New as of: 10.2015

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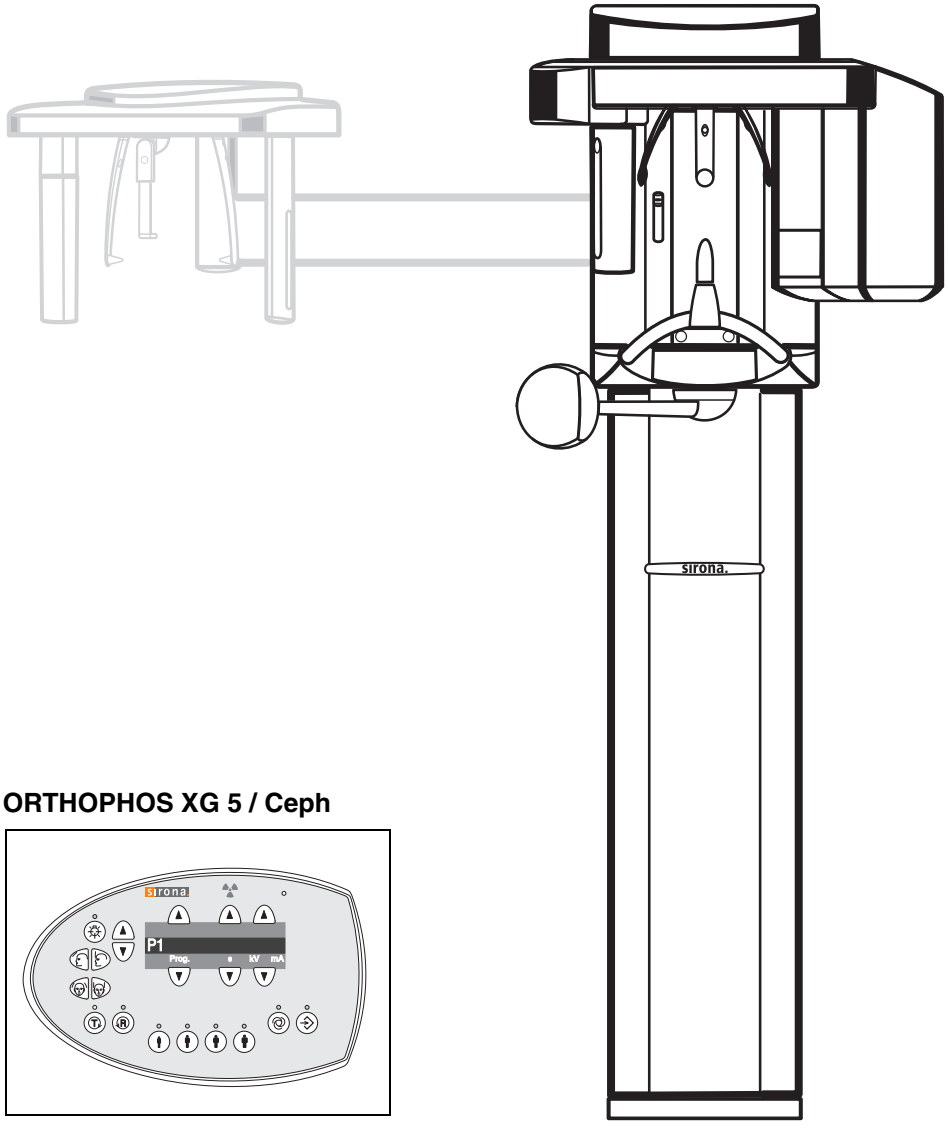
The Dental Company

ORTHOPHOS XG 5 / Ceph

Installation Instructions

English



ORTHOPHOS XG 5 / Ceph

General information

About this document

This document describes the installation of the **ORTHOPHOS XG 5** panoramic X-ray unit in the following versions:

- **ORTHOPHOS XG 5**
  Digital unit
- **ORTHOPHOS XG 5 Ceph**
  Digital unit with cephalometer

For installation, please refer also to the following documents:

- Installation drawings
- "Installation Requirements" (separate document)
- Operating Instructions
- Service Manual
- Installation Report and Warranty Passport
- SIDEXIS XG, Digital Radiography:
  Installation instructions

Our Customer Service Center can provide the technical documentation in paper form free of charge on request provided that the respective order numbers are specified correctly.

In addition, the latest documentation can always be downloaded from the Sirona homepage:

www.sirona.com/HOME/Service/Technical Documentation

New as of: 10.2015

Changes since the last version 07.2013:

Chapter or section	page
7.2 Checking the device leakage current	79

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1 Before you begin

ORTHOPHOS XG 5 / Ceph

1.1 Identification of warnings

Warning and safety information

To prevent personal injury and material damage, please observe the warning and safety information provided in the present operating instructions.

The structure, appearance and use of warning and safety information in Sirona documents are based on the ANSI Z535 standard.

The following warnings may be used in this document:

DANGER

An imminent danger that could result in serious bodily injury or death.

WARNING

A possibly dangerous situation that can result in serious bodily injury or death.

CAUTION

A possibly dangerous situation that can result in slight bodily injury.

NOTICE

A possibly harmful situation which can lead to damage of the product or an object in its environment.

Instructions for use

The following application information may be used in this document:

IMPORTANT

Application instructions and other important information.

Tip: Information on making work easier.

1.2 Safety

DANGER

Fixed connection!
The installation of a power plug instead of the prescribed fixed (hard-wired) connection violates international medical regulations and is prohibited. In case of a fault, you would thus endanger the life and limb of the patient, the operator or other persons.

WARNING

Installation and startup must be carried out in accordance with the requirements stated in our Installation Instructions.

WARNING

Installation and startup may be carried out only by personnel specifically authorized by SIRONA.

WARNING

Any person who assembles or modifies a medical electrical system complying with the standard IEC 60 601-1-1 (safety requirements for medical electrical equipment) by combining it with other equipment is responsible for ensuring that the requirements of this regulation are met to their full extent for the safety of the patients, the operators and the environment.

If any equipment not approved by SIRONA is connected, it must comply with the applicable standards:

- IEC 60950-1 for information technology equipment and
- IEC 60 601-1 for medical electrical equipment.

See also "On-site installation, dimensions, technical data" and the "Compatibility list/Declaration of conformity" issued by the system integrator.

In case of doubt, contact the manufacturer of the system components.

WARNING

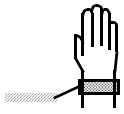
Wireless phone interference with medical electrical equipment:
To ensure safe operation of medical electrical equipment, the use of mobile wireless phones in practice or hospital environments is prohibited.

CAUTION

The unit contains class 1 lasers.
A distance of at least 4" (10 cm) between eye and laser must be observed. Do not stare into the beam.
Do not use the system with any other lasers, and do not make any changes to settings or processes that are not described in these operating instructions. This may lead to a dangerous exposure to radiation.

NOTICE

Use an ESD wrist band during installation.
Connect it to the protective ground wire.



NOTICE

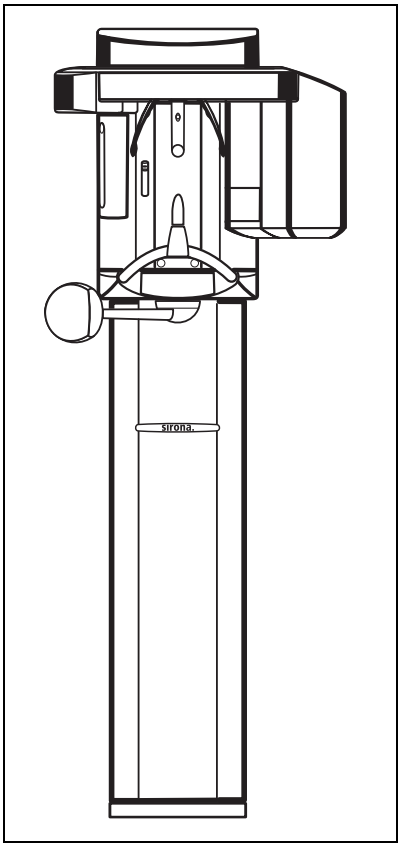
When opening the unit:
Please observe the usual precautionary measures for handling PCBs (ESD).
Touch a ground point to discharge static electricity before handling any components.

NOTICE

Extreme fluctuations of temperature may cause condensation inside the unit. Do not switch the unit on before it has reached normal room temperature.

1.3 System versions

1.



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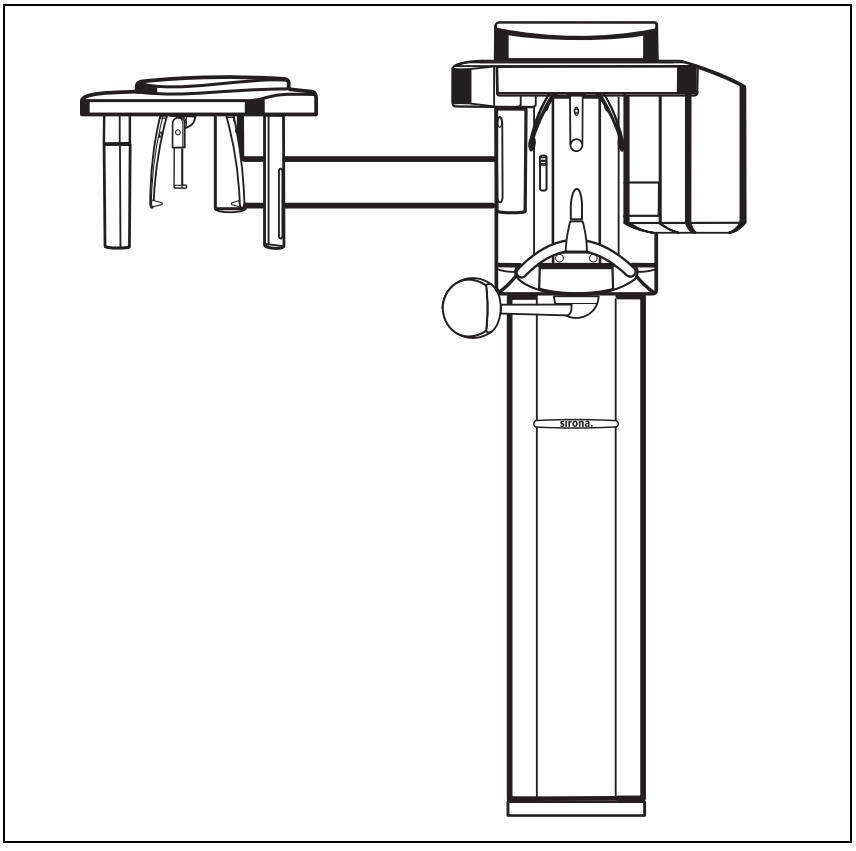
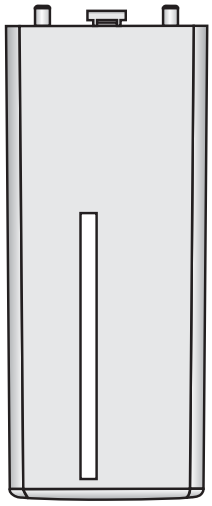


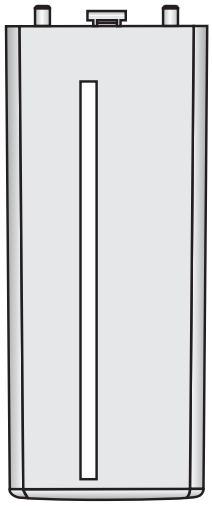
1. **ORTHOPHOS XG 5**
   Digital unit
2. **ORTHOPHOS XG 5 Ceph**
   Digital unit with cephalometer

1.4 Sensor versions

1. **XG PAN sensor**
   Sensor for panoramic exposures (PAN)

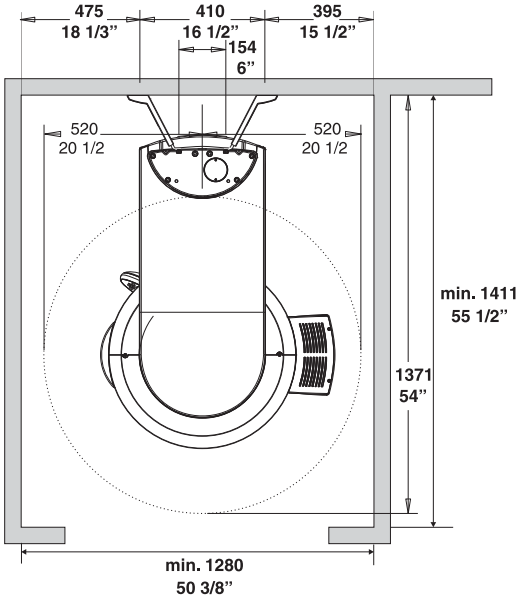


2. **XG CEPH sensor**
   Sensor for panoramic and cephalometric (ceph) exposures



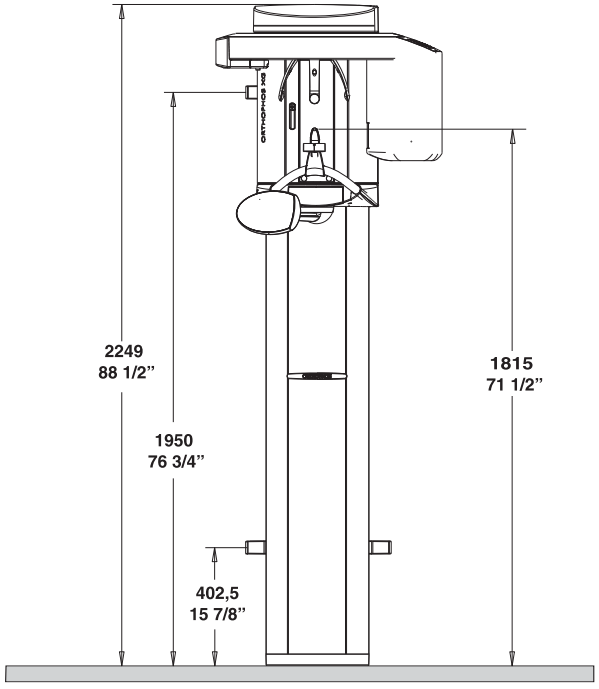
1.5 Dimensions/Space requirements

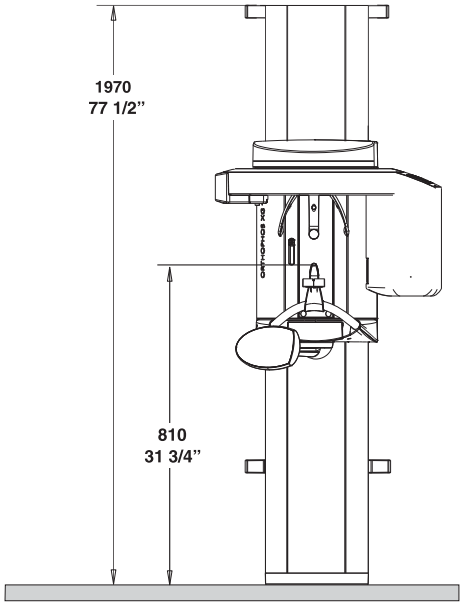
1.



NOTICE

These dimensions apply to installation of the X-ray unit without the floor stand.
Installation with the floor stand results in an additional 30 mm (1 3/16") increase of all height dimensions.



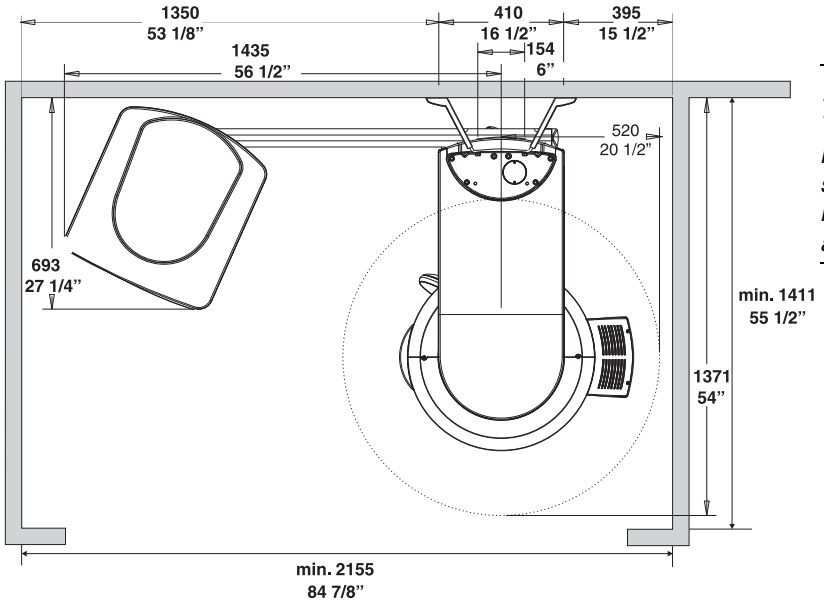


NOTICE

The minimum ceiling height for an installation should be 2.10 m (82 11/16"). If the ceiling height is lower than 2.27 m (89 3/8") (max. travel height of 2.25 m (88 1/2")), the travel height of the unit must be adjusted or limited prior to startup of the unit (see section 12.1.8).

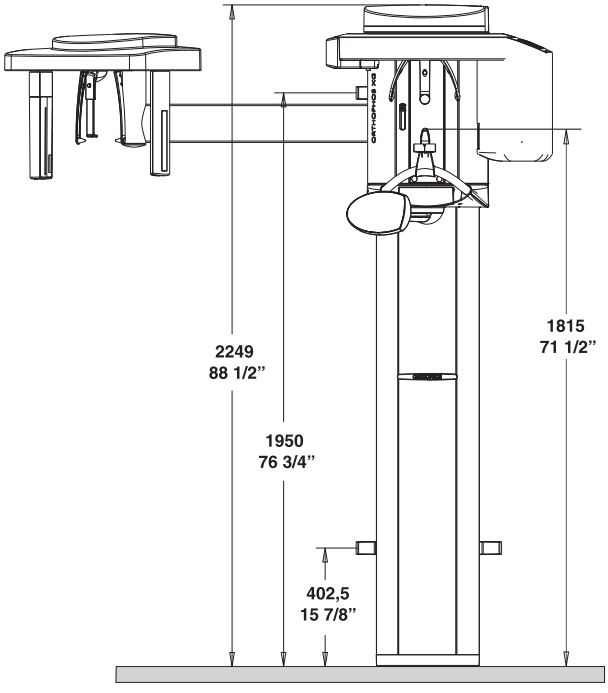
1. ORTHOPHOS XG 5

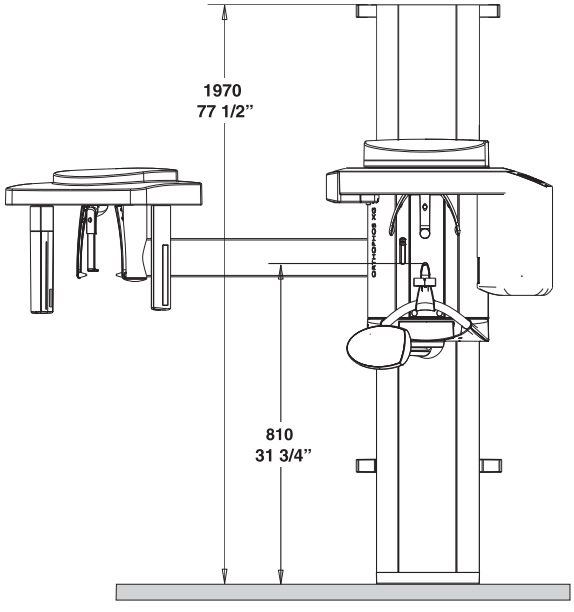
2.



NOTICE

The dimensions specified here apply to installation of the X-ray unit without the floor stand. Installation with the floor stand results in an additional 30 mm (1 3/16") increase of all height dimensions.

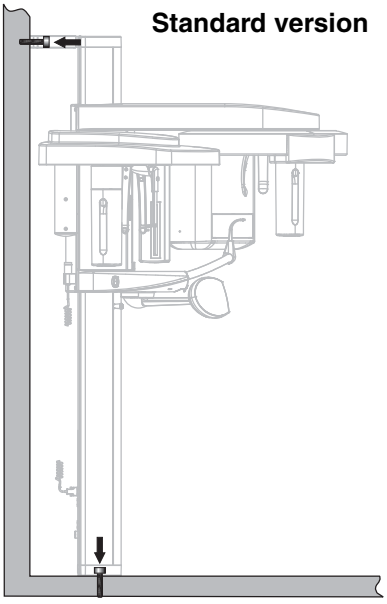




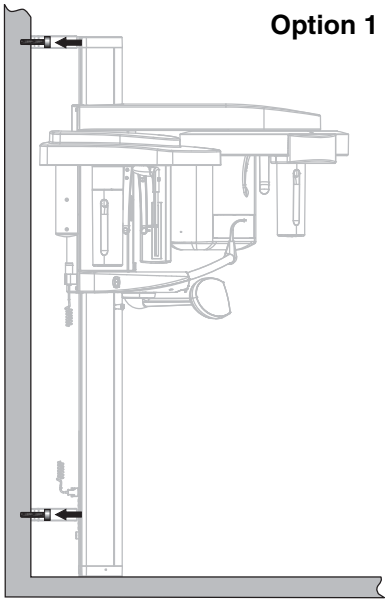
2. ORTHOPHOS XG 5 Ceph

1.6 Mounting options

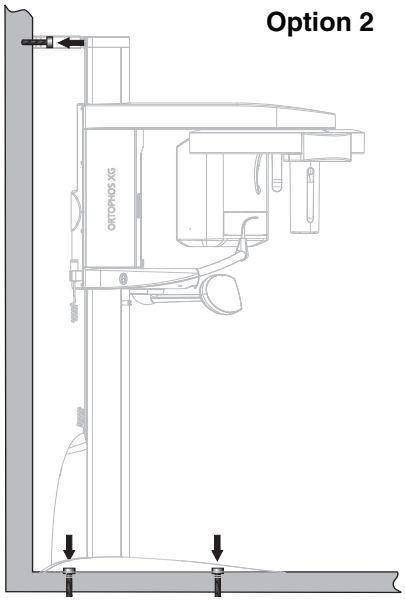
1. **Standard version**



2. **Option 1**



3. **Option 2**



Standard version

(see section 3.3)

1. **Wall-mounted installation with 1 wall holder and floor fastening** if both wall and floor installation are possible on-site.

Option 1: with second wall holder

(see Section 3.3)

2. **Wall-mounted installation with 2 wall holders** (and no floor fastening) if only wall installation is possible on-site.

Option 2: with floor stand

(see section 3.4)

3. Installation with **floor stand** for free installation anywhere in the room or if wall-mounted installation is not possible on-site (e.g. with lightweight walls).

IMPORTANT

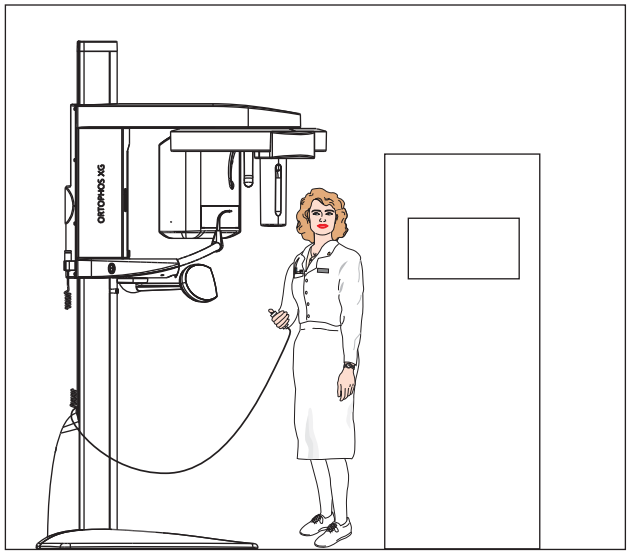
If the unit is installed freely with a floor stand, the quality of the resulting X-ray exposures may be impaired, depending on the floor or surface conditions. Sirona therefore recommends additional fastening of the unit with an upper wall holder also when installing it with a floor stand.

IMPORTANT

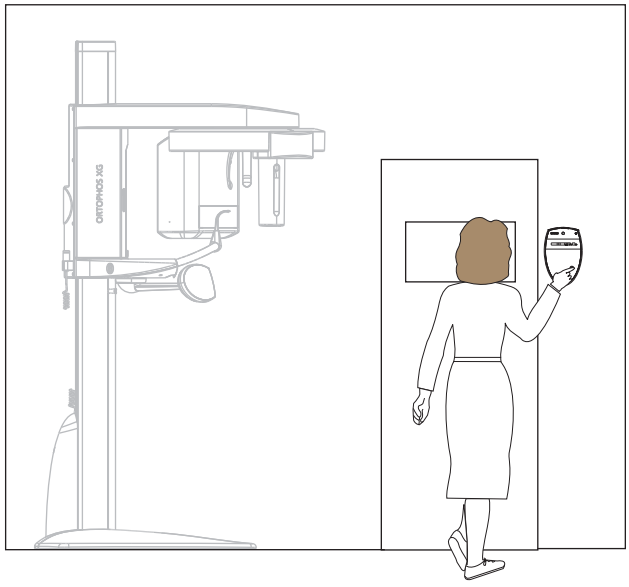
*If the unit is installed freely with a floor stand, **CEPH installation** is **not** permissible. When operating the unit with a floor stand and a cephalometer, an additional fastening with the upper wall holder is absolutely essential.*

1.7 Installation versions

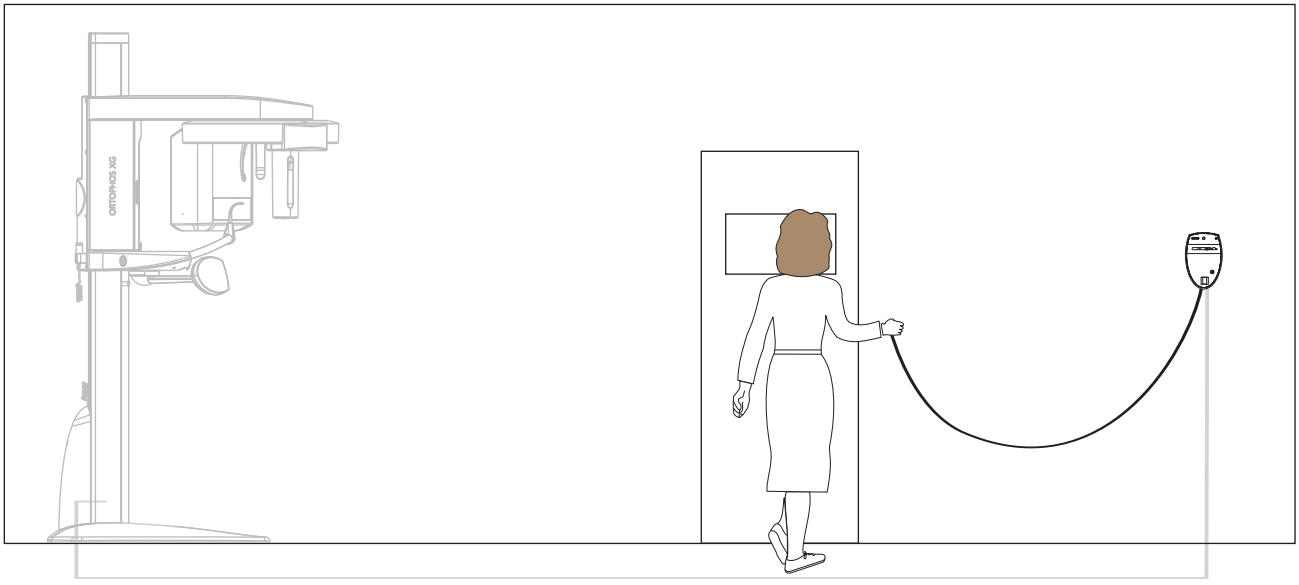
1.



2.



3.



1. **Standard installation:**
   ORTHOPHOS XG 5/Ceph **without remote control with release button on the coiled cable** in the treatment room.

2. **Installation version 1** (see section 6.3.1):
   ORTHOPHOS XG 5 / Ceph **with remote control** outside the X-ray room **without release button on the coiled cable.**

3. **Installation version 2** (see section 6.3.2):
   ORTHOPHOS XG XG5/Ceph **with remote control** outside the X-ray room **without release button on the coiled cable**.

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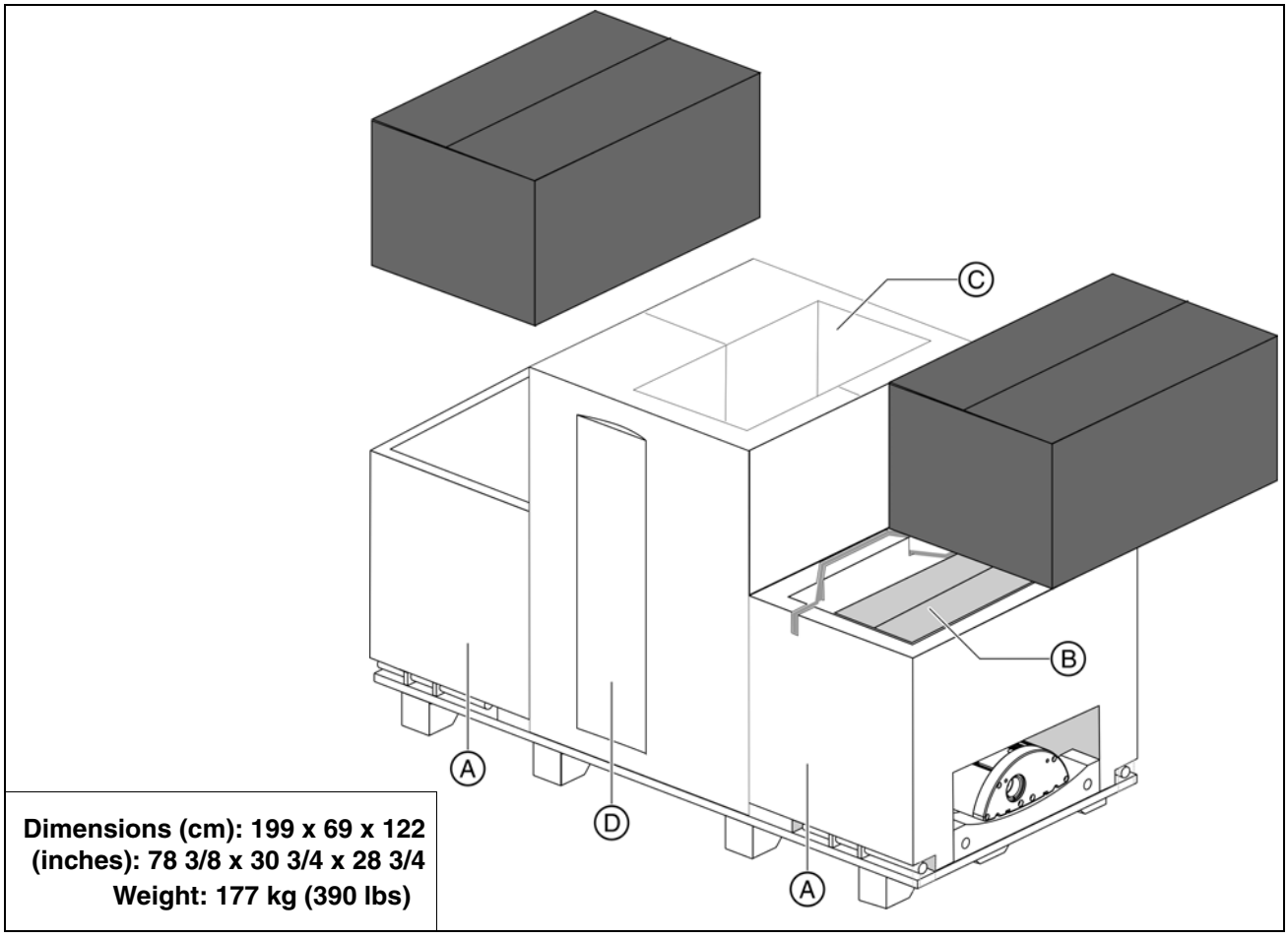
2 Delivery and transport

ORTHOPHOS XG 5 / Ceph

2.1 Delivery



Dimensions (cm): 199 x 69 x 122
(inches): 78 3/8 x 30 3/4 x 28 3/4
Weight: 177 kg (390 lbs)

NOTICE
Possible transport damage!
If the shipment was damaged during transport, document all damage carefully and contact the responsible carrying agent immediately.

All SIRONA equipment is carefully checked and packed prior to shipment. Please carry out an incoming inspection of the equipment in order to make sure that it was not damaged during transport.

- Check the packaging and the equipment for visible signs of damage.
- Check the shipment for completeness based on the attached “scope of supply” checklist.

IMPORTANT
Disposal: *Return the packaging materials to SIRONA or dispose of them in compliance with the legal regulations applicable in your country.*

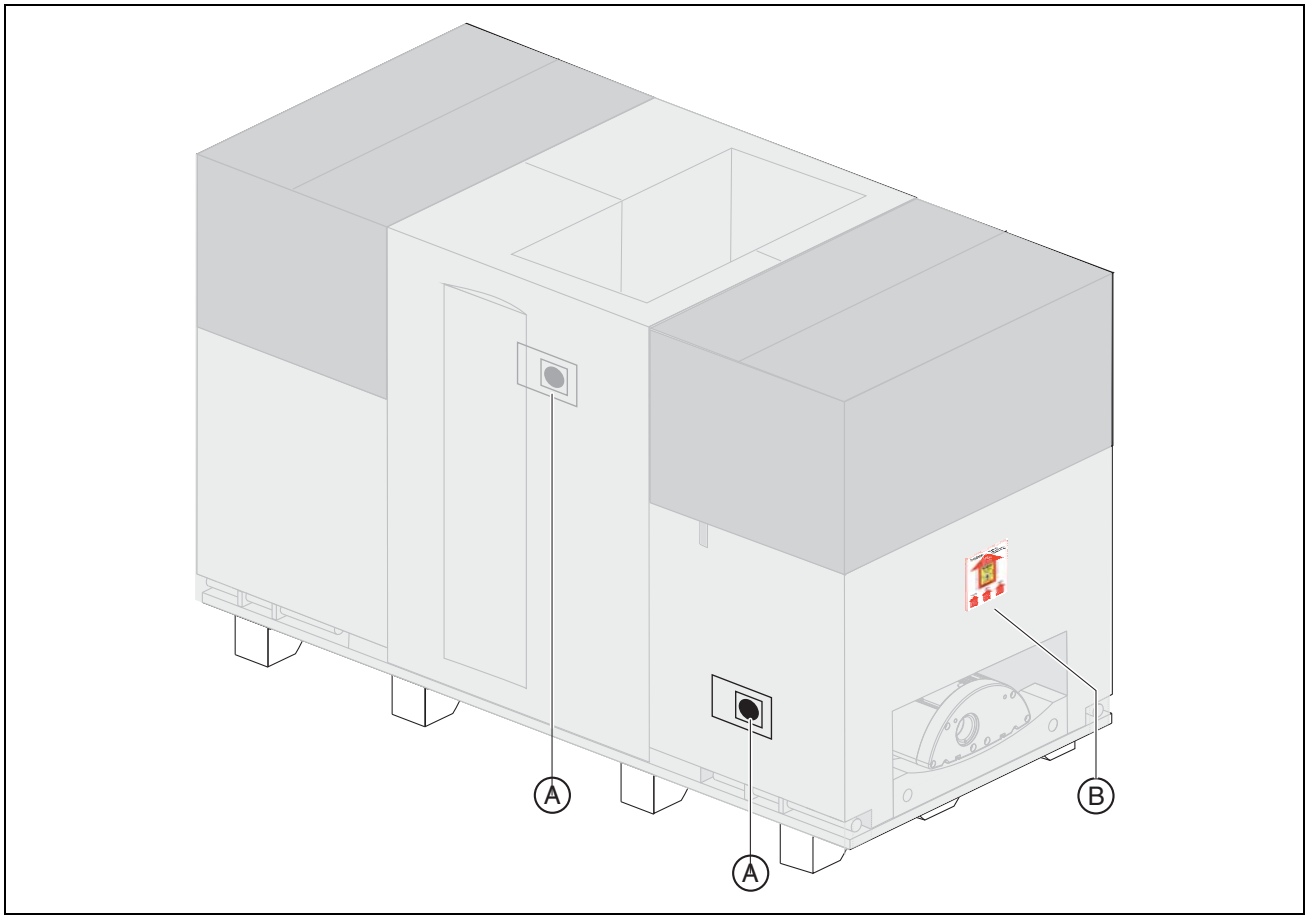
2.1.1 ORTHOPHOS XG 5 panoramic X-ray unit

IMPORTANT
The packaging of the X-ray unit is designed both for protection during transport and as an installation aid.

Therefore, please remove only the surrounding packaging prior to installation. Please leave the styrofoam packaging and transport pallet attached to the unit.
Save one of the lateral styrofoam packaging parts for later use as an installation aid A.

Scope of supply

- Panoramic X-ray unit
- Profile cover (**D**)
- Sensor (**B**)
- Accessories and hygienic protective covers (see pp. 18 ff.) (**B**)
- Installation material (see section 3.1) (**B**)
- Safety strap (**B**)
- Remote control (optional) (**C**)



Two **shock indicators A** are attached to the side of the packaging to indicate whether the unit was exposed to a shock during transport.

- White indicator: No shock
- Red indicator: Shock

A **tilt indicator B** that enables you to recognize whether the unit was transported improperly is also attached to the packaging.

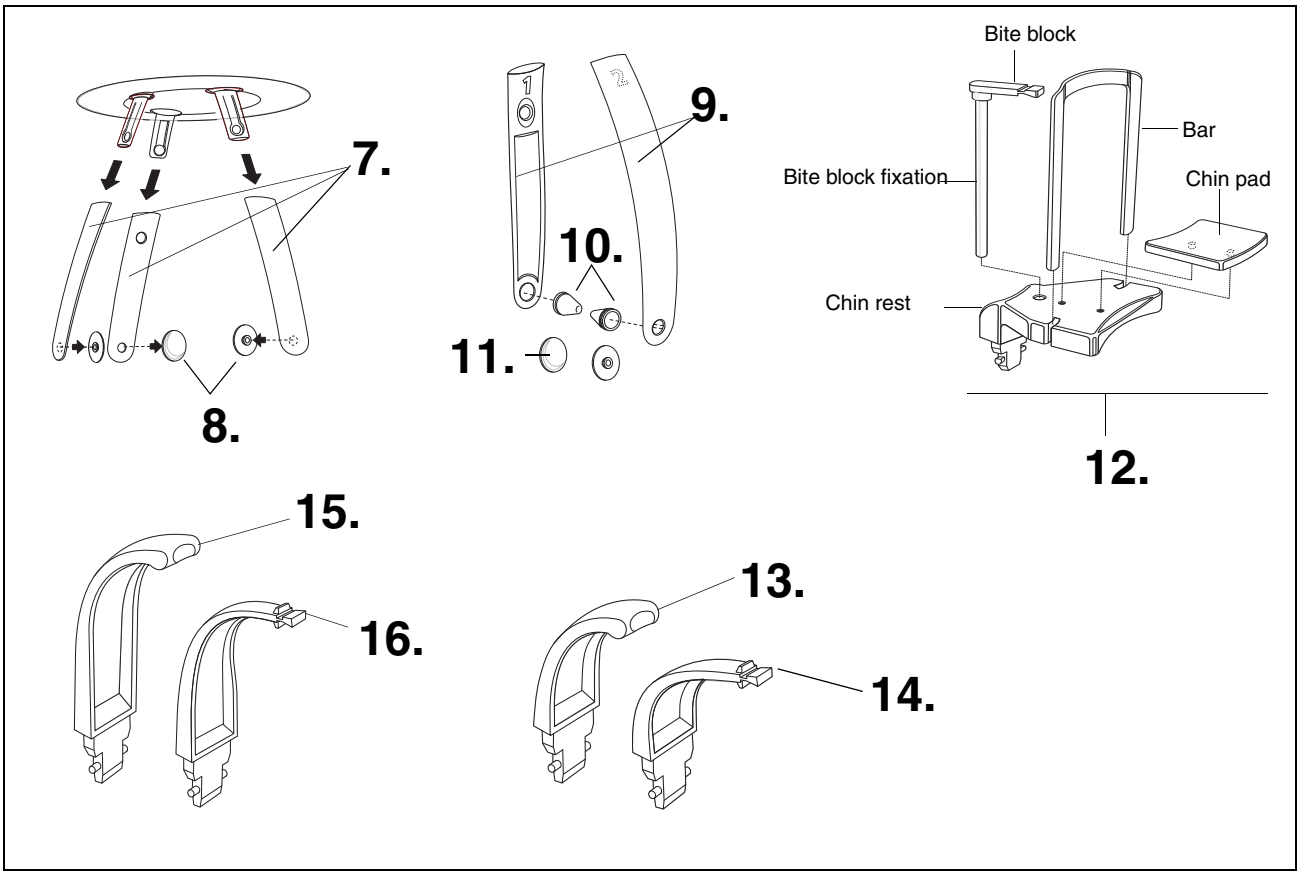
- Red indicator: Improper transport

The display of improper transport doesn't necessarily mean that the unit is damaged.

Make a note on the delivery slip that the indicator is activated. Have this confirmed on the delivery note by the driver of the transport company.

Fax the delivery note to the Sirona Customer Service Center (CSC).

Enter the state of the indicators in the startup report in the case of warranty claims.



Accessories: Panoramic X-ray unit

1. Forehead (1x) and temple supports (2x)

2. Buttons (2x)

3. Temporomandibular joint supports 1 (1x) and 2 (1x)

4. Ear holders (4x)

5. Buttons TMJ (2x)

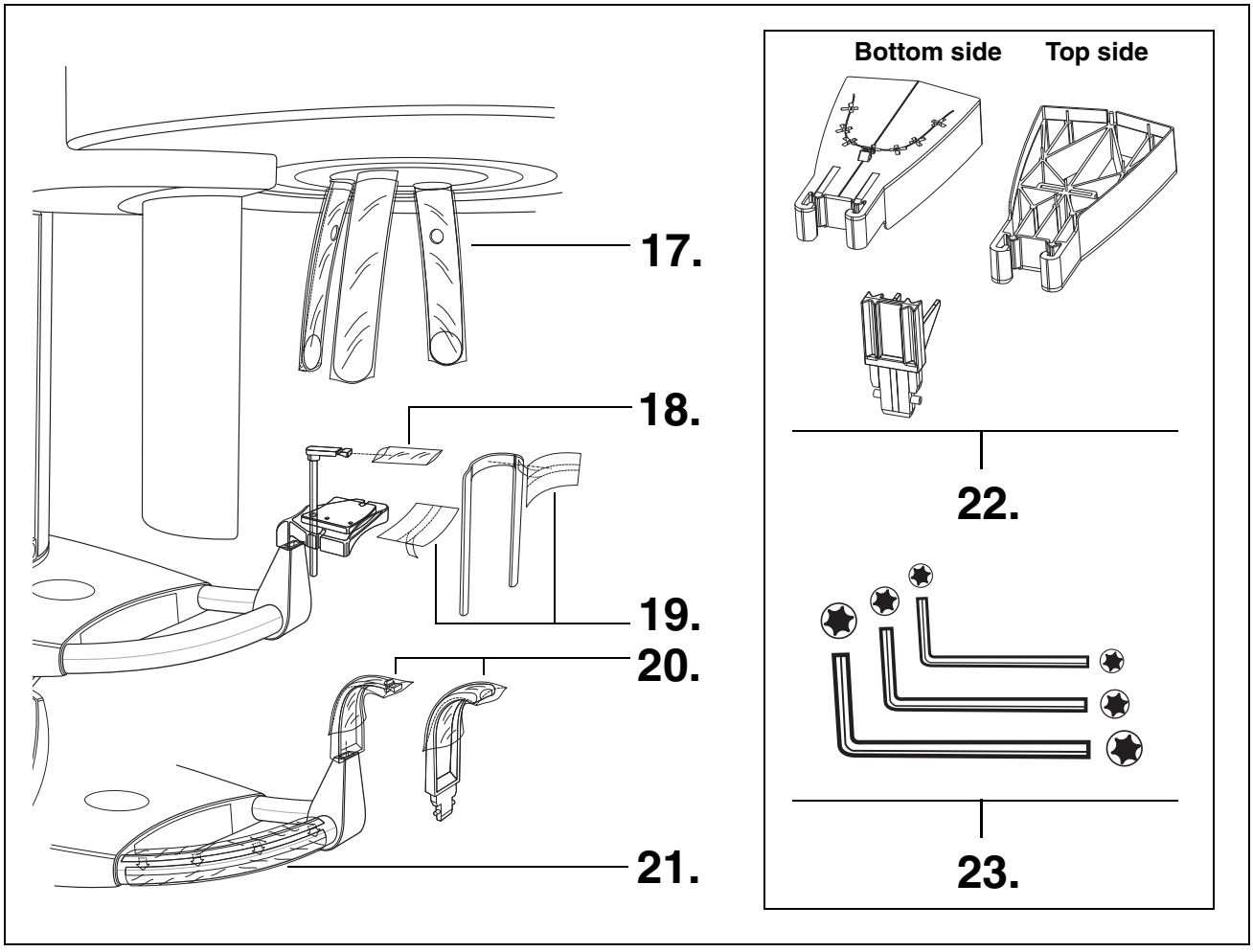
6. Chin rest accessories (1x)
- Bite block (5x)
- Bite block fixation (1x)
- Bar (1x)
- Chin pad (1x)
- Chin rest (1x)

7. Contact segment **blue** (1x)

8. Bite block **blue** (1x)

9. Contact segment standard **yellow** (1x)

10. Bite block standard **yellow** (1x)



Hygienic protection: Panoramic X-ray unit

Hygienic protective sleeves for...

