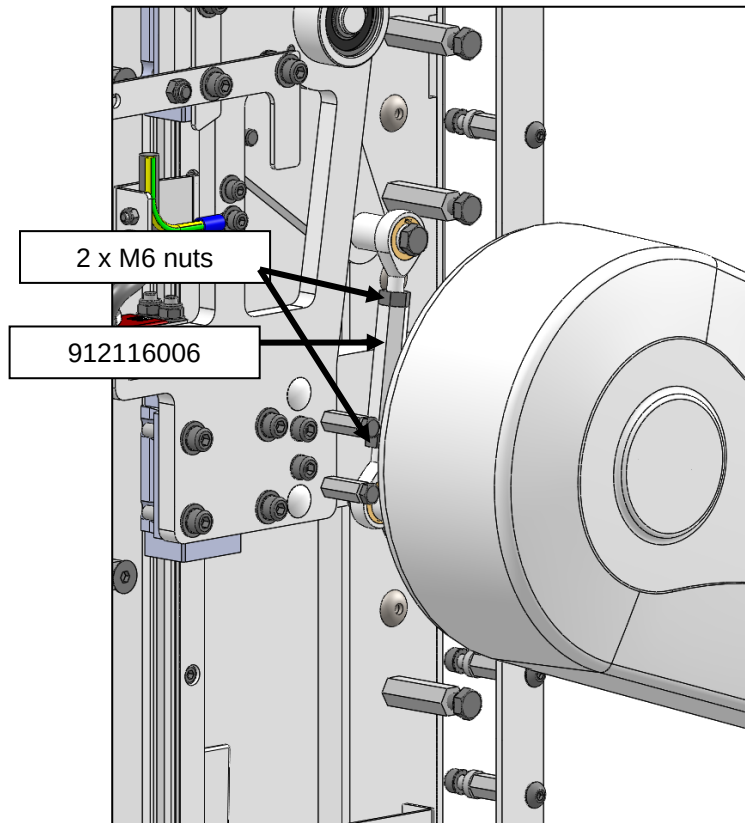


25.7 Mechanical parallelism adjustment in retracted position

Check that the flat face of the ladle is **parallel and 19 mm +/- 1mm** from the front plate of the Stirrup.



If this is not the case, adjust the center distance between the 2 ball joints by screwing or unscrewing the ball stud (912116006) after releasing the 2 M6 nuts. Then repeat the previous check.



Make a compression opening and recheck with a level the inclination of the retractable compression ladle (913116074) so that the top of the ladle is parallel to the arm rail or the tabletop. If not, adjust chain tension.

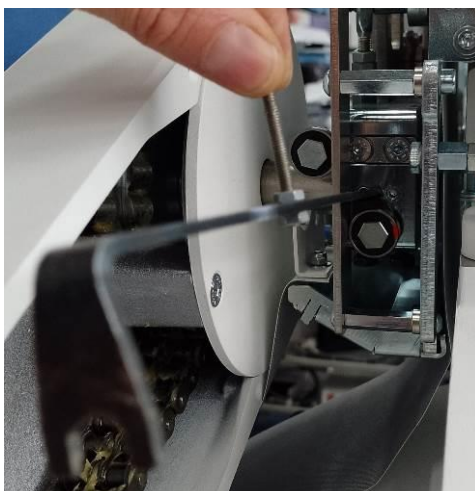
You have to make a compromise by adjusting the chain tighteners and the ball-and-socket joint tightener to be level: parallel to the stirrup in the closed position and parallel to the arm rail or tabletop in the open position.

At the end of adjustment, lock the 4 M8 nuts on the chain tighteners inside the arm and lock the 2 M6 nuts on either side of the tie rod.

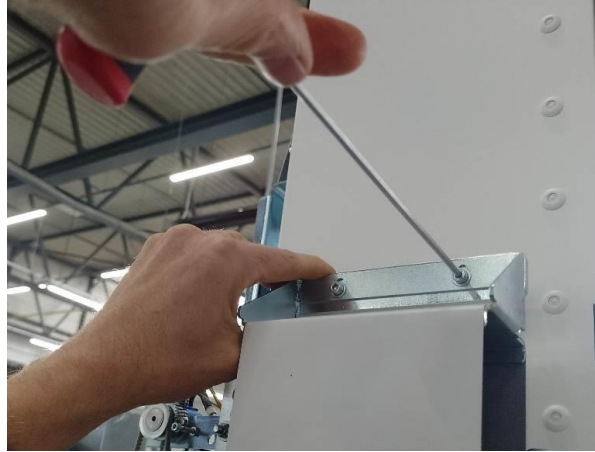
Once this step has been completed, check that the 2 bearings are in contact with the rail and that they rotate over the full range of movement.



If not, adjust them using the special key.

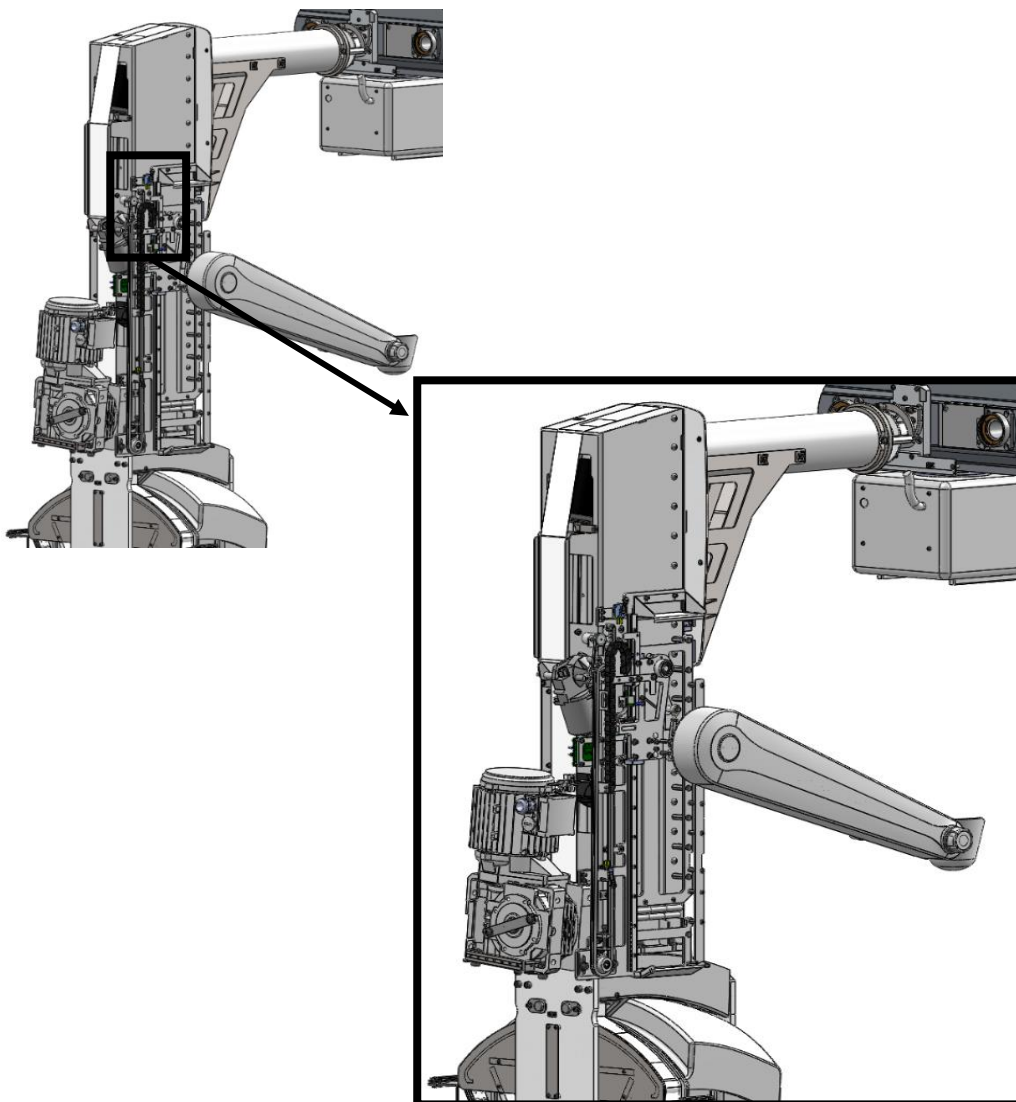


Next, set the belt tension (hand-tighten to maximum) and check that it moves correctly, as ideally this tension should not be altered.

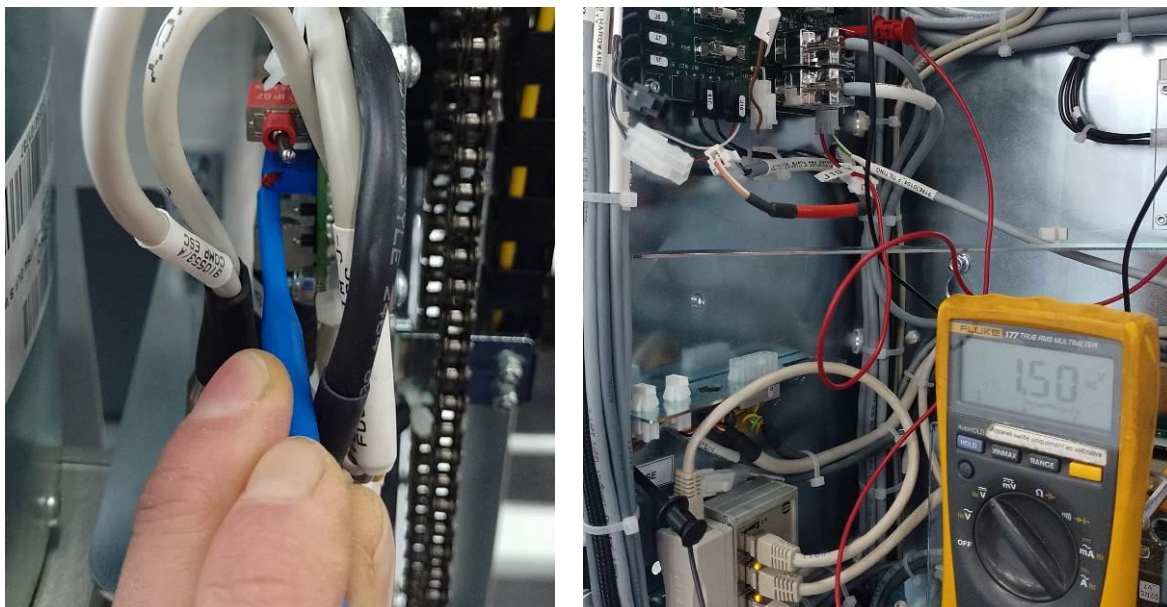


25.8 Resting gauge return adjustment

In order to set the gauge feedback signal to the resting state, move the compression out of its parking position if it is not (**Unfold the arm + one downward impulse**, corresponds to a distance between the skate and the end of the rail = approx. 82mm).



Measure the voltage (rating V_{DC}) between **PT2** on the distribution board and the table frame and preset it to $2.5V \pm 0.05V$ using potentiometer **P1** on the gauge board.



If the signal is blocked regardless of potentiometer rotation, change the switch position to add an offset.



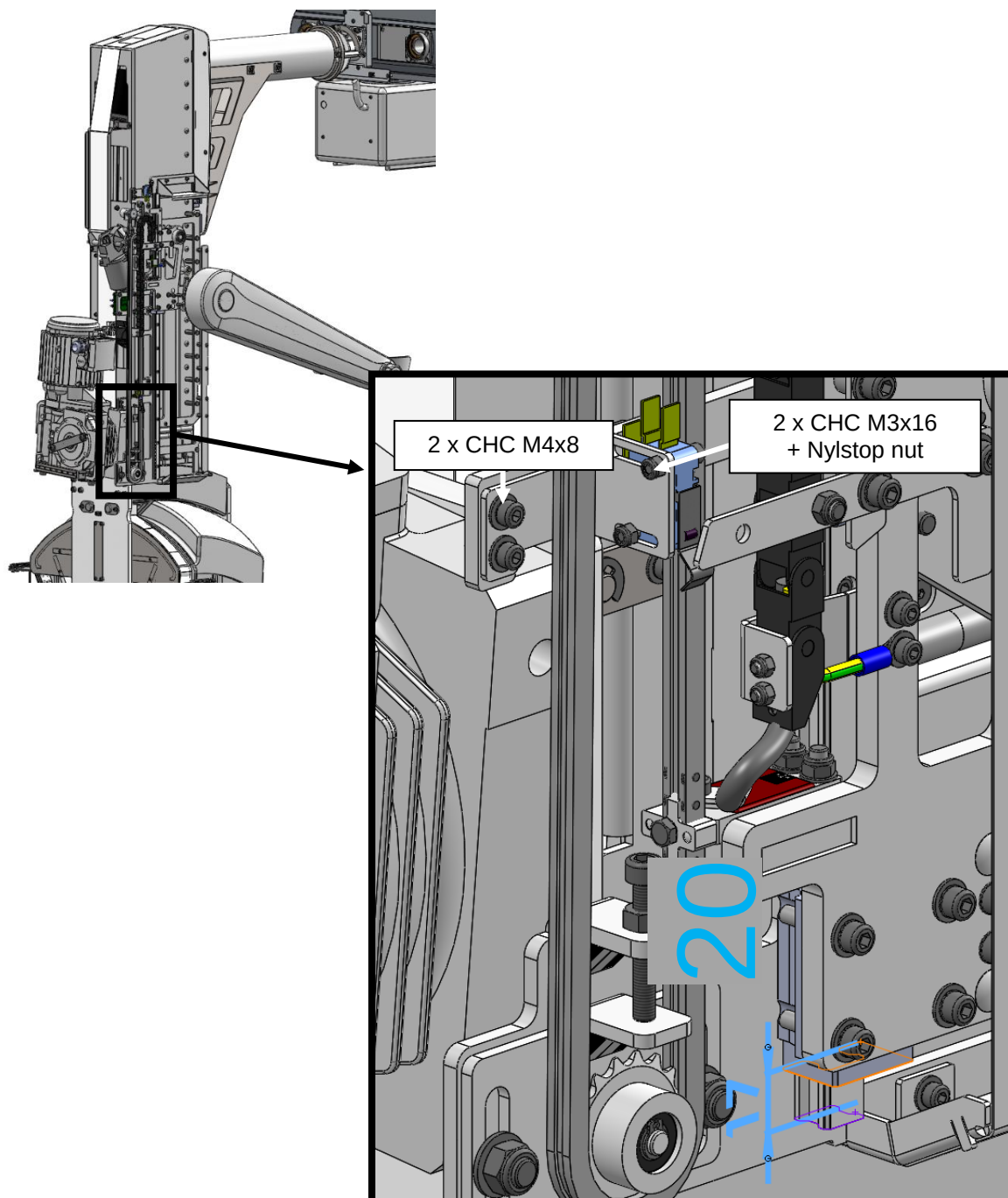
The switch is usually positioned in this direction.

25.9 Lower limit and end position adjustment

Adjust the value of **parameter 142 "Potentiometer P2"** to reach the value of **20mm (+2 / -0 mm)** between the bottom of the shoe and the bottom of the rail. Between each test, always validate changes by **"Write"**. Proceed with caution.

Information:

A 100mV variation is equivalent to a 15mm variation.



Once P2 has been set, adjust the limit switch to the triggering limit: slightly tilt the position of the micro-switch on its mounting. Position the micro-switch lever at 0.5 mm from the actuating part, then secure with 2 M4x8 socket head cap screws and 2 M3x16 socket head cap screws + Nylstop nut.



25.10 Checking limit switches

Test to stop movement by manual action on up micro-switch:
Use the remote control to set compression to half-stroke.
Make a rise and manually operate the up micro-switch, compression should stop.

Test to stop movement by manual action on low micro-switch:
Use the remote control to set compression to half-stroke.
Make a descent and manually operate the low micro-switch, compression should stop.

Test to stop upward movement without manual action:
Go to the table's TechMode and **decrease** parameter 140 **by 30 points**.
Make a compressor up movement, the compression must stop at the upper micro-switch.
Go to "Table Display Info" when compression reaches the top limit switch, check that **IN9 changes to ON**.
Message: **Compressor Upper limit**

Installation

Compressor Upper limit

Go to the table's technical menu and **increase** parameter 142 by 30 points.

Go to "Table Display Info" when compression reaches the bottom limit switch, check that **IN10 changes to ON**.

Message: **Compressor Lower limit.**

Compressor Lower limit

Reset parameters 140 (value step 13) and 142 (value step 15) to their previous values (+30 and -30 points respectively) and confirm changes by pressing "Write", then check stopping distances again.

25.11 Checking gauge feedback at rest

Bring up the compression in the parking position, then unfold the arm again + a downward impulse.

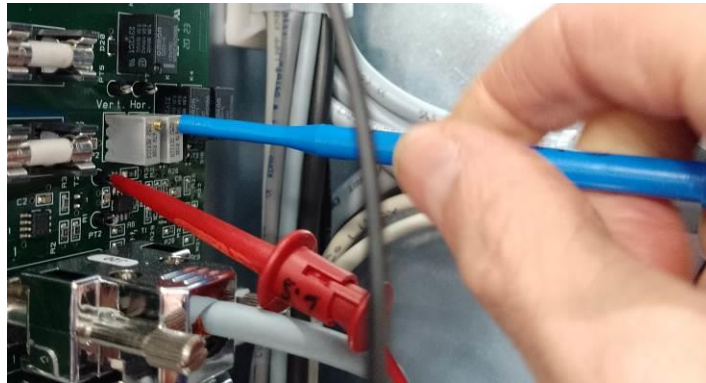
Check that the voltage (rating V_{DC}) between PT2 on the distribution board and the table frame is always **2.5V $\pm$ 0.05V**, otherwise adjust it using potentiometer P1 **on the gauge board**.

25.12 Controls the switching of the horizontal/vertical relays on the distribution board to set the safety threshold.

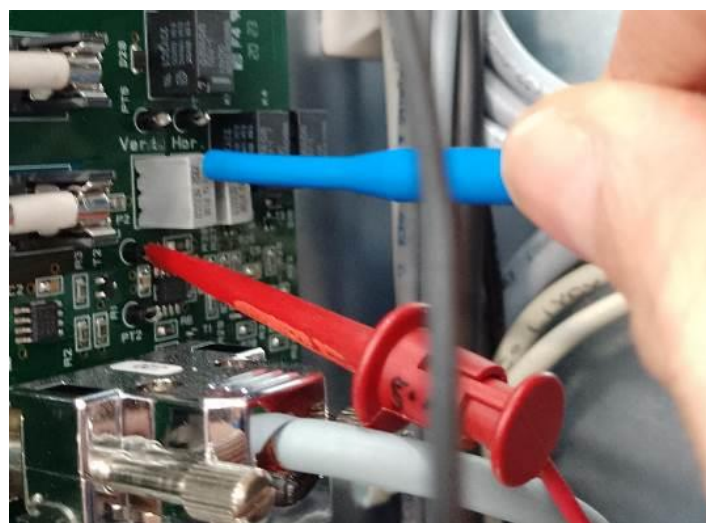
Set multimeter (rating V_{DC}) between PT1 of the distribution board and the table frame.
Horizontal table, unfold the arm + a small impulse.

Caution: if the arm is not sufficiently extended, the measurement will be 11.9 V. Do not adjust the potentiometer in this case, as the board may be damaged.

Set the **Hor.** potentiometer (P1) on the distribution board to **4.4V** (preset).
If the voltage at PT1 does not vary when **Hor.**(P1) is turned, check the feedback on the table tilting potentiometer.



Tilt table + or - 90°. Set the potentiometer **Vert.**(P2) on the distribution board to **5.6V** (preset). If the voltage at PT1 does not vary when **Vert.**(P2) is turned, check the feedback on the table tilting potentiometer.

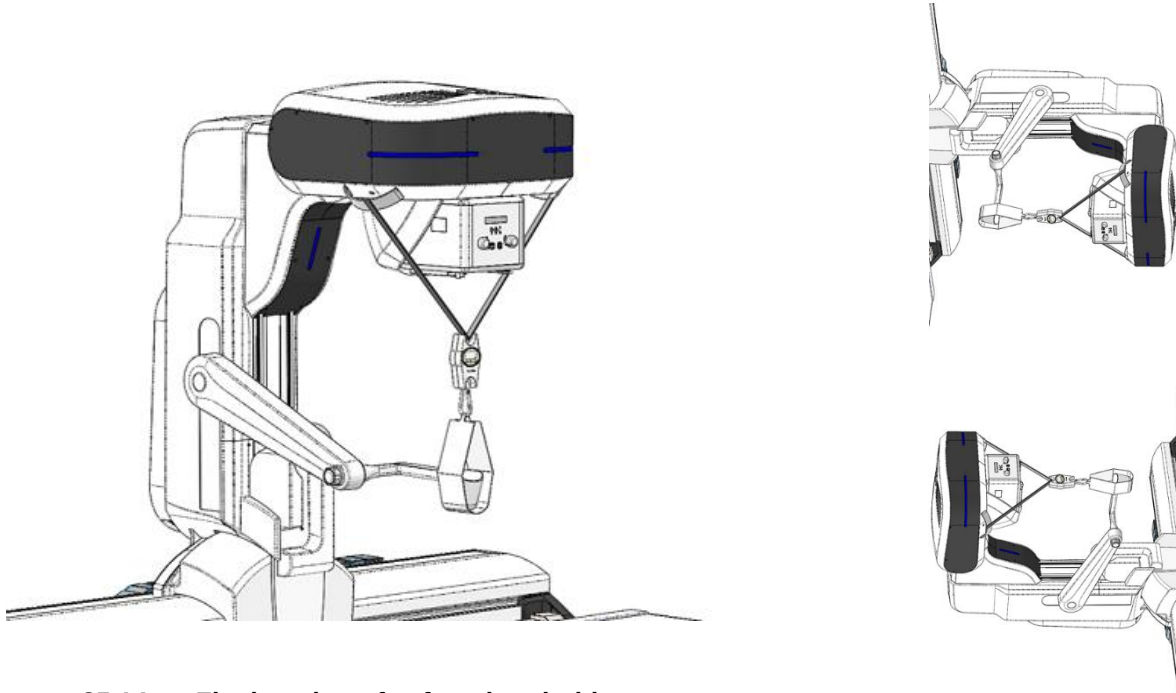


25.13 Installation of force measurement tools

For all the compression measurements a dynamometer should be used. Tilt the table to 0° or $\pm 90^\circ$ (horizontal or vertical table), lower the elevation and rise the SID until 180cm and column angulation at 0° .

Put a strap between both x-ray tube handle as shown on the picture in order to use a dynamometer.

Caution: The strap must be placed around the ladle at risk of measuring a bad value.



25.14 Final setting of safety thresholds.

Vertical threshold adjustment:

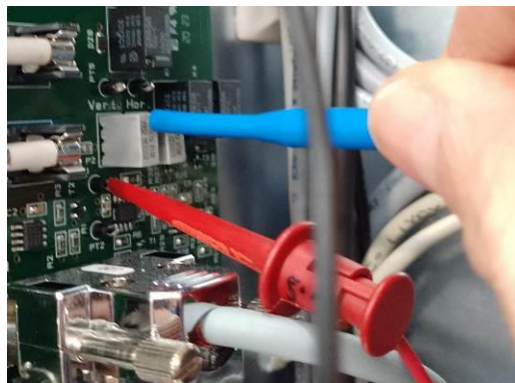
Table upright, with multimeter in **PT2** and set 1900 in parameter 199, then use the **remote control** to make a compression descent.

Obtain 19Kg (± 1 Kg), then read the value on the multimeter (around **5.6V_{DC}**).

Note these values.

Then connect the multimeter polarity (+) to **PT1** on the same board and adjust the **Vert. potentiometer (P2)** to the previously read value.

Caution: if the arm is not sufficiently extended, the measurement will be 11.9 V. Do not adjust the potentiometer in this case, as the board may be damaged.



Checking the operation of the vertical safety device:

With multimeter in PT2 and parameter value 199 with current value.

Tilt the table vertically, then lower the compression and make sure that the box indicator is lit at 18.0 kg and goes out before reaching 20 kg.

If the 20kg threshold is not reached, increase parameter 199 by 50 points and go back to the previous step. Perform this check 3 times.

If the LED does not go out within the specified range, repeat the threshold setting.

Horizontal threshold adjustment:

Tilt the table horizontally, set the multimeter to PT2 and set 1900 in parameter 199, then perform a compression descent using the **remote control**.

Obtain 19Kg (+/- 1Kg), then read the value on the multimeter (around **4.4V_{DC}**).

Note these values.

Then connect the multimeter polarity (+) to **PT1** on the same board and adjust the **Hor.** potentiometer (P1) to the previously read value.

Caution: if the arm is not sufficiently extended, the measurement will be 11.9 V. Do not adjust the potentiometer in this case, as the board may be damaged.

25.15 Patient detection setting at 6 Kg

The objective of the following manipulation is to set the patient detection to $6\text{kg} \pm 1\text{kg}$.

Set parameters 201 "Patient detection level" and 199 "Max compression" to **1050**.

Compress the table horizontally until the movement stops and the max compression message appears on the console display.

CAUTION: when compressing, the strap must be located under the bowl as previously in §24.13.

Max. Compression Level
Reached

Check that the compression force indicated on the dynamometer is between 5kg and 6kg. If this is not the case, adjust the value of **parameter 199 and 201, in the same way, until you** obtain this force of $6\text{kg} \pm 1\text{kg}$. Between each test run, always validate changes with **"Write"**.



Read the value to fill in the DHR.

Information: A variation of 100 points is equivalent to a variation of approximately 1.5kg.

Once the patient detection force has been set, configure parameter 199 "Compression max" with a value of 1400. Compress again, and when you reach 6 kg (+/-1kg), you should get the message:

Patient Compression Detected

25.16 Max. compression adjustment at 13 Kg

With parameter 199 "Compression max" set to **1400**, perform a horizontal table compression using the dynamometer until movement stops and the max compression message appears on the console display.

CAUTION: when compressing, the strap must be located under the bowl as previously indicated.

Max. Compression Level
Reached

The aim is to set the max compression force to 13kg (+/-1kg), so we need to adjust the value of parameter 199 until we obtain this max compression force. Between each test run, always validate changes with **"Write"**.



Read the value to fill in the DHR.

Information: A variation of 100 points is equivalent to a variation of 1.5kg.

Tilt the table at 90° and compress until the movement stops and the message **"Maximum compression force reached"** appears on the console display.

Check that the max compression force is within the 13kg range (+/-2kg), otherwise repeat the setting and check both horizontally and vertically.

Read the value to fill in the DHR.

25.17 Final inspection

Set between 7 and 12 kg and order axes: **carriage, incidence, longitudinal and lateral tabletop.**

No movement should occur: if, for example, a carriage command is given, the message "Patient compression detected carriage deactivated" should appear. The same applies to the other 3 axes.

Patient Compression Detected,
Carriage Disabled

Patient Compression Detected,
Tube Angulation Disabled

Patient Compression Detected,
Long. Table Top Disabled

Patient Compression Detected,
Lat. Table Top Disabled

25.18 Installation of force measurement tools

Tilt the table to its horizontal position with column angulation to 0° and retract the compression.

There is 3 compression levels for the compression device:

- Safety compression level : this is an hardware safety means, tuned to 19kg (+/-0.5kg).
- Maximum compression level : this is a software maximum limit, tuned to 13kg (+/-1kg).
- Patient detection level : this is a software limit used to detect the patient, when this level is reached the compression device speed is reduced. This limit is tuned to 6kg (+/-1kg).

For all the compression level measurements a dynamometer should be used. Tilt the table to 0° (horizontal table), lower the elevation and rise the SID until 180cm.

Put a strap between both x-ray tube handle as shown on the picture in order to use a dynamometer.



The strap must be placed around the ladle bowl at risk of measuring a bad value.



9090 REMOTE CONTROLLED TABLE

Installation

25.18.1. Safety compression level

Unplug connectors J17 and J19 from dispatching board and connect them together using a shunt.
Parameter value 199 must be modified before this adjustment, note the value and modify it to 5000.

Parameter	Value	Description	
Tilting	140	295	P0 Park Position (steps)
	141	690	P1 Full exit Position (steps)
	142	3300	P2 Lower limit Position (steps)
Table Height	199	2800	Max compression (steps)
	200	13000	Max compression strength (g)
Long. Table Top	201	1200	Patient detection level (steps)
	202		Patient detection strength (g)
S.I.D.	203	0	
	204	0	
Sensor Rotation	205	0	
	206	0	

Position Tuning

1stPosition 1stPosition Reading

2ndPosition 2ndPosition Reading

Compute New Values

Increase to 5000

Make a compression movement in order to reach a compression strength of 19kg (+/-0.5kg).

Adjust potentiometer P1 on dispatching board (919631004) in order to be at the trigger limit for K1 relay switching.

Remove the shunt and plug the cable 919630133 on J17.

Make 5 compression movements until the safety limit and check that the compression strength is between 18kg and 20kg.

Change the parameter 199 putting back the noted value before increasing it to 5000, do not forget to validate by clicking on **"Write"**.

25.18.2. Maximum compression level

Make several compressions and ensure that the average compression force does not exceed 13±1kg.

Adjust the parameter 199 until the dynamometer indicates a compression force of 13±1kg.

Between each test, do not forget to validate by clicking on **"Write"**.

	140	295	P0 Park Position (steps)	
Tilting	141	690	P1 Full exit Position (steps)	
	142	3300	P2 Lower limit Position (steps)	
Table Height	199	2800	Max compression (steps)	
	200	13000	Max compression strength (g)	
Long. Table Top	201	1200	Patient detection level (steps)	
	202	5000	Patient detection strength (g)	
S.I.D.	203	0		
	204	0		
Sensor Rotation	205	0		
	206	0		
Lateral Table Top		0		
		0		
Compressor		0		
		0		
Axis Parameters	Table Parameters	Axis Validation	Zooms	Parallax Parameter
Room Configuration	Clearance Parameters			
1stPosition	1stPosition Reading			
2ndPosition	2ndPosition Reading			
Compute New Values				
Target	Table	Parameters v.4	Auto Pos	Write
File				Num Pad
				Detector Calibration
				Exit TechMod
				>

For your information, a variation of 100 points is equal to around 1,5kg.

25.18.3. Patient detection level

the patient detection level can be adjusted with parameter 201. This parameter is factory tuned to a patient detection level around 6kg

For your information, a variation of 100 points is equal to around 1,5kg.

Tilting	140	295	P0 Park Position (steps)
	141	690	P1 Full exit Position (steps)
Table Height	142	3300	P2 Lower limit Position (steps)
	199	2800	Max compression (steps)
Long. Table Top	200	13000	Max compression strength (g)
	201	1200	Patient detection level (steps)
S.I.D.	202	5000	Patient detection strength (g)
	203	0	
Sensor Rotation	204	0	
	205	0	
Lateral Table Top	206	0	
		0	
Compressor		0	
		0	

Position Tuning

1stPosition

1stPosition Reading

2ndPosition

2ndPosition Reading

Compute New Values

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Clearance Parameters

Target

Table

File

Parameters v.4

Auto Pos

Write

Num Pad

Detector Calibration

Exit TechMod

>

9090 REMOTE CONTROLLED TABLE

Installation

Summary of approximate voltage associated to mechanical benchmark (for a more precise adjustment, refer to dedicated movement adjustment chapter)

Axis	Potentiometer Value	Mechanical measure
Elevation	9,65 V	Measure : Ground / Tilting axis 757mm
Tilting	5 V	Measure : Horizontal position 0°
S.I.D.	5 V	Measure : Bottom of first SID carriage / Bottom of rail 395mm
Lateral Table Top	5 V	Measure : Divert belt / Table top linkage 190mm
Longitudinal Table Top	0,5 V	Measure : Table top right side 600mm
	3.5V	Measure : Table top centered
Retractable compression device		See dedicated chapter

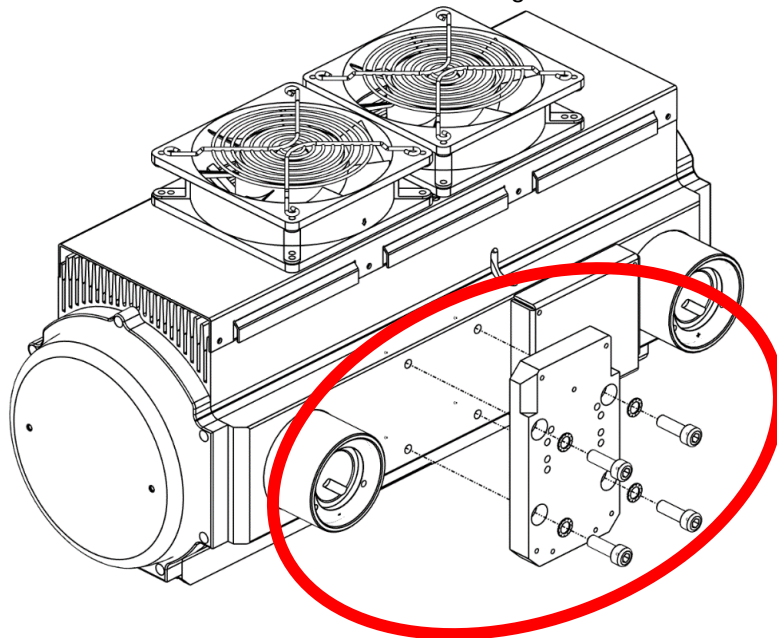
26. TUBE AND COLLIMATOR ASSEMBLY

26.1 Mechanical assembly

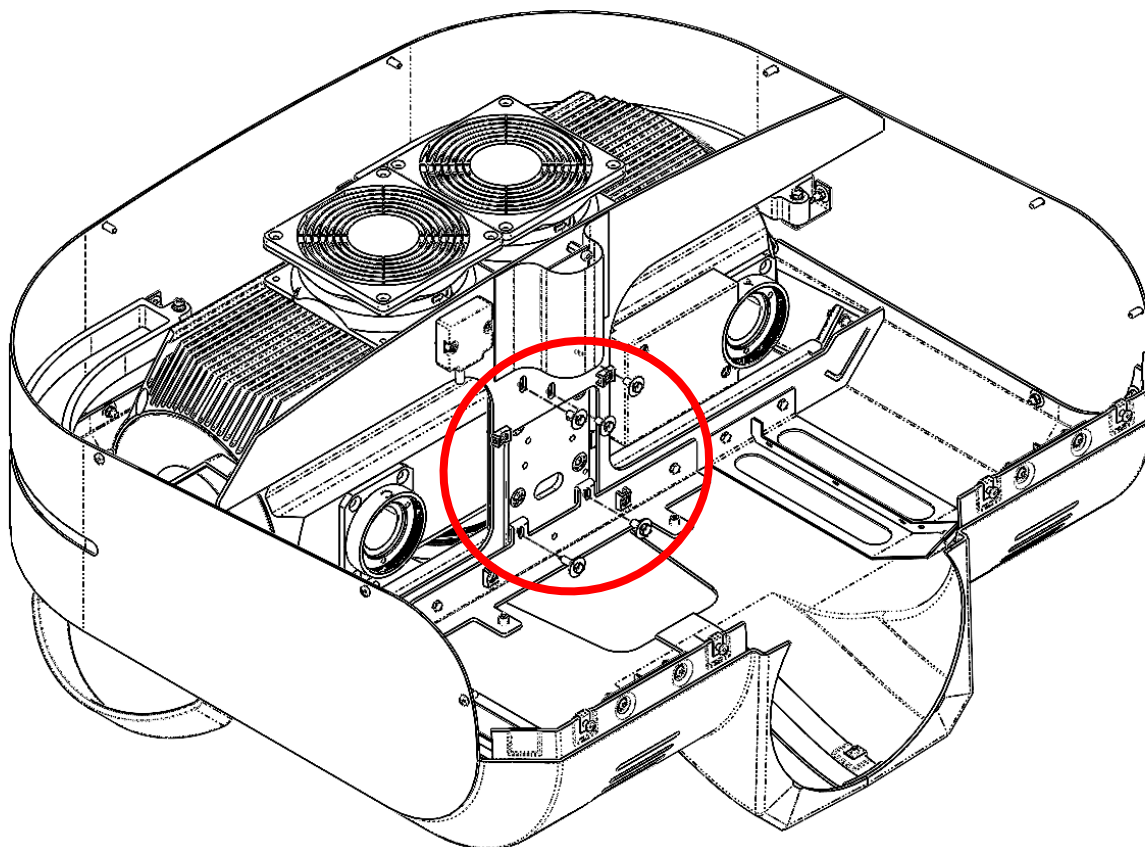
Fasten the tube wedge on the housing tube with 4 screws CHC M8x25 + conical spring washers.

Tightening torque: 18Nm.

Take care to adjust the parallelism between the bottom of the housing unit and the bottom of the support.



