

# Prostyle Intra

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## INSTALLATION MANUAL

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**En**

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## 1 INTRODUCTION

This manual contains all the information required to install and set up the Prostyle Intra x-ray unit. Please read this manual carefully before installing the x-ray unit.



### **WARNING**

***Failure to install the Prostyle Intra x-ray unit in an approved location may be dangerous to both patient and operator.***



### **CAUTION**

***It is very important that the room in which the Prostyle Intra x-ray unit is installed and the position from which the equipment is operated are correctly shielded against radiation.***

***Since radiation safety requirements vary from country to country and state to state, it is the responsibility of the installer to ensure that all local and national safety regulations are met.***

### **NOTE**

***In case the Planmeca Dixi2 digital intra x-ray system is going to be installed to the Prostyle Intra x-ray unit, use the Dixi2 digital intra x-ray system installation manual in conjunction with this manual***

The manufacturer, assembler and importer are responsible for the safety, reliability and performance of the x-ray only if:

- installation, calibration, modification and repairs are carried out by qualified and authorized personnel
- electrical installations are carried out according to the appropriate requirements such as IEC364
- equipment is used according to the operating instructions

Planmeca pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice.

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## **2 PRE-INSTALLATION REQUIREMENTS**

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### **2.1 Environmental requirements**

#### **Wall construction**

The wall construction must be able to resist a shear load of 75 kg (170 pounds) and withdrawal force of 200 kg (445 pounds) at each of the four attachment locations. Otherwise, some additional mounting supports must be used to fulfill this requirement.

#### **Temperature & humidity**

The operating temperature range is from +15°C to +35°C, non condensing. The acceptable humidity range is from 25% to 75%. The storage temperature range is from -5°C to +60°C.

**NOTE** *If the x-ray unit has been stored at temperatures below +10°C for more than a few hours, time must be allowed for the x-ray unit to reach the room temperature before connecting it to the mains voltage.*

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### **2.2 Electrical requirements**

#### **Mains voltage**

The Prostyle Intra x-ray unit has been preset at the factory to one of the 3 different mains voltage settings. Please check that the rating indicated on the type shield and the mains voltage selector on the generator PCB (connector P4) corresponds to the local mains voltage. The possible voltage settings are:

- 100V~ ±10% (90V~...110V~)
- 110-115V~ ±10% (99V~...126V~)
- 220-240V~ ±10% (198V~...264V~)

**NOTE** *Please note that the ratings of the internal (as well as external) mains fuses are depending on the mains voltage setting.*



#### **CAUTION**

*Never connect the x-ray unit to the mains without first checking the voltage setting. Incorrect voltage setting can cause damage to the x-ray electronics.*

#### **Mains frequency**

The mains frequency is 50 or 60 Hz (±10%), and is independent on the mains voltage setting.

**Internal mains fuse ratings**

The Prostyle Intra x-ray unit is equipped with dual mains fuses (live and neutral). However, in some areas it is not allowed to have a fuse in the neutral wire. The neutral fuse is optionally bypassed at the factory, in which case the x-ray unit is equipped with one mains fuse.

The ratings for the internal mains fuses are:

- units with 100V~ or 110-115V~ voltage setting: 15AT, slow blow (6.3x32mm)
- units with 220-240V~ voltage setting: 8AT, slow blow (6.3x32mm)

**External mains fuse recommendation**

The recommendation for the external mains fuses are:

- units with 100V~ or 115V~ voltage setting: 16A, time lag
- units with 220-240V~ voltage setting: 10A, time lag

No other equipment should be connected to the same fused mains line as the x-ray unit. In some countries an additional external fault current guard is also required.

**Grounding**

The Prostyle Intra x-ray unit must always be connected to a grounded outlet to fulfill the safety directives stated.

**Power consumption**

The idle power consumption is less than 30VA. Maximum power consumption is 1000VA and occurs during the exposure (maximum exposure time is 3.2 seconds).

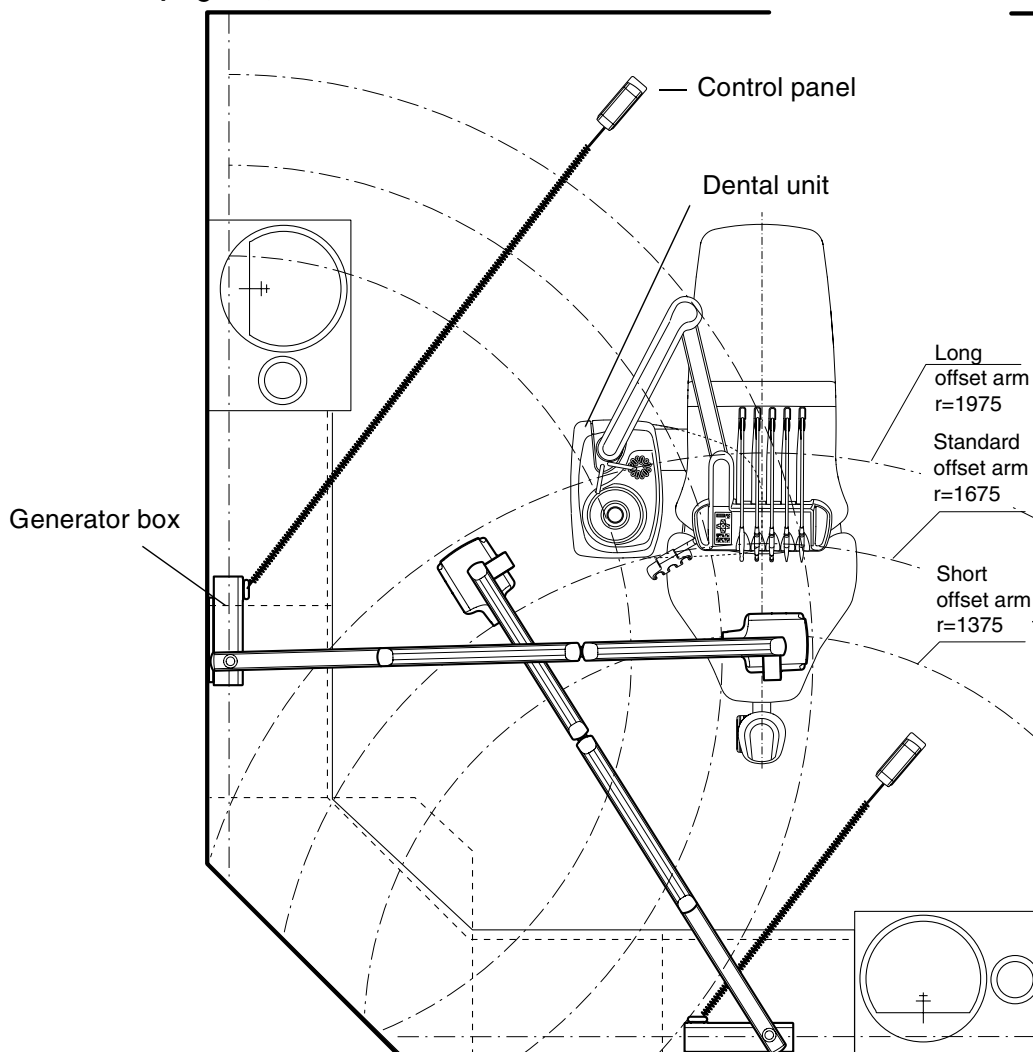
### 3 INSTALLATION POSSIBILITIES

#### 3.1 Mounting alternatives

**NOTE** *The Prostyle Intra x-ray unit can be installed in several ways. Read these installation instructions carefully, because some installation accessories are optional, and are not included in the standard delivery. Make sure that required accessories are available before starting the installation.*

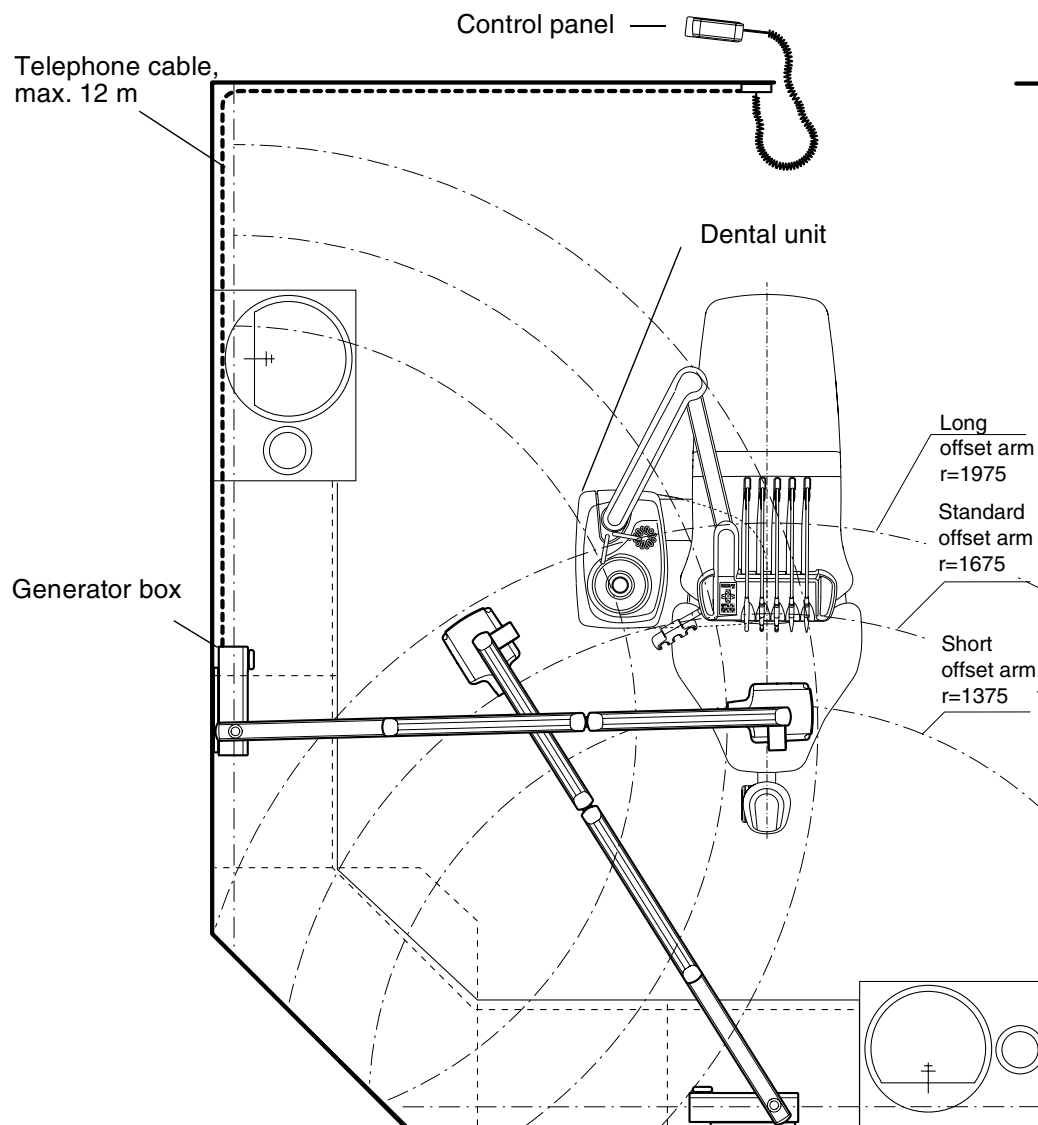
**NOTE** *The following cables are used in some installations described in this section:*  
**EXTENSION CABLE:** 1pcs. protective earth min. 1.0 mm<sup>2</sup> AWG 18  
 4 pcs. signal wires min. 1.0mm<sup>2</sup> AWG 18  
 4 pcs. signal wires min. 0.5 mm<sup>2</sup> AWG 20  
 rated 300 V, flexible  
**TELEPHONE CABLE:** ordinary 6-pole telephone cable AWG 24.

Standard wall mounting in treatment room (see section 4 “STANDARD INSTALLATION TO A WALL” on page 11)





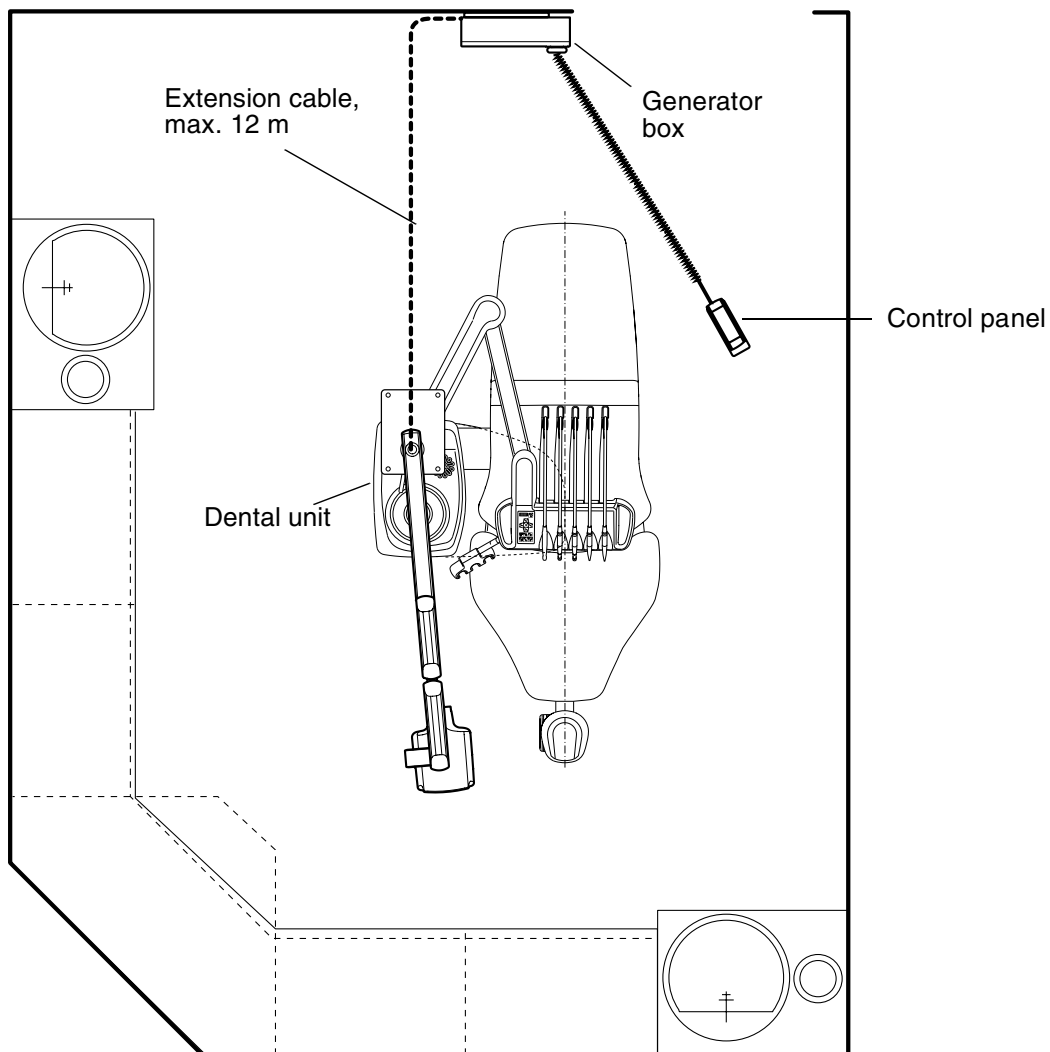
Wall mounting with remote control in treatment room (see section 6.2 "Remote control panel installation" on page 50)



Ceiling mounting in treatment room (see section 5.2 “Ceiling installation” on page 25)

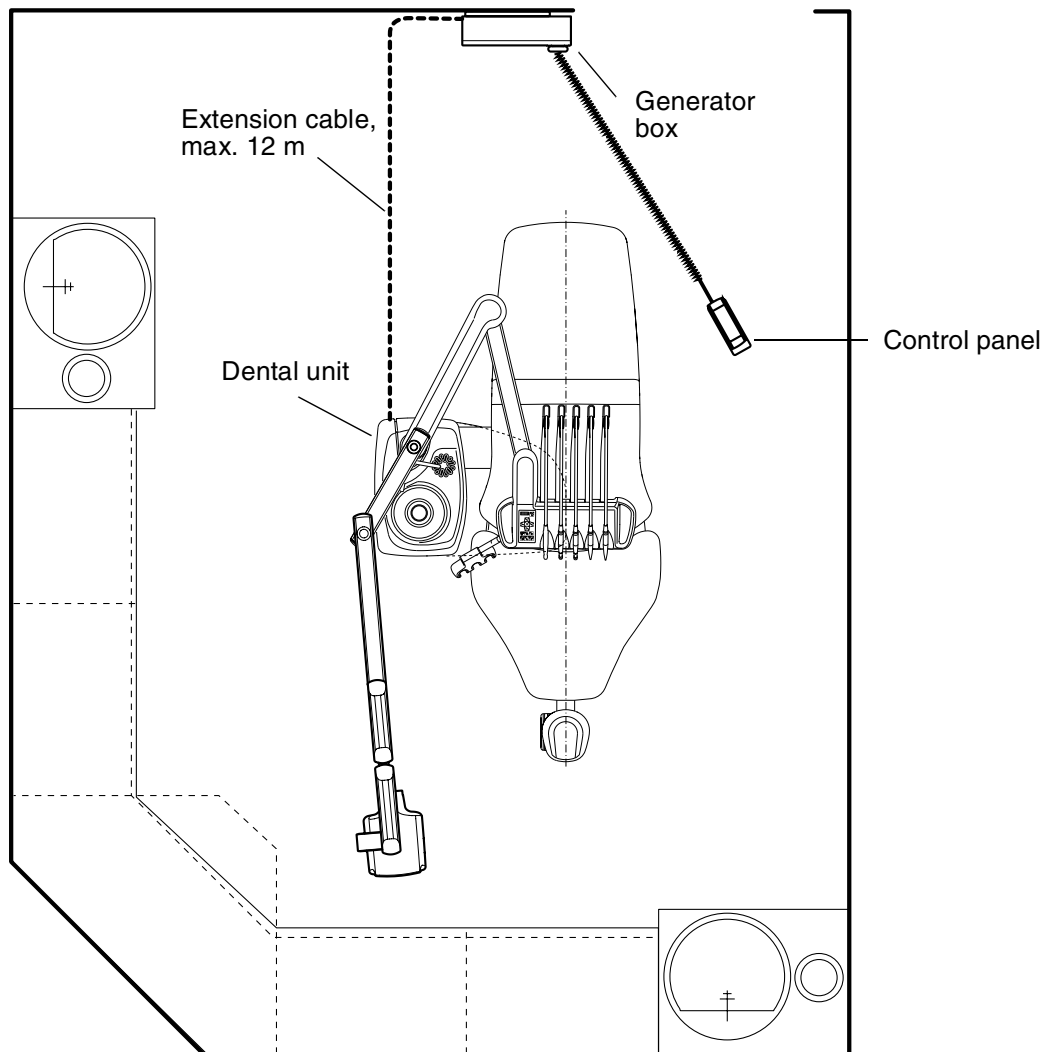
**NOTE** The standard extension arm is recommended for the ceiling installation. Also the short extension arm can be used, but the long extension arm is not recommended.

**NOTE** Both the Delight S and Delight operating light for unit mounting can be installed to the ceiling arm using an additional arm.

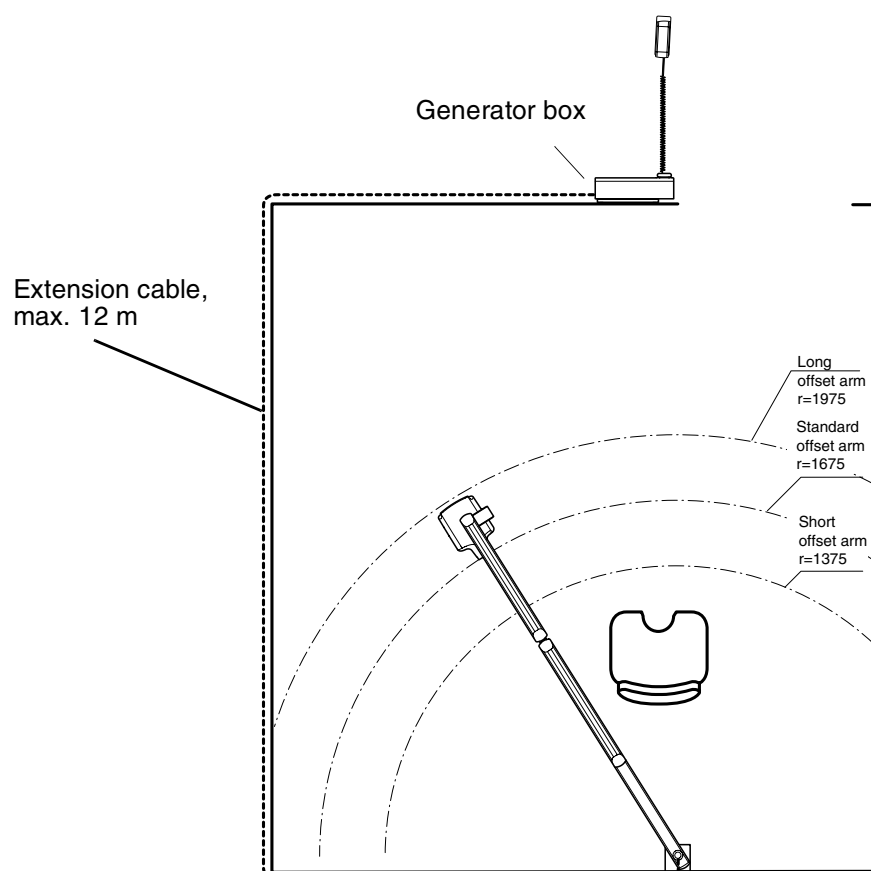
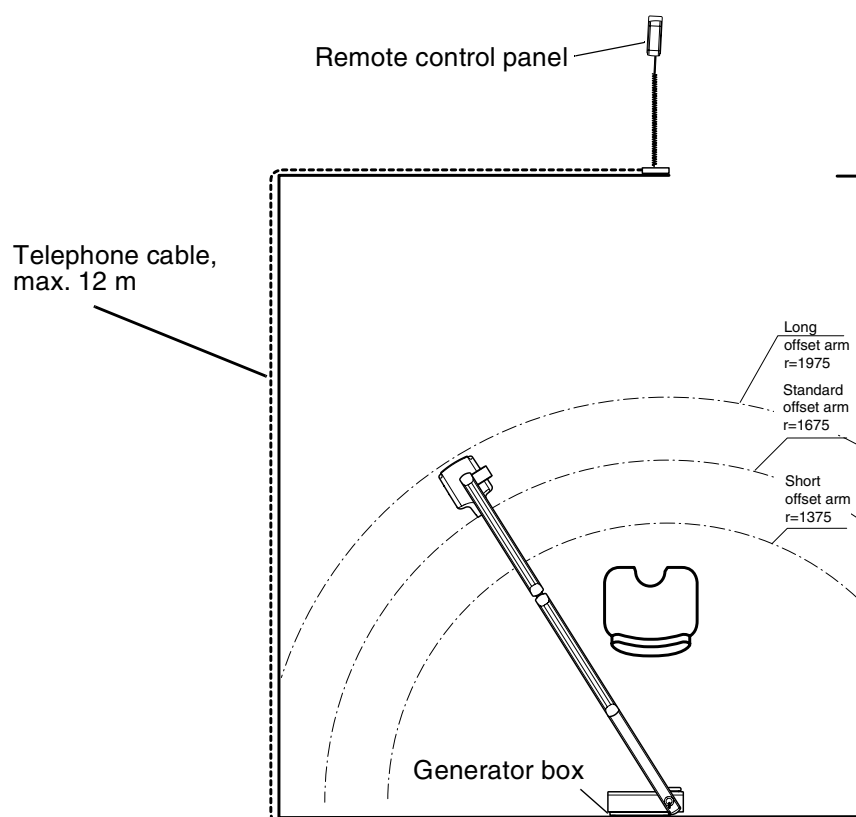


Dental unit mounting in treatment room (only Planmeca Prostyle Compact dental unit) (see section 5.5 "Installation to the Prostyle Compact dental unit" on page 42)

**NOTE** Only short extension arm can be used in dental unit mounting.

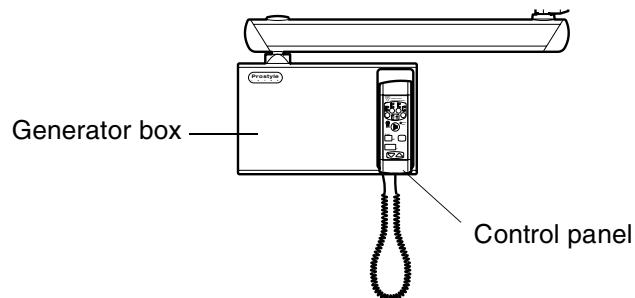


X-ray room with generator box/control panel outside the room (see sections 6.2 “Remote control panel installation” on page 50 and 5.4 “Single stud installation” on page 38)

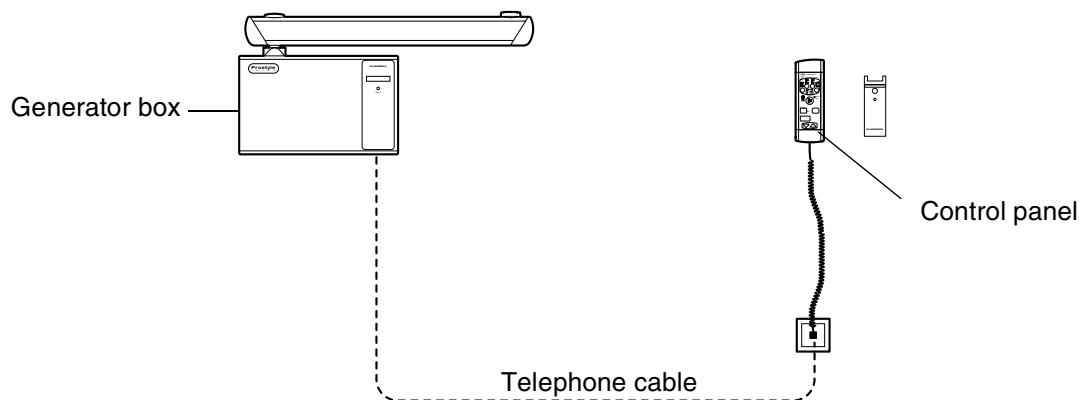


### 3.2 Control panel assembling alternatives

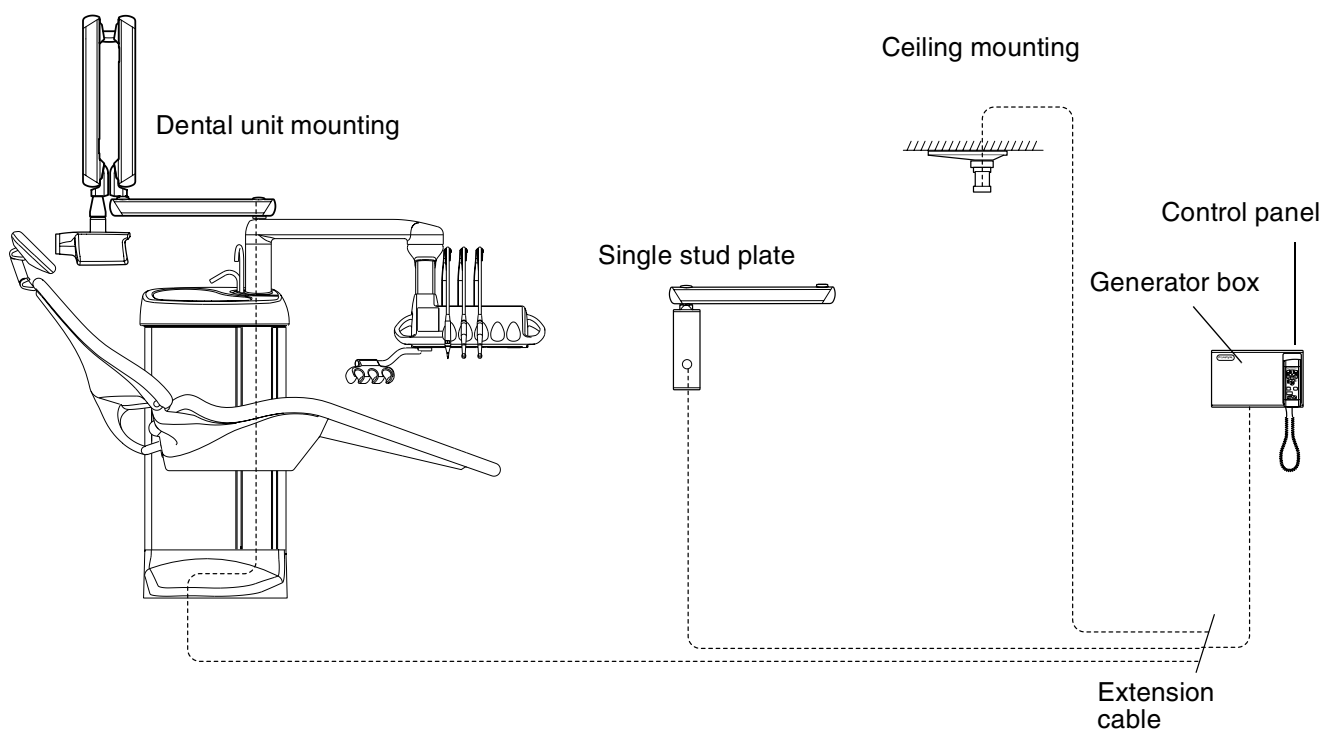
Standard assembly with magnetic hook (see section 4 “STANDARD INSTALLATION TO A WALL” on page 11)