11. Forehead and temple supports (500x)

12. Bite block (500x)

13. Chin rest and bar (100x)

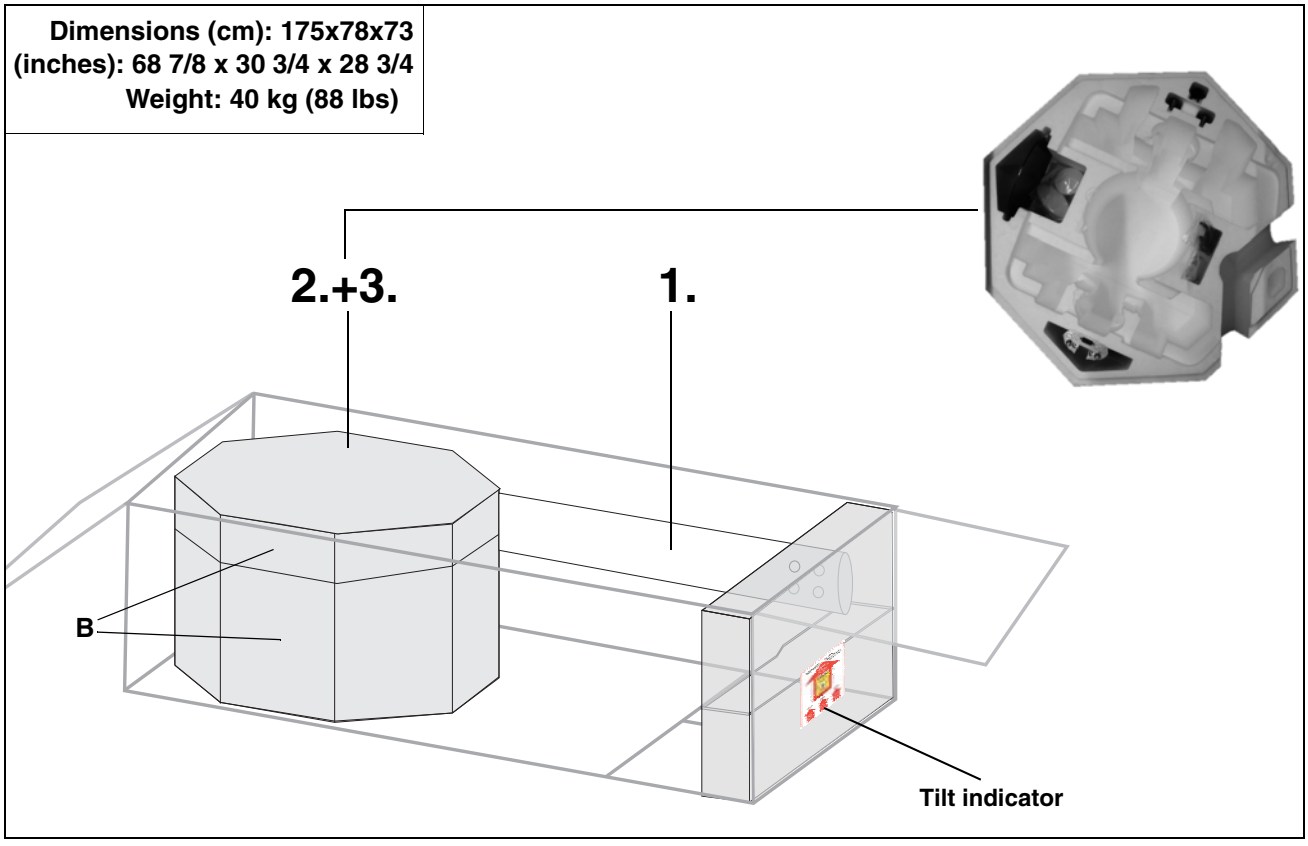
14. Bite blocks and contact segments (500x)

15. XG hygienic handle (100x)

Adjustment set: Panoramic X-ray unit

16. Panoramic needle phantom

17. Set of Torx offset screwdrivers



2.1.2 CEPH arm

IMPORTANT
*The cephalometer is a sensitive instrument. Please remove the styrofoam packaging **B** only following installation.*

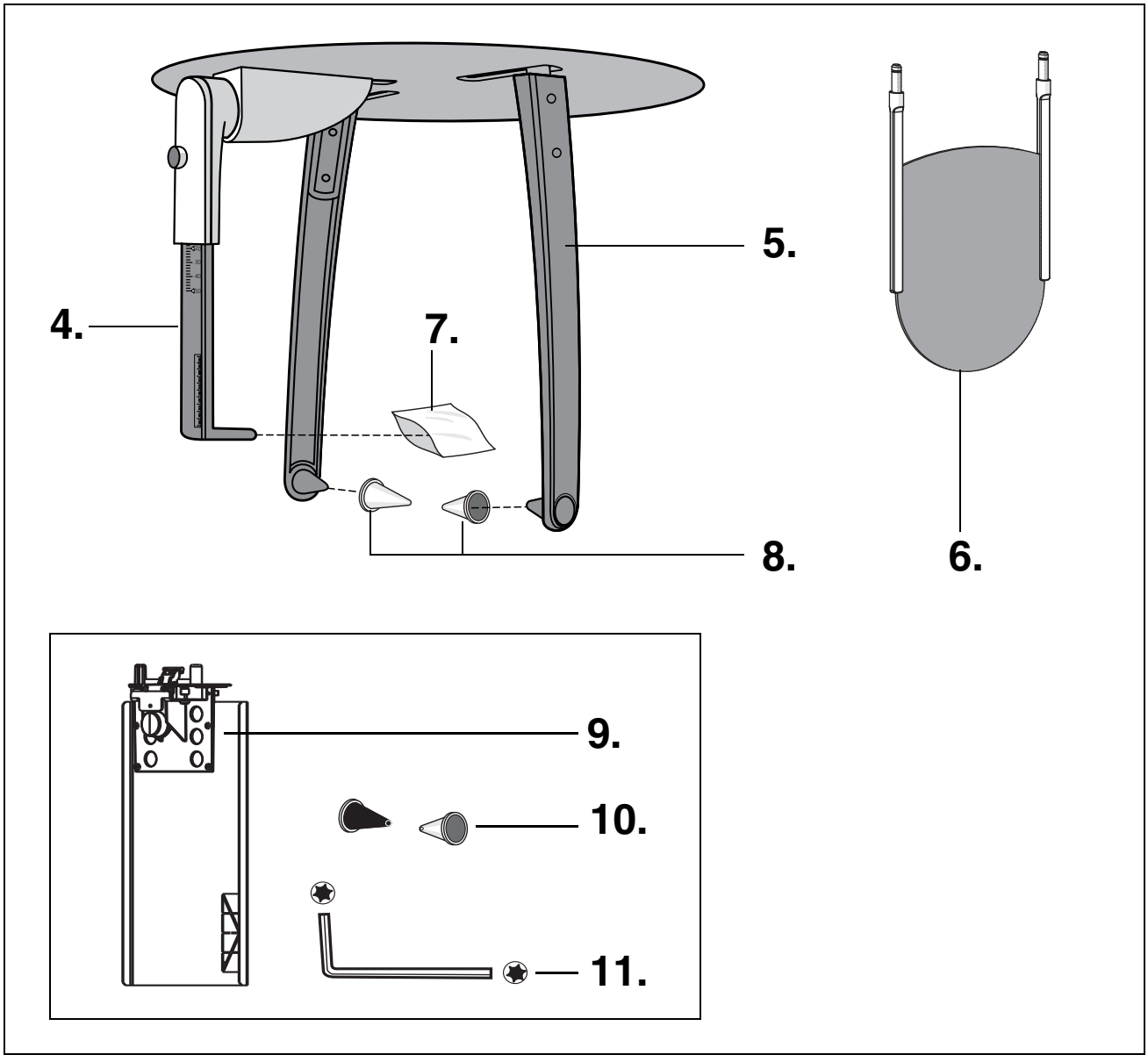
IMPORTANT
A tilt indicator that responds to improper transport is also attached to the packaging.
Indicator red: Improper transport

However, an indication of improper transport does not necessarily mean that the unit has been damaged.

Make an entry on the delivery note stating that the indicator is activated and have this confirmed on the delivery note by the driver of the transport company.
Please also fax the delivery note to our Customer Service Center.
The condition of the indicator must be recorded in the startup report for warranty claims.

Scope of supply

1. Cephalometer with support arm
2. Accessories and hygienic protective covers (see pp. 21 ff.)
3. Installation material (see section 5.1)



Accessories: Cephalometer

4. Nose support (1x)

5. Ear plug holders with ear plug fastening (2x)

6. Carpus support plate (1x)

Hygienic protection: Cephalometer

7. Hygienic protective sleeves for nose support (100x)

8. Hygienic caps for ear plugs (4x), sterilizable

Adjustment set: Cephalometer

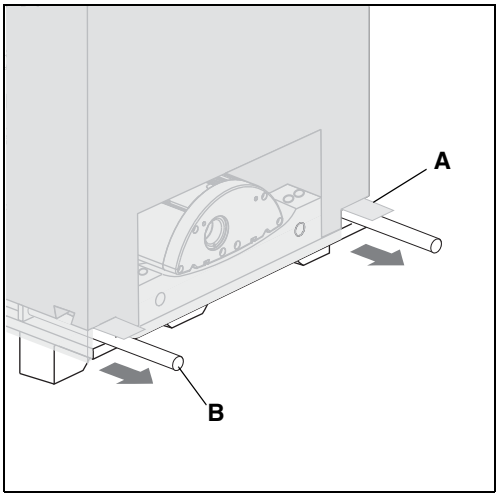
9. CEPH test phantom

10. Adjusting caps (1x black, 1x transparent)

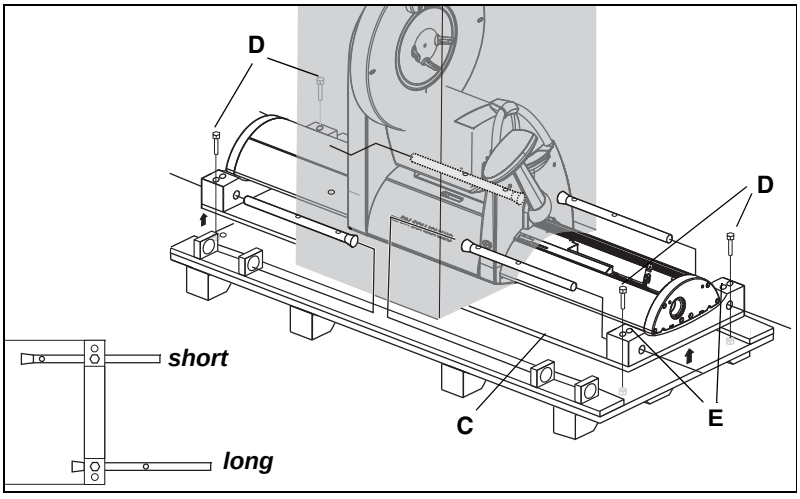
11. Torx offset screwdriver

2.2 Transport to the installation site

1.



2.



2.2.1 Panoramic X-ray unit

NOTICE

If possible leave the packaging attached to the unit during transport in order to protect it against damage.

1. Transport with packaging attached (normal case)

– Open the surrounding packaging at the tabs provided for that purpose **(A)**, pull out the carrying handles **(B)**, and transport the unit to the installation site.

WARNING

When in transport position, the unit has a very high center of gravity. Take care that the unit does not tip over during transport.

2. Transport without pallet (exception)

IMPORTANT

*If the pallet is too wide for transport to the installation site, you may unscrew the pallet from wooden support **C** and transport the unit by means of the wooden supports without the pallet.*

To do this, proceed as follows:

– Remove the surrounding packaging, the two cardboard boxes, as well as the two lateral styrofoam parts.

– Loosen the four screws **D**.

NOTICE

The center styrofoam part should remain attached to the unit for protection. If this is not possible, SIRONA recommends securing the tube assembly in its position with the supplied strap prior to any further transport (see the label on the styrofoam packaging)!

Tighten the strap only loosely. Do not stretch!

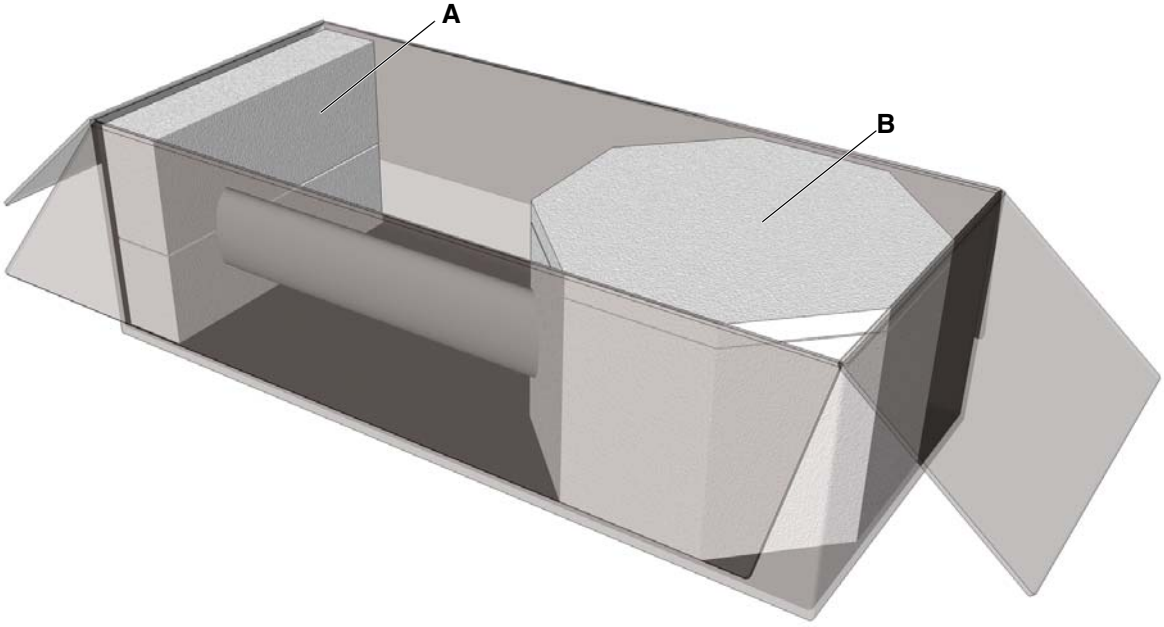
– Pull the carrying handles **B** out of their holders and insert them through the drillings of the wooden support **C** from the back.

– Insert screws **D** through the drillings **E** into the drillings of the carrying handles to attach them firmly. Long or short.

IMPORTANT

The carrying handles have rims which prevent them from slipping out of the holes.

1.



2.2.2 Cephalometer

1. Open the cardboard case and remove the styrofoam part (**A**).

IMPORTANT
*The cephalometer is a sensitive instrument. Remove the styrofoam packaging **B** only following installation.*

- Lift the CEPH arm out of the cardboard case and transport it to the installation site.

IMPORTANT
***Disposal:** Return the packaging materials to SIRONA or dispose of them in compliance with the legal regulations applicable in your country.*

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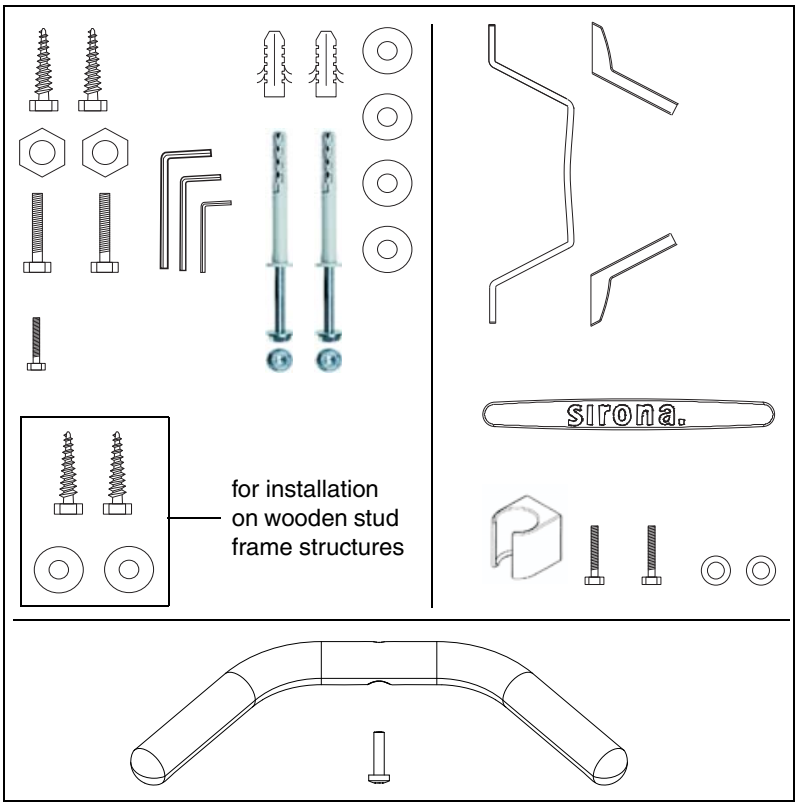
3 Installation: Panoramic X-ray unit

ORTHOPHOS XG 5 / Ceph

3.1 Installation material

1.



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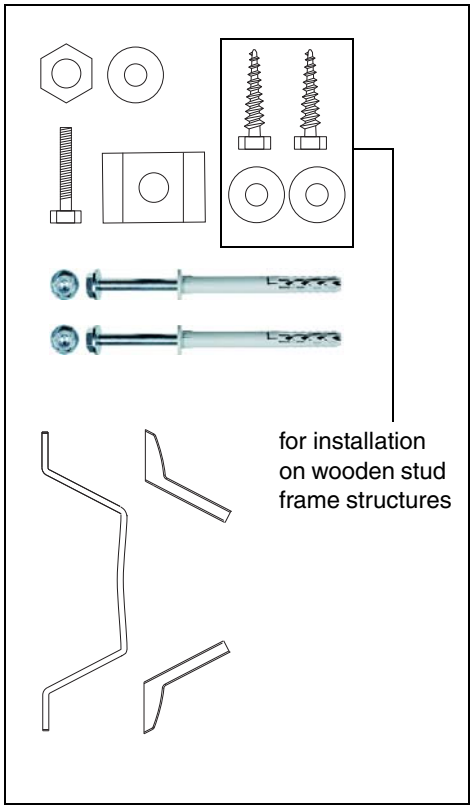


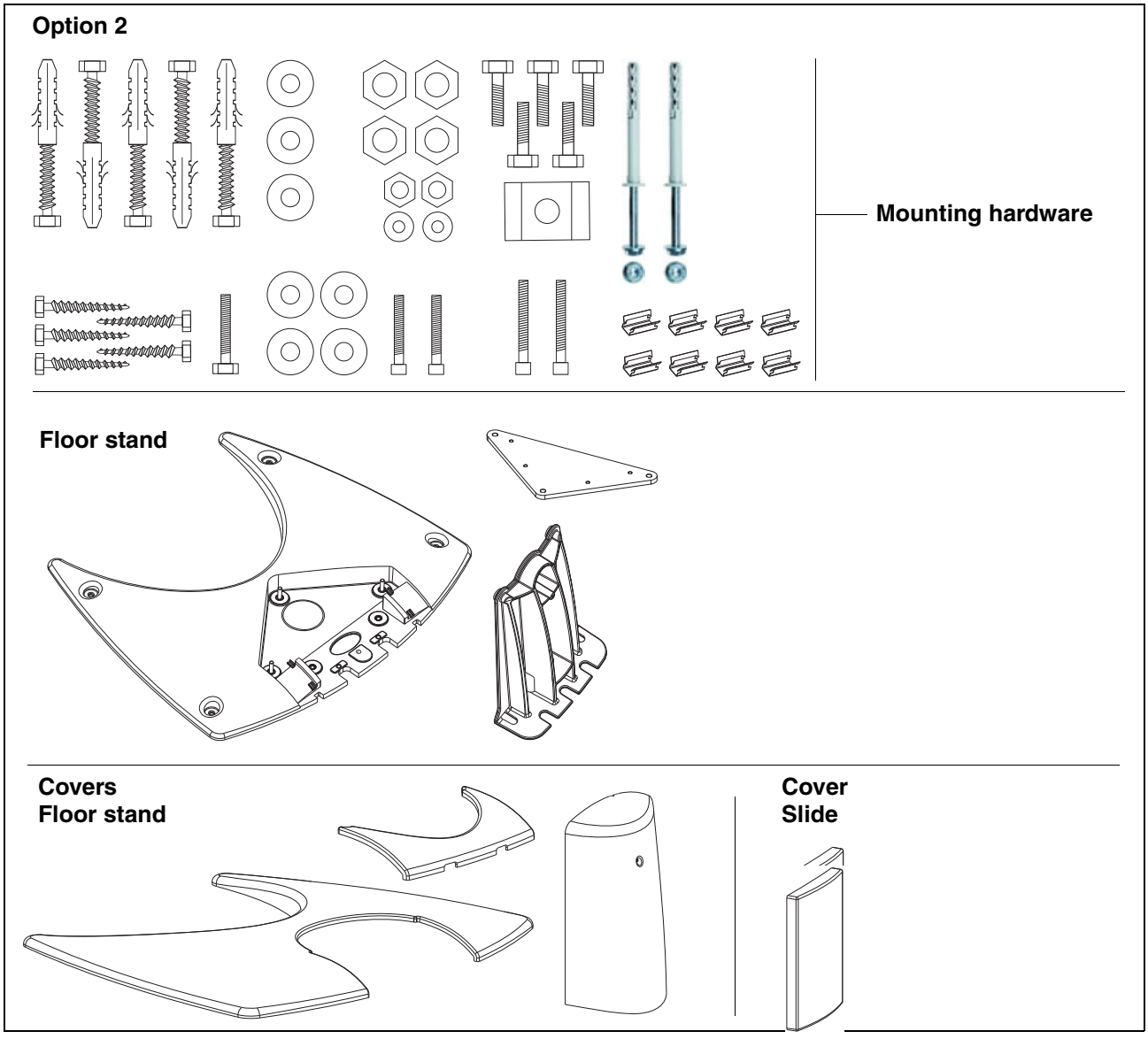
Standard version
(see Section 3.3)

1. Wall/floor mounting
- Hexagon wood screws 8x80 (5/16x3"): 4 pc.
- Plastic wall plug S10: 2 pc.
- Screw M8x30: 2 pc.
- Washer ∅ 8.4: 6 pc.
- Nut M8: 2 pc.
- Screw M4x10: 3 pc.
- Washer ∅ 4.3: 2 pc.
- Mounting kit ∅ 10 SXR: 2 pc.
- Torx offset screwdrivers TX10, TX20, TX25: resp. 1 pc.
- Offset Allen key (size 6): 1 pc.
- Wall holder: 1 pc.
- Cover for wall holder: 2 pc.
- Intermediate piece: 1 pc.
- Release button holder: 1 pc.
- Handle: 1 pc.
- Screw (for handle) M6x25: 1 pc.

Option 1: with second wall holder
(see Section 3.3)

2. Additional wall holder (for bottom wall mounting)
- Wall holder: 1 pc.
- Wood screws 8x80 (5/16x3"): 2 pc.
- Washer ∅ 8.4: 3 pc.
- Hexagon head screw M8x50: 1 pc.
- Nut M8: 1 pc.
- Mounting kit ∅ 10 SXR: 2 pc.
- Profile clamp: 1 pc.
- Cover for wall holder: 2 pc.

3.

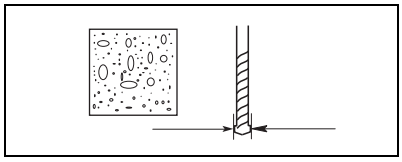


Option 2: Floor stand installation
(see Section 3.4)

3. Floor stand installation
- Floor stand
- Floor stand covers
- Wood screws 10x160 (3/8x6"): 5 pc.
- Plastic wall plug S12: 5 pc.
- Screw EM8x60: 2 pc.
- Screw M8x80: 2 pc.
- Washer ∅ 8.4: 2 pc.
- Nut M8: 2 pc.
- Screw M10x50: 1 pc.
- Profile clamp: 1 pc.
- Screw M5x12: 1 pc.
- Washer ∅ 10.5: 13 pc.
- Nut M10: 4 pc.
- Spring steel clamp: 8 pc.
- Screw M10x25: 4 pc.
- Wood screw M10x80 (3/8x3): 5 pc.
- Mounting kit ∅ 10 SXR: 2 pc.

3.2 Required tools

1.



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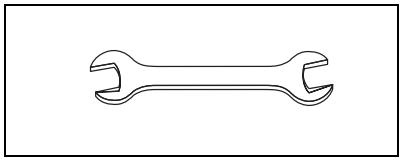

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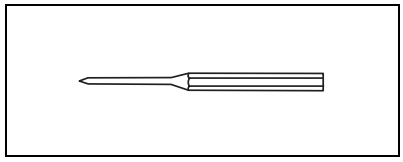
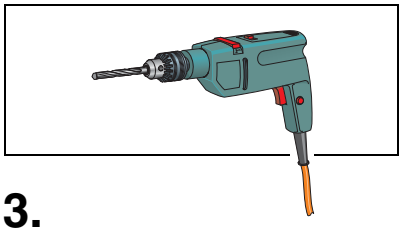
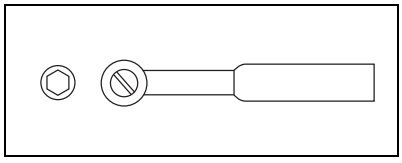


2.



5.



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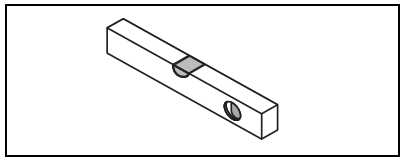

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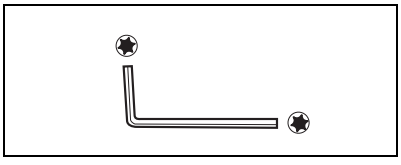

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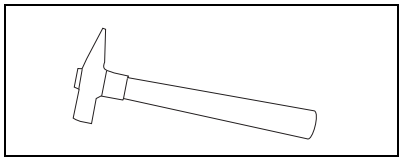

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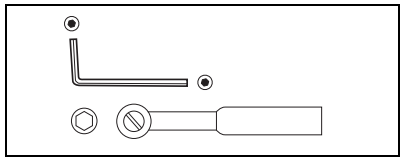


1. Masonry drill
- – ∅ 10mm (3/8")

2. Impact drill or percussion drill

3. Torx offset screwdriver*
- – TX10
- – TX20
- – TX25

4. Open-end wrench
- – 13 mm A/F

5. Socket wrench
- – Wrench insert 13

6. Hammer

7. Center punch

8. Spirit level

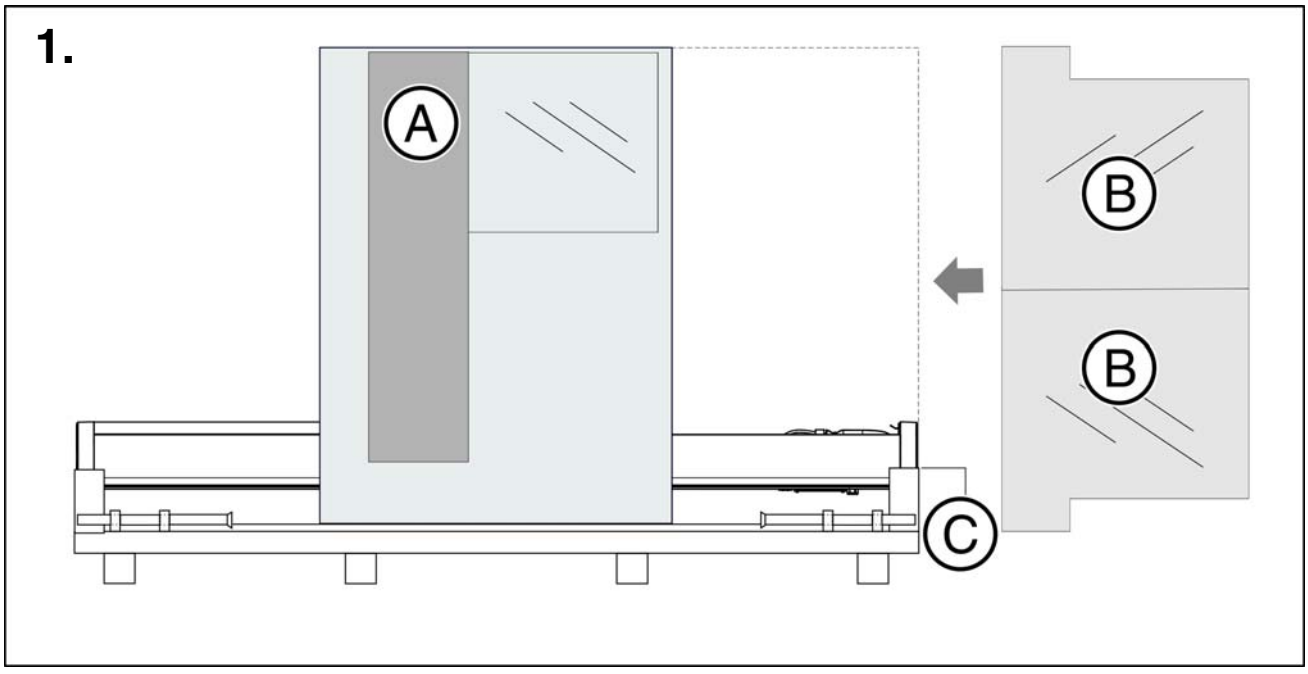
9. Additional requirements for installation with floor stand:
- – Masonry drill ∅ 12mm (1/2")
- – Allen key 6 mm
- – Socket wrench and extension
  Wrench insert 17

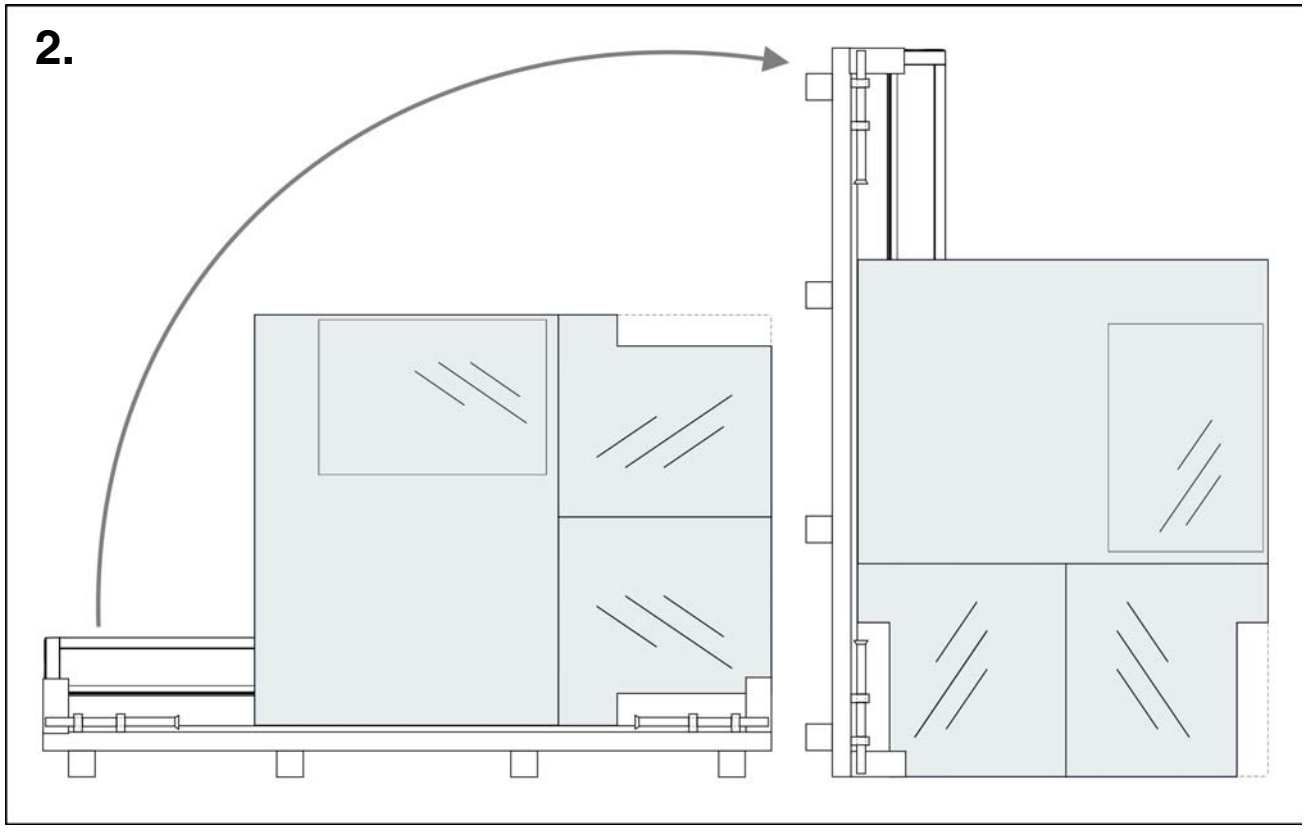
Required measuring instruments

- Multimeter or ammeter (battery-operated)
- **Test unit for device leakage current measurement,** e.g. Bender tester or line-frequency, high-resistance measurement voltage source (isolation transformer) and measuring circuit (MD) that meets the requirements of IEC 60 601-1.
- **Power source for protective ground wire test**
  Technical data:
  - – No-load voltage **at least** 4 V - **max.** 24 V
  - – Short-circuit current **at least** 0.2 A

* included in the scope of supply

3.3 Wall mounting (standard/option 1)





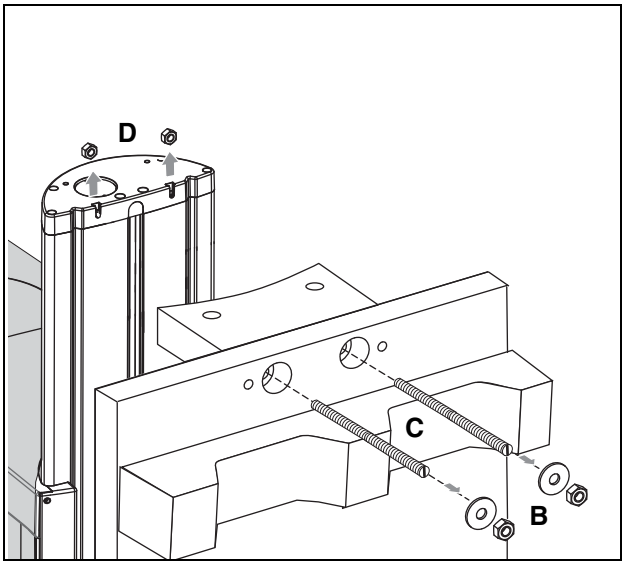
- Remove profile cover **A**.

1. Position the two installation aids **B** at the foot **C** of the device and secure their position with adhesive tape. **CAUTION! The installation aids must be placed on top of each other in such a way that their openings lie on top of each other**.
2. Set up the unit. To do this, tilt the transport pallet upright.

IMPORTANT

If you have transported the unit on the wooden support without a pallet, set the unit upright with the wooden support. You can also use the lateral styrofoam packaging as a support with this variation.

3.



3. Loosen the nuts **B** (with washers) on both sides of the pallet (or the wooden support). Take off the pallet (or the wooden support). Remove the threaded bolt **C**.

CAUTION

*Remove the **lower bolts first**, followed by the upper bolts.*

IMPORTANT

*The nuts **D** on the unit may remain inside the unit when the threaded rods are removed. Remove the upper nuts. The lower nuts may remain in the unit.*

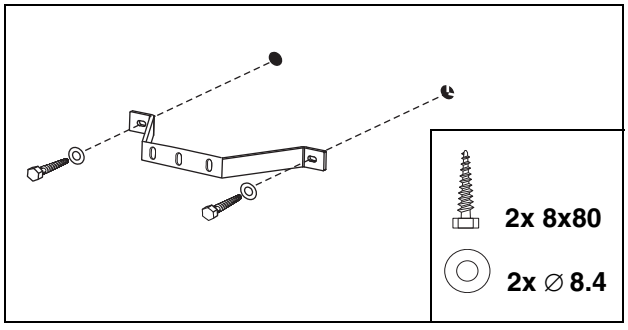
CAUTION

If the setup site for the unit is carpeted, the carpeting must be removed.

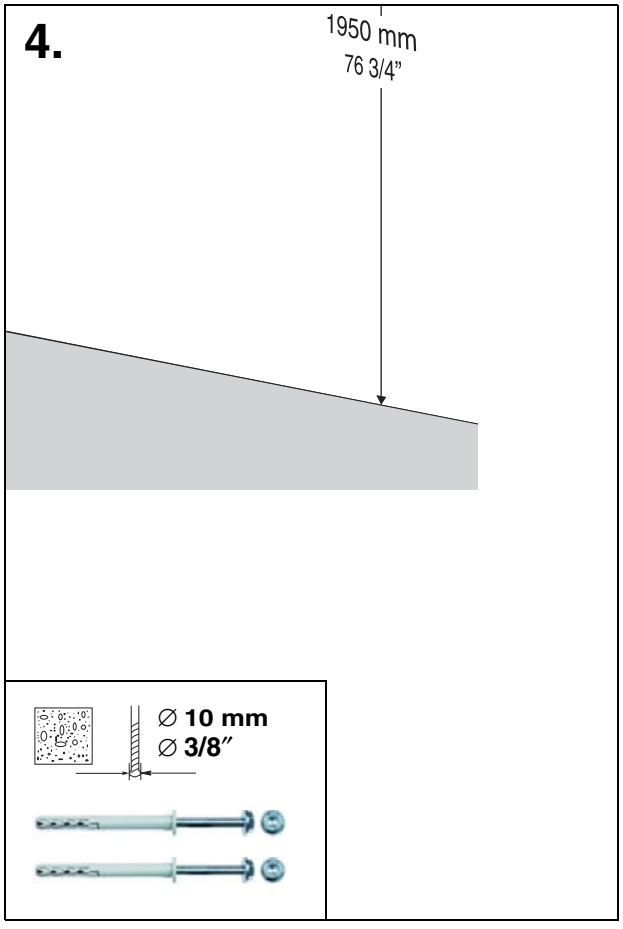
Wall plugs! Each wall plug must withstand an extraction force of 700 N.

The wall construction must be suitable for installation of the unit (see "On-site installation, dimensions, technical data").

In case of mounting on load-bearing wooden structures:
Use the enclosed wood screws and washers from the mounting kit for mounting the unit on load-bearing wooden structures.

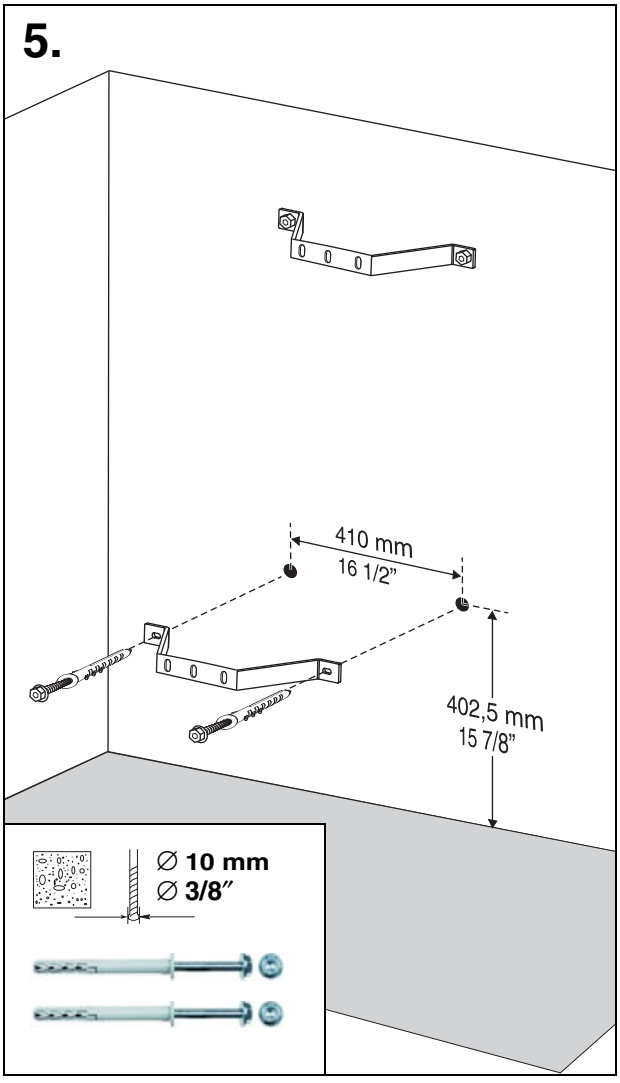


4. Mount the upper wall holder.



Only with second wall holder (option 1):

5. Mount the lower wall holder.



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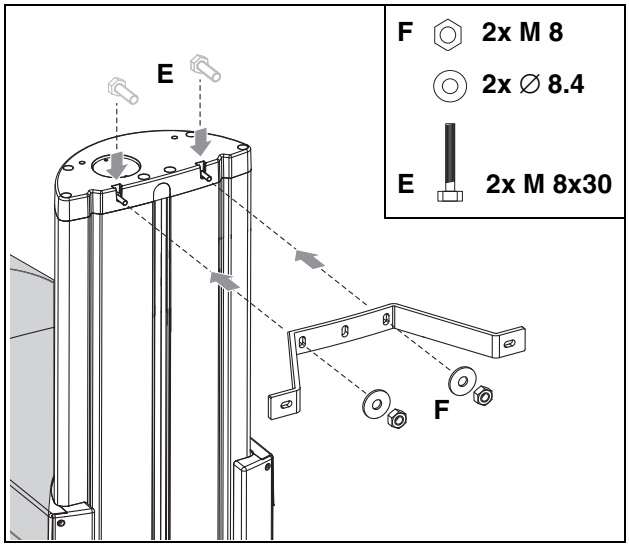
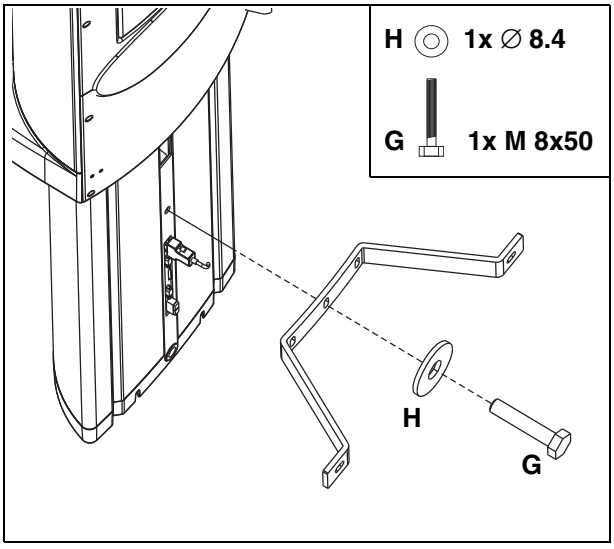


7.



- Move the panoramic X-ray unit into its installation position at the wall. Hold the unit laterally at the styrofoam packaging to do this.

NOTICE

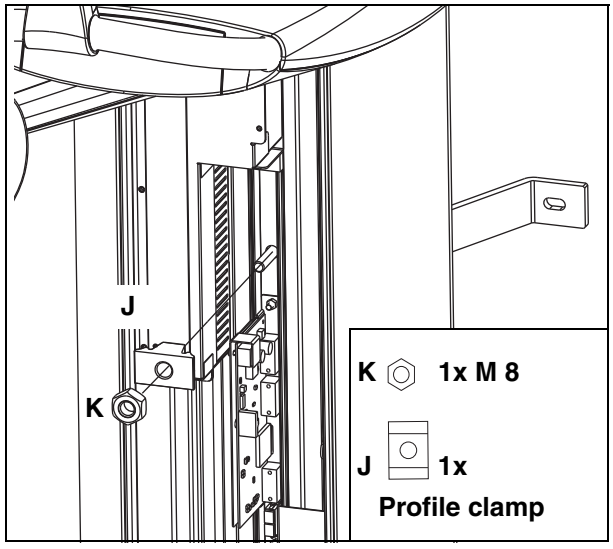
SIRONA recommends leaving the styrofoam packaging on the unit during the entire installation procedure!
*If due to on-site conditions it is unavoidable to remove the styrofoam packaging already at this point, you may move the unit by **carefully** grasping the bite block bar and the stand.*

6. Fasten the panoramic X-ray unit to the upper wall holder.
- Insert the screws **E** into the groove.
- Screw the panoramic X-ray unit firmly onto the wall holder using the washers and nuts **F**.

IMPORTANT

The wall holder must be flush with the upper edge of the unit.

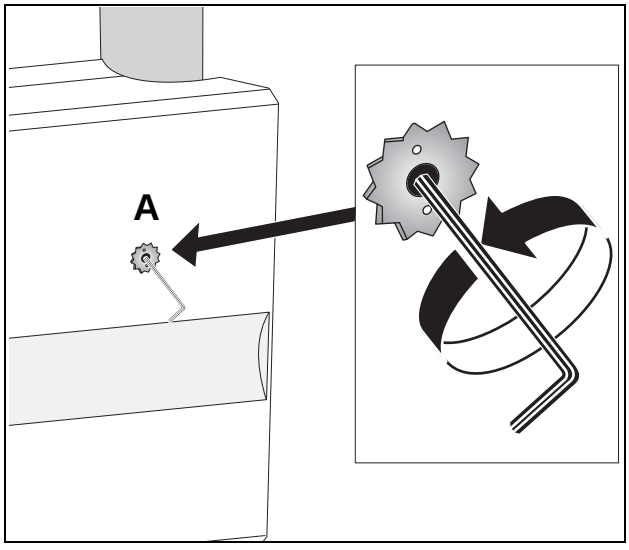
8.



7. Insert screw **G** through washer **H** and then through the wall holder and into the stand from the rear.

8. Fit profile clamp **J** onto screw **G** from the other (front) side and screw nut **K** onto the screw.
Tighten nut **K** firmly.

9.



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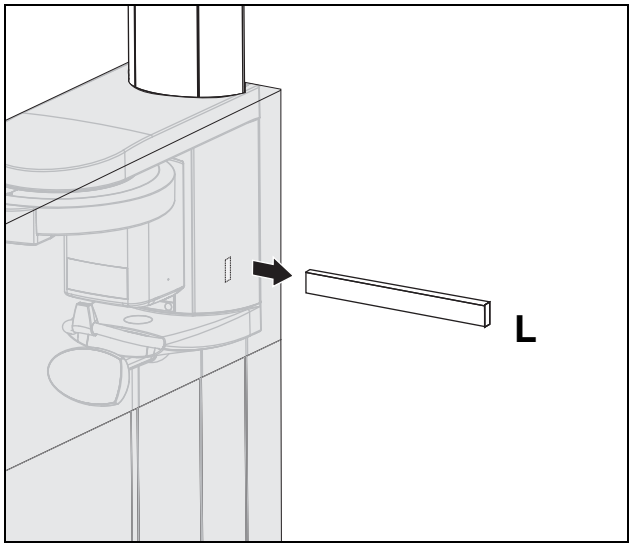
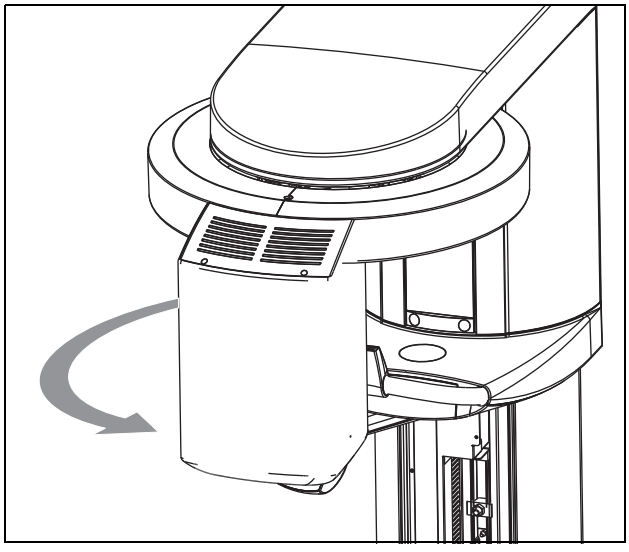
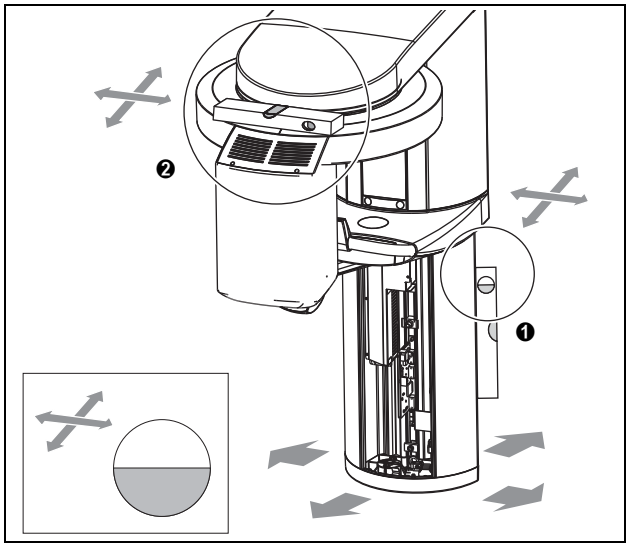


11.



12.



9. Remove the transport safety device (**A**) prior to unit startup.

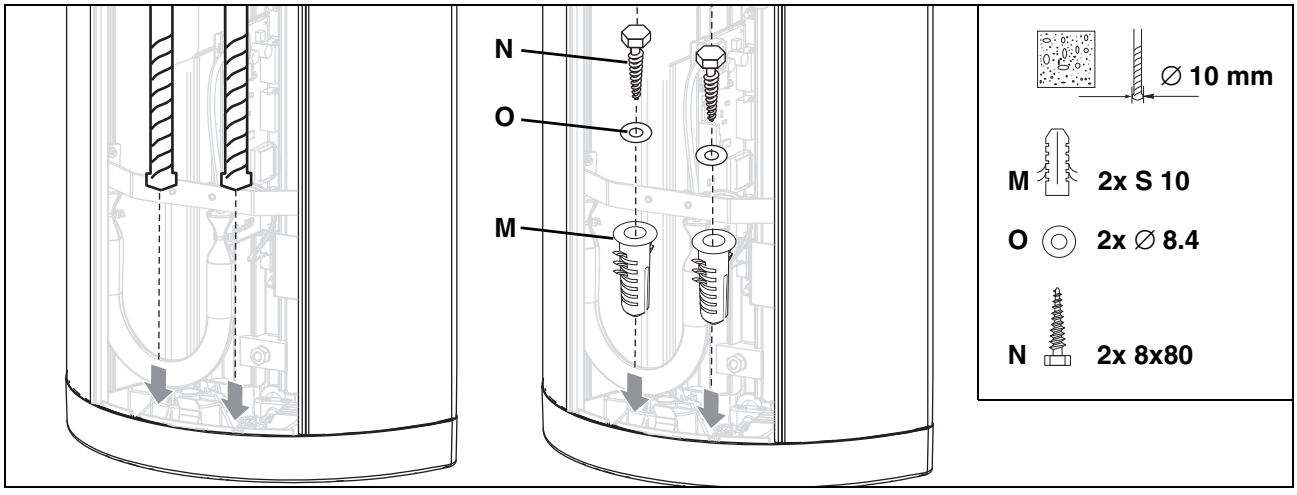
10. Pull the wooden board **L** out of the styrofoam packaging and remove all styrofoam packaging.