Install the tube cover assembly and fasten using 5 screws H M4 with flat washers and conical spring washers:

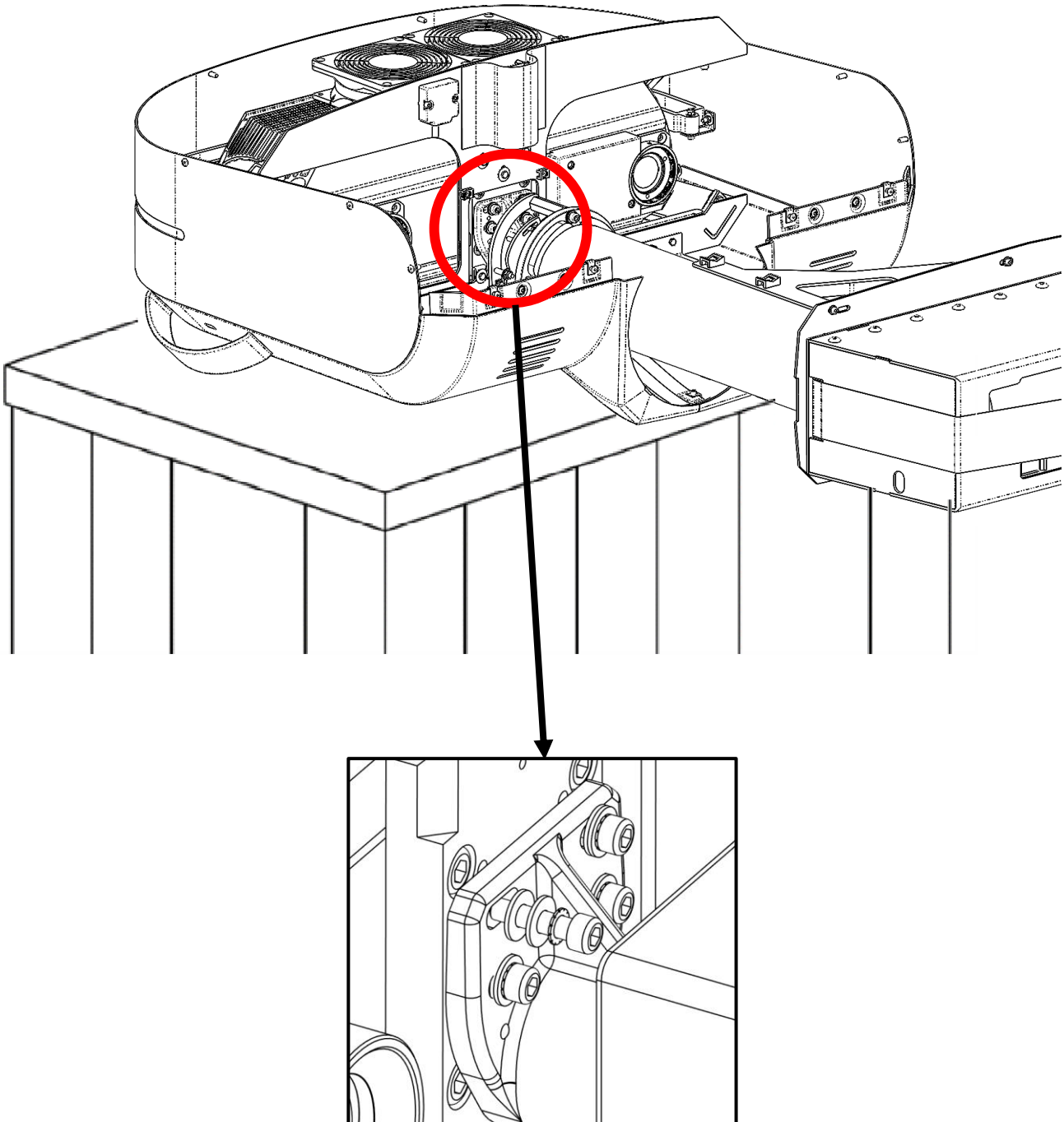


9090 REMOTE CONTROLLED TABLE

Installation

Position the unit in front of the holder, fasten using 4 screws CHC M6*25, 8 flat washers (2 on each screw) and 4 conical spring washers.

Tightening torque: 7.5Nm.



9090 REMOTE CONTROLLED TABLE

Installation

VARIAN B-147 housing tube



IAE C100XT housing tube



After connecting the fan tube cable on the tube side check that the connector J5 from 919630106 cable is plugged on the protection board 919631018.

NO ADDITIONNAL FILTER TO INSTALL FOR THE COLLIMATOR / X-RAY ASSEMBLY FOR IAE C100XT OR VARIAN B-147 HOUSING.

Mount the collimator on the duct and connect the plug.

DO NOT FORGET THE SPACER PLATES (A) BETWEEN THE COLLIMATOR AND THE HOUSING TUBE TO RESPECT THE EXTRA-FOCUS RADIATION.

Refer to the table next page in order to put the exact number of spaces in accordance to the tube/collimateur assembly you may use.

Quality Equivalent Filtration

The permanent filtration of the tube/collimator assembly is 3.7mm Al @ 75KV for IAE C100XT.
The Half-Value Layer is 3.27mm Al @ 80KV for IAE C100XT.

The permanent filtration of the tube/collimator assembly is 3.5mm Al @ 75KV for VARIAN B-147.
The Half-Value Layer is 4.06mm Al @ 80KV for VARIAN B-147.

No additional filters to install for IAE C100XT or VARIAN B-147 housing

To install correctly the collimator to the X-RAY tube, follow the next procedure:



CAREFULLY FOLLOW THE MOUNTING INSTRUCTIONS AND MAKE SURE THAT THE COLLIMATOR IS CORRECTLY ASSEMBLED.
INCORRECT MOUNTING COULD BE DANGEROUS:
IT COULD CAUSE THE COLLIMATOR TO FALL OR TO OPERATE INACCURATELY

- ✓ Use the X-ray tube housing literature to determine the distance from the focal spot to the tube port face.
- ✓ Subtract the resulting distance from 80mm (3.15") and determine the number of 1.5mm (0.06") spacers that, combined with the thickness of the mounting flange (15mm for the plastic flange + 5mm for 912111075 or 20mm for metallic flange), will make up the difference. Allowable tolerance is 1mm. (0.04").
- ✓ Make sure that the flange is the flange supplied with collimator.

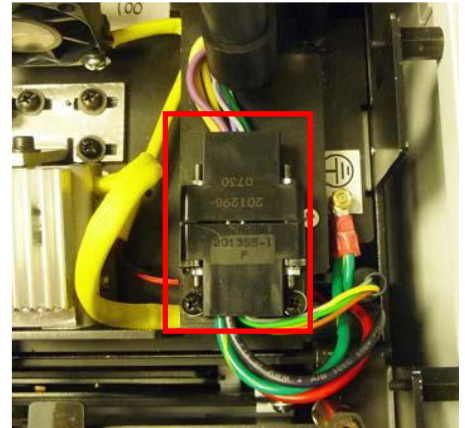
See **Figure – Plastic and metallic flange** in this Section.

- ✓ The collimator/x-ray tube mounting plastic flange shows the letter F "front/knob". Place the flange With the letter turned toward the x-ray tube front, see figures in this section.
- ✓ The collimator/x-ray tube mounting metallic flange shows a sticker for "front/knob". Place the flange With the sticker turned toward the x-ray tube front, see figures in this section.
- ✓ Mount the flange and spacers to the tube port with 4 M6 bolts that must be long enough to be driven into the tube port face for at least 5 threads.
- ✓ Tighten the Allen screws.



IMPORTANT
TO SAFEGUARD THE OPERATOR AND PATIENT AGAINST THE HAZARD OF A FALLING COLLIMATOR, THE FOLLOWING INDICATIONS MUST BE RESPECTED.

- ✓ Unscrew the four mounting and centering adjustment Allen screws until the four tabs are withdrawn from the collimator top opening.



See **Figure - Flange Mounting** in this Section.



NOTE:
WHEN UNSCREWING THE ALLEN SCREWS WHICH CONTROL THE TABS, DO NOT USE FORCE EXCEEDING 0.55NM.
UNSCREW WITH CARE SO AS NOT TO DAMAGE THE FIXING TABS.

- ✓ Manually adjust the collimator shutters to their widest setting.
- ✓ Carefully couple the collimator with the tube: make sure that the primary shutters have enough clearance to move in the port opening and in the mounting flange. See **Figure** in Section **COMPATIBILITY COLLIMATOR/X-RAY TUBE**.

Note: Collimators without extra-focal shutters do not require the preceding two controls.

- ✓ To allow the collimator to rotate to position "Ø", two of the four tabs retract to allow collimator rotation; see **Fig. Flange mounting** that follows. Tighten the four Allen screws as follows:
 - ✓ screws 2 and 4 = 5½ turns;
 - ✓ screws 1 and 3 = 7 turns;

N.B.: If Allen screws "2" and "4" are tightened more than 5 ½ turns, the collimator will not rotate. The collimator control tabs conform to **EN60601-1- par 28.4**. RALCO recommends to set, the mechanical stop close to the mounting flange without locking it; locking of the stops would prevent collimator rotation.

- ✓ Check that the distance between the collimator housing and the mounting flange is equal in all directions and, that the collimator face is parallel to the table axis.
- ✓ Loosen the screws and adjust if required.

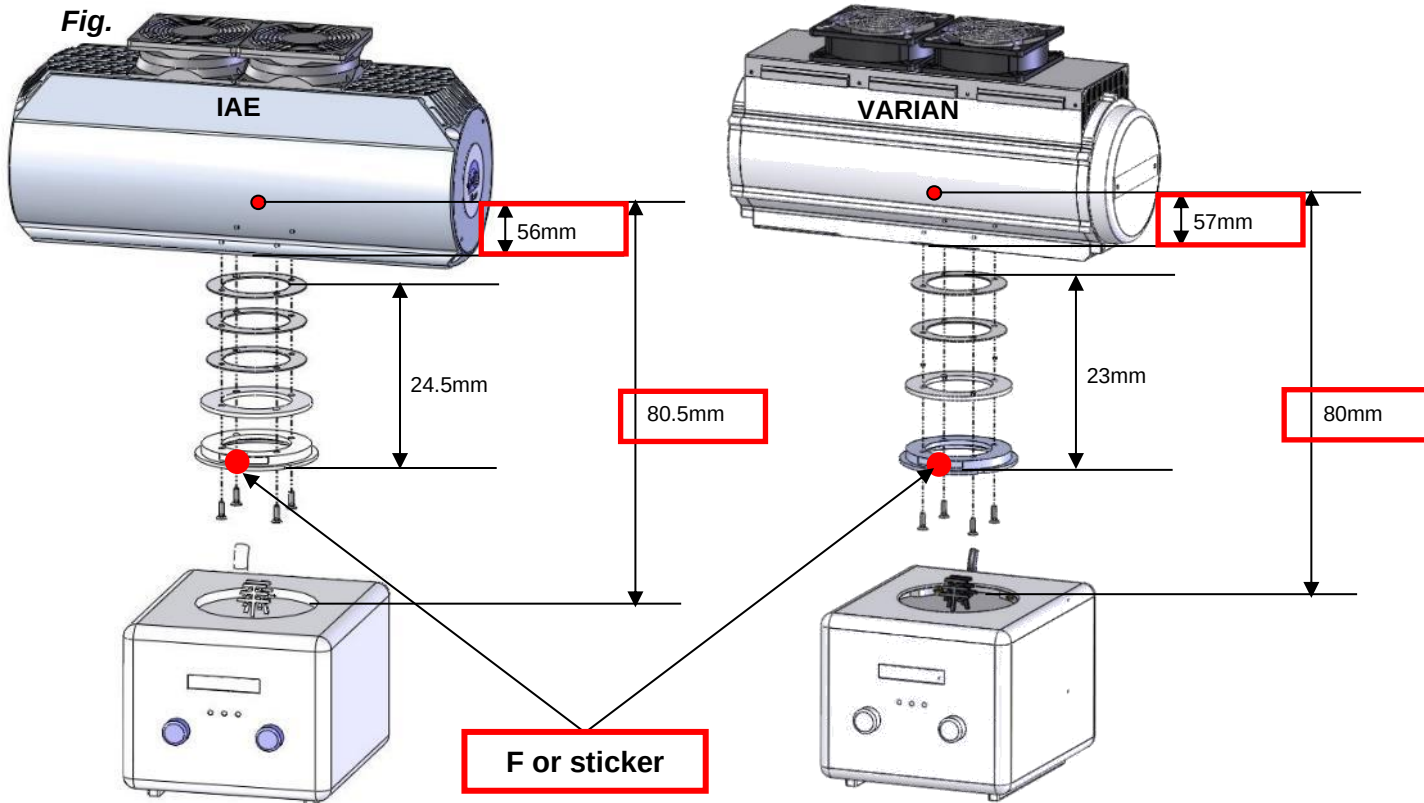
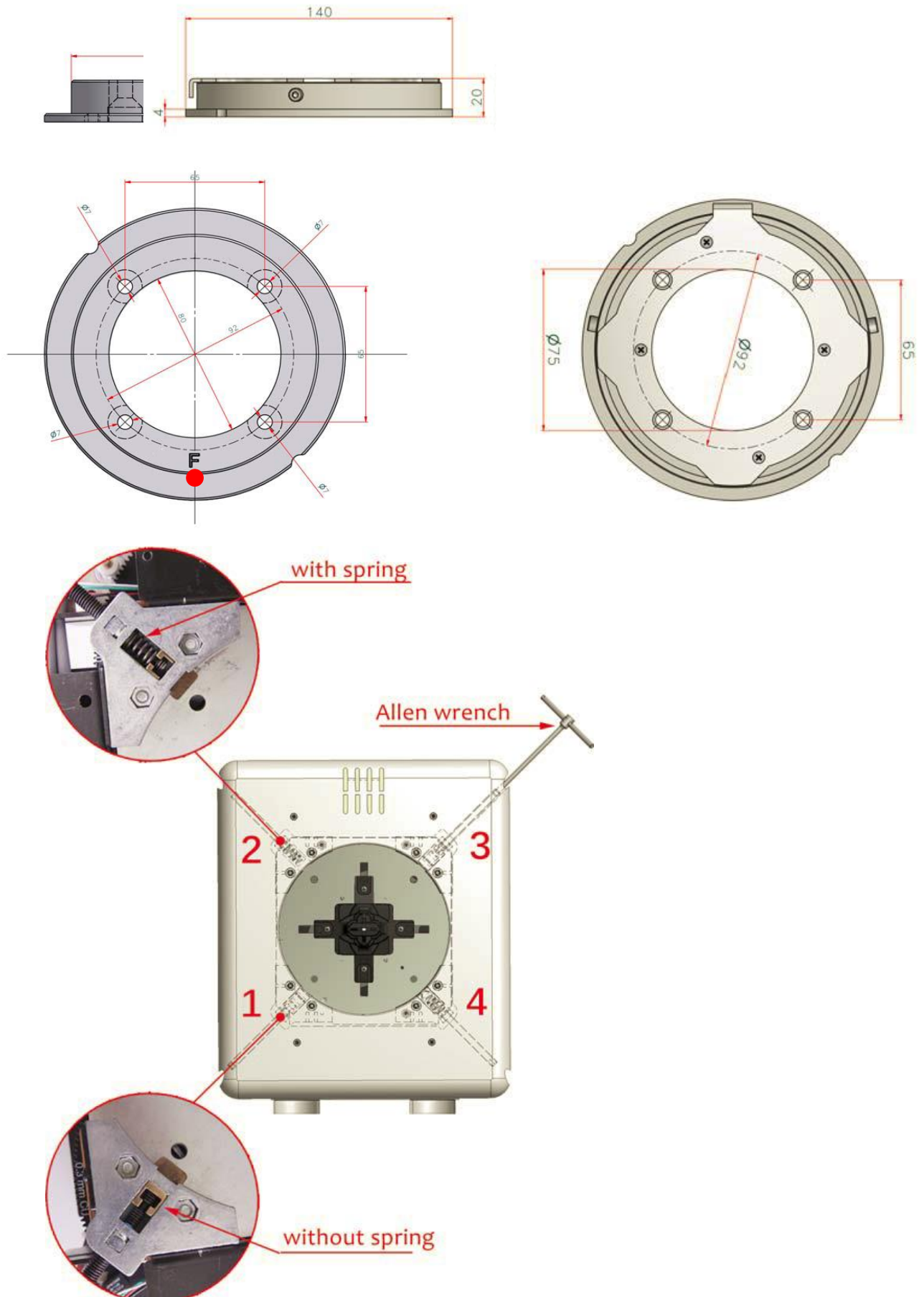


Fig. Mounting plastic flange

Fig. Mounting metallic flange RO445

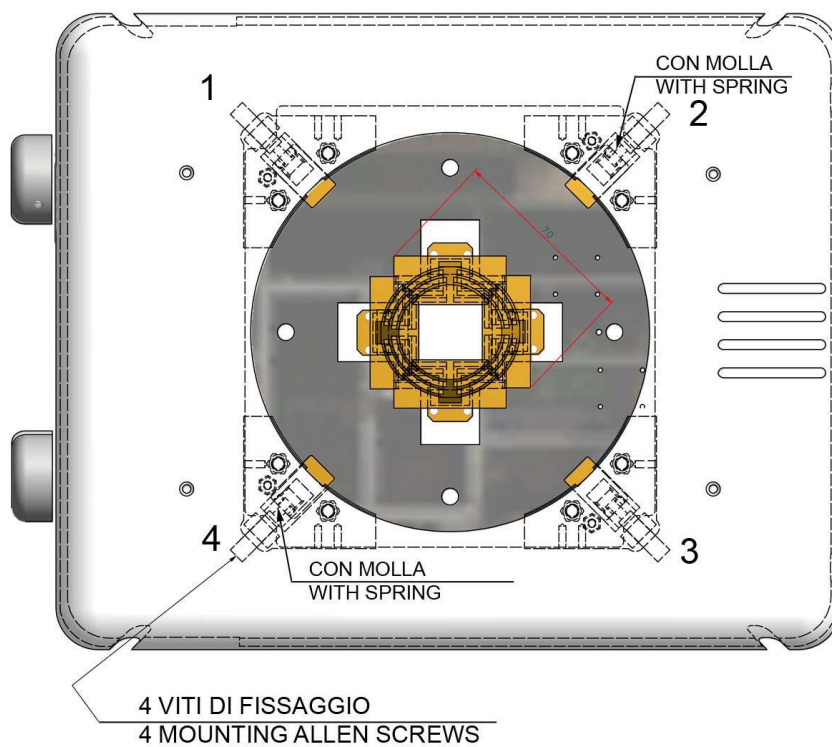
9090 REMOTE CONTROLLED TABLE

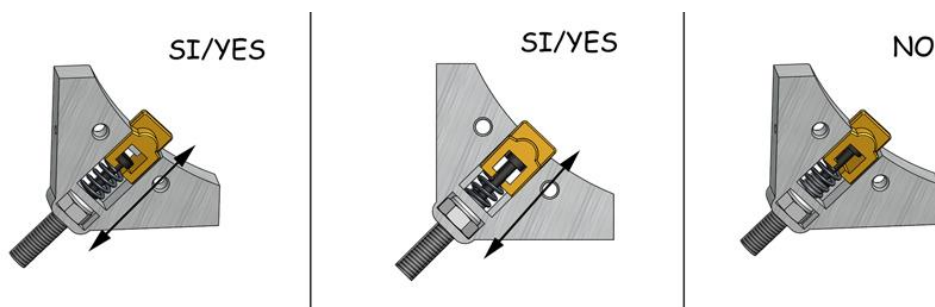
Installation



9090 REMOTE CONTROLLED TABLE

Installation





MAKE SURE TO TIGHTEN THE M6 ALLEN SCREWS SECURING THE COLLIMATOR OR THE CONTROLTABS. APPROPRIATE TIGHTENING OF THE 4 ALLEN SCREWS ENSURES SECURE MOUNTING OF THE COLLIMATOR. TIGHTENING FORCE USED MUST NOT EXCEED 0.50NM.



IF THE COLLIMATOR IS TO BE MOUNTED ON A ROTATING PLASTIC FLANGE, USE A TIGHTENING FORCE BETWEEN MIN. 0.50NM AND MAX. 0.75NM.

IF THE COLLIMATOR IS MOUNTED ON A ROTATING FLANGE RO445 (METALLIC VERSION), TIGHTEN THE 4 SCREWS WITHOUT EXCESSIVE FORCE.

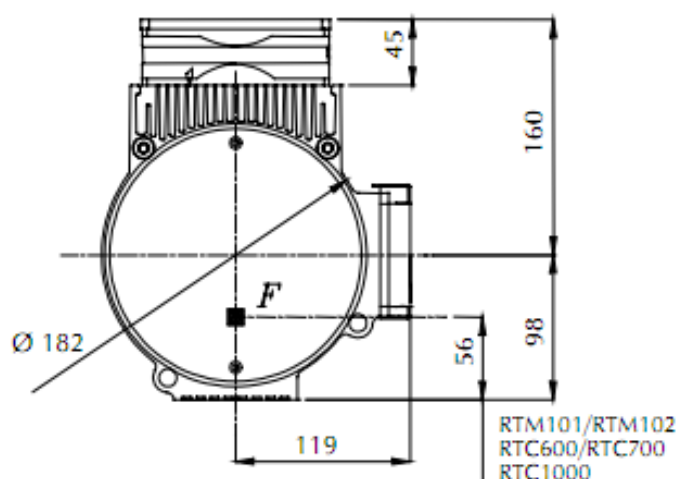
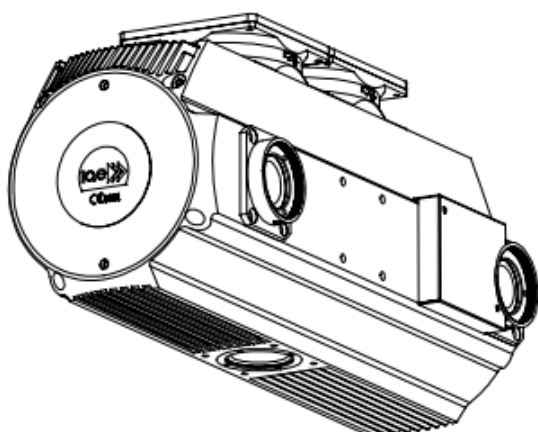
9090 REMOTE CONTROLLED TABLE

Installation

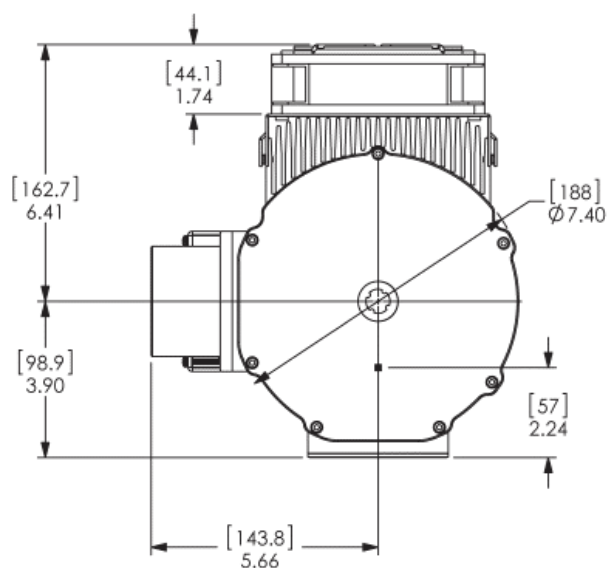
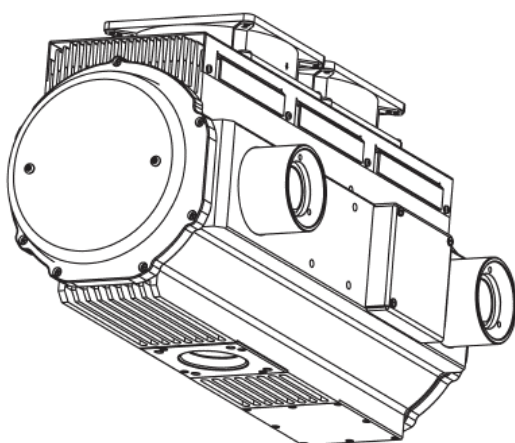
Extra-Focus radiation calculation table

Collimator		R225 ACS DHHS Plastic flange (thickness: 15mm) + 912111075 (thickness: 5mm)	R225 ACS DHHS Metallic flange (thickness: 20mm)
Tube assembly			
IAE	C100XT – RTM101	4.5mm to add	4.5mm to add
	C100XT – RTC600		
	C100XT – RTC700	3 spacers 1.5mm thick	3 spacers 1.5mm thick
	C100XT – RTC1000		
VARIAN	B-147 – A292	3mm to add	3mm to add
	B-147 – G292		
	B-147 – G296	2 spacers 1.5mm thick	2 spacers 1.5mm thick
	B-147 – G892		
	B-147 – G896		

C100XT – X-ray tube assembly

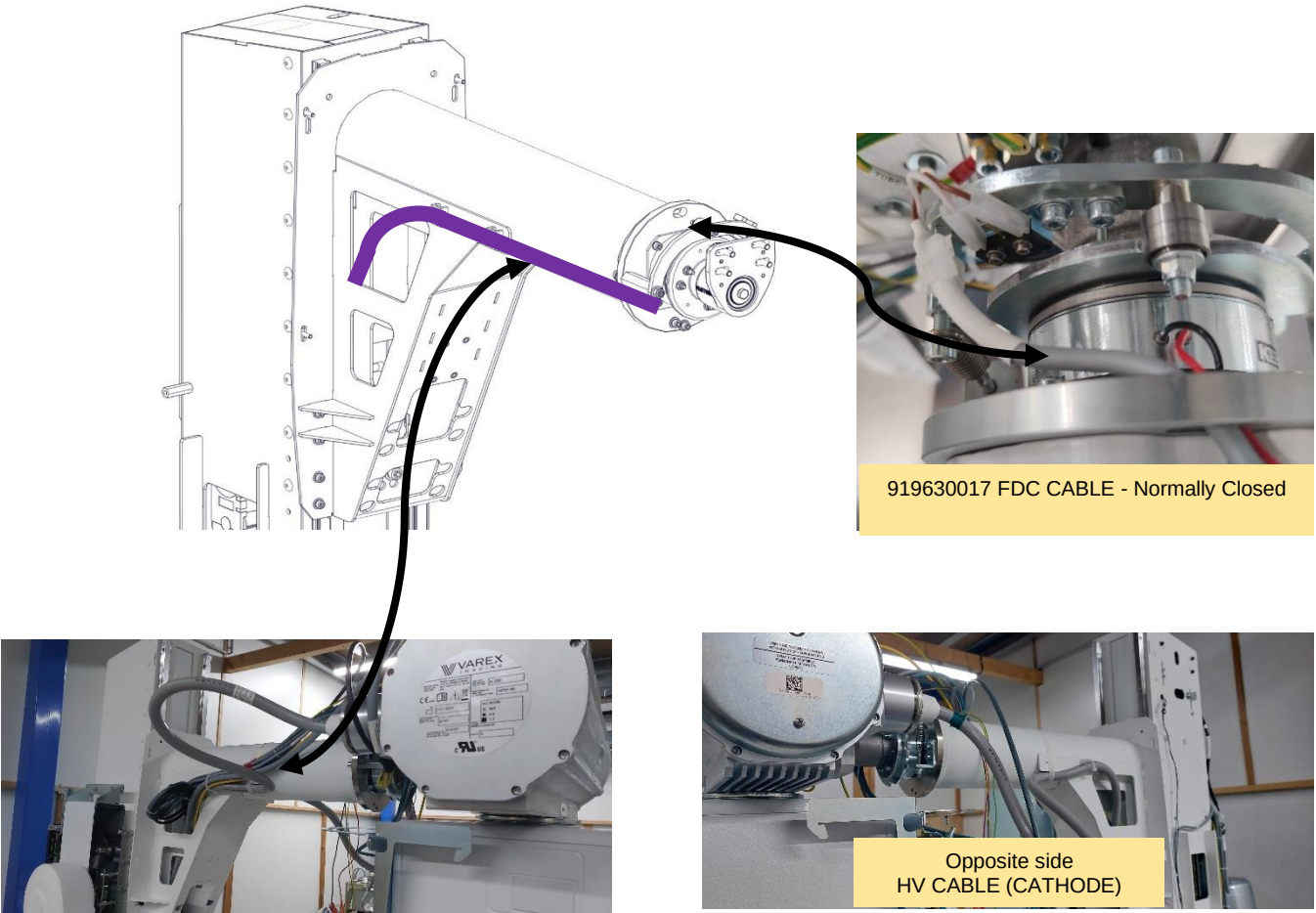


B-147 – X-ray tube assembly



26.2 Cable assembly

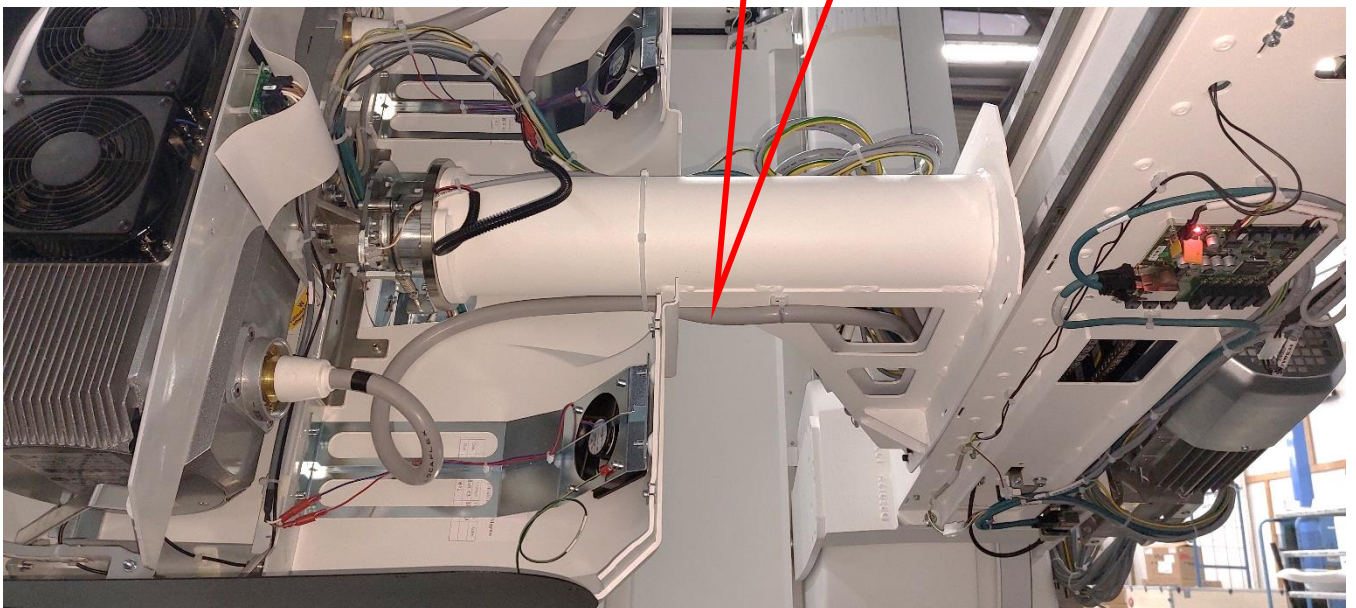
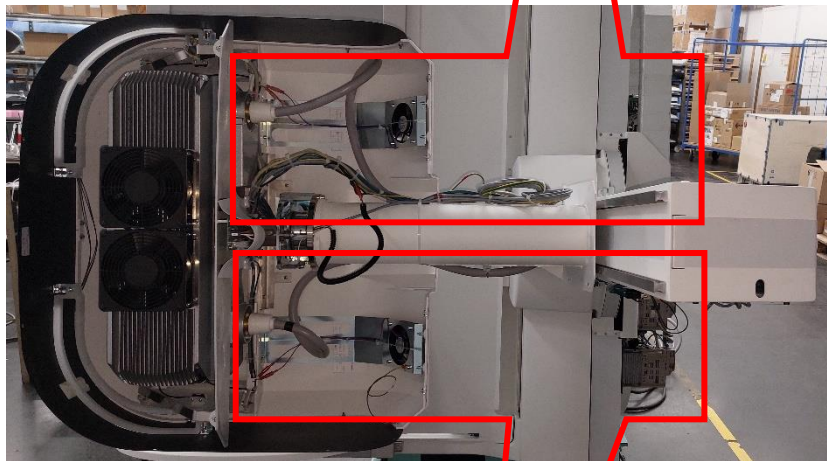
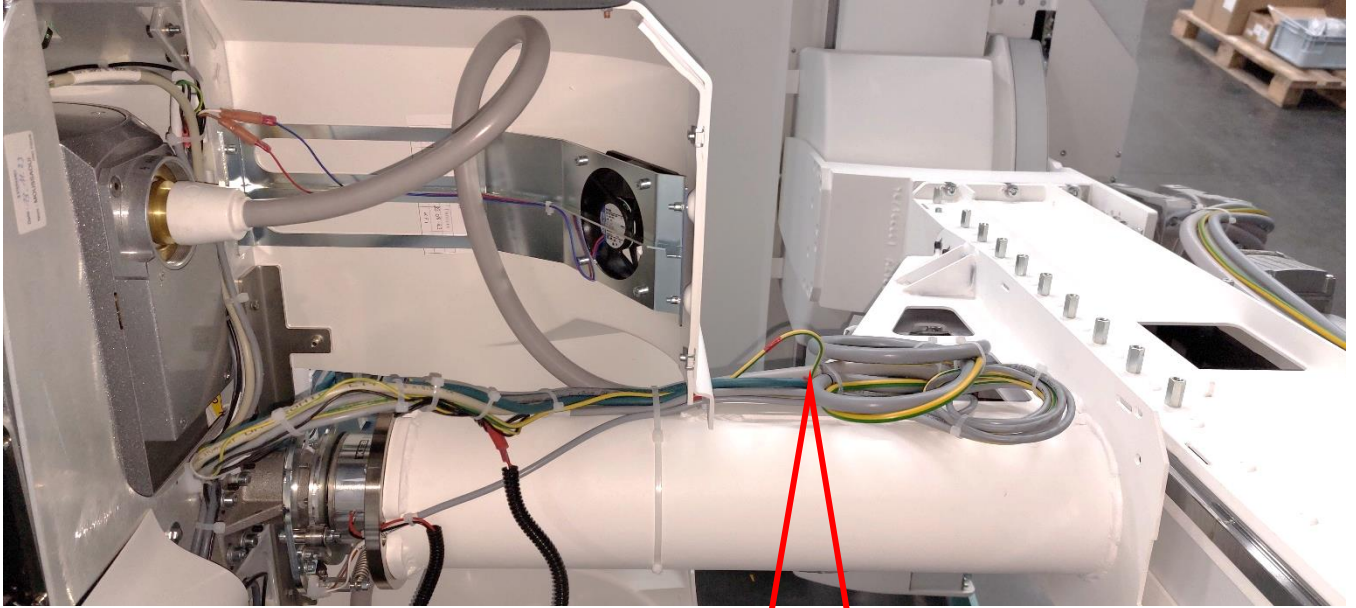
All cables are positioned in order to allow a +/-180° tube rotation.