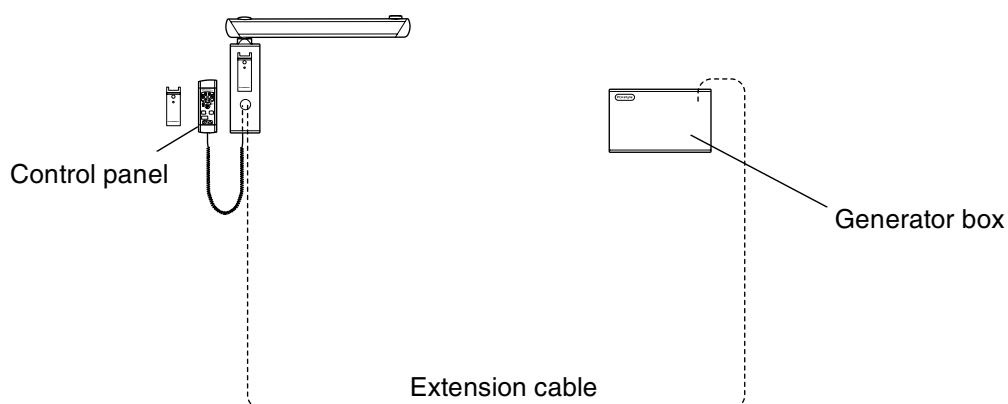
Remote assembly with mechanical hook (see section 6.2 “Remote control panel installation” on page 50)



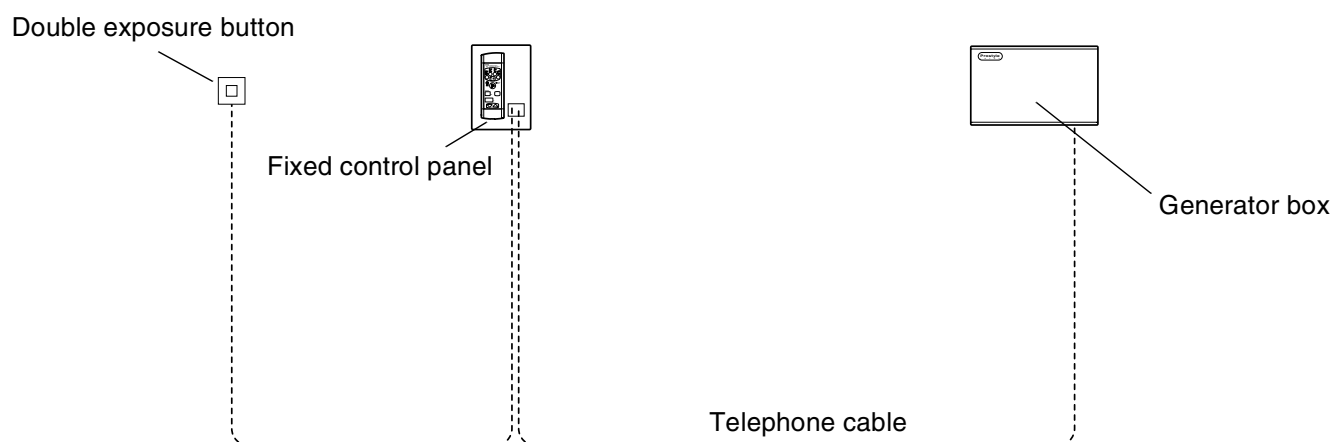
Remote assembly with generator box (see section 6.1 “Attaching the generator box without the adapter plate” on page 48)



**Single stud assembly plate with control panel (see section 5.4 “Single stud installation” on page 38)**



**Fixed control panel (contains a possibility to make “double exposure button” assembly) (see section 6.3 “Fixed control panel installation” on page 52)**



## 4 STANDARD INSTALLATION TO A WALL



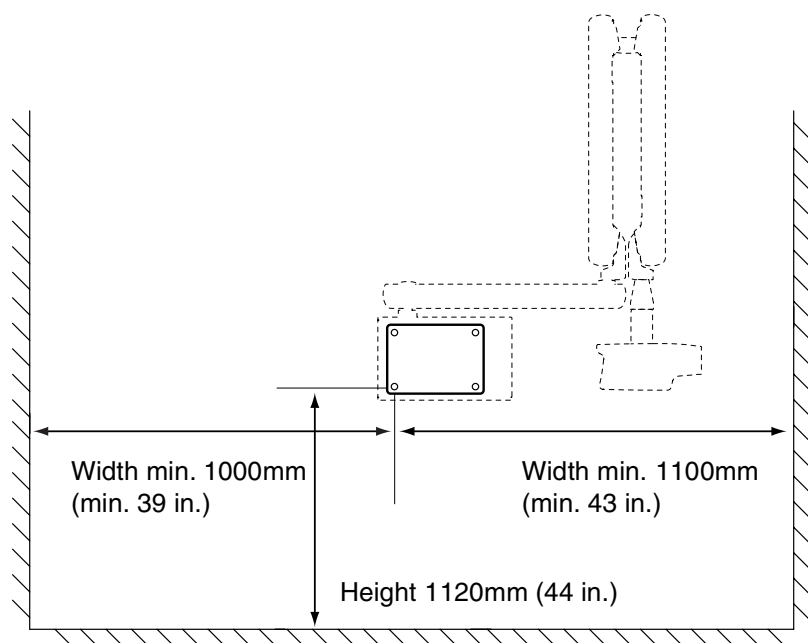
### WARNING

*Ensure that the power supply is switched off before installing the Prostyle Intra x-ray unit.*

### 4.1 Attaching the standard adapter plate to wall

The Prostyle Intra x-ray unit must be positioned in accordance with the information given in the installation pattern supplied with the unit. The x-ray unit should be positioned within the reach of the power supply cable (3m) (11 8in.). In the case that concealed wiring is used, the cable outlet should be positioned next to (on the right-hand side) the adapter plate.

The wall plate is attached to the wall according to the instructions given in next pages. If the wall is made of concrete or brick, use the M8x30 DIN 912 screws and the expansion anchors. If the wall is made of wood, use the ø8x80 DIN 571 lag screws. Do not use the expansion anchors with wooden wall. See figure below.

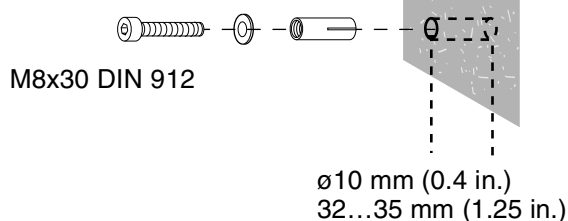


The minimum widths stated are measured using the standard extension arm (535 mm) (21.1 in.).

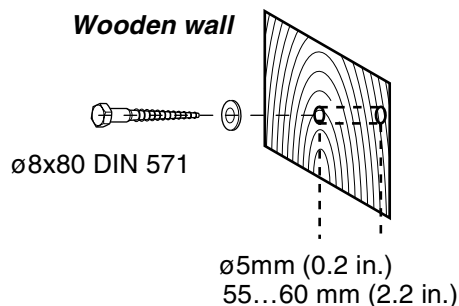
For shortened extension arm (335 mm) (13.2 in.) subtract 200 mm (8 in.) from the minimum width.

For extended extension arm (835 mm) (32.9 in.) add 300 mm (12 in.) to the minimum width.

#### Wall made of concrete or stone

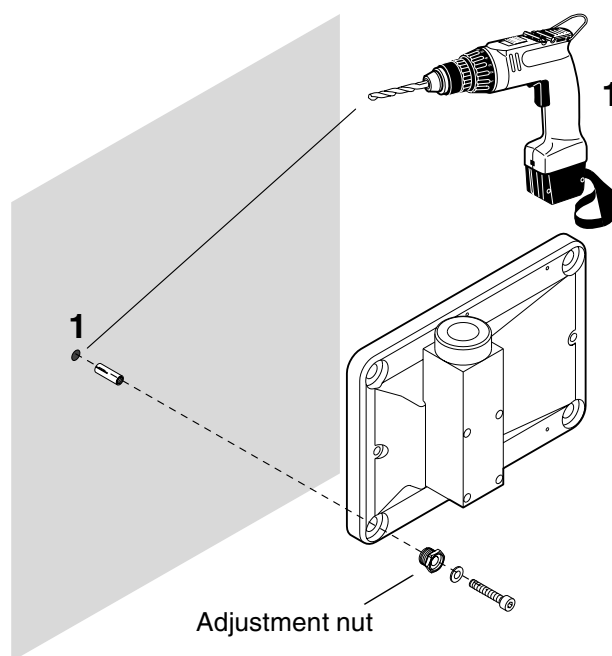


#### Wooden wall

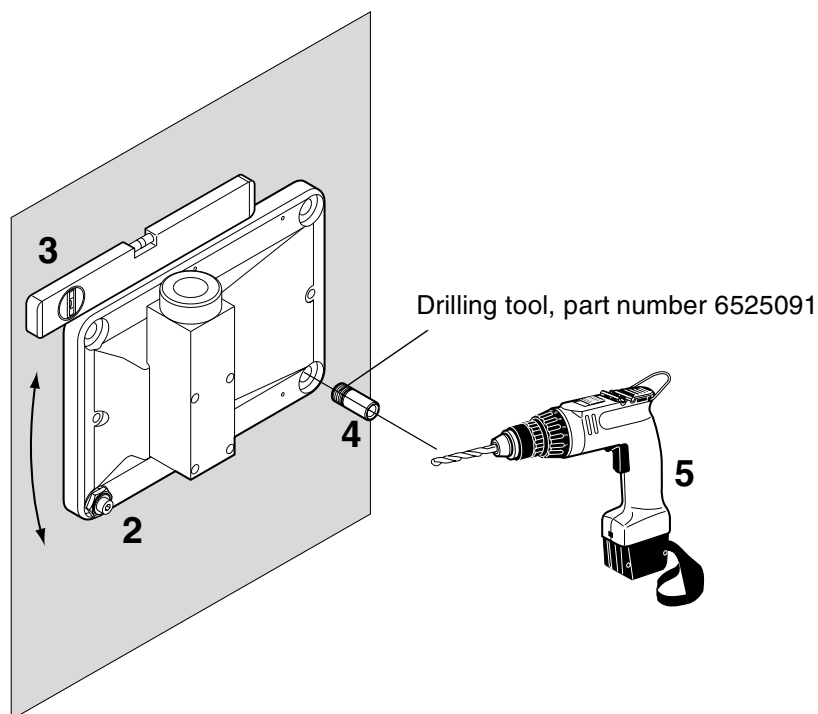


**Attaching alternative 1 (recommended for concrete or brick wall)**

Mark the position of the left lower mounting hole to the wall on the height of 1120 mm (44 in.). Drill one  $\varnothing 10$  mm (0.4 in.), 32...35 mm (1.25 in.) in depth, hole and place the expansion anchor into it. Make sure that the end of the anchor is under the wall surface, but not more than 5 mm. Hit the wedge of the anchor firmly to the bottom of the hole. Remove the adjustment nuts from the three other mounting holes. Attach the adapter plate to the wall with one of the fastening screws and adjust the plate exactly to horizontal position.



Insert the drilling tool to one of the holes and drill the second hole using the drilling tool as a guide. Unscrew the drilling tool and insert the second expansion anchor as described above, replace the adjustment nut and attach the screw.

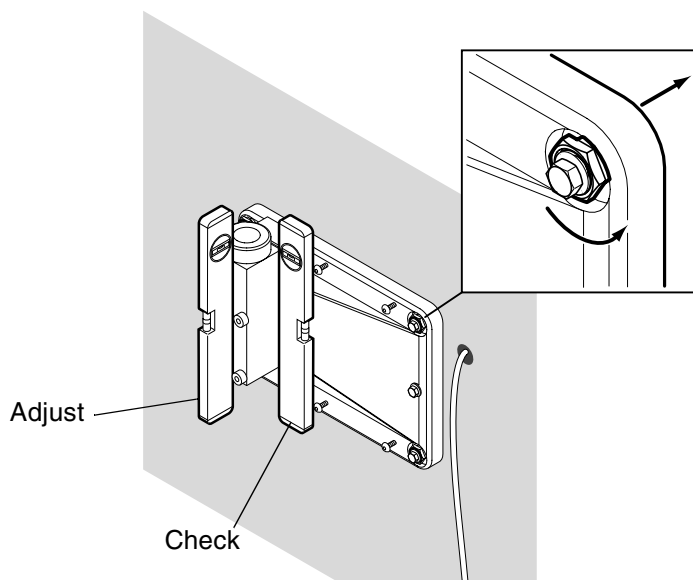


Drill the two other holes.

Remove the adapter plate and place the expansion anchors into the last two holes.



Attach the plate to the wall with four M8x30 DIN 912 screws and  $\varnothing 8.4/17$  DIN 125 washers. Use the adjustment nuts and the adjustment plates with the screws at each corner of the adapter plate. Adjust the wall adapter bearing to vertical position by opening slightly the mounting screws and turning the adjustment nuts to required position. The wall adapter moves towards the wall when turning the nut counterclockwise.



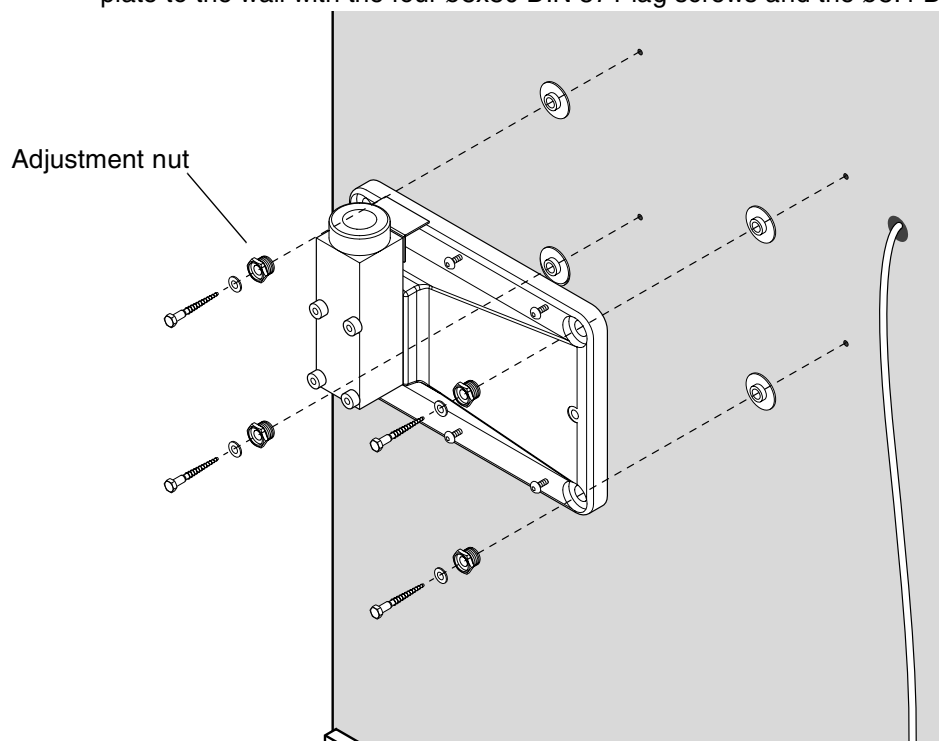
Finally, tighten all the mounting screws.

#### Attaching alternative 2 (for wooden wall, not recommended for concrete wall)

Use the installation pattern as a template and mark the positions where the holes for the four attaching screws will be drilled. Use a spirit level to ensure that the adapter plate will be level.

If the wall is made of concrete or brick, drill  $\varnothing 10$  mm (0.4 in.), 32...35 mm (1.25 in.) in depth, holes and place the expansion anchors into them. Attach the adapter plate to the wall with the four M8x30 DIN 912 screws and the  $\varnothing 8.4$  DIN 125 washers.

If the wall is made of wood, drill  $\varnothing 5$  mm (0.2 in.), 55...60 mm (2.2 in.) in depth, holes for the attachment screws. Do not use the expansion anchors with wooden wall. Attach the adapter plate to the wall with the four  $\varnothing 8 \times 80$  DIN 571 lag screws and the  $\varnothing 8.4$  DIN 125 washers.

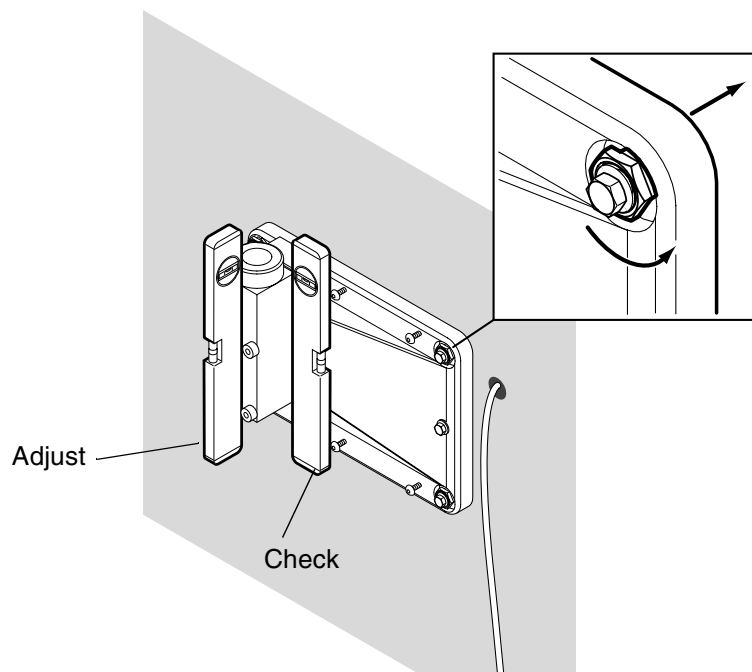


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## STANDARD INSTALLATION TO A WALL

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Use the adjustment nuts and the adjustment plates with the screws at each corner of the adapter plate. Adjust the wall adapter bearing to vertical position by opening slightly the mounting screws and turning the adjustment nuts to required position. The wall adapter moves towards the wall when turning the nut counterclockwise.



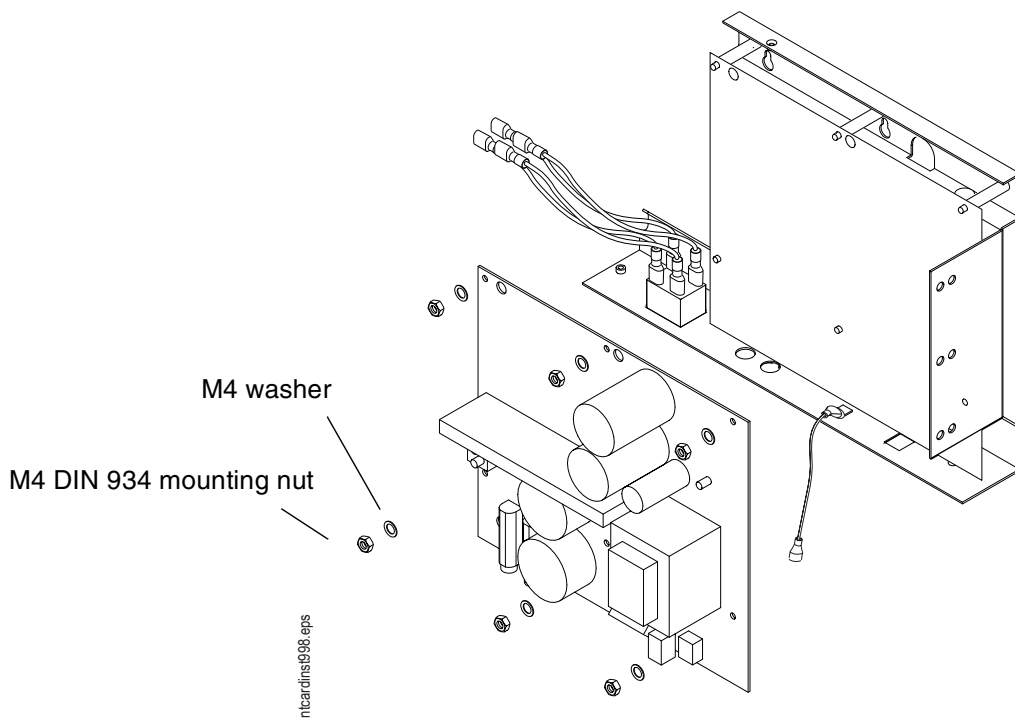
Finally, tighten all the mounting screws.

## 4.2 Installing the generator assembly

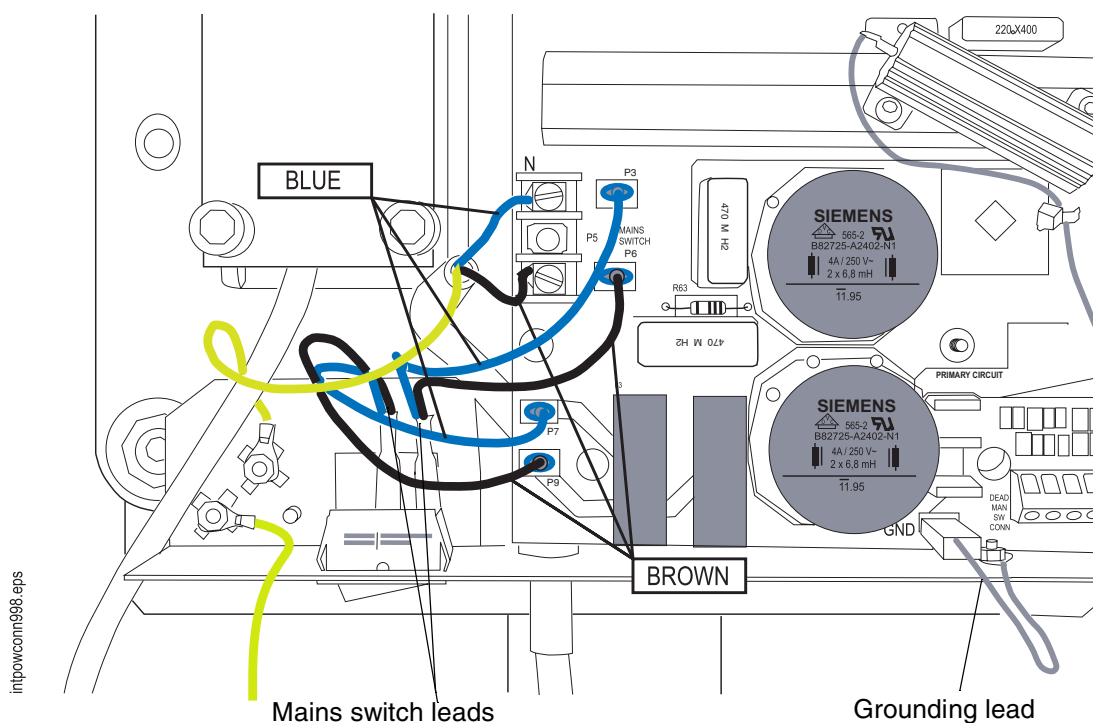
Route the mains cable behind the wall adapter bearing before attaching the generator assembly.

**NOTE** *The generator PCB is delivered in a separate carton. It is recommended to use this carton always when transporting the generator PCB.*

Attach the generator PCB to the adapter plate with the six M4 washers and M4 DIN 934 mounting nuts.



Connect the mains switch leads to terminals P3, P6, P7 and P9, and the grounding lead to terminal P10 according to the figure below.

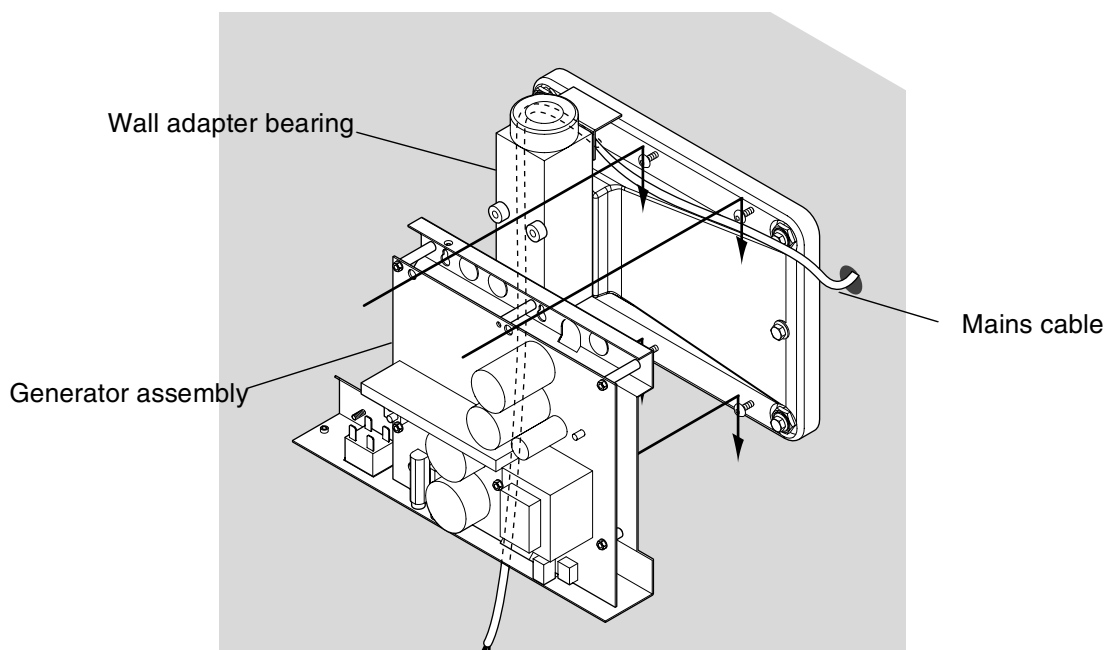


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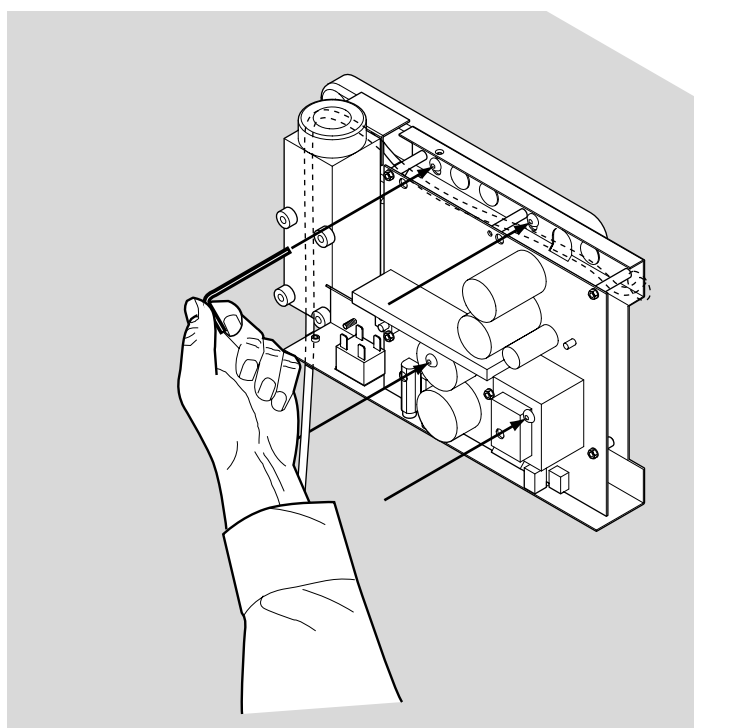
## STANDARD INSTALLATION TO A WALL

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There are four M4x8 ULS screws attached to the adapter plate at the factory. Loosen these screws a couple of turns with a 2mm allen key. Slip the generator assembly under the heads of the screws.