11. Rotate the X-ray tube assembly counterclockwise to the front side of the unit.

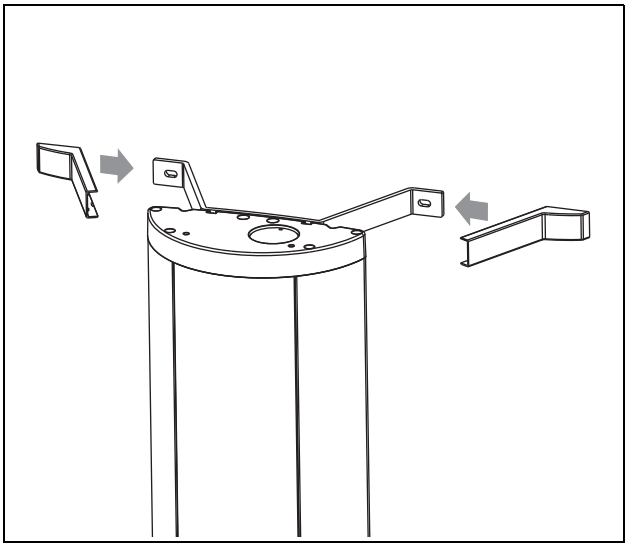
12. Level the unit by moving the unit base in both directions while measuring with the spirit level.

- Align the **stand first** by using the spirit level on the side and rear of the stand ❶ .
- Then align the **ring with the spirit level** in both directions by placing the spirit level on the ring ❷ .

13.



14.



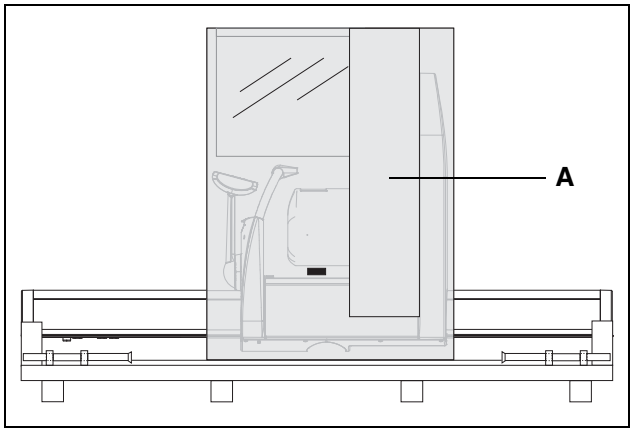
13. Drill through the recesses of the stand into the floor. Insert wall plug **M**, and check again that the stand is aligned correctly (see step 10).

Screw the stand to the floor with the two wood screws **N** and the washers **O**.

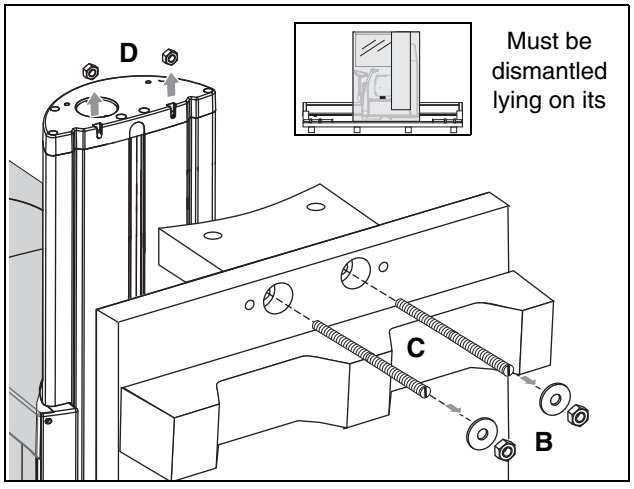
14. Attach the covers of the wall holder(s).

3.4 Installing the floor stand (option 2)

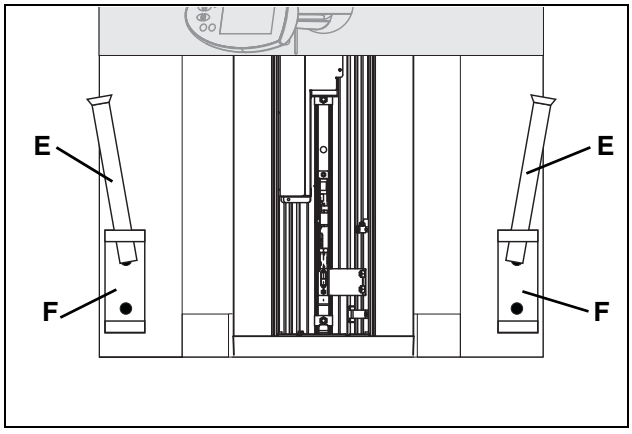
1.



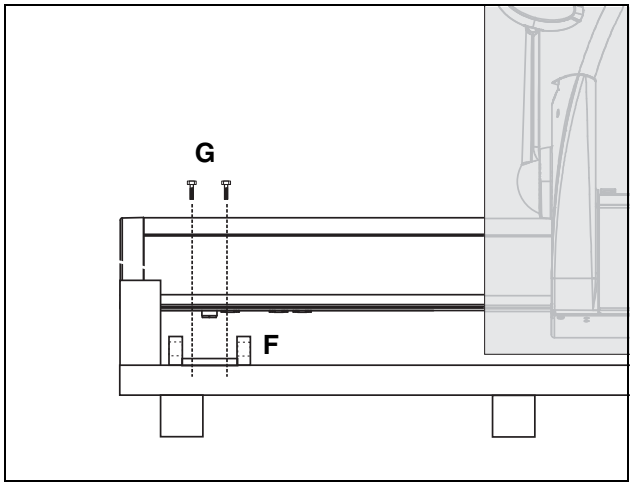
2.



3.



4.



CAUTION

For installation with the floor stand, the unit remains lying on the pallet until the floor stand has been completely assembled. Only then may the unit be installed. For enhanced representation, some of the following drawings are shown in the standing state.

1. Remove the surrounding packaging, the two lateral styrofoam parts and profile cover **A**.

NOTICE

The center styrofoam part should remain attached to the unit for protection.

2. Loosen the nuts **B** (with washers) on both sides of the pallet (or the wooden support). Take off the pallet (or the wooden support). Remove the threaded bolt **C**.

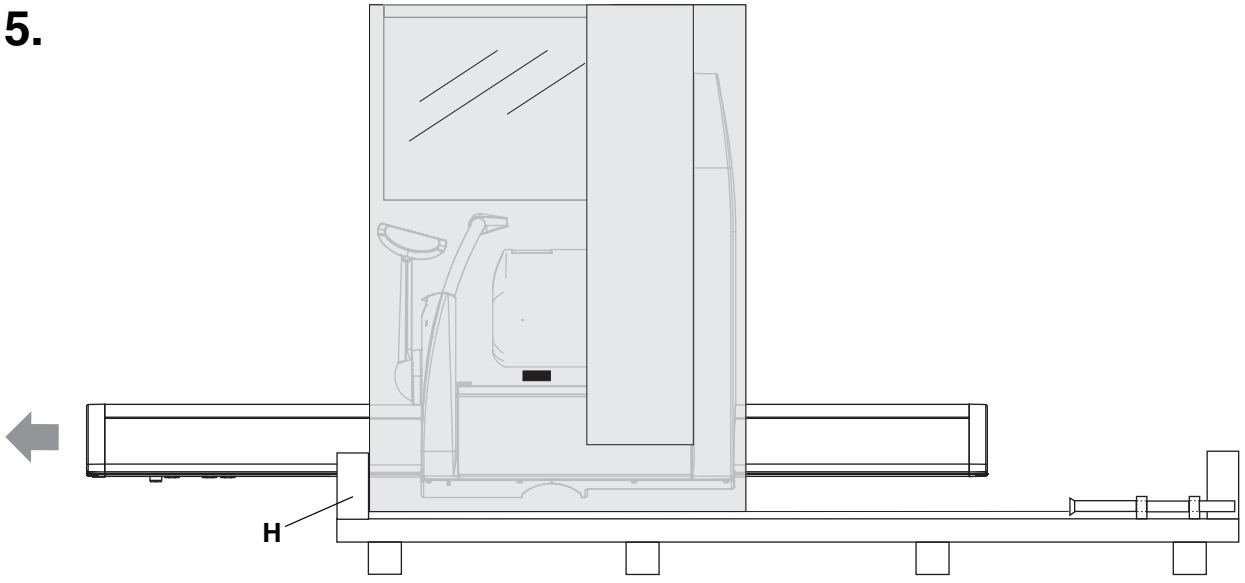
IMPORTANT

*The nuts **D** on the unit may remain inside the unit when the threaded rods are removed. Remove the nuts.*

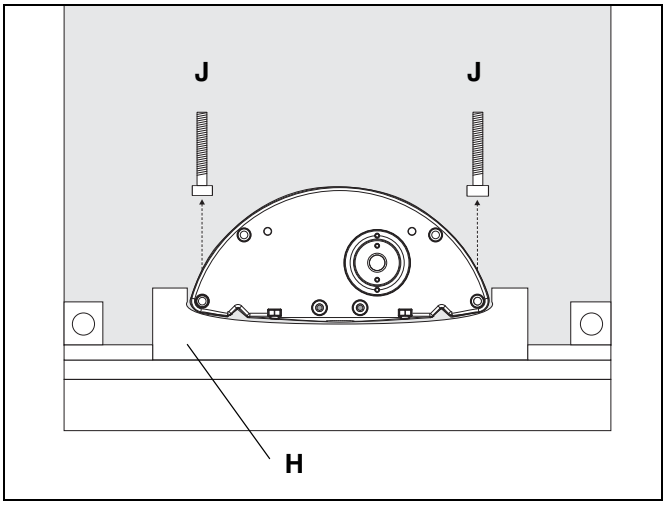
3. Remove the carrying handles **E** on the lower side of the pallet from the holders **F**.

4. Loosen screws **G** and remove the holders **F**.

5.



6.



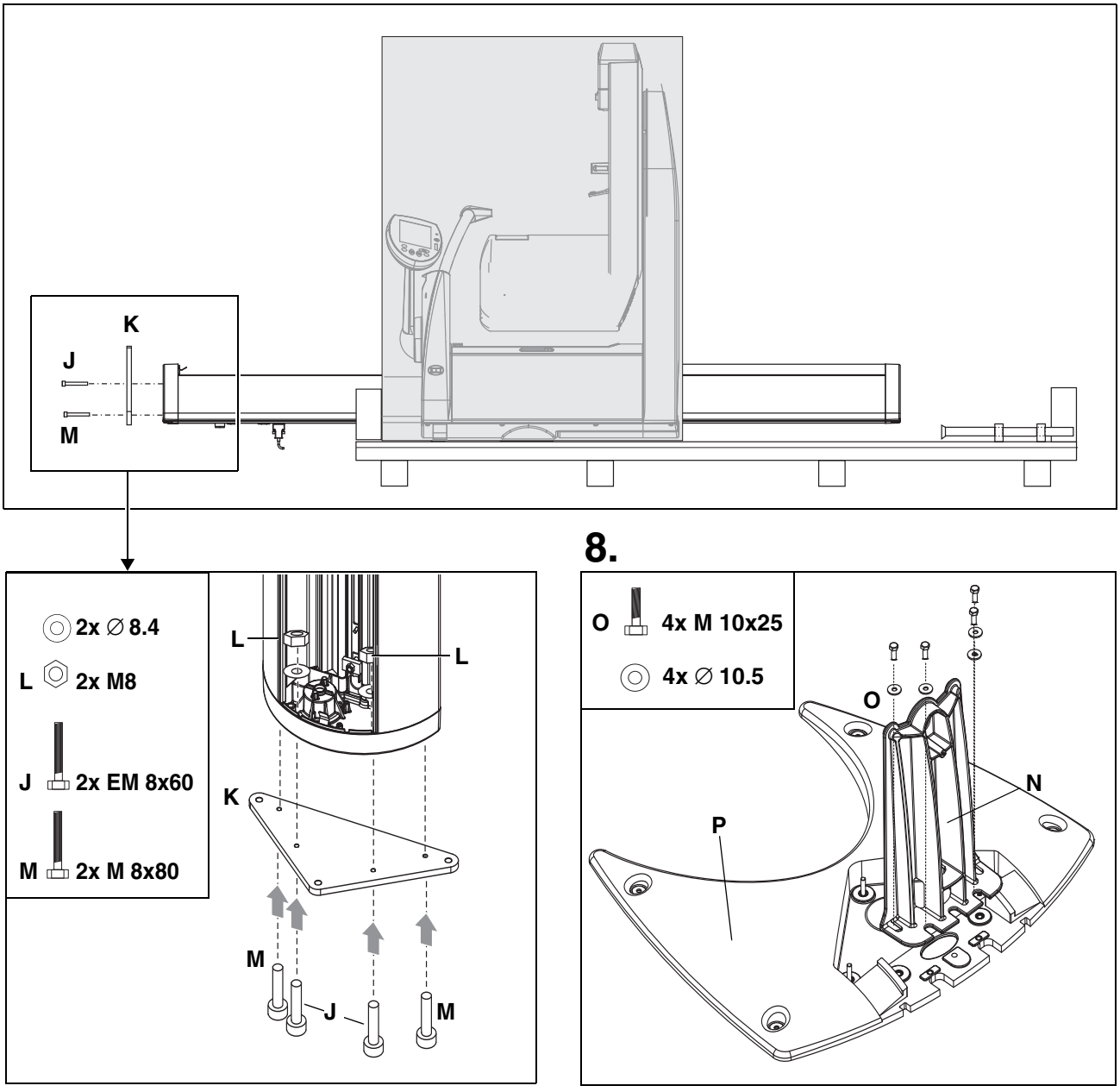
5. Carefully push the unit toward the base just far enough so that the center styrofoam part nudges lower supporting block **H**.

NOTICE

*Make absolutely sure that the interfaces do not have firm contact with supporting block **H** and are not damaged when you push the unit.*

6. Remove the two screws **J** from the bottom of the stand.

7.



8.

7. Screw adjustment plate **(K)** onto the stand firmly.

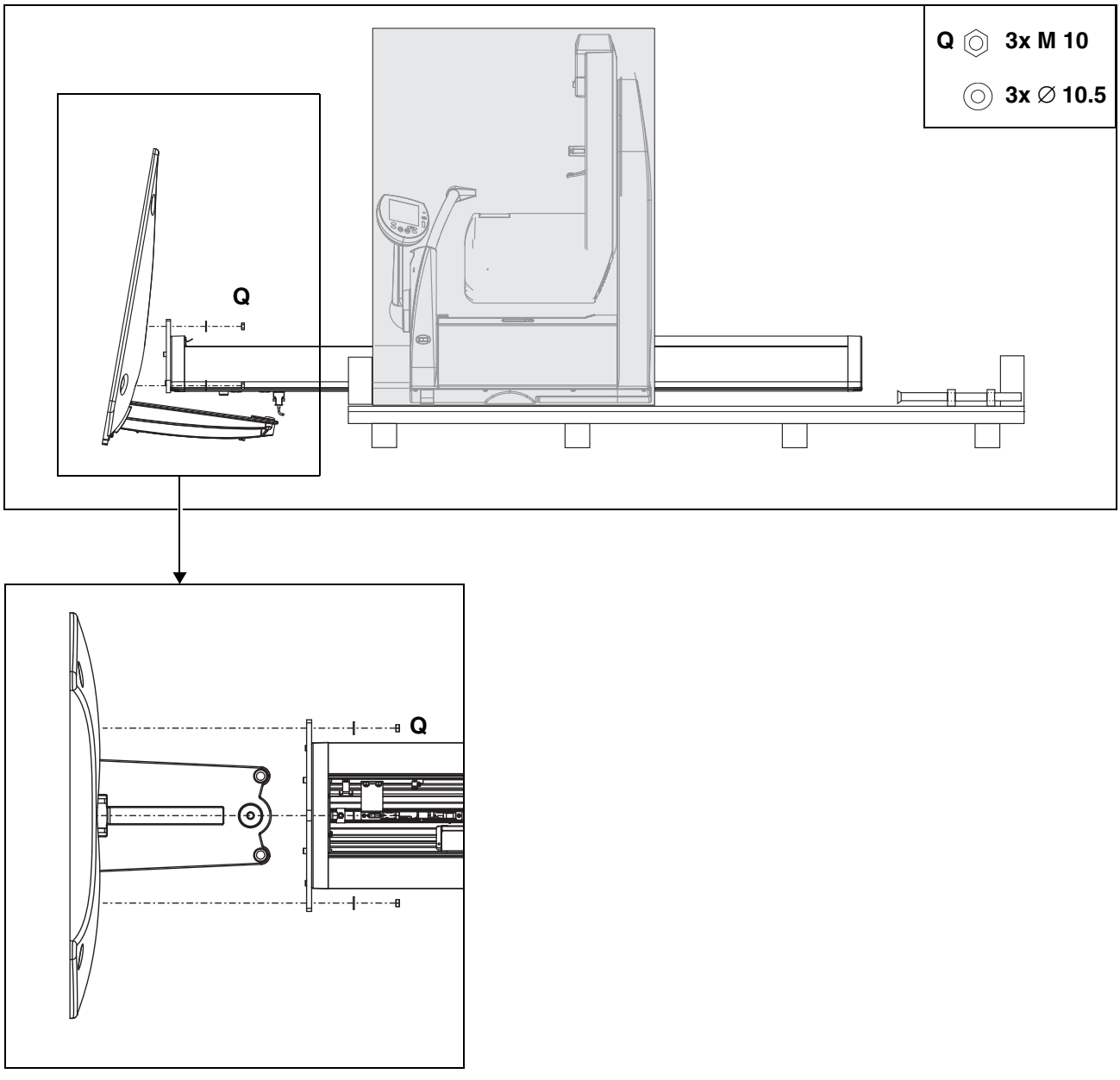
IMPORTANT

*To do this, use screws **J** for the two front holes and secure them with the corresponding nuts **L** and washers (from the installation material). Use two new screws **M** for the rear holes.*

The recessed drill holes of the adjustment plate must point downward.

8. Screw the support **N** firmly onto the base plate **P** using the 4 screws **O** and washers.

9.

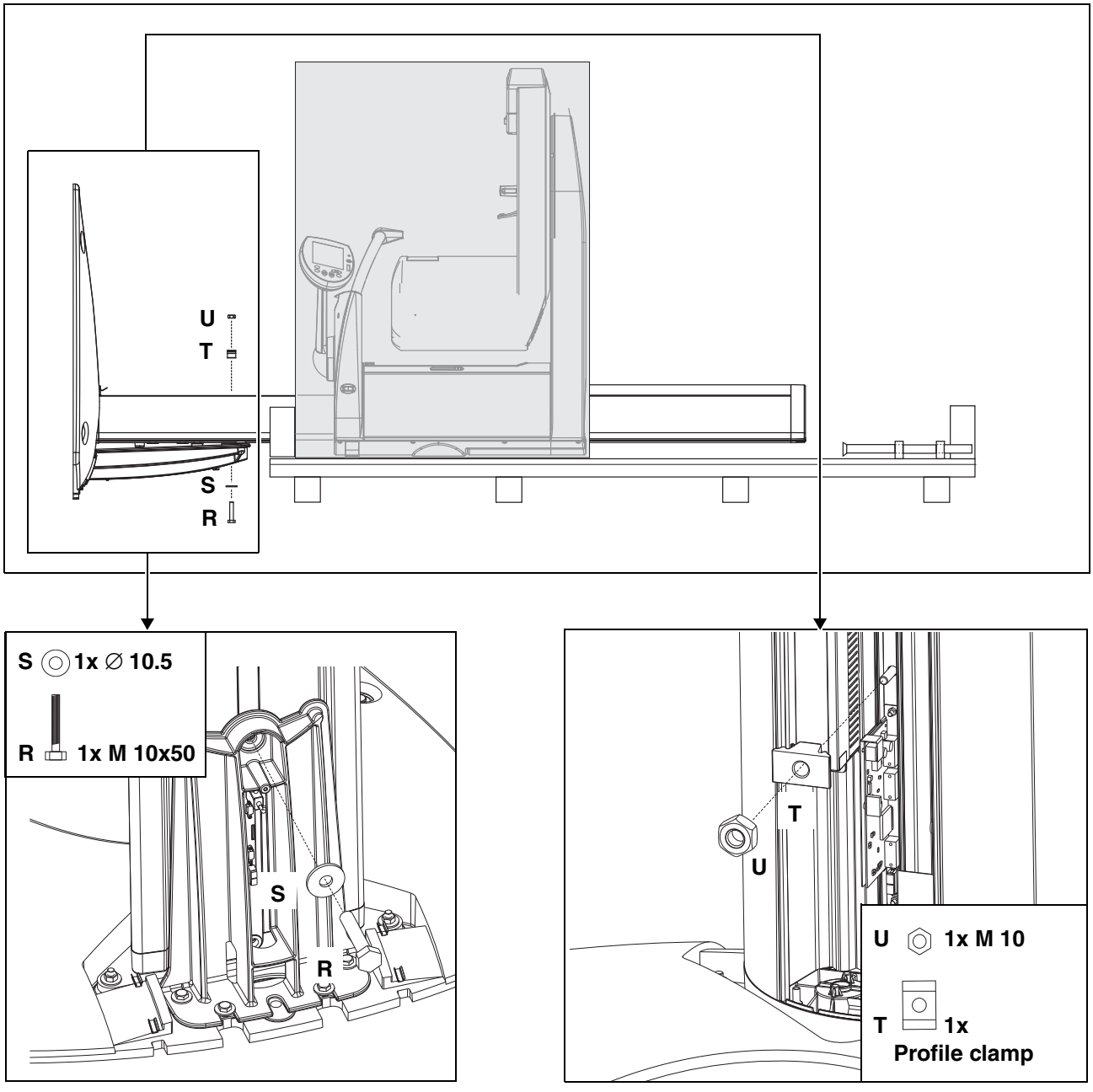


9. Position the base plate with the threaded bolts (including the mounted support) on the adjustment plate and attach the base plate **loosely** with the 3 adjustment nuts **Q** (and washers).

NOTICE

Make sure that the cables are fed through the support correctly and are not crushed.

10. + 11.

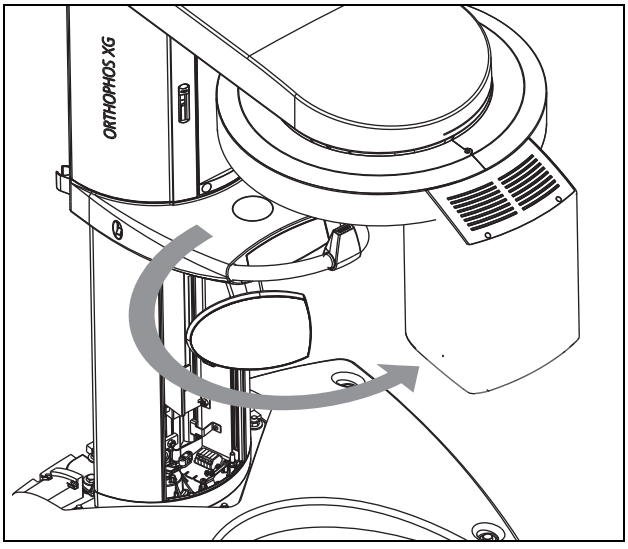


10. Insert screw **R** through washer **S** and then through the support and into the stand from behind.

11. Fit profile clamp **T** onto screw **R** from the other (front) side and screw nut **U** onto screw **R**.

- Tighten adjusting nuts **Q** (see page 39) and screw **R** firmly.

12.



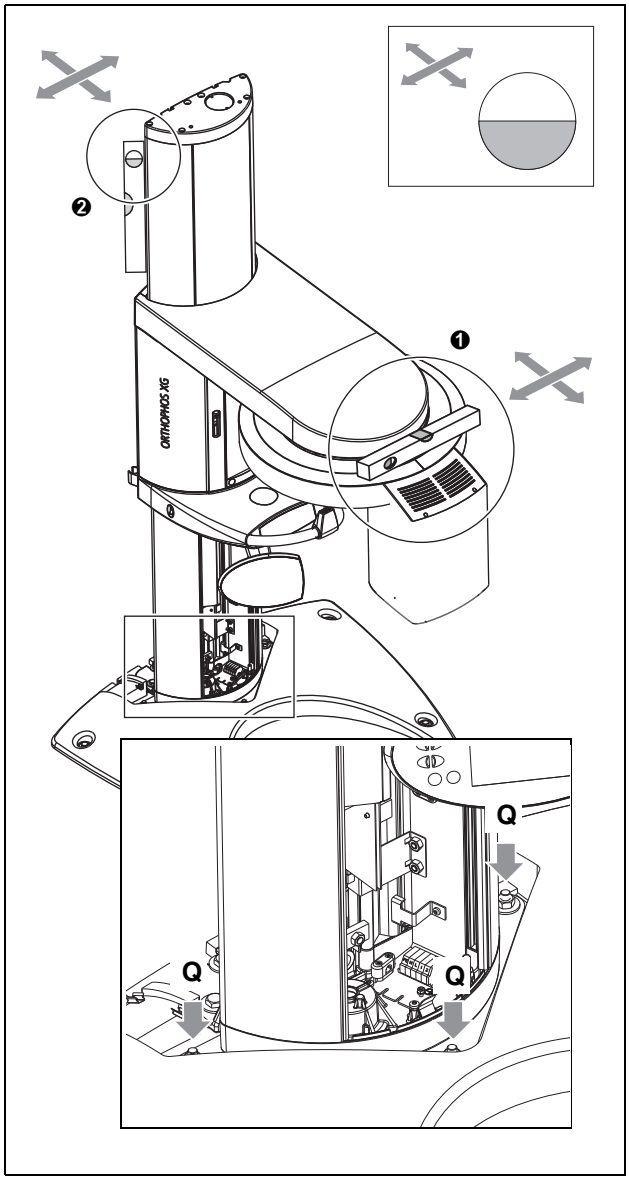
- Set up the unit including the center styrofoam part.

IMPORTANT

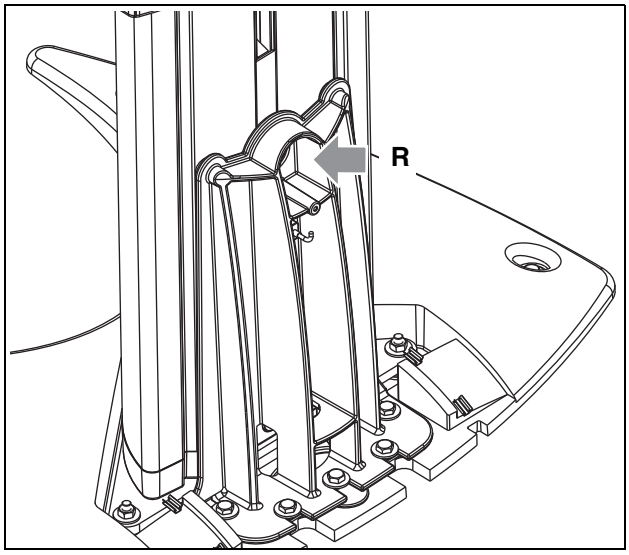
Please observe the required movement range of the X-ray unit during installation (see section 1.6).

12. Remove the styrofoam packaging and rotate the X-ray tube assembly counterclockwise to the front side of the unit.

13.



14.



- Loosen screw **R** and adjusting nuts **Q** again slightly.

13. Level the unit in both directions by turning adjusting nuts **Q** while measuring with the spirit level.

- Align the **stand first** by using the spirit level on the side and rear of the stand ❶ .
- Then align the **ring with the spirit level** in both directions ❷ by placing the spirit level on the ring.

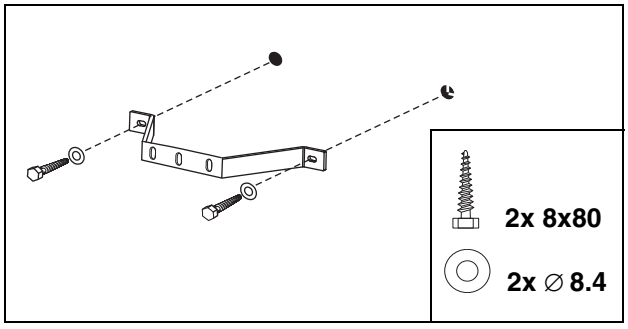
IMPORTANT

Be sure to tighten all adjusting nuts equally (to the same torque) after leveling.

14. Tighten screws **R** again firmly.

CAUTION

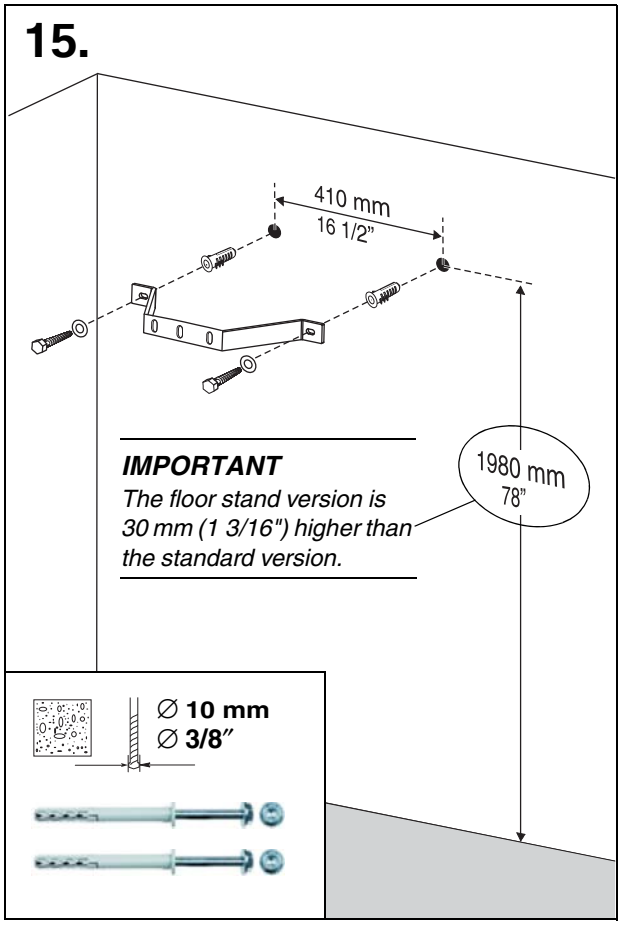
In case of mounting on weight-bearing wood structures:
Use the enclosed wood screws and washers from the mounting kit for mounting the unit on load-bearing wooden structures.



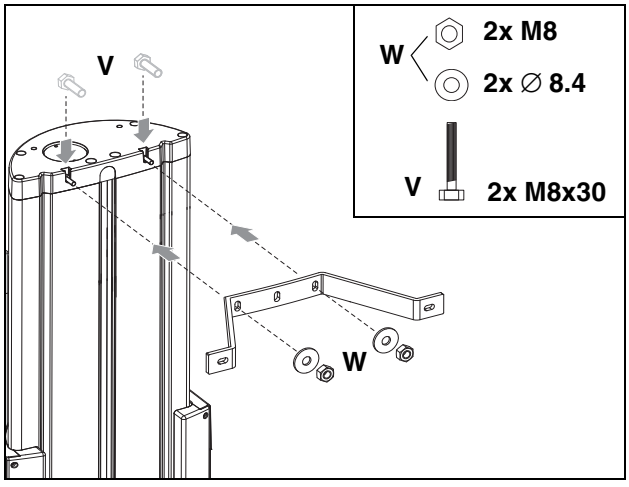
CAUTION

Even when the unit is installed using the floor stand it must be secured with the upper wall holder.

15. Mount the upper wall holder.



16.



- Slide the unit with the assembled floor stand up to the wall.

NOTICE

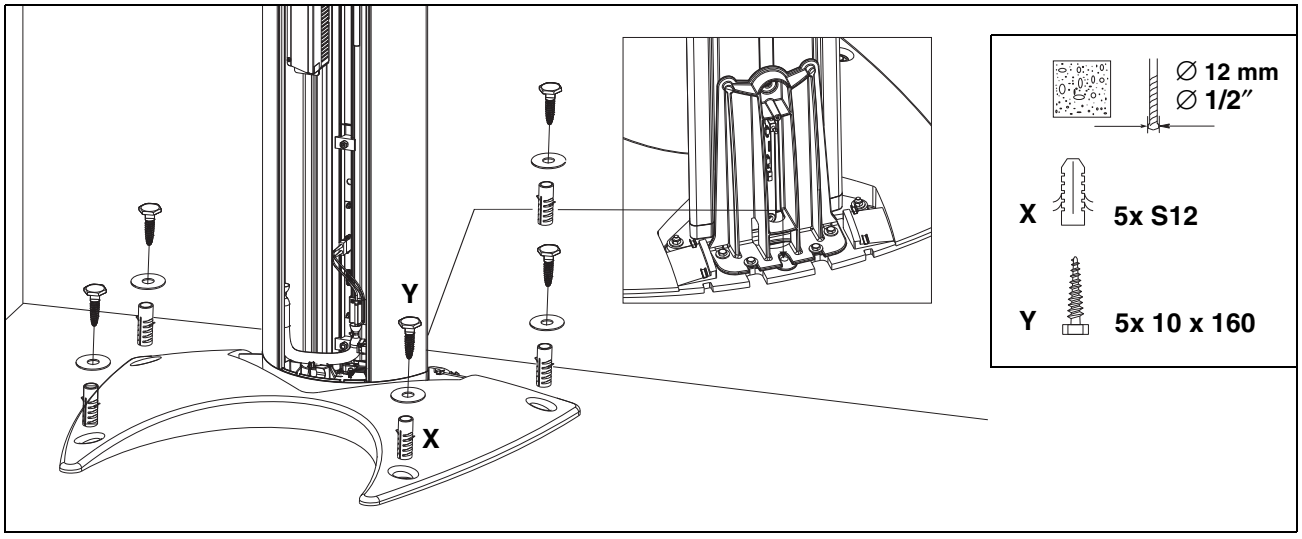
Please observe the required movement range of the unit during positioning (see section 1.2).

16. Mount the unit **loosely** on the upper wall holder.

– Insert the screws **V** into the groove.

– Screw the unit onto the wall holder **loosely** using nuts **W** (and washers). **Do not tighten the screws!**

17.



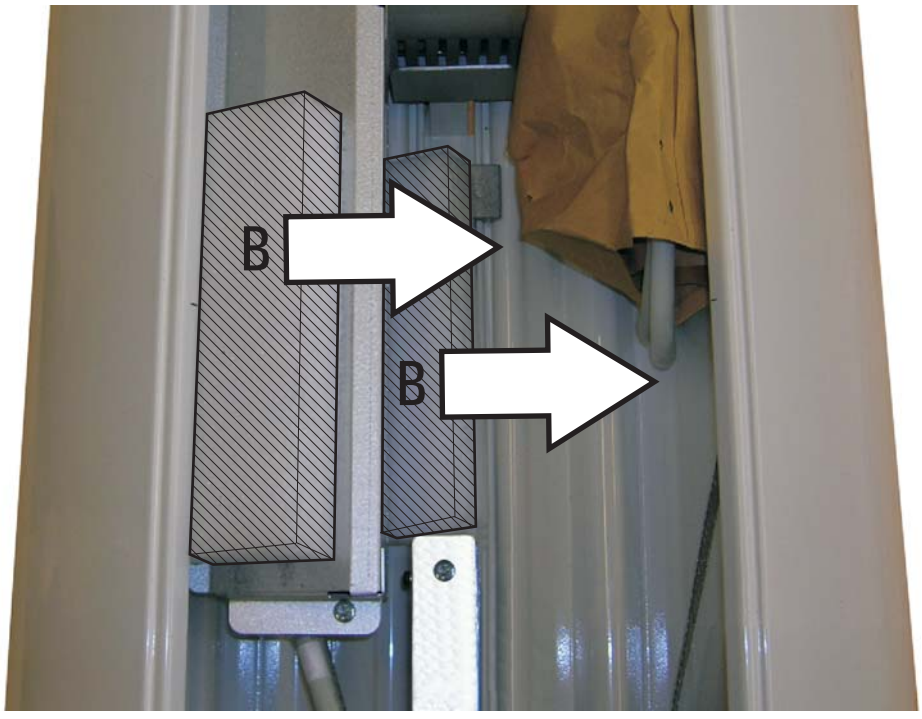
- Level the unit again in both directions with the help of the spirit level (see step 12.) and tighten the screws on the wall holder firmly.

17. Mount the unit onto the floor.

- Drill the fastening holes in the floor through the holes in the base plate.
- Remove the drilling dust with a vacuum cleaner.
- Slide wall plugs **(X)** through the base plate and into the drilled holes.
- Use the five screws **(Y)** (and washers) to screw the base plate firmly onto the floor.

3.5 Removing the transport safety device

1.



1. Remove the transport safety devices **B** prior to unit startup.

IMPORTANT

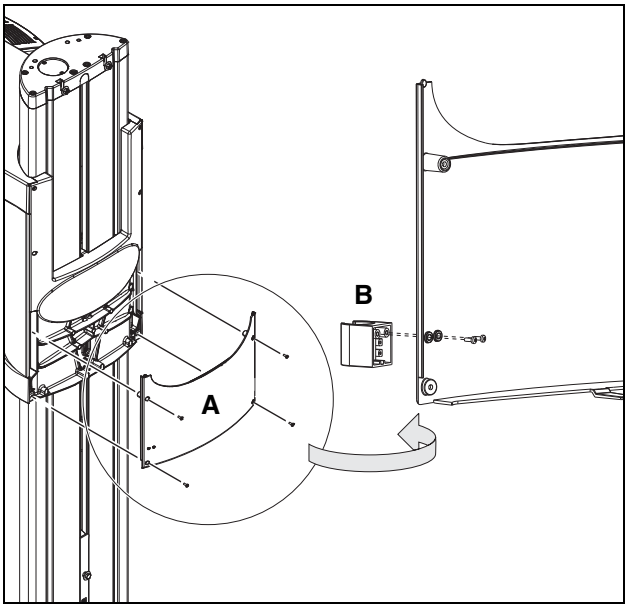
*Keep the transport safety devices **B** in a safe place. You will need them in case the unit has to be moved again.*

3.6 Installing the release button holder

IMPORTANT

*Only install the holder to the unit if you do **not intend to use a remote control**! If you use a remote control in combination with the release button, attach the holder to the remote control (see page 74).*

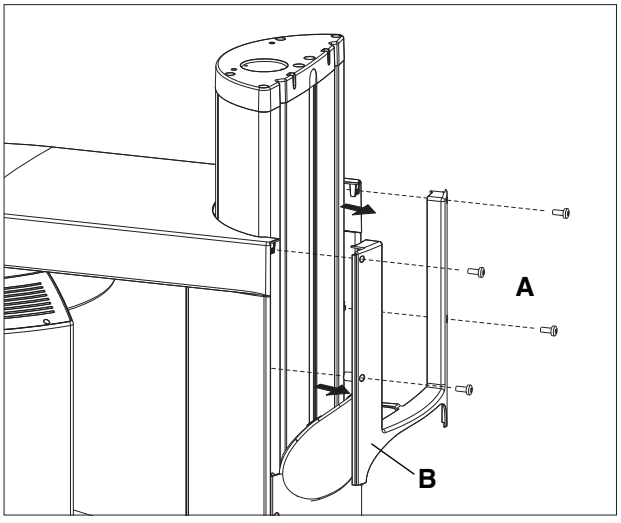
1.



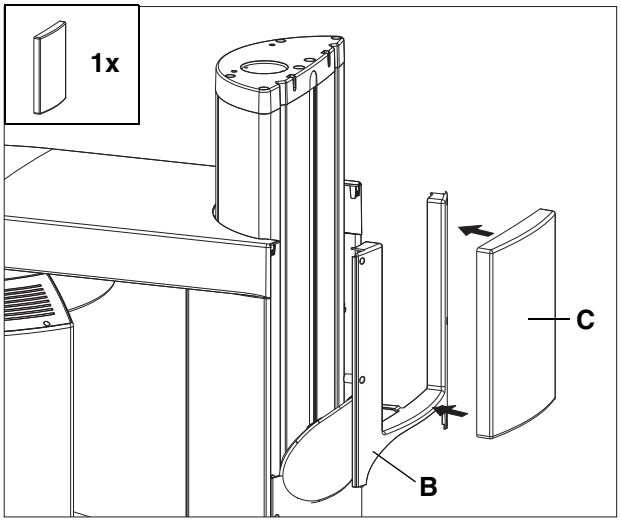
1. Unscrew and remove cover **A**.
Attach holder **B** and screw the cover back onto the unit.

3.7 Attaching the covers

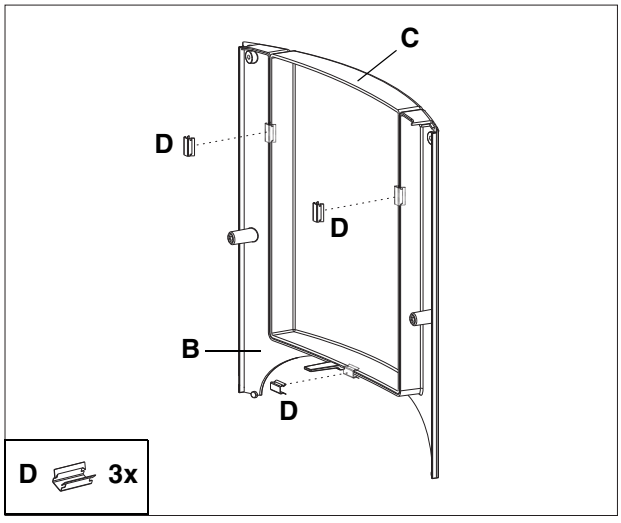
1.



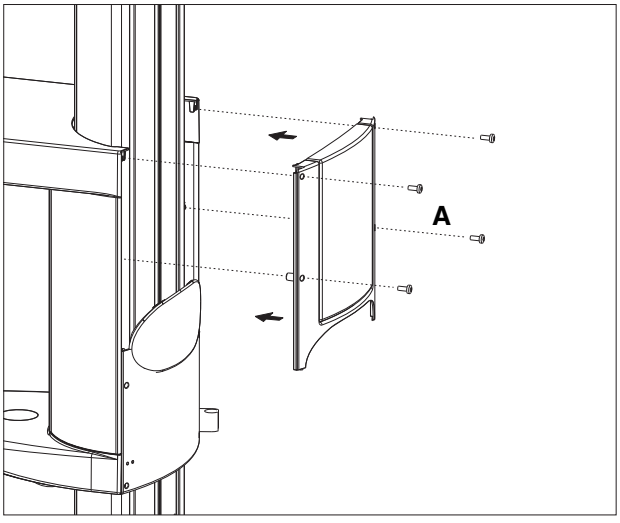
2.



3.



4.

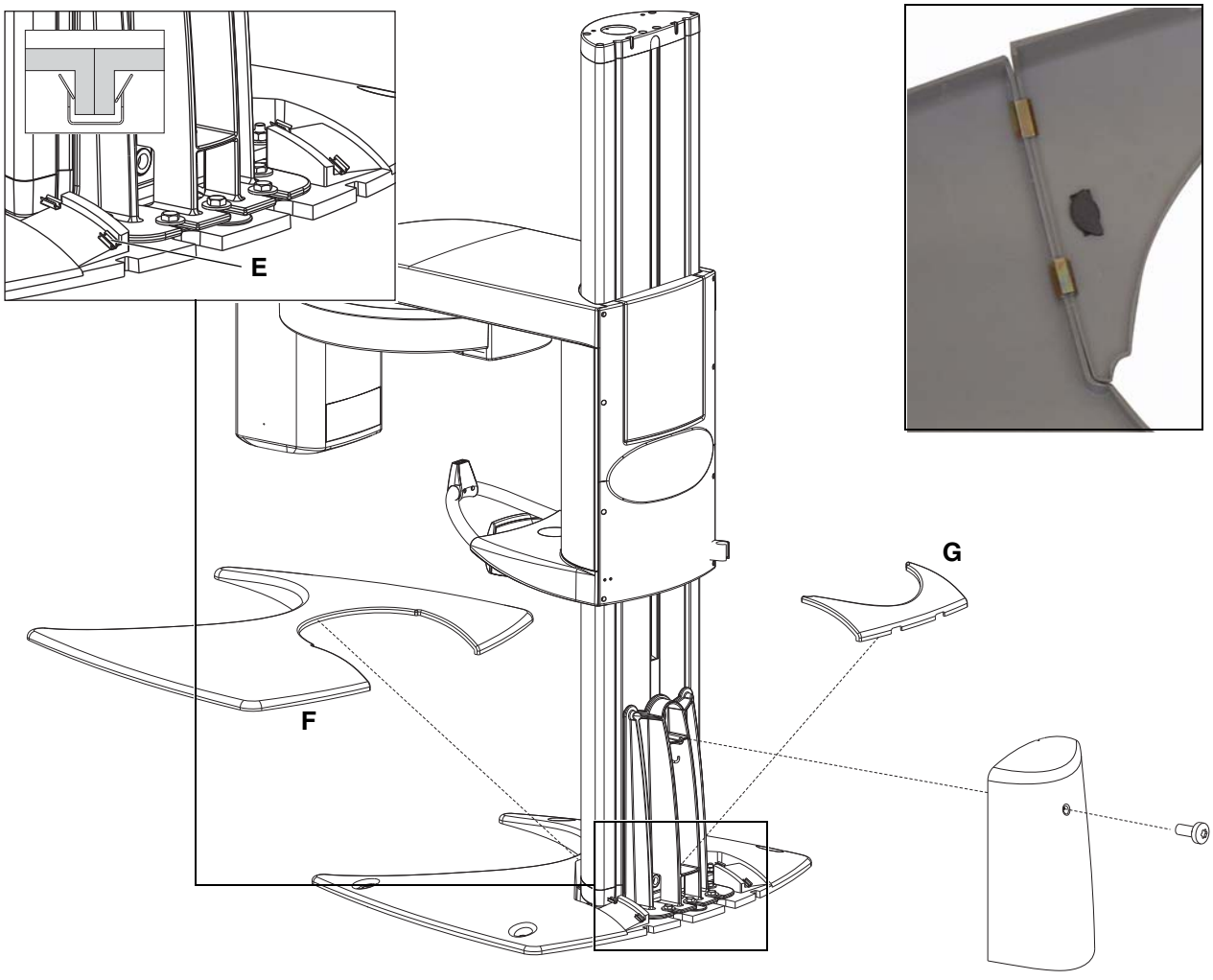


IMPORTANT

These covers must be attached only if the unit is installed with the floor stand and does not stand against a wall.

1. Loosen the 4 screws **A** on the upper housing cover **B** and remove this housing cover toward the rear.
2. Insert the cover **C** included in the floor stand accessories in the outer cover **B**.
3. Fasten the cover **C** to the cover **B** with the 3 spring steel clamps **D**.
4. Use the 4 screws **A** to refasten the assembled housing cover to the unit.

5.