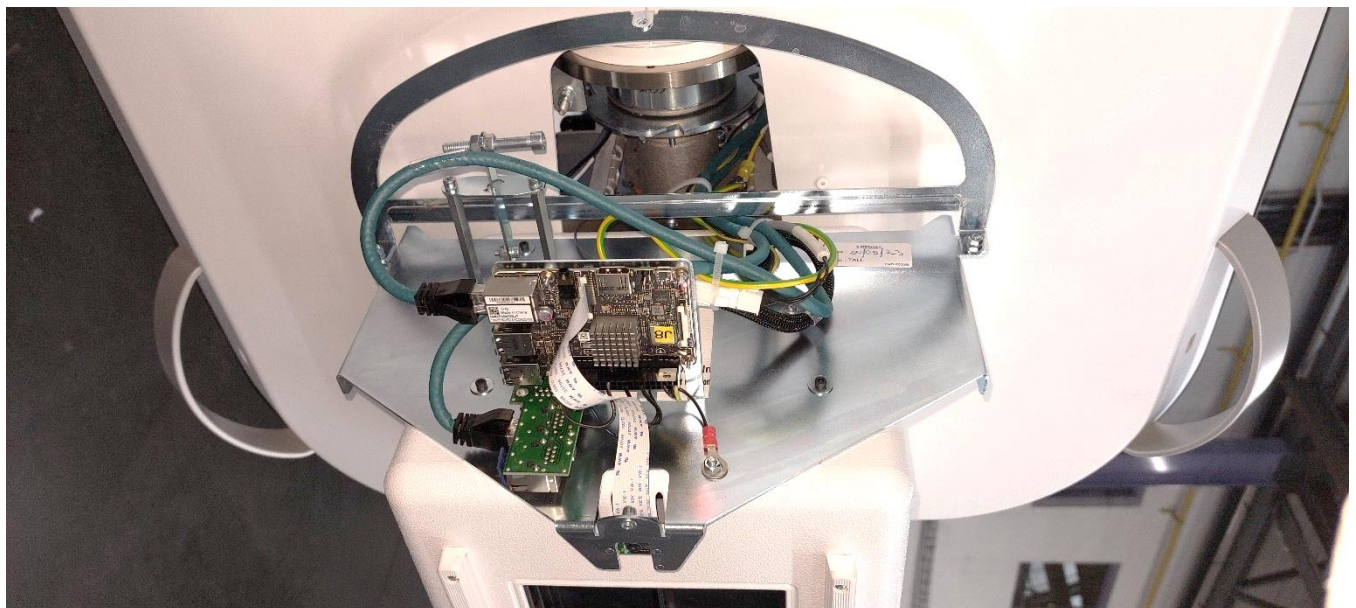
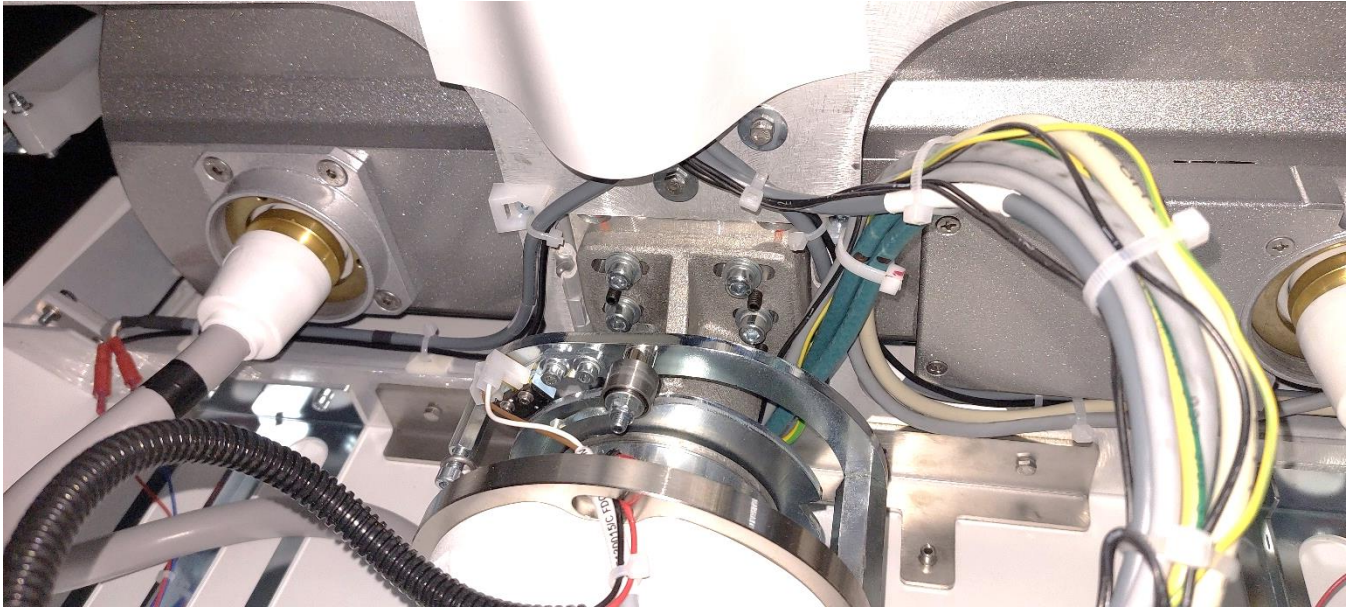


CABLE WAY	CABLE REFERENCE	ITEM NAME
	919630017	TUBE ROTATION EOT
	919630008	TUBE BRAKES AND CAMERA POWER SUPPLY
	919630012	ETHERNET CAMERA
	919630061	TUBE LED POWER SUPPLY
	919630011	COLLIMATEUR POWER SUPPLY
	919630006	TUBE FAN POWER SUPPLY
	918130044	ETHERNET RJ45 3M
	919630055	KIT FIL TERRE
	-	HV CABLE (ANODE)
On the opposite side	-	HV CABLE (CATHODE)

9090 REMOTE CONTROLLED TABLE

Installation





27. COLLIMATOR RALCO R225 SETTINGS

If the collimator is not calibrated, it is possible to do it using the “technical mode” of the console. Enter the “technical mode” as indicated in TABLE CONFIGURATION, then select “Collimator Calibration”.

The following screen appears on the console.

ONLY FOR RALCO R225

You must turn the table OFF, then turn it ON while keeping the FILTER button pressed on the collimator front panel until the collimator screen reads "Wait Command...".

Cross (X) shutters opening correction factor: % **Apply**

Long (Y) shutters opening correction factor: % **Apply**

Launch R225 AUTO Config

Target
Table
File

< Display Com Info Display Table Info Keys Simulations Collimator Calibration DAP Calibration Console Settings

Follow the instructions written on the screen to calibrate the collimator.

28. GRIDS

In the technician mode of the console, go to Display table info.

Check that the SID 110 grid is detected by the parameter GRID_1 and that the SID 180 grid is detected by the parameter GRID_2 (The parameter should become “TRUE” when the grid is detected).

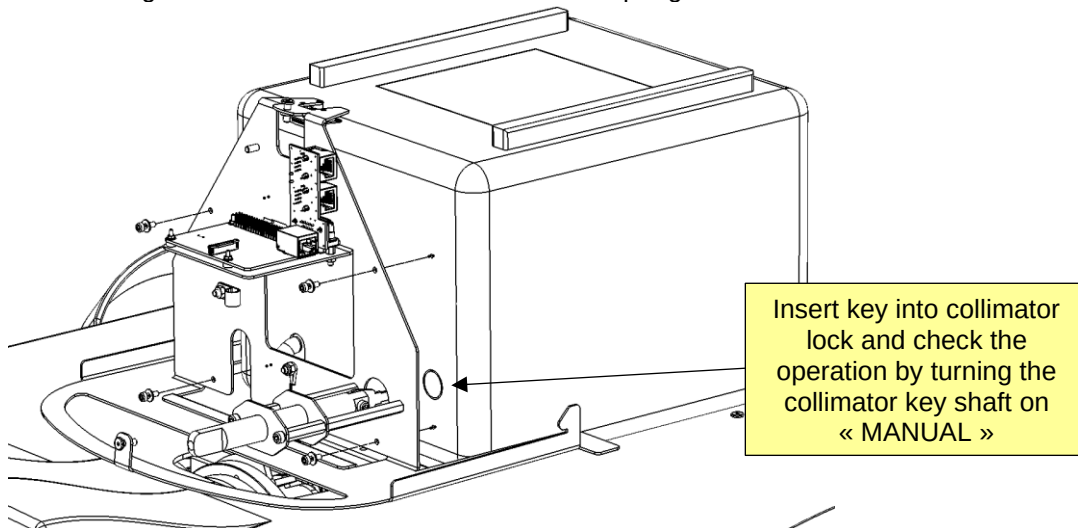
The SID 140 grid is detected if parameters GRID_1 and GRID_2 are activated at the same time.

IN_21:GRID_1	FALSE	=> SID 110 GRID (or 125)
IN_22:GRID_2	FALSE	=> SID 180 GRID
IN_23	FALSE	
IN_24	FALSE	
IN_25	FALSE	
IN_26	FALSE	
IN_27	FALSE	
IN_28:CINE_FootSwitch	FALSE	
IN_29:FLUORO_FootSw	FALSE	
IN_30:Sensor_IN	TRUE	

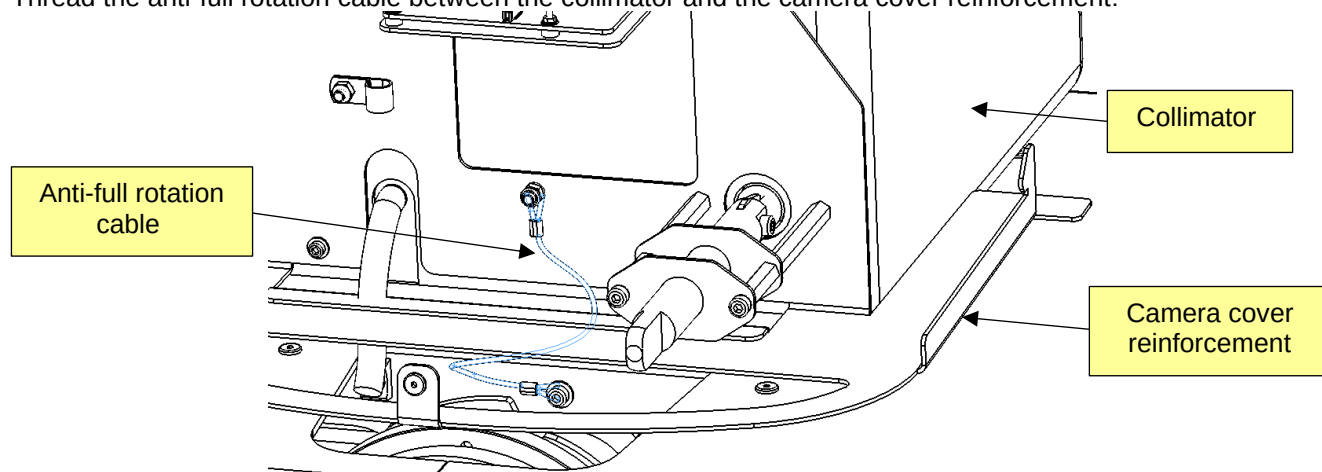
29. CAMERA

29.1 Mechanical assembly

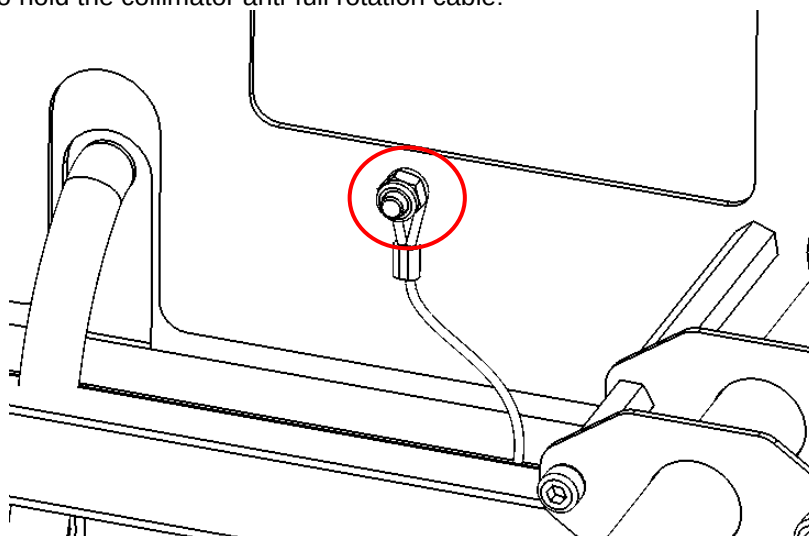
Assemble the camera frame using 4 screws with flat washer and conical spring washers:



Thread the anti-full rotation cable between the collimator and the camera cover reinforcement:



Use the M4 stop nut to hold the collimator anti-full rotation cable:



29.2 Configuration and Settings for camera with RASPBERRY or ASUS boards

The ASUS TINKERBOARD and the the RASPBERRY boards can replace each other. The mechanical fixation and the electrical connections are the same.

The TINKERBOARD uses embedded flash memory instead of µSD card on the RASPBERRY board.

The video stream can be accessed using the following URL:
<http://192.191.190.20:8000/stream.mjpg>

Use the following configuration and settings according to the type of detector and imaging system installed on the remote controlled table.

1) For D2RS9090 with detector CANON B1:

- ✓ On the console edit the folder "c:\Program Files (x86)\Sedecal\RF Console\Console.exe.config"
- ✓ Modify IP adress camera like below
<value><http://192.191.190.20:8000/stream.mjpg>
- ✓ Save and reboot

2) For D2RS9090 with detector TRIKELL and ATS software

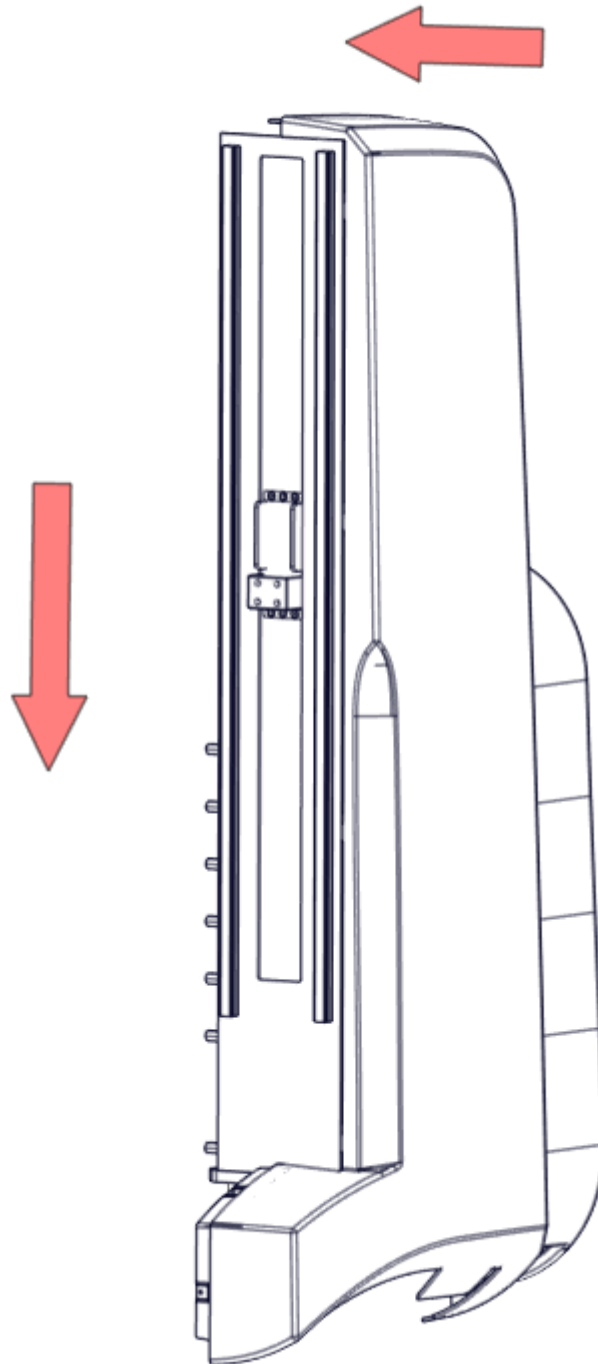
- ✓ Edit the folder "C:\Program Files\ATS\HirisTsPaco\x64\Release\ConsoleDLL\config.ini"
- ✓ Modify IP adress like below
<http://192.191.190.20:8000/stream.mjpg>
- ✓ Save and reboot

30. COVERS ASSEMBLY

30.1 Colum covers

30.1.1. Without compression

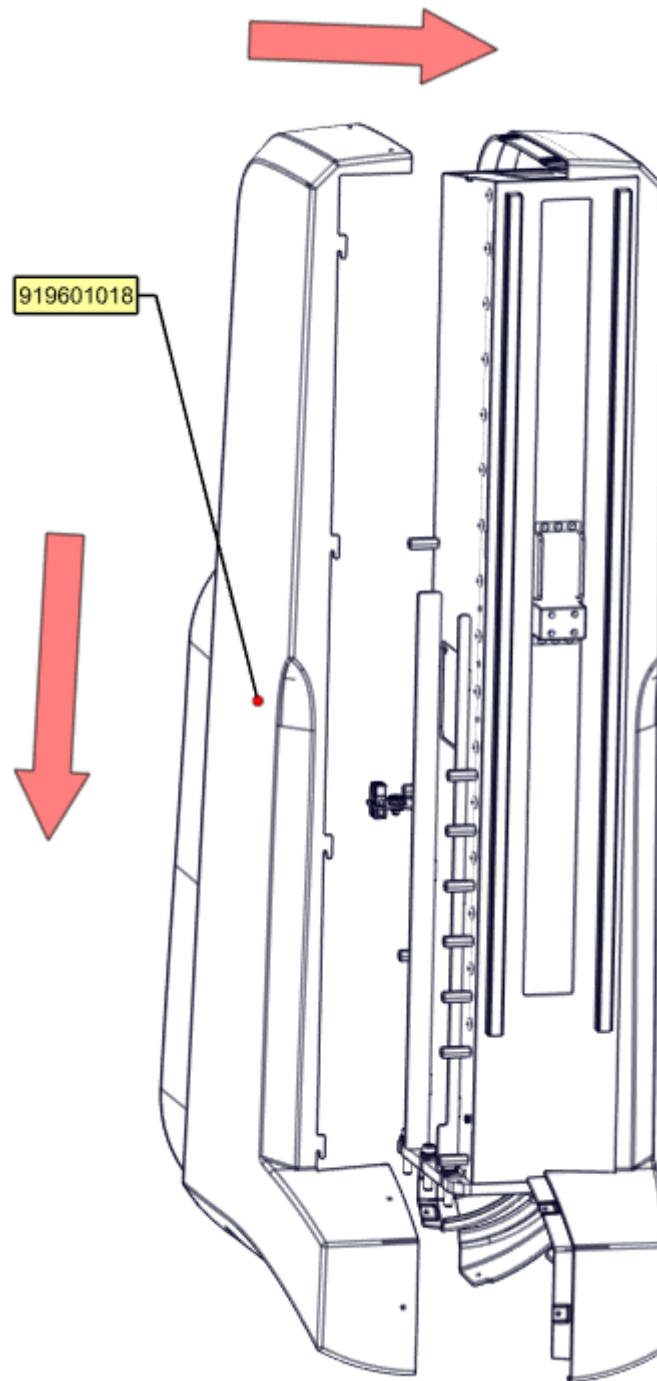
Mount the right cover: Insert the retaining tabs inside the column en move down the cover



9090 REMOTE CONTROLLED TABLE

Installation

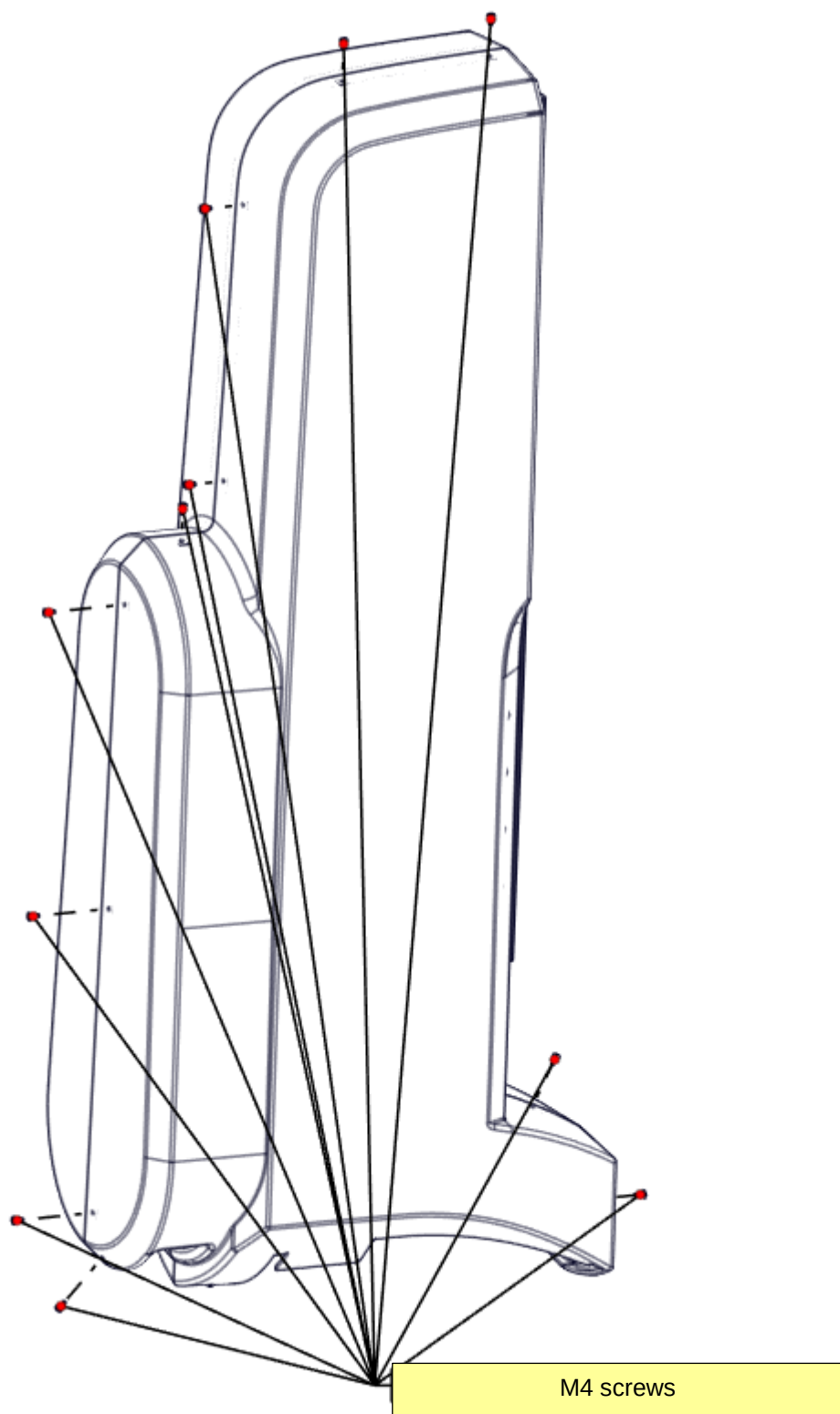
Place the left cover on the same way (inserting tabs and moving down)

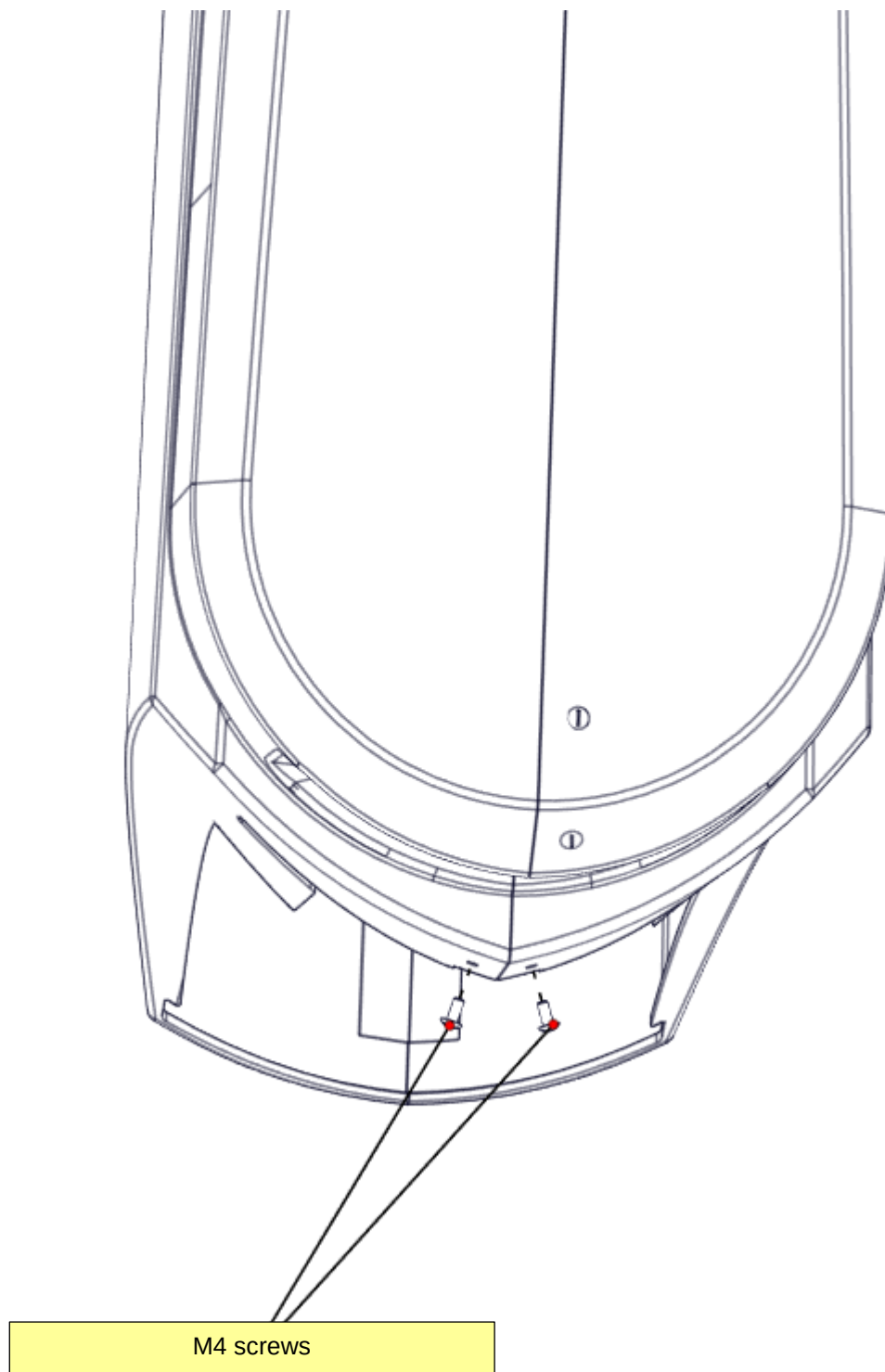


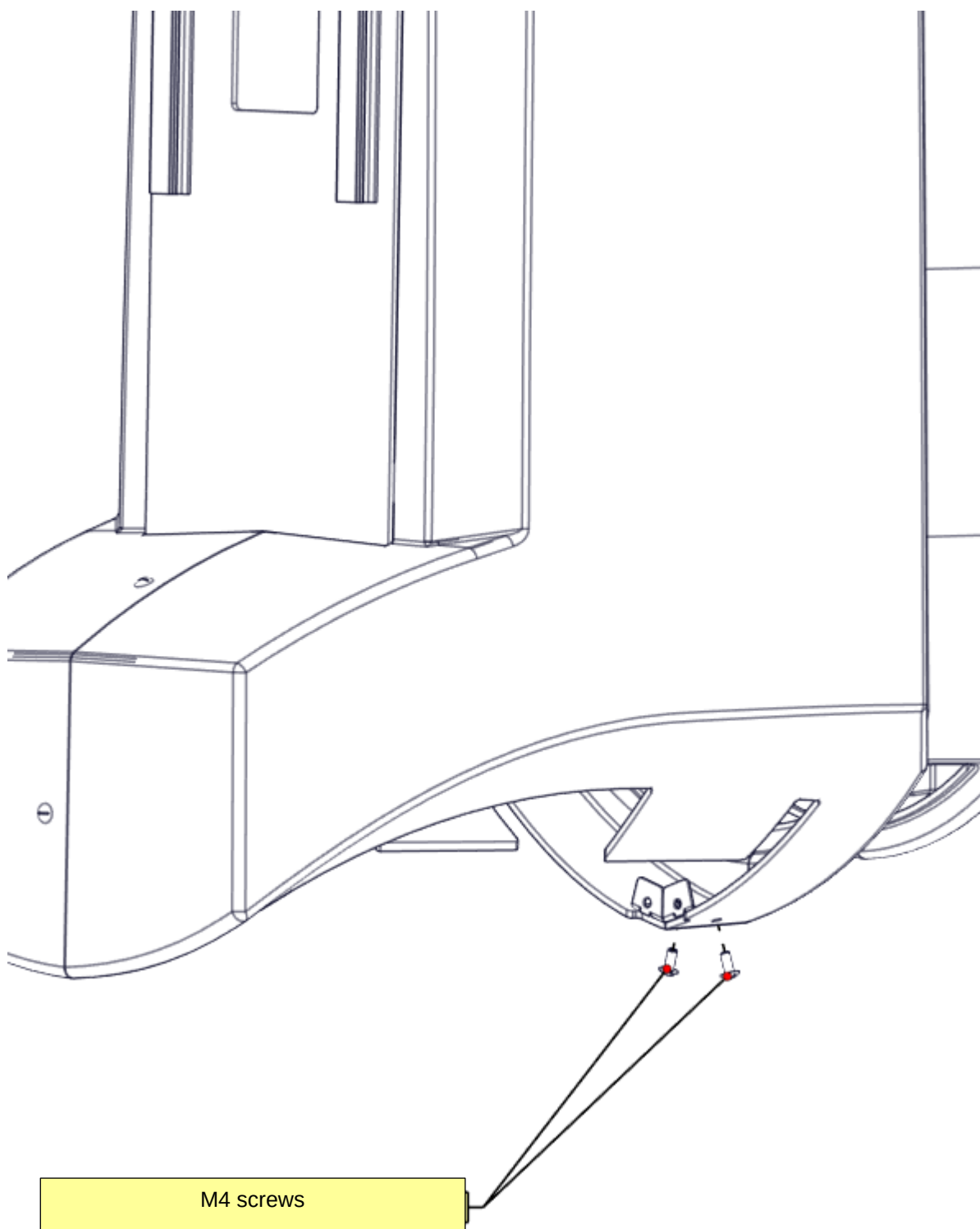
9090 REMOTE CONTROLLED TABLE

Installation

Mount the M4 plastic screws :





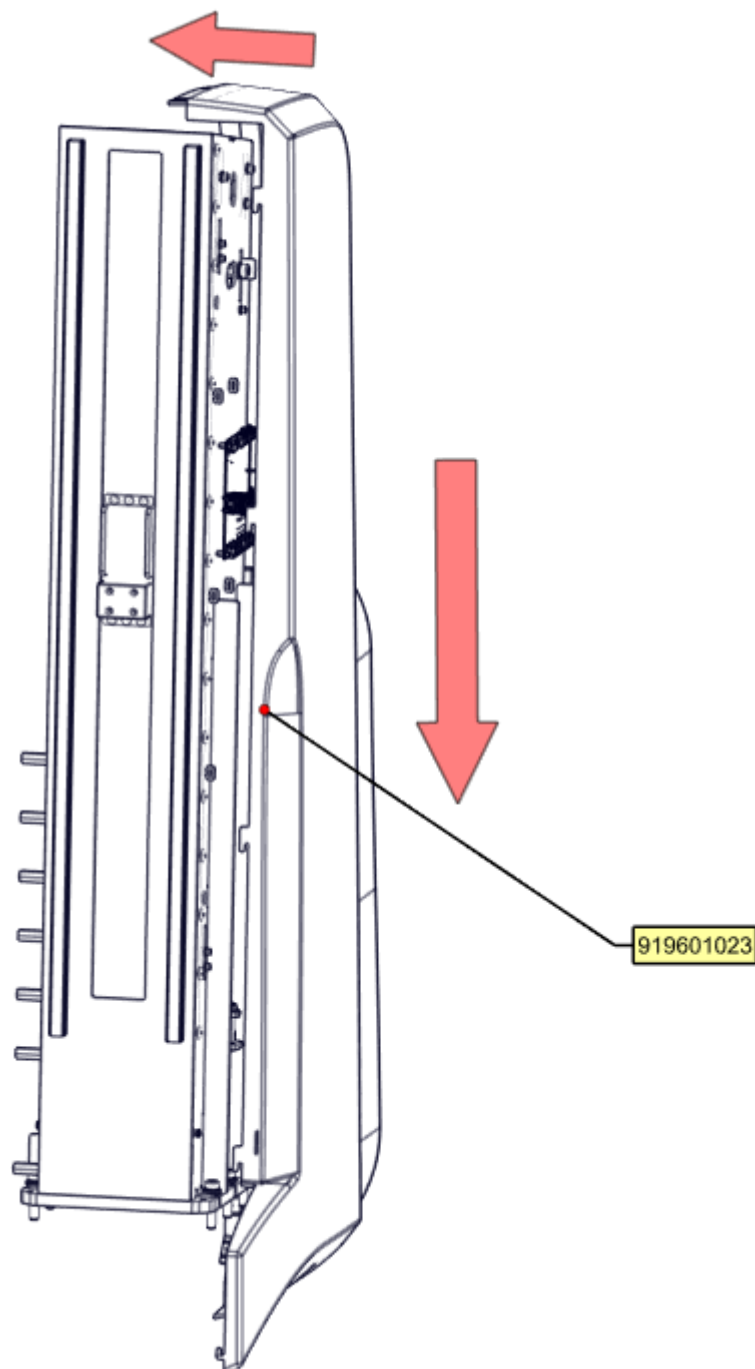


9090 REMOTE CONTROLLED TABLE

Installation

30.1.2. With compression device

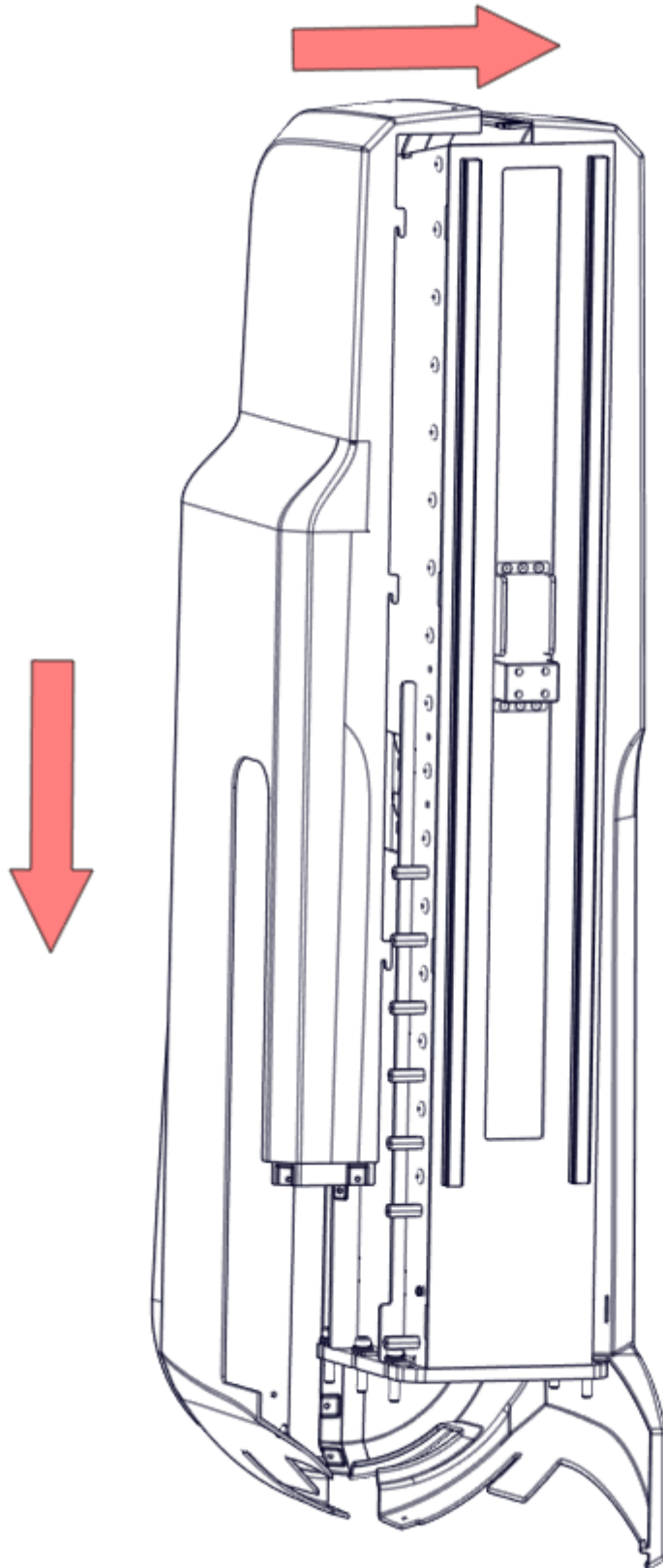
Mount the right cover : Insert the retaining tabs inside the column en move down the cover