Secure the generator assembly into position by tightening the four screws through the openings on the generator PCB.



### 4.3 Assembling the arm

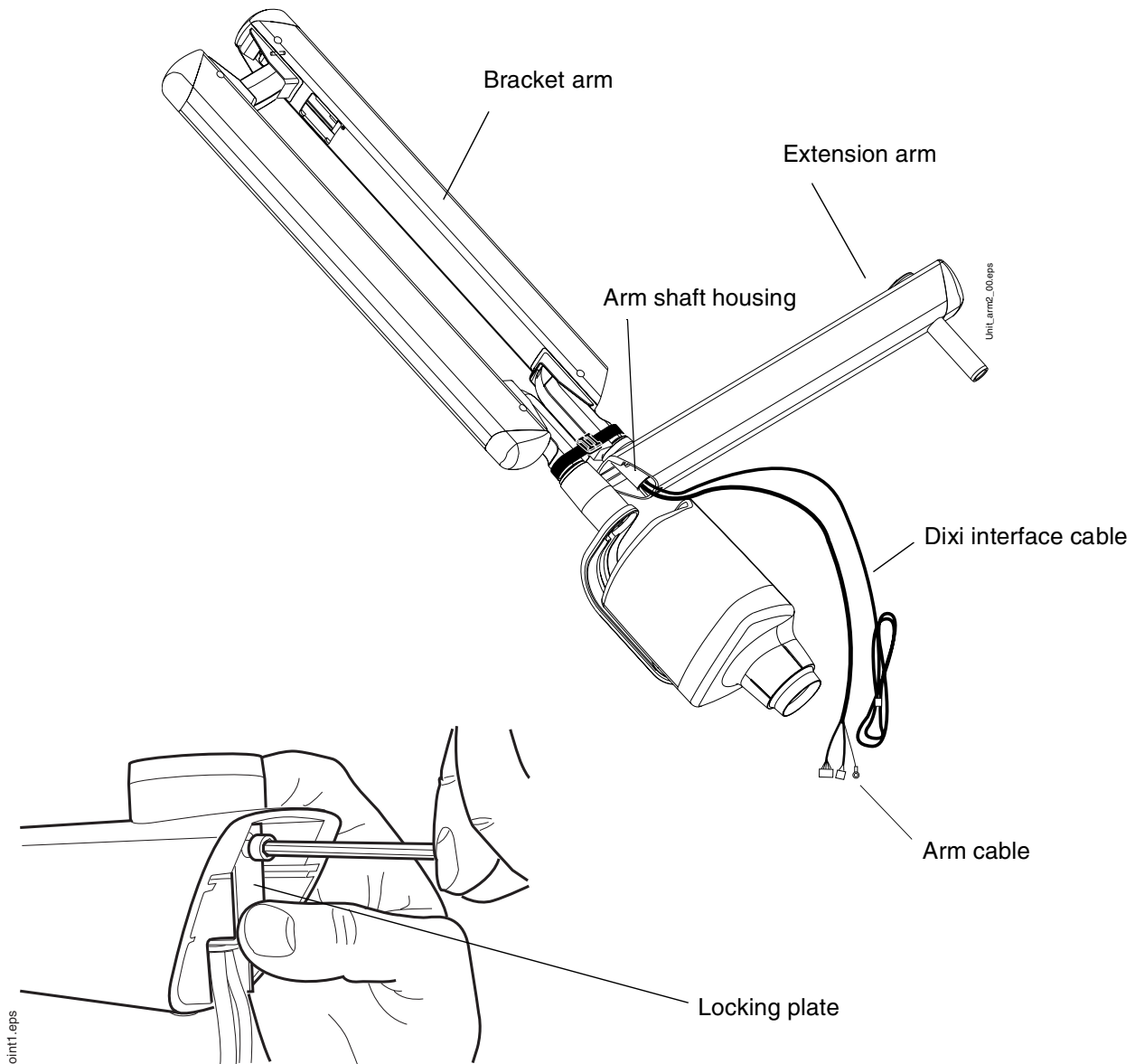


#### CAUTION

*Care must be taken when assembling the arm for not to damage the arm cable.*

**NOTE** *Normally the bracket arm does not turn above the extension arm. In case you need to change the movement area of the bracket arm, refer to section 4.4 “Changing the bracket arm movement area” on page 18.*

Route the arm cable and the Dixi interface cable through the extension arm shaft housing. Assemble the bracket arm to the extension arm by pushing the bracket arm shaft into the housing. Secure the bracket arm with the locking plate. Route the cables through the extension arm. Place the cover plug back to the end of the extension arm.

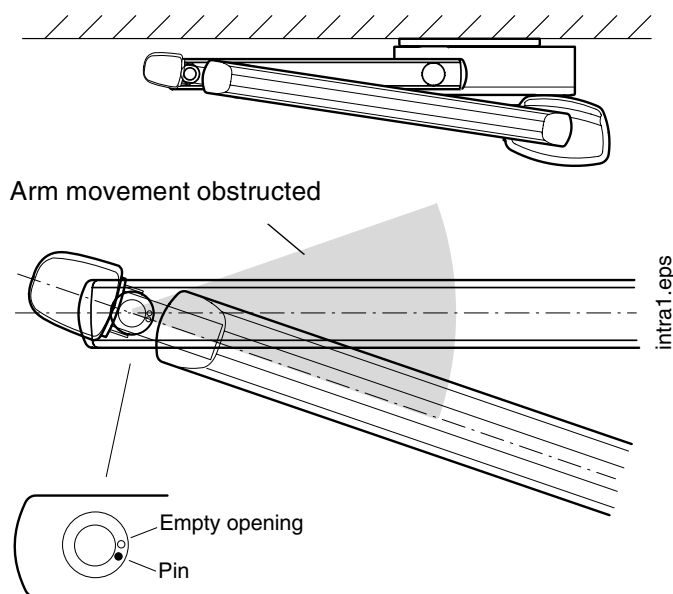


**NOTE** *The Prostyle Intra x-ray units manufactured after March 2000, serial number IXRA13370 or greater are equipped with new type arm cover plugs. In case you want to use these cover plugs in older x-ray units, see instructions given in Prostyle Intra Technical manual.*

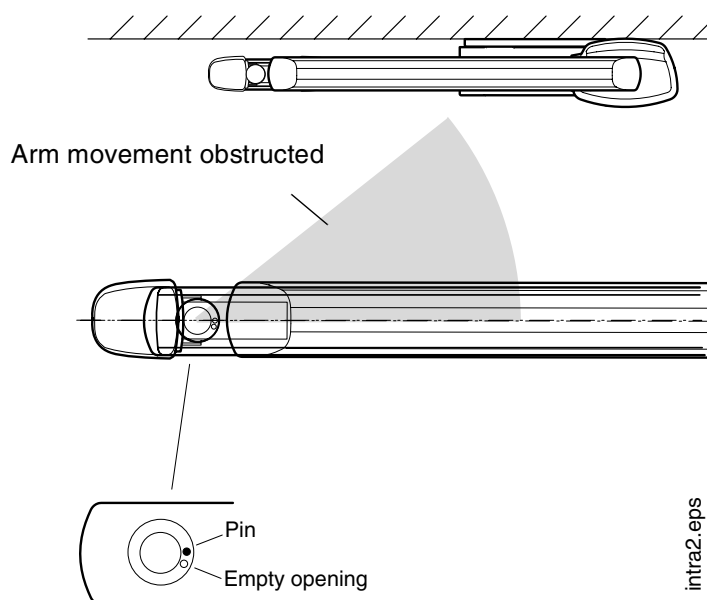
#### 4.4 Changing the bracket arm movement area

**NOTE** Normally the bracket arm does not turn above the extension arm, but the arm movement area can be changed by moving the limiting pin on the extension arm shaft housing. The factory preset and modified movement areas are shown on the figures below. **THE LIMITING PIN POSITION CAN BE CHANGED BUT THE PIN MUST NOT BE REMOVED.**

##### Factory preset movement area

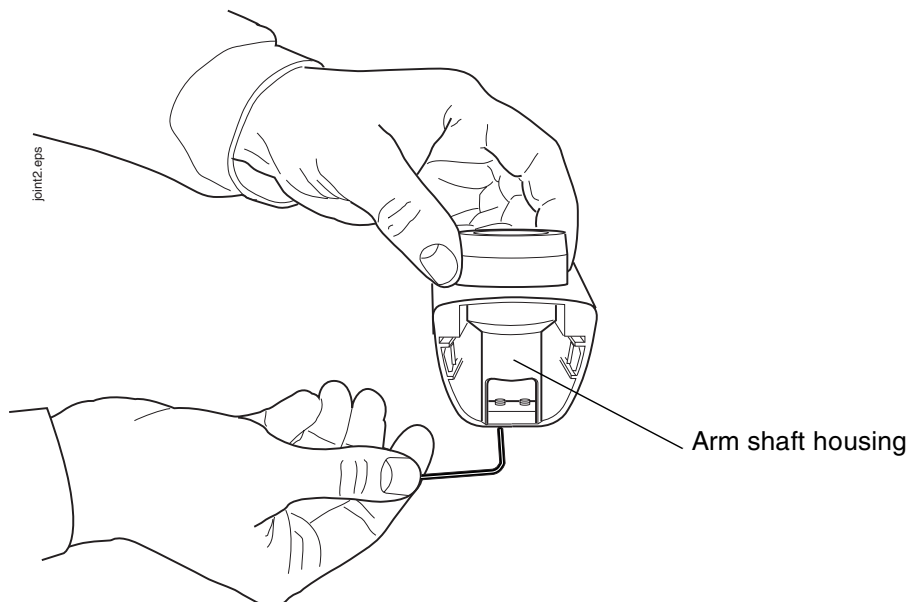


##### Modified movement area



**NOTE** When the modified area is used the tube head can hit the extension arm. Be careful not to knock the tube head against the arm.

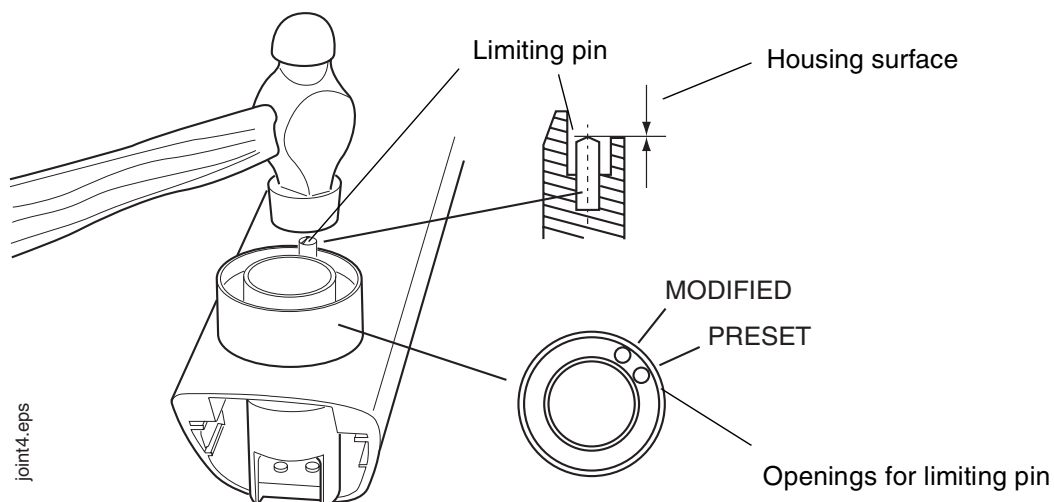
Unscrew the two screws that hold the housing on the extension arm and remove the shaft.



Remove the limiting pin from the housing by using a thin screwdriver and hammer.

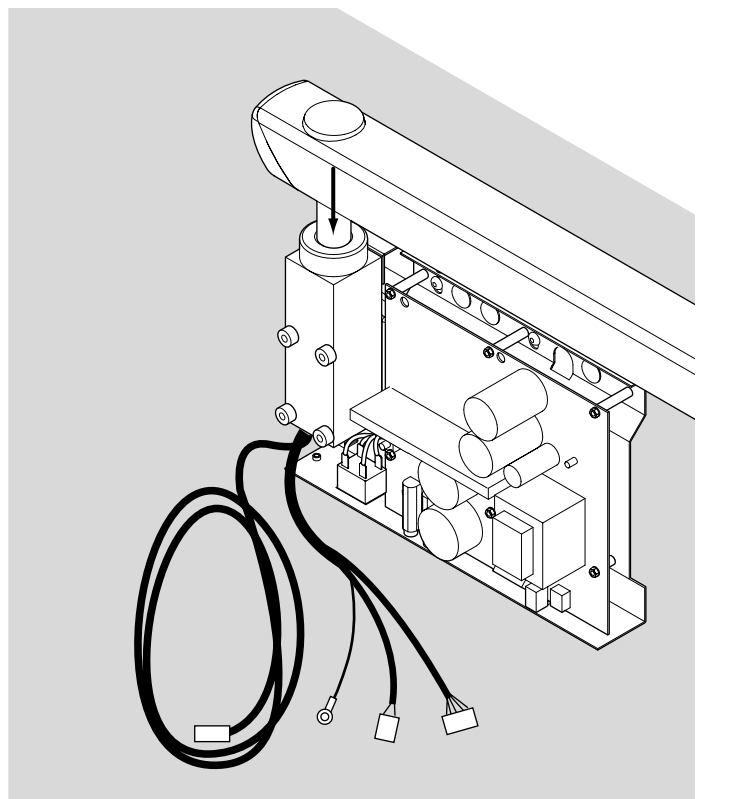


Attach the pin to the other opening on the housing so that the pin is level with the inner surface of the housing (see figure below).



#### 4.5 Mounting the arm

Route the arm and Dixi interface cables through the wall adapter bearing. Mount the arm into position by pushing the arm shaft into the wall adapter bearing.

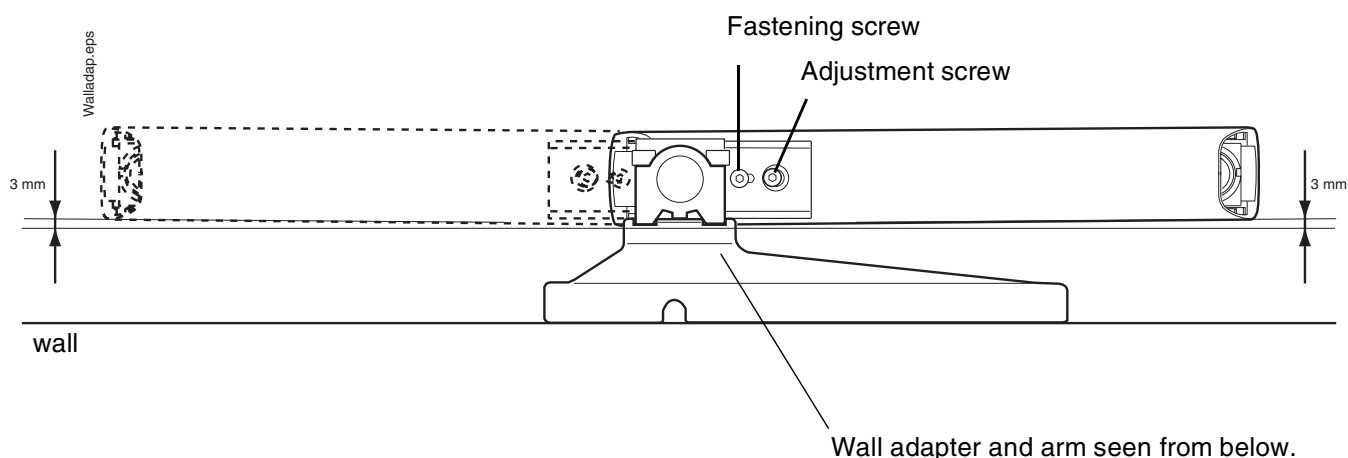


The arm position is adjusted at the factory. In case the position needs to be adjusted, loosen the adjustment piece fastening and adjustment screws. **Do not open the screws totally.**

Turn the arm away from the wall. Tighten the adjustment screw, the adjustment piece moves towards the arm shaft.

Turn the arm carefully to the desired position. If the arm remains too far from the wall, push the arm slightly towards the wall and simultaneously loosen the adjustment screw. The adjustment piece now moves away from the arm shaft and the arm towards the wall.

After the desired position has been reached, tighten the adjustment piece fastening screw with care. Tighten also the adjustment screw.





#### 4.6 Connecting the cables

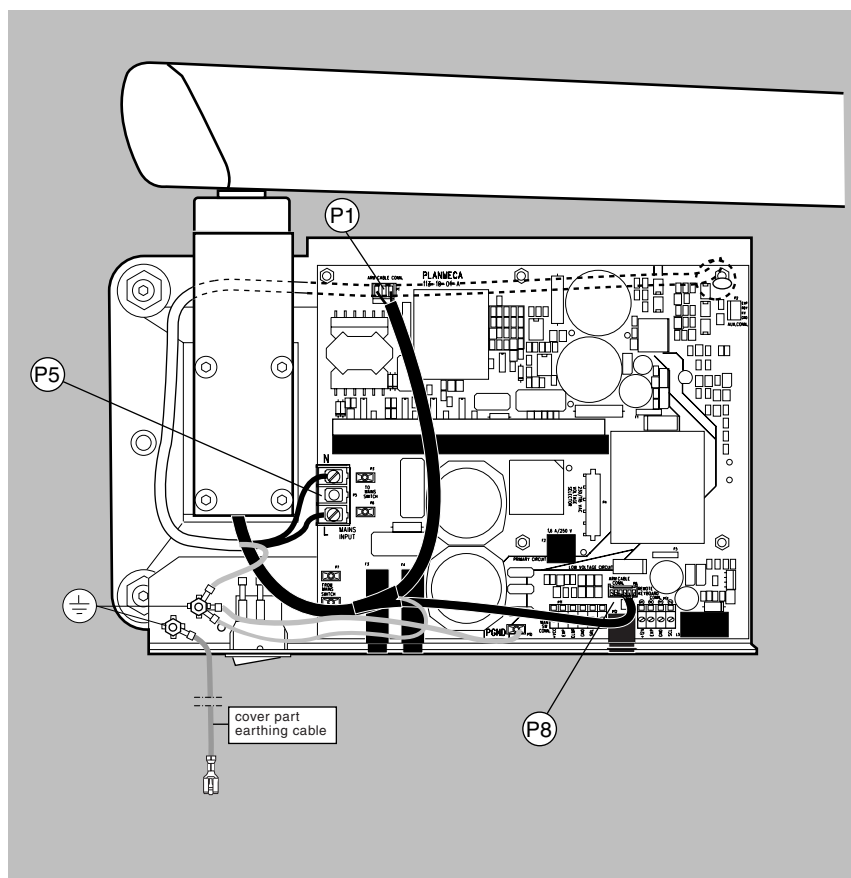


##### **WARNING**

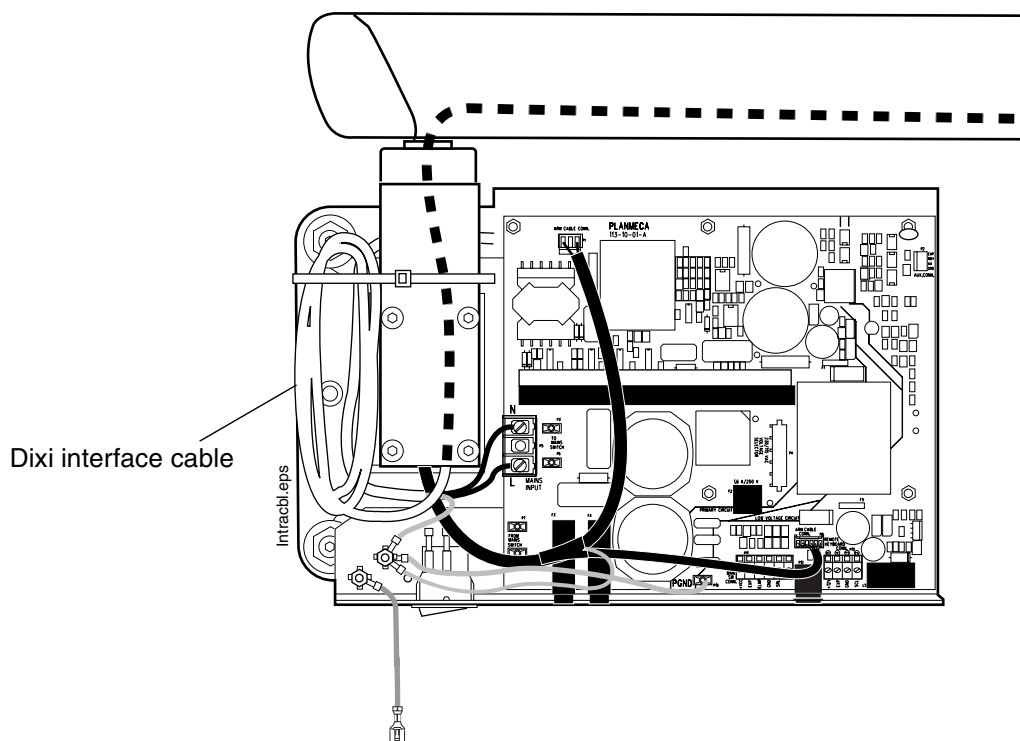
***Ensure that the power supply is switched off before connecting the cables.***

Connect the grounding lead of the arm cable to the grounding point next to the mains switch. Connect the control leads of the arm cable (6-pole connector) to the terminal P8 on the generator PCB. Connect the power leads (3-pole connector) of the arm cable to the terminal P1 on the generator PCB.

In the case that mains voltage is supplied via concealed wiring route the mains cable between the adapter plate and the generator assembly. Connect the grounding lead to the grounding point next to the mains switch. Connect the neutral wire to the mains input terminal (P5) marked **N**. Connect the live wire to the mains input terminal (P5) marked **L**.



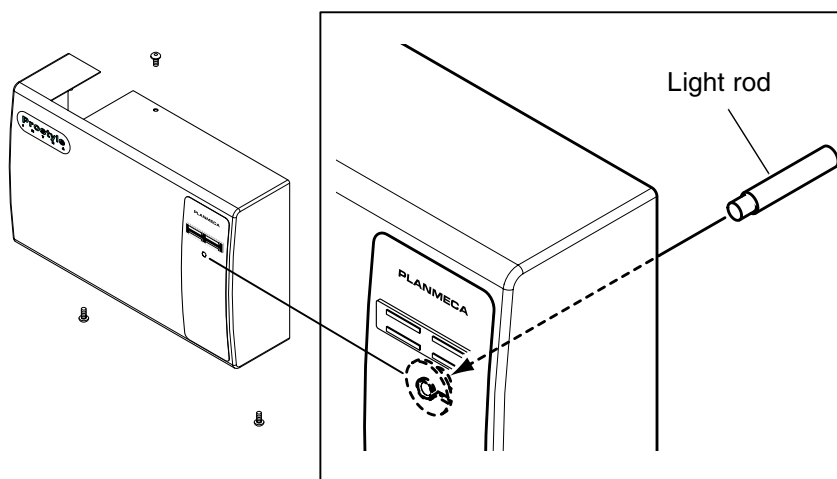
In case the Dixi digital intra x-ray system is not installed, attach the Dixi interface cable to the wall adapter bearing with a cable tie.



**NOTE** In case the Dixi digital intra x-ray system is installed, refer to the Dixi digital x-ray systems installation manual.

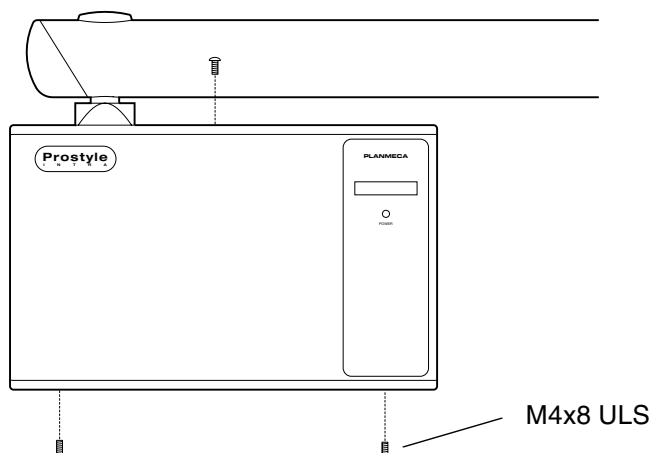
### 4.7 Mounting the generator cover

Insert the light rod to the bushing on the generator cover before attaching the cover into its position.



Intra led pillar mounting 2301197

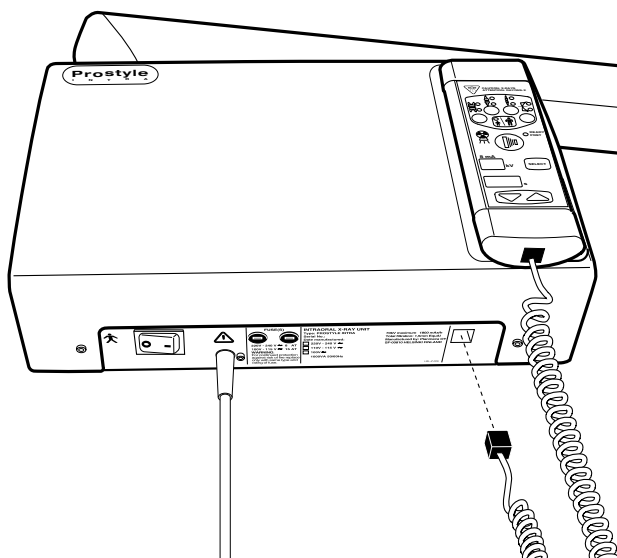
Place the generator cover over the generator assembly. Secure the cover into position with the three M3x8 ULS screws.



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#### **4.8 Connecting the control panel cable**

Connect the control panel cable to its terminal at the under-side of the generator box.



## 5 OTHER INSTALLATION ALTERNATIVES



### WARNING

*Ensure that the power supply is switched off before installing the Prostyle Intra x-ray unit.*

### NOTE

*With the installation methods described in this section the generator box is installed directly to a wall without using a wall adapter plate. Refer to the section 6.1 “Attaching the generator box without the adapter plate” on page 48.*

### 5.1 US-style wall adapter plate

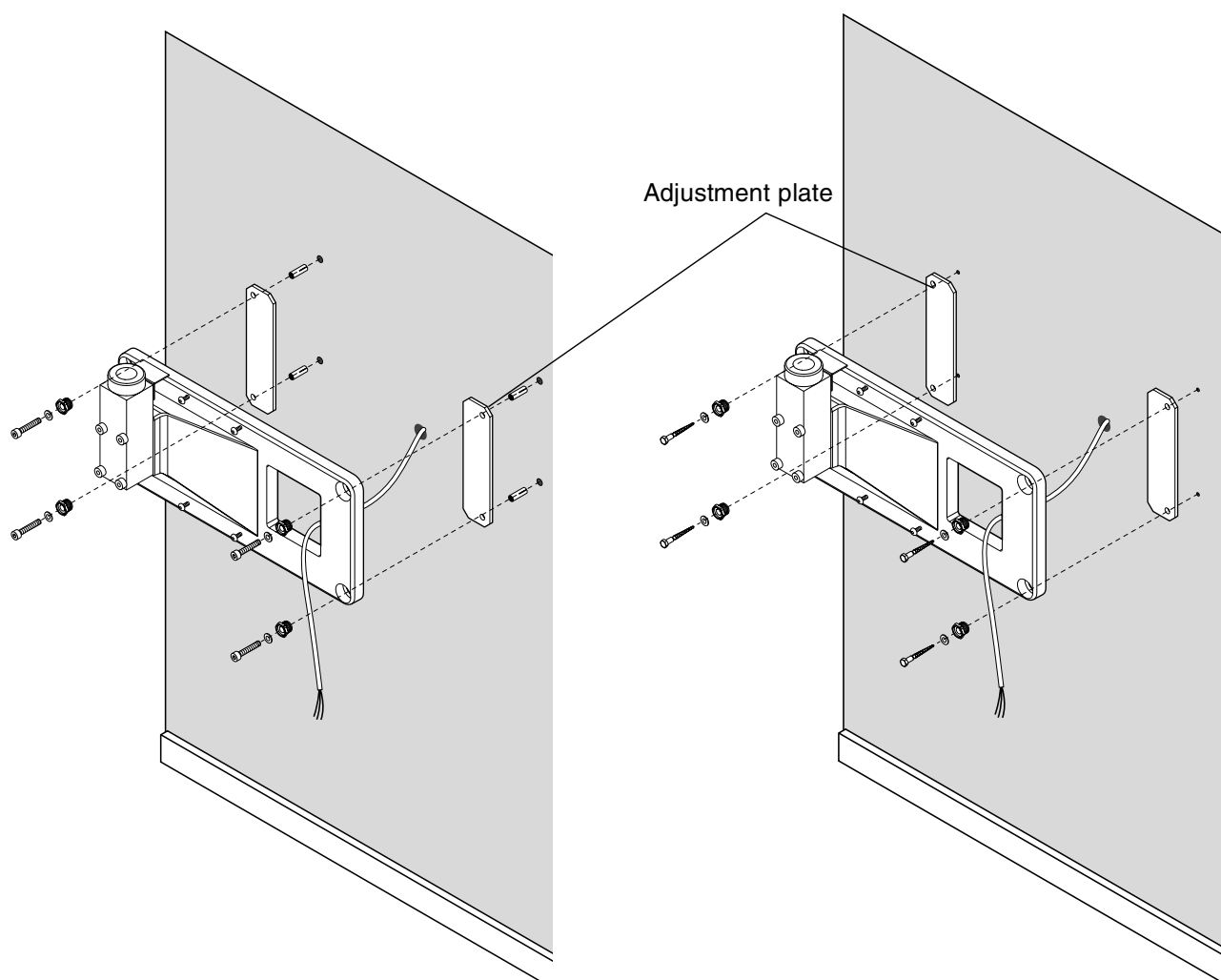
### NOTE

*Do not use the shorten extension arm (335 mm) with the US-style wall adapter.*

Install the US-style adapter plate to a wall according to the instructions given in section 4 “STANDARD INSTALLATION TO A WALL” on page 11. Note, that you have to use the adjustment plates under the adapter plate.