5. Attach all remaining unit housing covers.

IMPORTANT

*In order to attach the floor stand covers properly, the four spring clamps **E** must be placed on the base plate in such a way that the two covers **F** and **G** remain assembled after they are attached (see detail drawing above).*

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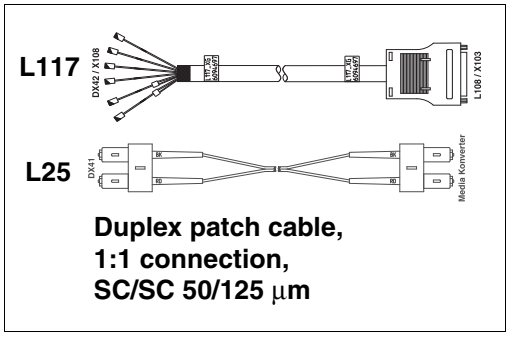
4 Electrical connection

ORTHOPHOS XG 5 / Ceph

4.1 Connecting the control cables (PAN)



1. Connect the personal computer to socket **SC:SC** of the panoramic X-ray unit via the media converter (see the Operating Instructions supplied with the media converter).
- Install the media converter at a suitable location using fastening screws or the Velcro strap supplied for this purpose.

NOTICE
*Do **not** fasten the media converter to the X-ray unit.*

*) not included in the scope of supply

For the installation version without remote control

2. Connect the coiled cable of the release button to socket **X103** of the panoramic X-ray unit.

For the installation version with remote control

3. Connect the remote control to socket **X103** of the panoramic X-ray unit with cable L117.
Secure the connector on socket X103.

4.2 Connecting the line voltage

DANGER

Fixed connection!
The installation of a power plug instead of the prescribed fixed (hard-wired) connection violates international medical regulations and is prohibited. In case of a fault, you would thus endanger the life and limb of the patient, the operator or other persons.

DANGER

Danger of electrical shock!
Be sure to switch off the line power supply before connecting the line voltage!

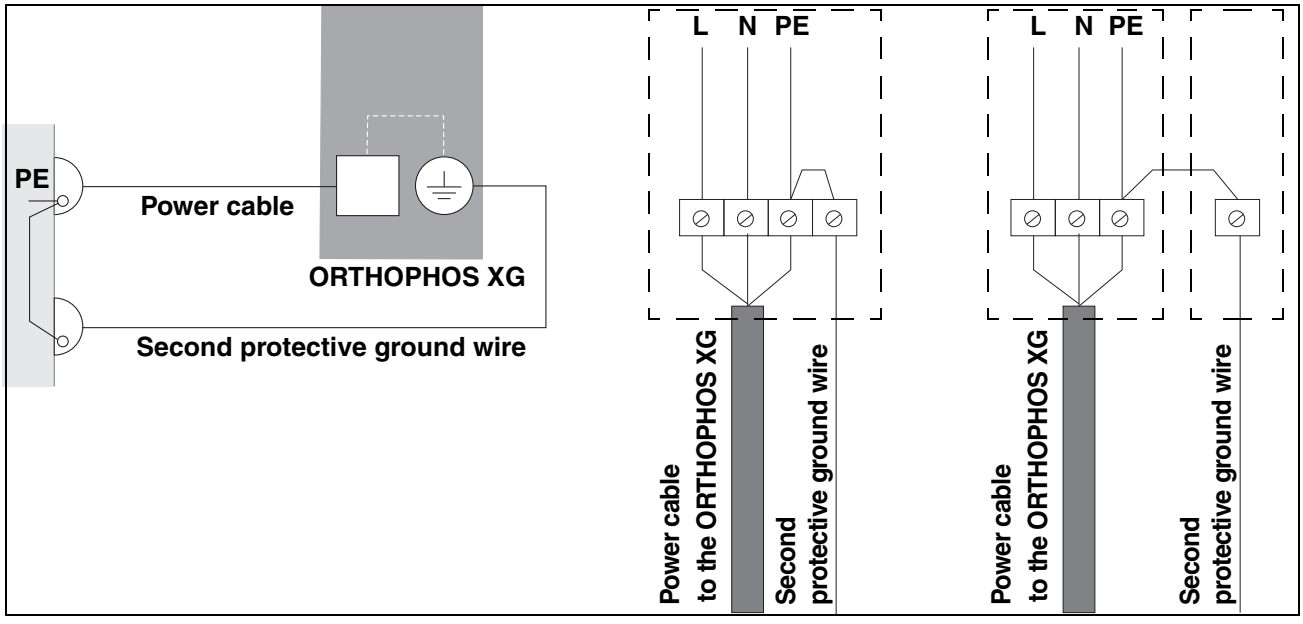
WARNING

Be sure to connect the second protective ground wire to ground.

CAUTION

Incorrectly connected units can pose a risk to patients!
Building installation with 3x1.5 mm² or 3x2.5 mm² (16 AWG or 14 AWG) and a 16 A/20 A overcurrent circuit breaker.
- Connect only units which do not pose any risk to patients when the automatic circuit breaker is triggered.
- Do not connect any EDP units.
- See also "Installation requirements".

1.



ORTHOPHOS XG 5

- The unit is suitable for connection to networks of **200 - 240 V and 50 - 60 Hz, ± 10 %**.

1. Check the protective ground wires and the device leakage current according to IEC 62353: 2007 (see sections "7.1 Checking the protective ground wires 76" and "7.2 Checking the device leakage current 79".
2. Record the measured values in chapter 3 of the document "Inspection, maintenance and safety-related check".
3. Then make the power supply connection as shown above first.

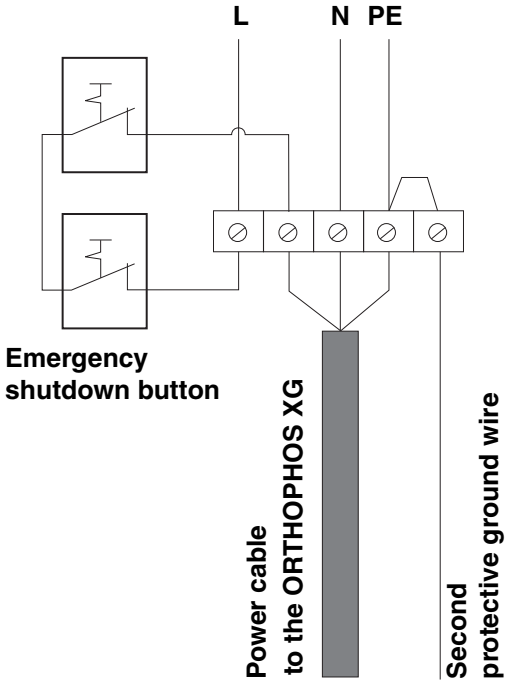
Media converter

WARNING

When operating the unit at exhibitions and fairs, you must observe the information provided in section 12.3 Demo mode!

- Plug the connector of the media converter's power supply unit into the electric outlet.

EMERGENCY STOP installations (if legally prescribed)



- Use the emergency shutdown button that is integrated into the power cable to switch on the unit.

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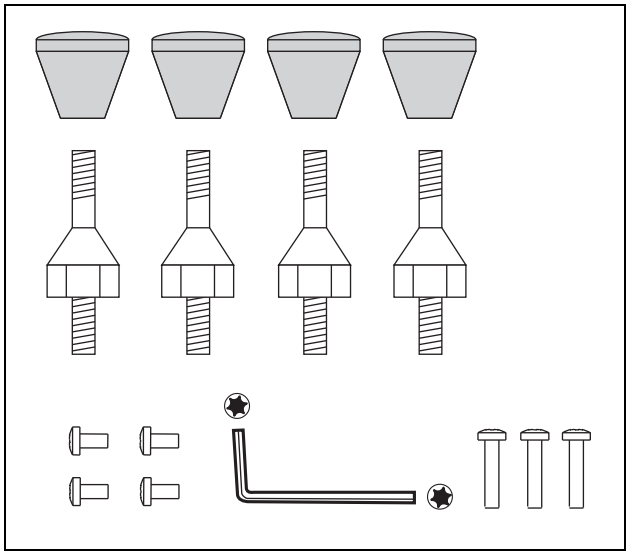
5 Installation: CEPH arm

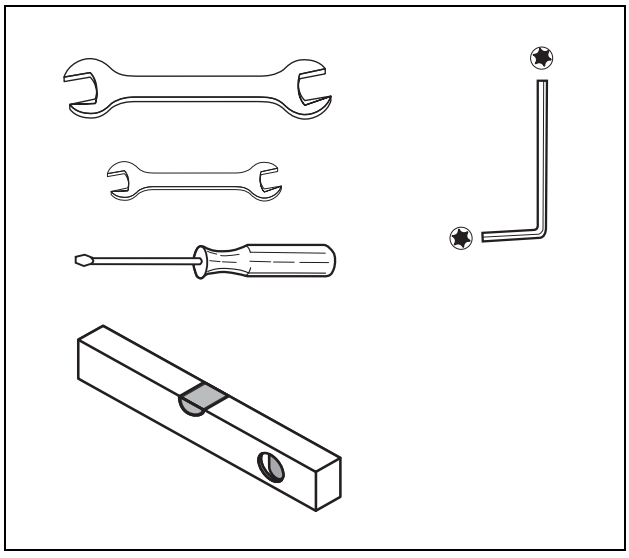
ORTHOPHOS XG 5 / Ceph

5.1 Installation material/tools

1.



2.



1. CEPH installation material
- Conical nut: 4 pc.
- Bearing bolt: 4 pc.
- Screw (M 4 x 8): 4 pc.
- Screw (M 4 x 35): 3 pc.
- Torx offset screwdriver TX50

2. Required tools
- Torx offset screwdriver TX50*
- Allen offset screwdriver 2.5 mm
- Open-end wrench, 8 mm A/F
- Open-end wrench, 10 mm A/F
- Spirit level

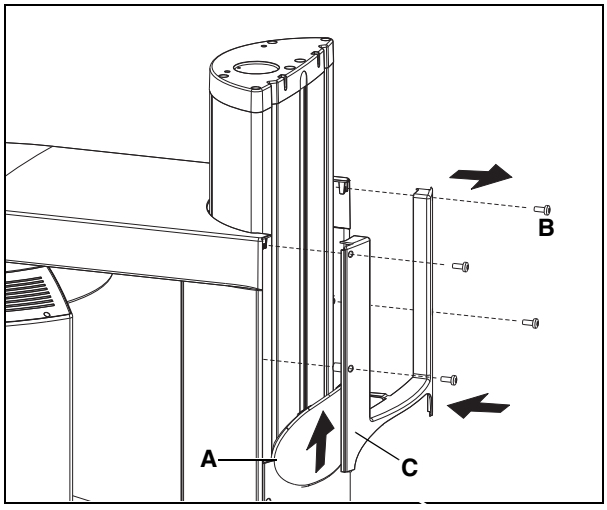
* included in the scope of supply

IMPORTANT

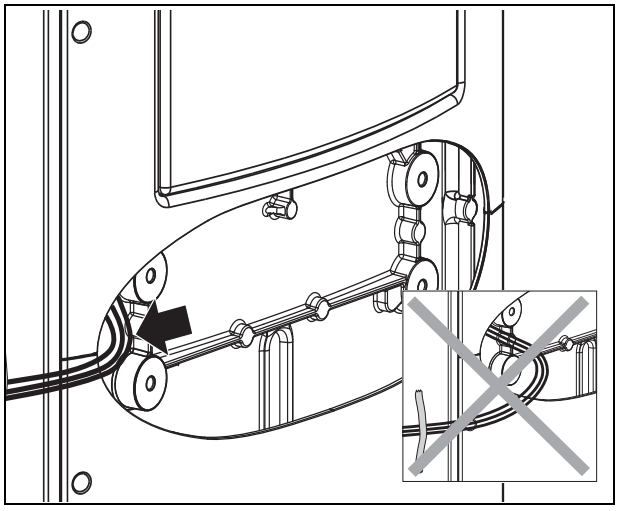
*If the unit is installed freely with a floor stand, **CEPH installation** is **not** permissible. When operating the unit with a floor stand and a cephalometer, an additional fastening with the upper wall holder is absolutely essential.*

5.2 CEPH installation

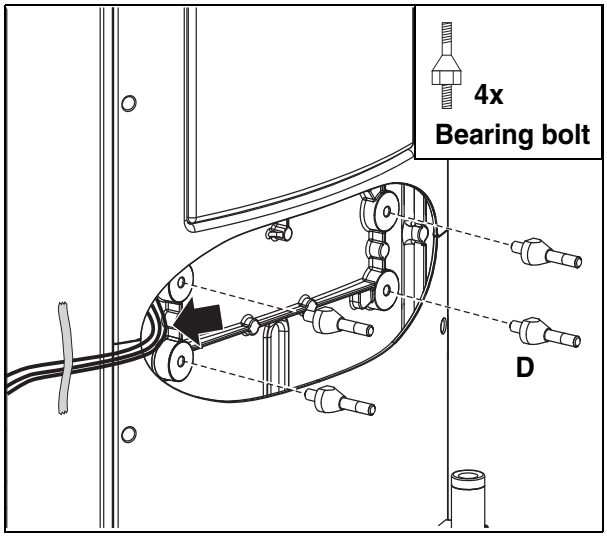
1.



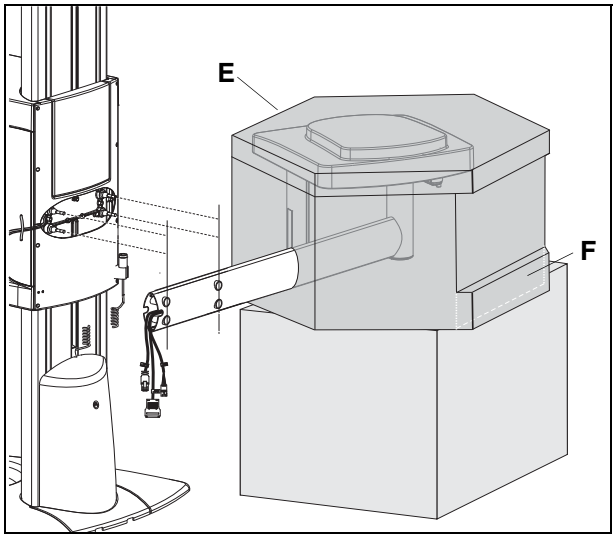
2.



3.



4.



1. Disassemble and remove cover **A**.
- Loosen screws **B** and remove cover **C**.
- Remove cover **A** by pulling it upwards.
- Reattach cover **C**.

2. Detach the cable fastening. Remove the packaging and pull out the cables slightly behind the cover. Run out the cables and fasten them with adhesive tape.

3. Screw the four bearing bolts **D** into the panoramic X-ray unit.

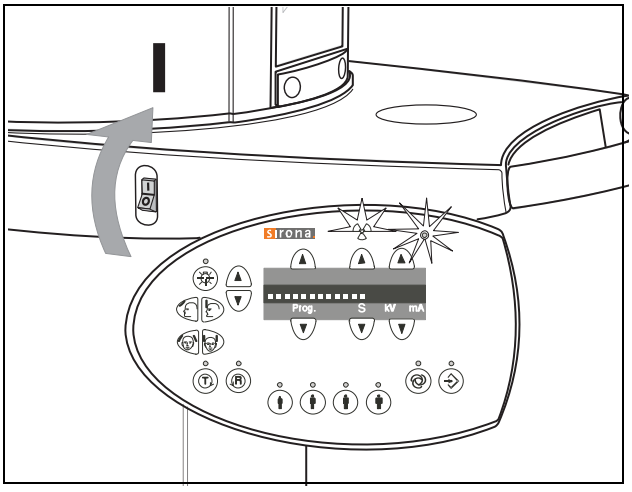
4. Position the cardboard support next to the panoramic X-ray unit and place the CEPH arm with its styrofoam packaging on it.

Remove the adhesive tape and the cover (**E**) of the CEPH packaging.

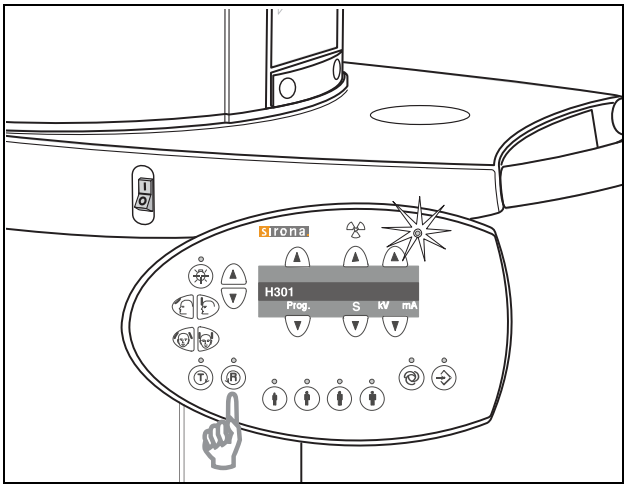
Break off the wall part (**F**) of the packaging at the perforation.

Slide the cardboard support with the cephalometer up to the wall so that the drill holes of the support arm are horizontally aligned with the positions of the threaded bolts.

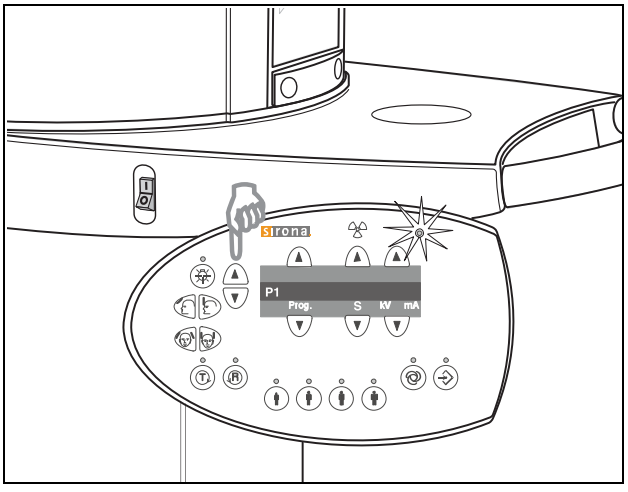
5.



6.



7.



WARNING

Be sure to observe the radiation protection regulations applicable in your country.

It is prohibited for any person to be positioned in the unit when it is switched on.

5. Switch the panoramic X-ray unit **ON**.

Wait until the system has completed its self-adjustment routine and help message H301 prompts you to move the unit to the starting position.

6. Press the **R key** on the Multipad.

The unit moves to its starting position.

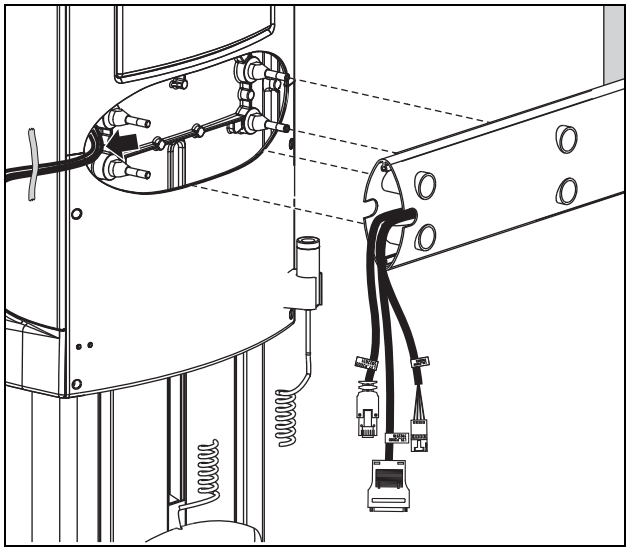
7. Use the arrow keys on the Multipad to move the unit **downward** until the bearing bolts on the unit are at the same height as the drill holes on the CEPH arm.

NOTICE

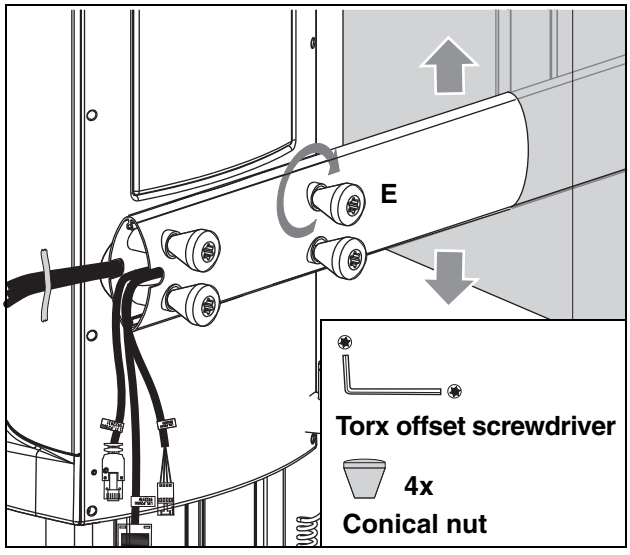
Do not move the unit upward without checking the room height.

If the minimum room height is less than 2.27 m (89 3/8") (2.30 m (90 1/2") with floor stand), you must limit the maximum travel height of the unit (see Section 12.1.8).

8.



9.



8. Fit the support arm onto the four bearing bolts. **Make sure that the connecting cables lie in the groove of the support arm and are not crushed.**

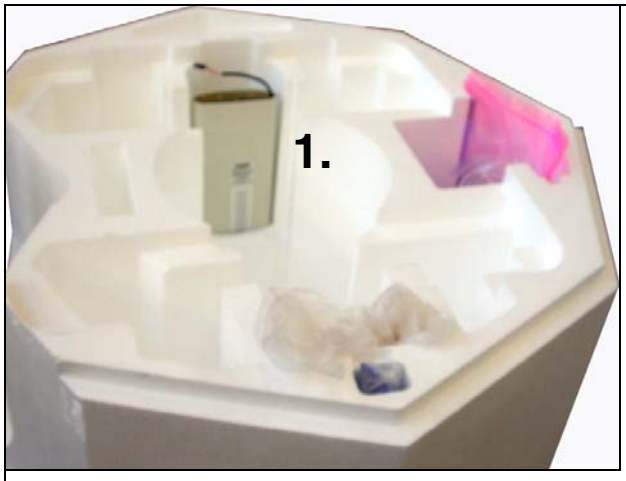
9. Screw in the conical nuts **E** and tighten them firmly.

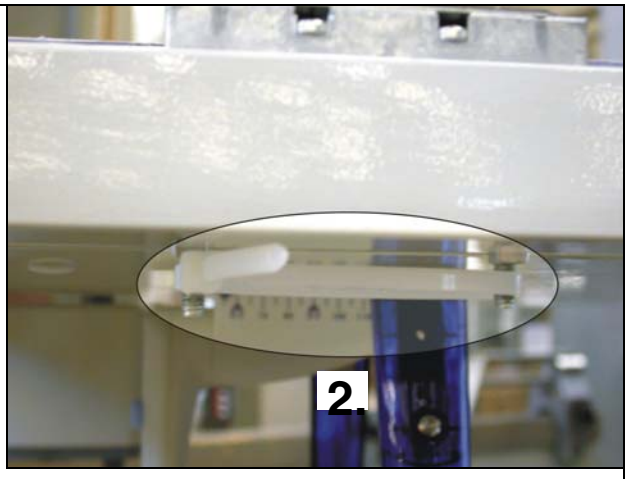
IMPORTANT

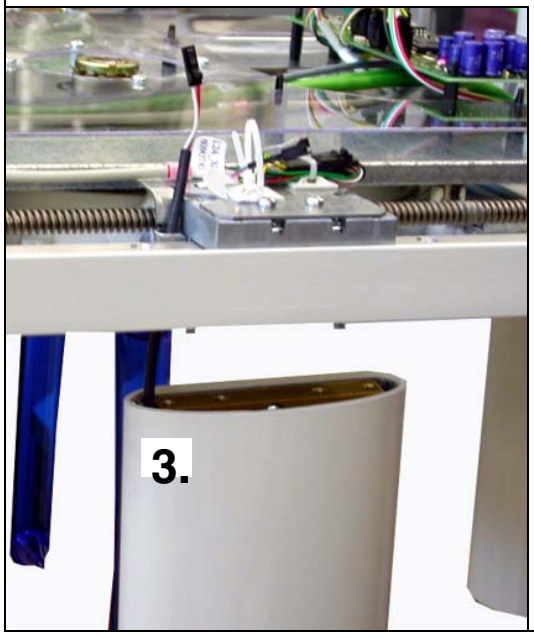
The support arm may get tilted while you are tightening the conical nuts. You can prevent this by raising and moving the arm slightly while tightening the nuts.

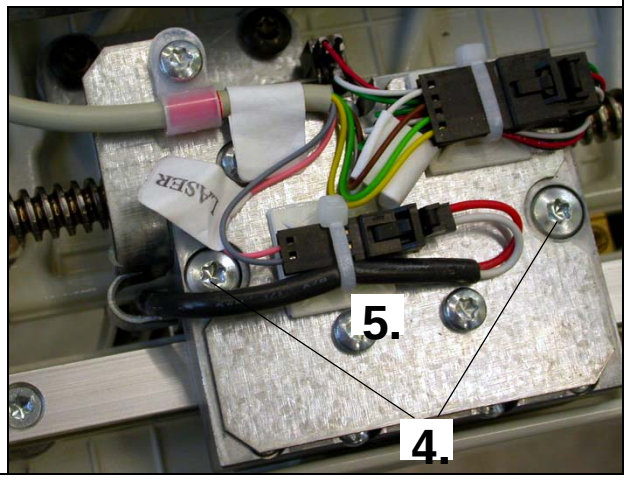
- Now remove the styrofoam packaging from the cephalometer.

5.3 Installing the secondary diaphragm





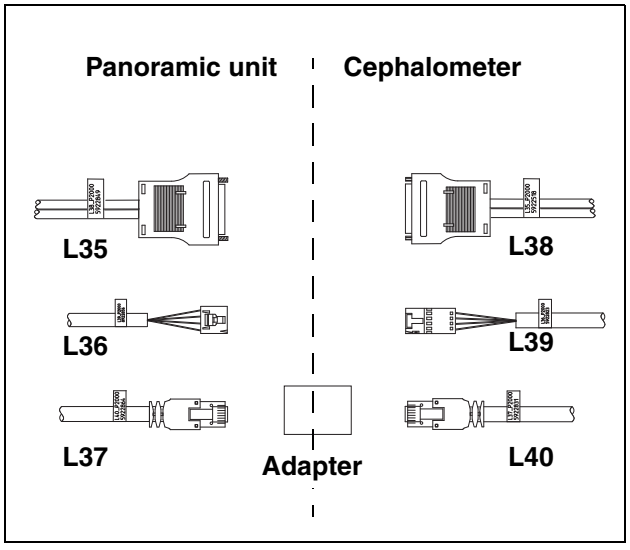




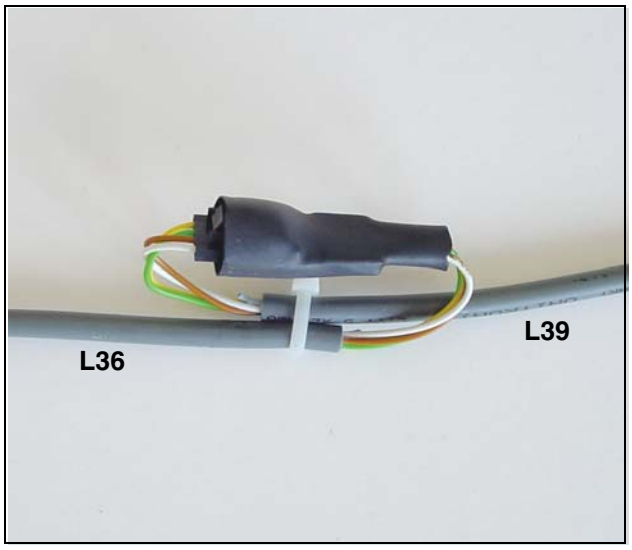
1. Remove the secondary diaphragm from its packaging.
2. Remove the securing cable ties for screws.
3. Guide the secondary diaphragm underneath the cephalometer and push the connector upward through the opening.
4. Screw the secondary diaphragm tight.
5. Make a plug connection with the connector of the FH laser and fasten it with the cable tie.

5.4 Connecting the control cables (CEPH)

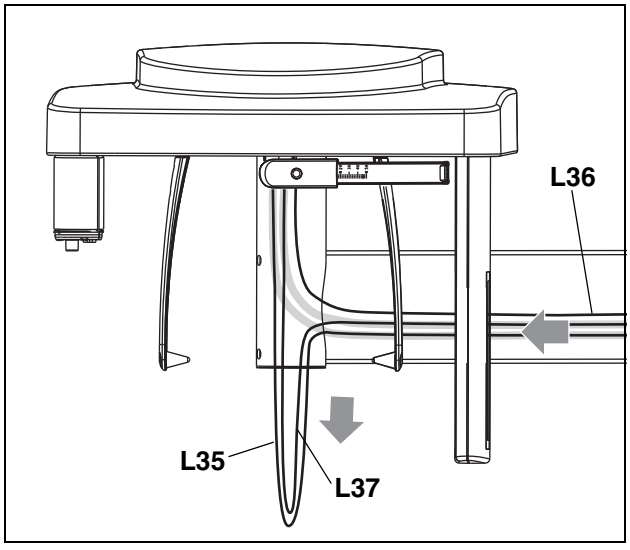
1.



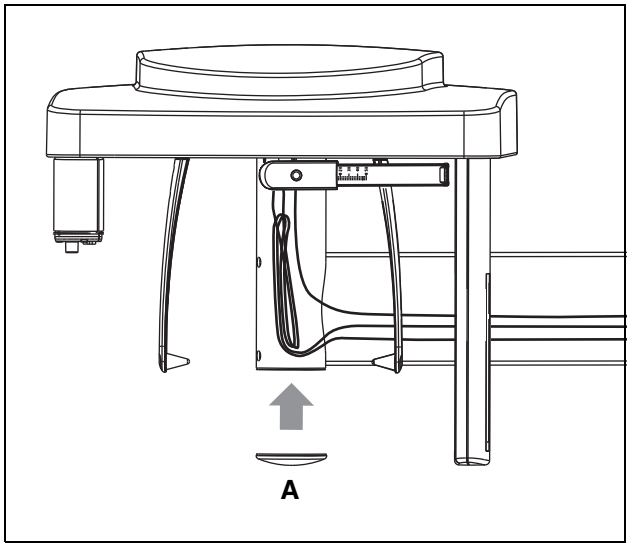
2.



3.



4.



1. Connect the panoramic X-ray unit and the CEPH arm as shown in the connection diagram above and **secure plug connection L35/L38 with the plug screws**.

IMPORTANT

Use the adapter included in delivery to connect cables L37 and L40.

2. Roll the plug connection **L36/L39** into a loop and secure it with a cable tie.

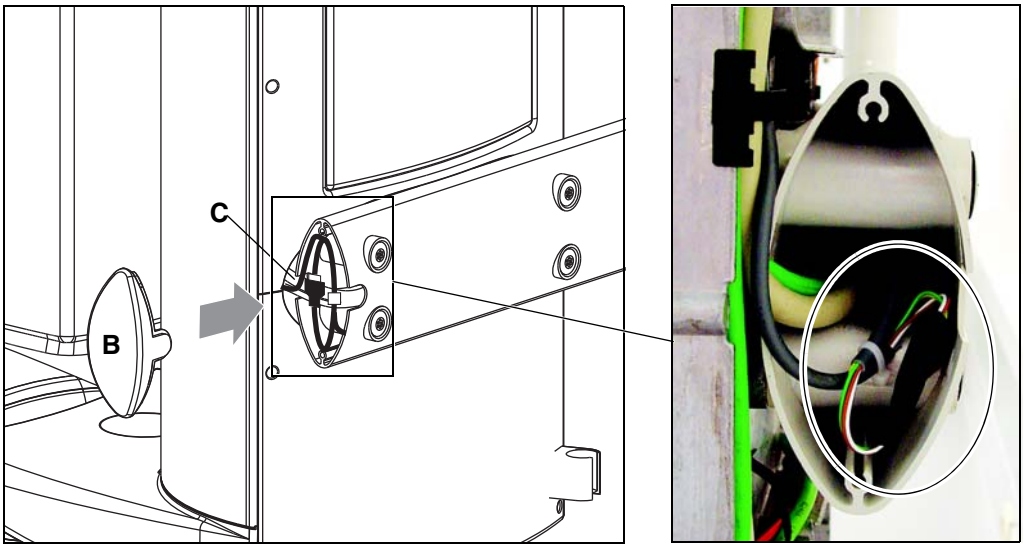
3. Grasping inside the cephalometer tube from below, carefully pull cable **L35** (two green Cat5 cables) and then cable **L37** (green Cat5 cable) downward and out of the support arm.

IMPORTANT

Do not pull out cable L36!

4. Roll the cable into a loop and stow it away in the tube. Close the tube by attaching cover **A**.

5.



5. On the opposite end of the support arm, run the cables through groove **C**, lay the cables and cable loop (L36/ L39) as illustrated in Fig. 5. and attach cover B.

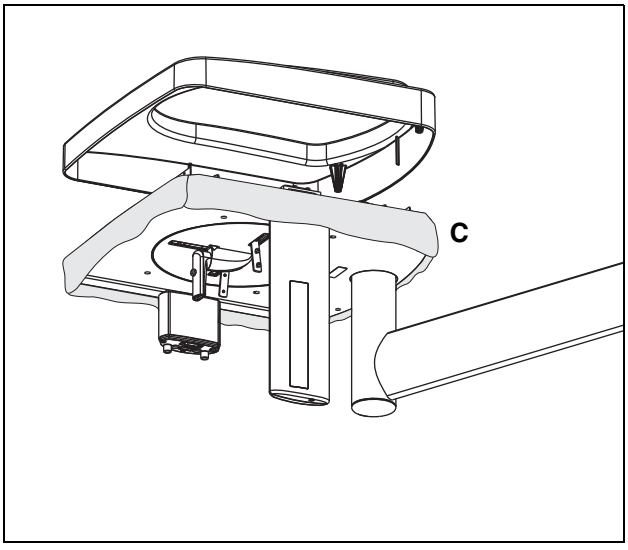
Make sure that the **cables are not crushed or kinked** when doing this.

IMPORTANT

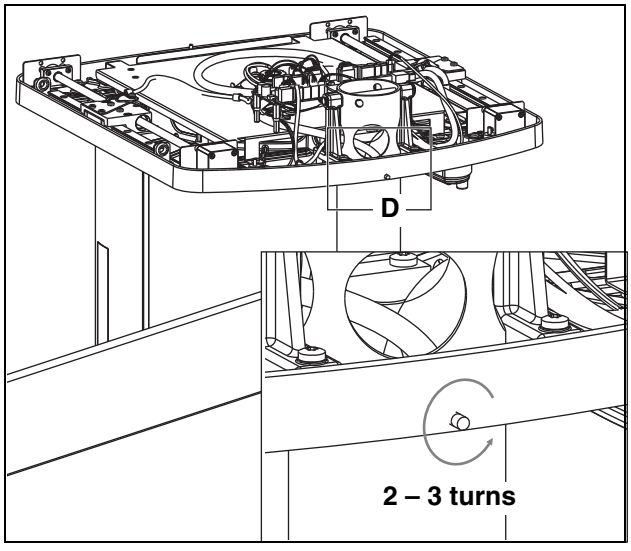
*For operation with a cephalometer, the unit must be configured accordingly. After initial startup of the unit, check the configuration with the help of **service routine S017, test step 2** (see Section 12.1.5).*

5.5 Final installation work

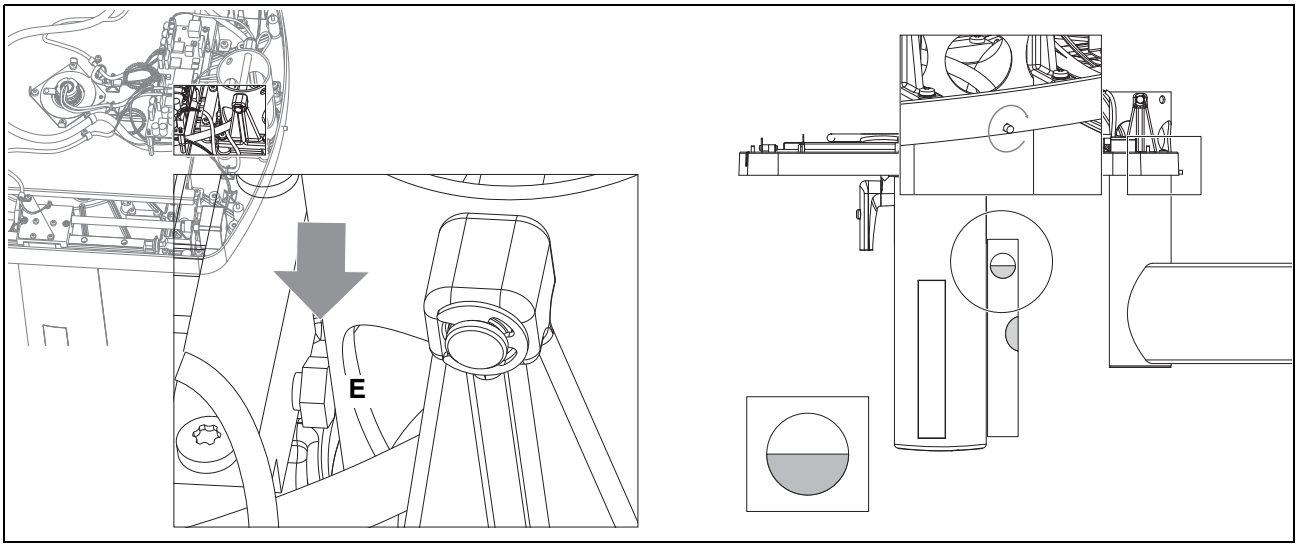
1.



2.



3.



1. Take off the top cover and remove the protective cloth **C**.

IMPORTANT

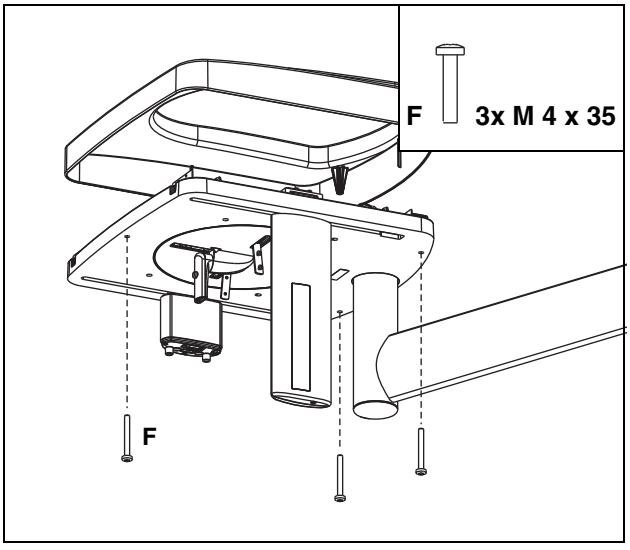
Do not manually move or otherwise exert force on the secondary diaphragm and the sensor adapter.

2. Loosen stud screw **D** (2 – 3 turns).

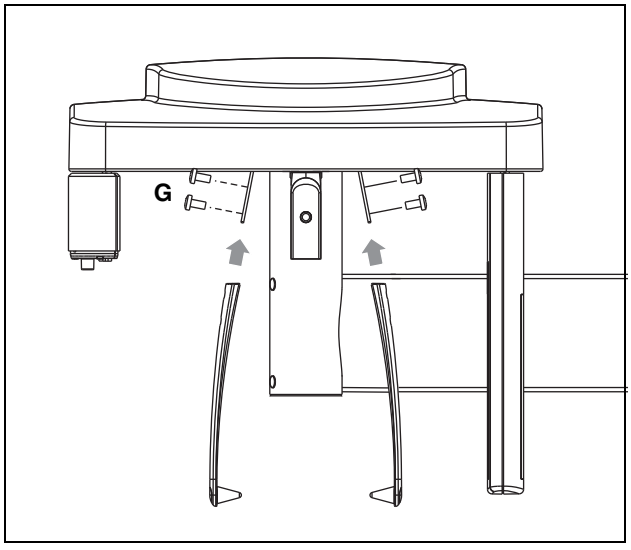
3. Use screw **E** to adjust the inclination of the cephalometer so that the secondary diaphragm is positioned vertical. To do this, place the **spirit level on the side of the secondary diaphragm**.

- Retighten the stud screw firmly.

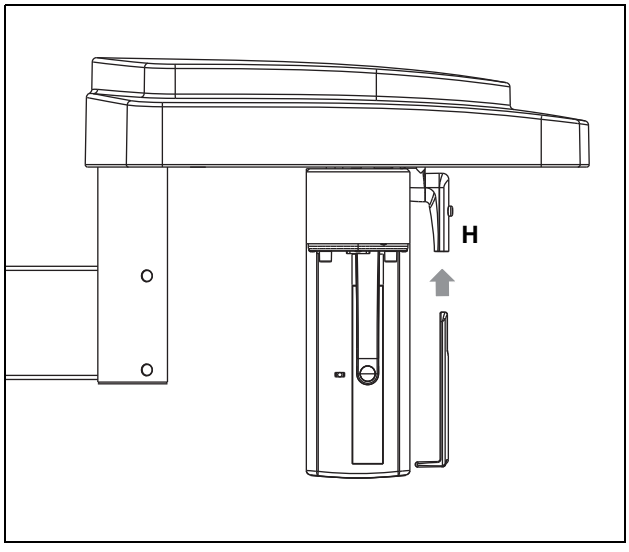
4.



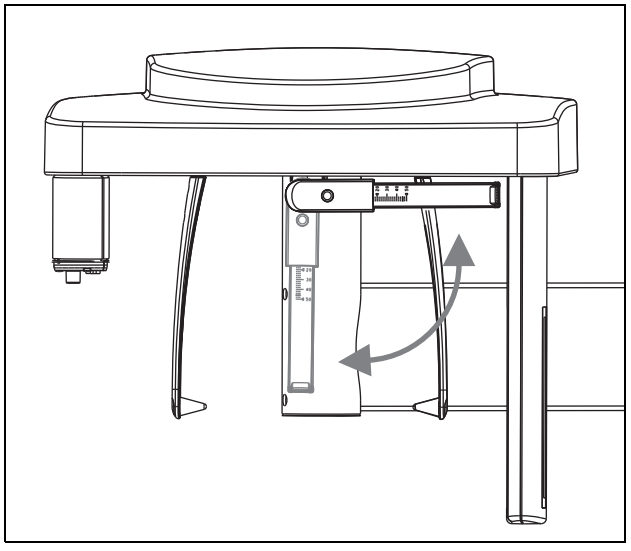
5.



6.



7.



4. Attach the top cover with the 3 screws **F**.

5. Insert both ear plug holders and fasten them securely using screws **G**.

6. Press button **H** and insert the nose support.

7. Fold up the nose support.

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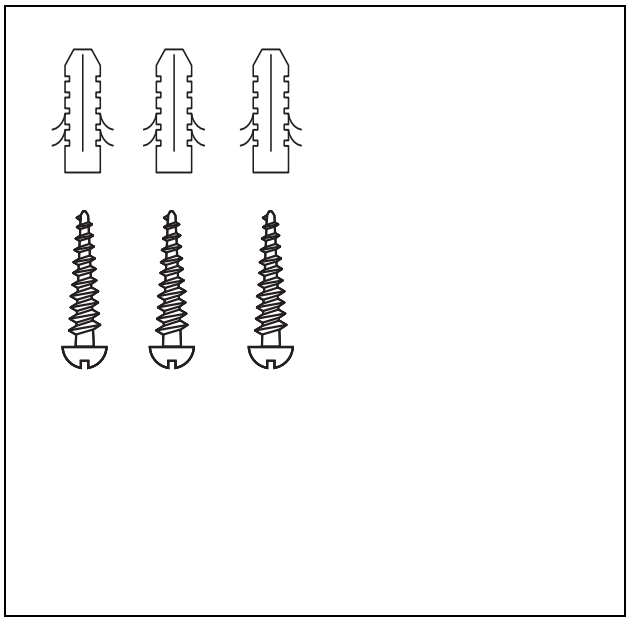
6 Installation: Remote control

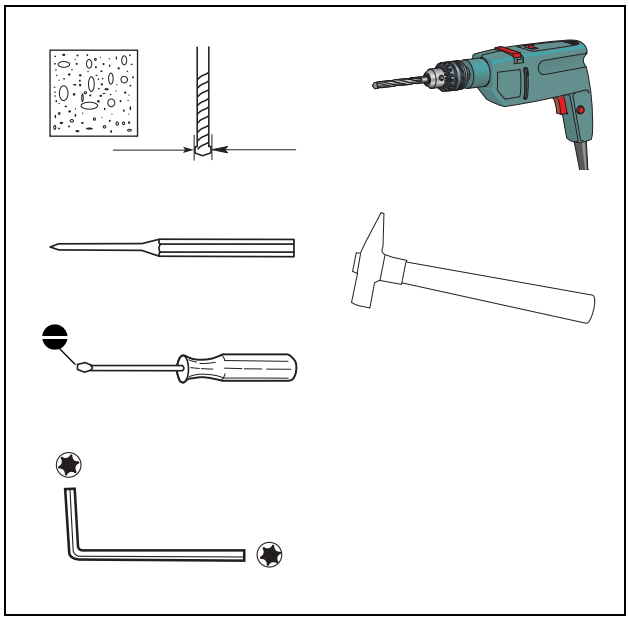
ORTHOPHOS XG 5 / Ceph

6.1 Installation material/tools

1.



2.

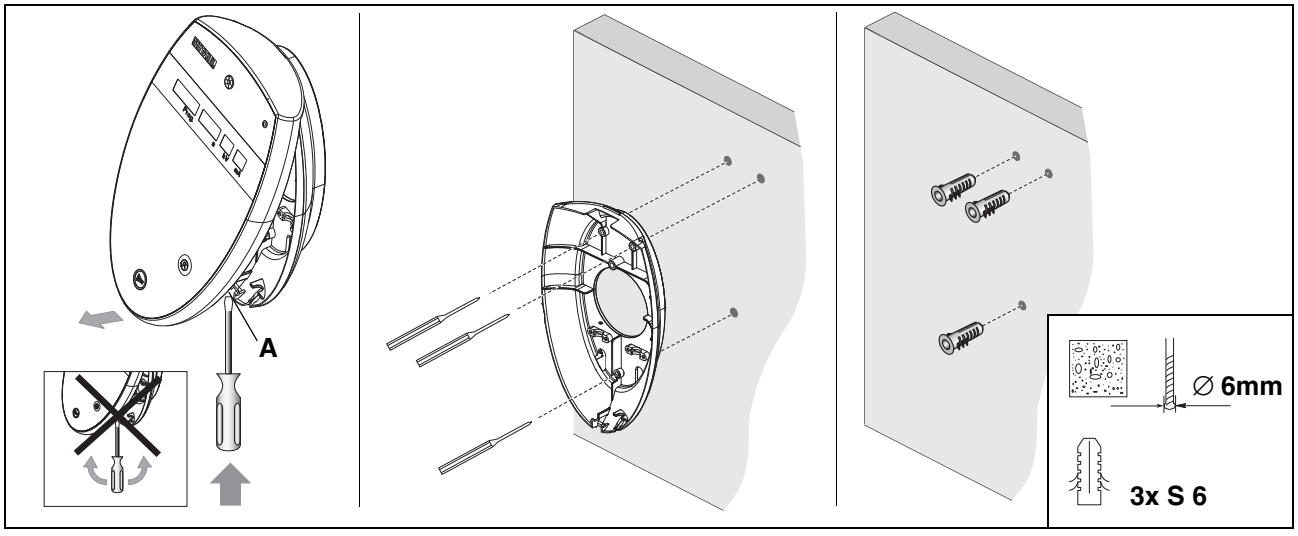


1. Installation material for remote control
- Wood screw 4x30 (3/16x1 1/4"): 3 pc.
- Plastic wall plug S6: 3 pc.

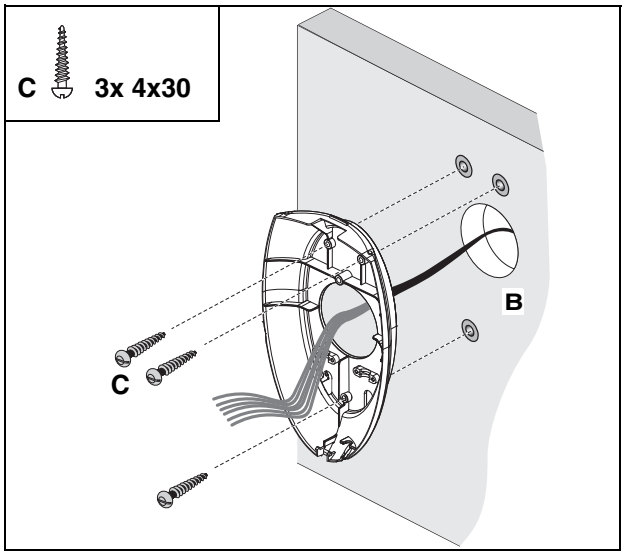
2. Required tools
- Masonry drill ∅ 6 mm (1/4")
- Impact drill or percussion drill
- Blade screwdriver (small and medium sized)
- Torx offset screwdriver TX20
- Hammer
- Center punch/awl

6.2 Mechanical installation

1.