9090 REMOTE CONTROLLED TABLE

Installation

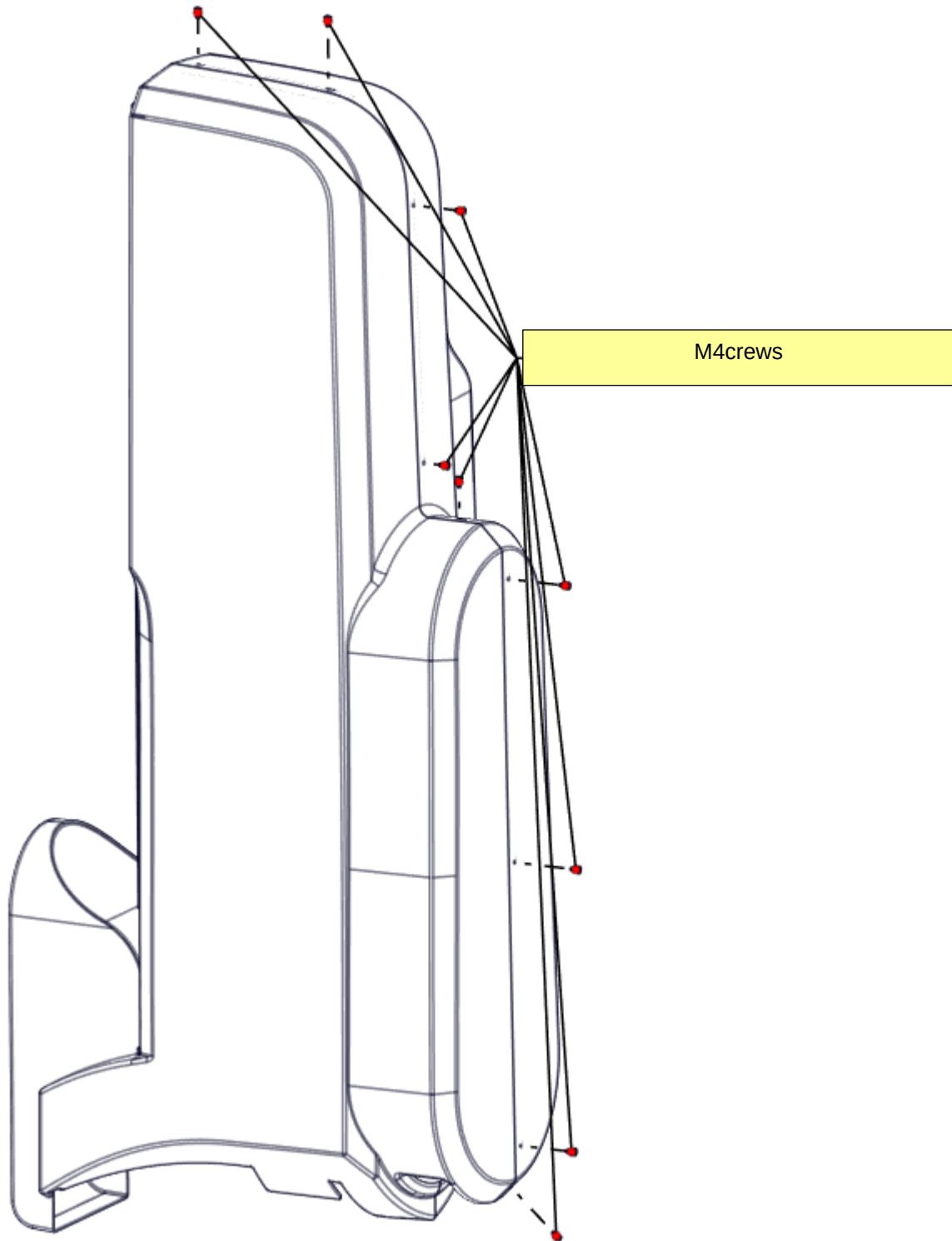
Place the left cover on the same way (inserting tabs and moving down)

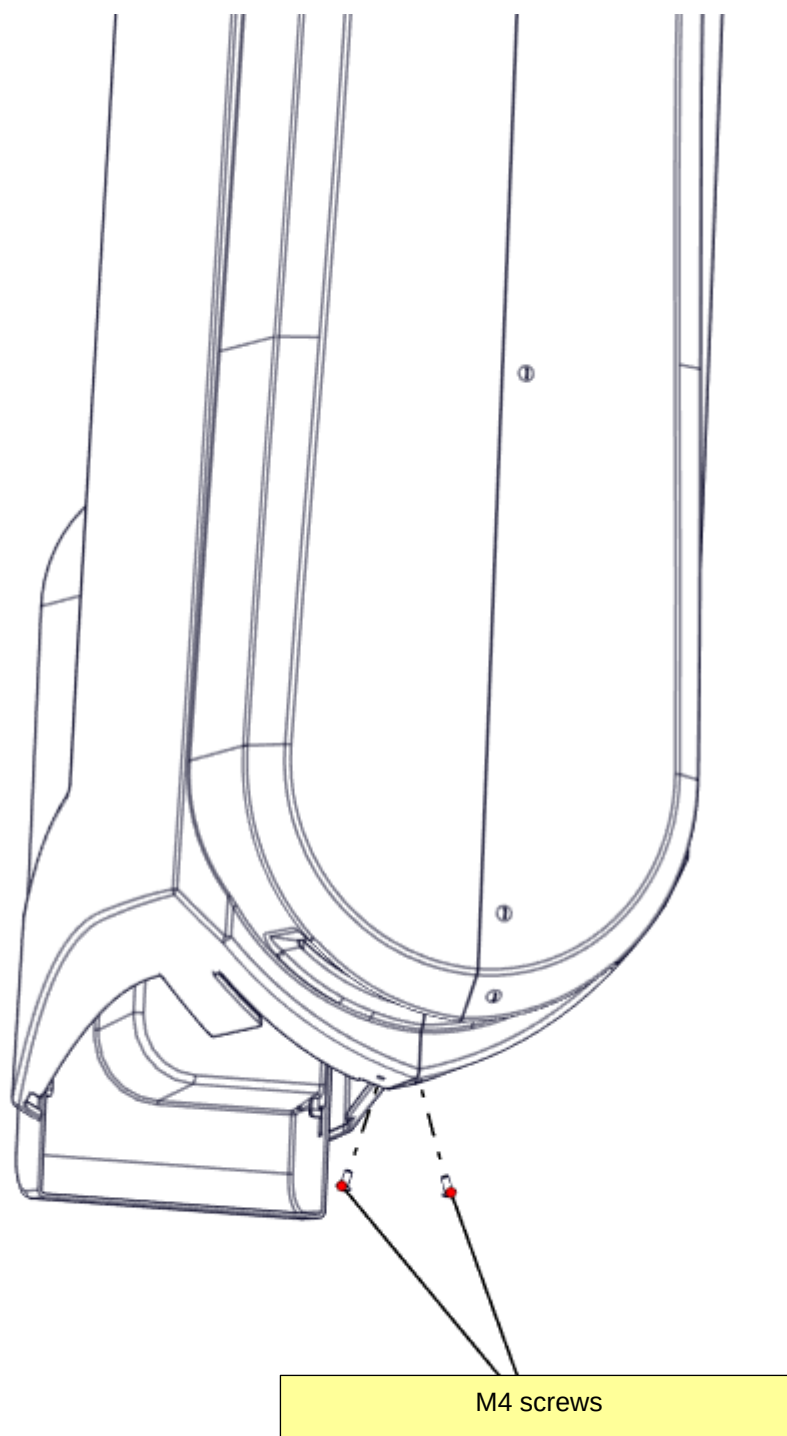


9090 REMOTE CONTROLLED TABLE

Installation

Mount the M4 plastic screws

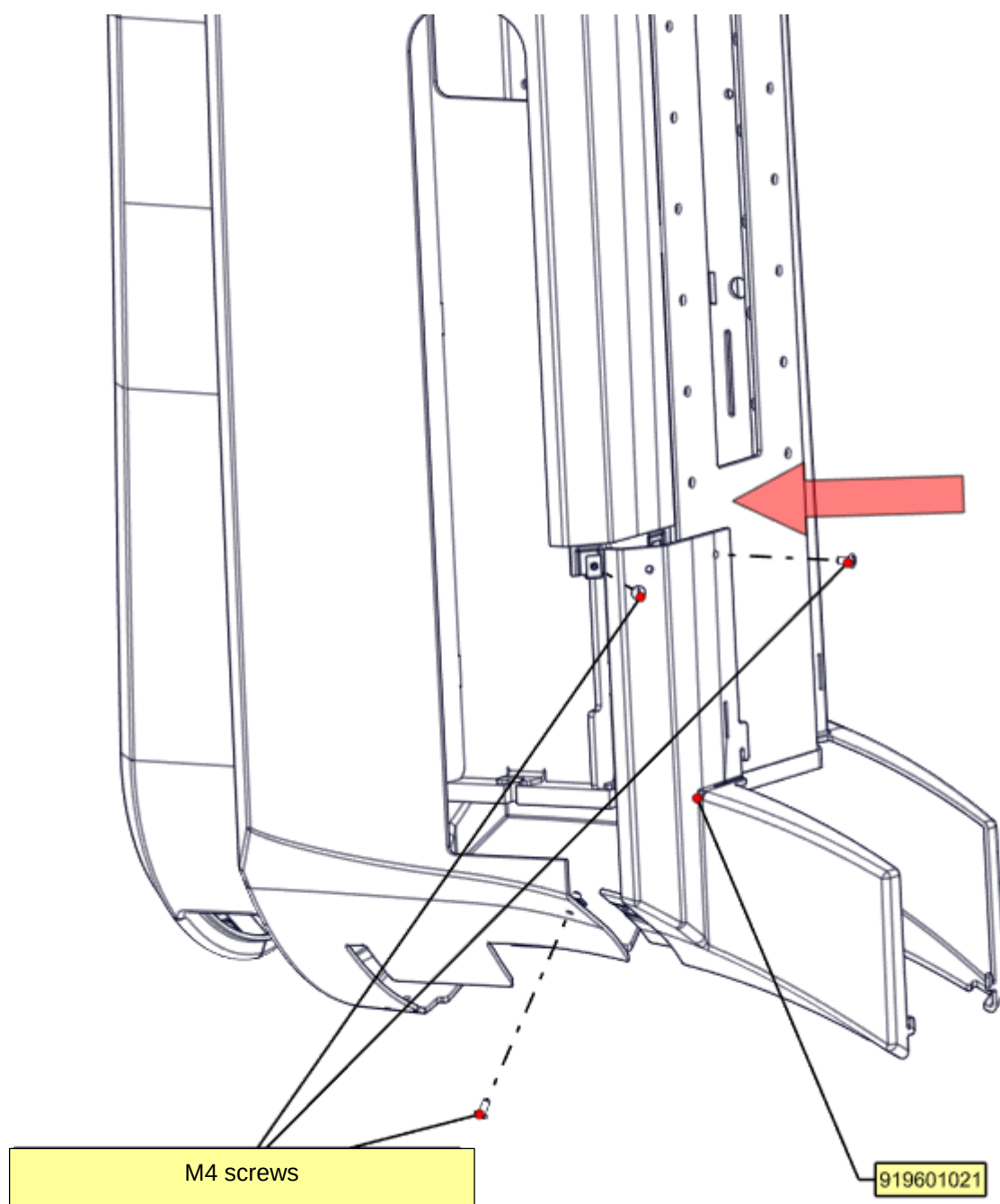




9090 REMOTE CONTROLLED TABLE

Installation

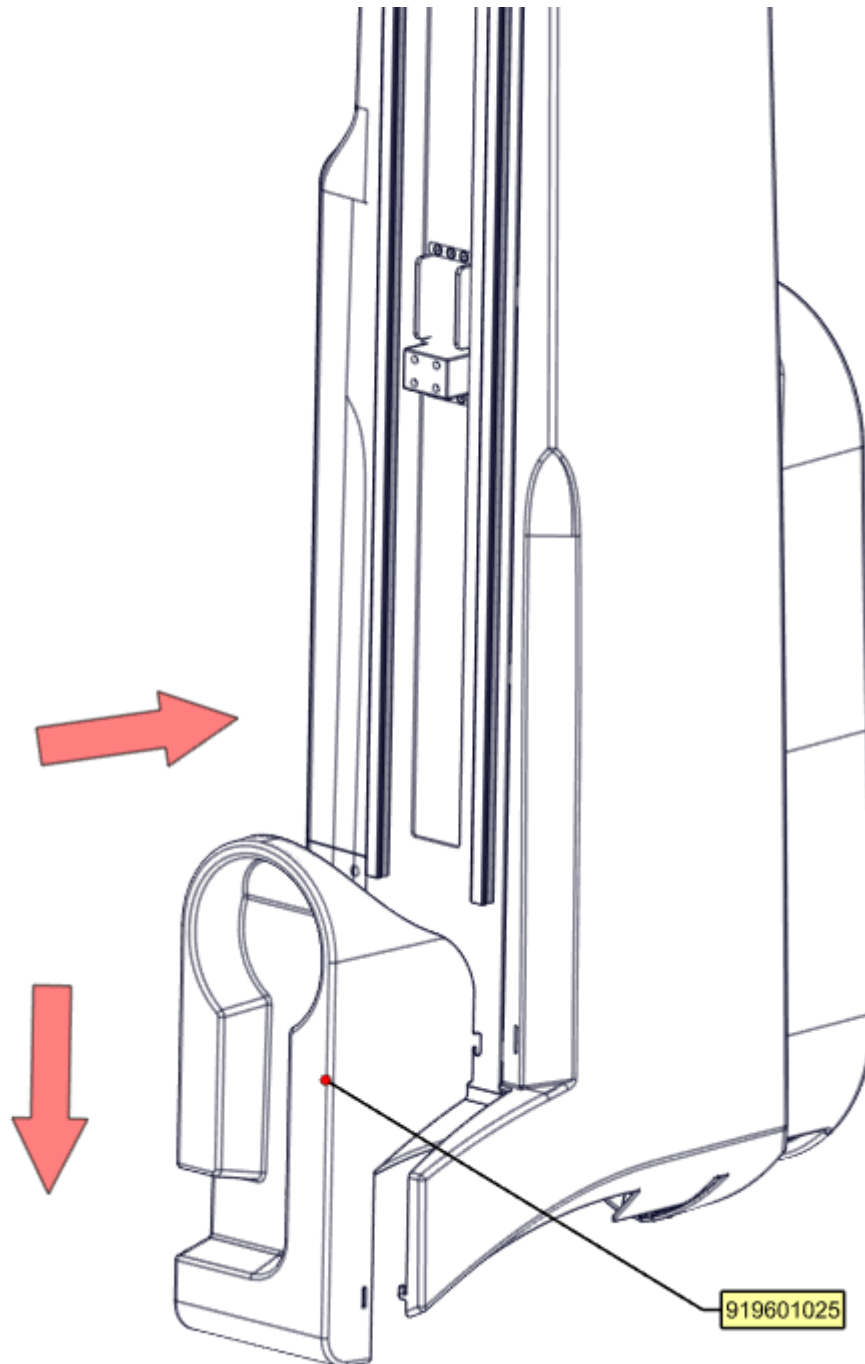
Install the lower left cover and screw it :



9090 REMOTE CONTROLLED TABLE

Installation

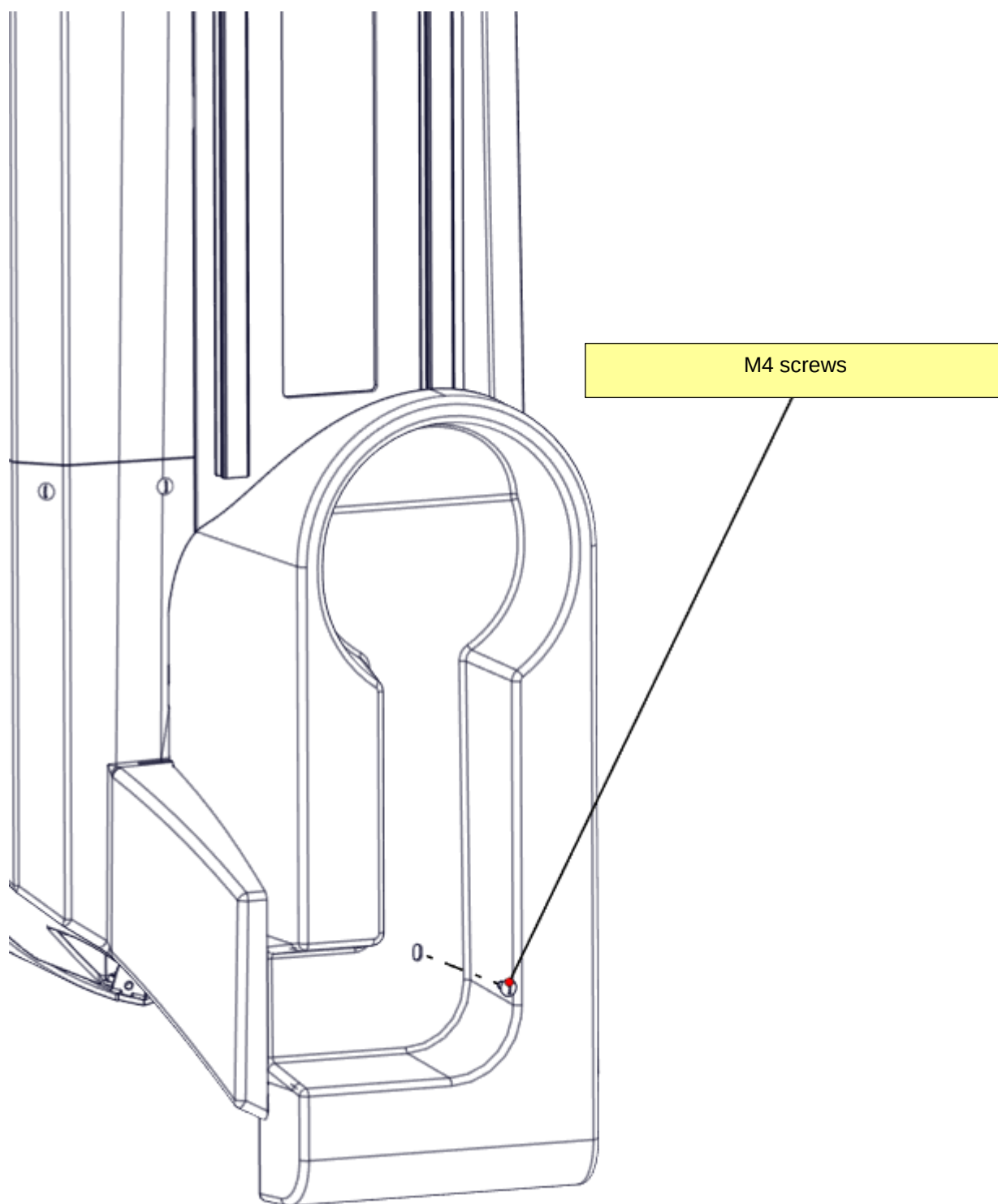
Insert the compression ladder cover: insert the retaining tabs en move down the cover



9090 REMOTE CONTROLLED TABLE

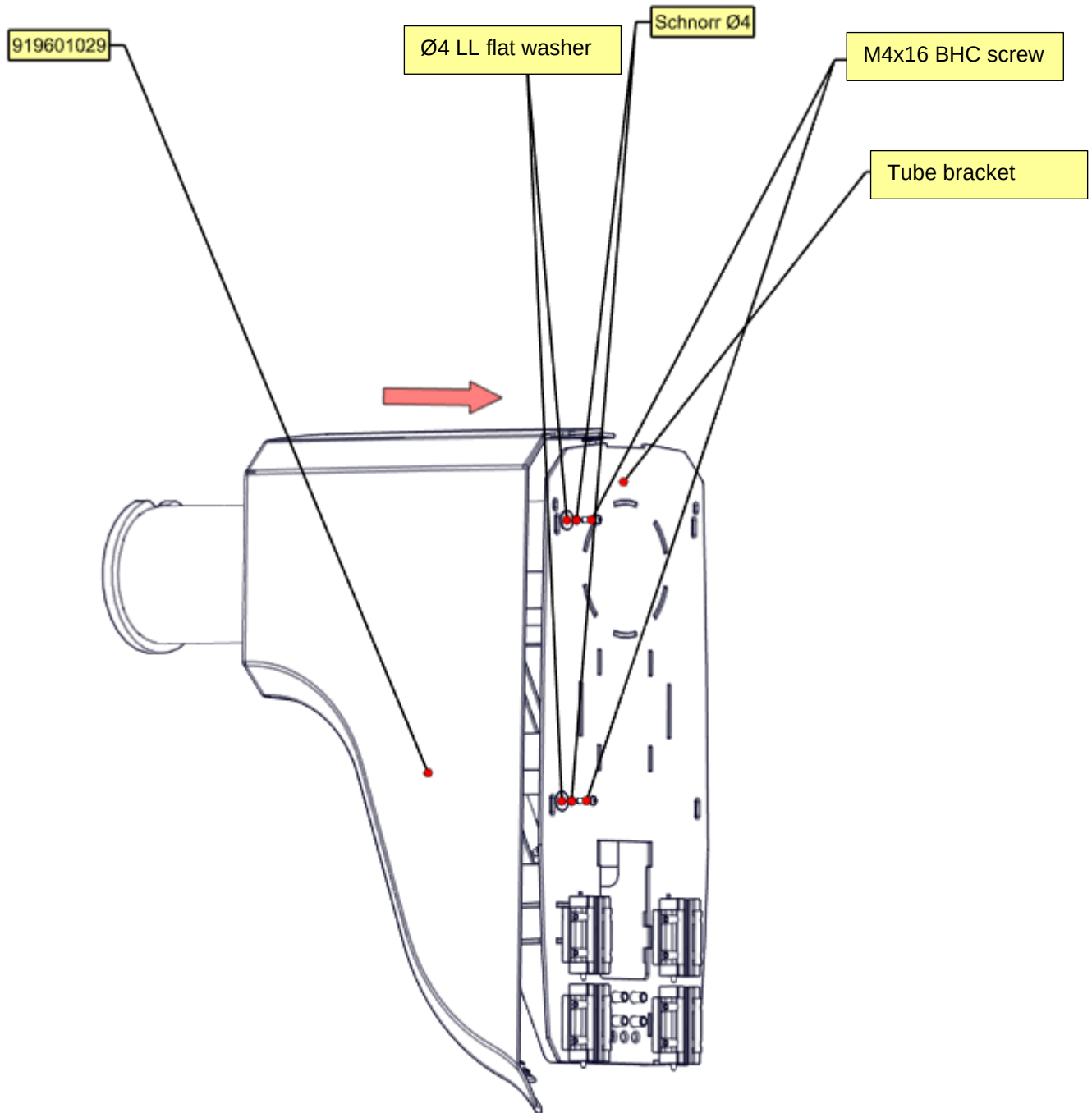
Installation

Tight the M4 plastic screw



30.2 Tube bracket covers

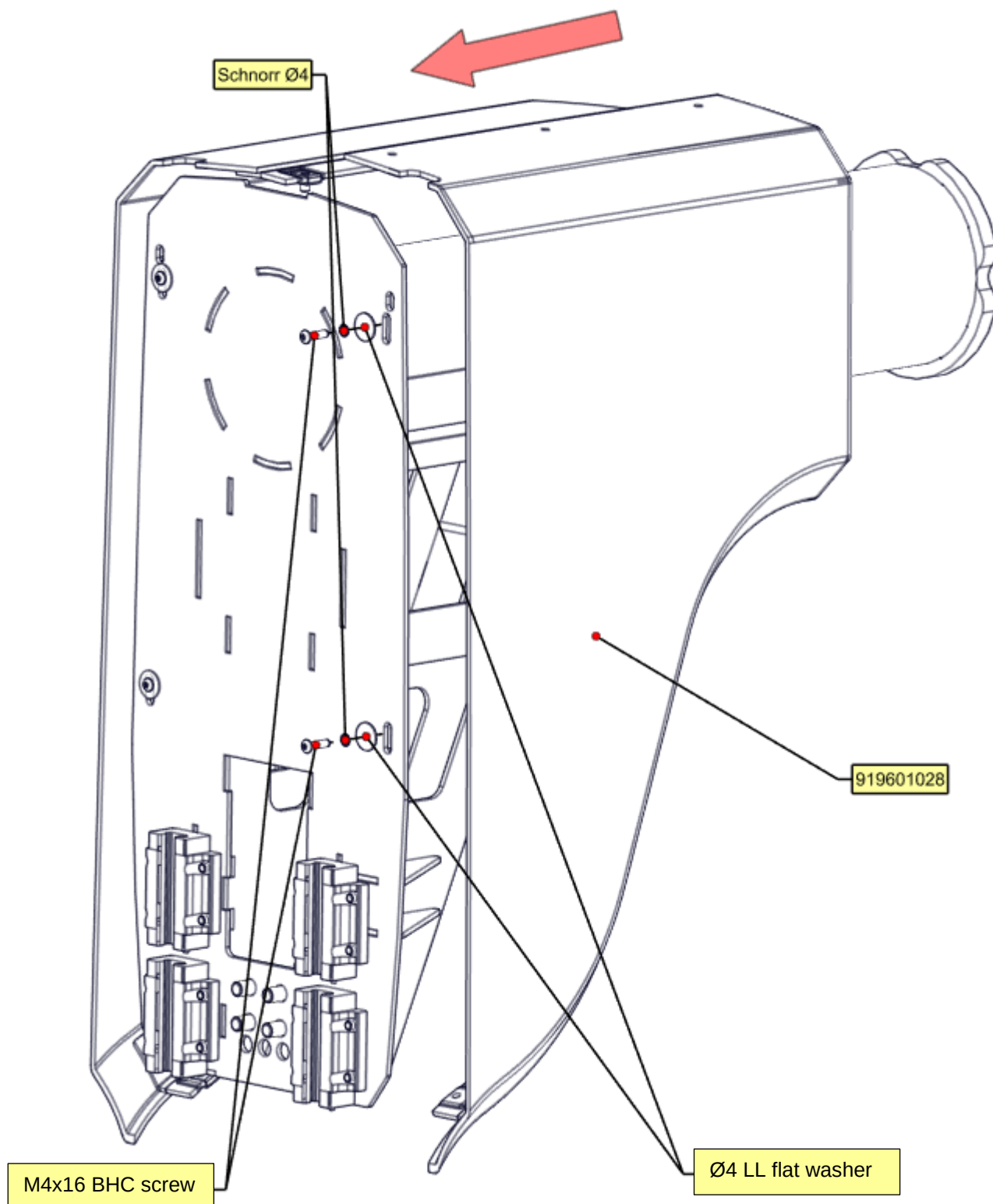
Install the right tube bracket cover



9090 REMOTE CONTROLLED TABLE

Installation

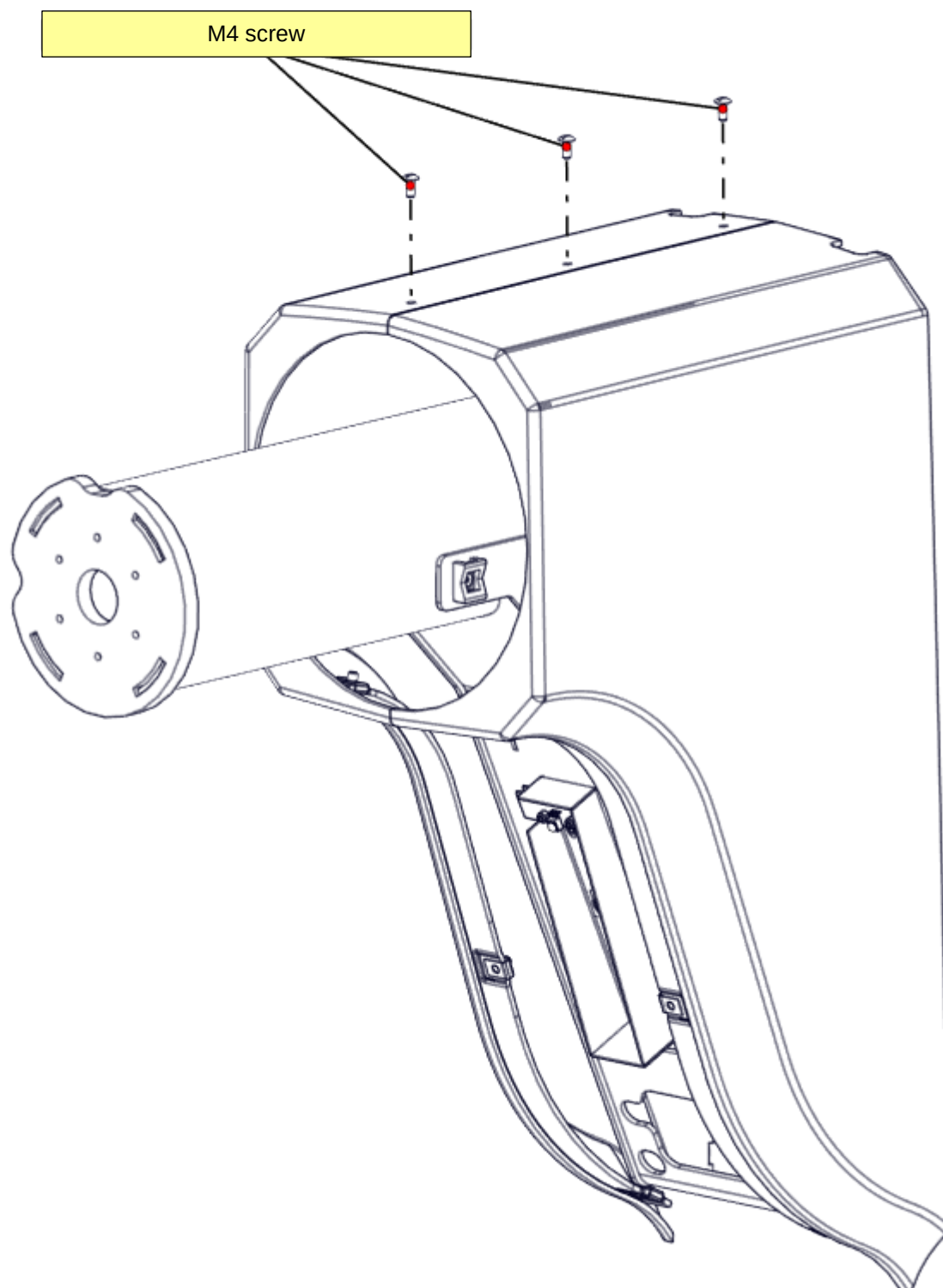
Install the left tube bracket cover :



9090 REMOTE CONTROLLED TABLE

Installation

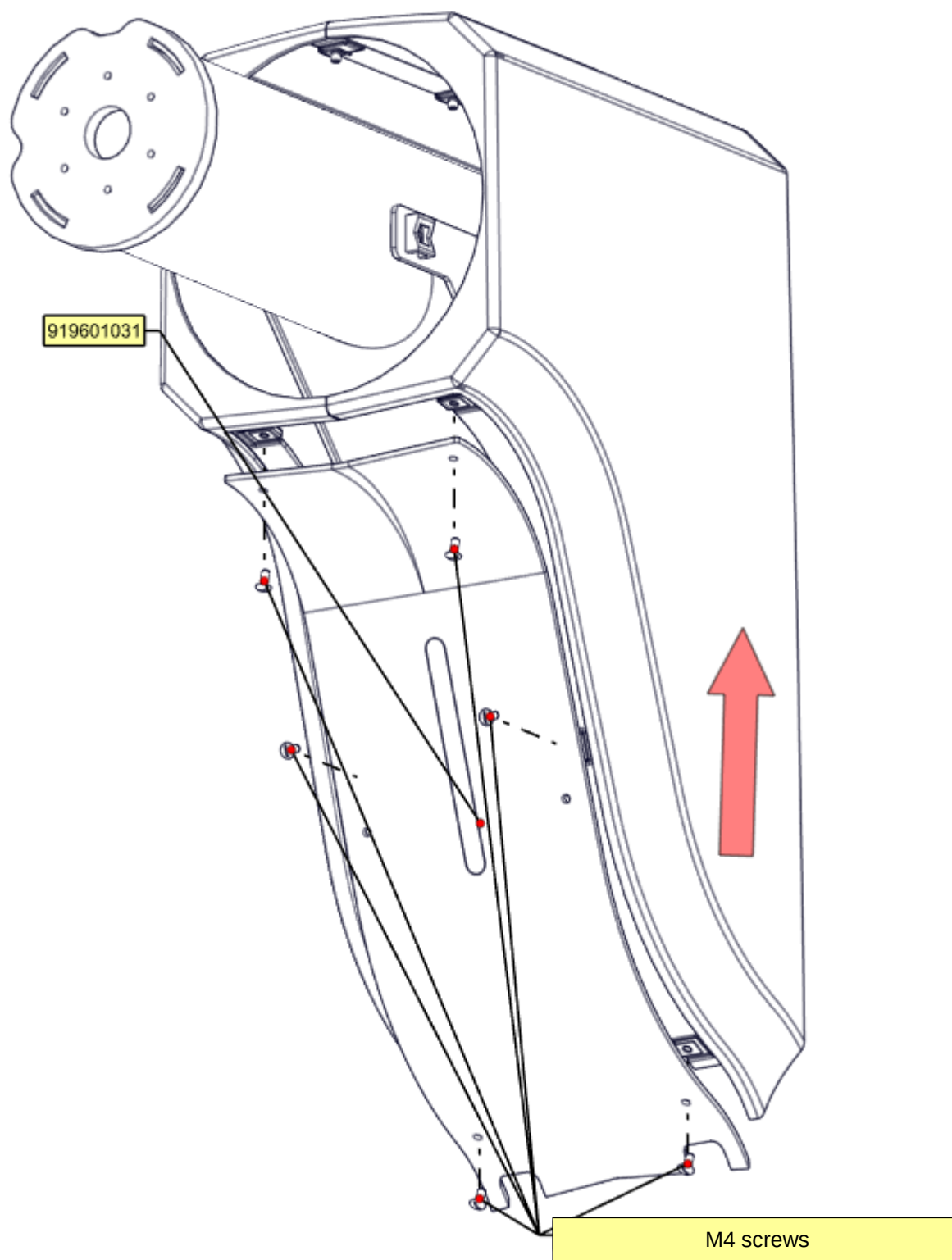
Screw the covers together :



9090 REMOTE CONTROLLED TABLE

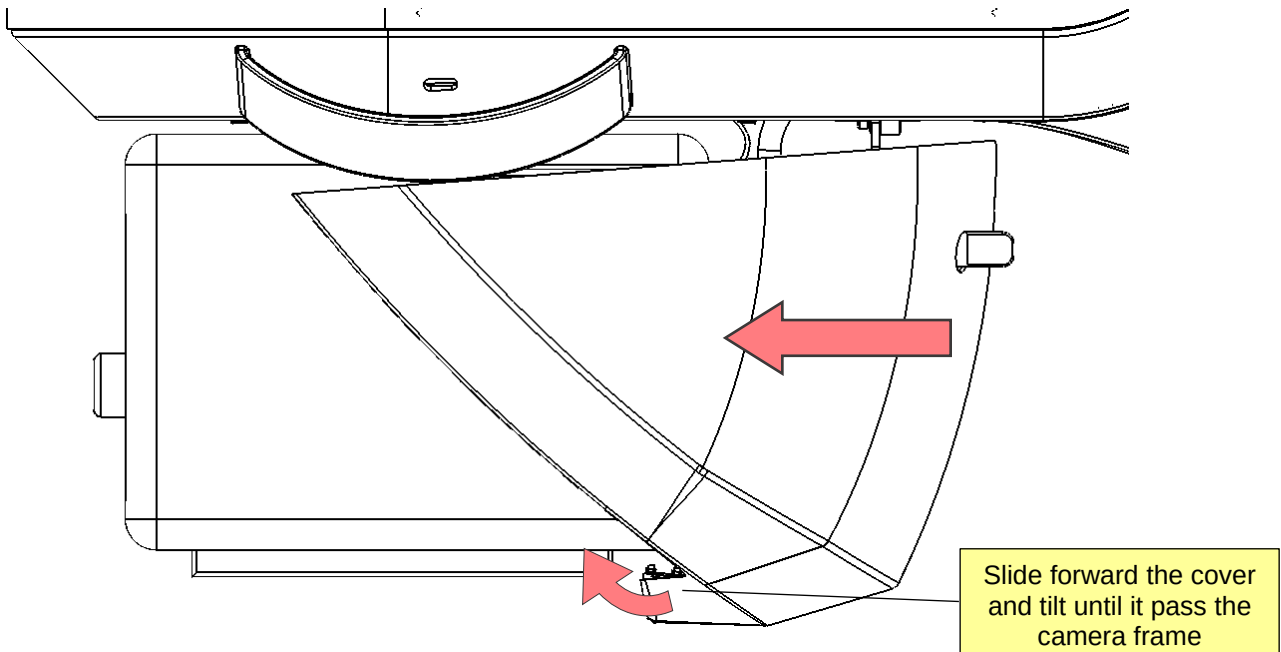
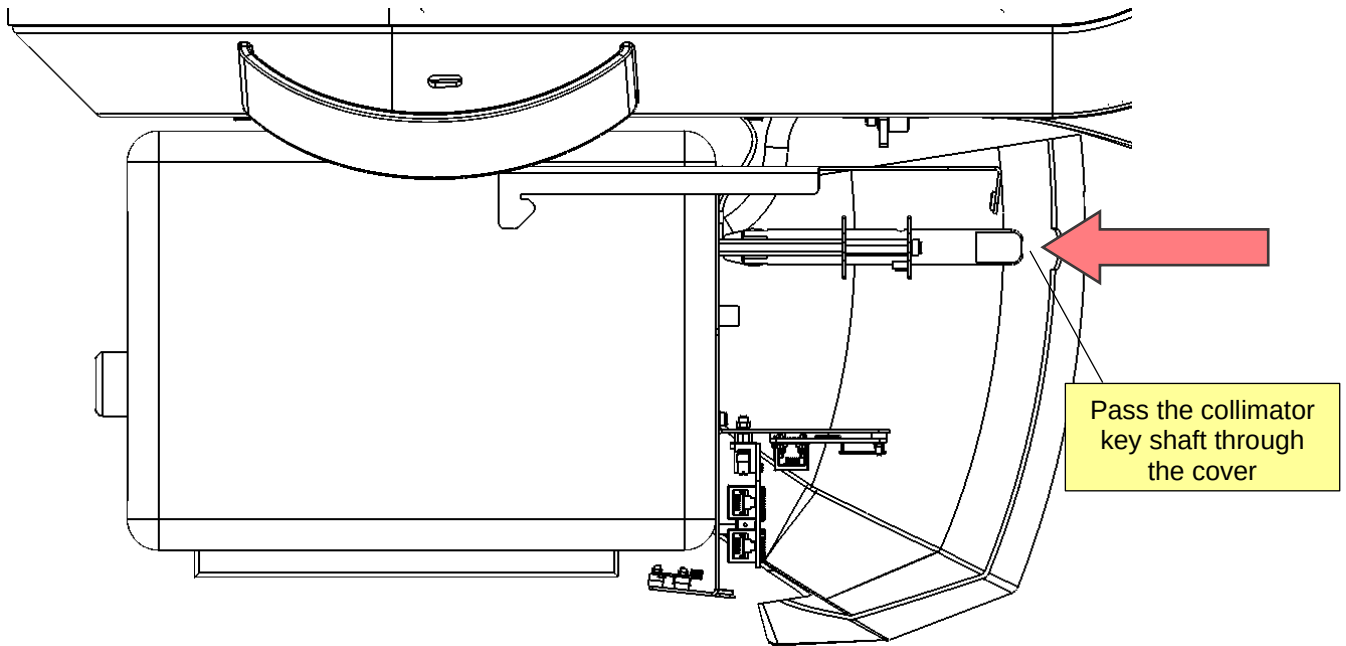
Installation