#### Concrete or brick wall

#### Wooden or plaster wall



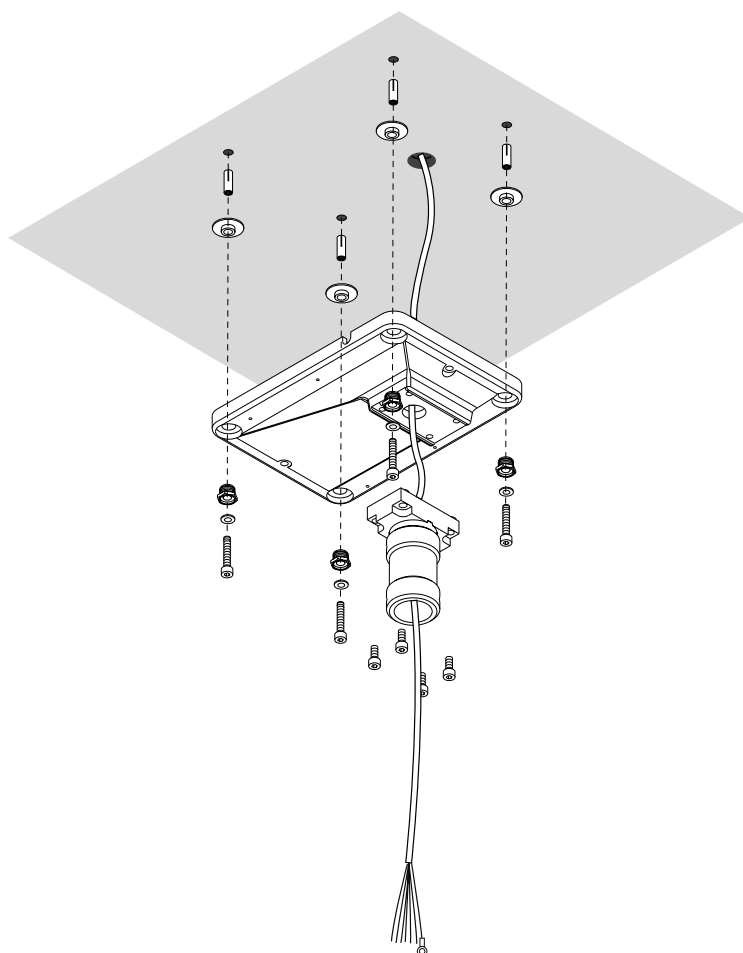
## 5.2 Ceiling installation

### Concrete ceiling

Mark the place of the adapter plate to the ceiling. Drill one  $\varnothing 10$  mm (0.4 in.), 32...35 mm (1.25 in.) in depth, hole and place the expansion anchor into it. Attach the adapter plate to the ceiling with one of the fastening screws.

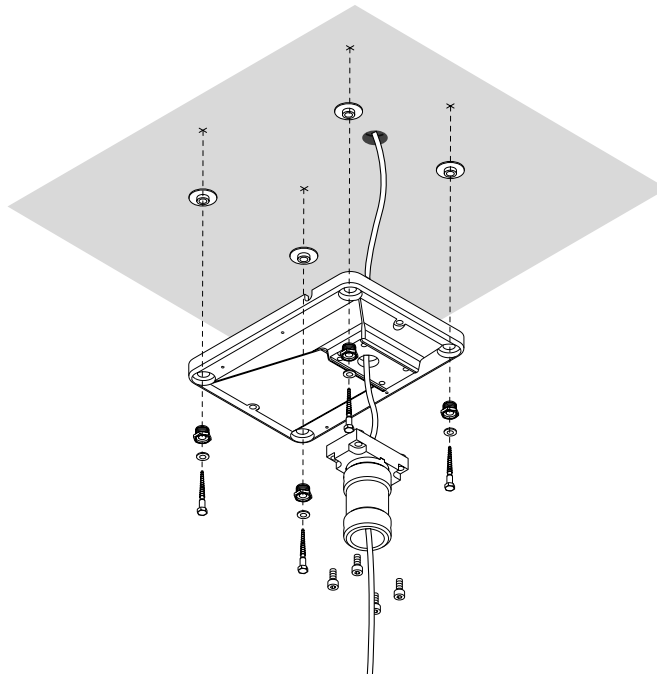
Remove the adjustment nuts from the three mounting holes. Attach the drilling tool to one of the holes and drill the second hole using the drilling tool as a guide. Drill the two other holes in the same way. Remove the adapter plate and insert the expansion anchors into the holes.

Attach the plate to the ceiling with four M8x30 DIN 912 screws and  $\varnothing 8.4/17$  DIN 125 washers. Use the adjustment nuts and the adjustment plates with the screws at each corner of the adapter plate.

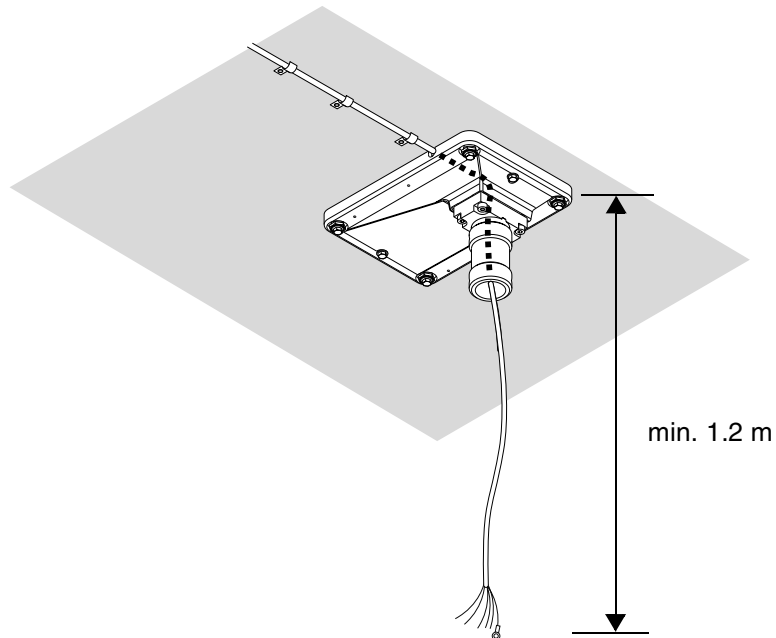


### Wooden ceiling

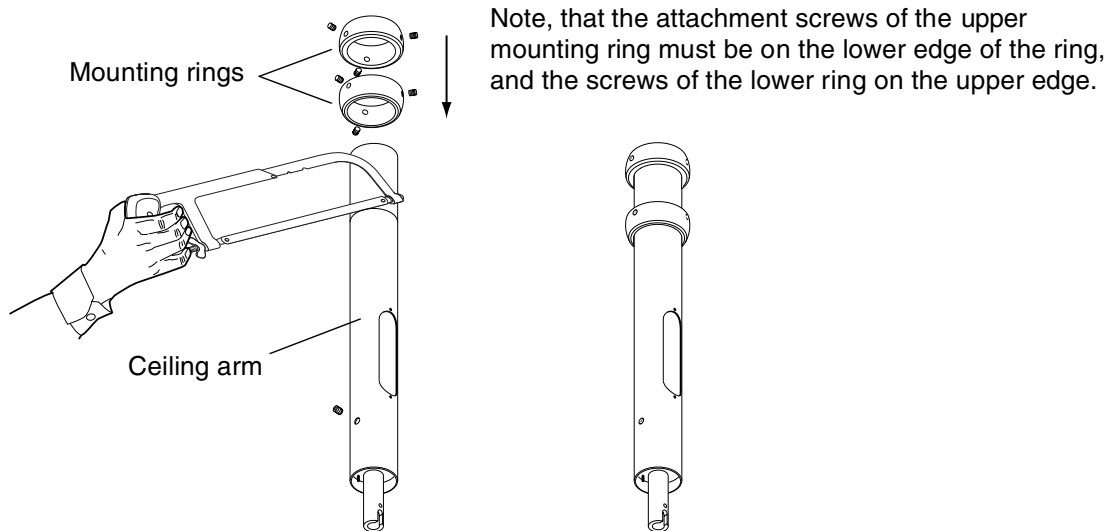
Attach the adapter plate to the ceiling with four  $\varnothing 8 \times 80$  DIN 571 lag screws. Do not use the expansion anchors with wooden ceiling. Use the adjustment nuts and the adjustment plates with the screws at each corner of the adapter plate.



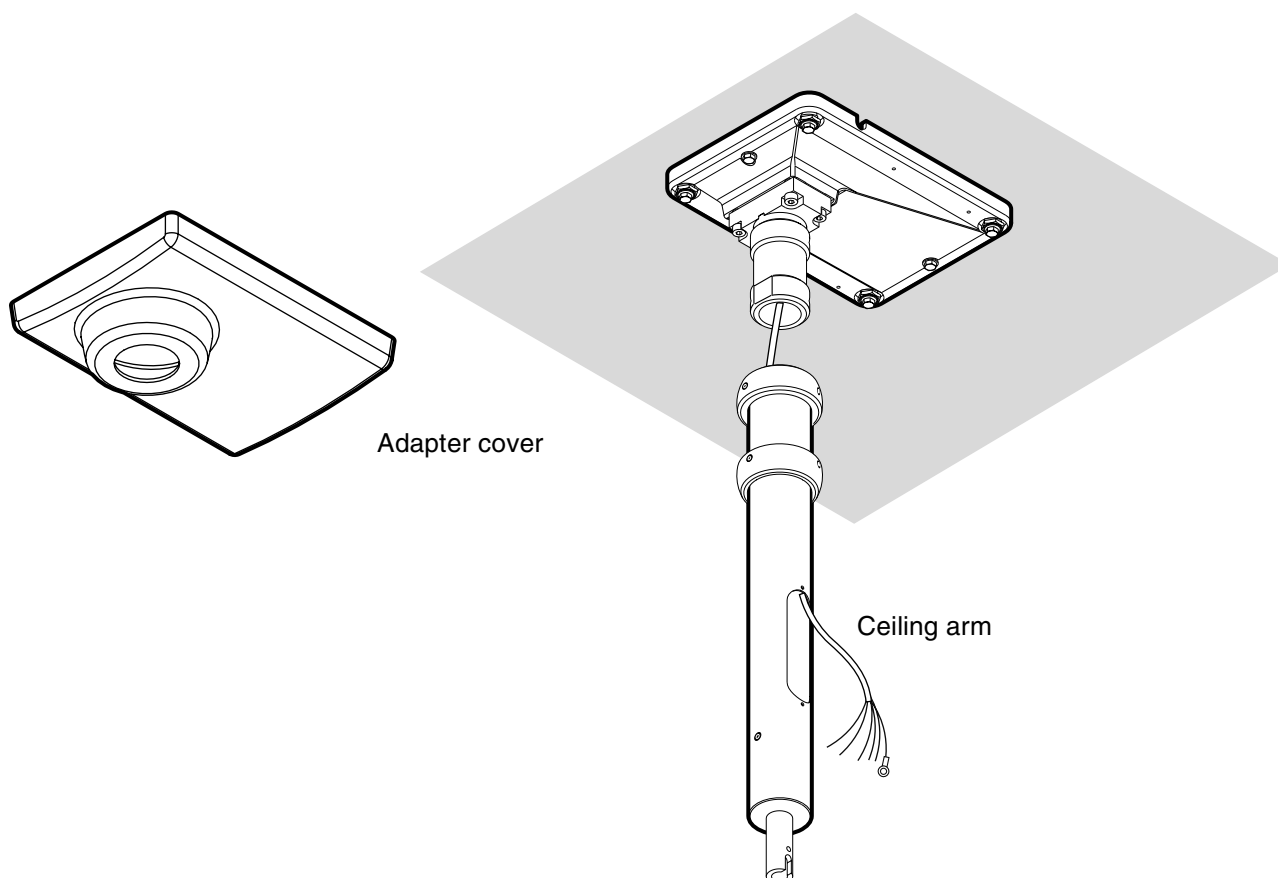
**NOTE** *If the concealed wiring is not used, the extension cable must be lead so that there is at least 1.2 m cable after adapter plate.*



Shorten the ceiling arm if needed and attach the mounting rings to the arm. Do not tighten the screws yet.

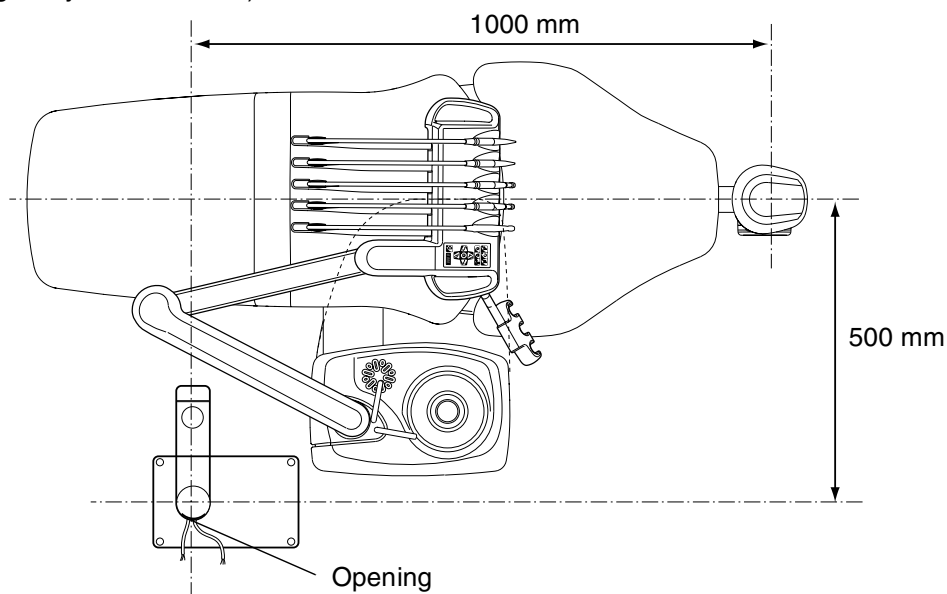


**NOTE** If the optional adapter cover is used, attach it to its position before attaching the ceiling arm.

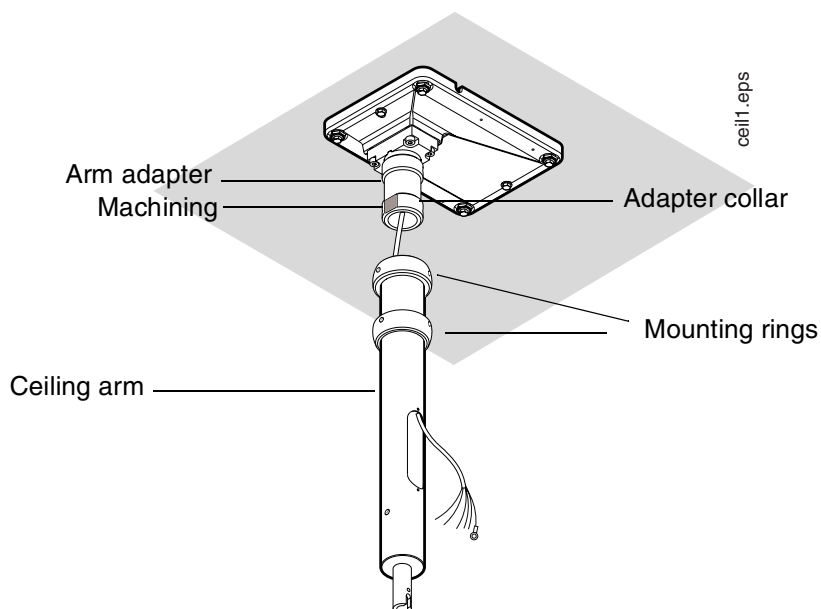


Install the ceiling arm to the adapter as follows.

If the operating light is installed to the ceiling arm, position the arm according to the figure below (opening away from the chair).

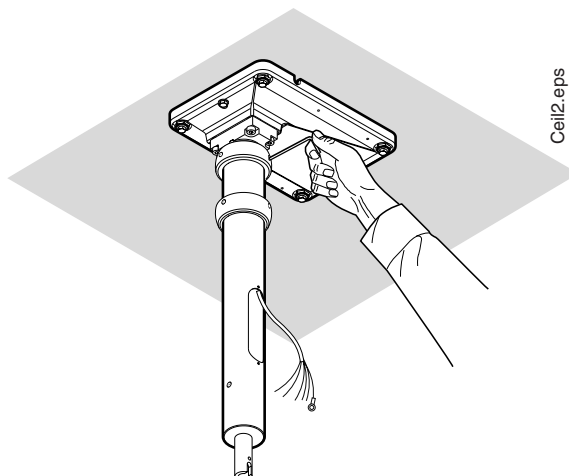


**NOTE** *The ceiling arm is locked to the arm adapter by making a dent with a mounting ring screw to the arm above the adapter collar. The dent must not be in line with the machining on the adapter collar.*

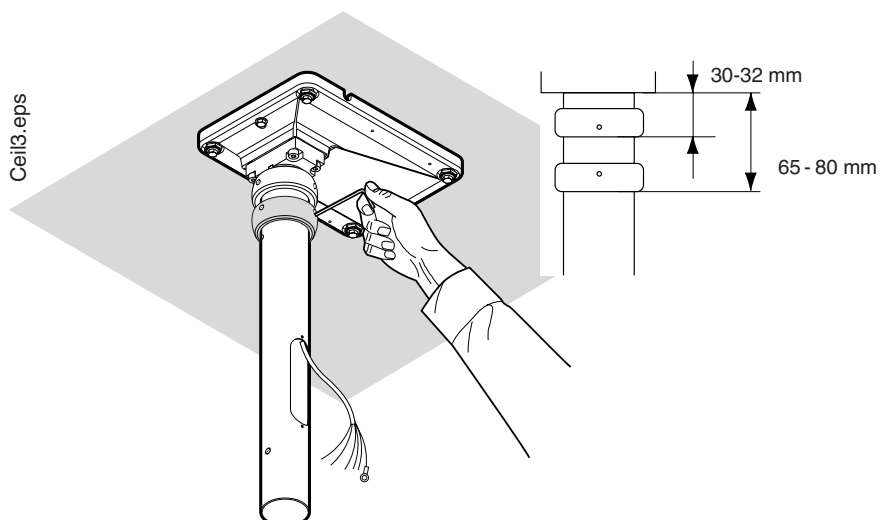




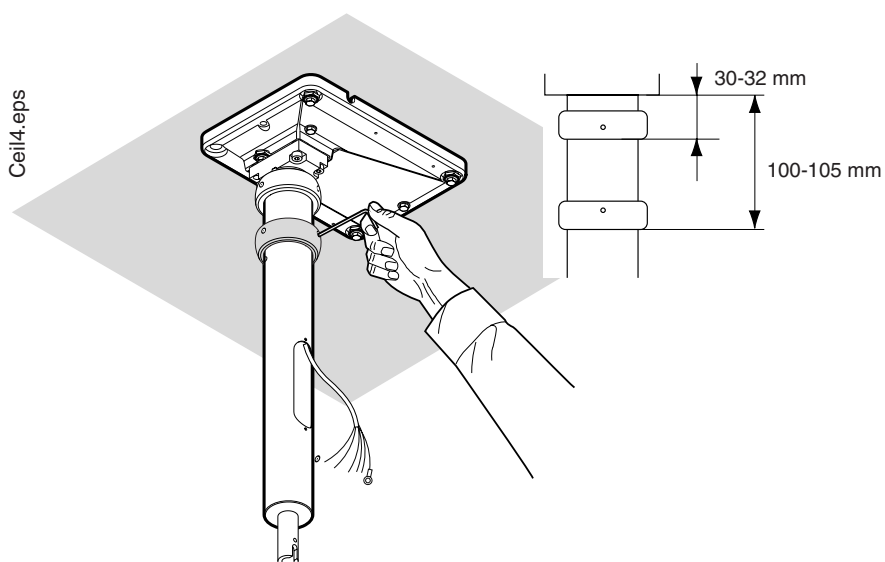
Attach the ceiling arm to the adapter with the upper mounting ring.



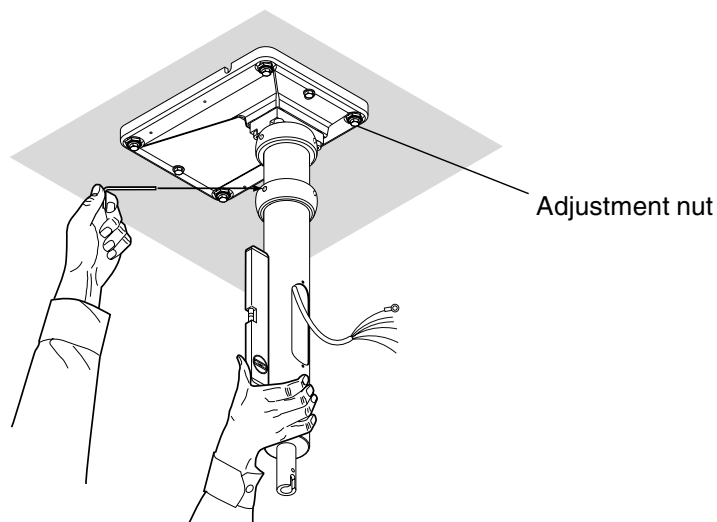
Move the lower mounting ring to the position shown on the figure below. With the locking screw located on the lower mounting ring make a dent to the arm (the head of the locking screw differs from the head of the normal attachment screws). This will lock the arm to the adapter. Replace the locking screw with an attachment screw.



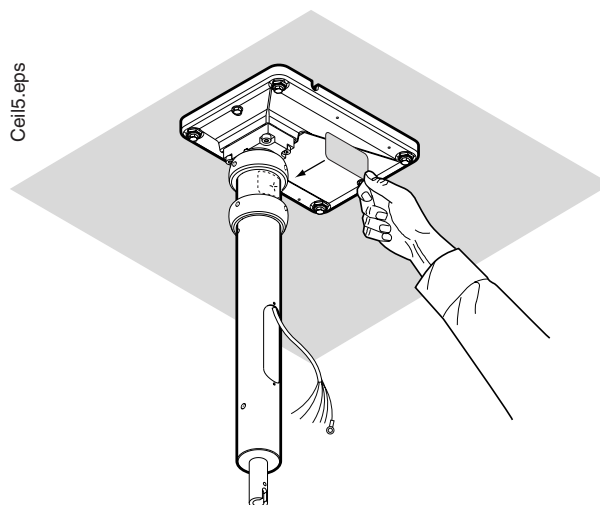
Move the lower mounting ring to the position shown on the figure below. Tighten all the mounting rings' screws firmly.



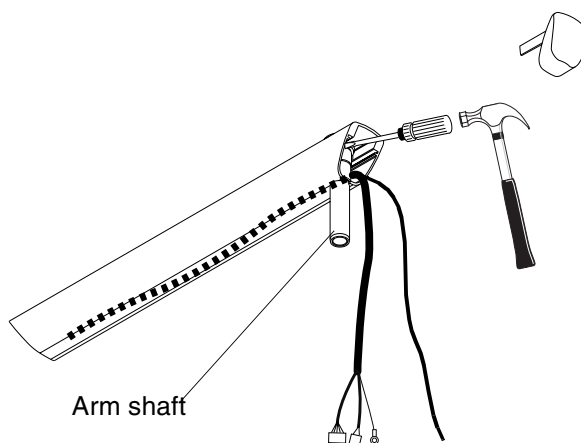
With a spirit level make sure that the ceiling arm is vertical. Adjust its position with the adjustment nuts, if needed.



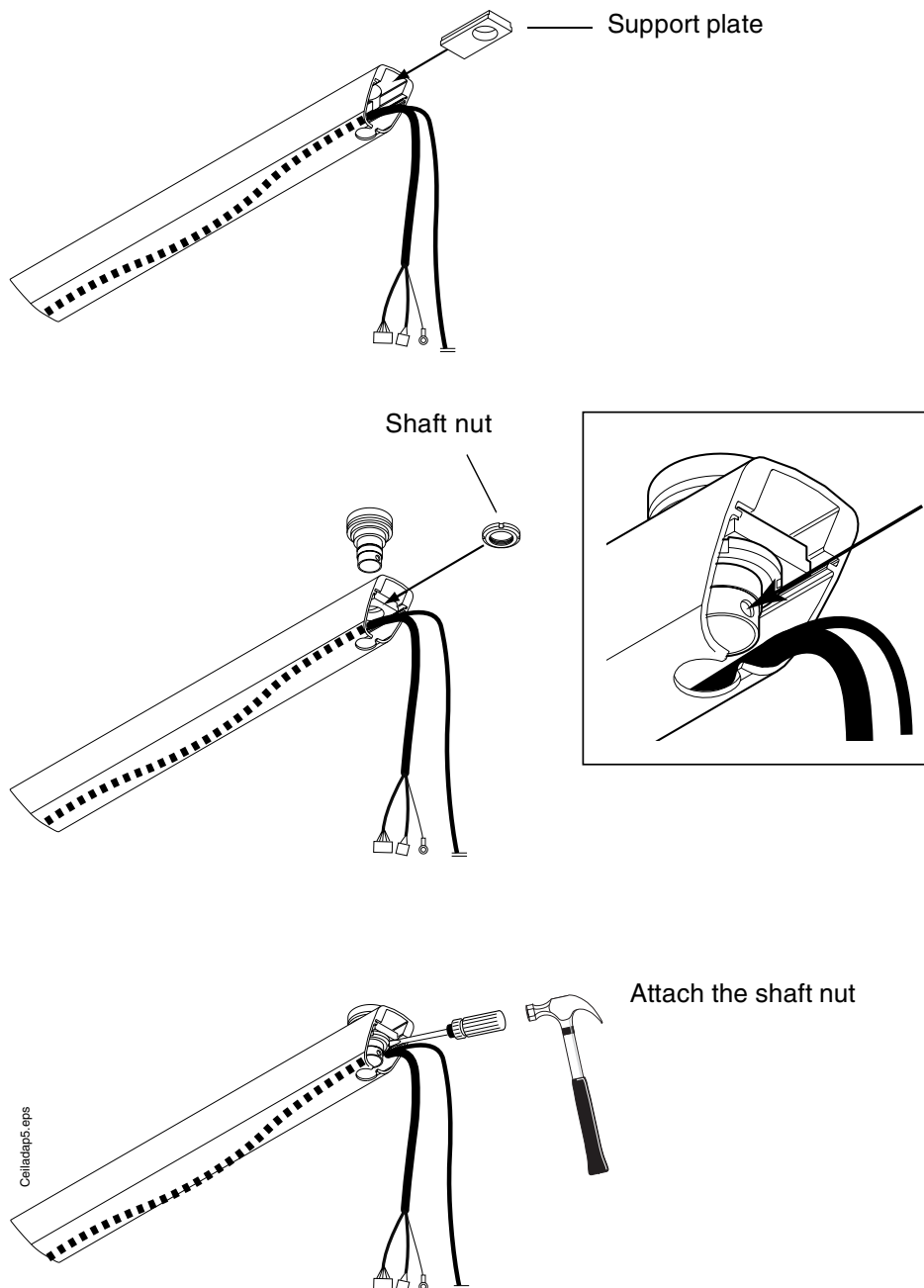
Attach the cover label over the dent.