2.



1. Carefully press the blade screwdriver in groove **A** from below (**do not pry!**) and remove the chassis to the rear.

Hold the chassis against the wall in its mounting position and mark the positions for the three drill holes with an awl.

Drill the holes and insert the wall plugs.

IMPORTANT

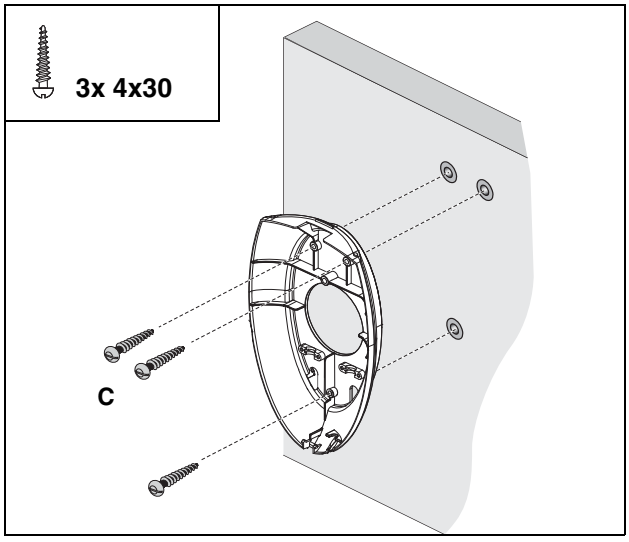
For concealed installation, the control cable is drawn into the chassis from the rear. For surface installation it is drawn in from underneath.

For concealed installation

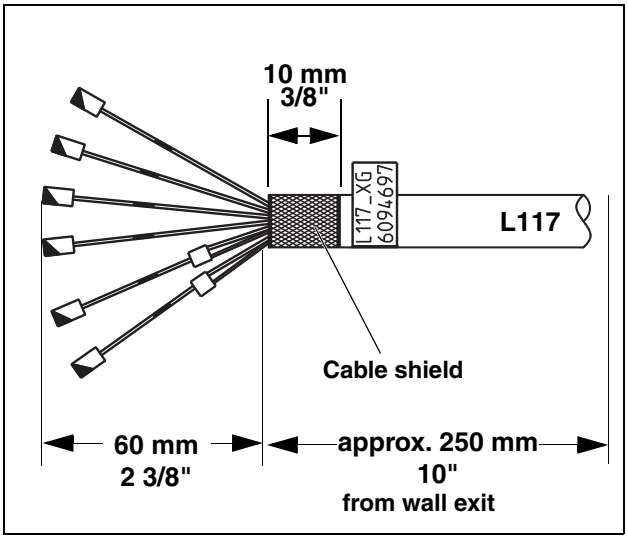
2. Draw the control cable into the chassis from the wall through rear opening **B** and fasten the chassis securely to the wall with the three screws **C**.

– For concealed installation, the cable length between the wall exit and the stripped wire ends should be 250 mm.

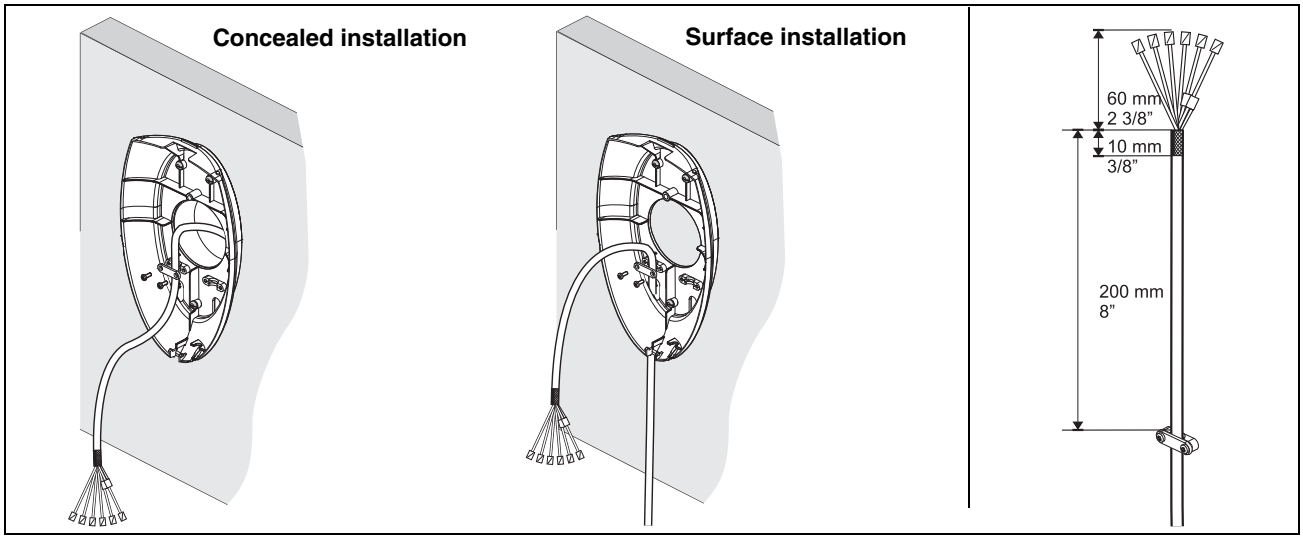
3.



4.



5.



For surface installation

3. Fasten the chassis firmly to the wall with the three screws **C**.

Shortening cable L117

4. If necessary, shorten cable **L117** to the required length and prepare it for reconnection.

– Expose the cable shield (see condition on delivery). The length of the wires should be approx. 60 mm (2 3/8").

– Place the shortened shielding over the insulation and wrap the shielding with 3 layers of self-adhesive copper foil.

– Strip the wire ends to 5 mm. Crimp on the end sleeves. Insert the orange and white-blue and blue and white-orange wires in one end sleeve.

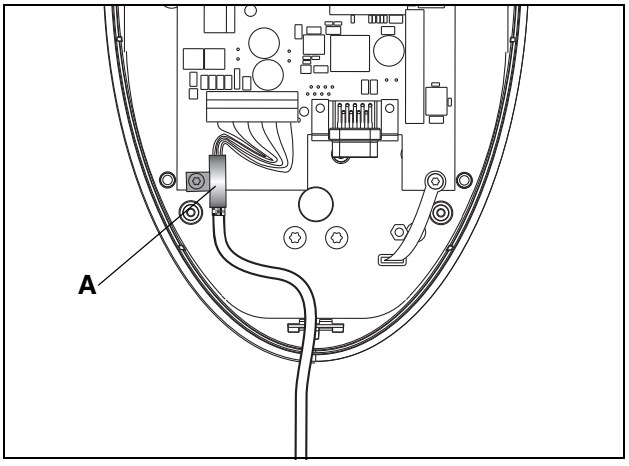
Attaching the strain relief

5. Attach cable **L117** at the strain relief in the chassis (concealed or surface installation).

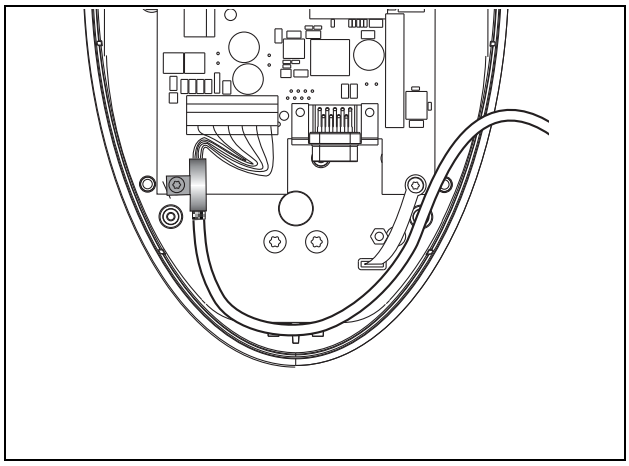
– The cable length between the strain relief and the stripped wire ends should be 200 mm (8").

6.3 Connecting the control cables (REMOTE)

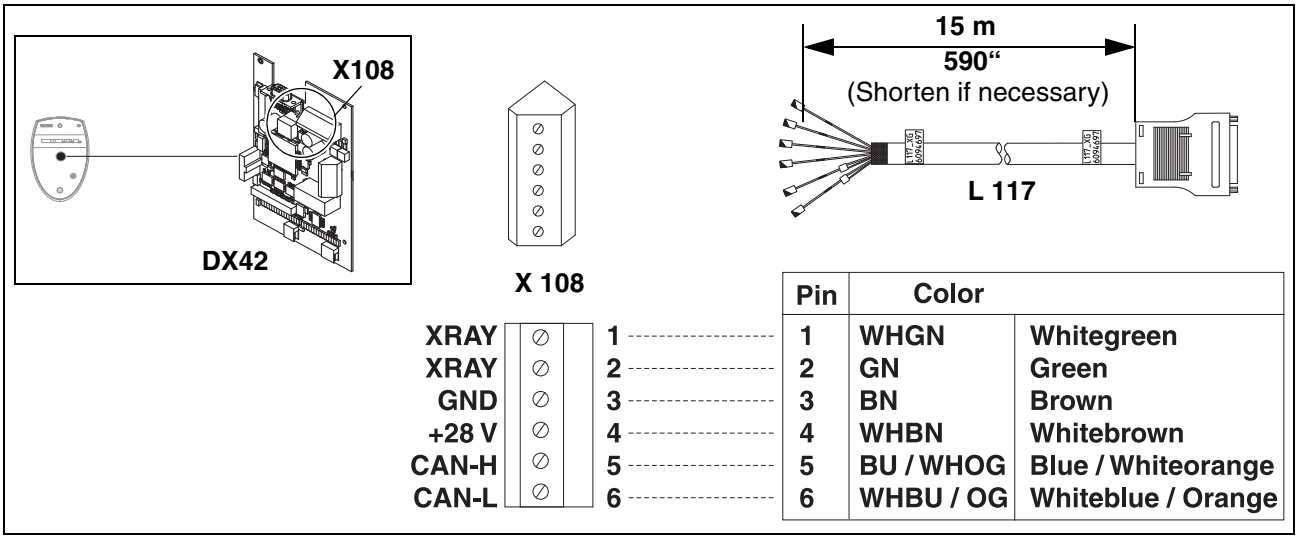
1.



3.



2.



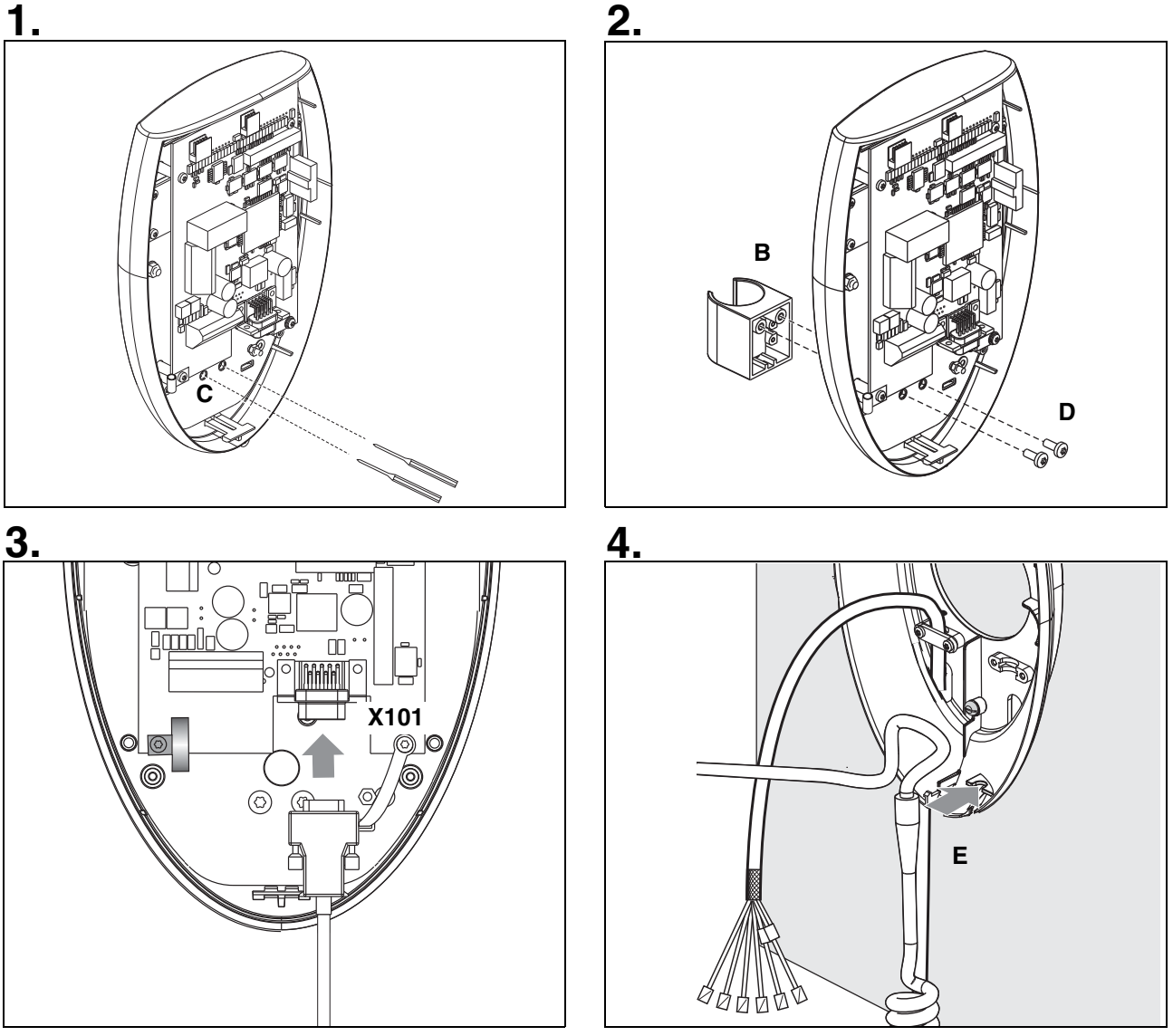
Pin	Color	
1	WHGN	Whitegreen
2	GN	Green
3	BN	Brown
4	WHBN	Whitebrown
5	BU / WHOG	Blue / Whiteorange
6	WHBU / OG	Whiteblue / Orange

6.3.1 Installation version 1: without release button and coiled cable

1. Attach cable **L117** at shield clamp **A**.
   - Unscrew clamp **A** from the board.
   - Place the cable in the clamp so that the turned up cable shield is completely enclosed.
   - Re-attach the clamp to the board.
2. Connect control cable **L117** to terminal **X108** (board **DX42**) as shown in the connection diagram above.
3. Roll cable L117 into a loop and stow it away at the bottom edge of the chassis before closing the housing.

IMPORTANT

For information on the connection of a door contact switch, see section 6.4.



6.3.2 Installation version 2: with release button and coiled cable

NOTICE

Operation of the remote control via the membrane keyboard is prohibited when installing the remote control with release button.

Installing the release button holder

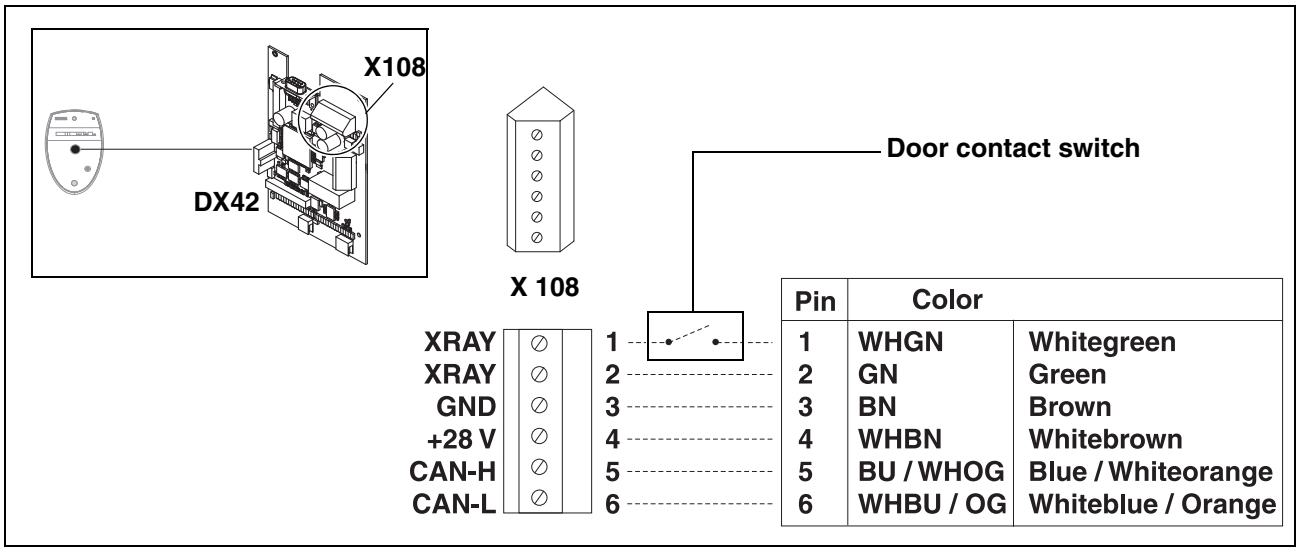
1. Use an awl to puncture the membrane keyboard at the prepared points **C** from the rear.
2. Using the two screws **D**, fasten the release button holder **B** to the keyboard.
3. Plug the connector of the coiled cable into socket **X101** on board **DX42** and screw the connector down tight.
4. Hang the coiled cable in strain relief **E** of the assembled chassis.

Connecting the control cable

- Connect control cable **L117** as described in section 6.3 on page 69.

6.4 Connecting the door contact switch

1.

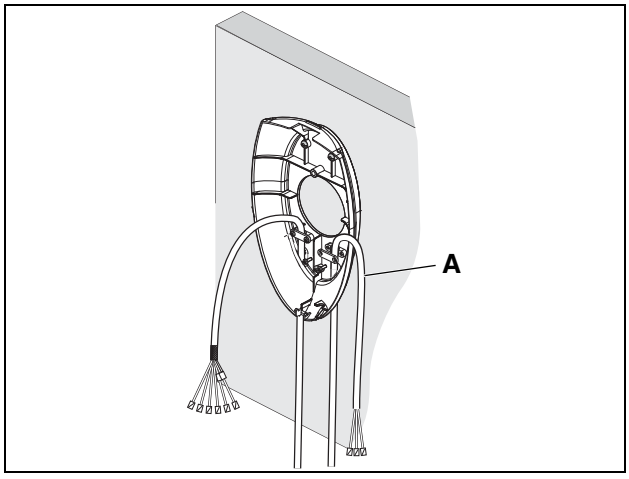


Pin	Color	
1	WHGN	Whitegreen
2	GN	Green
3	BN	Brown
4	WHBN	Whitebrown
5	BU / WHOG	Blue / Whiteorange
6	WHBU / OG	Whiteblue / Orange

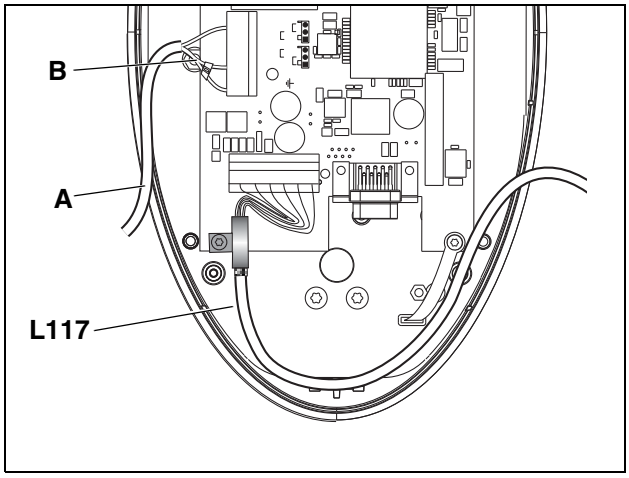
1. Connect the door contact switch between terminal **X 108 pin 1** (board DX 42) and control cable **L117 pin 1** (WHGN).

6.5 Connecting the X-ray warning lamp

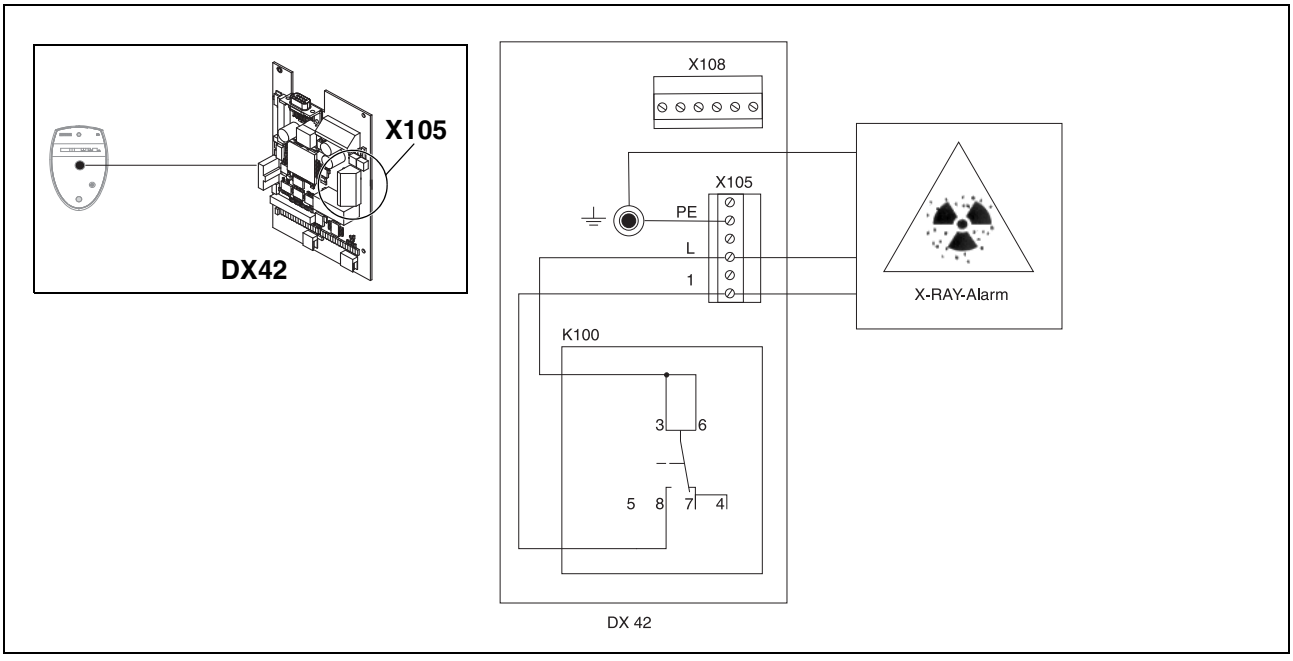
1.



3.



2.



It is possible to activate an X-ray warning lamp via the remote control. For connection, proceed as follows:

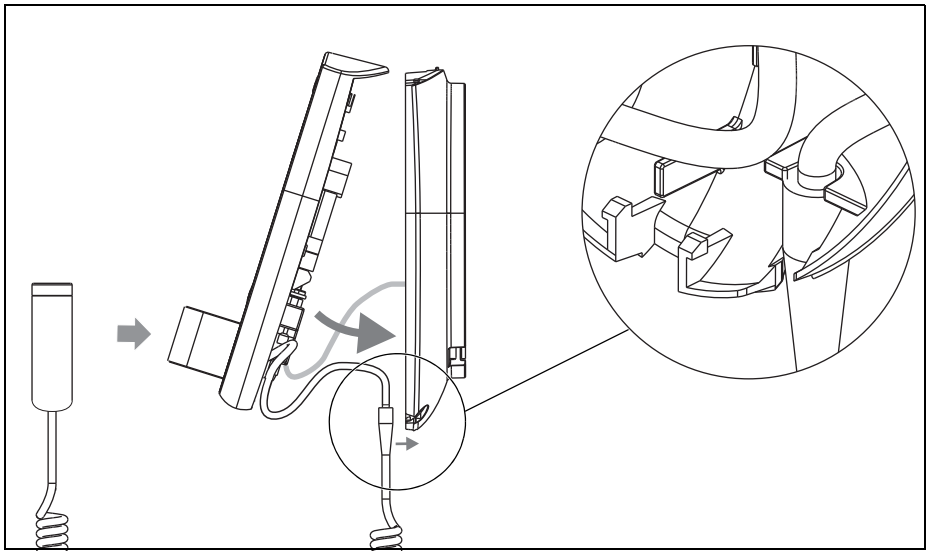
NOTICE

Use a 3-wire cable (1.5 mm^2) to connect the X-ray warning lamp.
A maximum load of 50 W is permissible and no additional circuit may be connected.

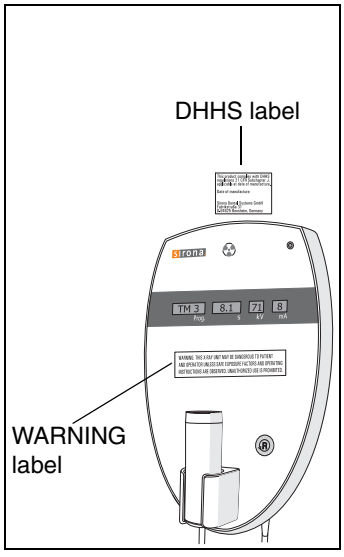
1. Insert cable **A** for connection of the X-ray warning lamp in the chassis (concealed or surface installation) and attach it to the unused strain relief.
2. Connect the current-carrying cables and the ground wire to terminal **X105** (board **DX42**) as shown in the connection diagram above. Secure the current-carrying cables with a cable tie **B** to prevent them from slipping out.
3. Run cable **A** parallel to control cable **L117** before closing the housing.

6.6 Final work

1.



2.



1. Reassemble the remote control and place the release button (if installed) in the holder.

NOTICE

Make sure that no cables are pulled off when you clip the cover on.

IMPORTANT

For operation with a remote control, the unit must be configured accordingly. After initial startup of the unit, check the configuration with the help of ***service routine S017, test step 6 (see section*** *12.1.6).*

2. For the USA/Canada only: Attach the DHHS and warning labels.

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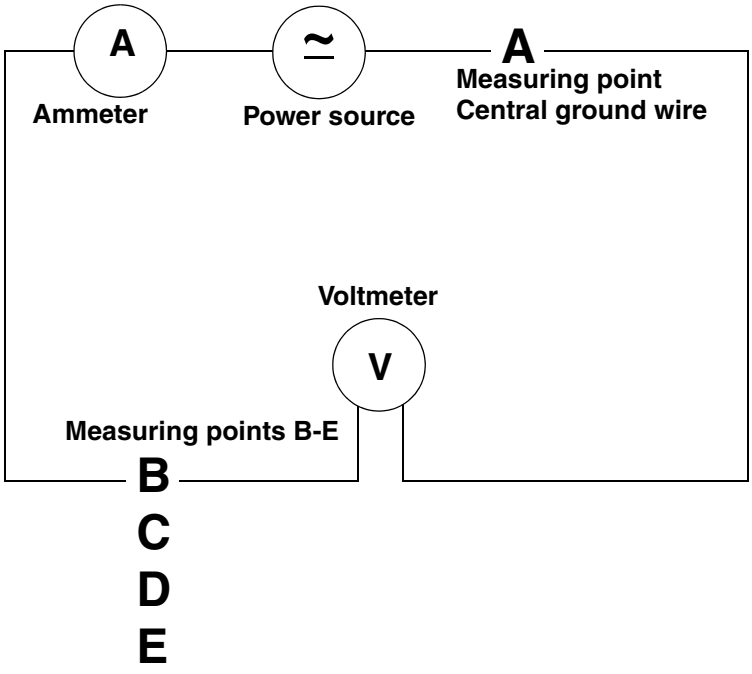
7 Safety checks

ORTHOPHOS XG 5 / Ceph

7.1 Checking the protective ground wires



Measuring setup for protective ground wire test

DANGER

Shock hazard! It is essential that you switch the X-ray unit OFF before replacing any components!

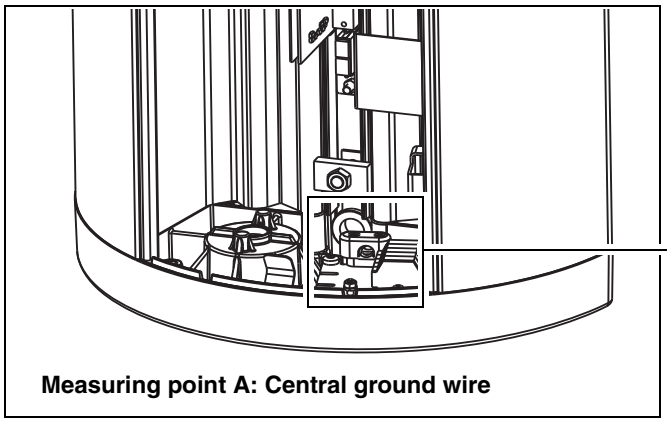
If you have not done it already...

- Switch **OFF** the line voltage at the main switch of the building installation.
- Disconnect the power cable and the second protective ground wire from the building installation.
- Remove the following cover parts:
  - Profile cover
  - Tube assembly cover, front
  - Tube assembly cover, rear

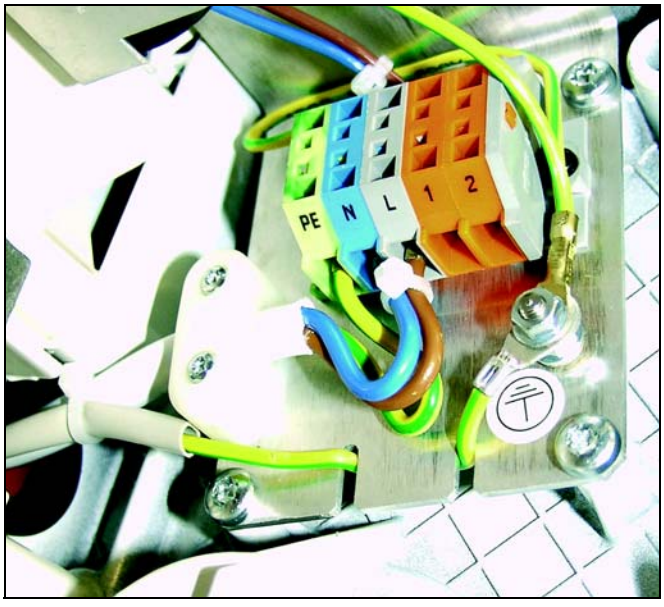
Check whether the ground wire resistance complies with the specifications

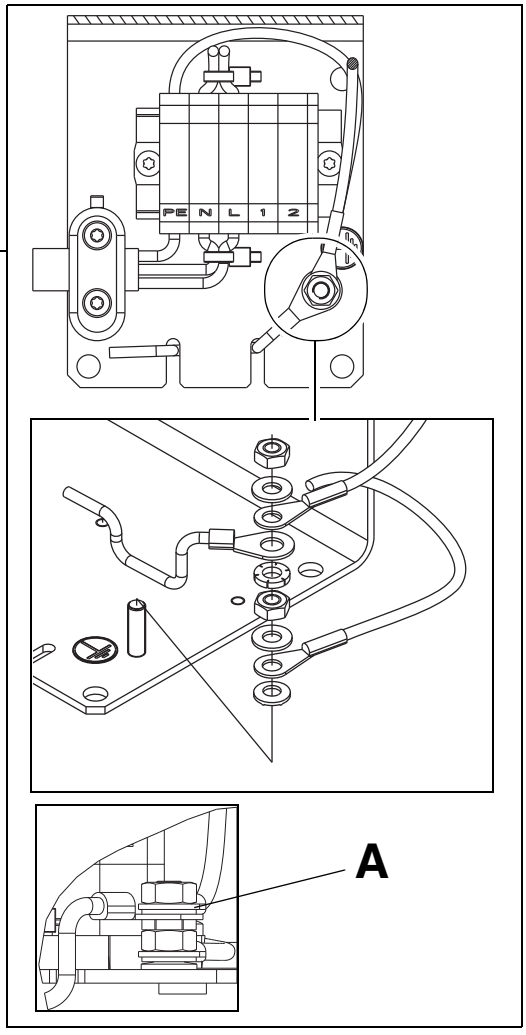
Protective ground wire test between...			
A and	B	GNYE wire	0,1Ω
A and	C	2. Protective ground wire	0,1Ω
A and	D	Housing DX32	0,2Ω
A and	E	Tube assembly housing	0,2Ω

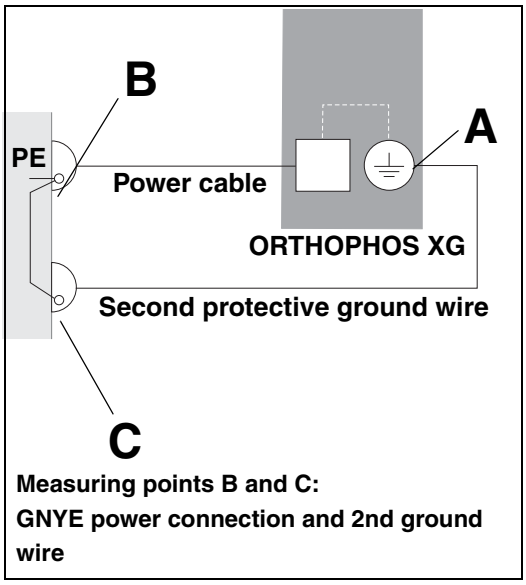
- A power source with a current of at least 0.2 A and a no-load voltage of 24 V max. and 4 V min. is required.
- Connect the power source between the measuring points specified in the table for at least 5 s and measure:
  - the voltage drop with the voltmeter
  - the current with the ammeter and
  - calculate the resistance using the formula **R = U / I**



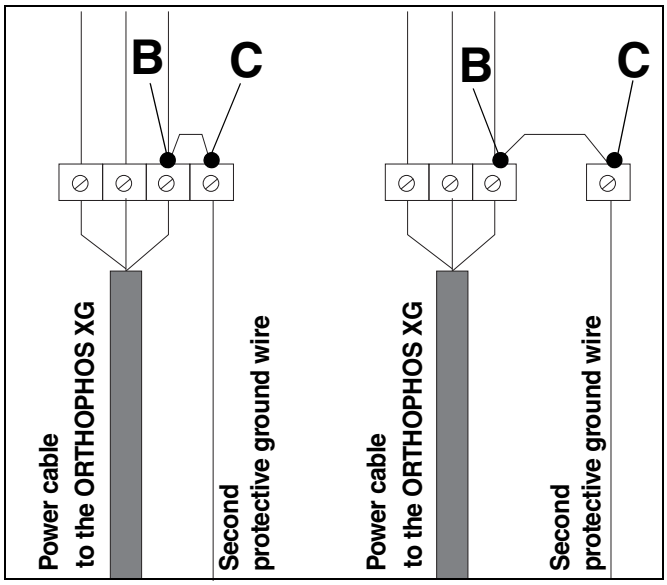
Measuring point A: Central ground wire

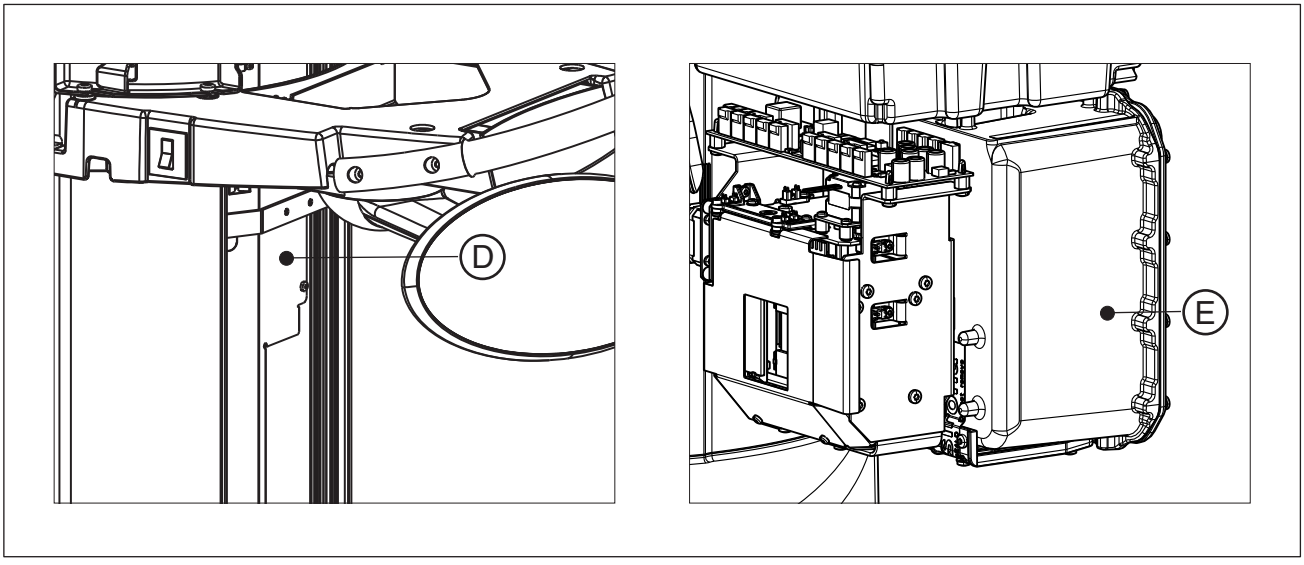






Measuring points B and C:
GNYE power connection and 2nd ground wire





Measuring points D and E:

IMPORTANT

If the resistance exceeds the value specified in the table, check whether the protective ground wire is fastened according to specifications:

– Check whether the flat washer, toothed lock washer and cable lug are fitted on the protective ground wire in the right order (see page 77) and whether the nuts of the ground wire connections are tightened securely.

If the ground wire is not fastened according to specifications, fasten the ground wire properly (see page 77).

Do not connect the power cable and the second ground wire to the building installation yet, but perform a measurement of the device leakage current first (see section).

7.2 Checking the device leakage current

DANGER

Perilous shock hazard!
It is essential to switch the unit off and to wait at least one more 1 minute before beginning the check!
Ensure that the unit is not unintentionally turned back on.

NOTICE

Important information on building installation
The connection and disconnection of the unit (power cable) to/from the building installation must be performed by a qualified expert in compliance with the national regulations. DIN VDE 0100-710 applies in Germany.

For measurements, Sirona recommends an automatic tester (example illustration) which complies with standard IEC 62353. If you do not use an automatic tester, please pay attention to the specifications in the standard IEC 62353.

1. Switch the line voltage off at the main switch of the building installation.
2. **DANGER! Note the electrical safety rules without fail.**
   Disconnect the power cable and the second protective ground wire from the building installation.
3. Attach a connector compatible with the tester (see the user's manual for the tester) to the unit's power cable.
4. Plug the connector of your power supply unit into the intended socket on the tester in accordance with the user's manual for the tester.
5. Check whether the unit power switch is turned on.

IMPORTANT

According to Note 2 below Table 2 of standard IEC 62353, the maximum device leakage current permitted by the manufacturer is 2 mA for permanently connected units. Make sure that the automatic tester is programmed for 5 mA (not 1 mA)

6. Perform the measurements according to the operating instructions of the tester.
7. Document the measured value of the leakage current in the technical document "Inspection and maintenance and safety-related checks" (REF 59 87 685) to identify changes from the original value.
   – A maximum deviation of ±20% from the original value is permitted for the measured leakage current.
8. *If a deviation from the original value is >±20%:*
   Perform troubleshooting according to chapter "Unit leakage current too high" (see service manual for the unit).

- Reconnect the unit to the building installation (fixed connection) (see the installation instructions for the unit).

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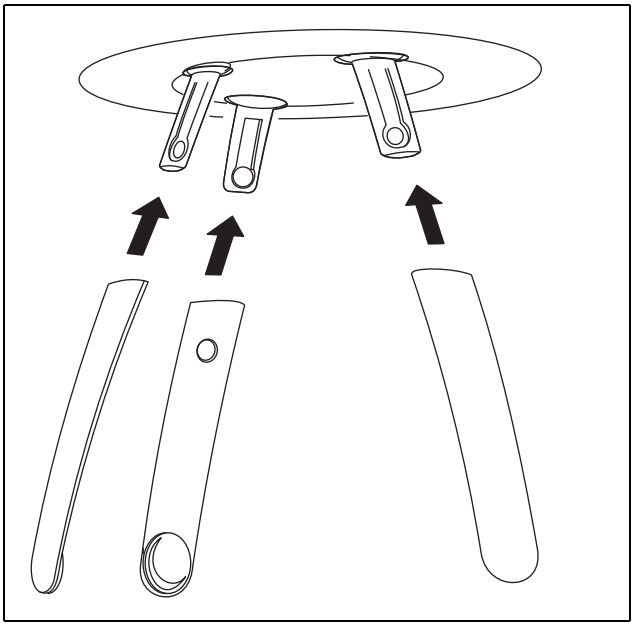
8 Initial startup

ORTHOPHOS XG 5 / Ceph

8.1 Inserting the forehead and temple supports

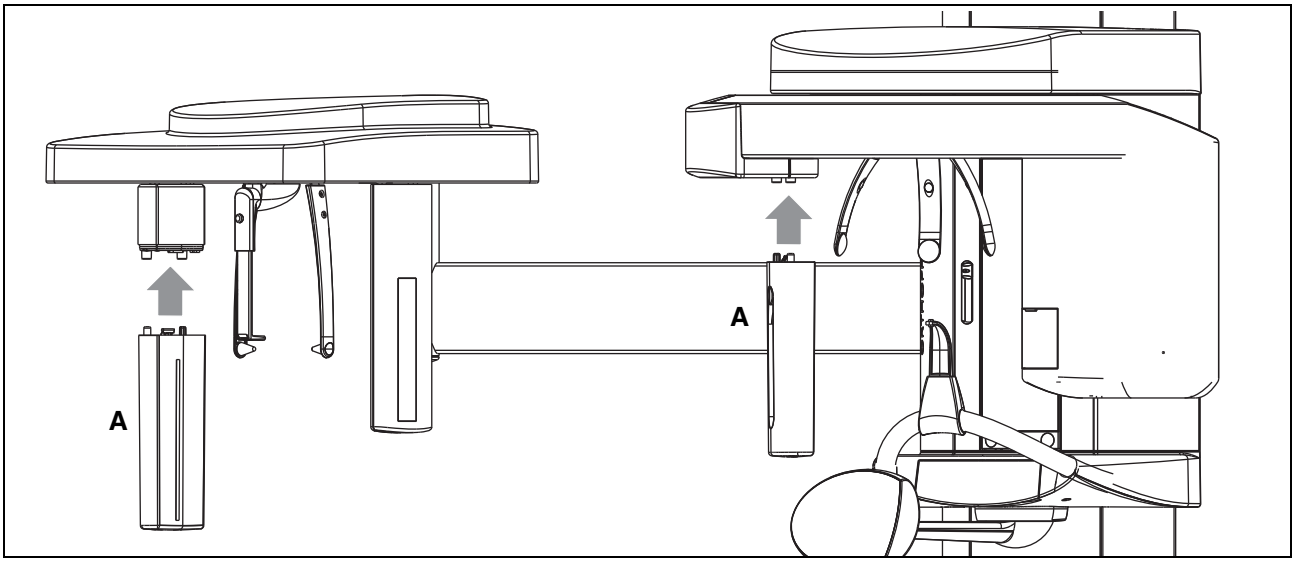
1.



1. Insert the forehead and temple supports until they lock in place.

8.2 Plugging in the sensor(s)

1.



IMPORTANT

The digital unit with CEPH arm can be operated with a single sensor or concurrently with two sensors. Operation with two sensors eliminates the need for replugging the sensitive sensors.

If the unit was ordered with two sensors, ***both*** *sensors are included in the scope of supply of the panoramic X-ray unit and packed along with it accordingly.*

Make sure to plug in the correct sensors for panoramic or cephalometric exposures (see section 1.4).

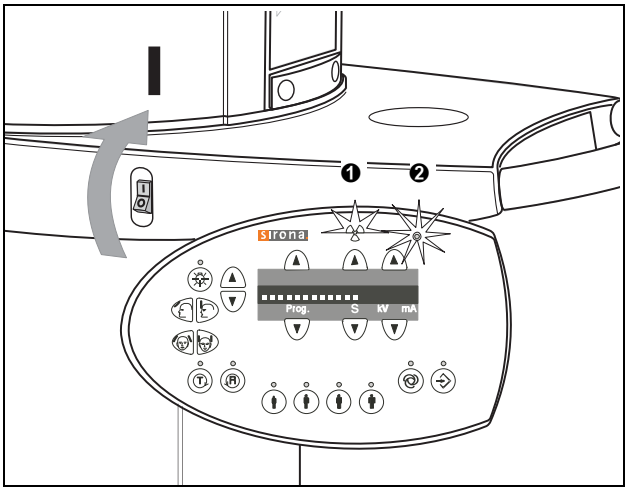
NOTICE

The sensors are sensitive components, and therefore must be handled with special care.

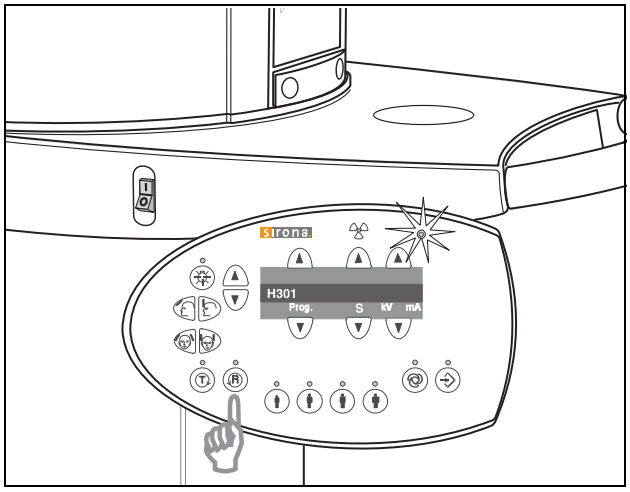
1. Plug sensor(s) **A** upward into the holder(s) carefully until it/they audibly lock(s) in place.

8.3 Switching the units ON

1.



2.



WARNING

When performing the following test, be sure to observe the radiation protection regulations applicable in your country (see operating instructions).

It is prohibited for any person to be positioned in the unit when it is switched on.

NOTICE

Extreme fluctuations of temperature may cause condensation inside the unit. Do not switch the unit on before it has reached normal room temperature.

NOTICE

If the room height is less than 2.27 m (89 3/8") (2.30 m (90 1/2") with floor stand), you must limit the maximum travel height of the unit (see section 12.1.8).

1. Switch the unit **ON**.
- All LEDs and the LED display on the Multipad light up briefly.
- The green LED at the top of the Multipad ❷ is lit permanently as long as the unit is switched ON.
- The initialization status is visualized by a progress indicator while the unit performs a self-adjustment routine (approx. 1 min.). At the same time, the rotating element rotates briefly clockwise and counterclockwise and the diaphragm is positioned. The forehead and temple supports on the panoramic unit open and close and then stop moving in fully opened position.
- Once the self-adjustment routine is completed, help message H301 prompts you to move the unit to the starting position.

2. Press the **R key** to move the unit back to the starting position.

• Switch the PC **ON** and start SIDEXIS XG.

Testing the system version

All units ordered with a cephalometer are preconfigured for this version at the factory. You should, however, check the unit configuration anyway.

- To do this, select one of the cephalometer programs on the Multipad.
- If the cephalometer mode cannot be selected, check the unit configuration (see page 149).