Install the central tube bracket cover on the 2 lateral covers:



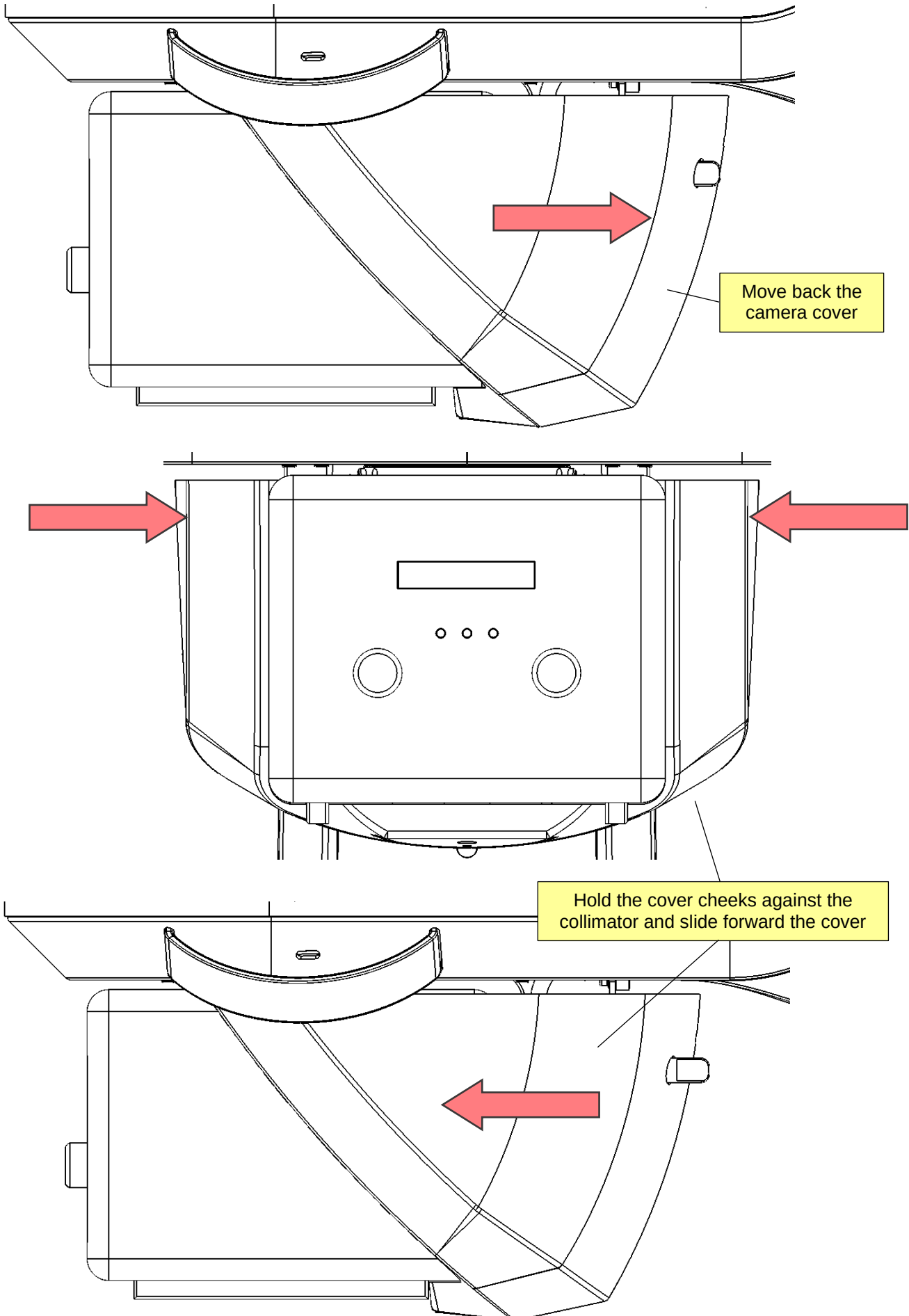
30.3 Camera cover

Install the camera cover (9201111111) on the collimator RALCO R225 DACS (910053), as indicated below:



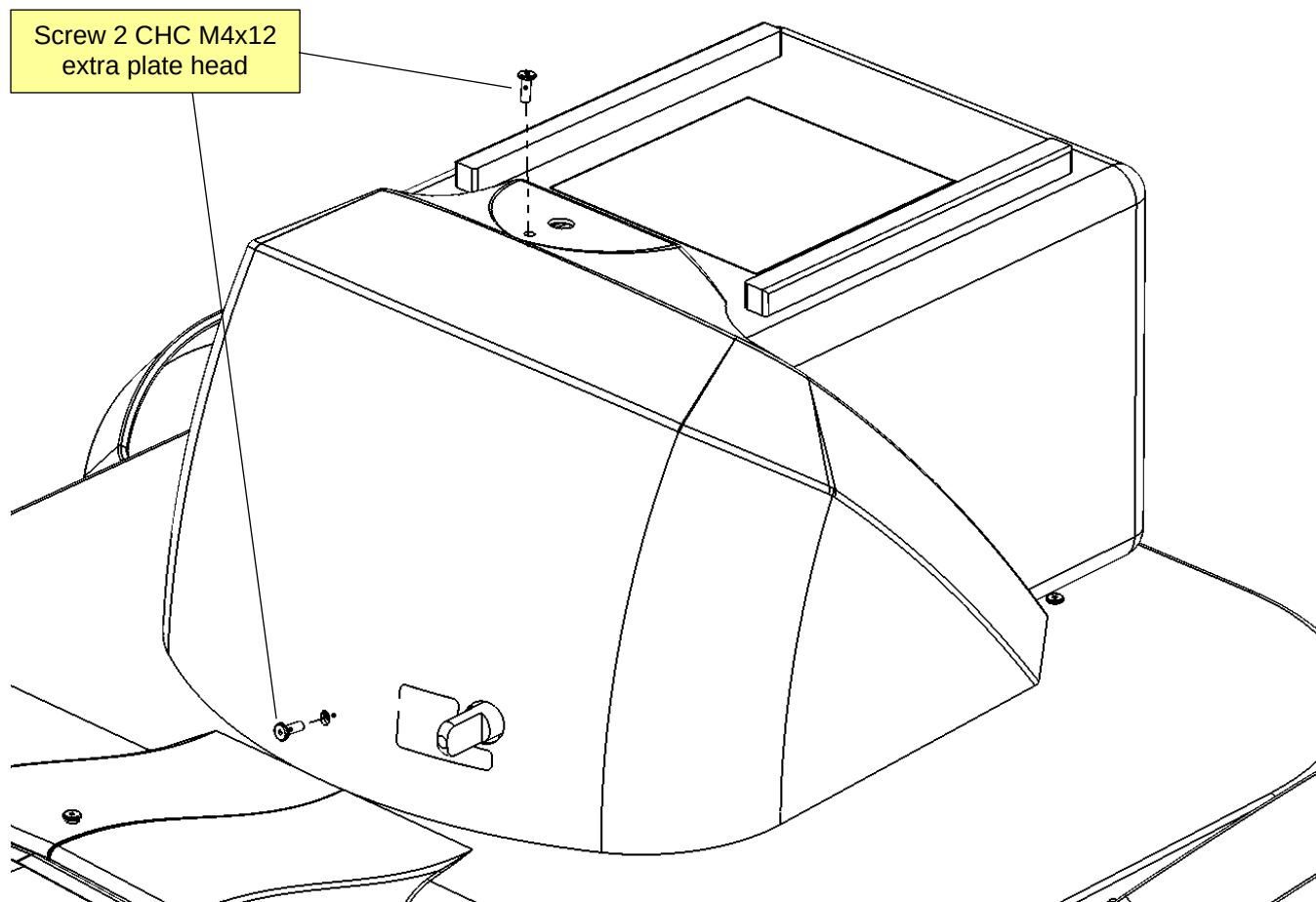
9090 REMOTE CONTROLLED TABLE

Installation



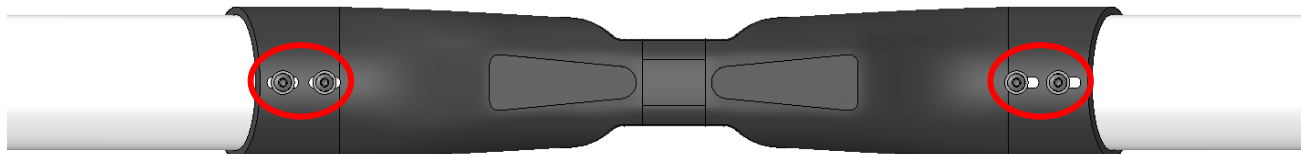
9090 REMOTE CONTROLLED TABLE

Installation



30.1 Guard bars

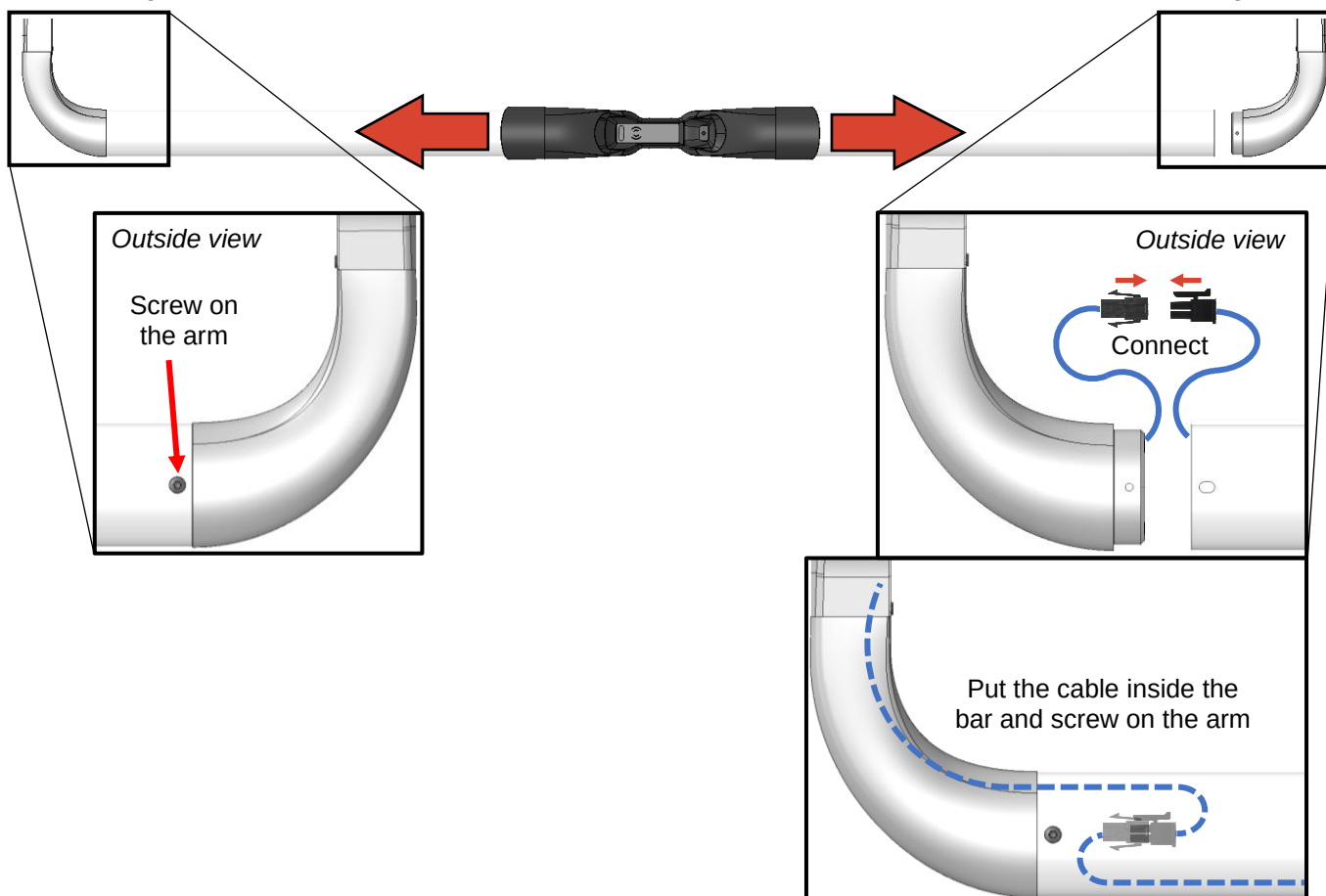
Remove the 4 screws BHC M6x20



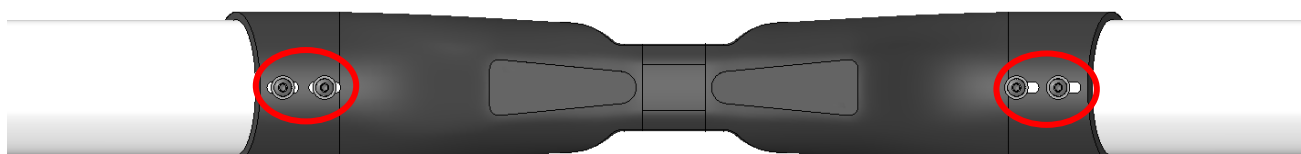
Insert totally the 2 guard bars inside the remote-control holder:



Place this sub-assembly inside the 2 arms and slide the 2 guard bars inside the arms corners in order to mount the fastening screws on the arms. Take care to connect the connector for the remote control wireless charger:

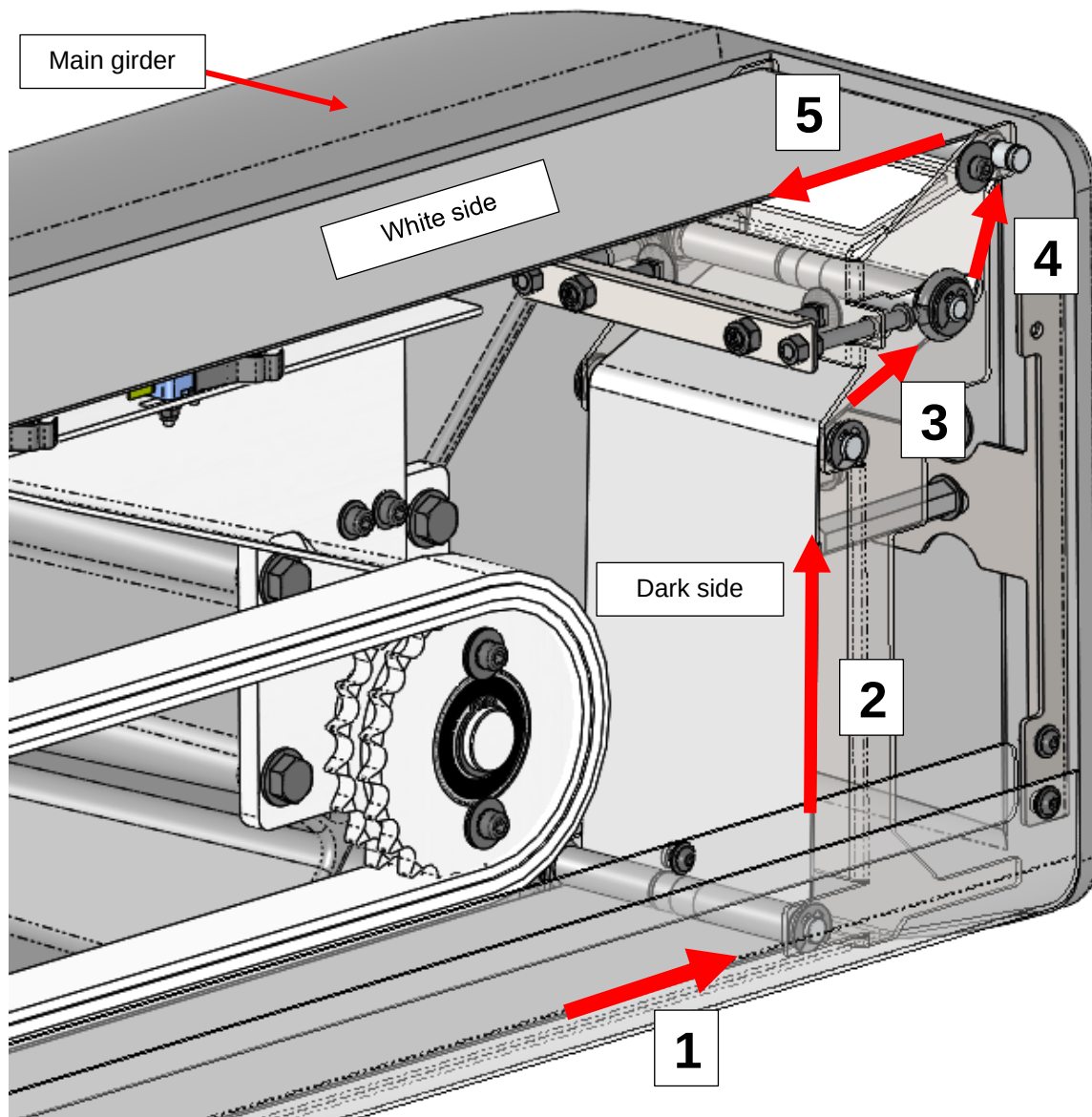


Screw the 4 screws on the remote control holder:



30.2 Carriage band

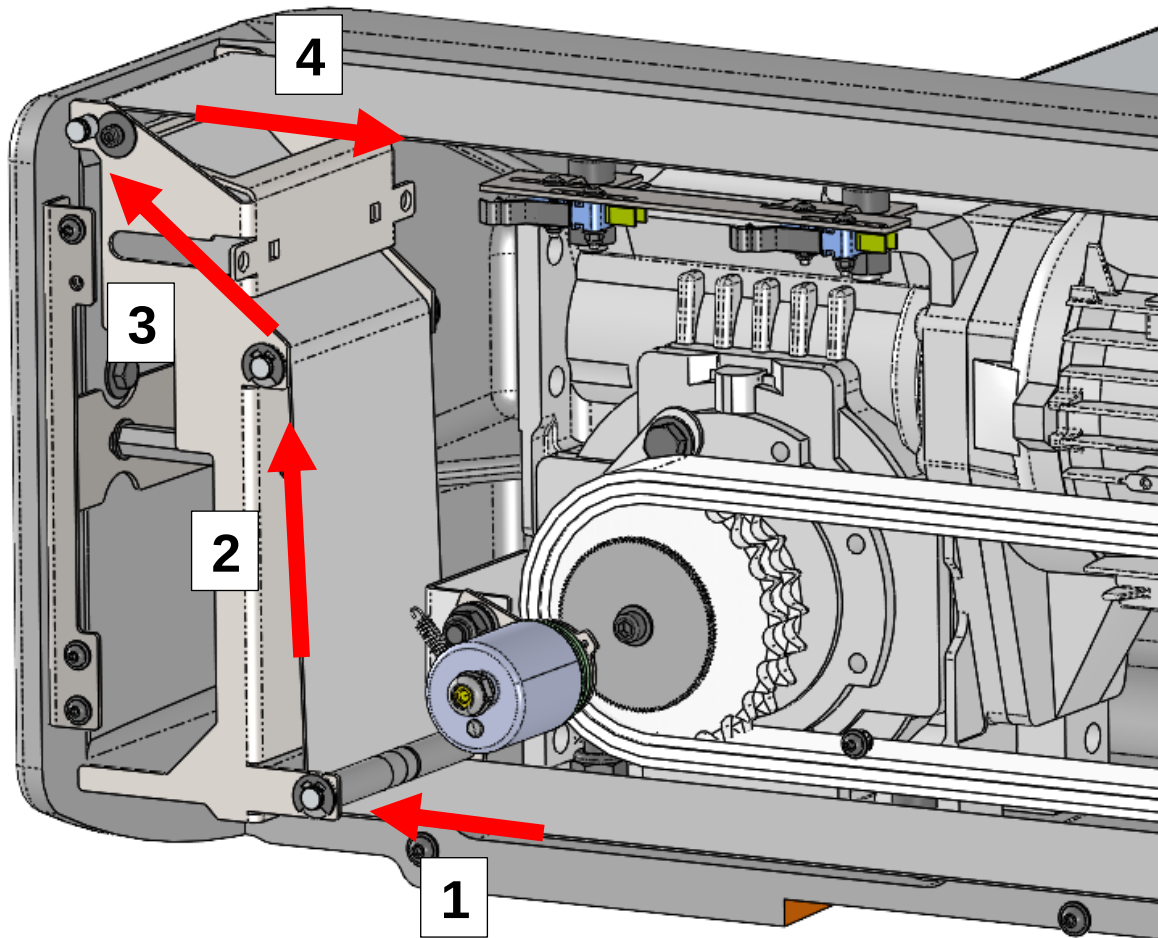
Slide the carriage band by following the step below. Put the white side of the carriage band on the visible side, the dark side of the band is inside.



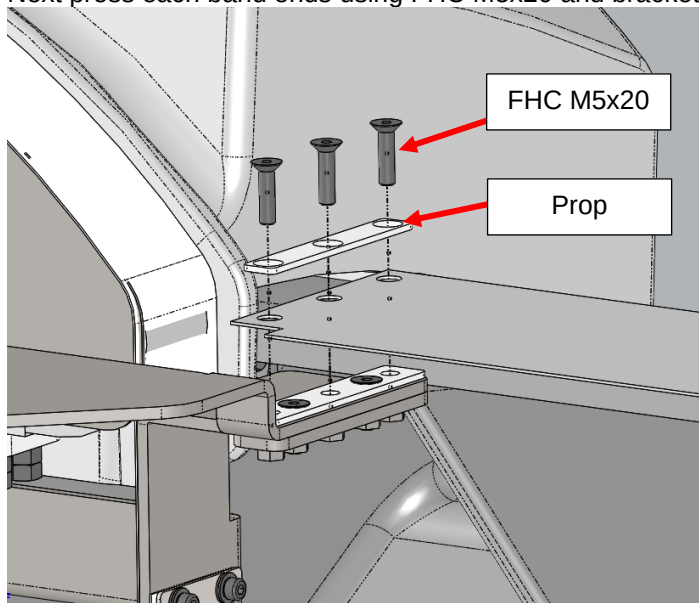
9090 REMOTE CONTROLLED TABLE

Installation

Slide the carriage band this way on the other side of the main girder.



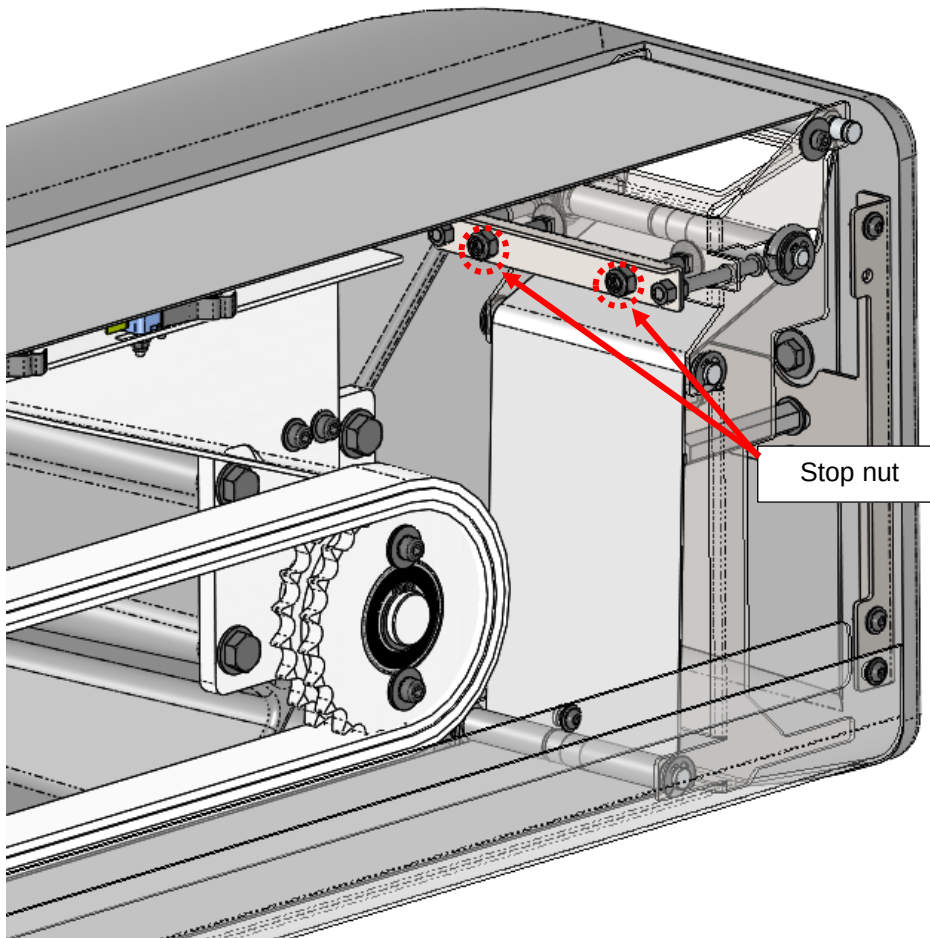
Next press each band ends using FHC M5x20 and brackets already in place :



9090 REMOTE CONTROLLED TABLE

Installation

Once clamp, tension the band by using the two stop nut shown below :



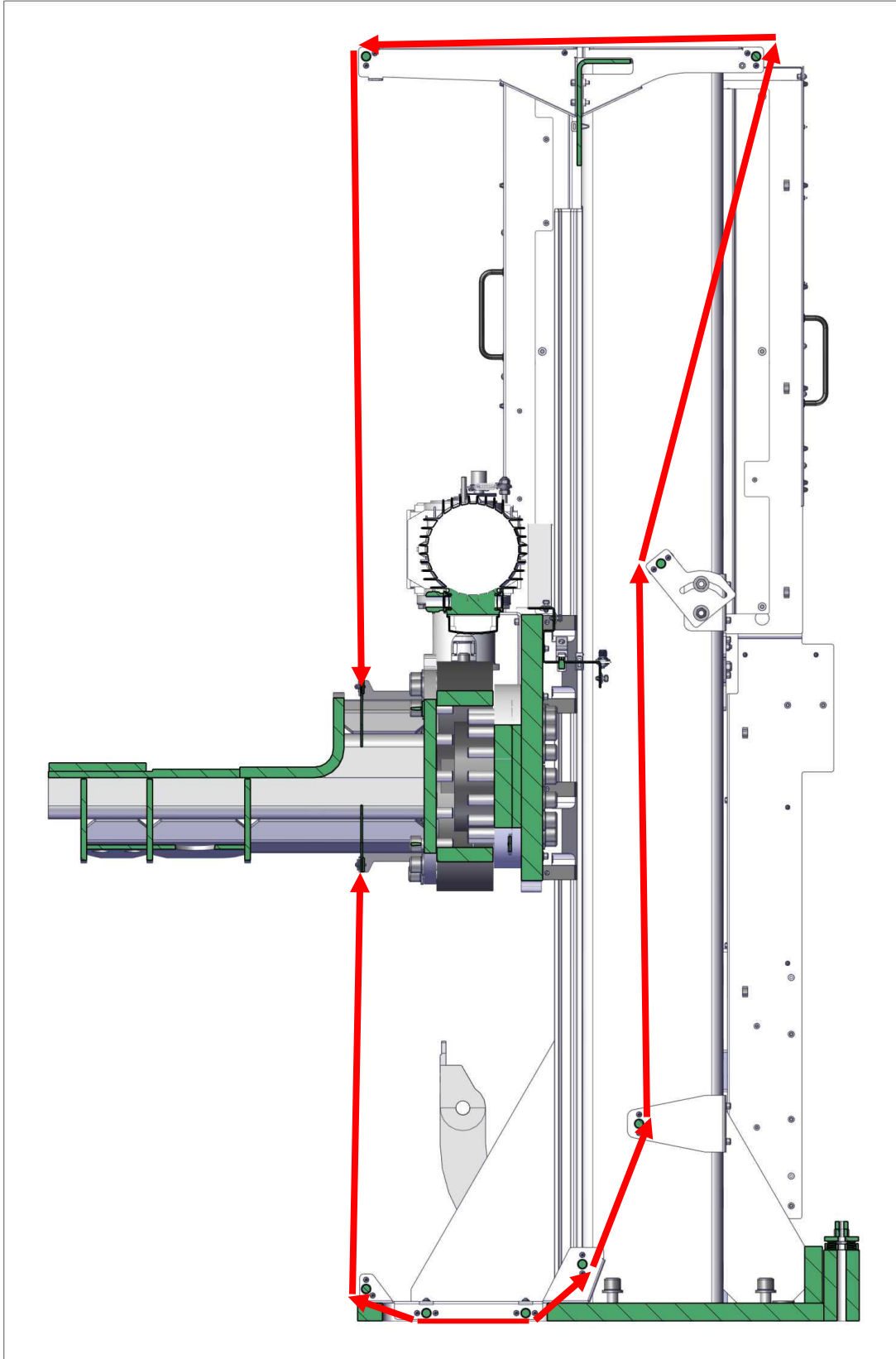
9090 REMOTE CONTROLLED TABLE

Installation

30.3 Foot covers

30.3.3. Elevation band

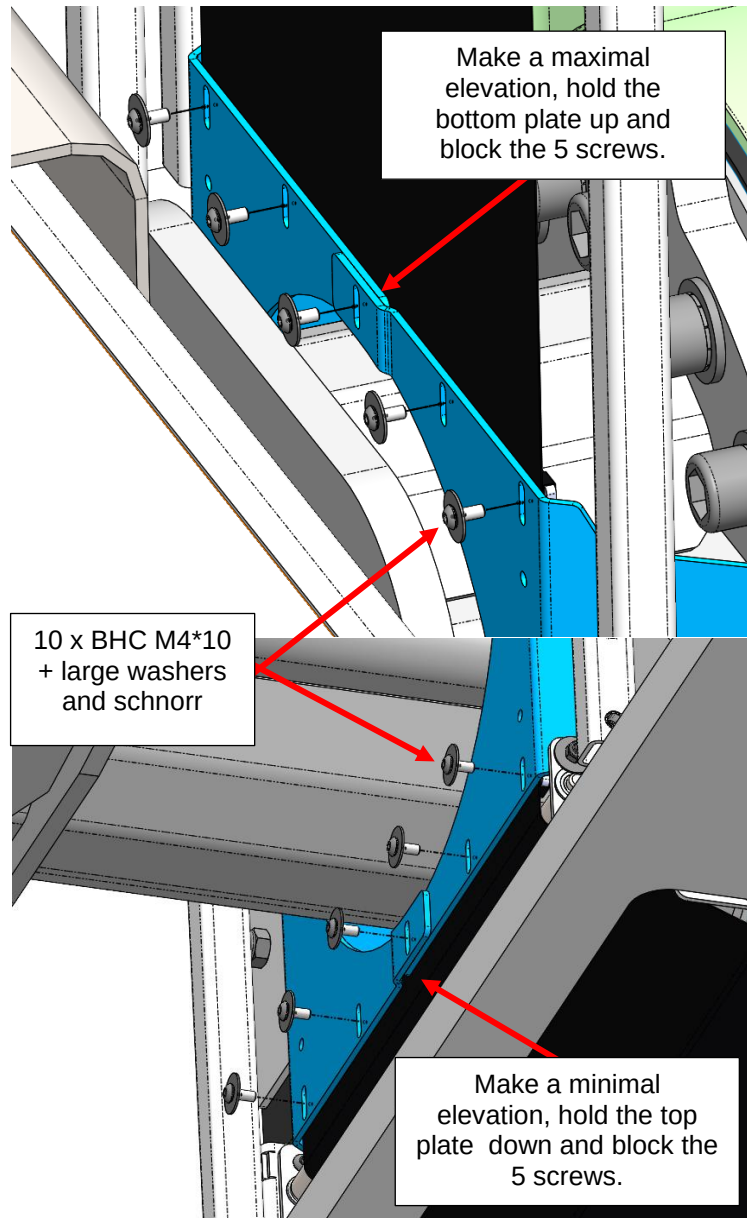
Unroll the elevation band and follow the path shown below :



9090 REMOTE CONTROLLED TABLE

Installation

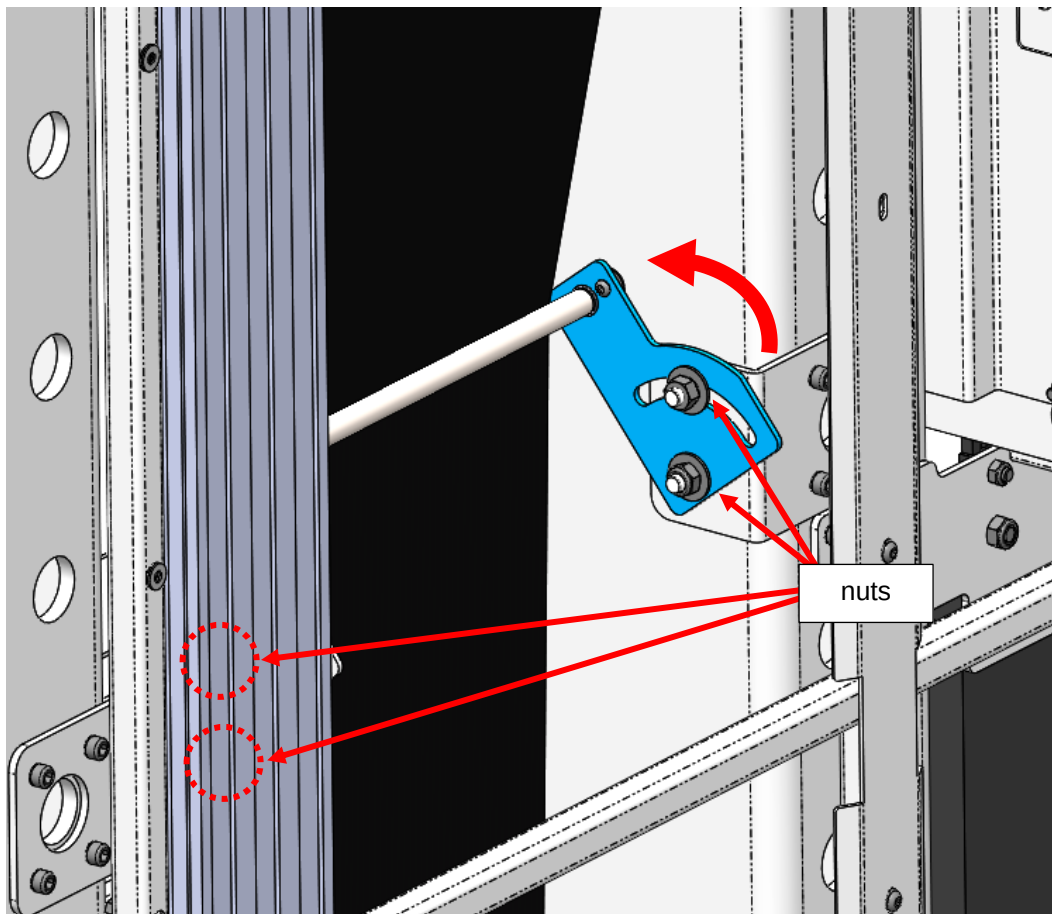
Using 10x BHC M4x10 screw + LL washer and Schnorr to position the elevation band on the fixing plate.
Do not block the screws at this time.