Remove the extension arm shaft. Remove the shaft nut by hitting it as shown on the figure below. Remove the support plate and the shaft. The shaft is not needed in this installation.

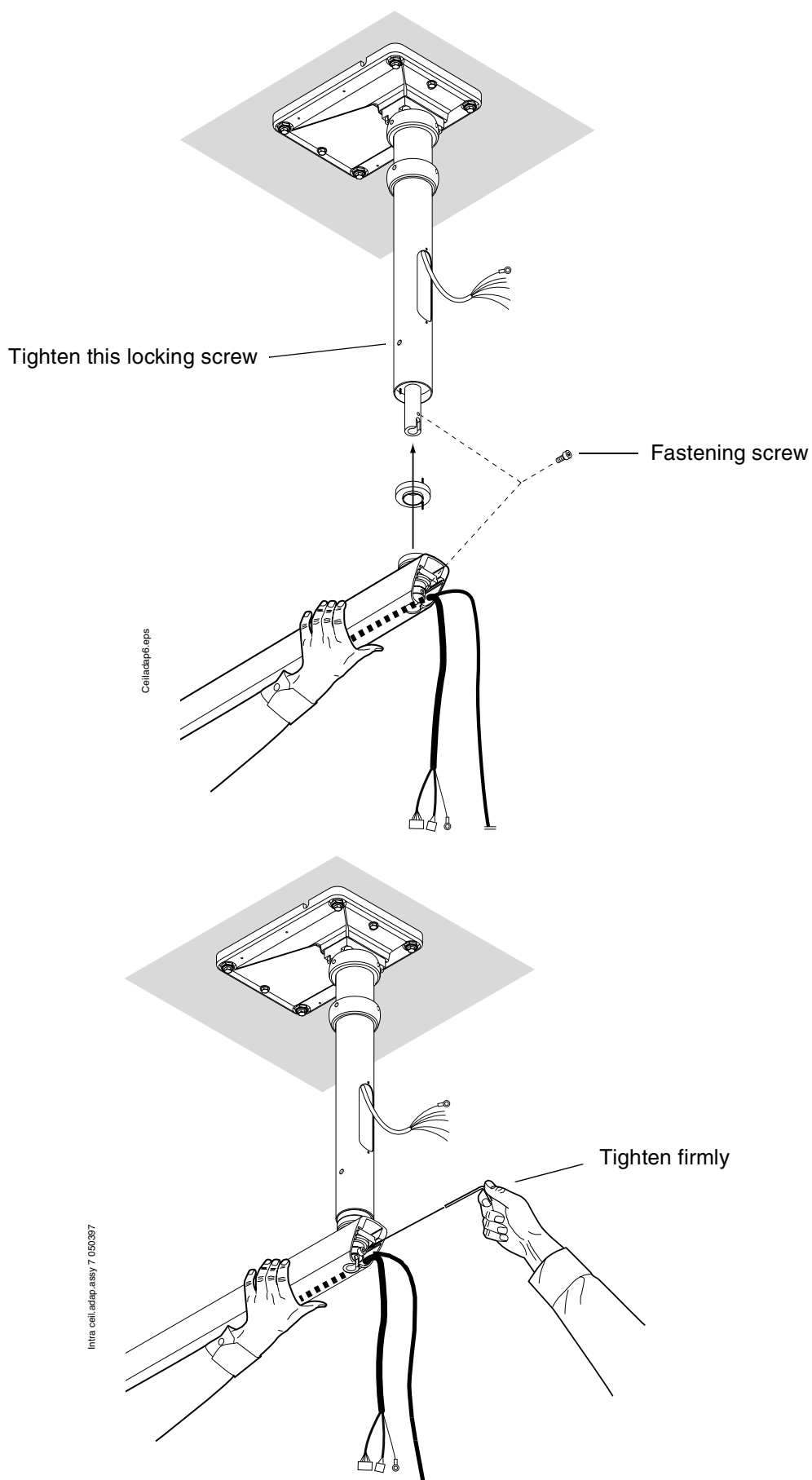


Assemble the bracket arm to the extension arm, refer to the section 4.3 “Assembling the arm” on page 17. Assemble the bearing housing to the extension arm as described in figure below.

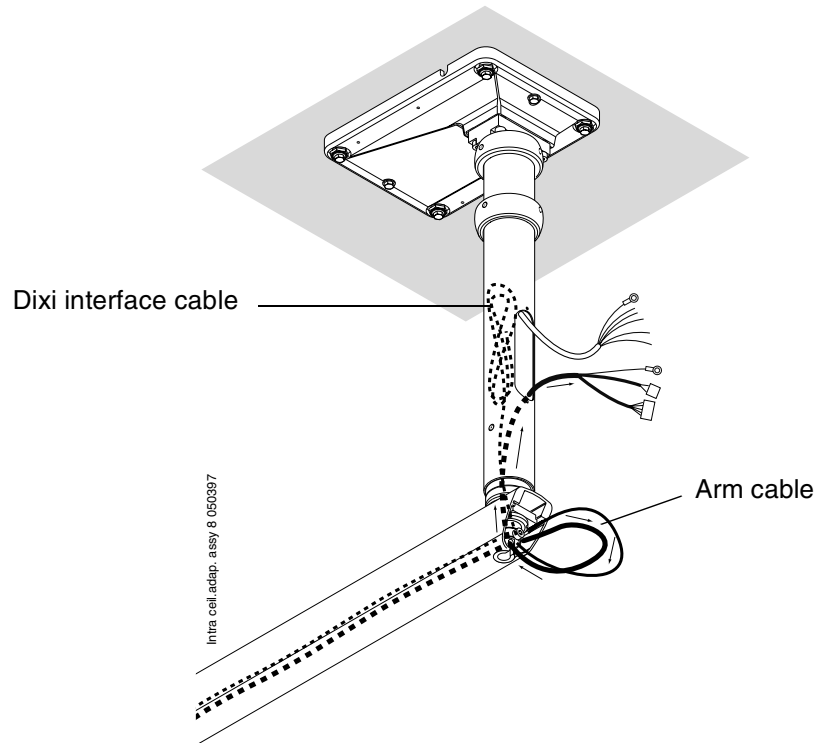


Install the x-ray unit to the ceiling arm and lock it immediately to its position with the fastening screw.

**NOTE** *The ceiling arm shaft can be locked temporarily to ease the installation of the unit.*

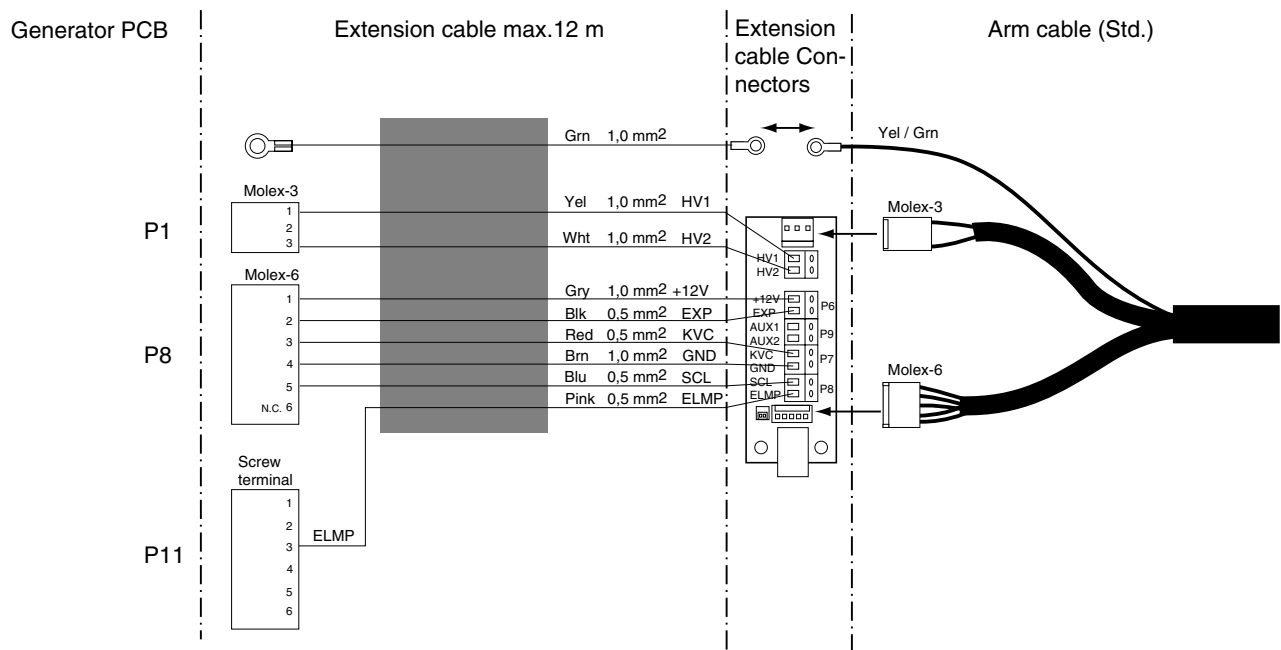


Route the arm and Dixi interface cables from the extension arm to the ceiling arm. In case the Dixi digital intra x-ray system is not installed leave the Dixi interface cable into the ceiling arm as shown on the figure below.

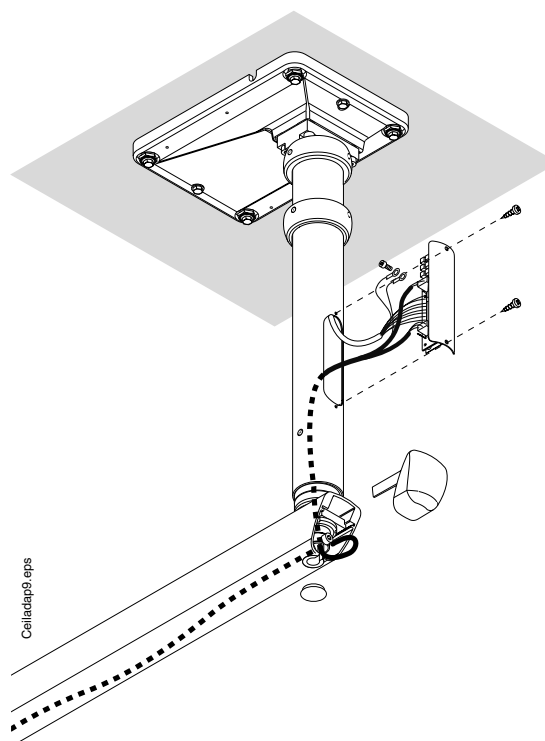


**NOTE** In case the Dixi digital intra x-ray system is installed, refer to the Dixi digital x-ray systems installation manual.

Connect the cables according to the figure below. Note, that it does not matter which way the yellow leads (HV1 and HV2) are connected to the connectors HV1 and HV2.



Fasten the cover to the opening of the ceiling arm.

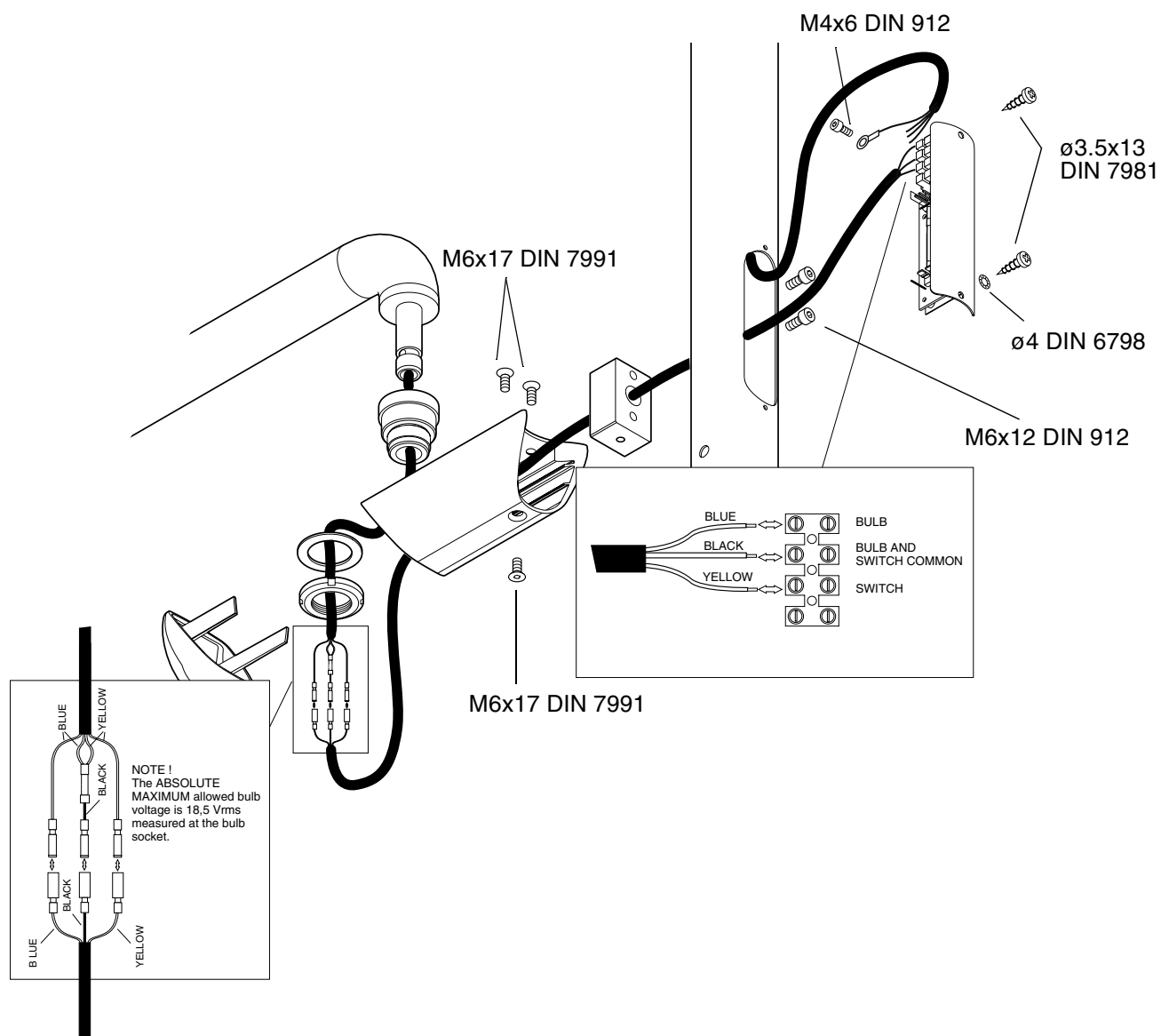


Loosen the locking screw and either leave it loose, so that the arm can be rotated (700°), or tighten it to the position desired by the customer. Attach the cover plugs.

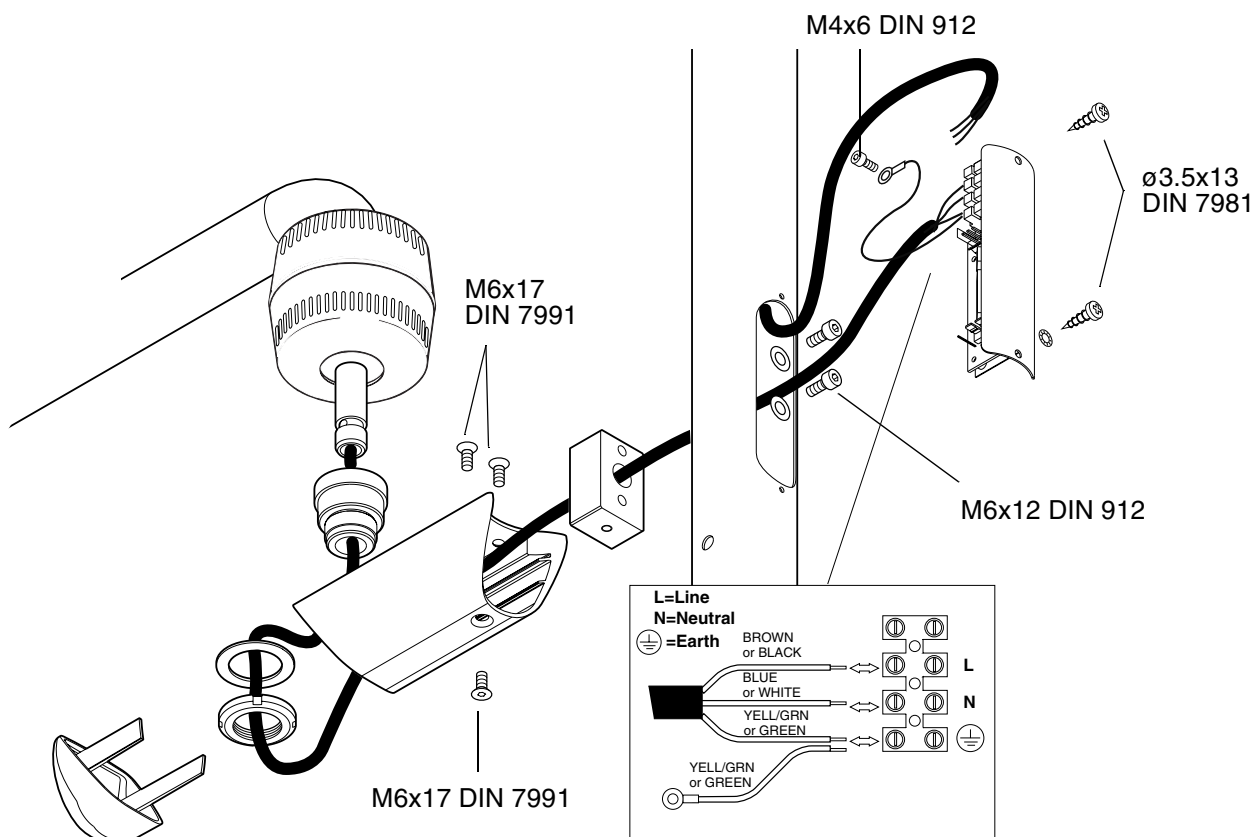
### Operating light installation

The operating light can be installed to the ceiling arm of the Prostyle Intra x-ray unit. Make sure that the operating light cable is installed.

Attach the arm and the Delight operating light according to the figure below.



Attach the arm and the Delight S operating light according to the figure below.





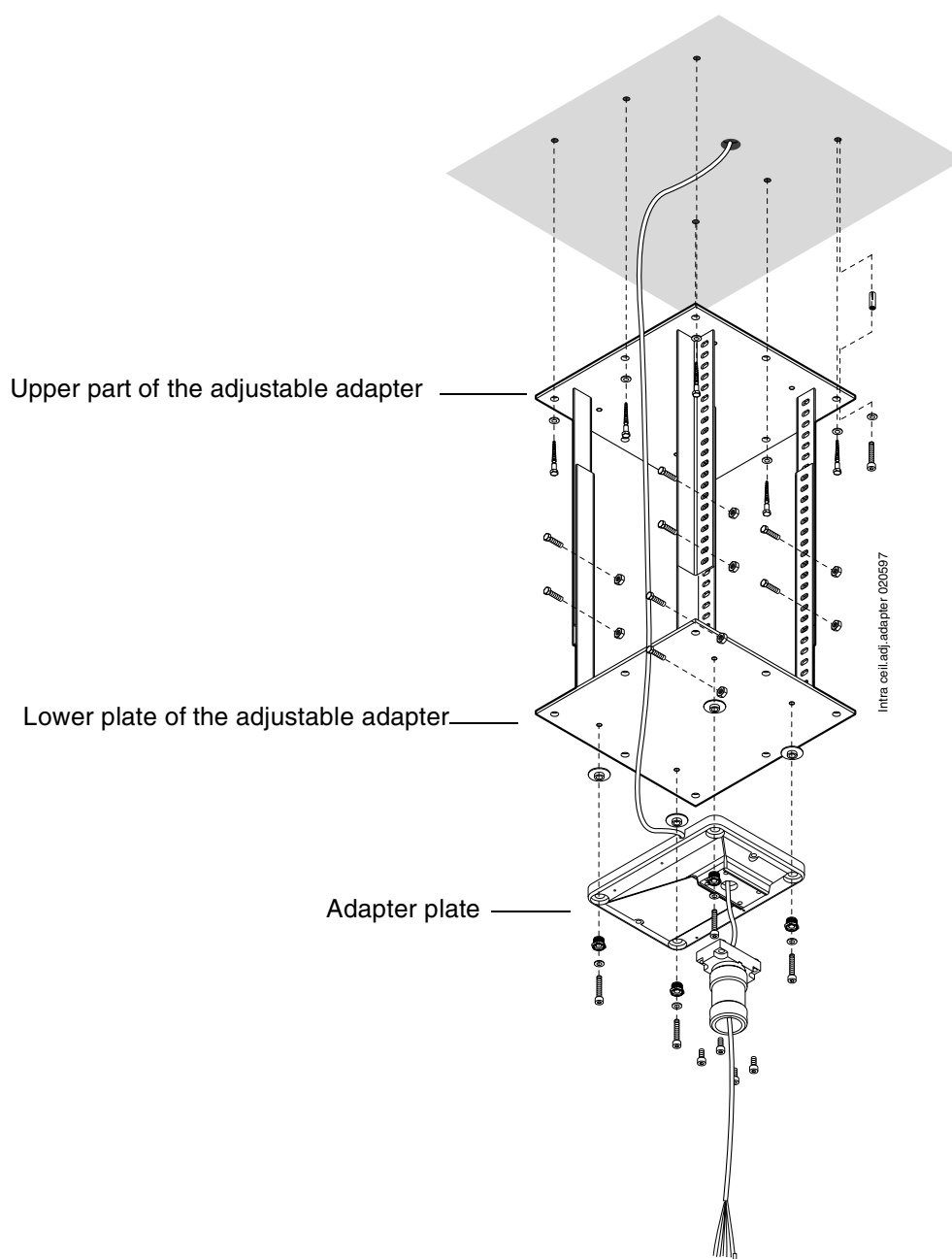
### 5.3 Adjustable ceiling adapter

**Concrete ceiling:** Mark the place of the adapter plate to the ceiling. Drill six  $\varnothing 10$  mm (0.4 in.), 32...35 mm (1.25 in.) in depth, holes and place the expansion anchors into them. Insert the expansion anchors into the holes. Attach the upper part of the adapter to the concrete ceiling with six M8x30 DIN 912 screws and  $\varnothing 8.4/17$  DIN 125 washers.

**Wooden ceiling:** Attach the upper part of the adapter to the wooden ceiling with six  $\varnothing 8 \times 80$  DIN 571 lag screws. Do not use the expansion anchors with wooden ceiling.

Adjust the height of the ceiling adapter so that the lower plate of the adapter is on a level with the ceiling. Lock the lower part to the upper part with the eight M8x16 DIN 912 screws and M8 DIN 934 nuts.

Attach the standard adapter plate to the adjustable ceiling adapter with four M8x30 DIN 912 screws and  $\varnothing 8.4/17$  DIN 125 washers. Use the adjustment nuts and the adjustment plates with the screws at each corner of the adapter plate. Continue the installation according to the instructions given in section 5.2 "Ceiling installation" on page 25.



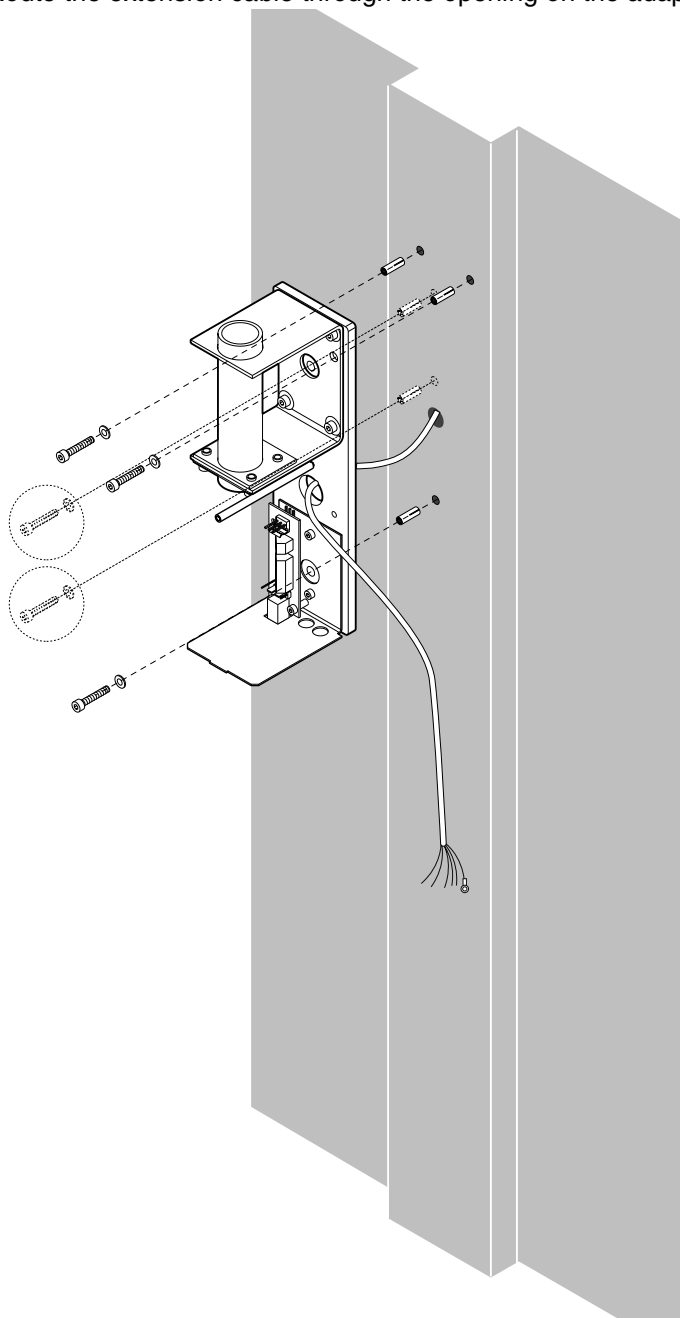
#### **5.4 Single stud installation**

**NOTE**     *Use the single stud assembling plate when you are installing the Prostyle Intra to a cabinet, to an end of a wall, or to a single stud (plaster) wall.*

Use the installation pattern or the single stud adapter plate as a template and mark the positions where the holes for the attaching screws will be drilled.

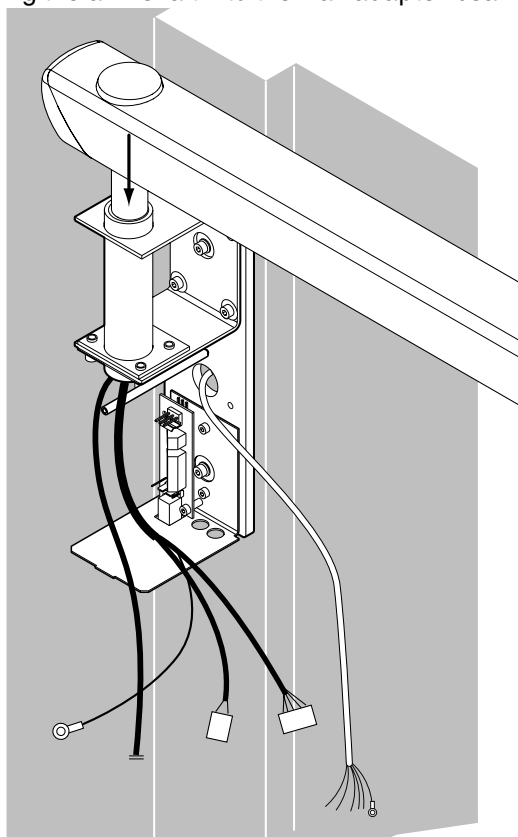
If the wall is made of concrete or brick, drill  $\varnothing 10\text{mm}$  (0.4 in.), 32...35 mm (1.25 in.) in depth, holes and place the expansion anchors into them. If the wall is made of wood, drill  $\varnothing 5\text{ mm}$  (0.2 in.), 55...60 mm (2.2 in.) in depth, holes for the attachment screws. Do not use the expansion anchors with wooden wall.