IMPORTANT

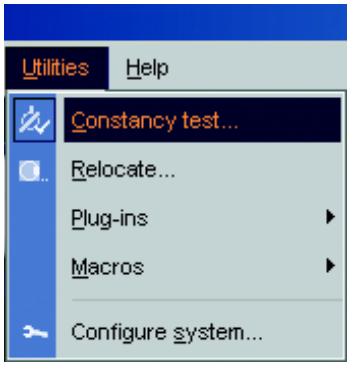
if the cephalometer must be retrofitted, then the cephalometer mode must be configured in service routine S017.2 (see page 149).

Other settings

The unit is configured on delivery so that an acoustic signal sounds at the end of an exposure.
If the customer prefers another configuration, you can deactivate this acoustic signal with service routine S017.15 (see p. 151).

8.4 Checking the data paths

1.



2.

8.4.1 Generating PAN/CEPH test images/Checking the PAN/CEPH/PC data path

IMPORTANT

SIDEXIS XG must be installed and configured before you begin checking the data paths (see the documentation "SIDEXIS - Installation of Stand-Alone Systems").

IMPORTANT

For a panoramic test image, the panoramic mode must be activated on the Multipad; for a CEPH test image, the cephalometric mode must be activated on the Multipad (see operating instructions).

Generate test images for each of these two operating modes in succession.

1. In SIDEXIS XG, select the constancy test:
   UTILITIES → **CONSTANCY TEST**.

   The classical SIDEXIS user interface is started. Constancy test is already preset.

2. Start the exposure mode:
   Click **XCXP**

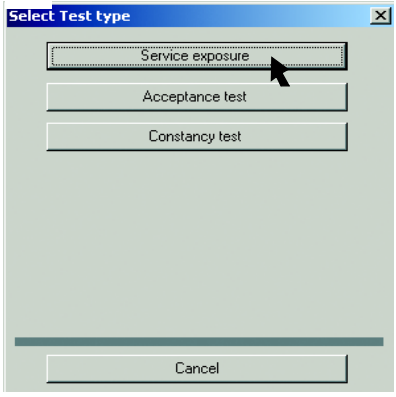
   The dialog box for selecting the X-ray device opens.

IMPORTANT

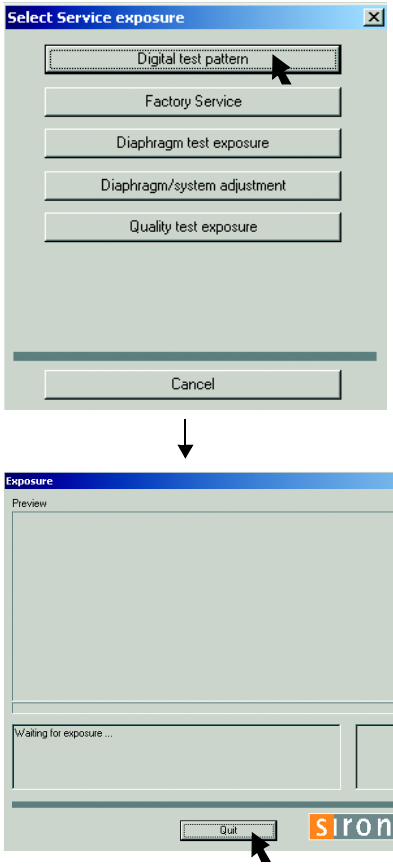
If no X-ray device has been configured yet in SIDEXIS XG, the password input window appears instead of the dialog box for selecting the X-ray device. For creating a new X-ray device, see the documentation "SIDEXIS - Installation of Stand-Alone Systems".

3.

4.



5.



3. Select/confirm the X-ray device:
Select e.g. **ROOM 1** and click **OK**.

The dialog box for selecting the test type appears on the screen.

4. Select/confirm the test type:
Click **SERVICE EXPOSURE**.

The dialog box for selecting the service exposure appears on the screen.

5. Select/confirm the service exposure:
Click **DIGITAL TEST PATTERN**

– If several different X-ray components are available, a dialog box for selecting the X-ray component appears on the screen. In this case, select/confirm the required component.

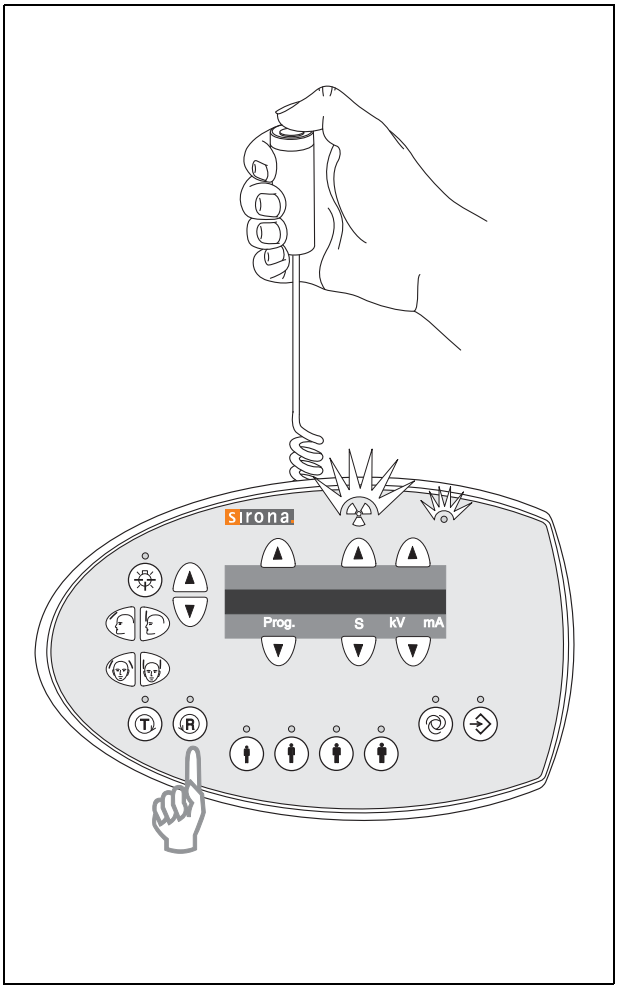
– If only one X-ray component is available, the exposure readiness dialog box appears on the screen and shows the status of the exposure.

IMPORTANT

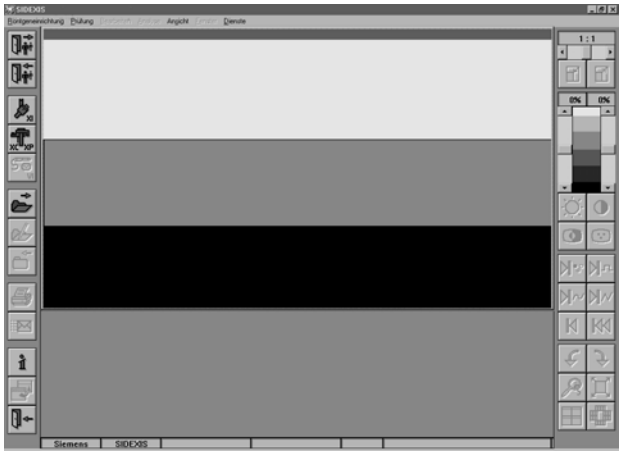
During operation in the service mode, the unit switches from the user mode to the PC service mode logged by the PC. The service mode is indicated by the **SERVICE** *display on the Multipad (see page 100).*

The unit switches back to the user mode as soon as the exposure is completed.

6.



7.



8.

6. Take an exposure:

- Press the **R key** on the Multipad to move the unit back to the starting position.
- Press the release button. Hold down the button until the exposure has been completed.

IMPORTANT

*A service message box indicates whether the generated test image is correct. Acknowledge this message with **OK**. The test image is displayed on the screen.*

7. Test pattern for panoramic unit

8. Test pattern for cephalometer

Check the images according to the following criteria:

- Tile structure of the existing segments

IMPORTANT

To facilitate checking, you may adjust the image contrast and brightness in SIDEXIS.

- Linear grayscale gradient
- Intensity steps clearly recognizable
- No image artifacts detectable

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9 Startup for USA/Canada only

ORTHOPHOS XG 5 / Ceph

9.1 Startup, measurements and controls

Required measuring instruments

1. Digital multimeter Fluke 87 III or equivalent.
   Accuracy:
   DC voltage ± 0.1 % of reading plus 0.02% of range
   DC current ± 0.4 % of reading plus 0.1% of range.

2. A dose measurement device (e.g. Mult-O-Meter type 510L) is required for dosimetry

Radiation protection

Observe the radiation protection guidelines as outlined in the Operating Instructions manual.
X-radiation is emitted as long as the exposure key on the Multitimer is depressed.
The **X-ray** indicator must light up on the Multitimer during radiation. An acoustic signal must also be heard.

Power supply adequacy

To assure that the ORTHOPHOS XG system performance is in accordance with Sirona specifications, an adequate power supply for permanent installation is essential.

The Federal Performance Standard for Diagnostic X-ray Units, Code of Federal Regulations, Title 21 CFR, Subchapter J, mandates an adequate power supply.

Duty cycle

Between exposures maintain at least a cool-off time (automatic exposure blockage, see Operating Instructions manual).

Operating instructions

During measurements and controls it is necessary to energize or de-energize the unit. For all operating steps please refer to the Operating Instructions manual.

CAUTION with PC boards!

All PC boards are fitted with electronic components sensitive to electrostatic discharge (ESD). In an environment of moving people, electrostatic charges are unavoidable due to friction caused by clothing, carpeting etc.

NOTICE

To prevent damage to electronic chips, do not touch same. Always handle circuit boards by their edges.

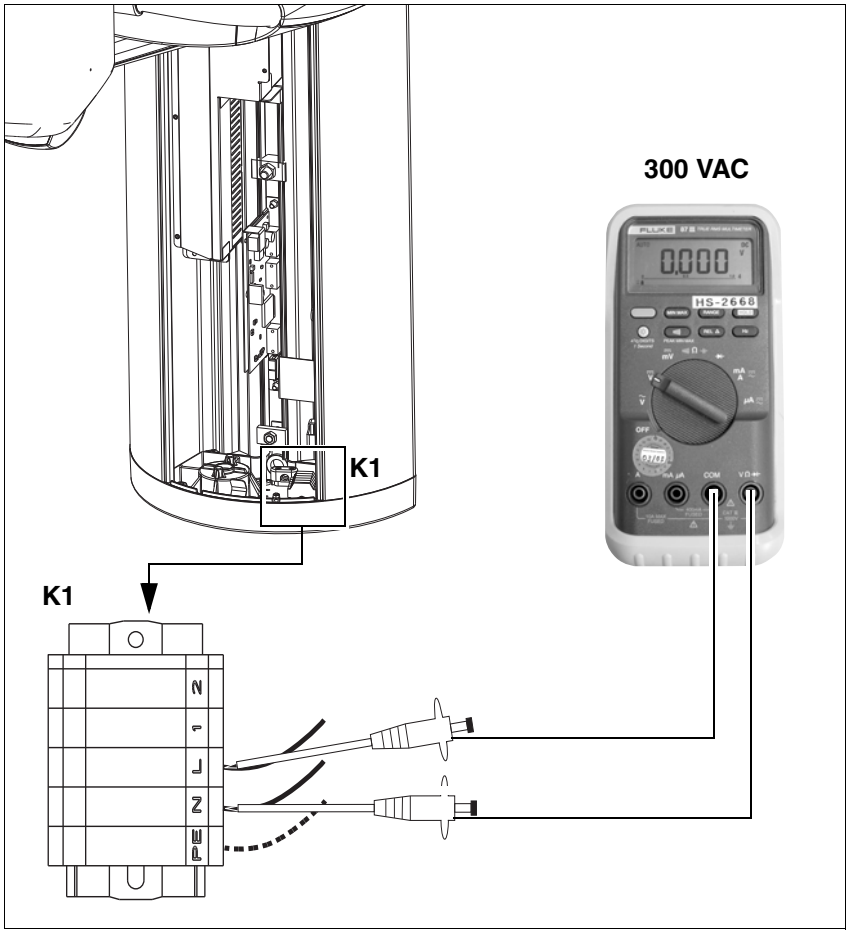
NOTICE

Electrical shock hazard!
Always turn unit OFF before connecting and disconnecting the test leads to the test points.

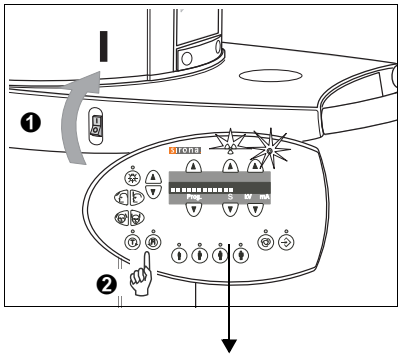
9.2 Power supply adequacy

1.

2.



3.



4. - 5.

- To determine power supply adequacy, the **line voltage drop** during exposure must be measured.

1. Be sure power is disconnected at the central distribution panel!

- Remove front cover (for details see Service Manual).

2. Select 300 VAC line voltage range on multimeter . Connect measuring leads to terminal **K1**, **L** and **N**.

3. Connect power and switch unit ON ❶ .
Wait 1 min. for self-adjustment of the unit.
Press key **R** ❷ to return X-ray tube head into the initial position.

4. Establish exposure readiness via SIDEXIS.

5. Select **highest exposure level** e.g. **90** kV/**12** mA.

DANGER RADIATION

Depress the exposure key until meter reading is obtained.

Line voltage, no-load:	Max. permissible line voltage drop:
180 – 208 V	9 V
208 – 230 V	8 V
230 – 240V	7.5 V
240 – 264V	7 V

Record reading.

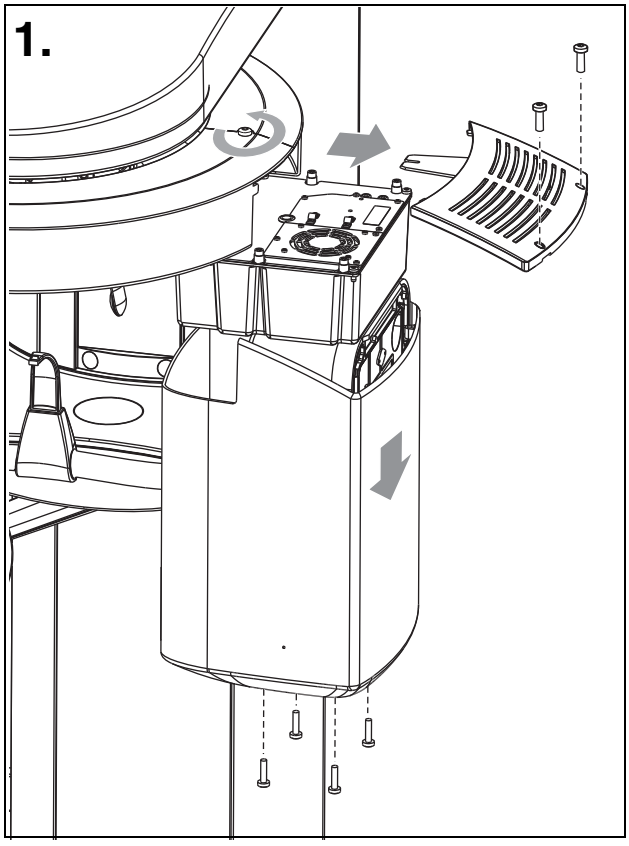
- Turn unit OFF.
- Remove meter leads and refit cover.

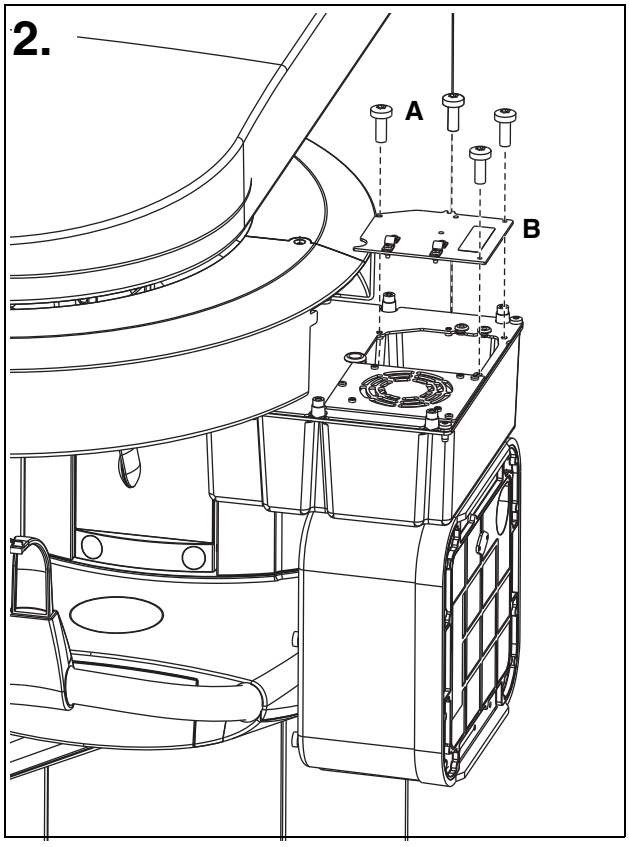
IMPORTANT

If the voltage drop is not within the specified range *advise the customer that an adequate power supply must be installed. Refer to Pre-Installation Instructions.*

Disconnect unit and do not release for use!

9.3 Tube Current Verification





WARNING

The electronics of the X-ray tube assembly are always connected to line voltage.

Always switch the X-ray unit off and wait until V203 is no longer illuminated before contacting the test leads.

WARNING

The test leads and measuring instruments used must have a dielectric strength of at least 1000V!

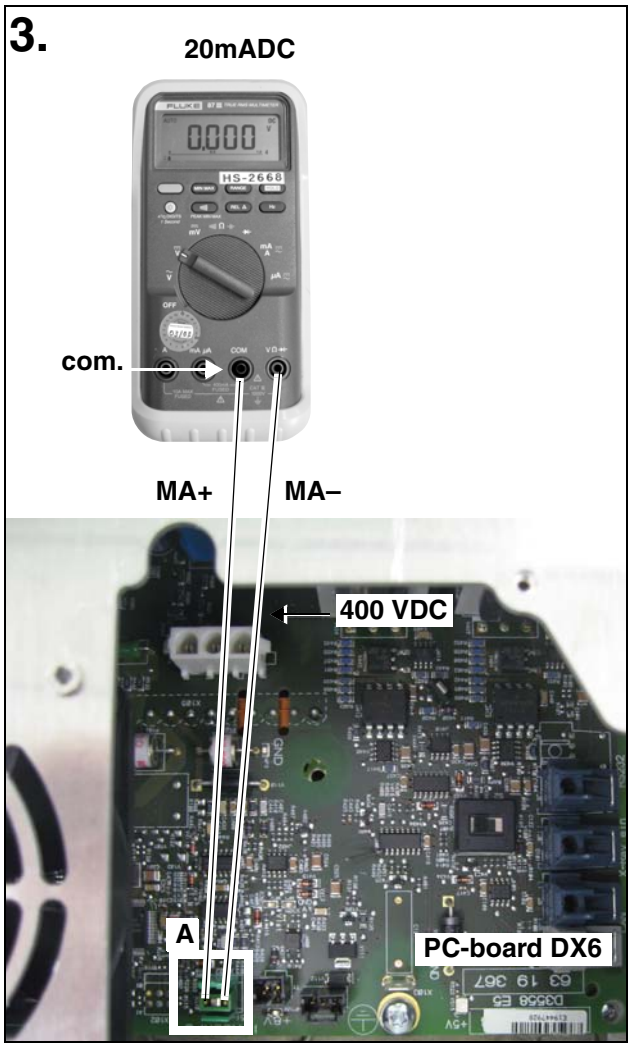
Be sure to use a battery-powered measuring instrument with shock-hazard-protected sockets.

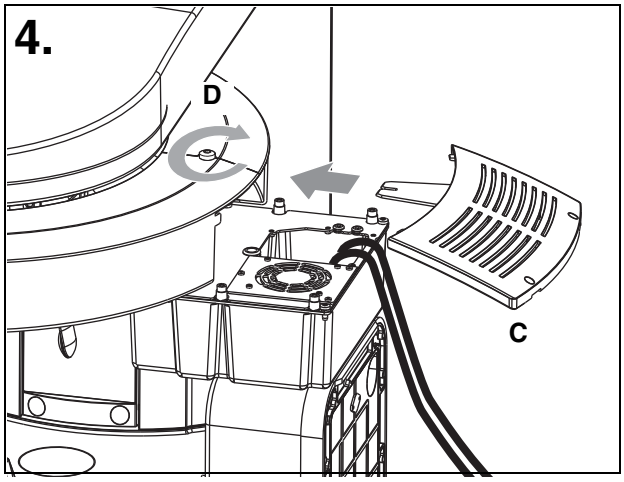
Use only test leads with shock protection.

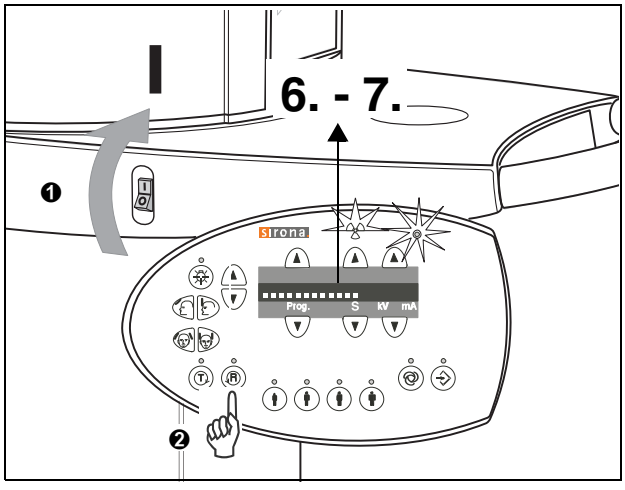
NOTICE

The X-ray tube assembly moves during the measurement. Therefore, be sure to use test leads of sufficient length and place the measuring instrument in a location where it is firmly seated so that it doesn't fall down.

1. Remove cover (for details see Service Manual).
2. Loosen the four screws **A** and remove cover plate **B** of the electronics box.







WARNING

Be sure to switch the X-ray unit off before removing the jumper for the mA measuring jack.

3. Remove jumper **A** from MA+/MA – test points on PC board DX6. Connect digital ammeter to MA+ and MA– and select range 20 mADC.
4. Reattach cover **C** and tighten screw **D** securely.
5. Switch unit ON ❶ .
   Wait 1 min. for self-adjustment of the unit.
   Press key **R** ❷ to return X-ray tube head into the initial position.
6. Select **66kV/8mA**. Establish exposure readiness via SIDEXIS.
7. If **P1** program and **66**kV/8mA are selected .
   The unit must be ready for radiation.

Measurement:

DANGER RADIATION

– ***Depress the exposure key and hold depressed until meter reading is obtained.***

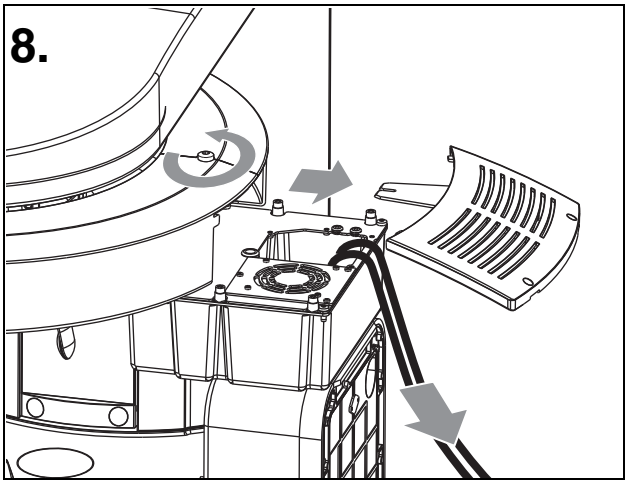
The ammeter shall indicate 8mA ±1.6mA.
Record reading.

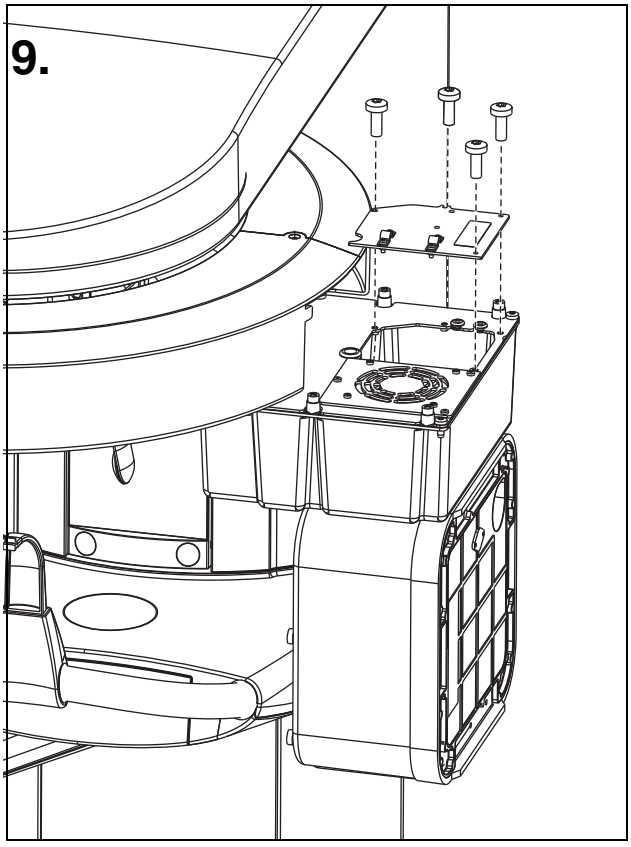
IMPORTANT

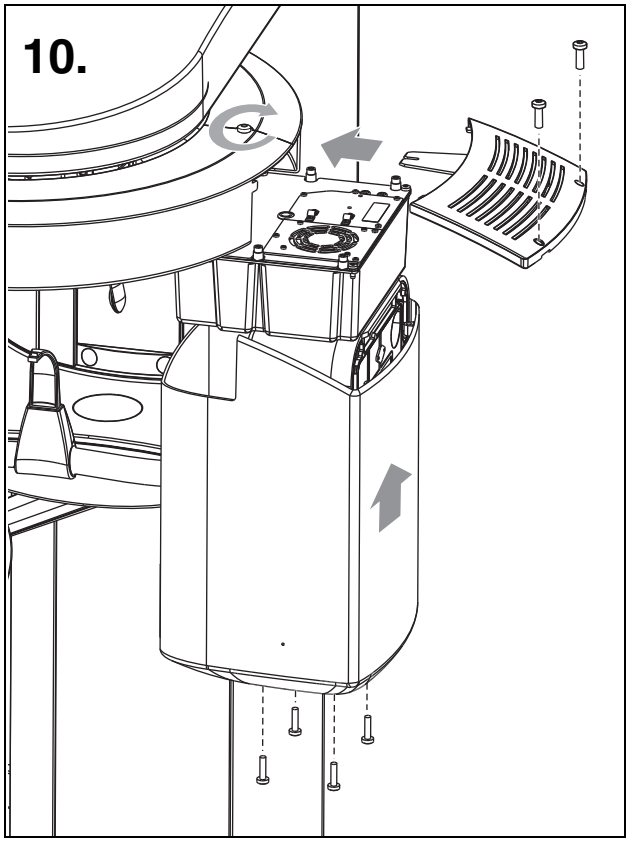
Readings: 1mA corresponds to a tube current of 1mA, permissible tolerance +/-20%.

IMPORTANT

***If specified values cannot be obtained**, see Service Manual, chapter "Tube Current Verification".*







- If specified value is obtained switch unit OFF.

8. Remove upper cover and meter leads

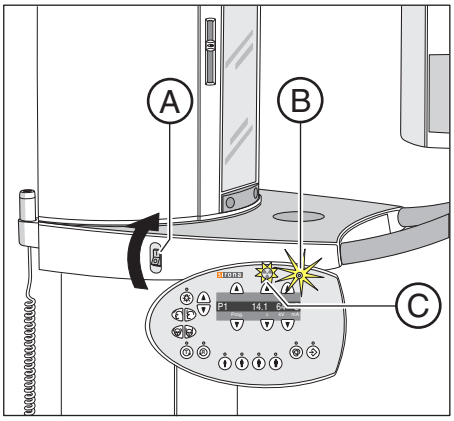
- Replace jumper!

9. Screw the cover plate back on to the electronics box.

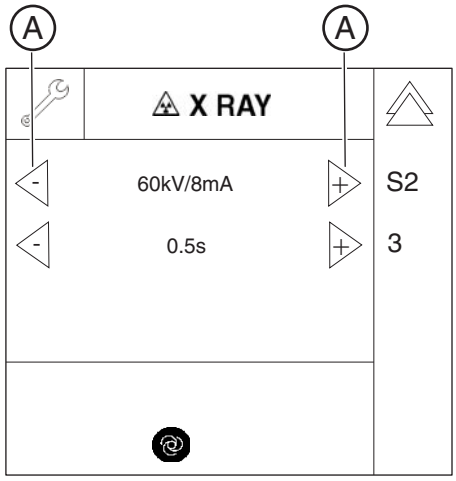
10. Reattach the housing covers.

9.4 kV – verification / Exposure Time Verification

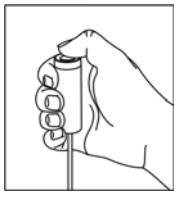
1.



4.



7.



Preparing the measurement

1. Attach the Mult-O-Meter sensor in the middle of the dual sensor.
2. Switch the unit on via the switch **A** (see also Operating Instructions)
   - ↳ The X-Ray radiation indicator (**B**) lights up briefly.
   - ↳ After approx. 2 seconds, the green LED (**C**) in the upper part of the control panel lights up. This LED remains lit as long as the unit is on.
   - ↳ The start screen appears on the touchscreen of the Easypad and the system's self-adjustment routine starts running (for approx. 1 minute). The rotating element rotates briefly clockwise and counterclockwise. The diaphragm moves into position. The forehead and temple supports on the panoramic unit open and close and then stop moving in fully opened position.
   - ↳ On completion of the self-adjustment routine, the main menu appears on the touchscreen. Help message H301 prompts you to move the unit into the starting position.
3. Press the R key.
   - ↳ The unit moves to its starting position.
4. Call the Service menu and the Service routine S002.3 (see Service Manual).
5. Use the arrow keys (**A**) in *selection field 1* to select the kV/mA level **62kV/8mA**.
6. Use the arrow keys (**A**) in *selection field 2* to select the radiation time **0.5 s.**

Performing measurements

7. Initiate the radiation. Hold the release button pressed until the set radiation time has expired.
   CAUTION! Activating the release button triggers X-rays

kV – verification

Analyzing measurements

➢ Read the voltage values on the Mult-O-Meter.

- The value for the voltage displayed on the Mult-O-Meter must correspond to the 62 kV selected in the service routine. The permissible tolerance is ± 10 %..
- If the measured values **do not fall within the permissible tolerance** range, replace the tube assembly (see Service Manual).
- If the measured values fall within the permissible tolerance range, finalize the measurement.

Exposure Time Verification

Analyzing measurements

➢ Read the radiation time on the Mult-O-Meter.

- The value for the radiation time displayed on the Mult-O-Meter must correspond to the radiation time of **0.5 s** selected in the service routine. The permissible tolerance is ± 10 %.
- If the measured radiation time does *not* fall within the permissible tolerance, replace the *tube assembly* (see Service Manual).
- If the measured radiation time falls within the permissible tolerance, finalize the measurement.

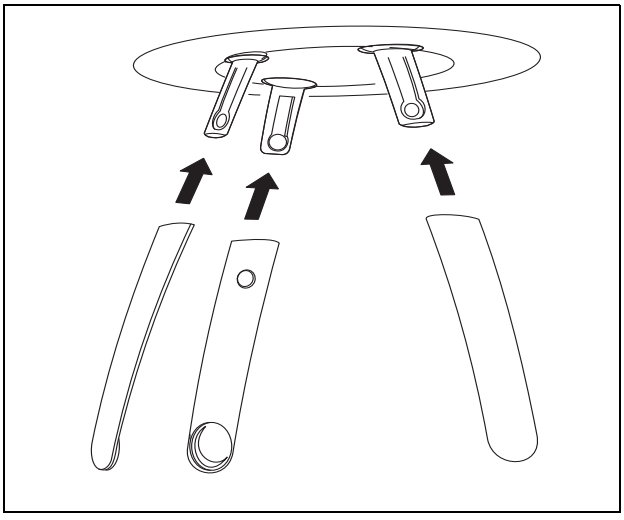
Finalizing the measurement

➢ Exit the service routine.

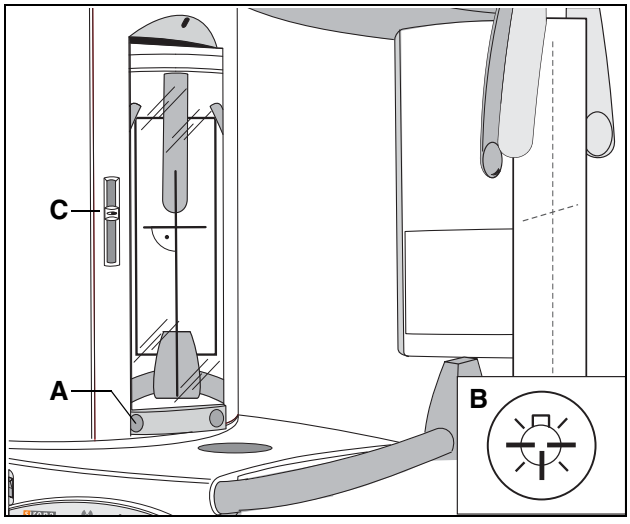
➢ Switch off the unit (see Operating Instructions).

9.5 Checking the laser for USA/Canada only

1.



2.



1. Insert the forehead and temple supports.

2. Check the laser:

- Fasten a piece of white cardboard between the temple supports.
- Swivel the mirror by pressing the left recess **A** on the touch bar.
- Switch on the **light localizer** with key **B** on the Easypad. **The Lasers generate a red line.**

WARNING

Class 1 radiation is emitted during installation. Always keep eyes a minimum distance of 100 mm away from the laser. Do not stare into the beam.

SAG laser (vertical line)

The light beam must strike the center of the head support in a vertical direction.

FH laser (horizontal line)

The light beam must strike the FH line of the sheet of cardboard attached to the head support. It must be possible to displace the light beam vertically using slide C. Unwanted movement of the FH light localizer is not permitted.

IMPORTANT

To adjust the lasers, see Maintenance Instructions.
No controls are available to adjust the laser power.

Label

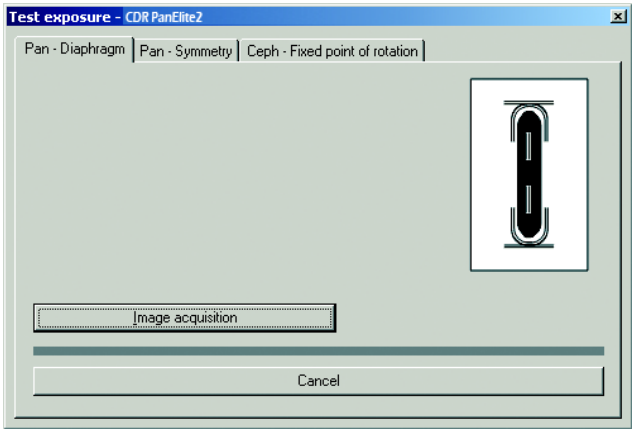
sirona
The Dental Company

10 Checking and adjusting the unit

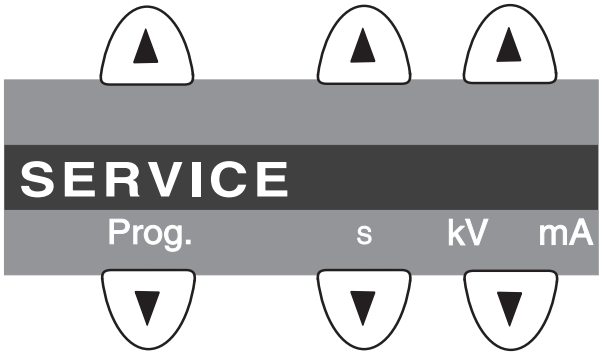
ORTHOPHOS XG 5 / Ceph

10.1 Panoramic unit: Checking the adjustment

1.



2.



10.1.1 Test exposure menu

The **panoramic X-ray unit** is already completely adjusted on delivery. Check the adjustment using the **TEST EXPOSURE** menu to make sure that the unit was not inadvertently deadjusted during transport.

The **TEST EXPOSURE** menu is started from **SIDEXIS XG**:

UTILITIES → CONSTANCY TEST → XCXP → SELECT X-RAY DEVICE → SERVICE EXPOSURE → DIAPHRAGM TEST EXPOSURE

IMPORTANT

*When you open the **TEST EXPOSURE** menu, the unit switches from the user mode to the PC service mode logged by the PC. The service mode is indicated by the* **SERVICE** *display on the Multipad (**2.**).*

*In the **PC service mode**, the control options that are available on the Multipad are determined by SIDEXIS and the currently selected service routine. General control of the unit by means of the Multipad (as in the user mode) is not possible in this mode.*

The test exposures are used to check the adjustment. They can be started without a password.

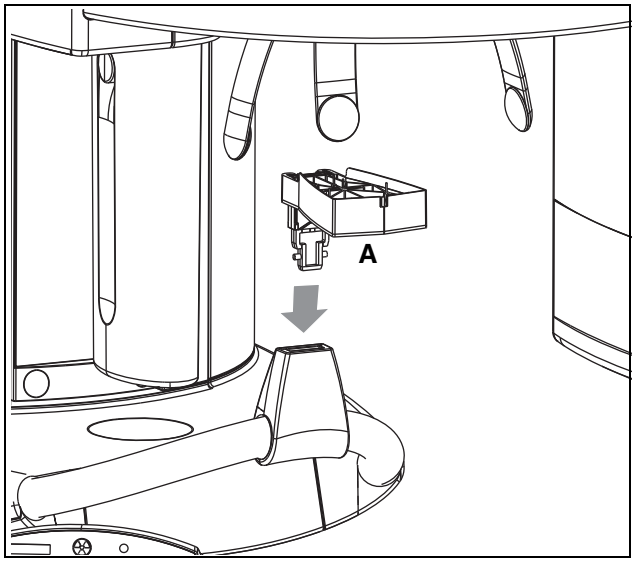
You can switch between the **PAN - DIAPHRAGM**, **PAN - SYMMETRY** and **CEPH - FIXED POINT OF ROTATION** menus by clicking the corresponding **tab** with the mouse. To quit the **TEST EXPOSURE** menu, click **CANCEL**.

Displays on the Multipad

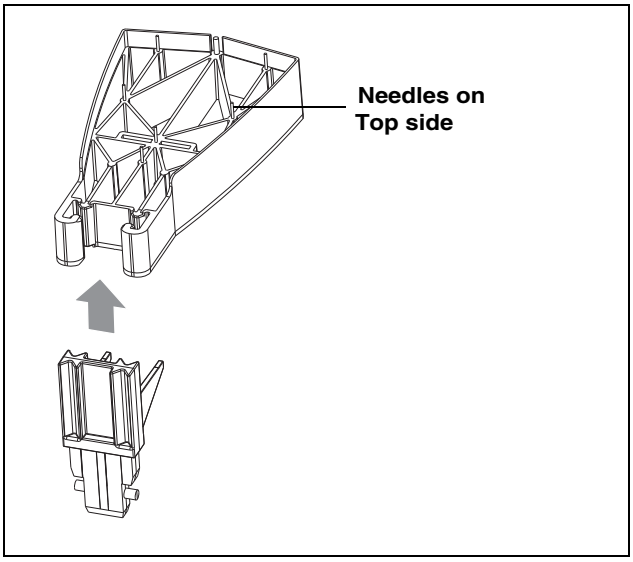
During the adjustment procedure, different service routines are started from Sidexis; they are displayed one after the other on the Multipad.

If there are any error messages displayed during adjustment, please follow the instructions provided in the Service Manual.

1.



2.



10.1.2Needle phantom

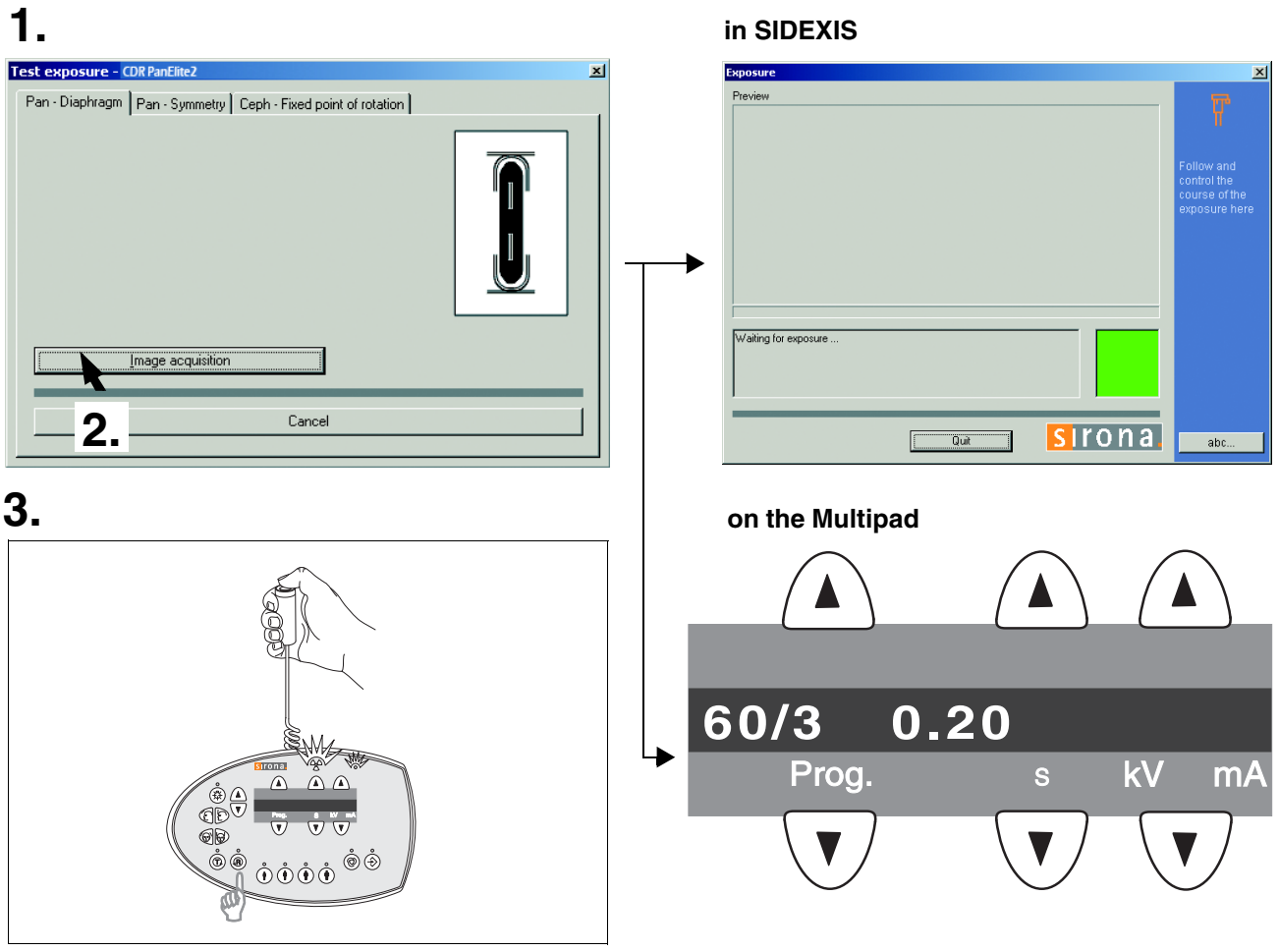
In order to check the **pan symmetry** (see section 10.1.4), you must insert needle phantom **A** in the bite block holder of the panoramic X-ray unit.

IMPORTANT

*When fitting the needle phantom, make sure that it is **correctly oriented**. For the adjustment of the X-ray unit, the phantom must be fitted in such a way that the **needles point upward** (2.).*

NOTICE

It is essential that the needle phantom is removed from bite block holder of the panoramic X-ray unit again before a Ceph exposure is taken; otherwise the phantom may collide with the sensor.



10.1.3Checking the diaphragm adjustment

WARNING

When performing the following tests, be sure to observe the radiation protection regulations applicable in your country (see Operating Instructions).

- Plug the sensor into the sensor slot on the panoramic X-ray unit.

IMPORTANT

*The needle phantom must **not** be fitted on the bite block holder on the panoramic X-ray unit.*

- Open the **TEST EXPOSURE** menu (see section 10.1.1).

1. Select the **PAN - DIAPHRAGM** submenu.

2. To make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

The exposure dialog box showing the exposure status appears in Sidexis.

The initialization status is visualized by a progress indicator on the Multipad.

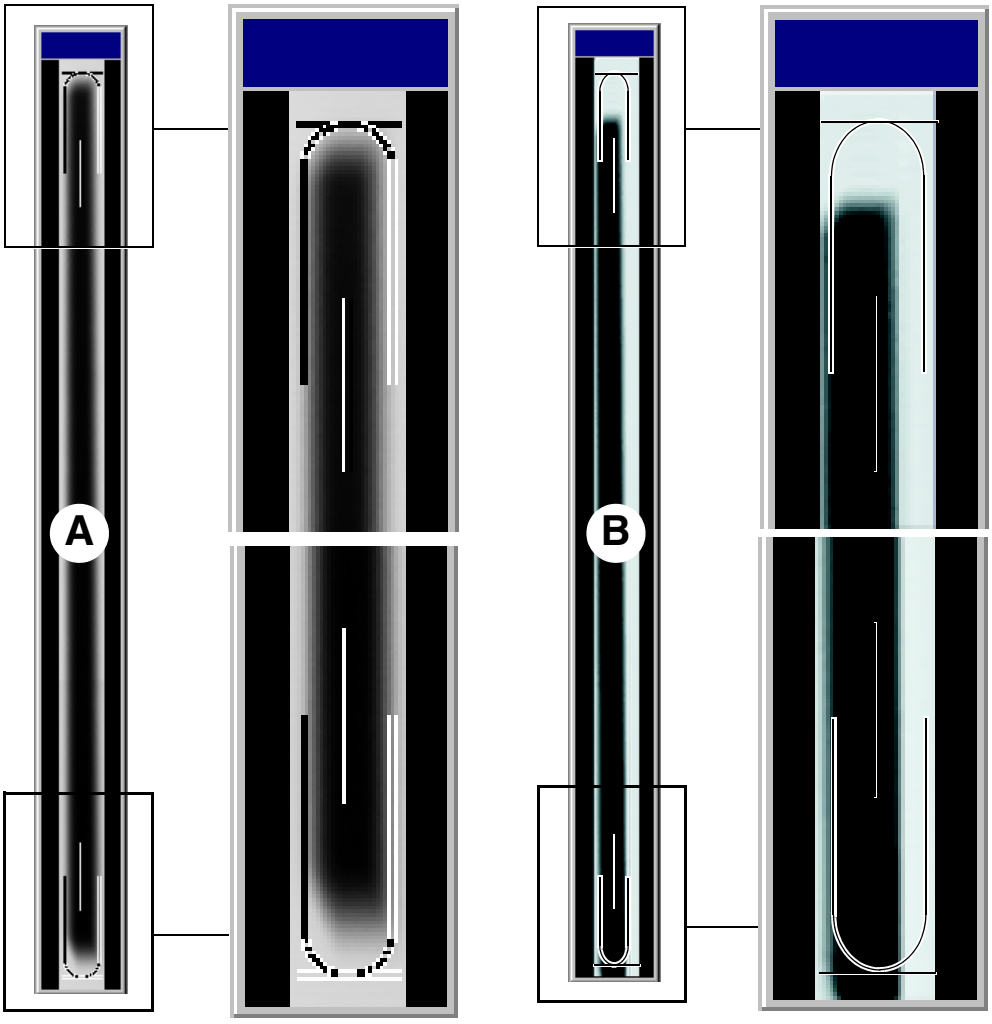
The initialization procedure is completed when the exposure parameters of service routine **S030.2** (60 kV / 3 mA; 0.20 s) are displayed and the progress indicator disappears.