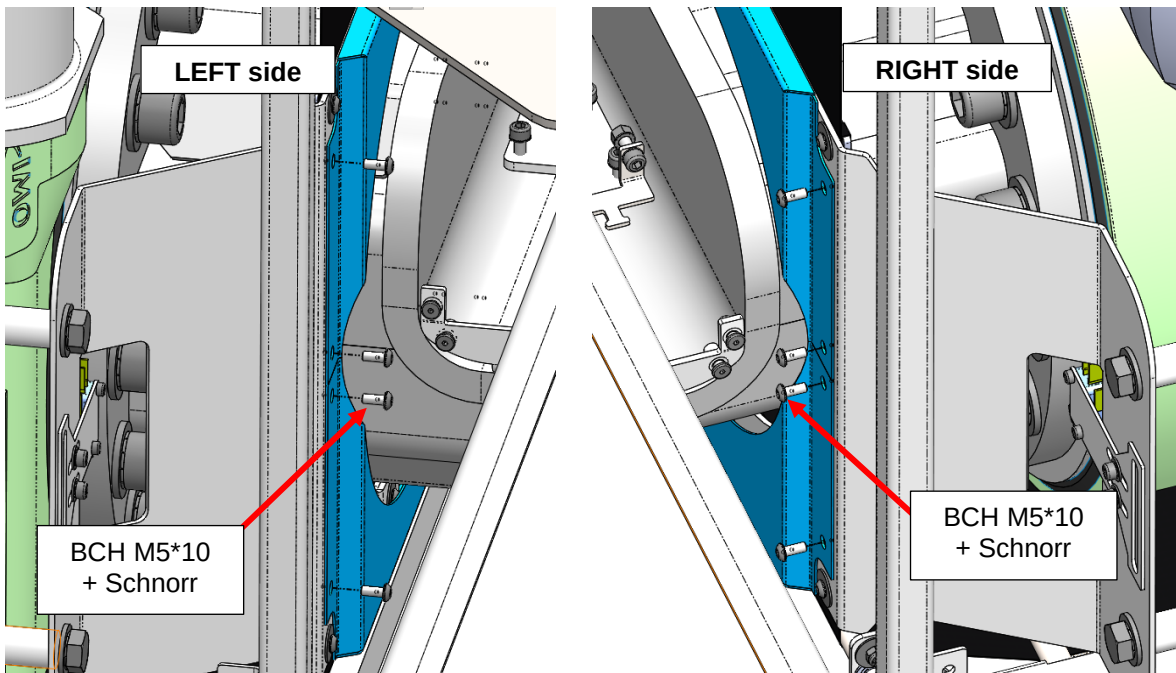
9090 REMOTE CONTROLLED TABLE

Installation

Tilt completely the tensioner to stretch the band. Then lock the nuts on each side of the tensioner.

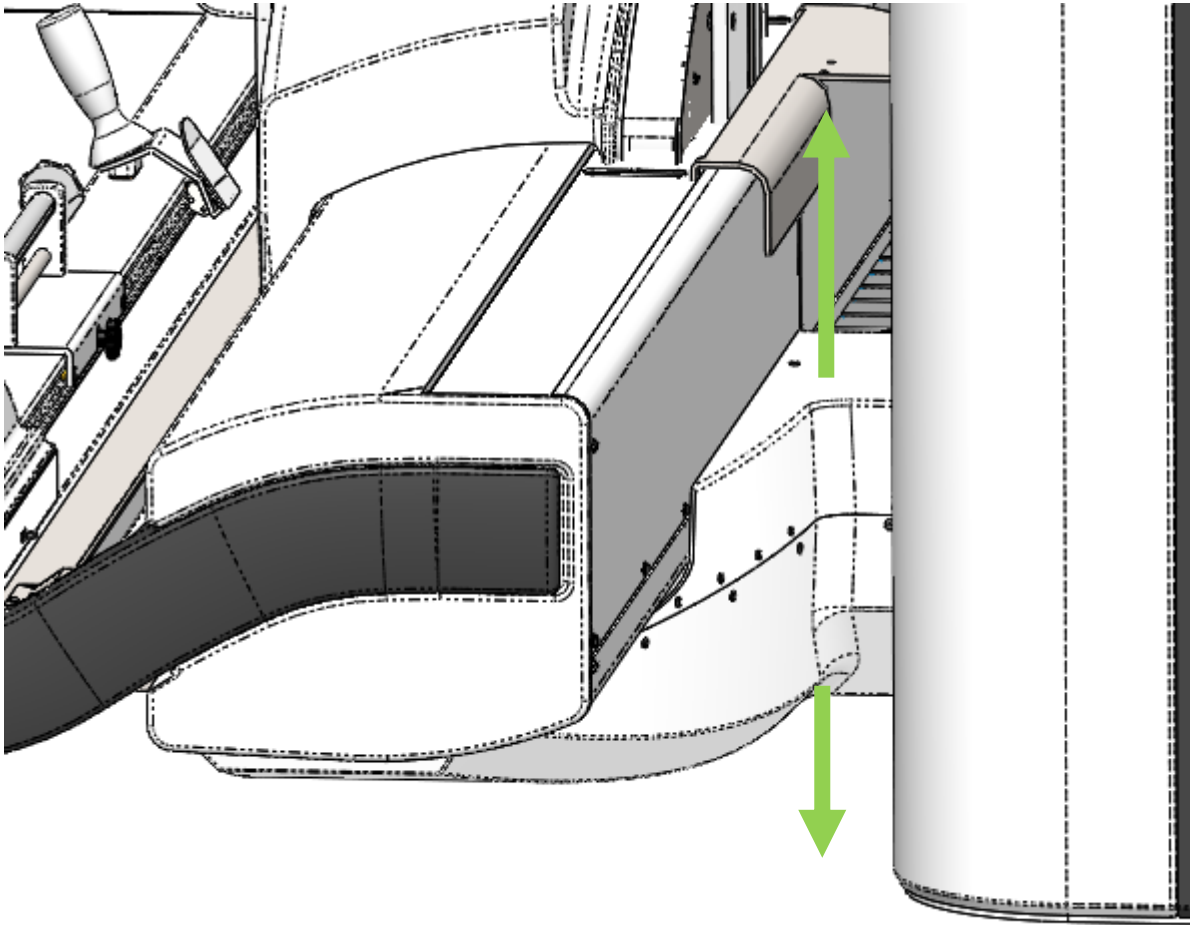


Install the 2 tiltings band cover and screw the 8x BHC M5*10 + Schnorr located on each side.



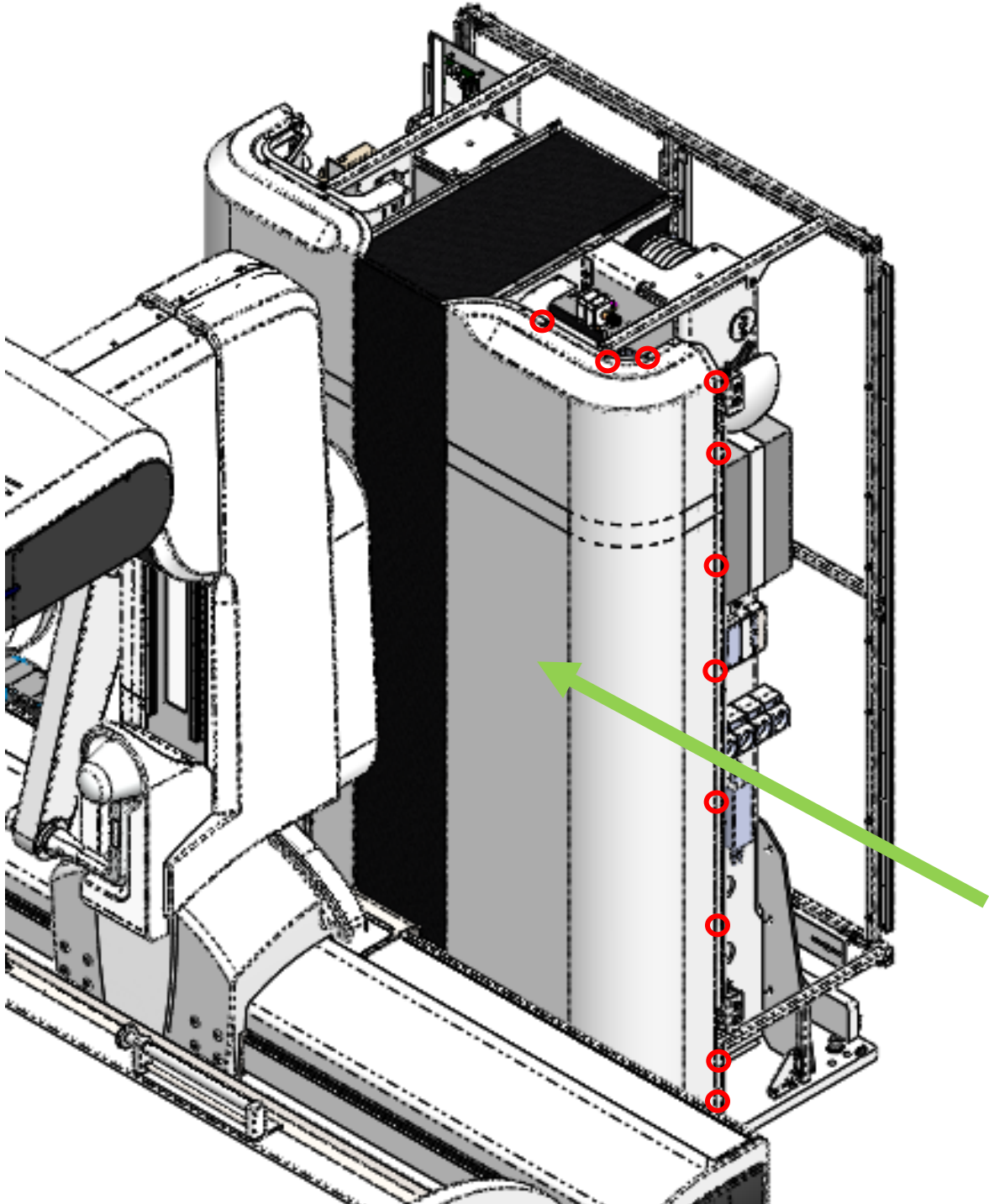
30.3.4. Tilting bracket covers

Assemble the 2 tilting bracket covers with the CHC M4 extra flat screws.



30.3.5. Foot covers

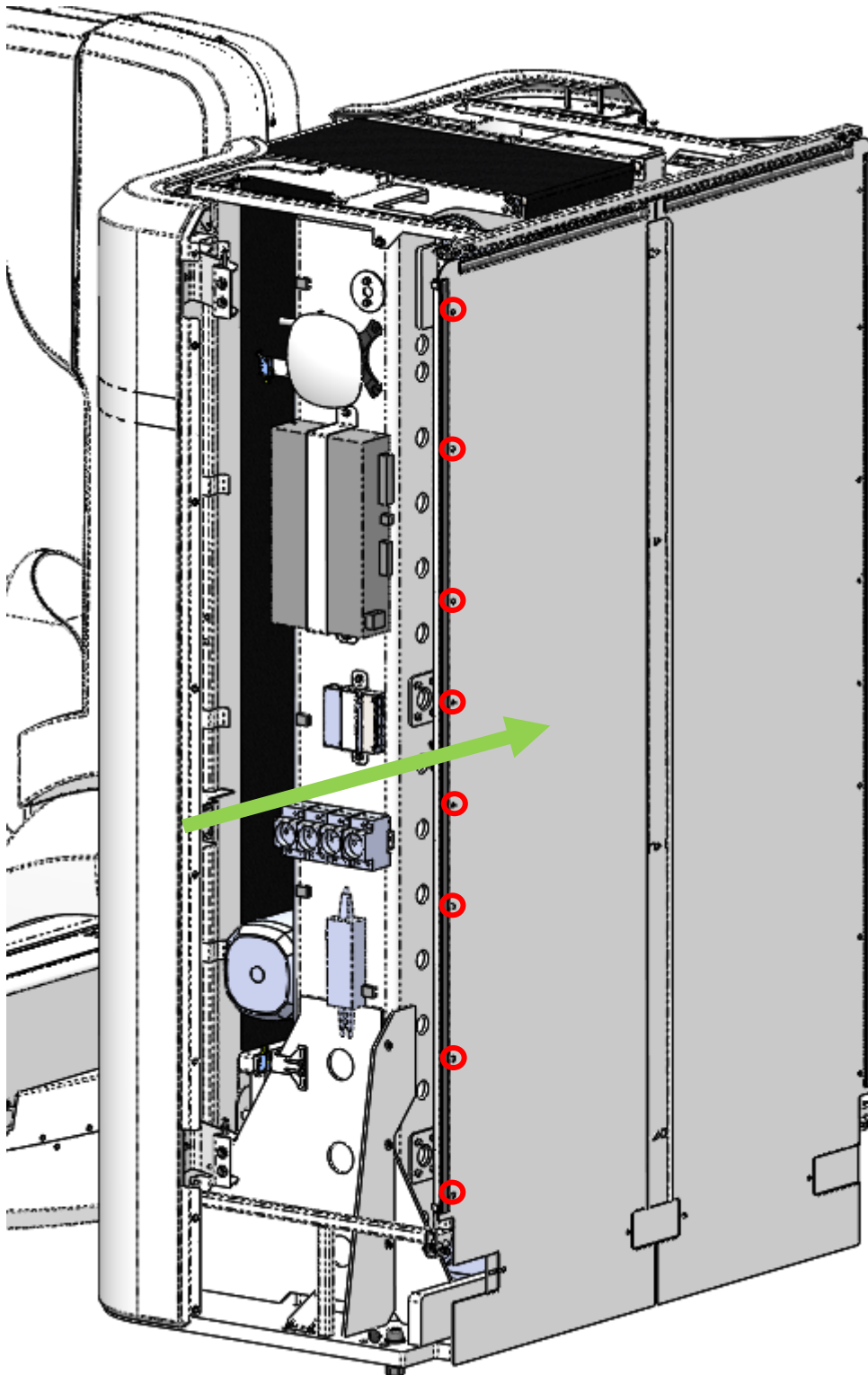
Position the left and right front covers by positioning the covers hooks on the foot frame tubes. Then, screw each cover with 3x FHC M4 on top of cover and 8x BHC M4 on side.



9090 REMOTE CONTROLLED TABLE

Installation

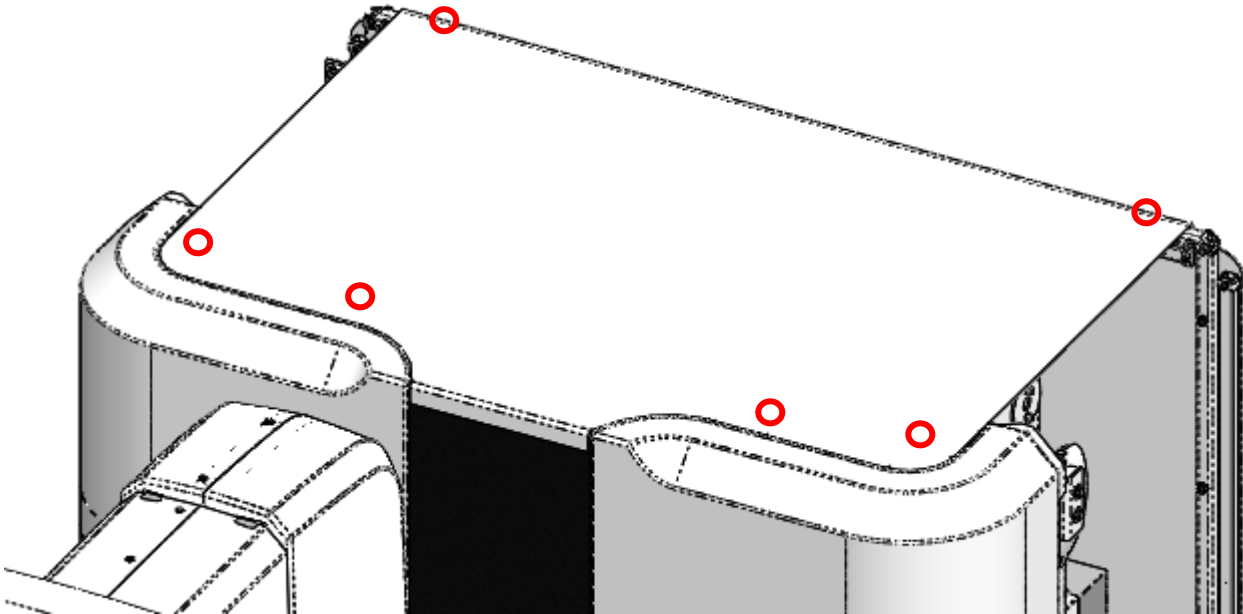
Position the left and right rear covers by positioning the covers in the slots.
Then, screw each cover with 8x H M5 nut + flat washer M + Schnorr.



9090 REMOTE CONTROLLED TABLE

Installation

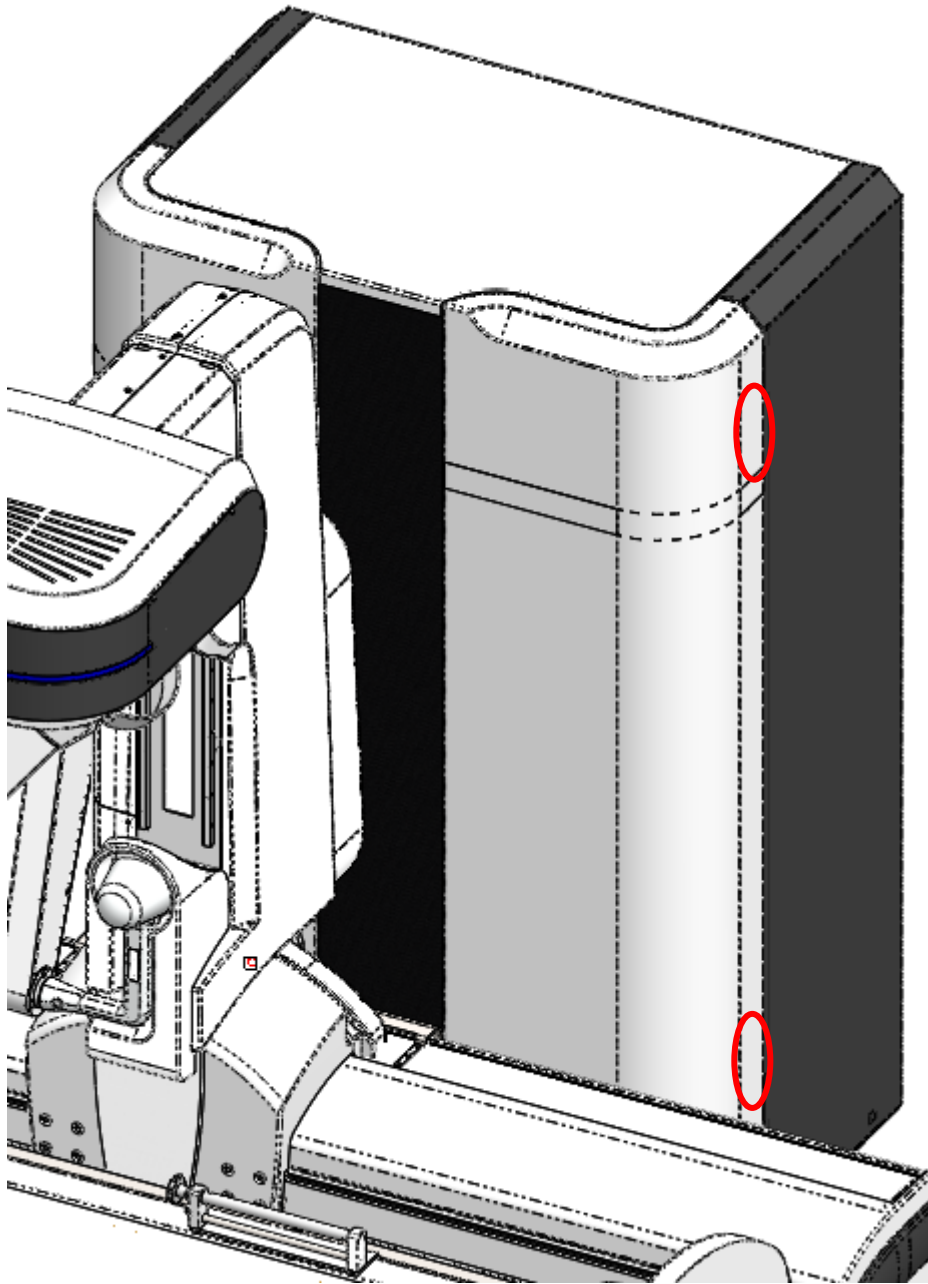
Position the upper cover and screw inside the foot with 4x H M4 nut + Schnorr and at the rear 2x H M5 screw + flat washer M + Schnorr.



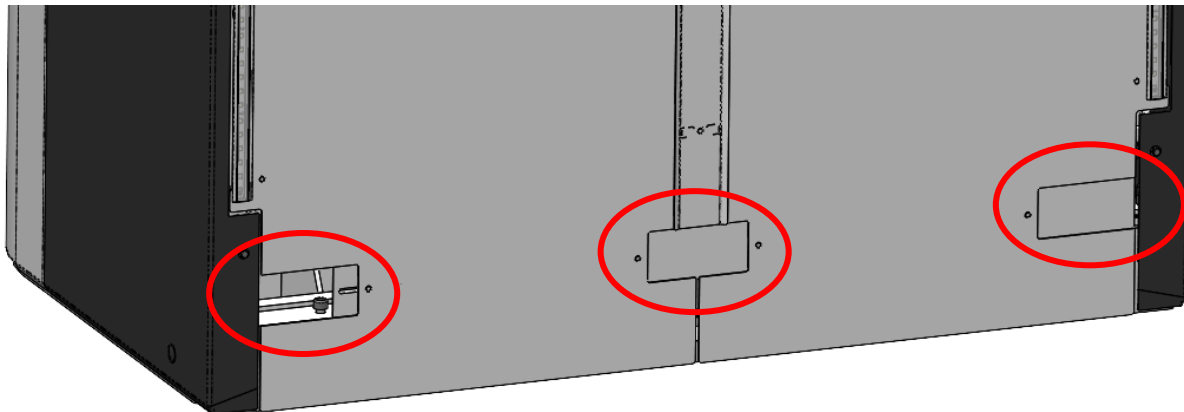
9090 REMOTE CONTROLLED TABLE

Installation

Position the left and right doors using the snap-on hinges.

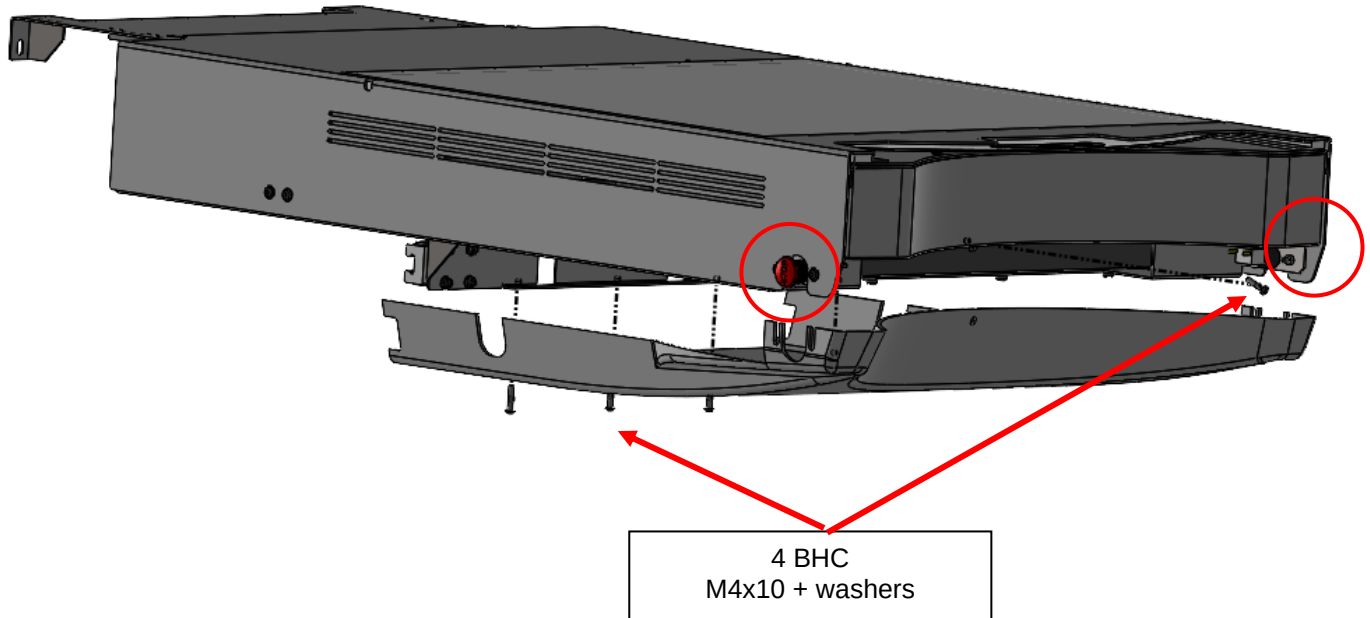


Allow the cables to protrude by using one of the three windows at the rear foot cover. Then slide and tighten the cables shutter to avoid any intrusion:



30.4 Detector holder cover

First of all, loosen the 4 screws located on both sides of the emergency switches
Position the detector holder cover as shown hereafter, and then put it in place.



Insert the 4 screws M4x10 with plastic washers, and then tighten the 8 screws.

31. X-RAYS ALIGNMENT

31.1 Reminder

Extract from the standard IEC 60601-2-54 (2009) / article 203.8.5.3. :

- a) along each of the two major axes of the IMAGE RECEPTION AREA, the total of the discrepancies between the edges of the X-RAY FIELD and the corresponding edges of the IMAGE RECEPTION AREA shall not exceed 3 % of the indicated FOCAL SPOT TO IMAGE RECEPTOR DISTANCE when the IMAGE RECEPTOR PLANE is normal to the X-RAY BEAM AXIS;

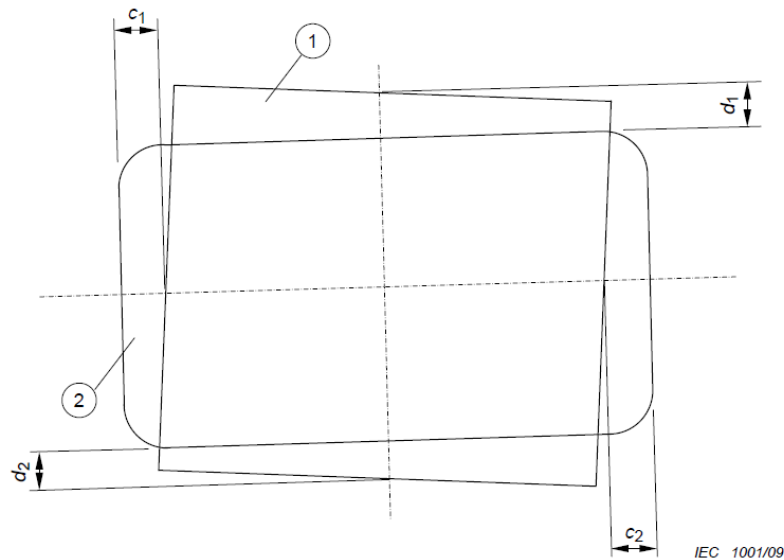
- b) the sum of the discrepancies on both axes shall not exceed 4 % of the indicated FOCAL SPOT TO IMAGE RECEPTOR DISTANCE.

When determining compliance with the requirements at a) and b) of the last scenario above, make the measurements with the REFERENCE AXIS normal to the IMAGE RECEPTOR PLANE within three degrees. As shown in Figure 203.102, the measured discrepancies in the IMAGE RECEPTOR PLANE are represented by c_1 and c_2 on one axis and by d_1 and d_2 on the other. If the FOCAL SPOT TO IMAGE RECEPTOR DISTANCE is S , then for compliance, the following relationships are true:

$$|c_1| + |c_2| \leq 0,03 \cdot S$$

$$|d_1| + |d_2| \leq 0,03 \cdot S$$

$$|c_1| + |c_2| + |d_1| + |d_2| \leq 0,04 \cdot S$$



- 1 X-RAY-FIELD
- 2 IMAGE RECEPTION AREA

Figure 203.102 – Discrepancies in covering the IMAGE RECEPTION AREA

31.2 Light Field / X-Rays beam

The first step to follow in order to adjust the X-rays beam is to adjust the light field to match the X-rays beam. Please follow these instructions:

- This step is only for Canon B1 :

Create a new protocol in the Canon service tool or modify an existing one.

Test alignments
Table

APR Editor

Exposure Type : RF

StaticDriveMode : Fast

Source object distance(SOD) : (1 - 99)

Source imaging receptor distance(SID) : (1 - 99)

APR ID

Radiography : KV=70;MA=200;MS=20;FO=1;AEC=---;FS=1;FD=4;PO

Fluoro : FKV=60;ABS=0;FHD=0;FC=1;POS=1;DETROT=3;COLL

Digital-cine : KV=60;MA=25;MS=4;FO=1;AEC=---;POS=1;DETROT=

RAD | FLUORO | CINE | POSITION

Positioner

Autopos #: 1 [^] [v]

Detect. Rot: Not Defined

Magnification: Full

Collimator

Trans: 30 [^] [v]

Long: 30 [^] [v]

cm inches

Filter RAD: No Filter

Filter FL(D2RS): No Filter

Set the collimator aperture to 30x30,
Set the rotation to 0 degree,
Set the cropping area to Custom
(1920x1920 pixels = 30x30cm).

This setting will allow to get the ROI (green square) centered on the detector and not on the irradiated area.

Protocol Workspace Settings 1

Grid Name : grille 110

Radiography | Fluoro | Digital-cine

Flip and Rotate

[R] Rotate [0 degree] (2208x2688)

Cropping Area Options

Generic Preset Protocol Preset

Cropping Area : Custom Area

Alignment Reference Area : Detected Irradiated Field

Alignment : Center aligned

Custom Area : 1920 x 1920 pixel (64 - 9999) (64 - 9999)

Film Options

Generic Preset Protocol Preset

Film Size and Direction :

Fit Option :

Fit Fixed Ratio : 100 %

Layout :

Automatically select template depending on the Common Cropping Size

Use specified arrangement

Peripheral mask options

Peripheral Mask Type : Irradiated Field

Size (Diameter) : mm (10 - 999)

Enable the peripheral mask option to use the mask option.

- Move the SID to 110cm approximatively
- Open the collimator to 30cm X 30cm
- Place 4 Allen keys on every corner of the Light Field or use a specific phantom



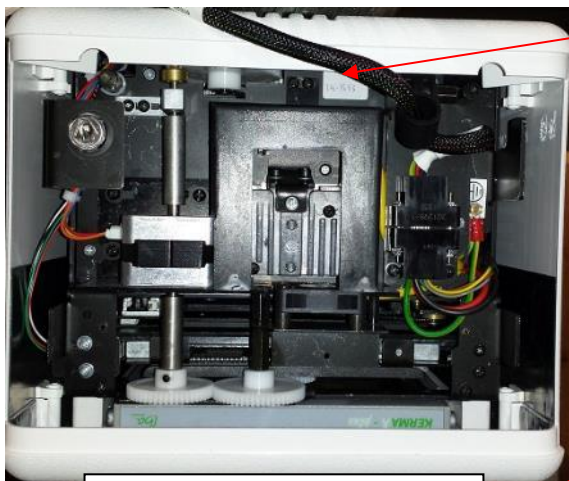
- Do an exposure using 70kV, 4 mAs, without AEC
- Adjust the light field (Mirror for lateral movement, LED for longitudinal movement) in order to match X-rays and Light field.

9090 REMOTE CONTROLLED TABLE

Installation

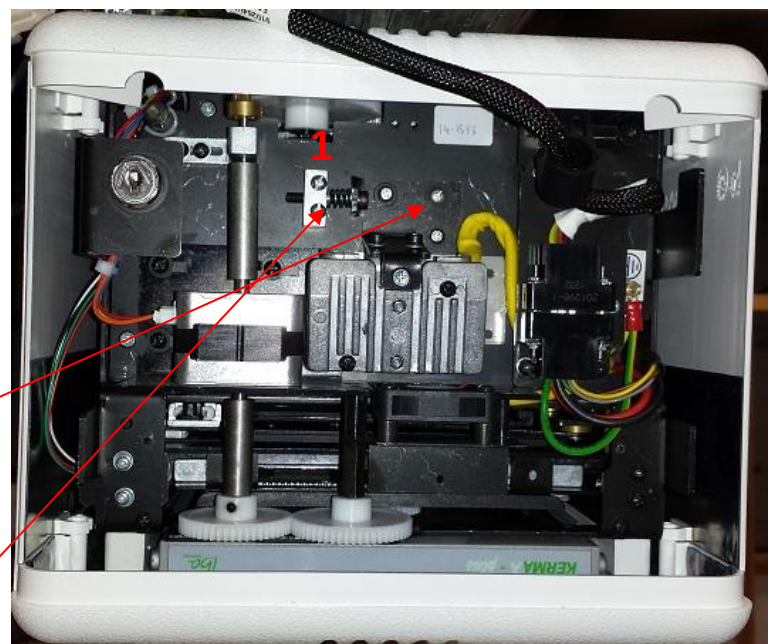


Adjust the collimator mirror (2 screws) in order to move the light field in lateral.



Untighten (without removing) these 3 screws

Then adjust the light field in longitudinal by moving the LED in translation thanks to the screw 1.

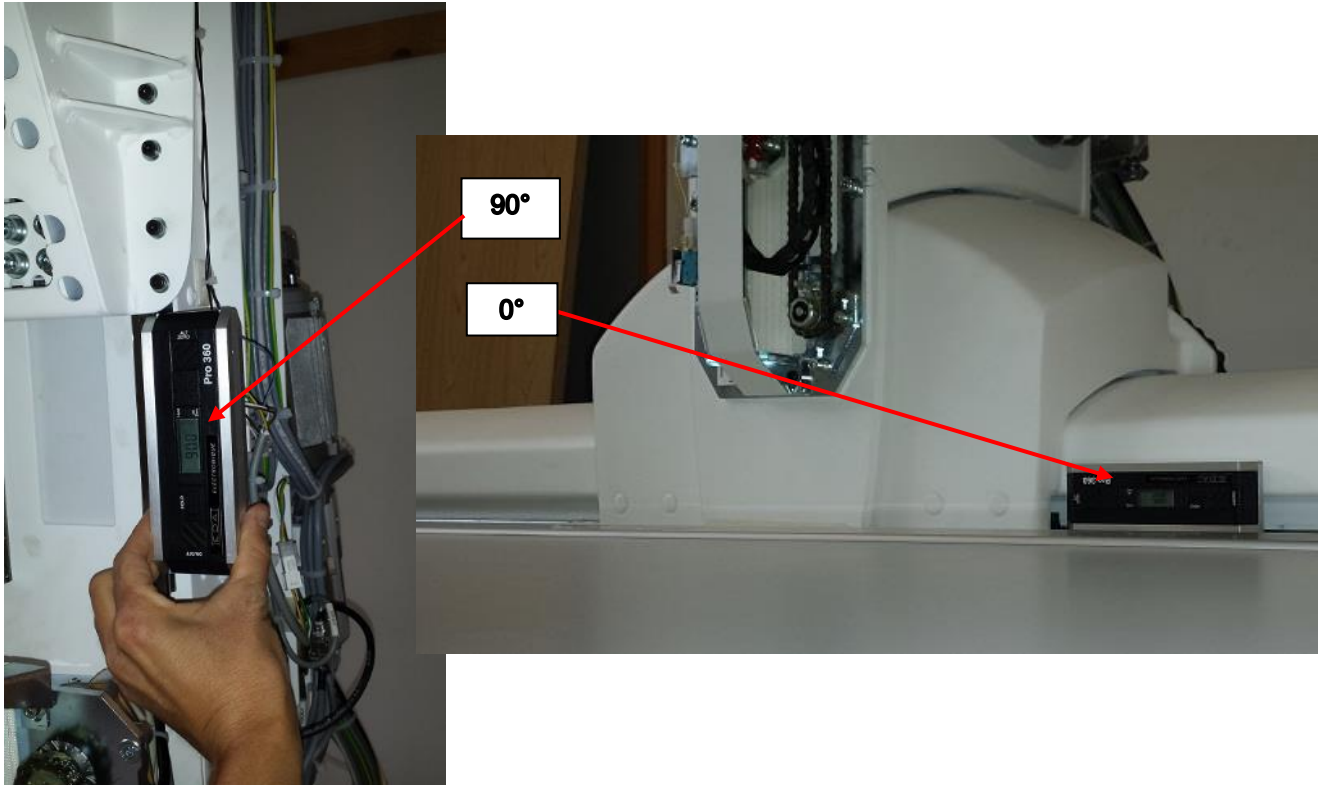


Remove the black cover (2 screws)

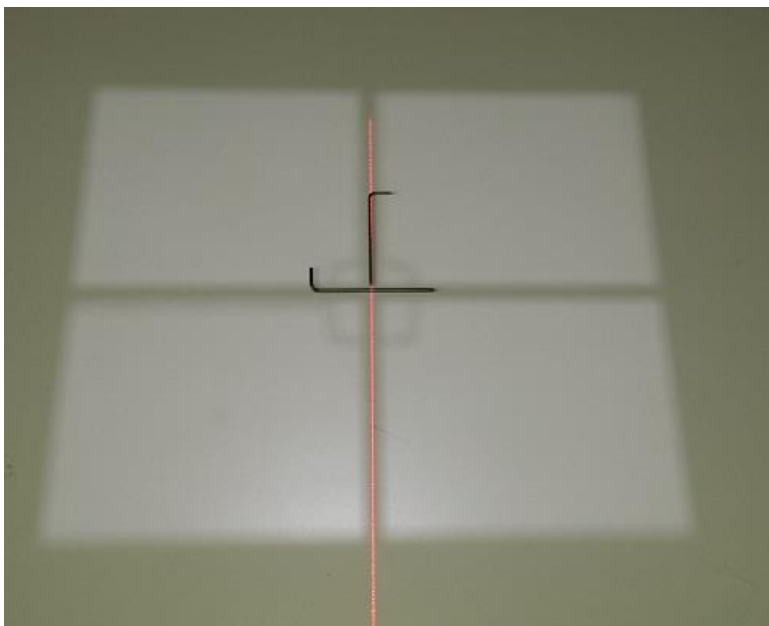
31.3 Tube Centering

The second step is to adjust the centring of the tube in order to make sure that the beam is perfectly perpendicular to the detector, in the full range of SID.