Attach the adapter plate to the wall with at least three M8x80 DIN 571 screws and the  $\varnothing 8.4$  DIN 125 washers. Route the extension cable through the opening on the adapter plate.

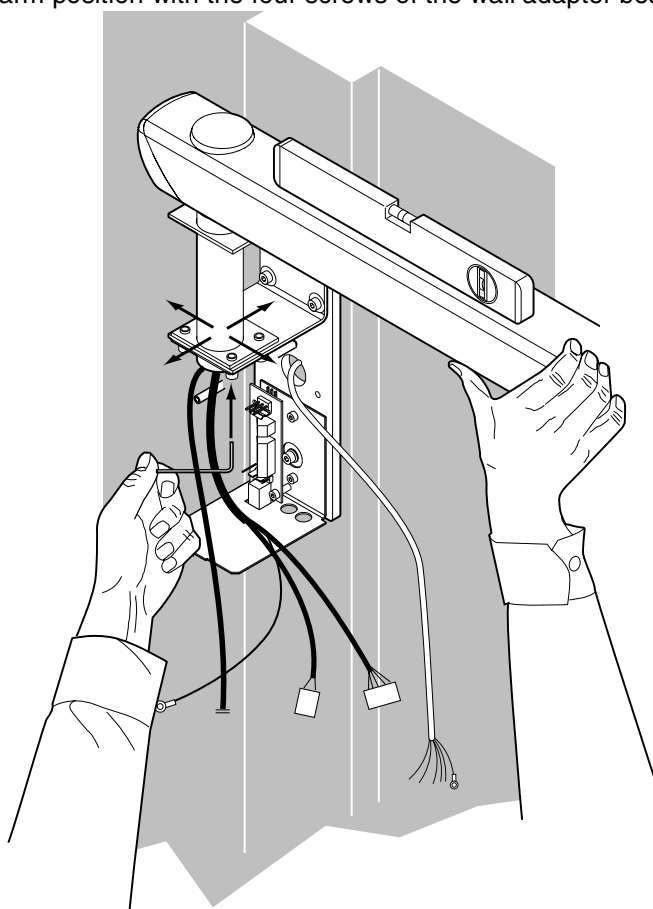


Assemble the bracket arm to the extension arm, refer to the section 4.3 “Assembling the arm” on page 17.

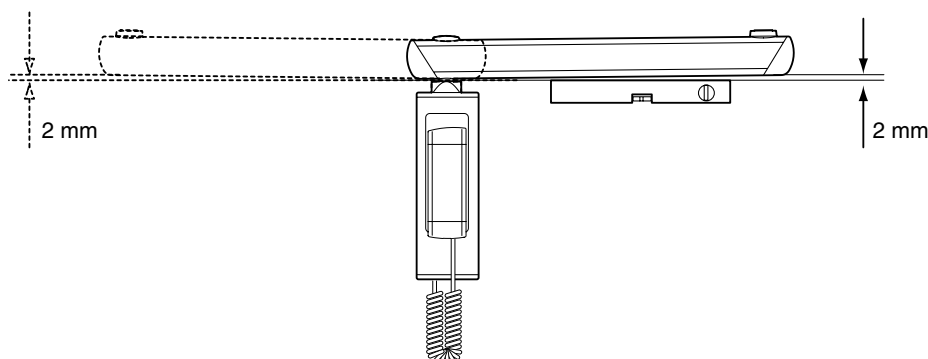
Route the arm and Dixi interface cables through the wall adapter bearing. Mount the arm into position by pushing the arm shaft into the wall adapter bearing.



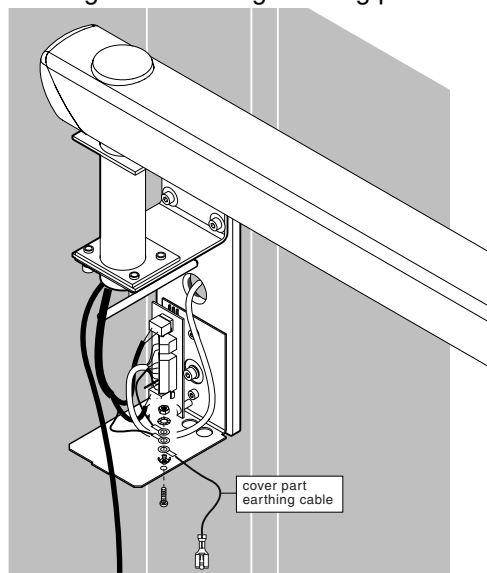
Adjust the arm position with the four screws of the wall adapter bearing.



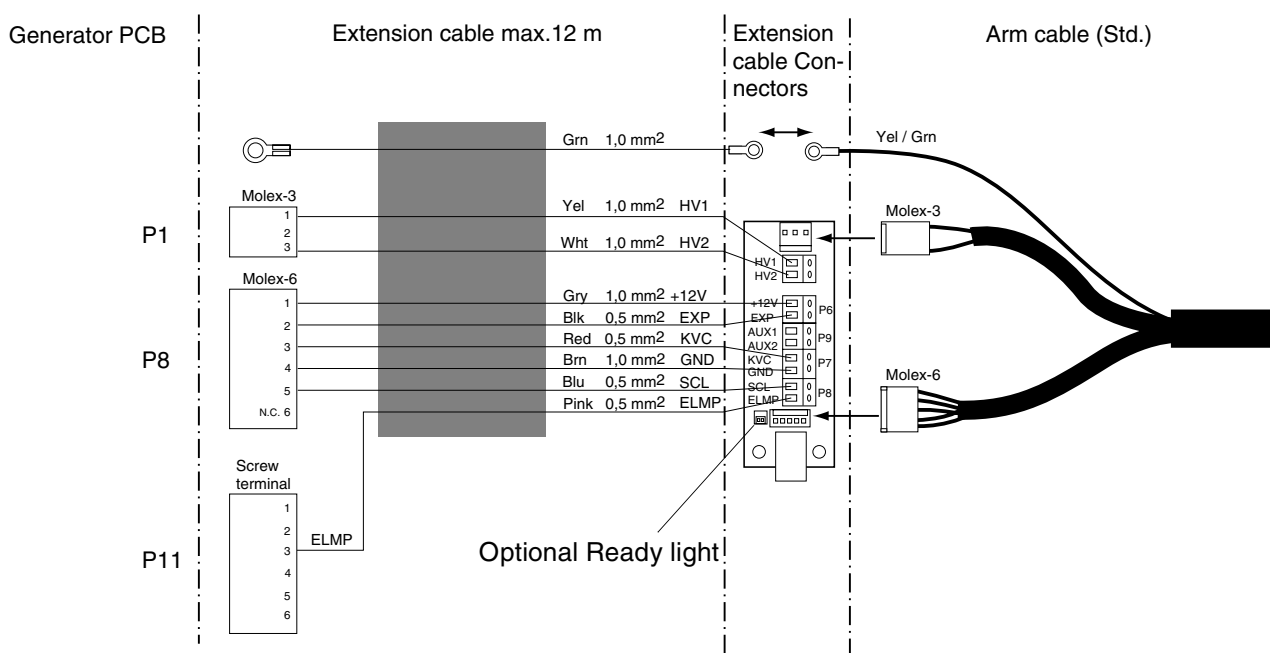
**NOTE** The extension arm is not horizontal, but its end is 2 mm over the horizontal level. When the assembly is completed, the weight of the unit bends the arm to horizontal position.



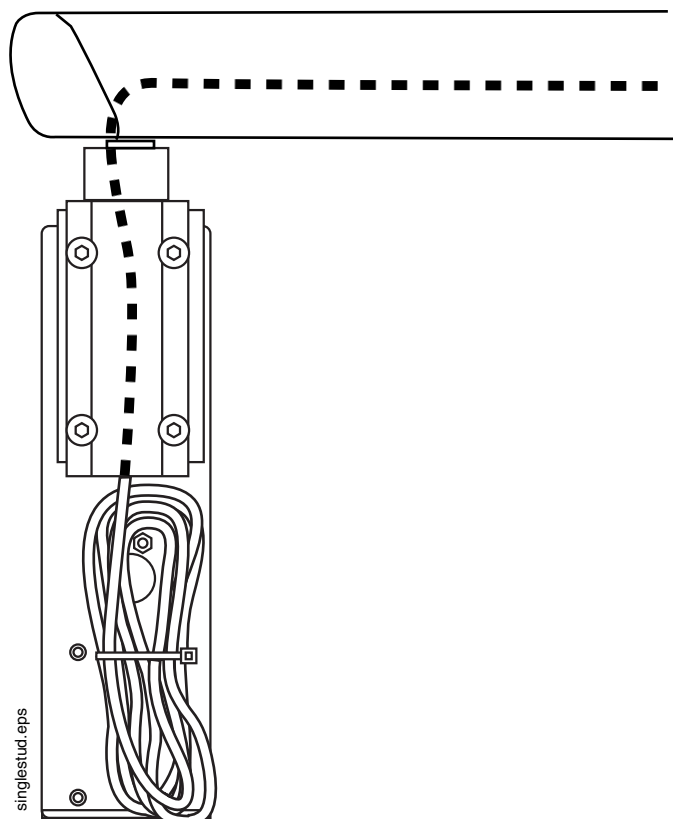
Connect the grounding leads to the grounding point in the bottom of the adapter plate.



Connect the arm cable and extension cable according to the figure below. Note, that it does not matter which way the yellow leads (HV1 and HV2) are connected to the connectors HV1 and HV2.

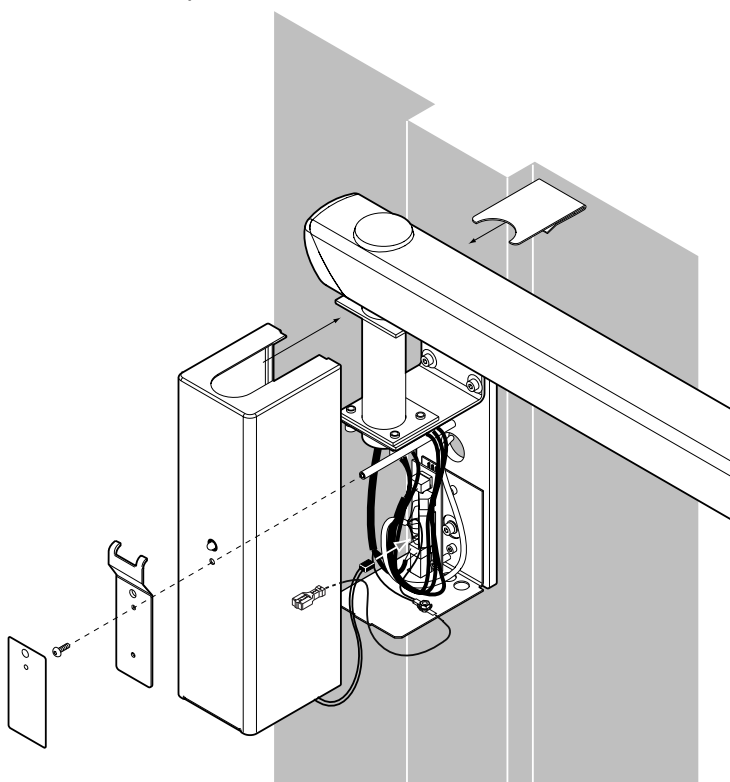


In case the Dixi digital intra x-ray system is not installed, hang the Dixi interface cable to the adapter plate as shown on the figure below.



**NOTE** In case the Dixi digital intra x-ray system is installed, refer to the Dixi digital x-ray systems installation manual.

Attach the cover to its position.



### 5.5 Installation to the Prostyle Compact dental unit

**NOTE** *In case you are installing Prostyle Intra x-ray to the Prostyle Compact unit equipped with new type console arm (manufactured after the beginning of November 1999, serial number UCOE338272 or greater), follow the instructions given in Prostyle Compact dental unit installation manual, publication number 288239, version 18 or later.*



#### **WARNING**

*The Prostyle Compact dental unit contains live mains voltage parts. Turn off externally the power to the unit before installation. The mains voltage is present at the mains terminal even, if the unit is switched off from its own mains switch.*

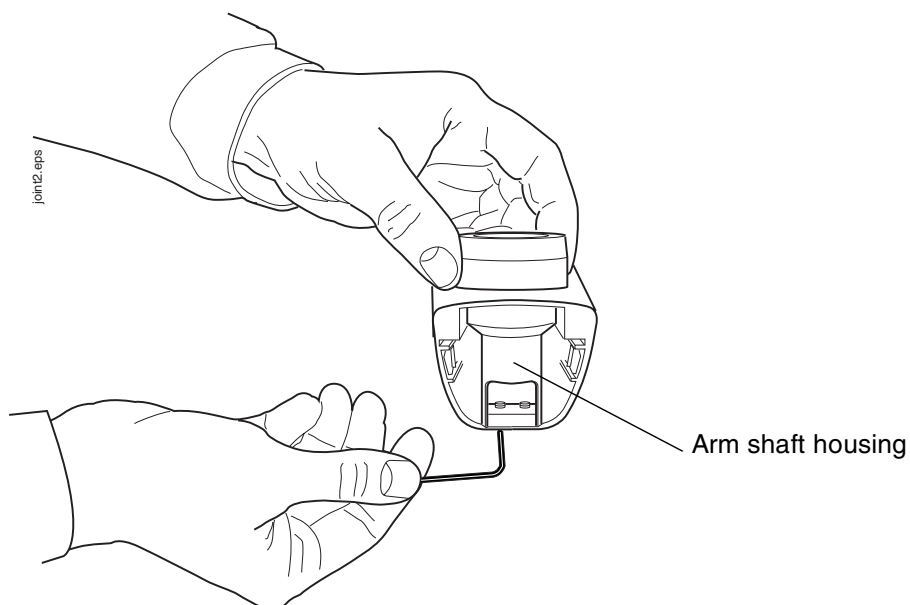


#### **CAUTION**

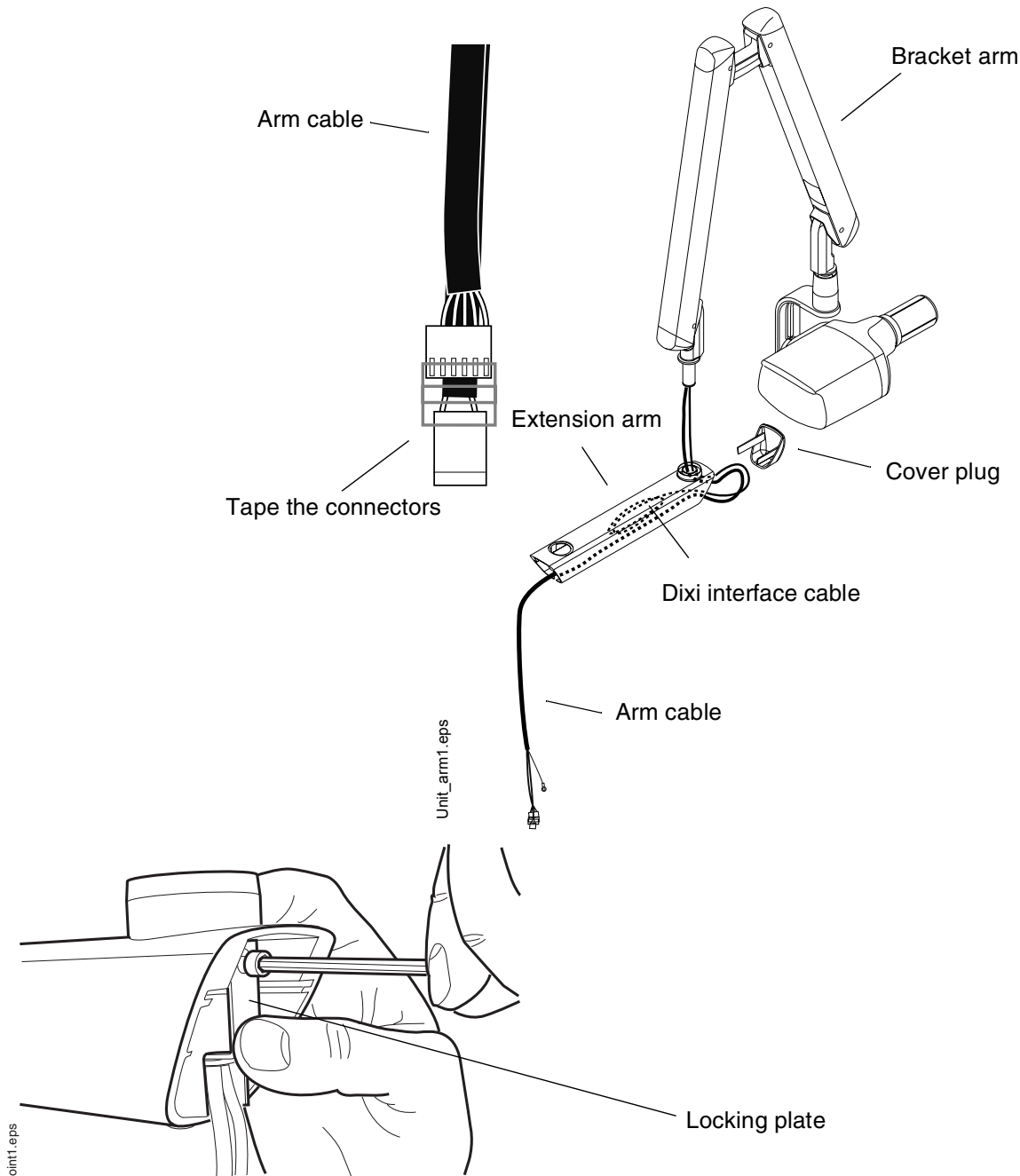
*The Prostyle Compact dental unit must be equipped with the 20 mm thick console arm adapter for mounting the Prostyle Intra x-ray. Change the adapter, if needed.*

**NOTE** *Always use the short extension arm when installing the Prostyle Intra x-ray unit to the Prostyle Compact dental unit.*

In case the Dixi digital intra x-ray system is not installed the Dixi interface cable is left into the extension arm. Unscrew the two screws that hold the housing on the extension arm and remove the housing.

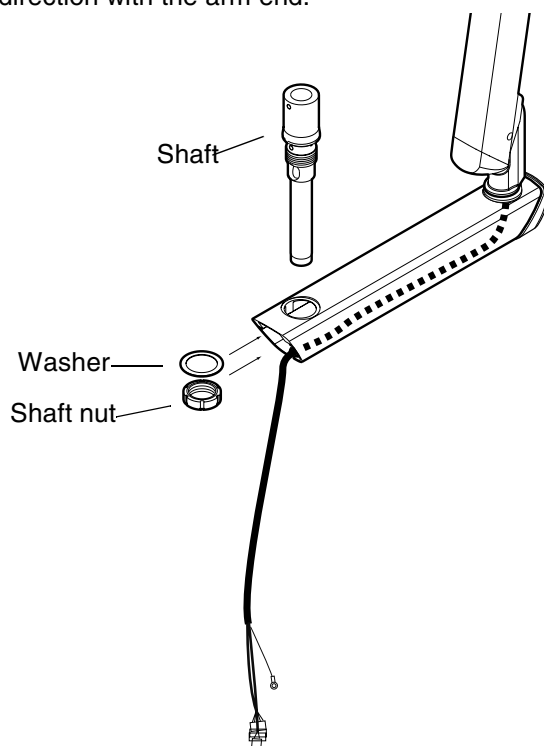


Tape the arm cable connectors. Place the Dixi interface cable into the extension arm as shown on the figure below and attach the arm shaft housing back to its position. Route the arm cable through the extension arm shaft. Assemble the bracket arm to the extension arm by pushing the bracket arm shaft into the housing of the extension arm. Secure the bracket arm with the locking plate. Route the arm cable through the extension arm. Place the cover plug back to the end of the extension arm.

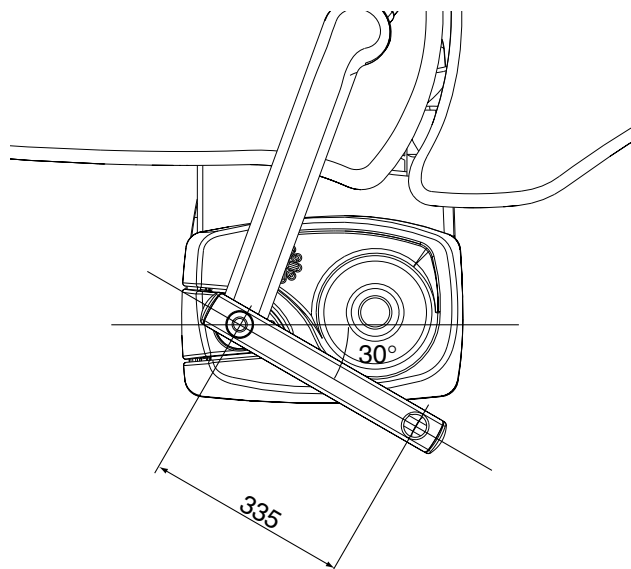
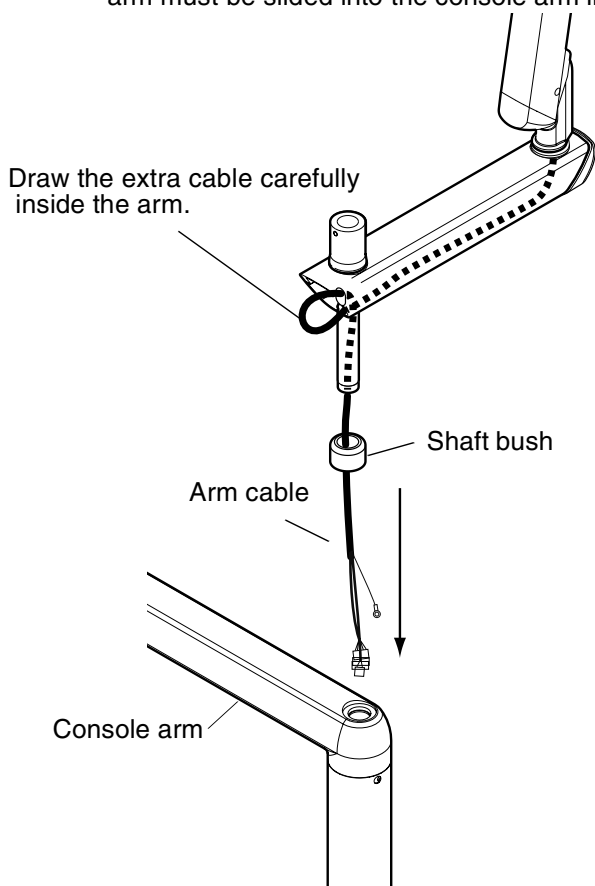


**NOTE** In case the Dixi digital intra x-ray system is installed, route the Dixi interface cable through the extension arm, through the shaft bush and through the opening on the console arm to inside the lifting column. Route the cable from the opening on the upper part of the lifting column into spittoon and through the opening at the upper side of the support plate to the chair's side of the support plate. Route the cable back into the spittoon through the opening between the spittoon base and the support plate. See figure on page 44. Refer also to the Dixi digital x-ray systems installation manual.

Assemble the shaft according to the figure below. Tighten the nut so that the hole of the shaft is in the same direction with the arm end.

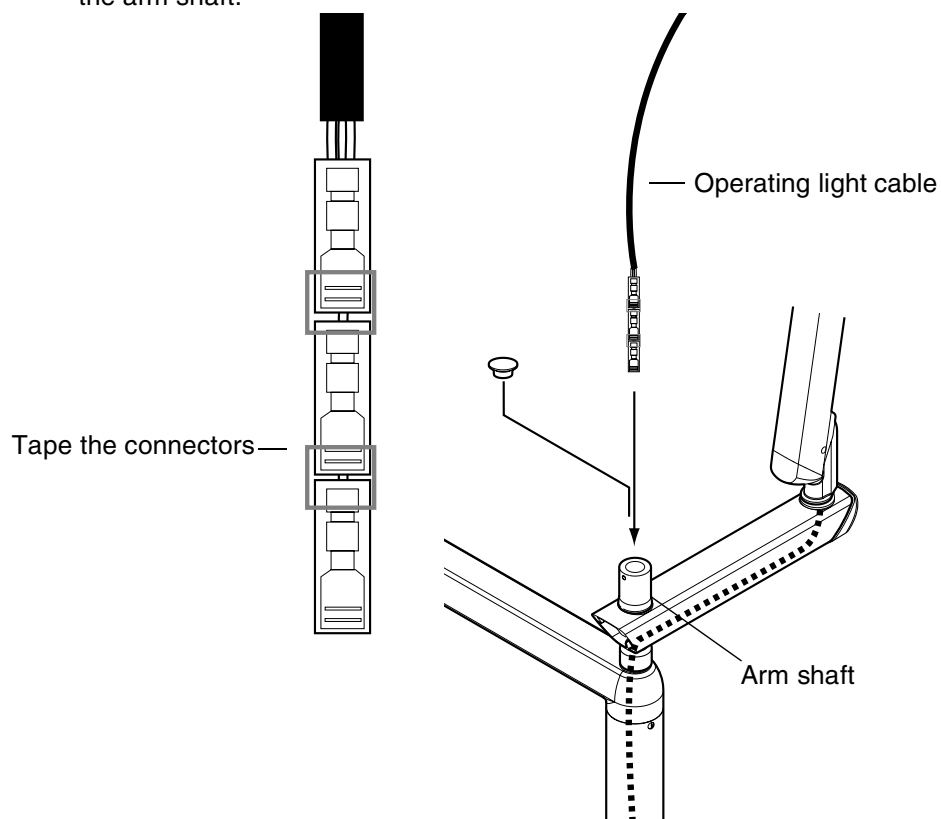


Route the arm cable through the shaft bush and inside the console arm. Mount the extension arm into position by pushing the arm shaft into the opening on the console arm. Note, that the arm must be slid into the console arm in the position shown in the figure below.