3. Take an exposure (60 kV/3 mA):

– Press the **R key** on the Multipad to move the unit back to the starting position.

– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



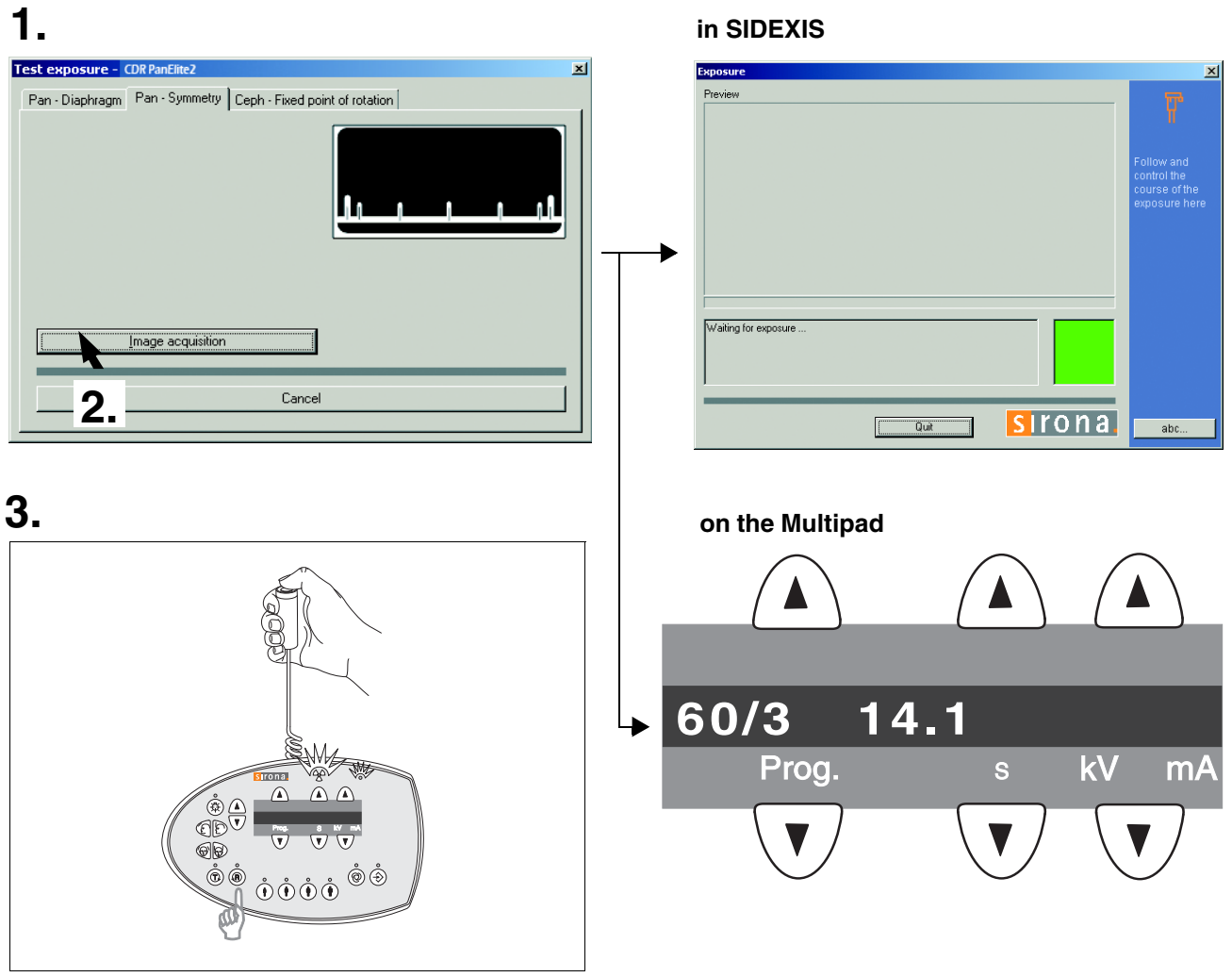
Adjustment: ok **Adjustment: not ok**

4. Evaluate the X-ray image:

- **The exposed diaphragm area must lie horizontally centered in the image field as well as inside the superimposed auxiliary lines A.**
- **A white border surrounding the image on all sides must be visible. The maximum density must lie in the center of the diaphragm area A.**

IMPORTANT

*If these criteria are not fulfilled **B**, the pan diaphragm must be adjusted. The procedure for adjusting the unit is described in the Appendix (see section 12.2) and in the ORTHOPHOS Service Manual.*



10.1.4Checking the PAN symmetry

WARNING

When performing the following tests, be sure to observe the radiation protection regulations applicable in your country (see Operating Instructions).

- Insert the needle phantom in the bite block holder of the panoramic X-ray unit (see page 101).

IMPORTANT

The sensor must be plugged into the sensor slot on the panoramic X-ray unit.

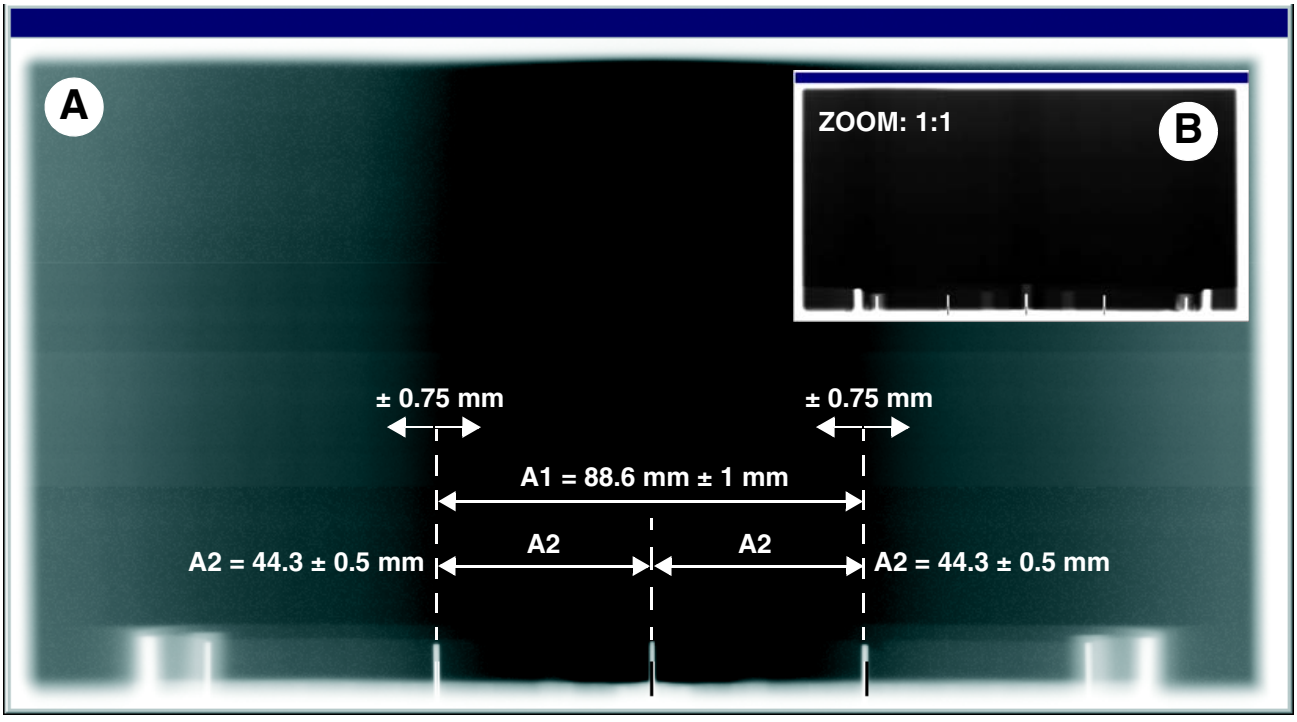
1. Go to the **PAN - SYMMETRY** submenu.
2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

   The exposure dialog box showing the exposure status appears in Sidexis.

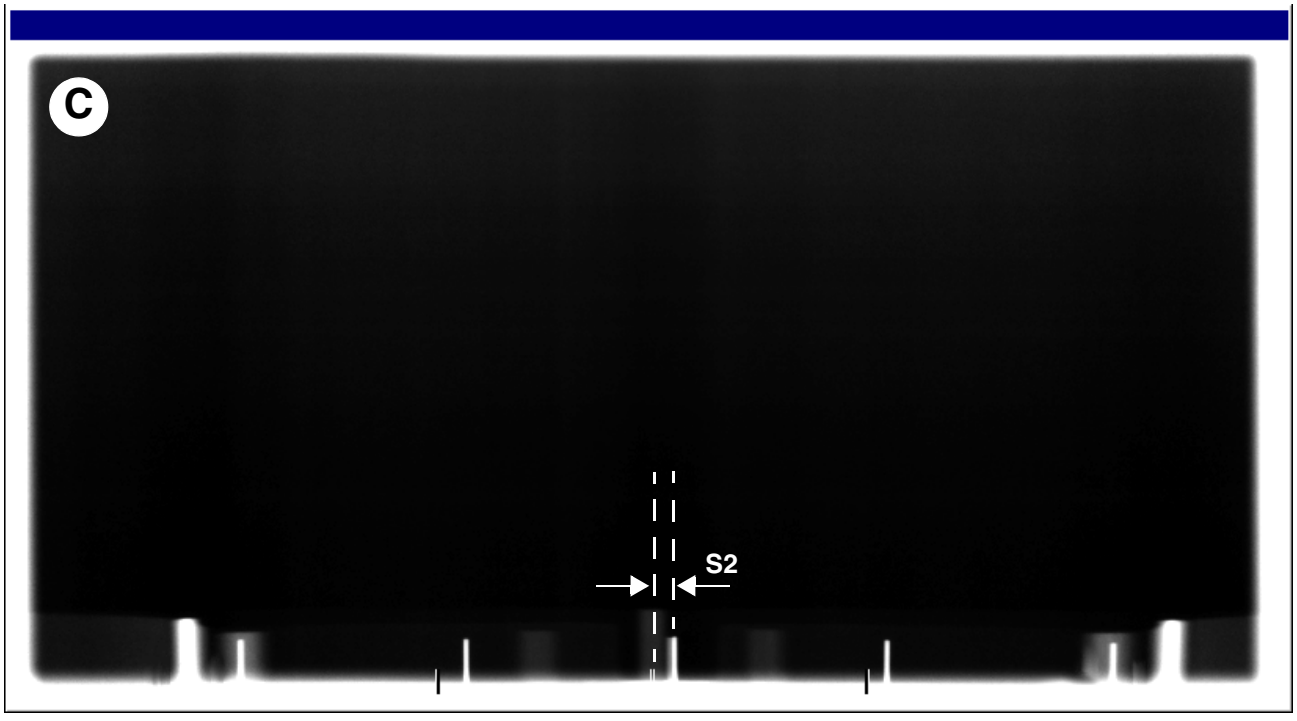
   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S010.2** (60 kV / 3 mA; 14.1 s) are displayed and the progress indicator disappears.
3. Take an exposure (60 kV / 3 mA):
   – Press the **R key** on the Multipad to move the unit back to the starting position.
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok (length measurement with SIDEXIS)



Adjustment: not ok

4. Evaluate the X-ray image:

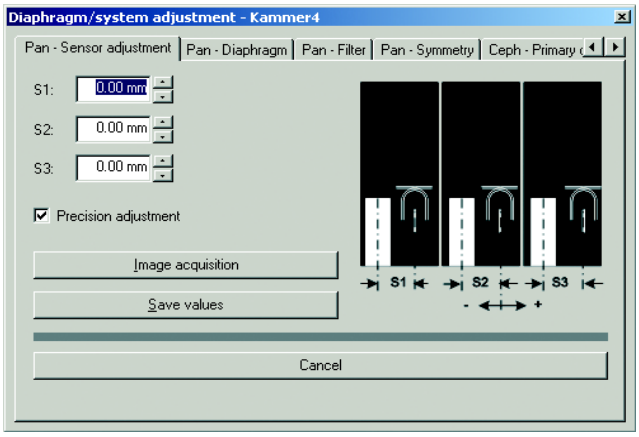
- **The shadow of the center needle, the needle image and the auxiliary line must be coincident and located behind each other.**
  A tolerance (offset of needle from the central auxiliary line) of ± 0.75 mm is admissible A.
- **Distance A1 must be 88.6 ± 1 mm A.**
- **Distances A2 must be identical, each being 44.3 ± 0.5 mm A.**
- **A white border surrounding the image on all sides must be visible B.**

IMPORTANT

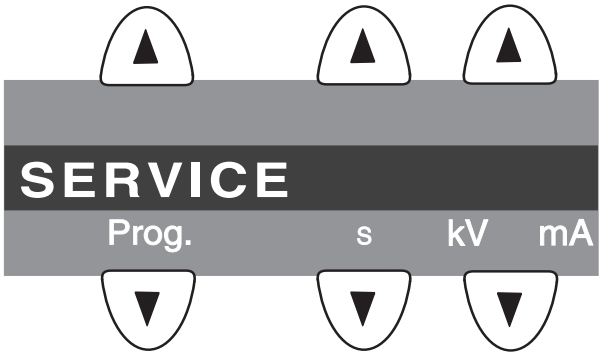
*If one of these criteria is not fulfilled **C**, the pan symmetry must be adjusted. The procedure for adjusting the unit is described in the Appendix (see section 12.2) and in the ORTHOPHOS Service Manual.*

10.2Adjusting the cephalometer

1.



2.



10.2.1Diaphragm/system adjustment menu

The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu guides you through the adjustment of the panoramic unit and the cephalometer. This service routine is started from **SIDEXIS XG**:

UTILITIES → CONSTANCY TEST → XCXP → SELECT X-RAY DEVICE → SERVICE EXPOSURE → DIAPHRAGM/UNIT ADJUSTMENT

IMPORTANT

*The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu is password-protected. As password, enter the first four digits of the current system date (PC) in reverse order.*

*Example: On 05/30/2004, the service password is **5003***

IMPORTANT

When you open the **DIAPHRAGM/SYSTEM ADJUSTMENT** *menu, the unit switches from the user mode to the PC service mode logged by the PC. The service mode is indicated by the* **SERVICE** *display on the Multipad (**2.**).*

*In the **PC service mode**, the control options that are available on the Multipad are determined by SIDEXIS and the currently selected service routine. General control of the unit by means of the Multipad (as in the user mode) is not possible in this mode.*

The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu has 12 submenus:

- PAN - Sensor adjustment
- PAN - Diaphragm
- PAN - Filter
- PAN - Symmetry
- CEPH - Primary diaphragm
- CEPH - Fixed point of rotation
- CEPH - Main X-ray beam direction
- CEPH quickshot (XG 3D^{ready} and full version only)
- PAN - Reset adjustment
- CEPH - Reset adjustment
- Sirona Service Sheet (for internal use only)

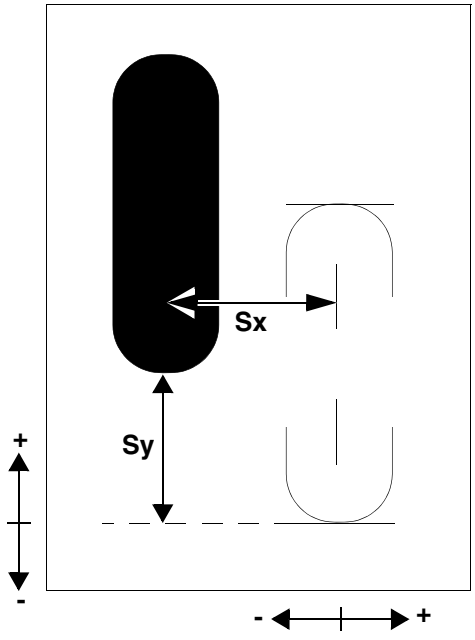
You can change between the individual submenus by clicking the **menu tabs** with the mouse. To quit the **DIAPHRAGM/SYSTEM ADJUSTMENT** menu, click **CANCEL**.

The following submenus are required for CEPH adjustment:

- Ceph - Primary diaphragm (see page 111)
- Ceph - Fixed point of rotation (see page 116)
- Ceph - Main X-ray beam direction (see page 124)
- CEPH quickshot (XG 3D^{ready} and full version only)

Direction of displacement of the exposed image area/ Information on the pictographs in the system adjustment menu

Depending on the selected submenu, the system adjustment menu contains a pictographic representation of the expected adjustment image to help you perform the adjustment. The shifting directions indicated by the plus and minus signs located below and next to the pictograph refer to shifting of the exposed image area in the direction of the stationary auxiliary lines (see the following example):



In the example the exposed image area is offset to the left by the value **Sx** and upward by the value **Sy**. In order to shift the image area so that it comes to lie inside the auxiliary lines, you must enter …

- **Sx (shift to the right) with a positive sign**
- **Sy (shift downward) with a negative sign**

in the text boxes of the submenu.

Generally speaking, the exposed image area must always be shifted toward the auxiliary lines:

- **Shift to the right or upward**: Enter the value (measured offset from the auxiliary line) with a **positive sign**

- **Shift to the left or downward**: Enter the value (measured offset from the auxiliary line) with a **negative sign**

Displays on the Multipad

During the adjustment procedure, different service routines are started from Sidexis; they are displayed one after the other on the Multipad.

If there are any error messages displayed during adjustment, please follow the instructions provided in the Service Manual.

For adjustment, please proceed as described in the following sections.

10.2.2Important information concerning adjustment

WARNING

When performing the following tests, be sure to observe the radiation protection regulations applicable in your country (see Operating Instructions).

WARNING

"Radiation" is signaled with the message "X-RAY active!" and a beep.

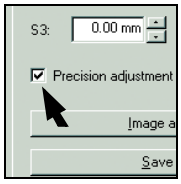
IMPORTANT

*Be sure to take screenshots of the **PAN - RESET ADJUSTMENT** and **CEPH - RESET ADJUSTMENT** menus before and after the adjustment (see section 10.4) and save them to the C:\SIDEXIS\XGRAW directory along with the time and date!*

IMPORTANT

Before starting the service routines for system adjustment, make sure that no unit movements are active (especially diaphragm travels)! Otherwise the system may become inoperable in rare cases.

Coarse and precision adjustment using the Diaphragm/system adjustment menu in SIDEXIS XG



IMPORTANT

The PAN - Sensor adjustment, PAN - Diaphragm and CEPH - Fixed point of rotation submenus provide a coarse adjustment and a precision adjustment (precision adjustment is preset). Always try to use precision adjustment first when adjusting the unit. In most cases, previous coarse adjustment is not necessary.

With SIDEXIS Version V02.20 and higher, a message window indicates when a coarse adjustment is necessary.

Only if you cannot achieve your goal with precision adjustment, e.g. if the exposed area is completely outside the image field, should you perform a coarse and then a precision adjustment.

*If a coarse adjustment proves necessary, deactivate the **PRECISION ADJUSTMENT** check box and follow the adjustment steps described in the present chapter to perform a coarse adjustment.*

The steps and correction procedure required for coarse adjustment are identical to those for precision adjustment. The only difference between the two modes is the size of the image section considered. Furthermore, there are fewer auxiliary lines in the coarse adjustment mode.

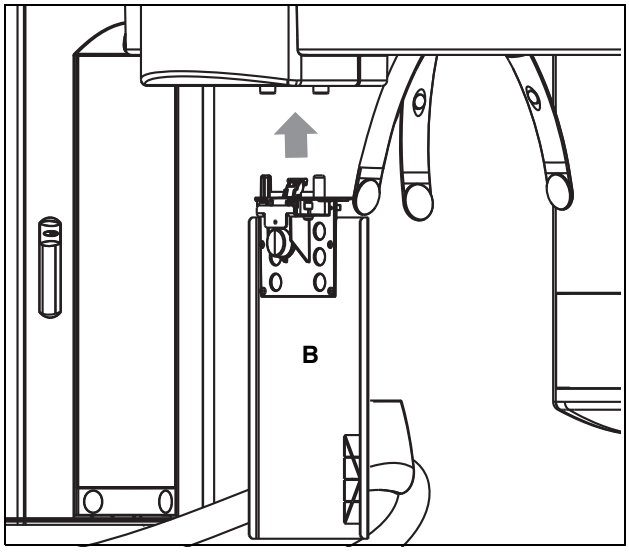
Default values in the Diaphragm/system adjustment menu in SIDEXIS XG

During the adjustment, the default adjustment values are displayed in the text boxes of the Diaphragm/system adjustment menu.

First perform the adjustment with these default values. If you do not attain the desired result via this automatic adjustment, you should determine the adjustment values manually by measuring the exposure with the SIDEXIS measuring ruler and then overwrite the default values in the menu.

This procedure is described in the following sections.

1.



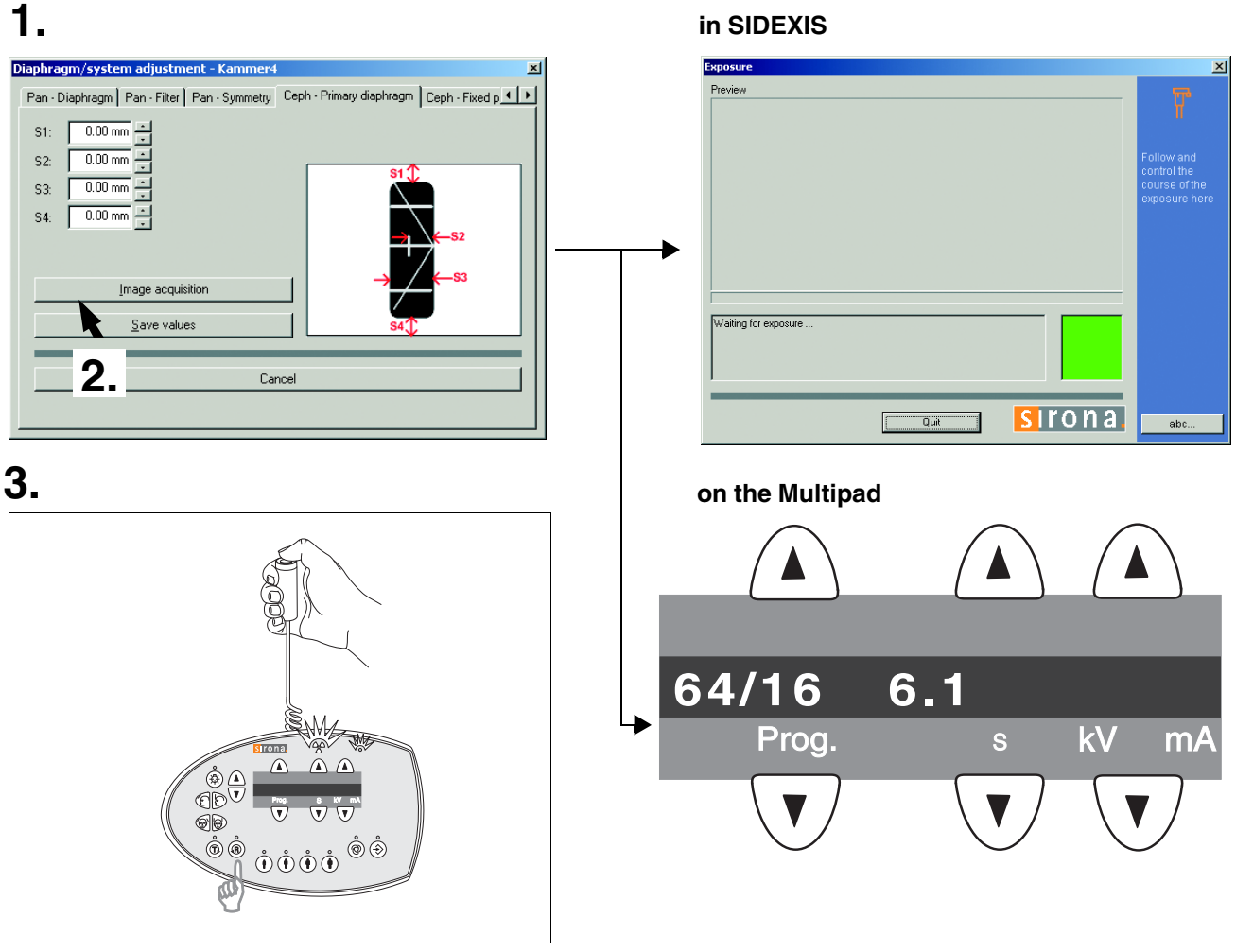
10.2.3CEPH test phantom

You must insert test phantom **B** in the **sensor slot on the panoramic X-ray unit** in order to perform the **adjustment of the ceph primary diaphragm** and the **adjustment of the ceph main X-ray beam direction**.

The test phantom must be removed from the sensor slot on the panoramic X-ray unit for the **adjustment of the CEPH fixed point of rotation**.

NOTICE

It is essential that the needle phantom is removed from bite block holder of the panoramic X-ray unit again before a Ceph exposure is taken; otherwise the phantom may collide with the sensor.



10.2.4Adjusting the CEPH primary diaphragm

- Move the ear plug holders on the cephalometer completely apart and swing them out of the beam direction (ap).
- Insert the test phantom in the **sensor slot on the panoramic X-ray unit** (see page 101).
- Plug the sensor into the sensor slot on the cephalometer.
- Open the **DIAPHRAGM/SYSTEM ADJUSTMENT** menu (see section 10.2.1).

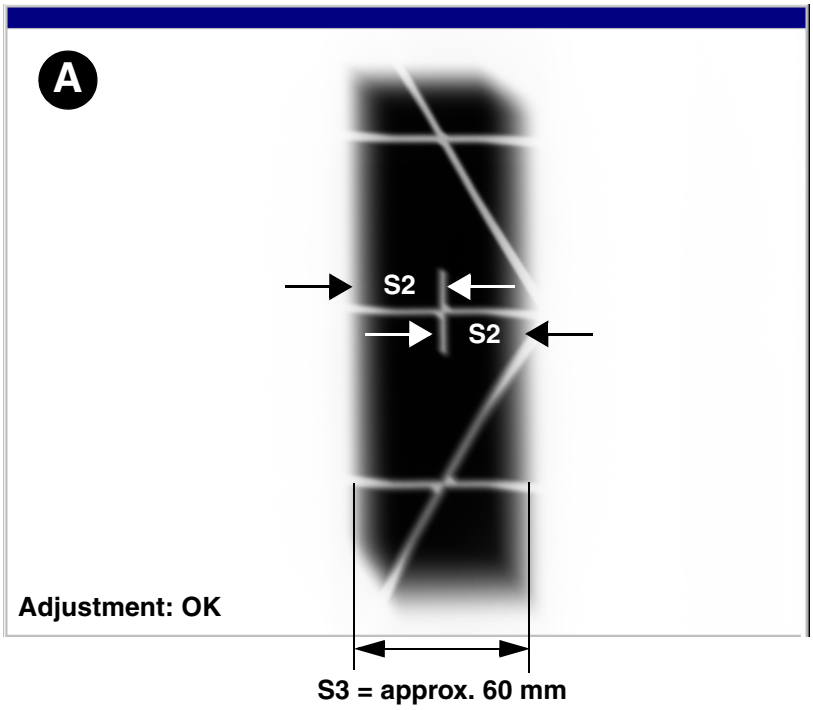
1. Select the **CEPH - PRIMARY DIAPHRAGM** submenu.
2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

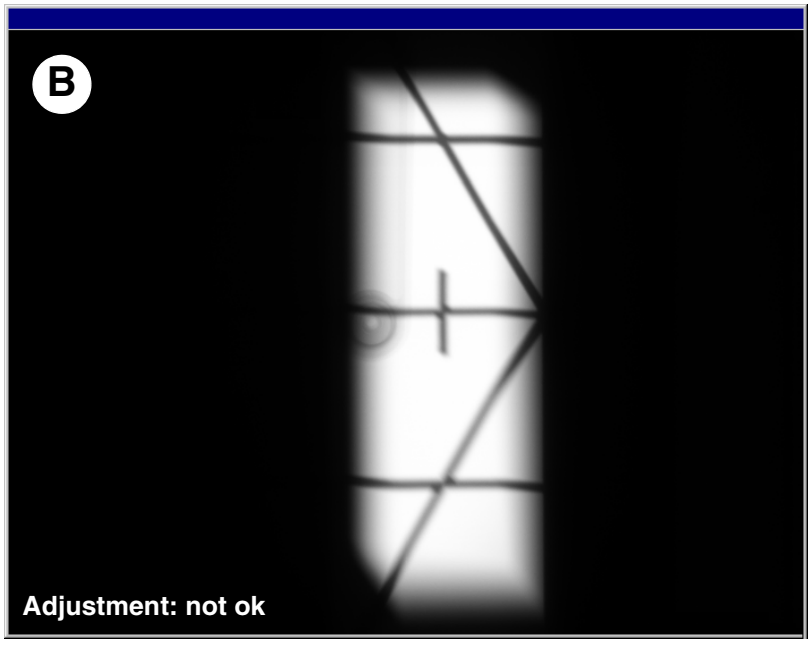
   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S010.3** (64kV / 16mA; 6.1s) are displayed and the progress indicator disappears.
3. Take an exposure (64 kV / 16 mA):
   - Press the **R key** on the Multipad to move the unit back to the starting position.
   - Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.





4. Evaluate the X-ray image:

- **The vertical pin must be horizontally centered in the exposed image area A. A slight vertical offset of the grid is permissible.**
- **A uniform white border surrounding the image on all sides must be visible A.**
- **Distance S3 must be approx. 60 mm.**

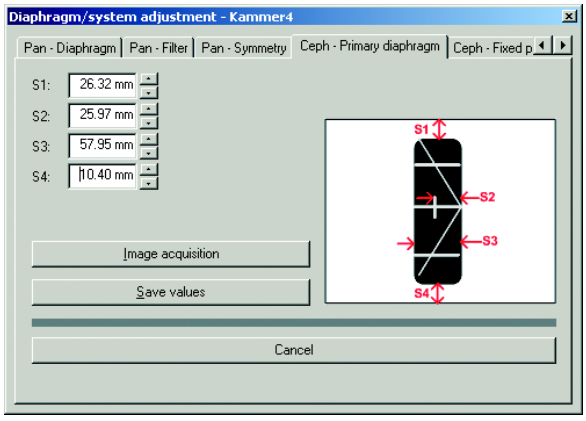
IMPORTANT

*If these criteria are not fulfilled **B**, the ceph primary diaphragm must be adjusted.*

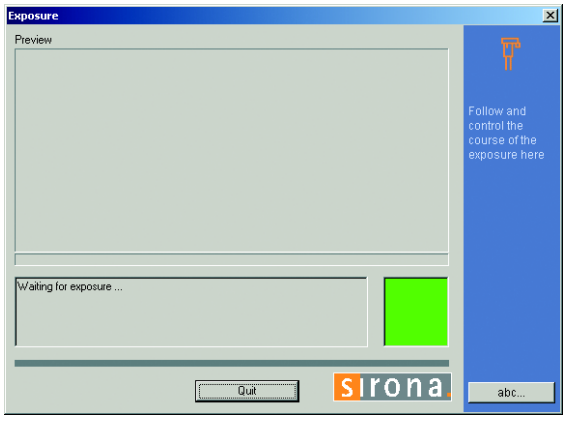
IMPORTANT

If S3 is > 70 mm, then contact the SIRONA Customer Service Center:
Phone: 0 62 51 / 16 - 16 70

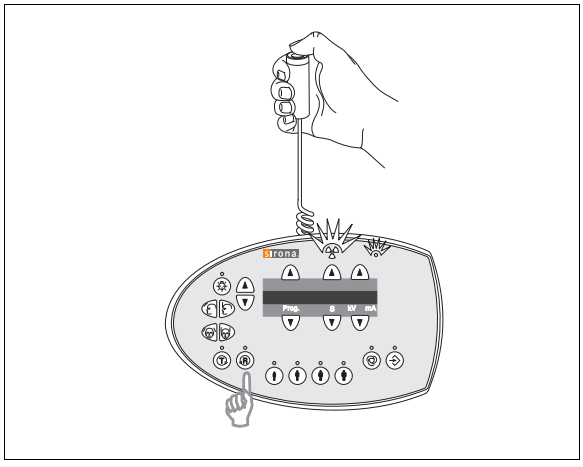
5.



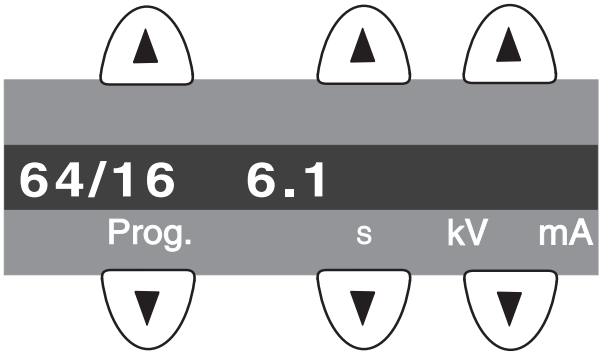
in SIDEXIS



6.



on the Multipad



IMPORTANT

The default values for S1, S2, S3 and S4 were automatically determined by SIDEXIS based on the exposure and entered in the text boxes of the menu.

For manual adjustment, the values displayed at this position in the text boxes of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment values is required only if you fail to reach your goal via automatic adjustment (see page 115).

5. Make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

The exposure dialog box showing the exposure status appears in Sidexis.

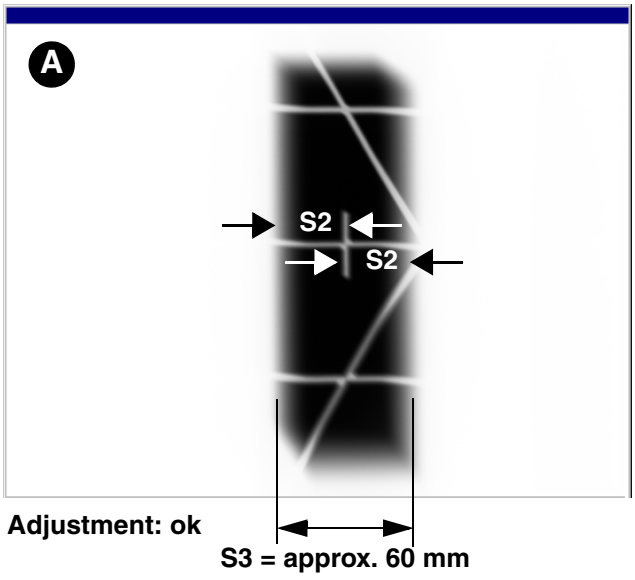
The initialization status is visualized by a progress indicator on the Multipad.

The initialization procedure is completed when the exposure parameters of service routine **S010.3** (64 kV / 16 mA; 6.1 s) are displayed and the progress indicator disappears.

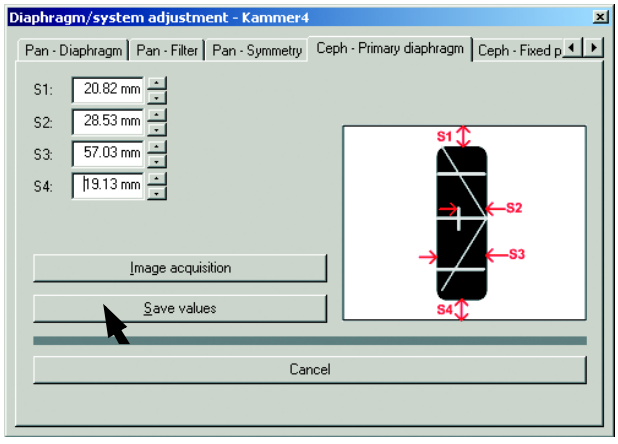
6. Take an exposure (64 kV / 16 mA):

– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

7.



8.



7. Evaluate the X-ray image:

- **The vertical pin must be horizontally centered in the exposed image area A. *A slight vertical offset of the grid is permissible.***
- **A uniform white border surrounding the image on all sides must be visible A.**
- **Distance S3 must be approx. 60 mm.**

IMPORTANT

If these criteria are not yet fulfilled, repeat the adjustment procedure starting with step 5.

IMPORTANT

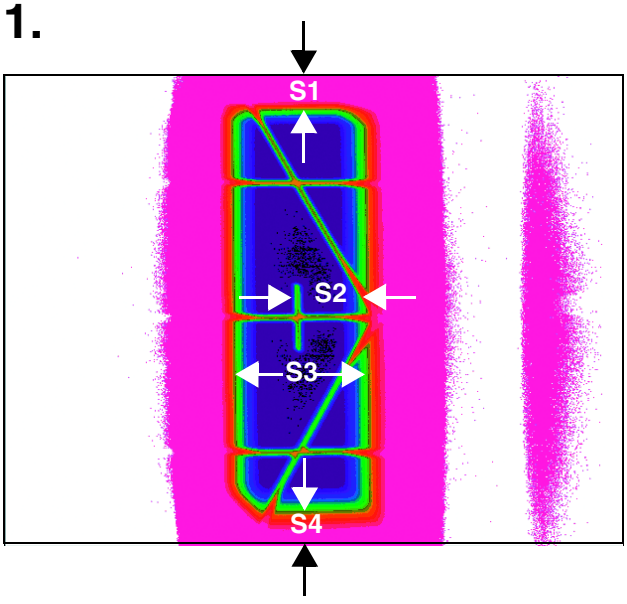
If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with manually determined adjustment values (see page 115).

8. If the image is identical to the ideal image **A**, save the values:

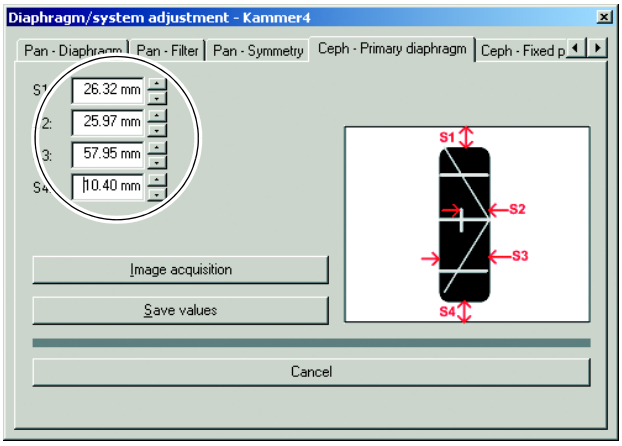
Click **SAVE VALUES**

- Go on to the next adjustment step.

1.



2.



Manual adjustment of the CEPH primary diaphragm

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values automatically determined by SIDEXIS are overwritten by manually determined adjustment values in the **CEPH - PRIMARY DIAPHRAGM** submenu.

1. Measure distances **S1 - S4** with the SIDEXIS measuring ruler:
   - **S1:** Distance from the top edge of the image
   - **S2:** Distance from the right edge of the exposed area to the middle of the center pin
   - **S3:** Width of the exposed area
   - **S4:** Distance from the bottom edge of the image

IMPORTANT

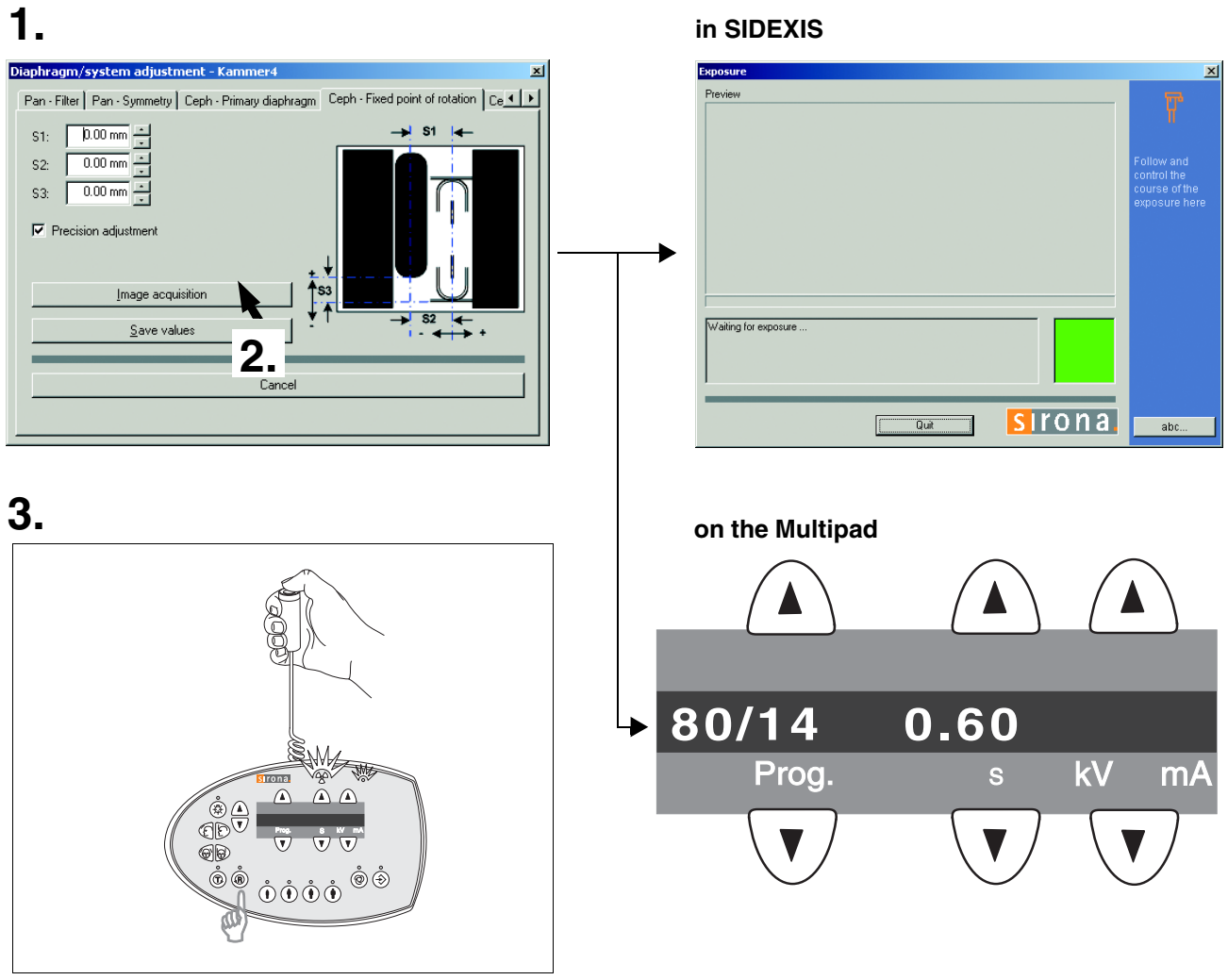
Tip: *To facilitate the measuring procedure, you can invert or color the image in SIDEXIS (see also SIDEXIS - Operator's Manual).*

2. Overwrite the default values for **S1, S2, S3** and **S4** with the measured values in the text boxes of the **CEPH - PRIMARY DIAPHRAGM** submenu.

IMPORTANT

For information on the direction of displacement (input of +/- sign in the menu) see page 108. Use points as decimal separators!

- Proceed with step 5 of the adjustment procedure on page 113.



10.2.5Adjusting the CEPH fixed point of rotation

- Remove the ceph test phantom from the sensor slot of the panoramic X-ray unit.

1. Go to the **CEPH - FIXED POINT OF ROTATION** submenu.

IMPORTANT

The menu provides a precision adjustment and a coarse adjustment (precision adjustment is preset). Perform a precision adjustment first. In most cases, previous coarse adjustment is not necessary.

2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

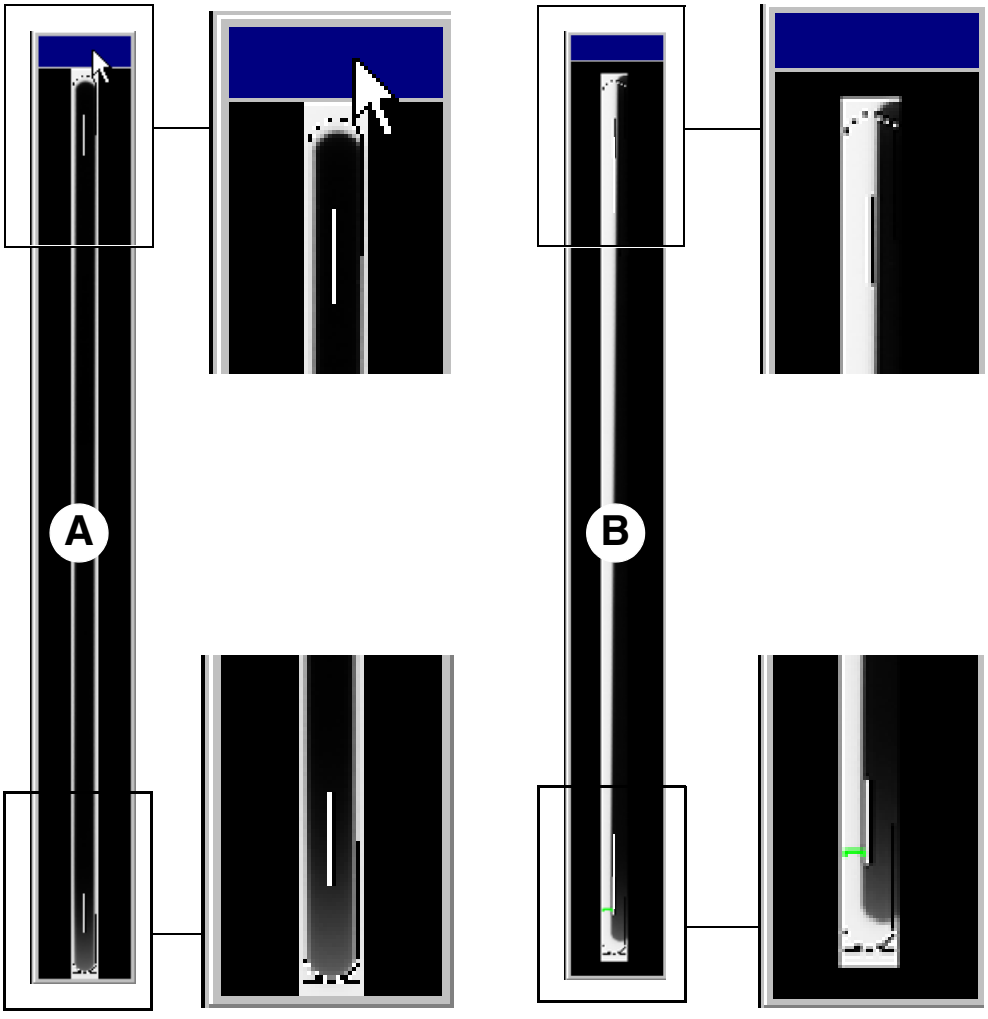
   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S010.5** (80 kV / 14 mA; 0.60 s) are displayed and the progress indicator disappears.

3. Take an exposure (80kV / 14mA):
   – Press the **R key** on the Multipad to move the unit back to the starting position.
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok **Adjustment: not ok**

4. Evaluate the X-ray image:

- **The exposed diaphragm area must lie centered and straight in the image field as well as inside the superimposed auxiliary lines A.**
- **A white border surrounding the image on all sides must be visible. The maximum density must lie in the center of the diaphragm area A.**

IMPORTANT

*If these criteria are not fulfilled **B**, the ceph fixed point of rotation must be adjusted.*

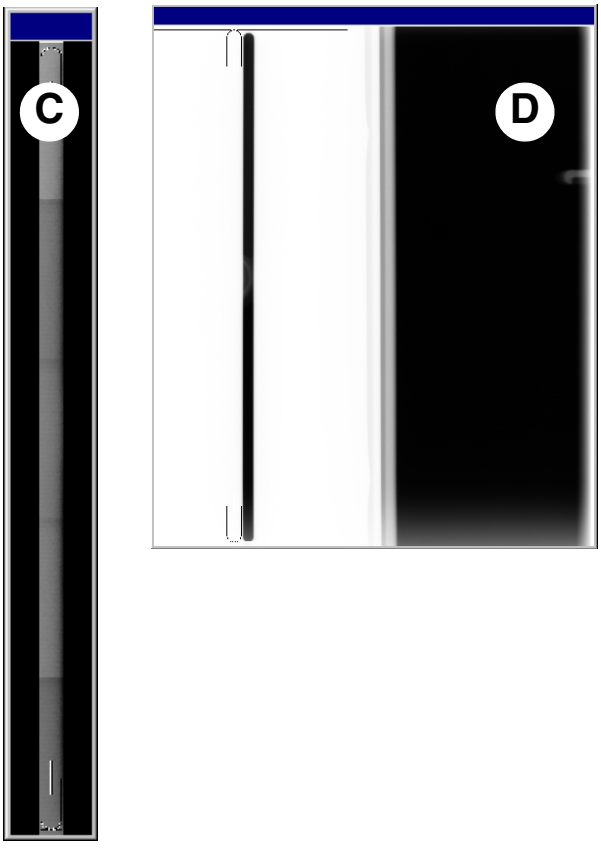


Image: X-ray image with unadjusted ceph fixed point of rotation: Alternatively with precision adjustment setting C and coarse adjustment setting D

Coarse or precision adjustment?