- While the table is tilted at 0°, make sure that the column is perfectly perpendicular to the carriage rail



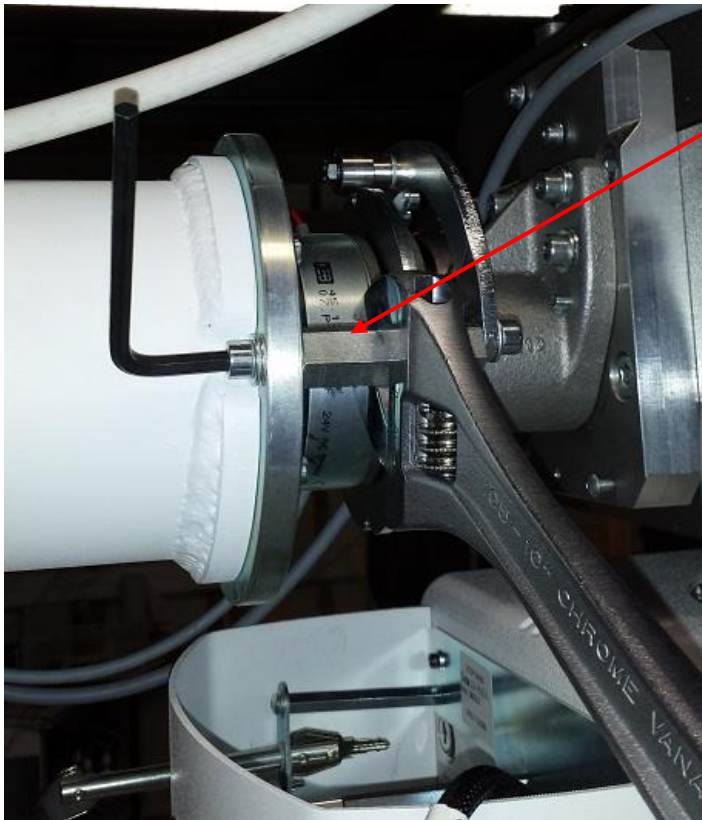
- Tilt the table to 45°
- Place 2 Allen keys in the centre of the light field on the tabletop



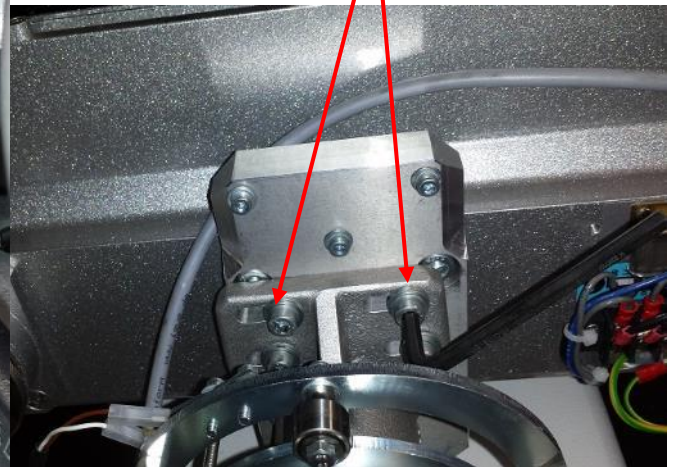
9090 REMOTE CONTROLLED TABLE

Installation

- Move the SID from 110cm to 180cm
- Adjust the tube rotation and/or tube translation to correct any longitudinal deviance.

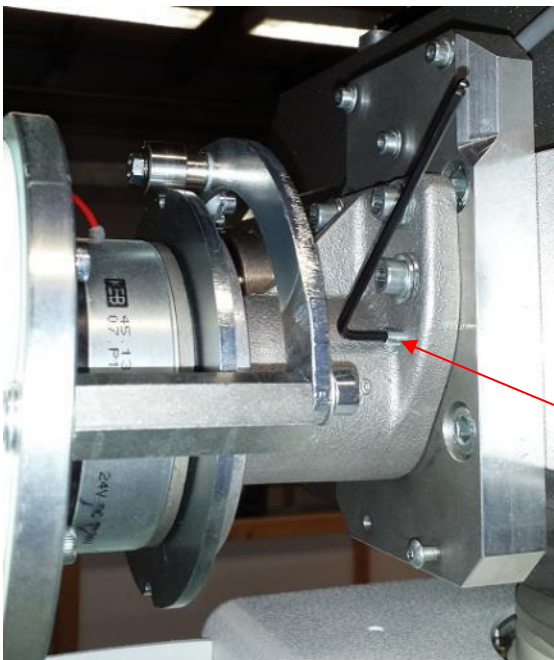


Adjust the tube in rotation thanks to the indexing pivot.



Adjust the tube in translation thanks to 4 screws

- Adjust the 2 screws at the back of tube to correct any lateral deviance



31.4 Center the X-ray Field on the detector

The final step consists on a more accurate adjustment in order to get a X-rays beam centred on the detector.

To do so:

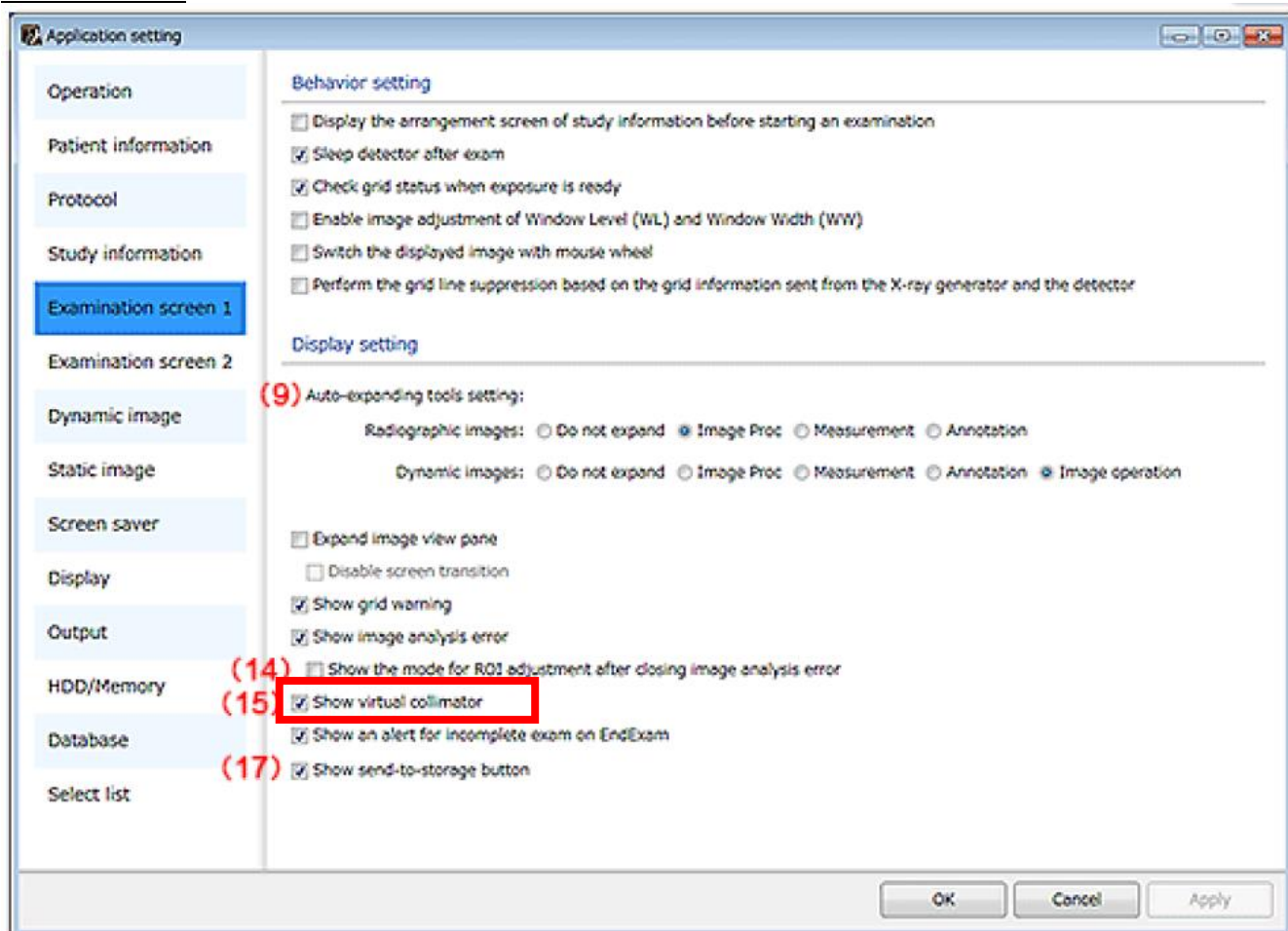
- Perform a Rad exposure (collimator aperture 30x30) with Virtual Collimation active

Triaxell detector :

The screenshot shows the configuration interface for the 9090 Remote Controlled Table. The left sidebar contains a list of configuration categories: General Setup, Unit Configuration, Dicom Setup, WD Exams, R&F Exams, Procedures, Overlay Management, User Management, Stitching Profile, Tomosynthesis Profile, R&F Detector Calibration, WD Detector Calibration, Firewall, Patient/Study Management, MainController Setup, Filter Names Setup, and Close. The main panel is divided into tabs: General, Exposure Dose Indication, Shutters, Auto Delete, Language, and Technical Configuration. The 'General' tab is active, showing various settings. The 'Virtual Collimator' toggle is highlighted with a red box. Below it, the 'Transparent Collimator Preview' and 'Exam Auto Acceptance' toggles are also visible. The 'System Time' section at the bottom shows the current date and time, with a 'Save Time' button.

Category	Setting	Value
General Setup	Monitor Width [mm]	610
General Setup	Monitor Height [mm]	350
General Setup	Virtual Collimator	Enabled
General Setup	Transparent Collimator Preview	Enabled
General Setup	Exam Auto Acceptance	Enabled
General Setup	Enable Dose Report Image	Disabled
General Setup	Auto Log-Off Timeout [min]	50
General Setup	SMTPE Presentation	Button Login
System Time	Take Time From Internet	Disabled
System Time	Date	7 / 21 / 2022
System Time	Time	1 : 37 : 17 : PM

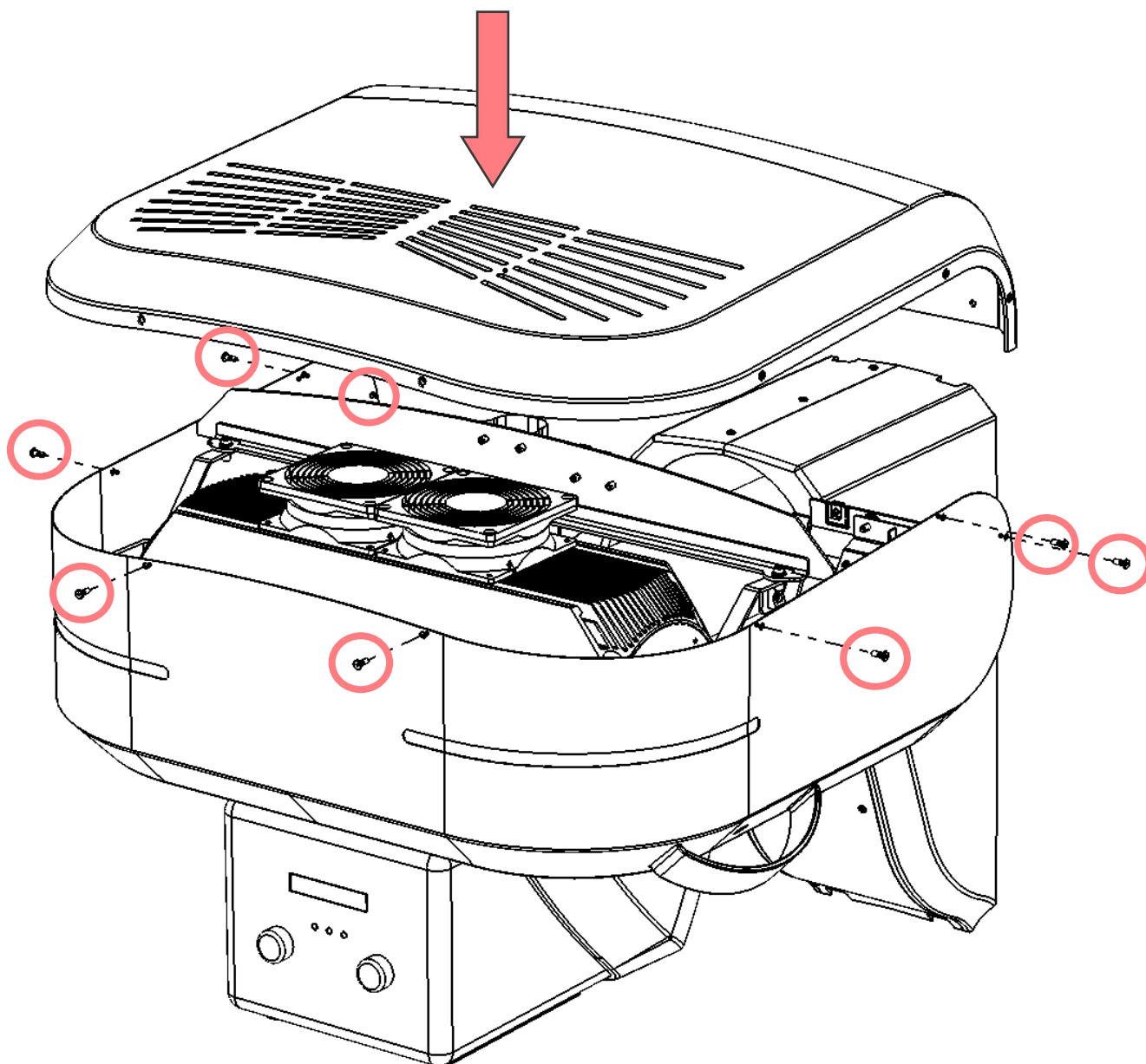
Canon detector:



- Move manually the collimator shutters and set them back to 30x30. A 30x30 square is displayed on the image

- Adjust the Tube in translation (to correct the longitudinal deviance) and adjust the screws at the back of the tube (for lateral deviance) in order to centre the irradiated area.
- Make sure the X-rays area is aligned on the white square which is the ROI, centred on the detector.
- Make sure that the deviance of this centring is less than 5mm (lateral and/or longitudinal) when the table is tilted at 0° and 90°.

Then, install the top tube cover and fasten the screws:



31.5 Rotary collimator option

The collimator is a RALCO R225. It is possible to get a $\pm 45^\circ$ rotary collimator option. The model is R225 ACS DHHS 170R. A switch button detect if the collimator is in centered position. If not, dynamic examinations are forbidden.

To set the option, go to the table technical mode. In "Other Parameters" section and set the parameter 220 to 1 if the option is available else 0.

TechMode ×

N°	Value	Description
195	200	S.I.D. Clearance (mm)
196	3000	Longitudinal Table Top Clearance (1/10mm)
197	4000	Carriage Clearance (1/10mm)
198	0	☐ Table Top has to be Centered before Tilting
211	0	☐ 0° Tilting Stop
209	0	☐ SPS Validation
210	50	SPS additional ceiling safety(1/10mm)
212	0	☐ Carriage reverse direction
214	1	☒ in autopose mode center all axes before tilting
217	1	☒ 0° Angulation Stop
218	300	Maximum trendelenburg angle D2RS9090 (1/10°)
219	0	Drive tube 2 SHFD 0: PREP POSE Console V2 1: Independent
220	1	Centered collimator option 0: No 1: Yes
	0	
	0	
	0	
	0	

Axis Parameters

Table Parameters

Axis Validation

Zooms

Parallax Parameter

Room Configuration

Other Parameters

Import

Export

Parameters v.4

Auto Pos

Keyboard Parameters

Write

Num Pad

Detector Calibration

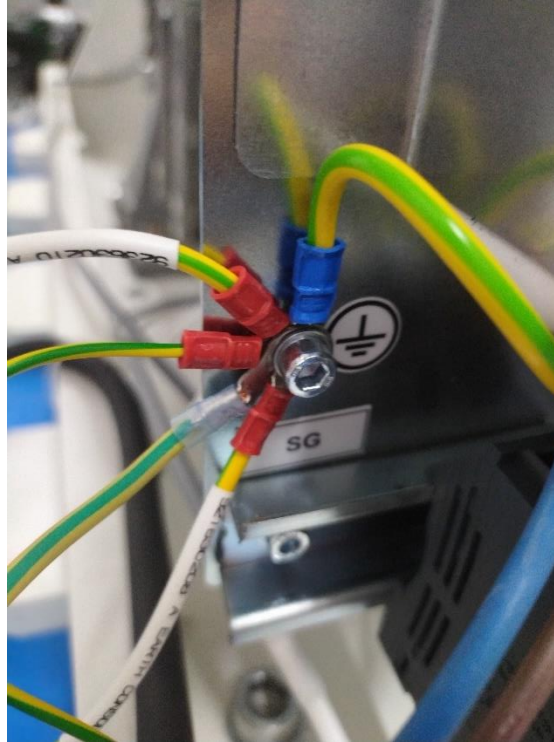
Exit

>

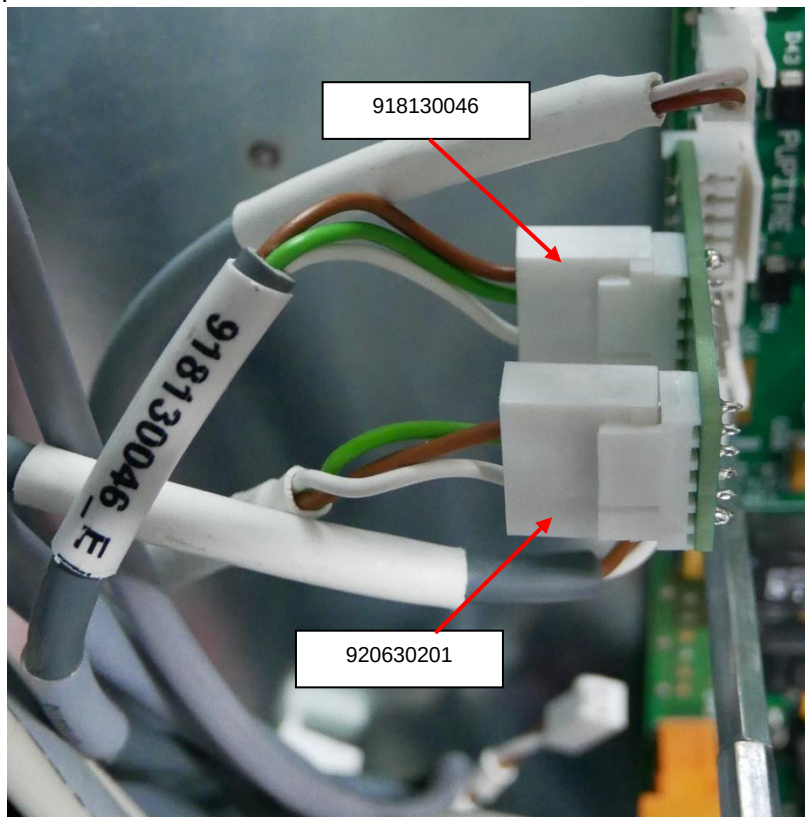
32. SECONDARY CONSOLE SETTINGS AND WIRING (OPTIONAL)

32.1 Wiring of the secondary console (table side)

Connect the 921630208_ EARTH CONSOLE 2 cable to the ground of the table foot:



Connect the in-room console switch board 922131026 to the control board (connector J9).
Connect the cable 918130046_ DMS CONSOLE CABLE on the connector DMSP1 and the cable 920630201 on the connector DMSP2.



9090 REMOTE CONTROLLED TABLE

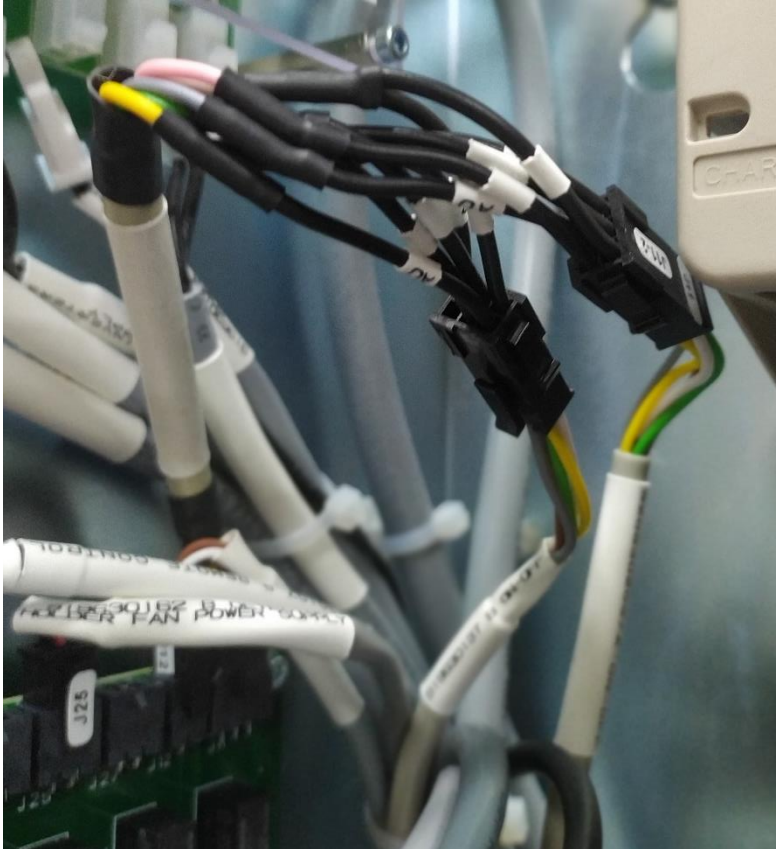
Installation

Disconnect the cable 919630137 on J11 of Dispatching board

Connect the 919630150 ON OFF TABLE CABLE

Reconnect the cable 919630137 on J11-1 of 919630150 CABLE

Connect the 920630205 ON OFF TABLE CABLE on J11-2 of 919630150 CABLE



9090 REMOTE CONTROLLED TABLE

Installation

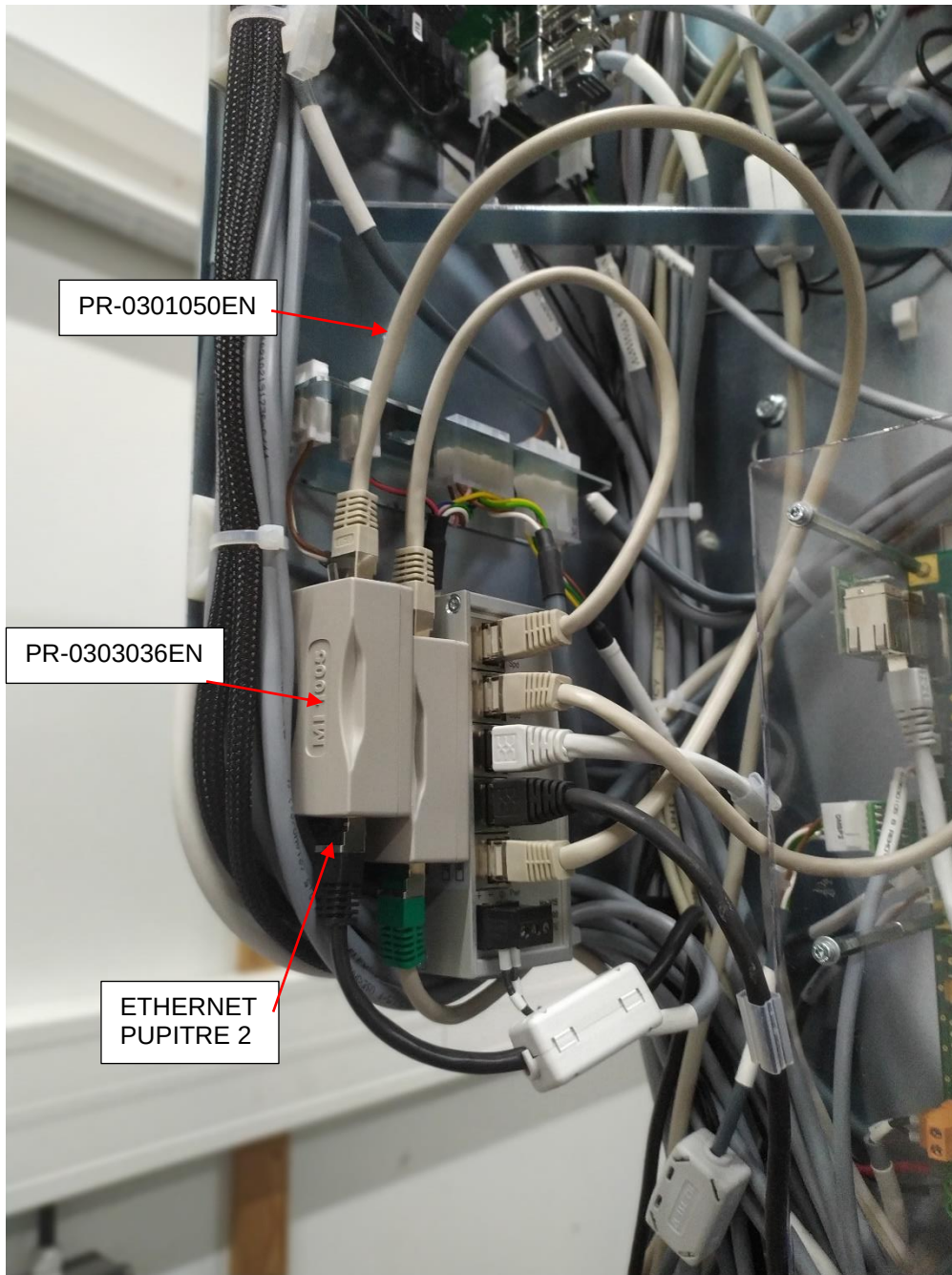
Connect the console power supply to the power supply socket inside the foot (right side)
The power supply of the console is GSM60A12. **Do not use another power supply.**



9090 REMOTE CONTROLLED TABLE

Installation

Connect the ETHERNET PUPITRE 2 cable coming from console to the ethernet isolator PR-0303036EN with PR-0301050EN ethernet cable.

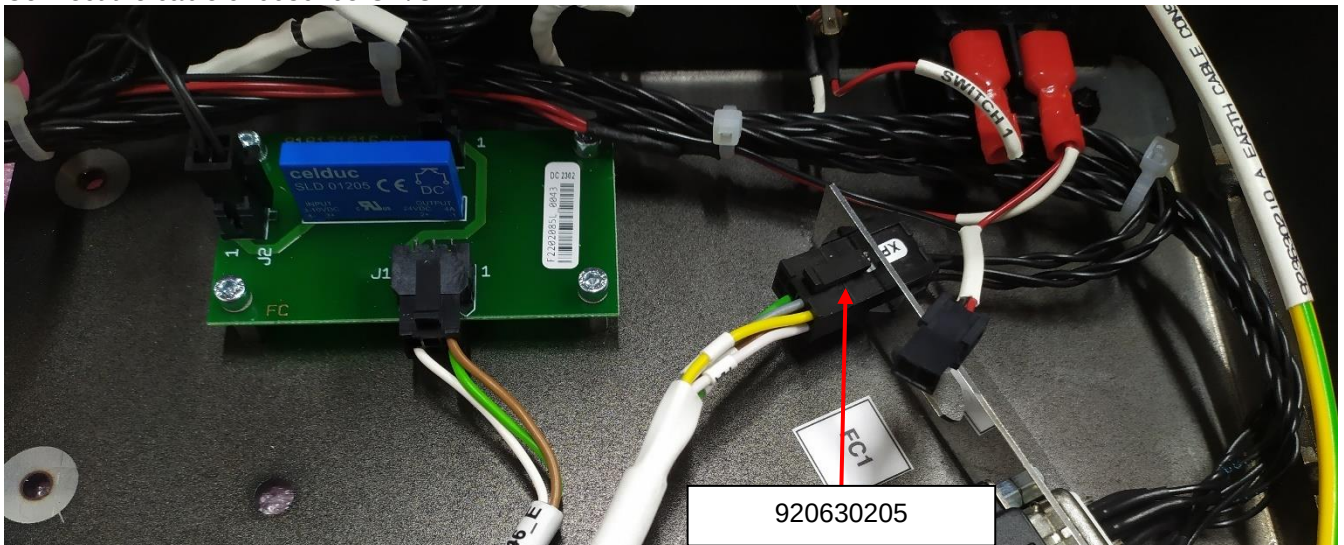


32.2 Wiring of the secondary console (console side)

Connect the cable 921630208 EARTH CONSOLE 2 to the ground strap of the console:



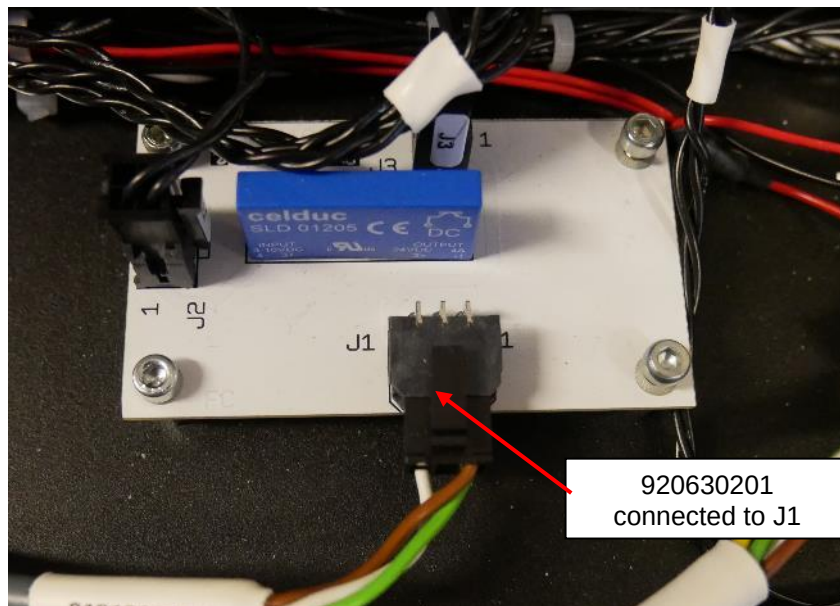
Connect the cable 920630205 ON/OFF TABLE



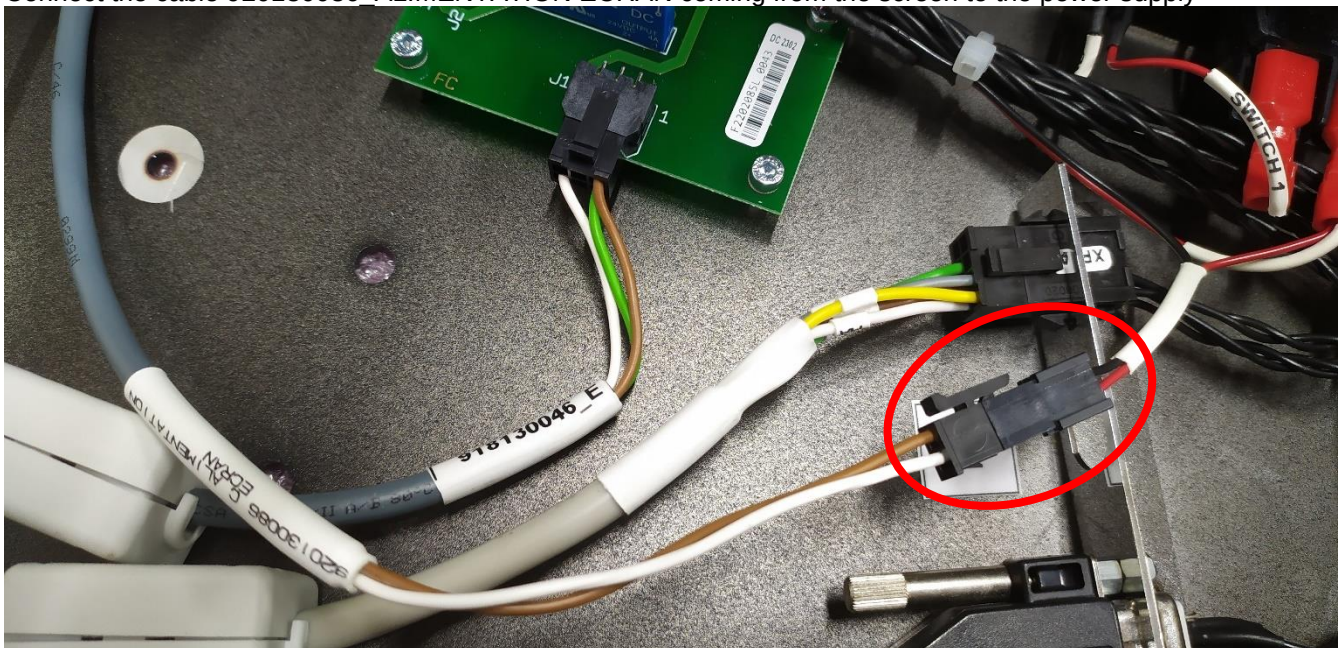
9090 REMOTE CONTROLLED TABLE

Installation

Connect the cable 920630201_DMS CONSOLE 2 on J1 of DMS insulation board :



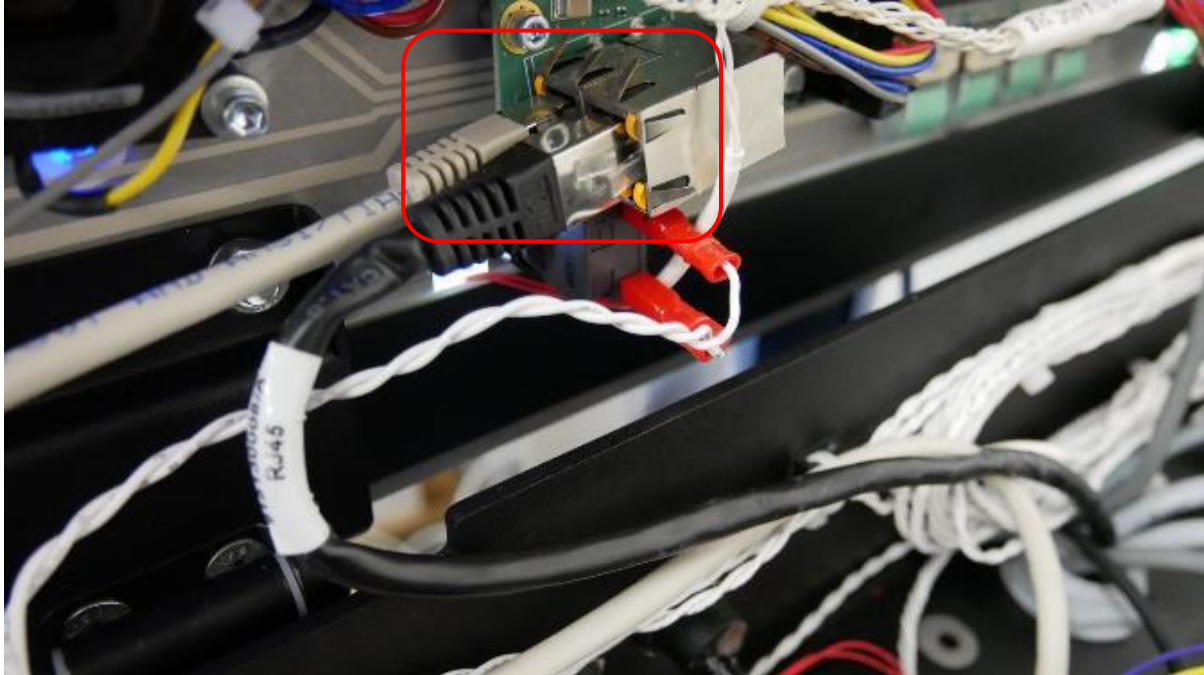
Connect the cable 920130086_ALIMENTATION ECRAN coming from the screen to the power supply