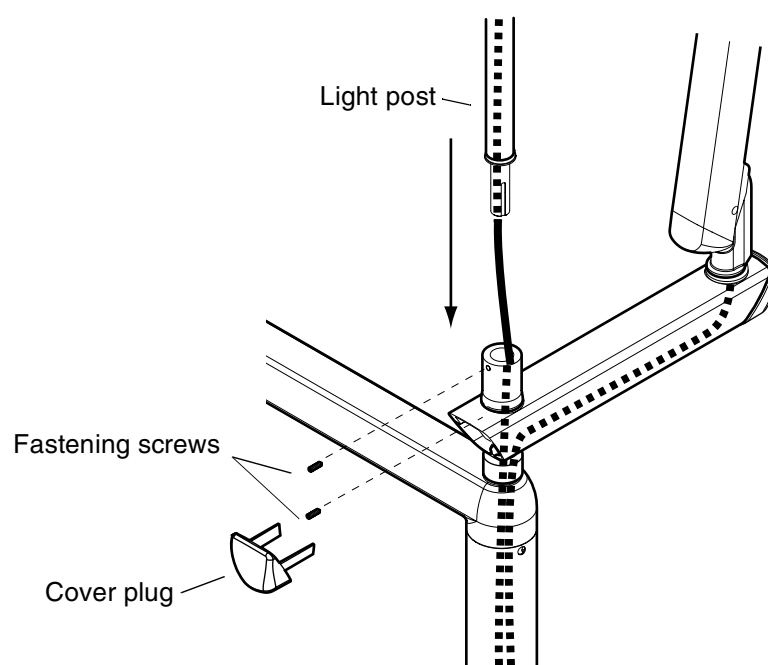




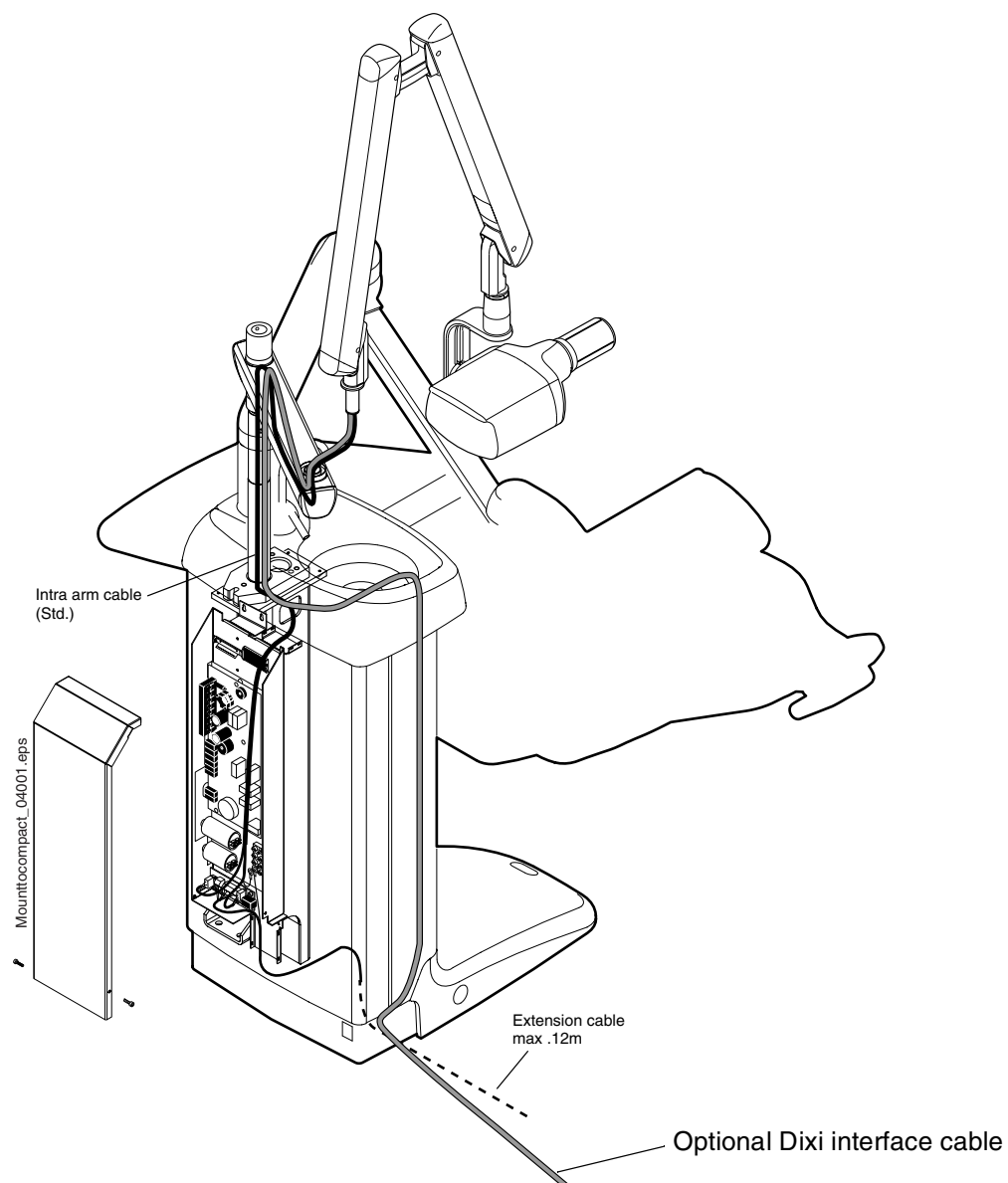
Tape the connectors of the operating light cable one after another and route the cable to the arm shaft. In case the operating light is not installed, insert the plastic cover plug into the opening of the arm shaft.



Mount the light post into the opening of the arm shaft. Tighten the fastening screws and place the cover plug to the end of the extension arm. Refer to the Prostyle Compact dental unit's installation manual for detailed operating light installation instruction.

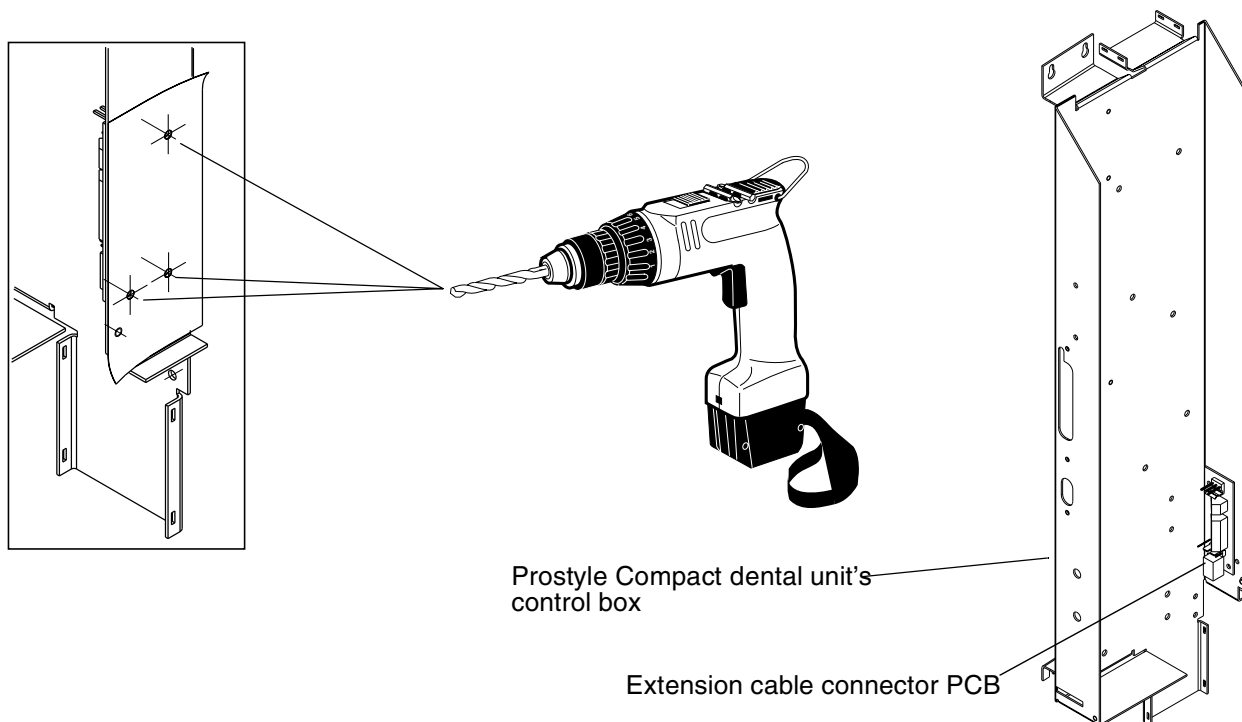


Remove the cover of the dental unit's control box and route the arm and extension cables into the box (see figure below).



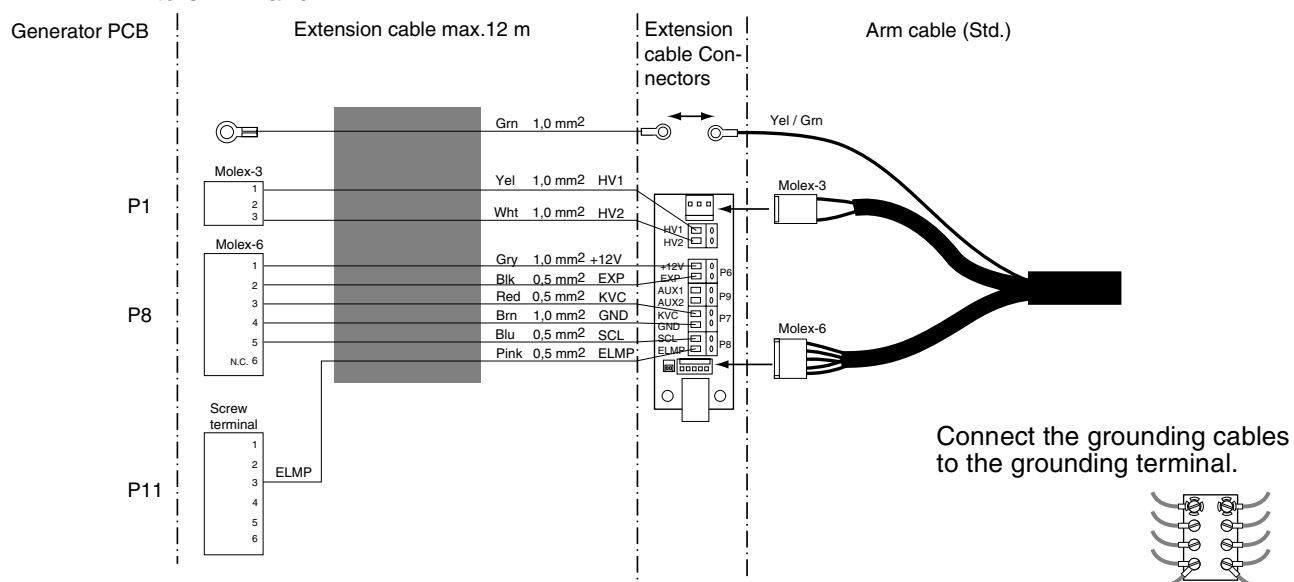
Attach the extension cable connector PCB to the side of the control box. In case there are not holes for the PCB, proceed as follows:

Use the pattern at the end of this manual as a template and position it to the side of the control box according to the figure below. Mark the positions of the mounting holes and drill three  $\varnothing 5.4$  holes. Make sure, that you drill also through the insulator inside the box.



Install the PCB holders to the holes.

Connect the cables to the extension cable connector PCB according to the figure below. Note, that it does not matter which way the yellow leads (HV1 and HV2) are connected to the connectors HV1 and HV2.



Attach the PCB to its position. Replace the cover of the control box.

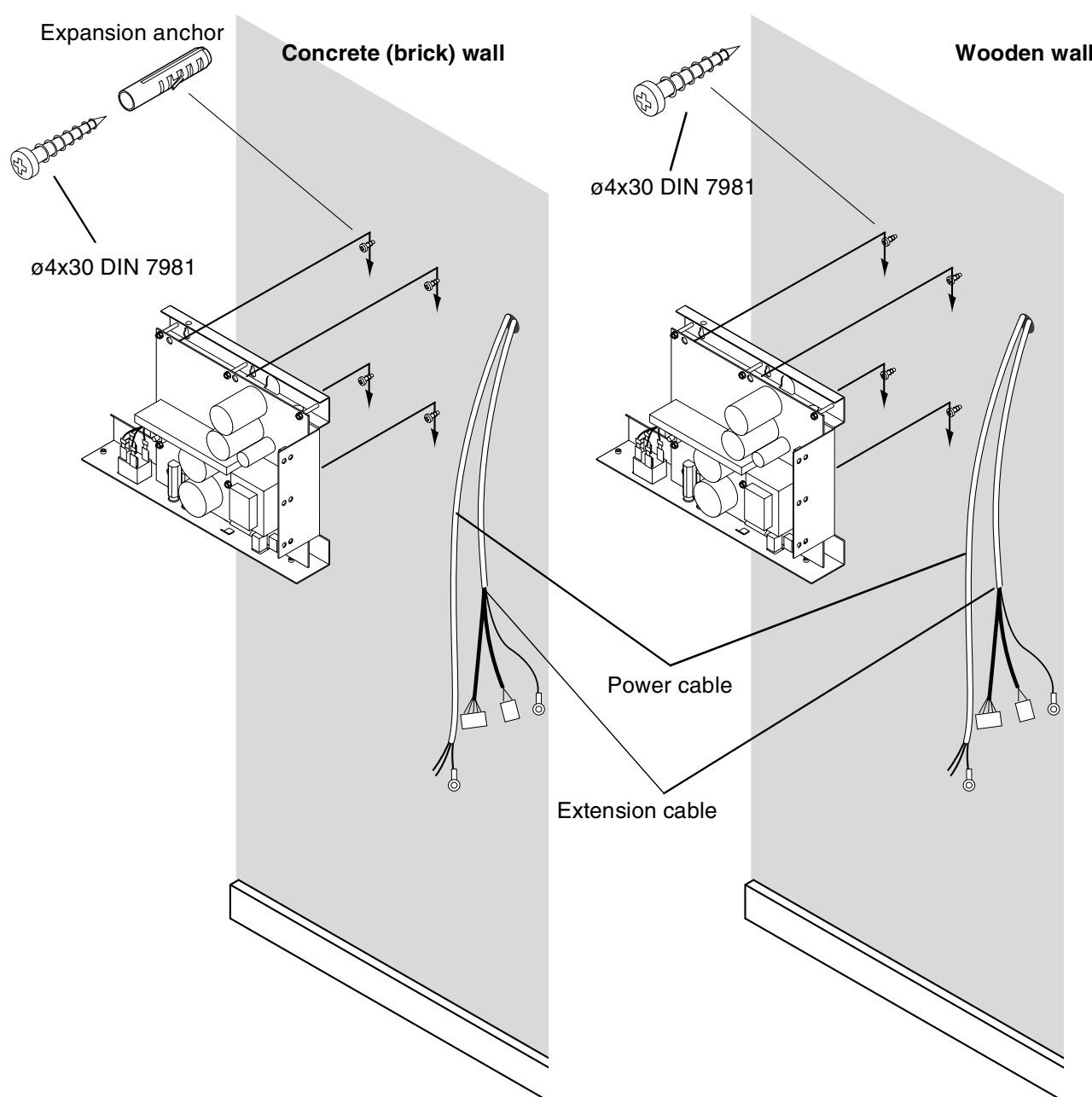
## 6 GENERATOR BOX/CONTROL PANEL INSTALLATION

### 6.1 Attaching the generator box without the adapter plate

**NOTE** Use the extension cable supplied with the unit between the x-ray unit and generator box. Note, that the connectors of the cable must be connected to the generator box.

In the case that concealed wiring is used, the mains cable and extension cable outlet should be positioned next to (on the right-hand side) the adapter plate.

Use the generator assembly as a template and mark the positions of the holes for the four attaching screws to the wall. If the wall is made of concrete or brick, drill  $\varnothing 6$  mm (0.23 in.), 32...35 mm (1.25 in.) in depth, holes and place the expansion anchors into them. If the wall is made of wood, attach the screws to the wall without drilled holes. Do not use the expansion anchors with wooden wall.



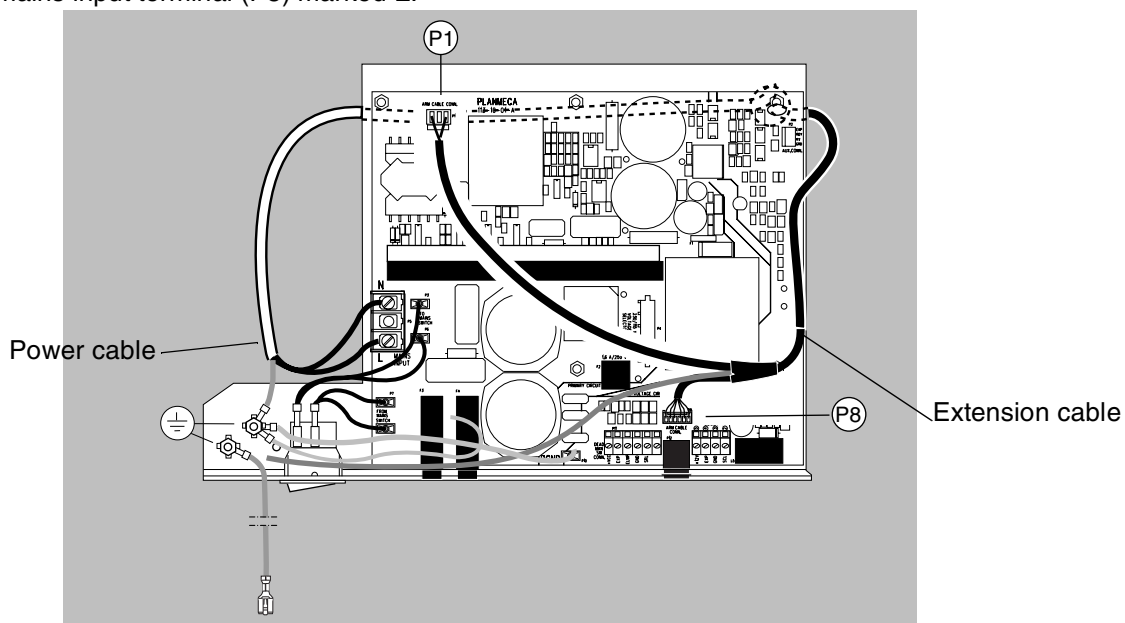
Insert the screws to the holes and slip the generator assembly under the heads of the screws.

**WARNING**

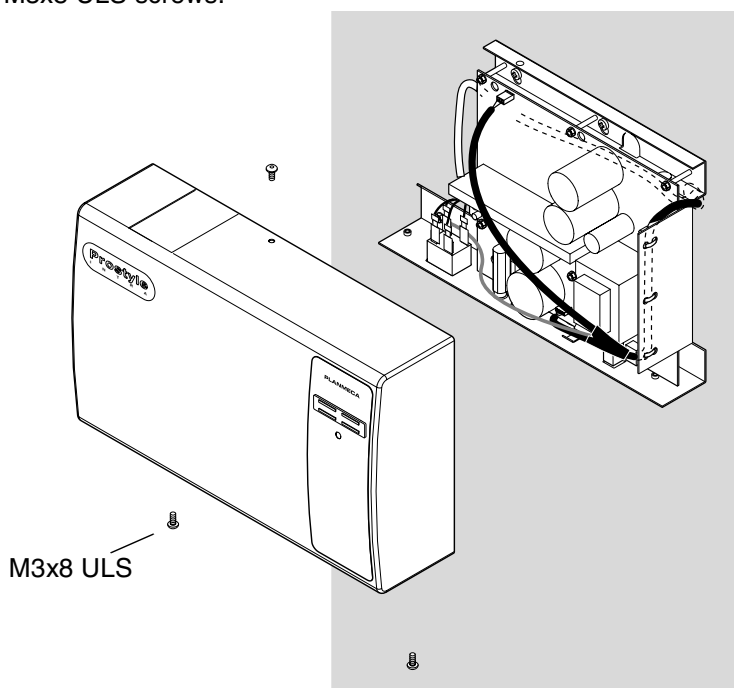
*Ensure that the power supply is switched off before connecting the cables.*

Connect the grounding lead of the extension cable to the grounding point next to the mains switch. Connect the control leads of the cable (6-pole connector) to the terminal P8 on the generator PCB. Connect the power leads (3-pole connector) of the cable to the terminal P1 on the generator PCB.

Connect the grounding lead of the power cable to the grounding point next to the mains switch. Connect the neutral wire to the mains input terminal (P5) marked **N**. Connect the live wire to the mains input terminal (P5) marked **L**.



Place the generator cover over the generator assembly. Secure the cover into position with the three M3x8 ULS screws.



Connect the control panel cable to its terminal at the under-side of the generator box.

## 6.2 Remote control panel installation

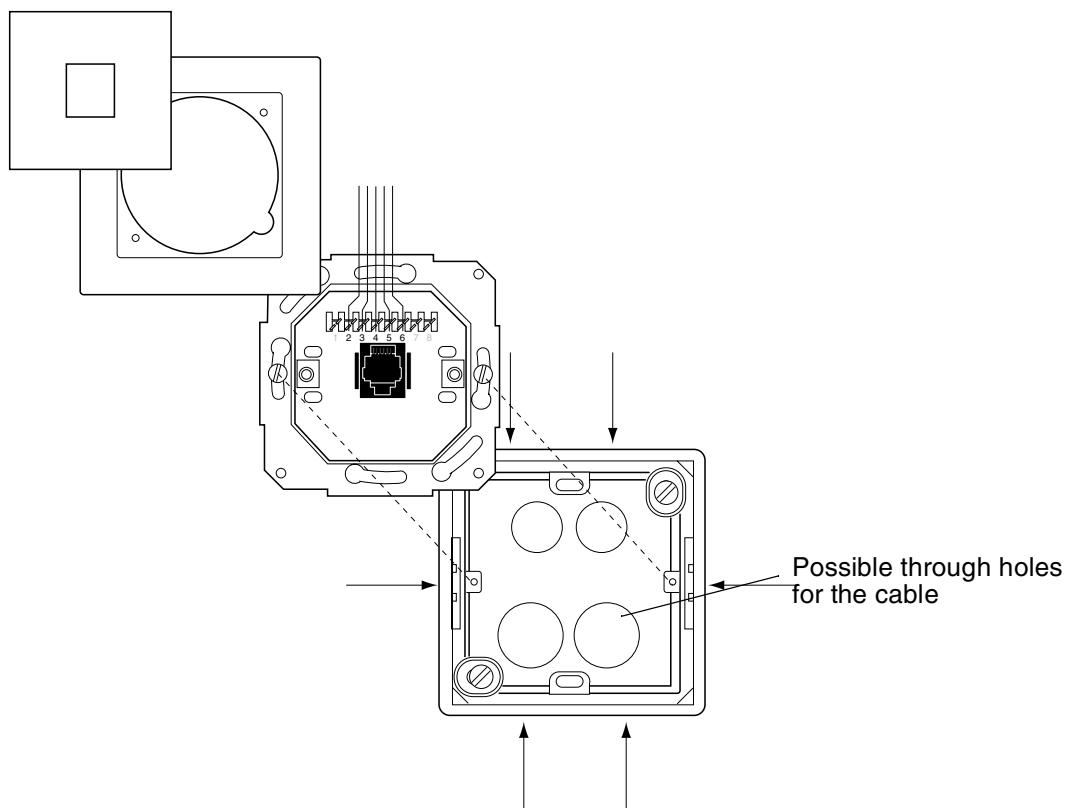


### **WARNING**

**Ensure that the power supply is switched off before connecting the cables.**

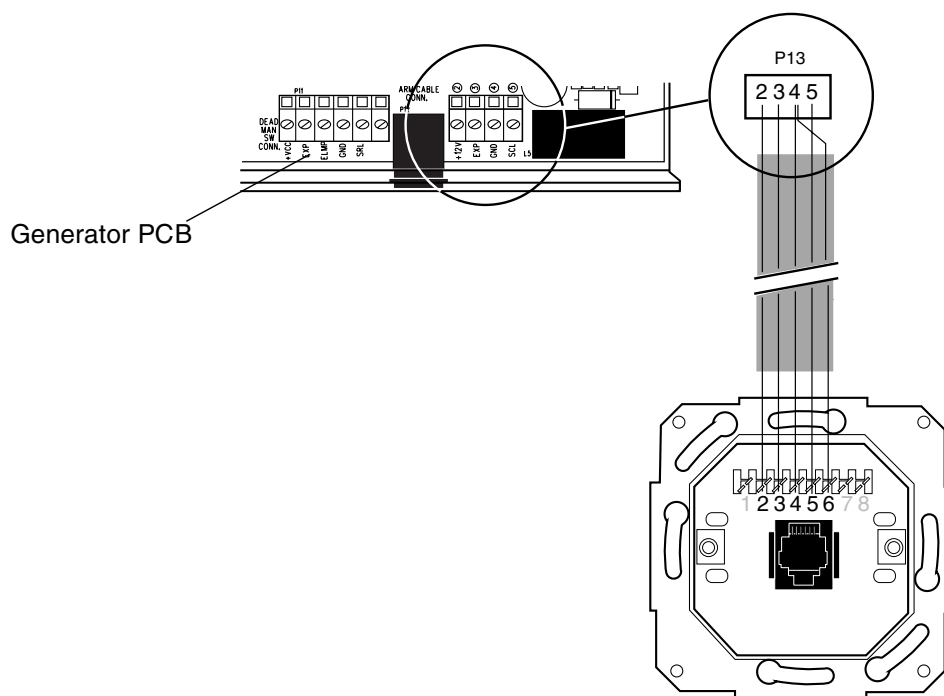
**NOTE** Use the telephone cable (max. 12 m) between the generator box and the data wall socket.

Use the data wall socket's frame as a template and mark the positions of the holes for the two attaching screws to the wall. If the wall is made of concrete or brick, drill  $\varnothing 6$  mm (0.23 in.), 32...35 mm (1.25 in.) in depth, holes and place the expansion anchors into them. Attach the frame to the wall with two  $\varnothing 4 \times 30$  DIN 7981 screws. If the wall is made of wood, attach the frame to the wall with two  $\varnothing 4 \times 30$  DIN 7981 screws to the wall without drilled holes. Do not use the expansion anchors with wooden wall.



Route the telephone cable through the hole on the side or bottom of the frame. Assemble the data wall socket according to the figure above.

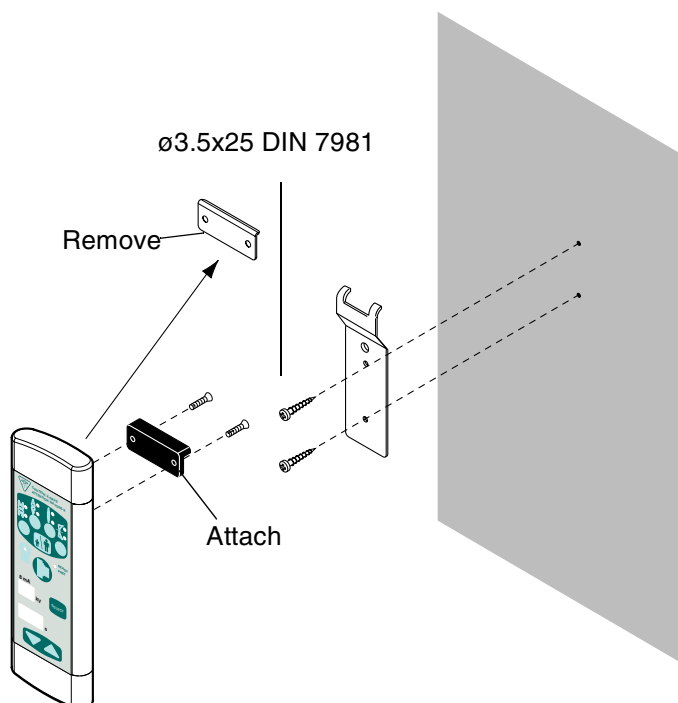
Connect the telephone cable according to the figure below.



Attach the hook plate to the wall with two  $\varnothing 3.5 \times 25$  DIN 7981 screws.

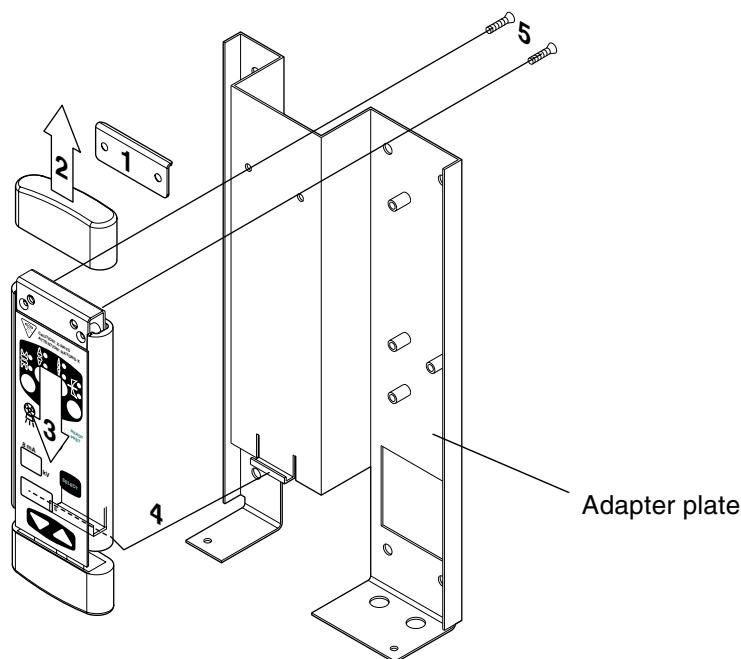
**NOTE** The hook plate is equipped with a sticker. Use the sticker, if you are going to attach the hook plate to a surface (e.g. glass) which can not be drilled.

Remove the standard attachment plate from the rear of the control panel. Attach the counterpart of the hook plate with the removed screws to the control panel.