9090 REMOTE CONTROLLED TABLE

Installation

Connect the ethernet cable ETHERNET PUPITRE 2 on the RJ45 of the console board:



connect Video and USB cables coming from screen:

Advantec type PC board:



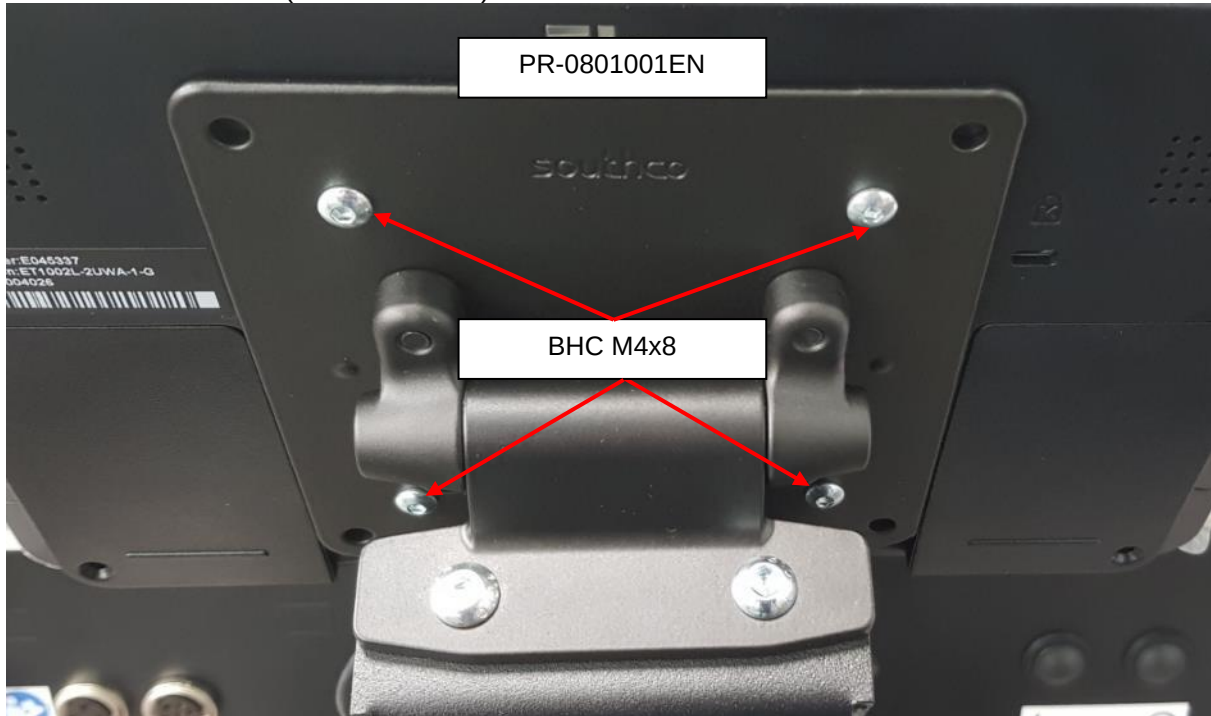
MSI type PC board:



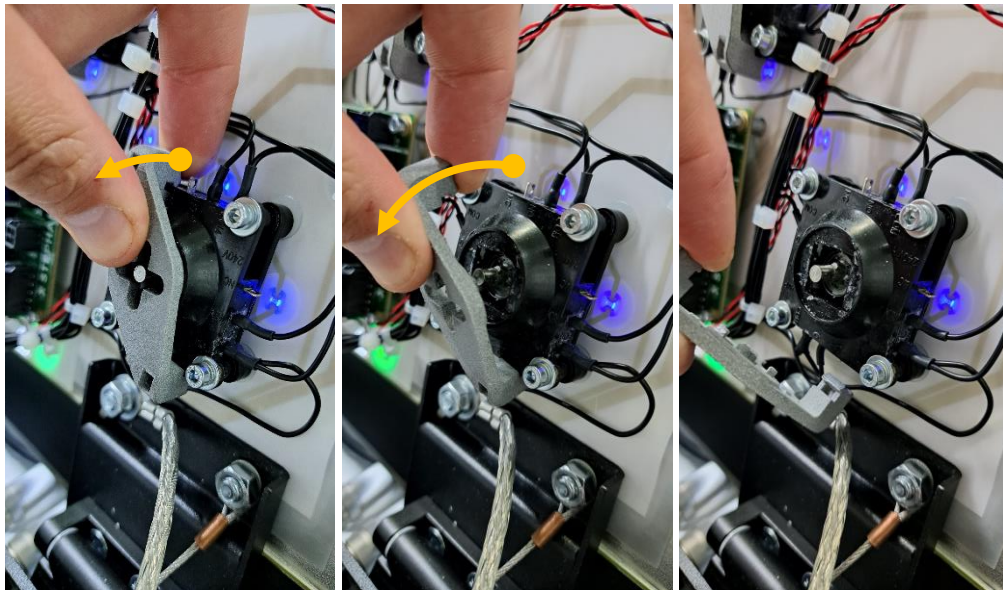
9090 REMOTE CONTROLLED TABLE

Installation

Mount the touchscreen (PR-0801003EN) with 4 BHC M4x8:



The joystick cross limiters (XXXXXXX) is removable if the customer doesn't want the axes of the joystick to be guided:



9090 REMOTE CONTROLLED TABLE

Installation

Connect the cable 920630206_CONSOLE 2 POWER SUPPLY CABLE on the jack connector of the secondary console :



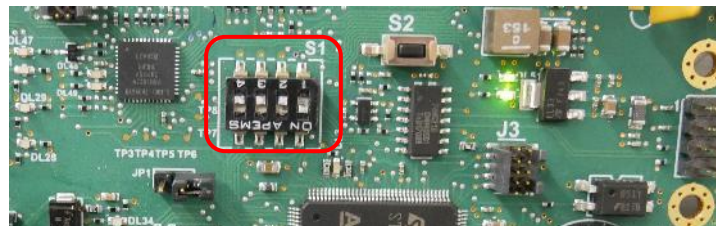
9090 REMOTE CONTROLLED TABLE

Installation

Connect handswitch and footswitch (may vary according to system configuration)



Define switch S1 of console board as below:



1:ON ; 2:OFF ; 3:OFF ; 4:OFF

When a system is equipped with 2 consoles, it is necessary to define the “secondary console”. To do this, follow the indications hereafter:

Checking of the IP address of the secondary console:

Console under voltage, click on « **Windows** » and « **Settings** » then « **Network and Internet** »

Windows Settings

Find a setting

🔍



System
Display, notifications, apps,
power



Devices
Bluetooth, printers, mouse



Network & Internet
Wi-Fi, airplane mode, VPN



Personalization
Background, lock screen,
colors



Accounts
Your accounts, email, sync,
work, family



Time & language
Speech, region, date



Ease of Access
Narrator, magnifier, high
contrast



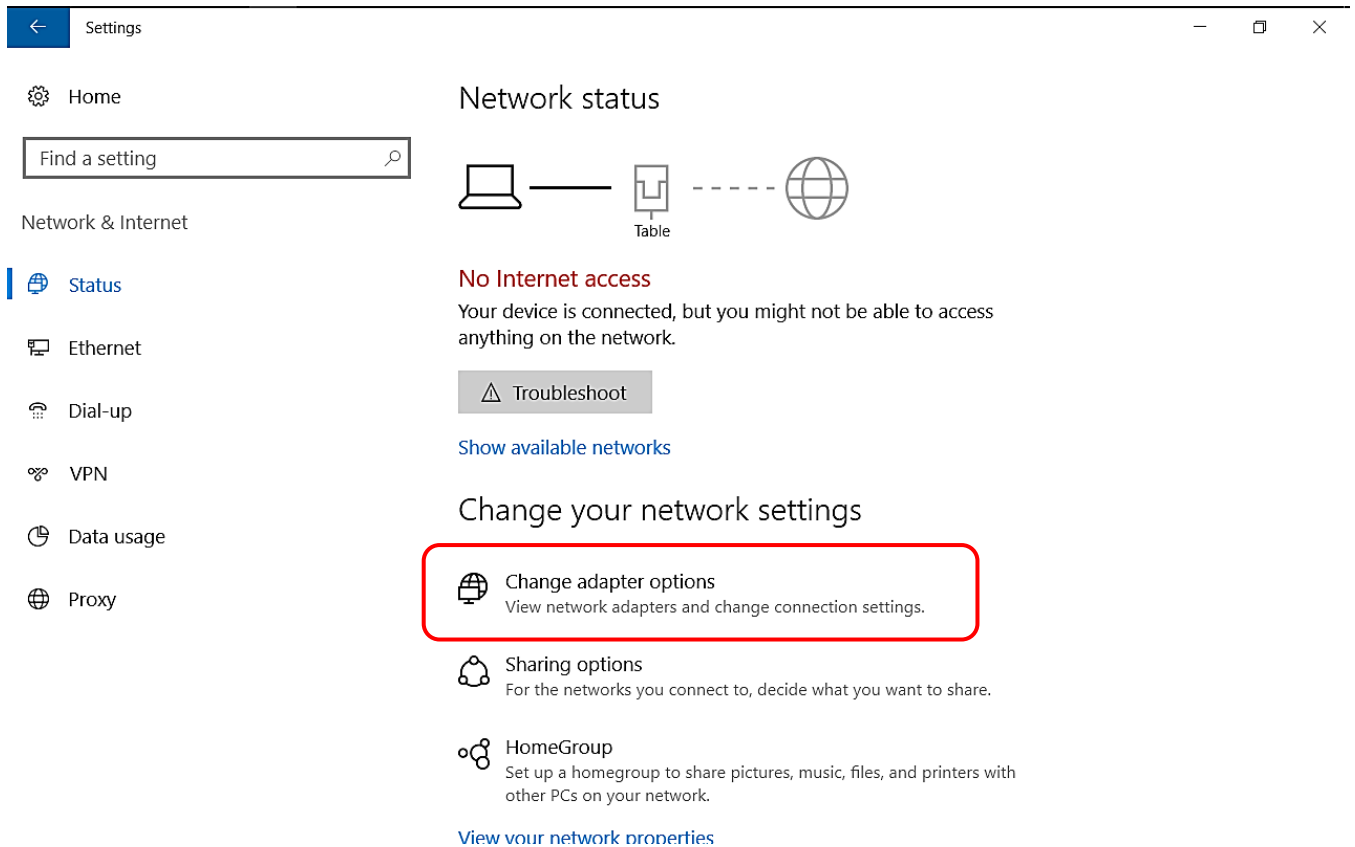
Privacy
Location, camera



Update & security
Windows Update, recovery,
backup

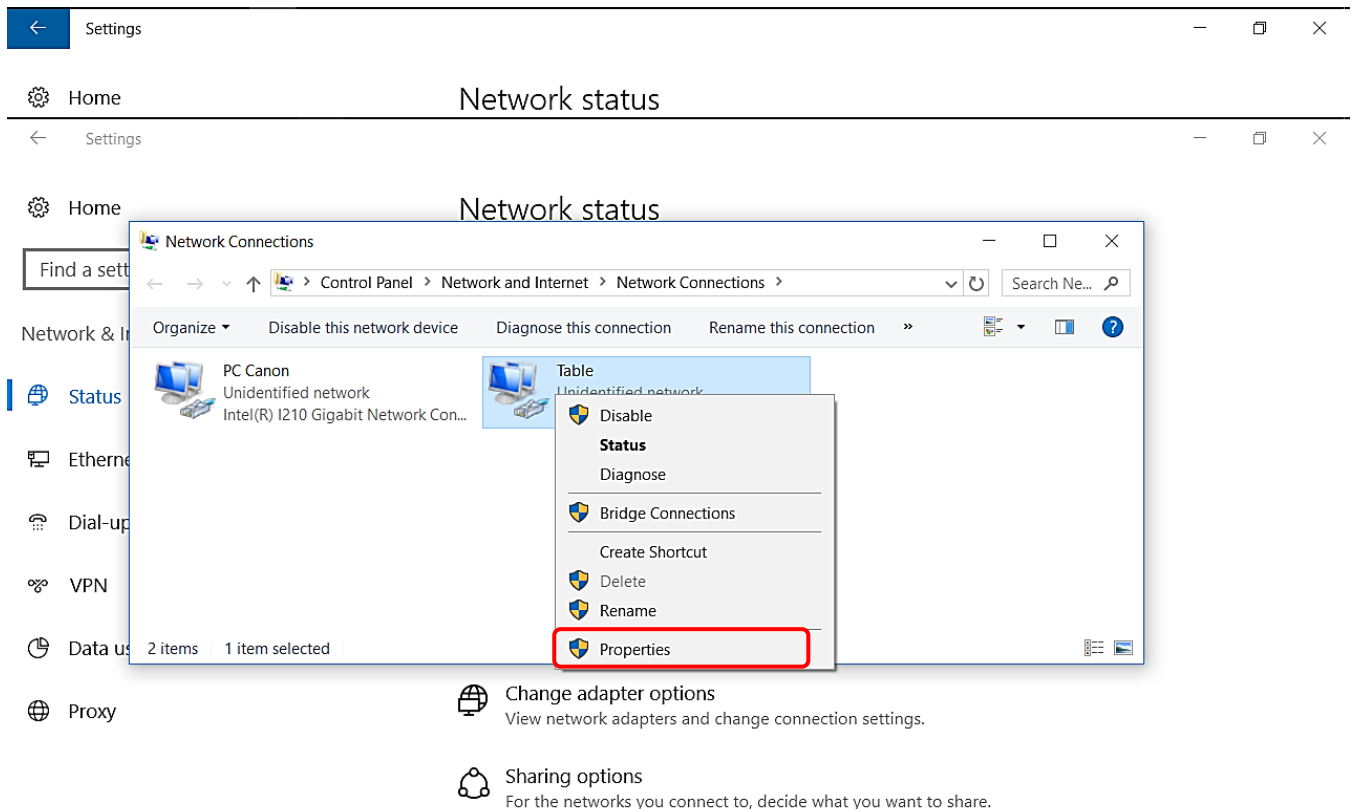
A new window appears.

Double-click on the « **Change Adapter Option** »



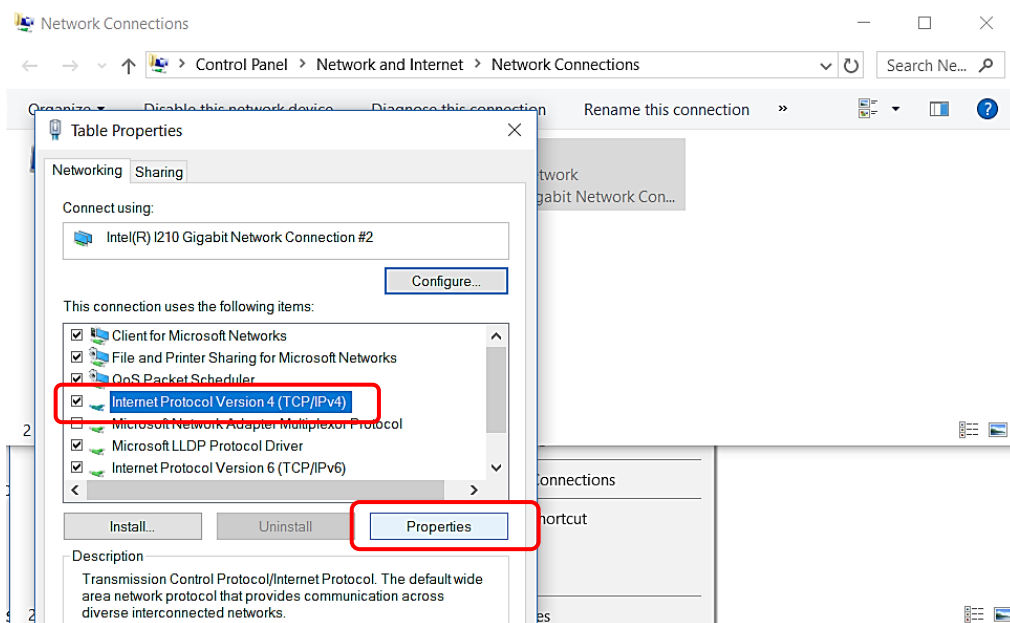
A new window appears.

Right-Click on « **Table** » then « **Properties** »

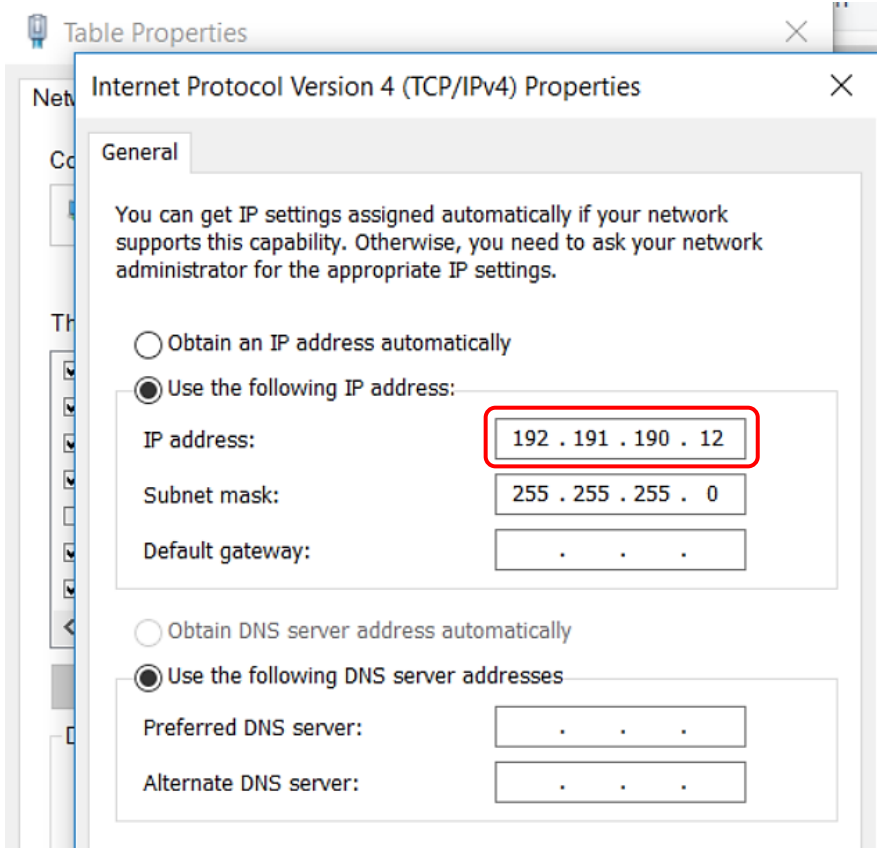


A new window appears.

Click on « **TCP/IPv4** » then « **Properties** »



Verify the address IP: 192.191.190.12



32.3 Checking of the good operation

If the main console is activated, then the secondary console is forbidden. Perform a movement with the main console then with the secondary console and check that only the main console command is ON.

If the secondary console is activated, then the main console is forbidden. Perform a movement with the secondary console then with the main console and check that only the secondary console command is ON.

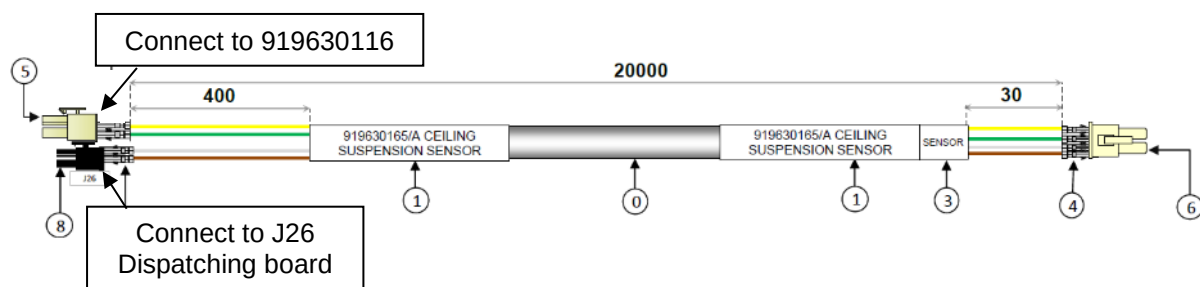
33. SAFETY KIT FOR CEILING SUSPENSION (OPTIONAL)

The Safety Kit 90XCH150SE32 is composed of different items according to the packing list below:

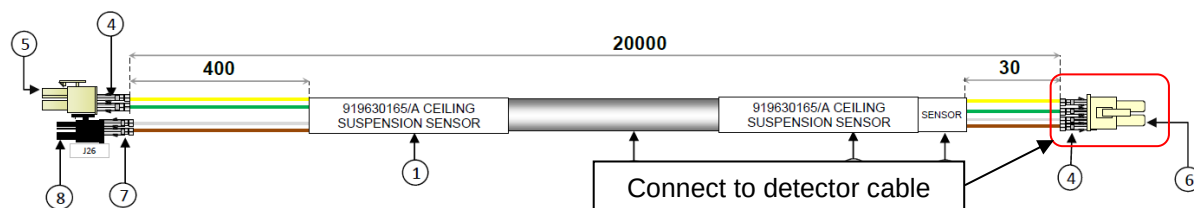
Code article	Désignation article	Indice	Quantité
ST-0507014EN	CAPTEUR PHOTOELECTRIQUE, Bloc, Led IR, 0,28 m, 0,8 m, 4 m, 30 m, Relais, 3 A, Câble, IP65	-	1
ST-0507001EN	REFLECTEUR 50 X 50	-	1
ST-0516001EN	SUPPORT TELEMECANIQUE POUR Série XU	-	1
919630165	CABLE CAPTEUR PARKING	A	1
ST-0108001EN	BANDE NOIR DE FIXATION AUTOAGRIPPANTE 158mm x 460mm	-	2

33.1 Cable connection

Connect 919630165 CABLE CAPTEUR PARKING to J26 of Dispatching Board (919631004) and to 919630116 MOVEMENT DISABLE.



Connect 919630165 CABLE CAPTEUR PARKING to detector cable.

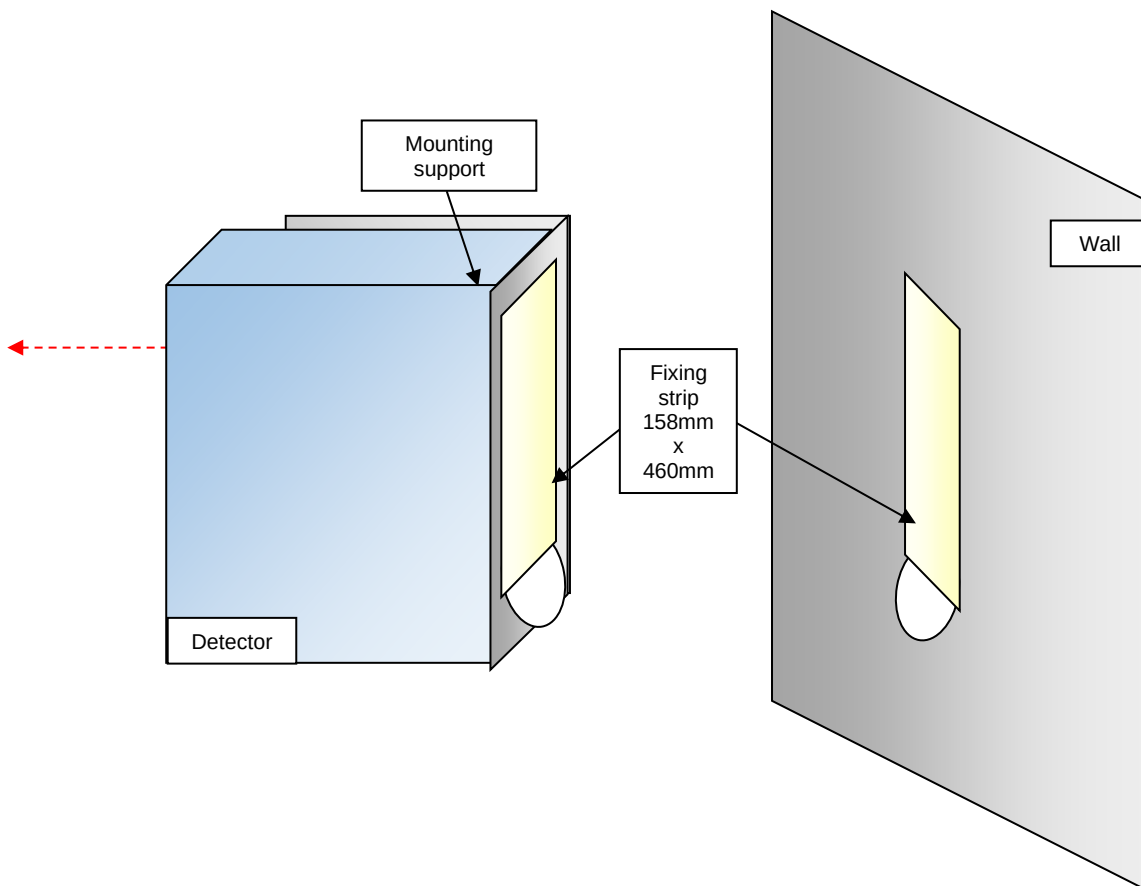


33.2 Mounting bracket

Install the detector to the mounting bracket for XU detector.

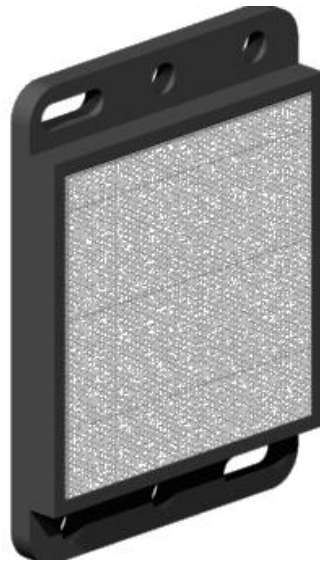


Use fixing strip 158mm x 460mm to install mounting bracket to the wall.
Clean the parts on which the velcros will be placed and stick the velcros. For maximum work life, wait 60 minutes before positioning mounting bracket to the wall.



33.3 Reflector

Install the reflector on the ceiling suspension.



Use fixing strip 158mm x 460mm to install the reflector on the ceiling suspension.
Clean the parts on which the velcro will be placed and stick the velcros. For maximum work life, wait 60 minutes before positioning reflector on additional ceiling suspension.

33.4 Detector adjustment (depends on detector model)

Verify that the detector is adjusted. Orange LED turn off when reflector is detected else turn on.

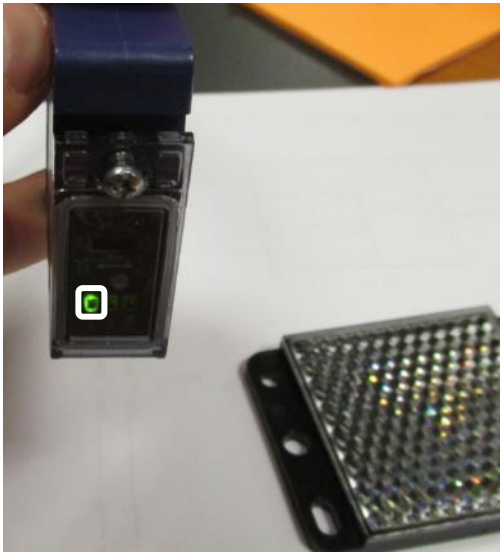


9090 REMOTE CONTROLLED TABLE

Installation

If the detector isn't adjust, perform step by step the procedure below.

Turn on the table. The green LED should blink.



Place the detector in front of the reflector ST-0507001EN. If the alignment is correct, the orange LED should turn on.



Stay aligned and press "TEACH" button. All LED turn off, keep press untill green LED turn on.

9090 REMOTE CONTROLLED TABLE

Installation

Then verify that orange LED turn off when reflector is detected else turn on.

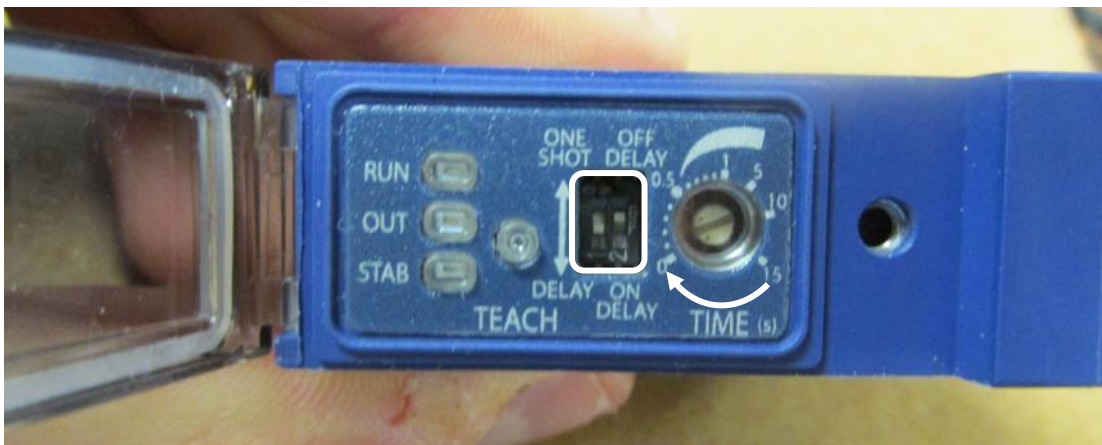


Verify switch positions :

1 → OFF

2 → ON

Adjustement TIME to 0.5s.



33.5 Safety kit test

Go to ModTech and check IN18 to Display Table Info.

If detector is face to the reflector then IN18=OFF but otherwise IN18=ON

Control Board Digital Inputs					
IN_1:SID_EOT+	OFF	IN_11:Compr_ESC_EOT+	OFF	IN_21:GRID_1	OFF
IN_2:SID_EOT-	OFF	IN_12:Compr_ESC_EOT-	OFF	IN_22:GRID_2	OFF
IN_3	OFF	IN_13:GEN_READY	ON	IN_23	OFF
IN_4	OFF	IN_14:GEN_ALOE	OFF	IN_24	OFF
IN_5	OFF	IN_15	OFF	IN_25	OFF
IN_6	OFF	IN_16	OFF	IN_26	OFF
IN_7:EXP_Order	OFF	IN_17:Tube Rotated	ON	IN_27	OFF
IN_8:PREP_Order	OFF	IN_18:Move_Forbidden	OFF	IN_28:CINE_FootSwitch	OFF
IN_9:Compr_EOT+	OFF	IN_19	OFF	IN_29:FLUORO_FootSwitch	OFF
IN_10:Compr_EOT-	OFF	IN_20	OFF	IN_30:Sensor_IN	OFF

Detection. IN18=OFF

Control Board Digital Inputs					
IN_1:SID_EOT+	OFF	IN_11:Compr_ESC_EOT+	OFF	IN_21:GRID_1	OFF
IN_2:SID_EOT-	OFF	IN_12:Compr_ESC_EOT-	OFF	IN_22:GRID_2	OFF
IN_3	OFF	IN_13:GEN_READY	ON	IN_23	OFF
IN_4	OFF	IN_14:GEN_ALOE	OFF	IN_24	OFF
IN_5	OFF	IN_15	OFF	IN_25	OFF
IN_6	OFF	IN_16	OFF	IN_26	OFF
IN_7:EXP_Order	OFF	IN_17:Tube Rotated	ON	IN_27	OFF
IN_8:PREP_Order	OFF	IN_18:Move_Forbidden	ON	IN_28:CINE_FootSwitch	OFF
IN_9:Compr_EOT+	OFF	IN_19	OFF	IN_29:FLUORO_FootSwitch	OFF
IN_10:Compr_EOT-	OFF	IN_20	OFF	IN_30:Sensor_IN	OFF

No détection.
IN18=ON

Check that the selected movements are forbidden.

If IN18=ON, 4 movements are disable:

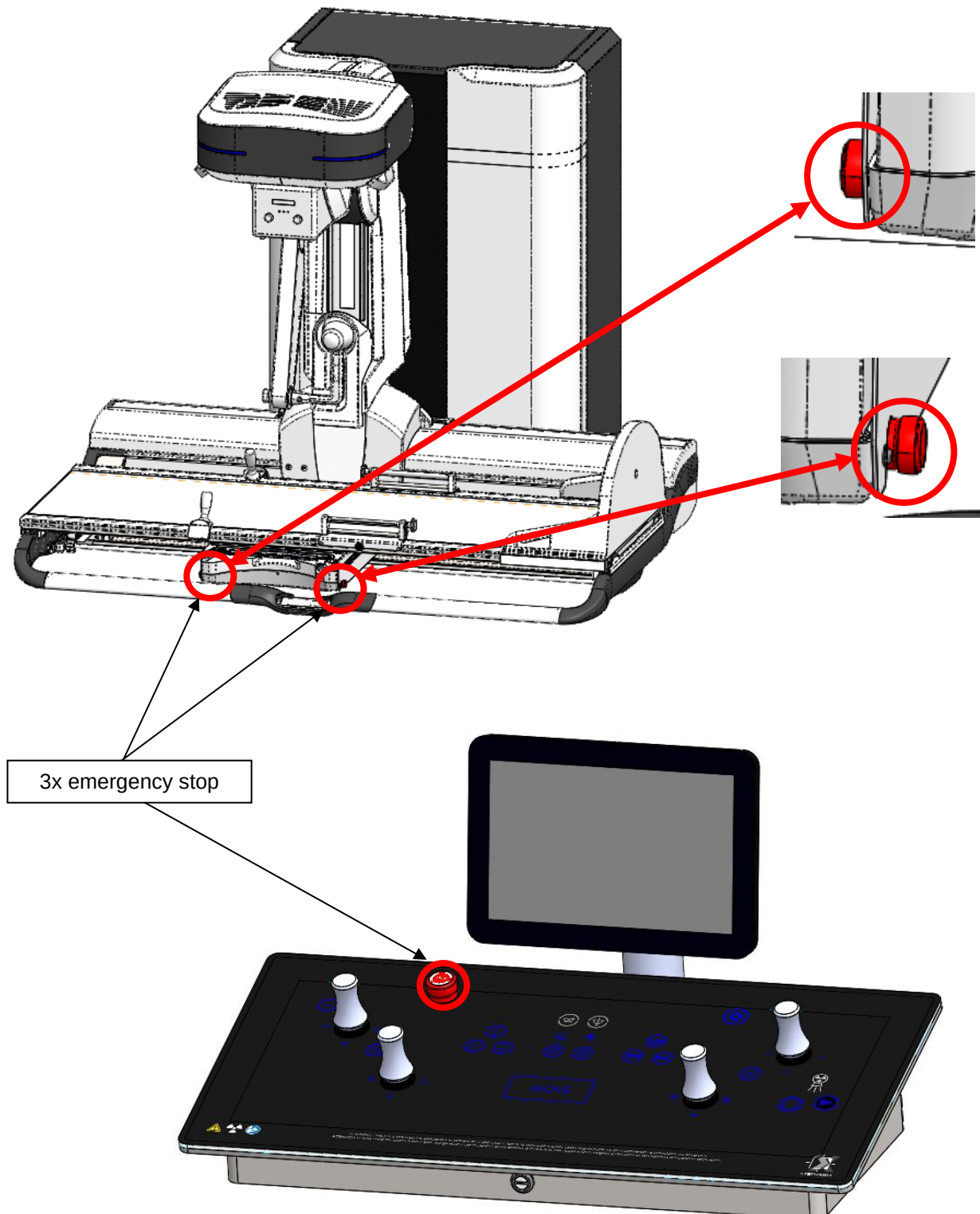
- Carriage
- Angulation
- Tilting
- Elevation

34. COMMISSIONING

At the end of the installation, some verifications are needed for the global safety of the room.

34.1 Emergency switches

Check the functioning of each emergency stop on the table:



34.2 Hardware safety

Check if the cable 919630132 is connected to J13 of the dispatching board.

In Techmode change the parameter n°10 to 100.

Make a carriage movement and check if the table is switched off while traking fault error appear.

If not, contact the manufacturer for a technical support.

In Techmode change the parameter n°10 to the previous value.

34.3 End-of-installation tests

Perform end-of-installation tests following and completing TECF071 I - CQI Table.