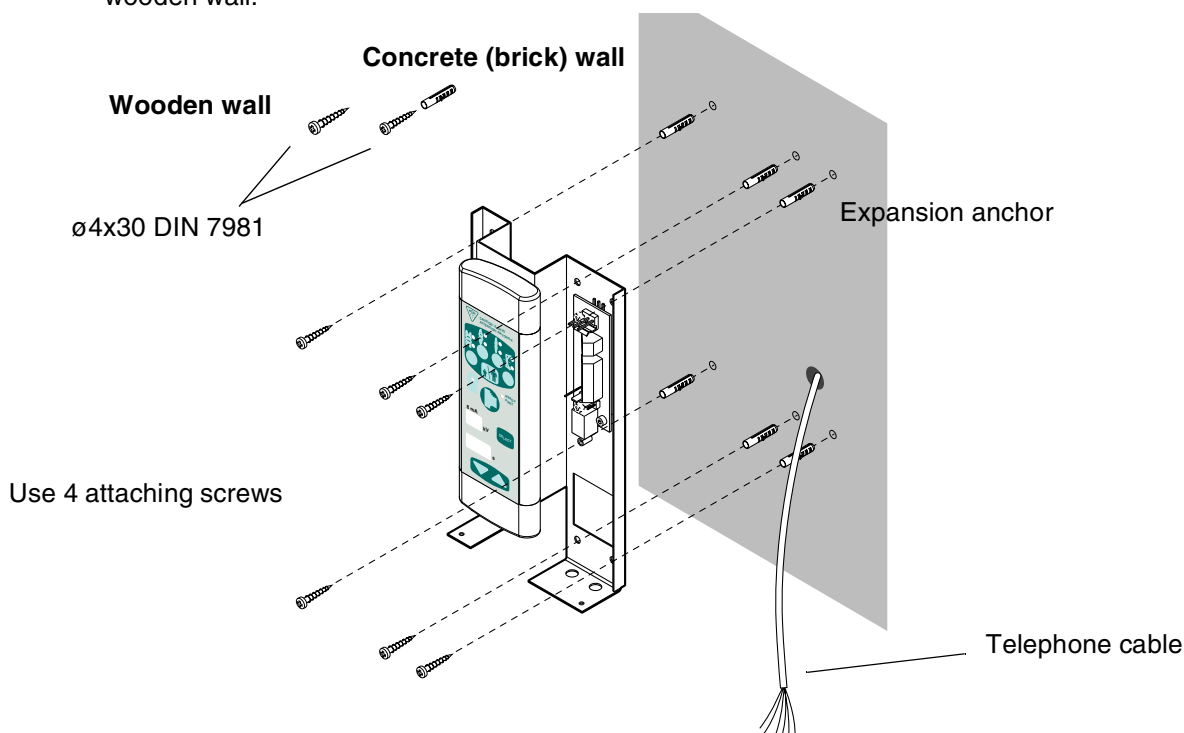


## 6.3 Fixed control panel installation

Detach the attachment plate from the rear of the control panel (1). Remove the rubber cover from the upper end of the control panel (2) and slide the control panel assembly downwards (3). Position the control panel to the adapter plate so that the hook is between the control panel frame and lower rubber cover (4). Slide the control panel assembly upwards and replace the rubber cover to the upper end of the control panel. Attach the control panel to the adapter plate with the two screws removed earlier from rear of the control panel (5).

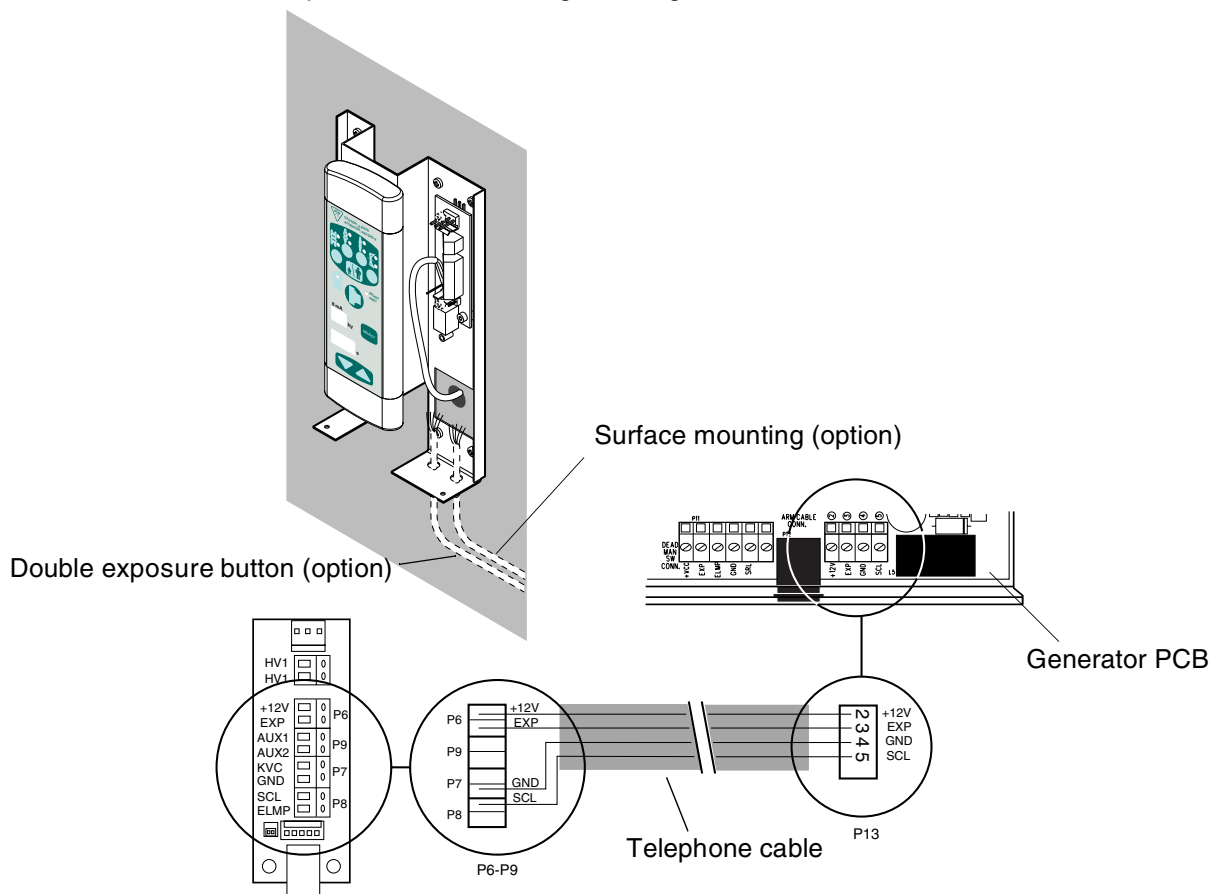


Use the adapter plate as a template and mark the positions of the holes for the four attaching screws to the wall. If the wall is made of concrete or brick, drill  $\varnothing 6$  mm (0.23 in.), 32...35 mm (1.25 in.) in depth, holes and place the expansion anchors into them. If the wall is made of wood, attach the screws to the wall without drilled holes. Do not use the expansion anchors with wooden wall.

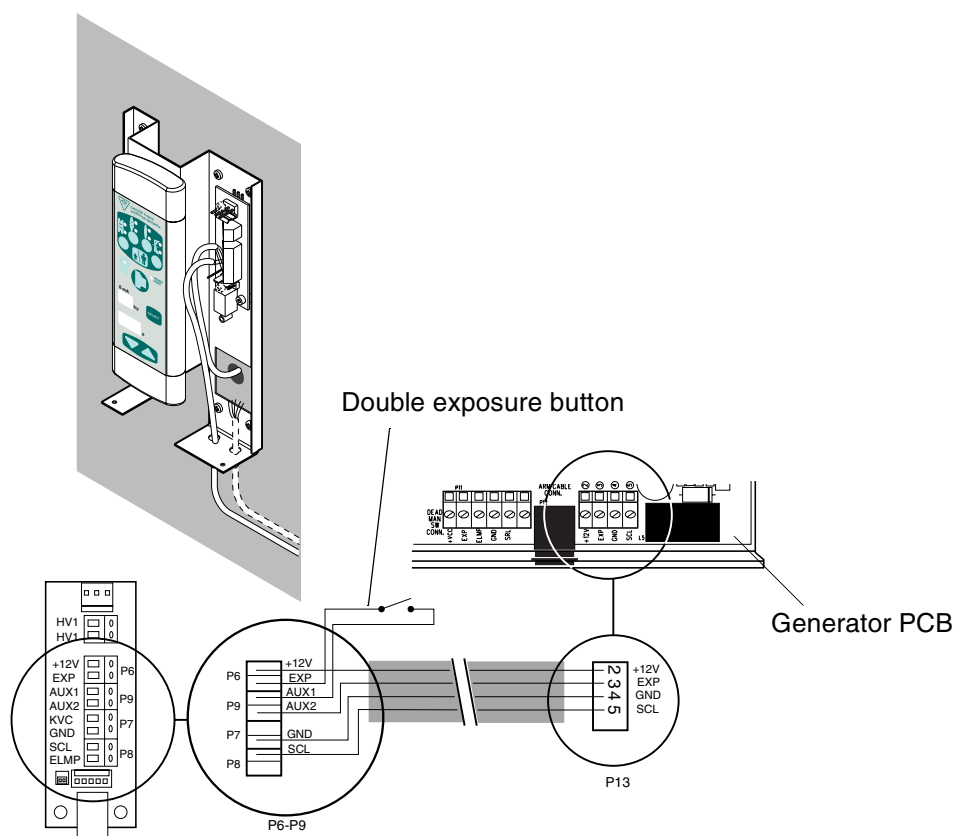




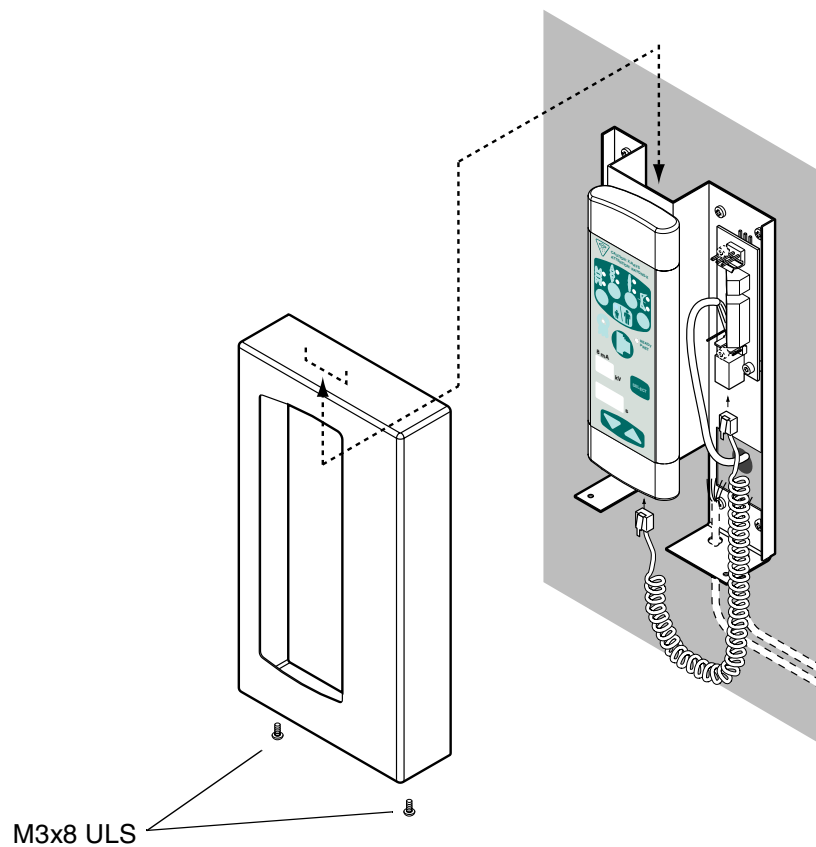
Connect the telephone cable according to the figure below.



In case the double exposure button is installed, connect the cables according to the figure below.

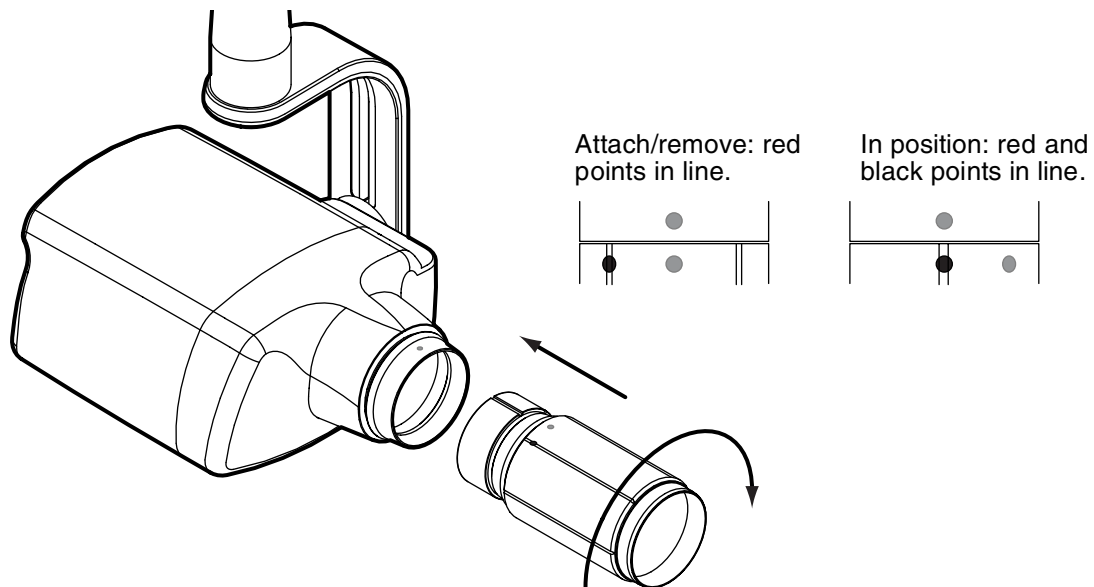


Attach the cover to its position.

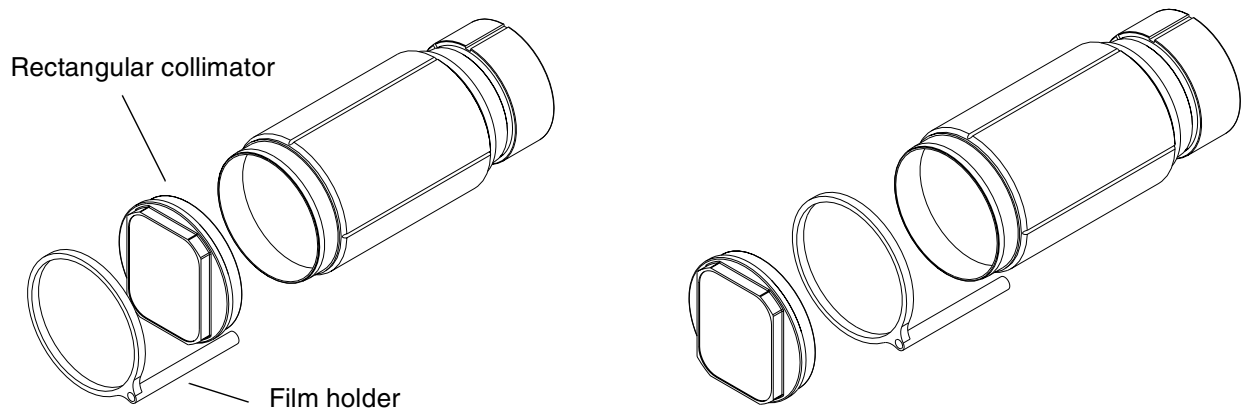


## 7 ATTACHING THE LONG CONE AND RECTANGULAR COLLIMATOR (OPTIONAL)

The long cone is attached into its position by pushing it into the short cone and rotate it so that the red point on the short cone and the black point on the long cone are in line.



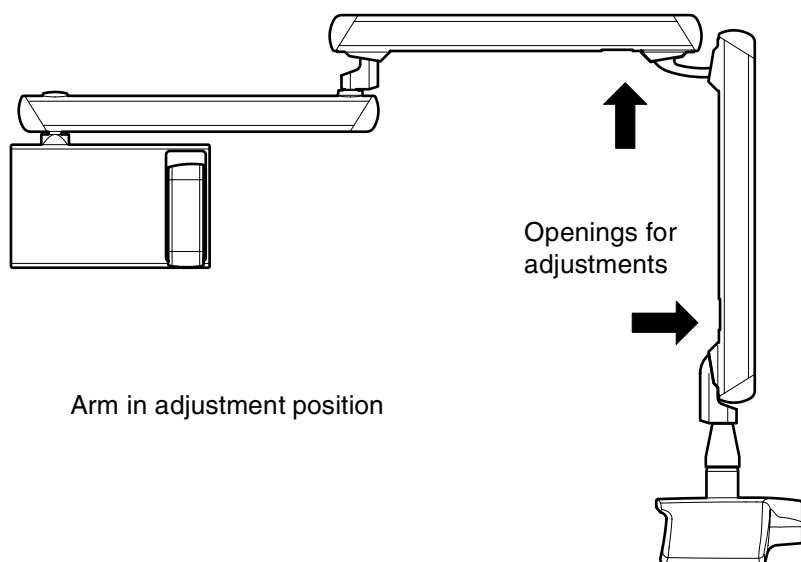
The rectangular collimator can be attached to the long cone either before the film holder or after it. Refer to the Prostyle Intra x-ray unit's user's manual for detailed instructions on how to use the rectangular collimator and the film holder.



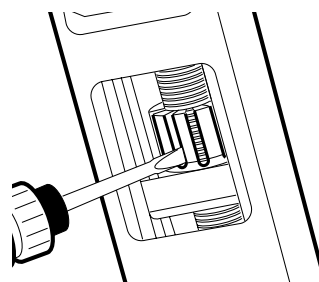
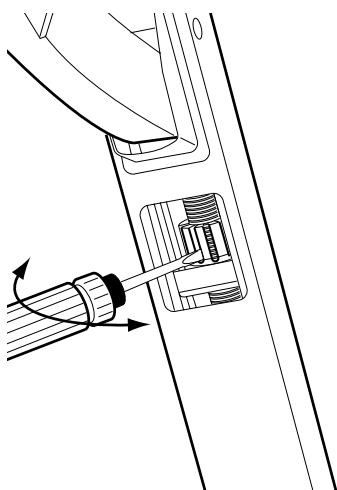
## 8 FINAL ADJUSTMENTS

### 8.1 Adjusting the balance of the arm

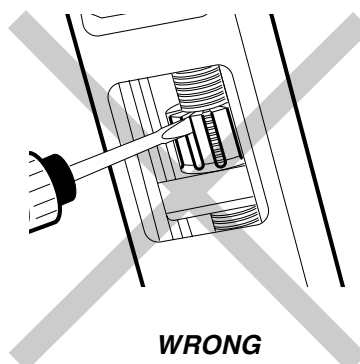
Adjust the balance of the arm by turning the adjustment nuts with a screwdriver. The adjustment nuts are located inside the bracket arm and can be reached through the openings at the underside of the bracket arm.



**NOTE** *Adjust the arm from the lower part of the adjustment nut.*



**CORRECT**

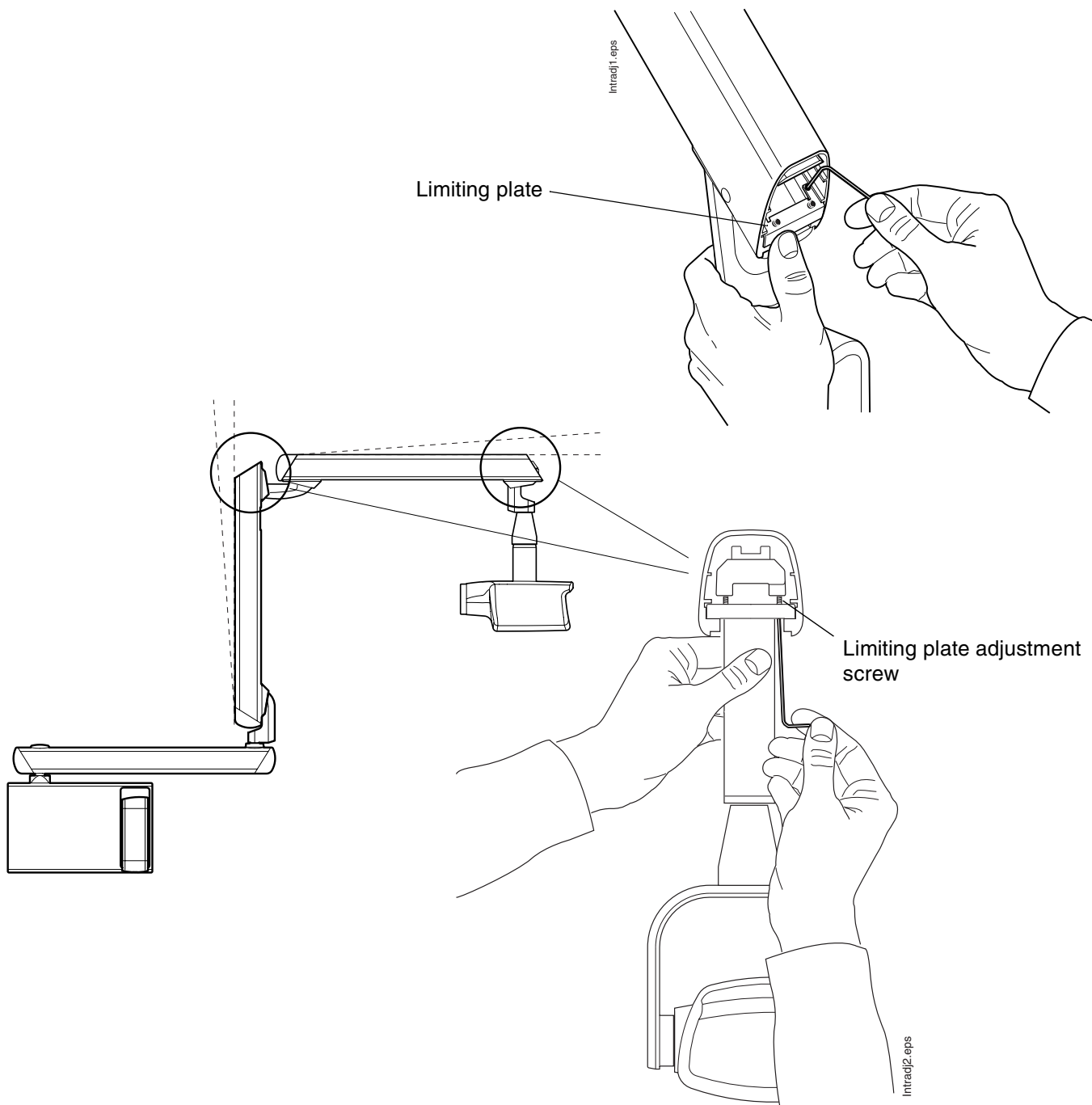


**WRONG**

## 8.2 Adjusting the bracket arm angles

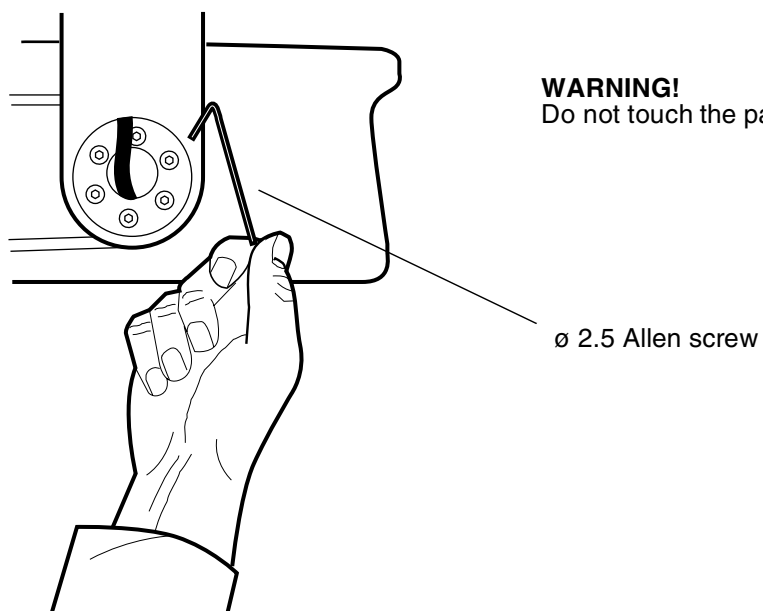
In case the bracket arm angles need to be adjusted it can be done with the limiting plates.

Remove the cover plug from the end of the bracket arm. Attach the limiting plate to the arm with the two M3 Allen screws. Adjust the angle with the limiting plate adjustment screws.



### 8.3 Adjusting the stiffness of the tube head's horizontal axle

Remove the plug from the tube head's axle and adjust the tightness of the three adjusting screws evenly.



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## **9    RUNNING IN THE X-RAY UNIT**

After installation, before using the unit for the patient work, the following exposures must be taken to run in the unit.

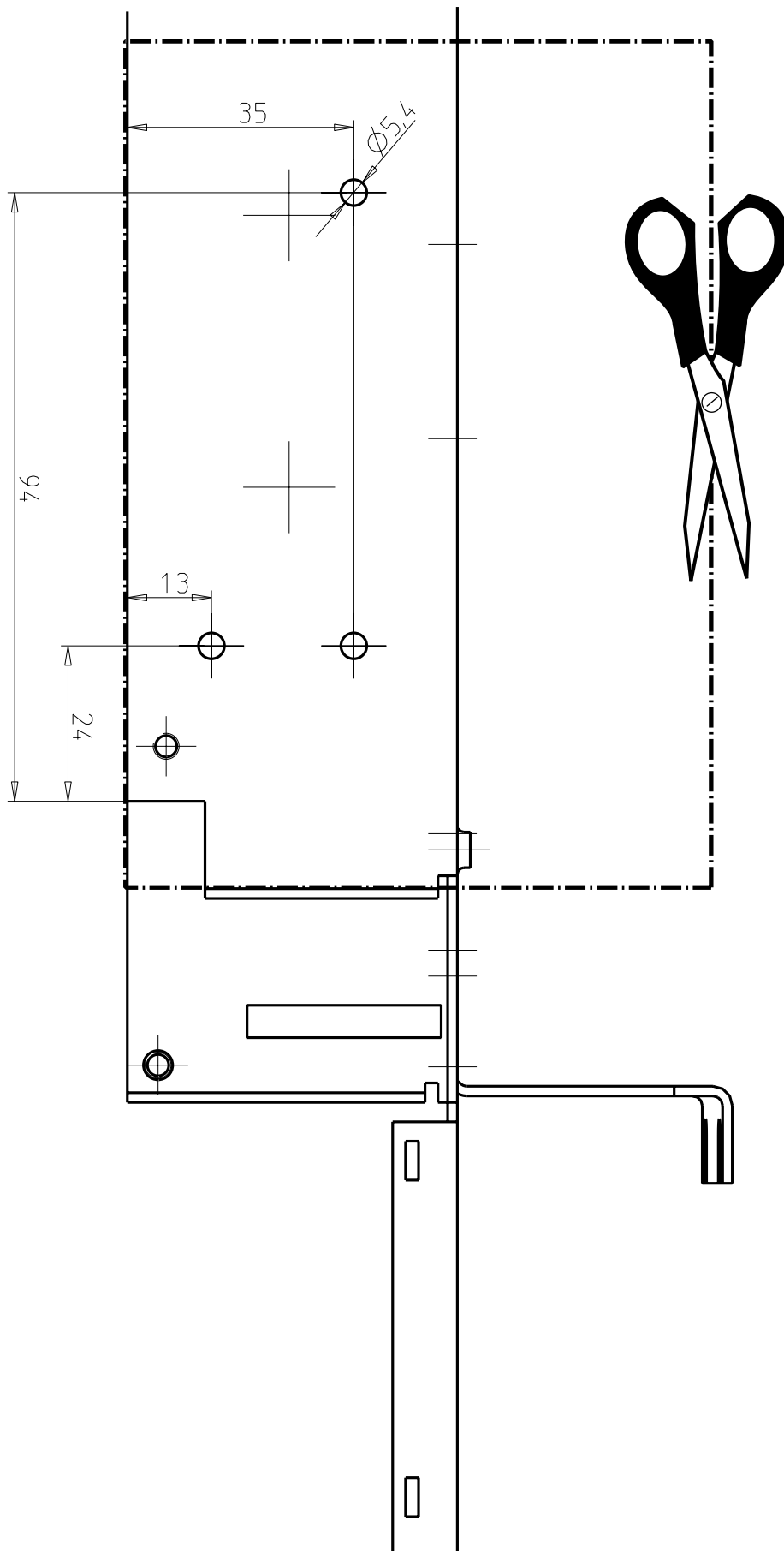
Switch the unit on. The on/off switch is located under the generator box.

- Take three exposures with exposure values 60 kV and 0.05 seconds.
- Take three exposures with exposure values 70 kV and 0.1 seconds.
- Take three exposures with exposure values 70 kV and 1.0 seconds.





## 10 EXTENSION CABLE CONNECTOR PCB ASSEMBLING TEMPLATE







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