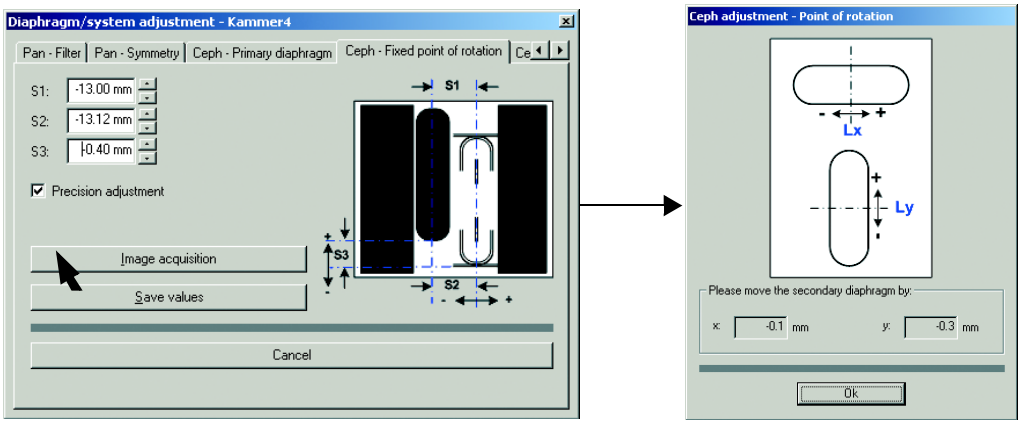
In most cases, the fixed point of rotation can be adjusted using precision adjustment from the start (see steps 5 ff.). Only in exceptional cases, e.g. if the exposed image area is completely outside the image field **(C)** in an image acquired with the **PRECISION ADJUSTMENT** setting, is it necessary to perform a coarse adjustment prior to precision adjustment **(D)**. To do this, deactivate the **PRECISION ADJUSTMENT** check box (see page 109) and then perform a coarse adjustment proceeding in the same way as for precision adjustment. The only difference between coarse and precision adjustment is the size of the image area considered. Furthermore, there are fewer auxiliary lines in the coarse adjustment mode.

On the X-ray image with coarse adjustment D, the exposed area is still visible in the image field. Even in this extreme case, an adjustment would still be possible.

IMPORTANT

With SIDEXIS SW V01.45 and higher, a message window indicates whether a coarse adjustment is required on completion of the precision exposure.

5.



IMPORTANT

The default values for S1, S2 and S3 were automatically determined by SIDEXIS based on the exposure and entered in the text boxes of the menu.

For manual adjustment, the values displayed at this position in the text boxes of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment values is required only if you fail to reach your goal via automatic adjustment (see page 123).

5. Make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

The **CEPH ADJUSTMENT - FIXED POINT OF ROTATION** window appears in Sidexis.

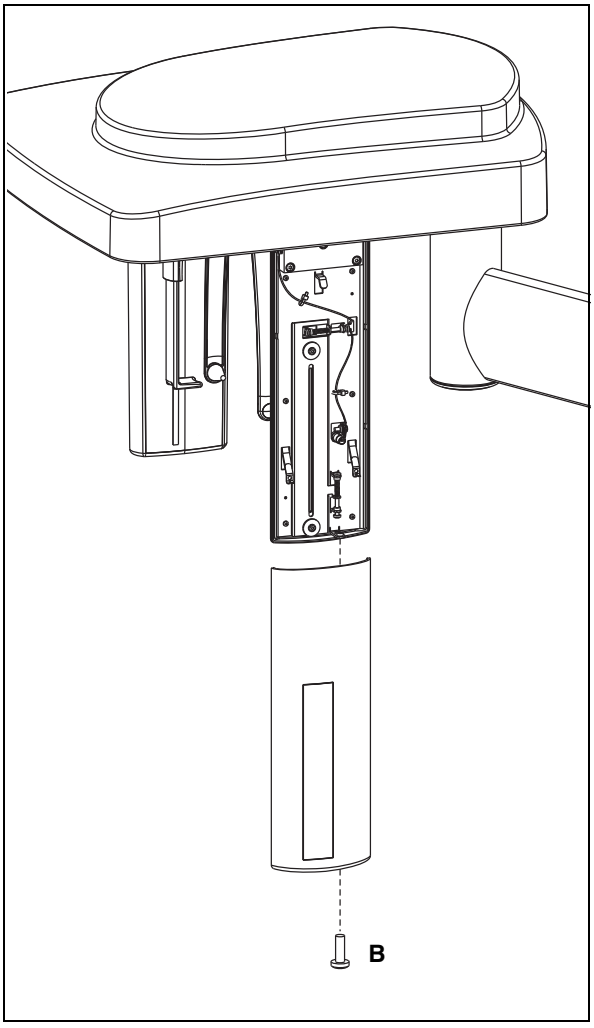
The dialog box suggests two values, **Lx** and **Ly**, for a mechanical adjustment of the ceph secondary diaphragm.

If the suggested values are greater than ± 0.5 mm, you must perform a mechanical adjustment of the diaphragm.

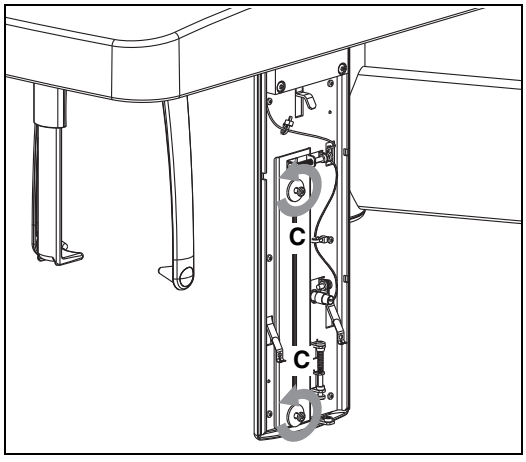
IMPORTANT

Positive sign** = Moves the diaphragm **to the right or upward
Negative sign** = Moves the diaphragm **to the left or downward

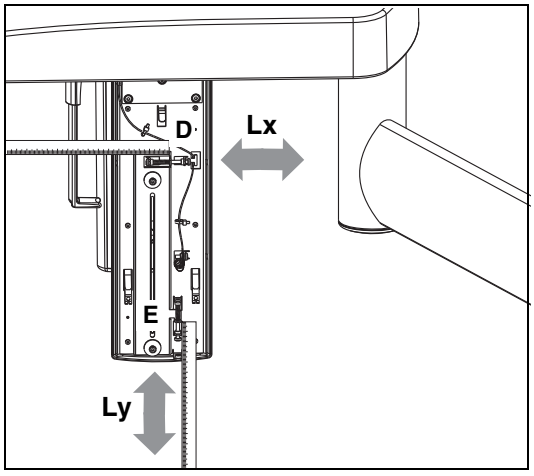
6.



7.



8.



6. Loosen screw **B** and remove the cover of the secondary diaphragm by pulling it downward.

7. Loosen screws **C** slightly (approx. 2-3 turns).

8. Adjust the inclination of the diaphragm with screw **D (Lx mm)** and the height of the diaphragm with screw **E (Ly mm)**.

IMPORTANT

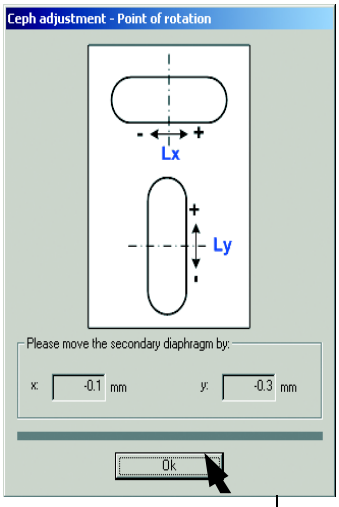
Screw D:
CCW rotation = Correction of diaphragm to the right
CW rotation = Correction of diaphragm to the left

Screw E:
CCW rotation = Correction of diaphragm downward
CW rotation = Correction of diaphragm upward

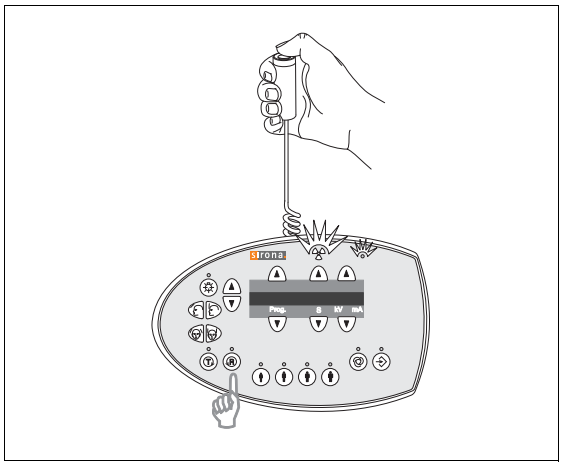
Use a ruler to measure the displacement (see Fig. 11.)

- Tighten screws **C** again.

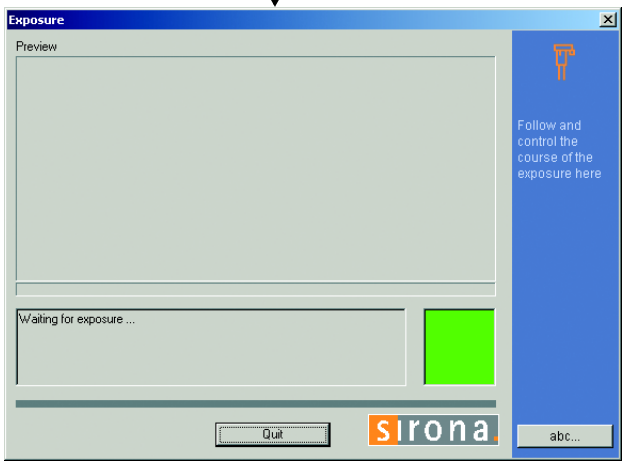
9.



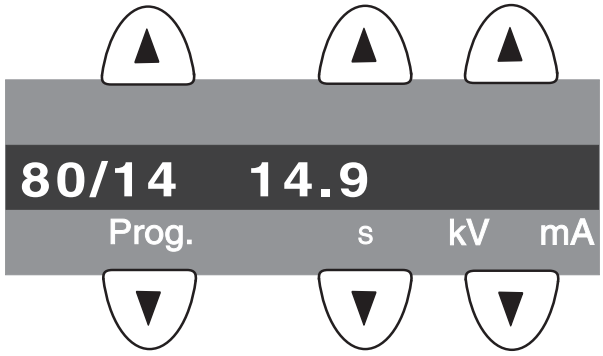
10.



in SIDEXIS



on the Multipad



9. Confirm the mechanical correction of the ceph secondary diaphragm:

Click **OK**

The exposure dialog box showing the exposure status appears in Sidexis.

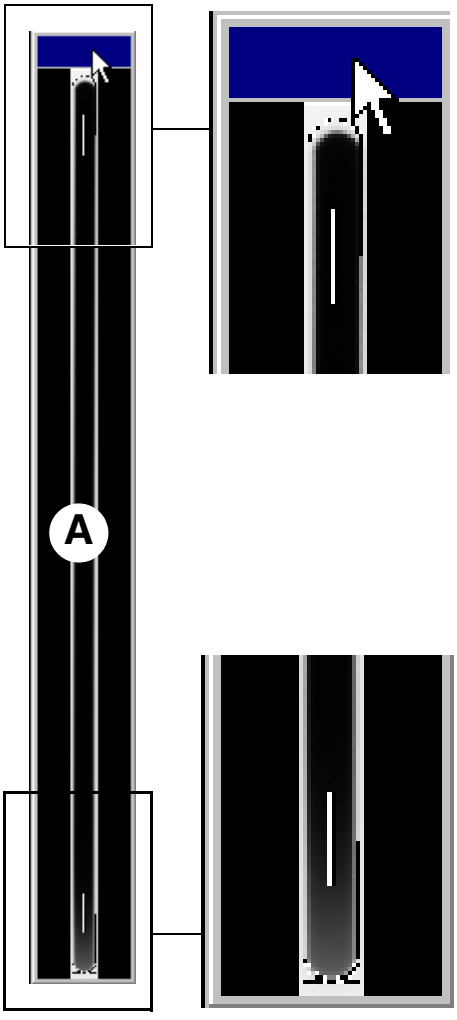
The initialization status is visualized by a progress indicator on the Multipad.

The initialization procedure is completed when the exposure parameters of service routine **S010.5** (80 kV / 14 mA; 0.60 s) are displayed and the progress indicator disappears.

10. Take an exposure:

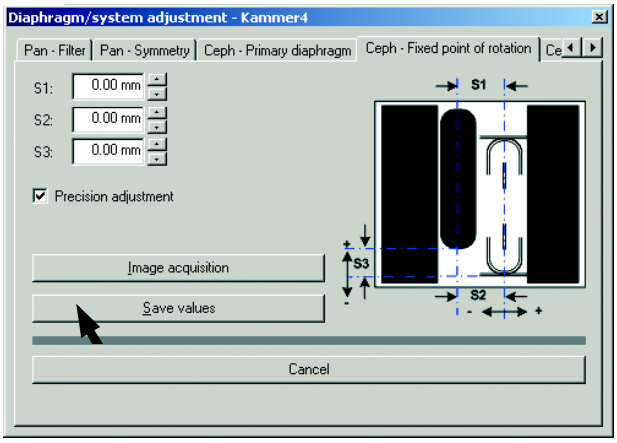
– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

11.



Adjustment: ok

12.



11. Evaluate the X-ray image:

- **The exposed diaphragm area must lie centered and straight in the image field as well as inside the superimposed auxiliary lines A.**
- **A white border surrounding the image on all sides must be visible. The maximum density must lie in the center of the diaphragm area A.**

IMPORTANT

If these criteria are not yet fulfilled, repeat the adjustment procedure starting with step 5.

NOTICE

If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with manually determined adjustment values (see page 123).

12. If the image is identical to the ideal image **A**, save the values:

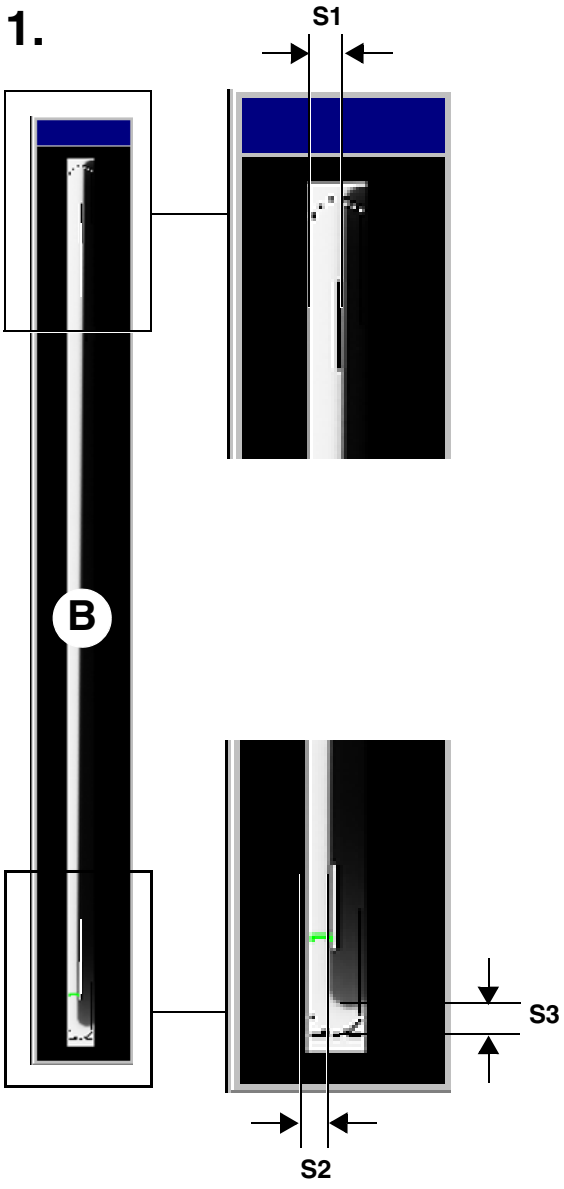
Click **SAVE VALUES**

IMPORTANT

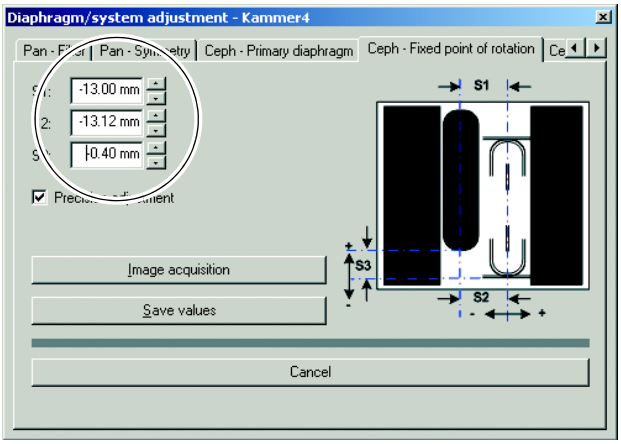
*In SIDEXIS versions V01.50 and higher, the values for **S1**, **S2** and **S3** in the **CEPH - FIXED POINT OF ROTATION** submenu are set **equal to zero** with a correct adjustment, i.e. if they are within the permissible tolerance. For versions < V01.50, the values in the text boxes may deviate slightly from zero even with a correct adjustment.*

- Go on to the next adjustment step.

1.



2.



Adjusting the CEPH fixed point of rotation manually

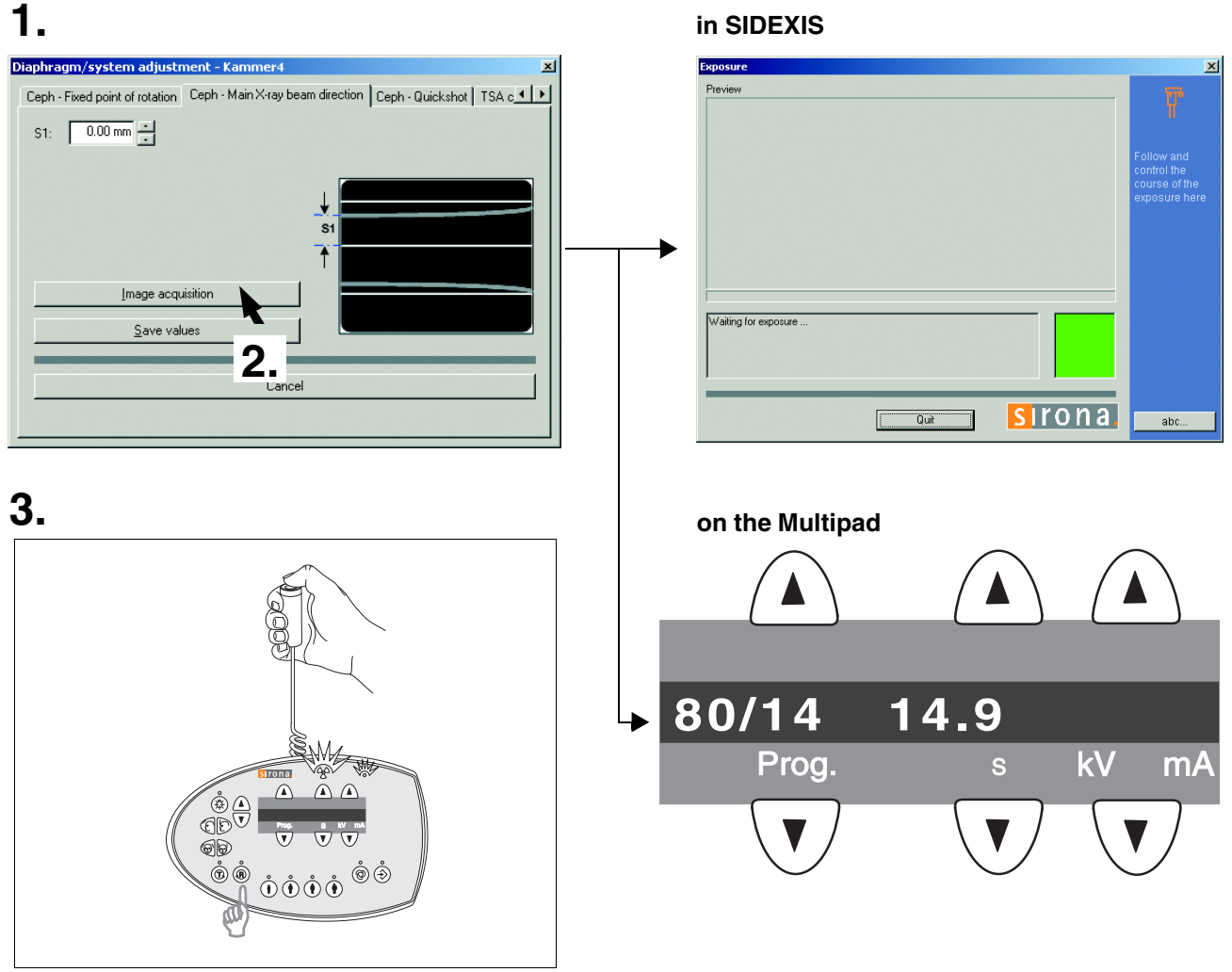
The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values automatically determined by SIDEXIS are overwritten by manually determined adjustment values in the **CEPH - FIXED POINT OF ROTATION** submenu.

1. Measure distances **S1, S2** and **S3** with the SIDEXIS measuring ruler.
2. Overwrite the default values for **S1, S2** and **S3** with the measured values in the text boxes of the **CEPH - FIXED POINT OF ROTATION** submenu.

IMPORTANT

For information on the direction of displacement (input of +/- sign in the menu) see page 108. Use points as decimal separators!

- Proceed with step 5 of the adjustment procedure on page 119.



10.2.6Adjusting the CEPH main X-ray beam direction

- Insert the test phantom in the **sensor slot on the panoramic X-ray unit** (see page 101).
- Swing the ear plug holders out of the beam direction.

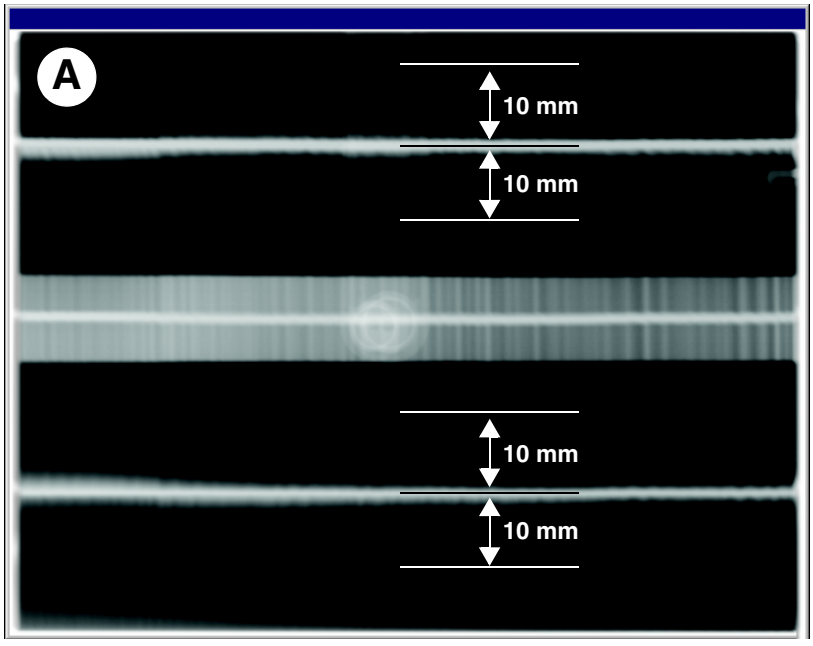
1. Go to the **CEPH - MAIN X-RAY BEAM DIRECTION** submenu.
2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

   The exposure dialog box showing the exposure status appears in Sidexis.

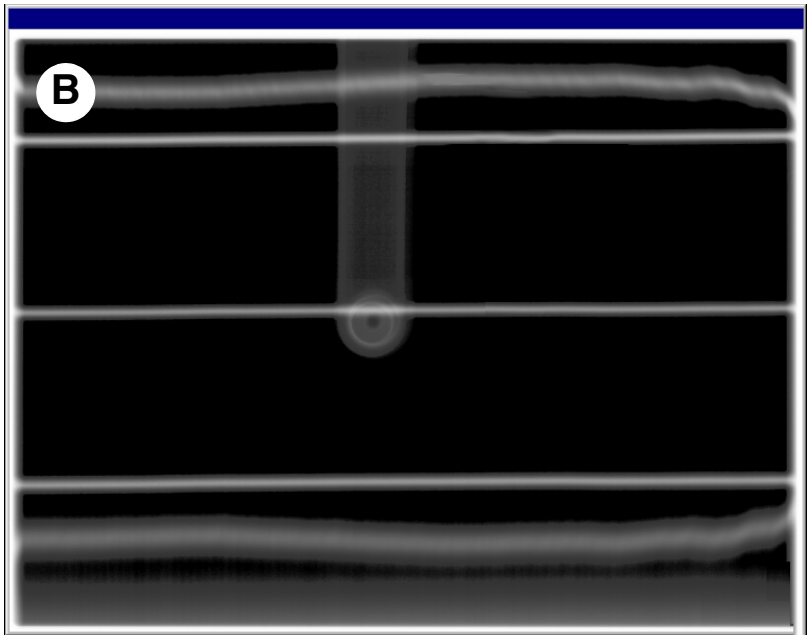
   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S010.6** (80 kV / 14 mA; 14.9 s) are displayed and the progress indicator disappears.
3. Take an exposure (80kV / 14mA):
   – Press the **R key** on the Multipad to move the unit back to the starting position.
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok



Adjustment: not ok

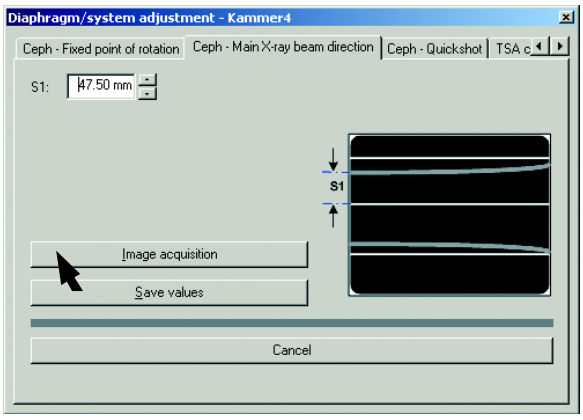
4. Evaluate the X-ray image:

- **A horizontal bar must be visible in the center of the image A. If this bar is visible, the exposure is OK and ...**
- **The two beams imaged are within the tolerance band of ± 10 mm (A).**

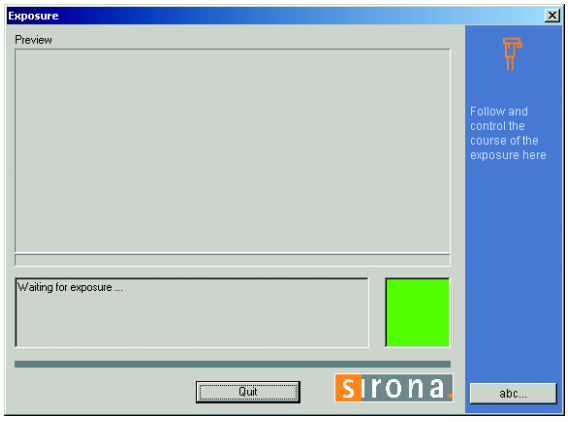
IMPORTANT

*If the above criteria are not fulfilled **B**, the ceph main X-ray beam direction must be adjusted.*

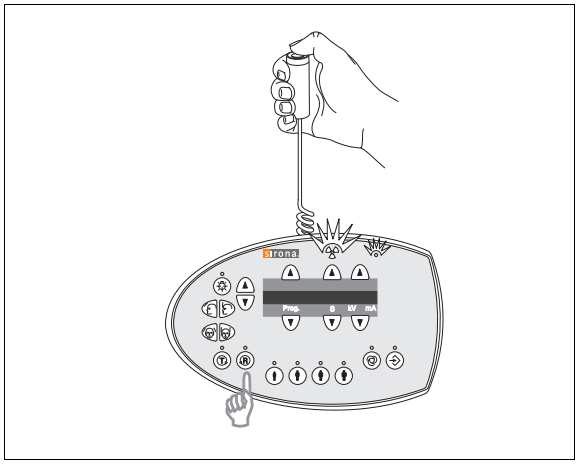
5.



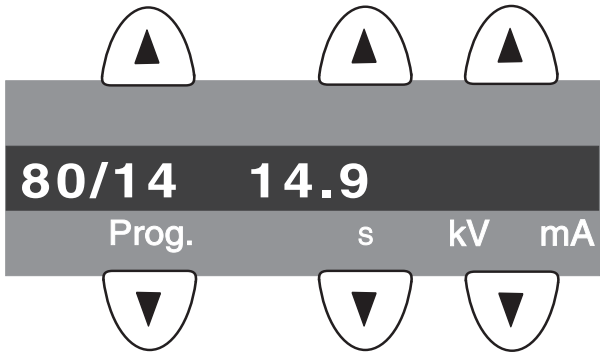
in SIDEXIS



6.



on the Multipad



IMPORTANT

The default value for S1 was automatically determined by SIDEXIS based on the exposure and entered in the text box of the menu.

For manual adjustment, the value displayed at this position in the text box of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment value is required only if you fail to reach your goal via automatic adjustment (see page 128).

5. Make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

The exposure dialog box showing the exposure status appears in Sidexis.

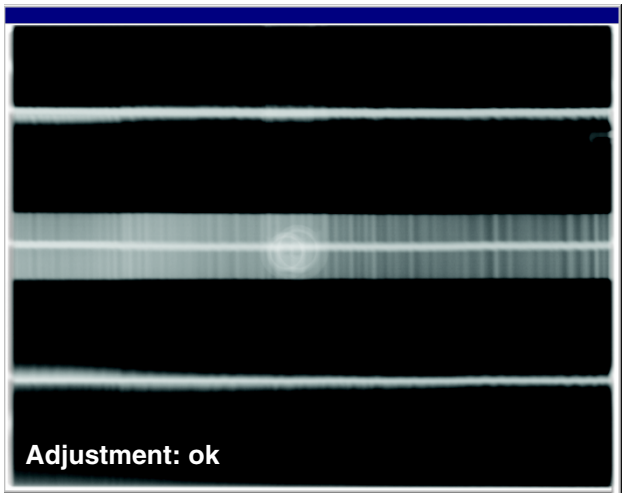
The initialization status is visualized by a progress indicator on the Multipad.

The initialization procedure is completed when the exposure parameters of service routine **S010.6** (80 kV / 14 mA; 14.9 s) are displayed and the progress indicator disappears.

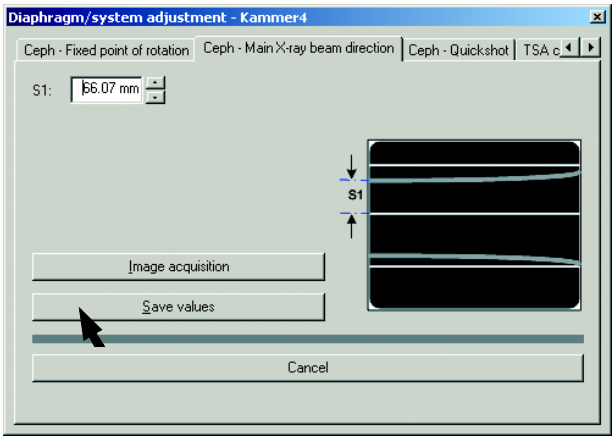
6. Take an exposure (80kV / 14mA):

– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

7.



8.



7. Evaluate the X-ray image:

- **A horizontal bar must be visible in the center of the image A. If this bar is visible, the image is OK and ...**
- **the two beams imaged are within the tolerance band of ± 10 mm A.**

IMPORTANT

If these criteria are not yet fulfilled, repeat the adjustment procedure starting with step 5.

IMPORTANT

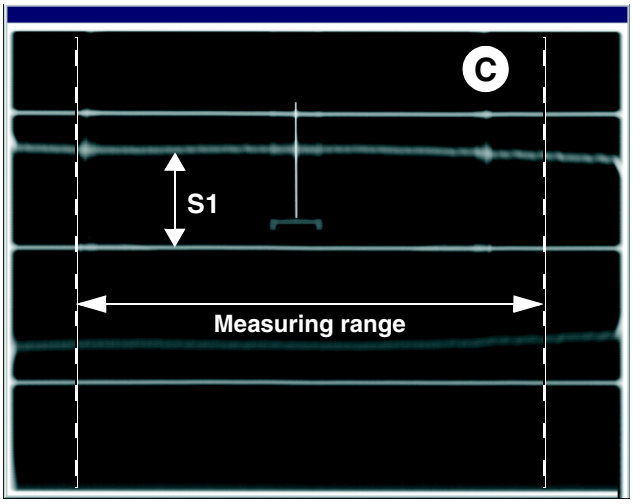
If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with a manually determined adjustment value (see page 128).

8. If the image is identical to the ideal image **A**, save the value:

Click **SAVE VALUES**

- Remove the ceph test phantom from the sensor slot of the panoramic X-ray unit.
- Quit the **DIAPHRAGM/SYSTEM ADJUSTMENT** menu and go on to the section 10.3 Checking and adjusting the alignment of the ear plugs.

1.



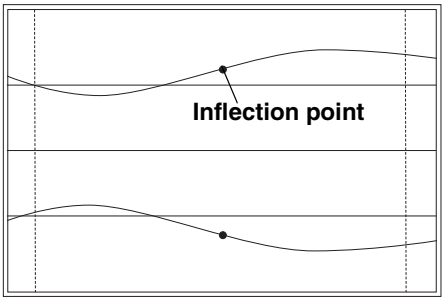
Manual adjustment of the CEPH main X-ray beam direction

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment value automatically determined by SIDEXIS is overwritten by a manually determined adjustment value in the **CEPH - MAIN X-RAY BEAM DIRECTION** submenu.

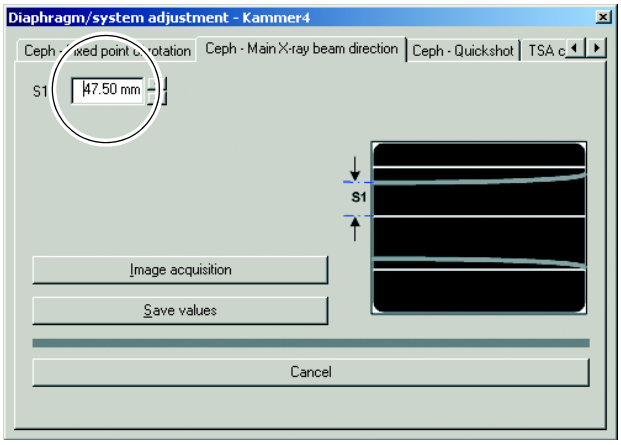
1. Measure distance **S1** with the SIDEXIS measuring ruler.

IMPORTANT
*Measure within the measuring range shown in **C**.*

Measure maximum distance S1. If the X-ray beam is imaged in the form of an S curve, measure S1 at the inflection point of the curve, but always within the measuring range shown.



2.



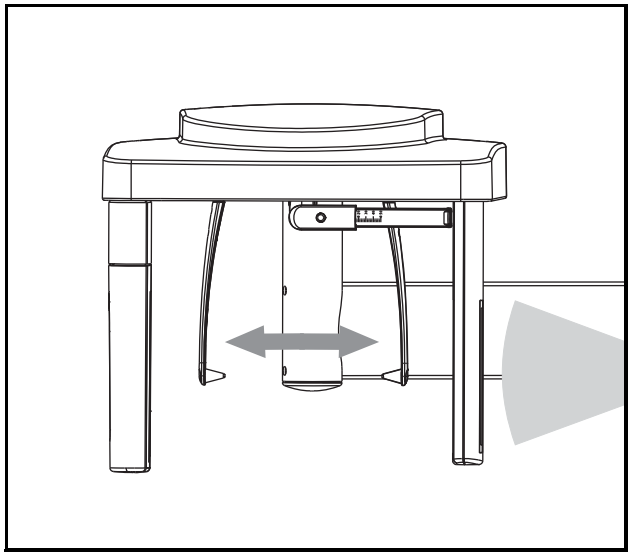
2. Replace the default value for **S1** displayed in the text box of the **CEPH MAIN X-RAY BEAM DIRECTION** submenu with the measured value if necessary.

IMPORTANT
Use points as decimal separators!

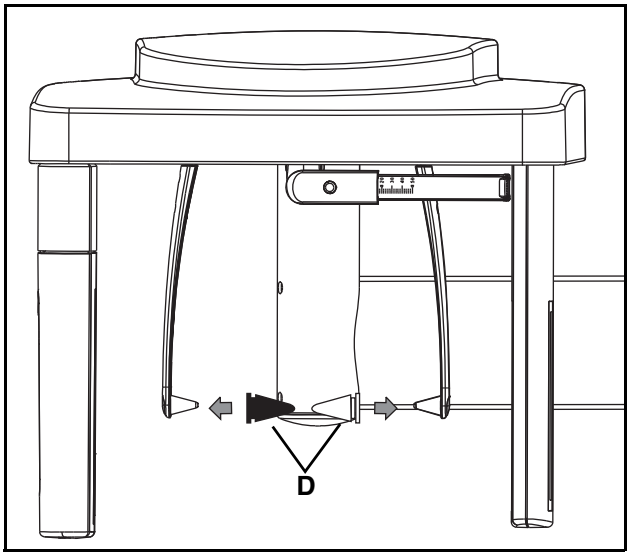
- Proceed with step 5 of the adjustment procedure on page 126.

10.3Checking and adjusting the alignment of the ear plugs

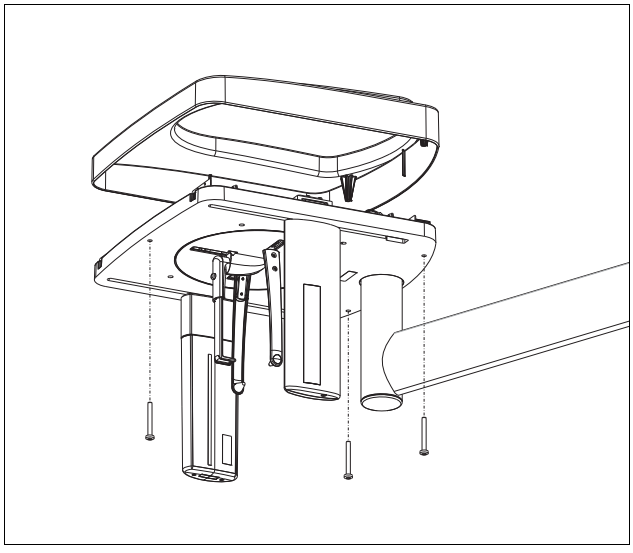
1.



2.



3.



10.3.1Preparing for adjustment of the ear plug alignment

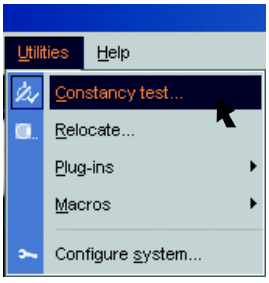
IMPORTANT

The sensor must be plugged into the sensor slot on the cephalometer. No sensor may be plugged into the sensor slot on the panoramic X-ray unit.

- Select the **CEPH** mode on the Multipad.

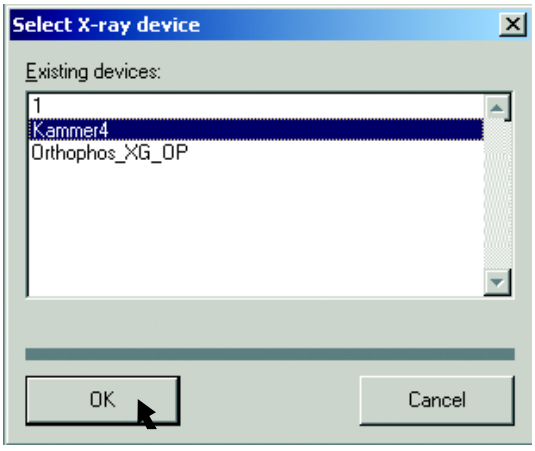
1. Move the **ear plug holders** completely apart and swing them **into the beam direction**.
2. Fit the adjusting caps **D** onto the ear plugs and secure them with adhesive tape.
   Black adjusting cap on the outside (sensor side), Transparent adjusting cap on the inside (tube assembly side)
3. Unscrew and remove the cover from the cephalometer.

1.

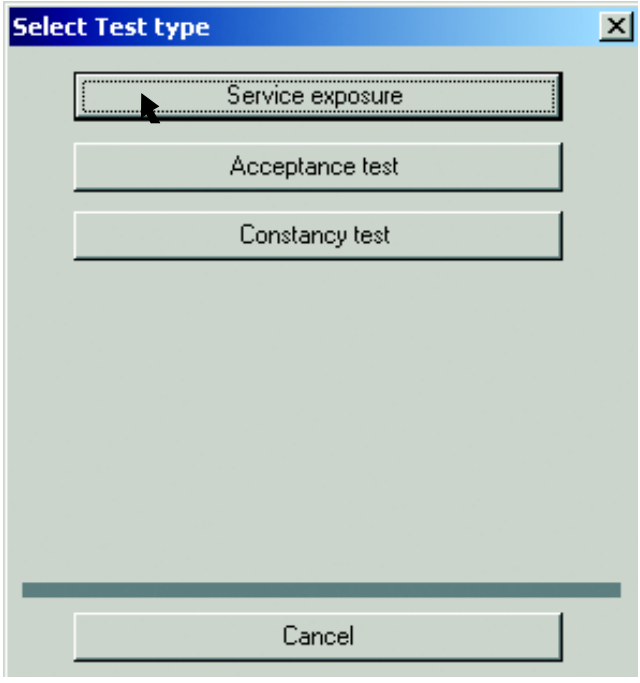


2.

3.



4.



10.3.2Opening the Sidexis Service menu

1. In SIDEXIS XG, select the constancy test:
   EXTRAS ‡ **CONSTANCY TEST**

   The classical SIDEXIS user interface is started.
   Constancy test is already preset.

2. Start the exposure mode:
   Click **XCXP**

   The dialog box for selecting the X-ray device appears on the screen.

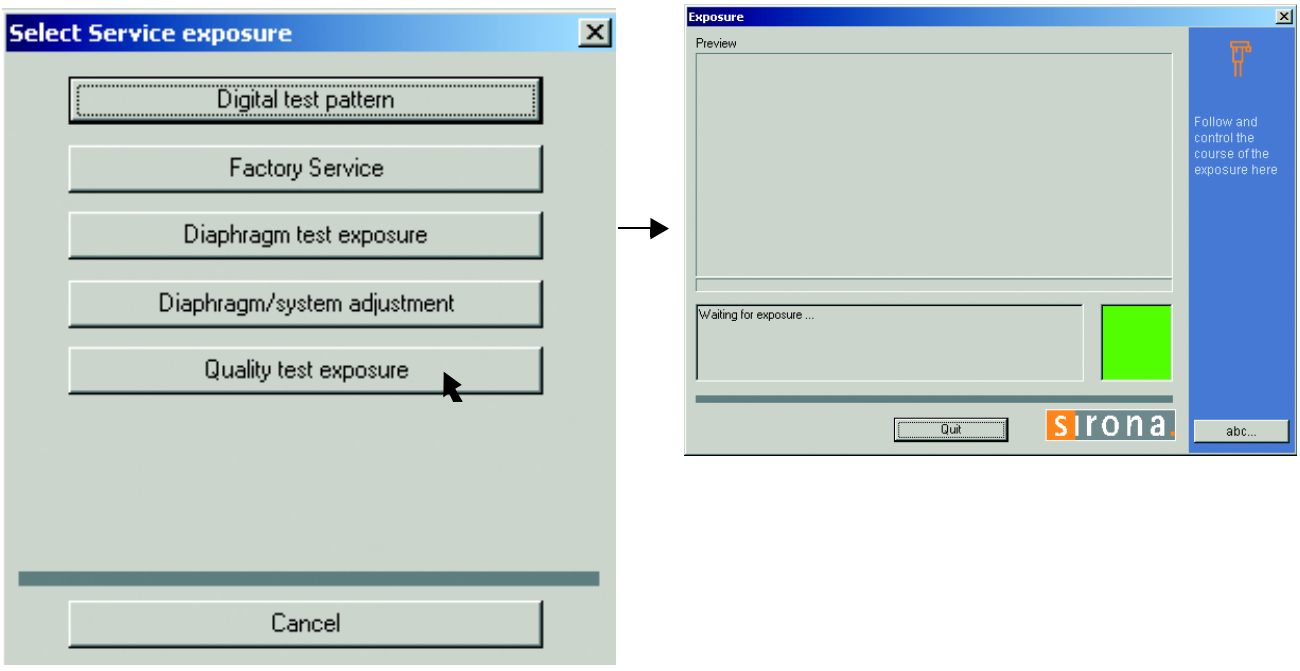
3. Select/confirm the X-ray device:
   Select e.g. **ROOM 1** and click **OK**.

   The dialog box for selecting the test type appears on the screen.

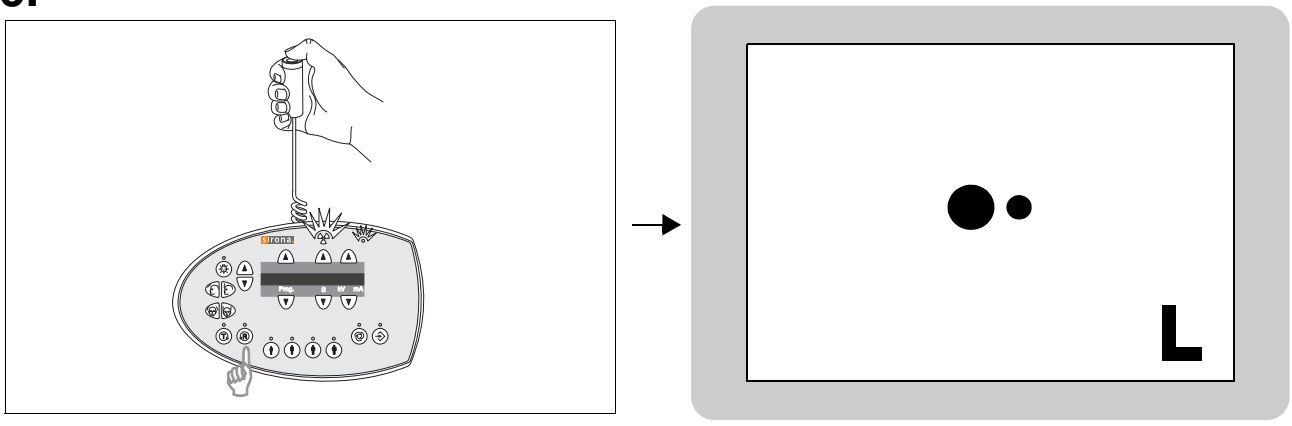
4. Select/confirm the test type:
   Click **SERVICE EXPOSURE**.

   The dialog box for selecting the service exposure appears on the screen.

5.



6.



IMPORTANT

The CEPH mode must be activated on the Multipad for the CEPH quality test exposure.

5. Select/confirm the service exposure:
Click **QUALITY TEST EXPOSURE**

IMPORTANT

If necessary, select the X-ray component.

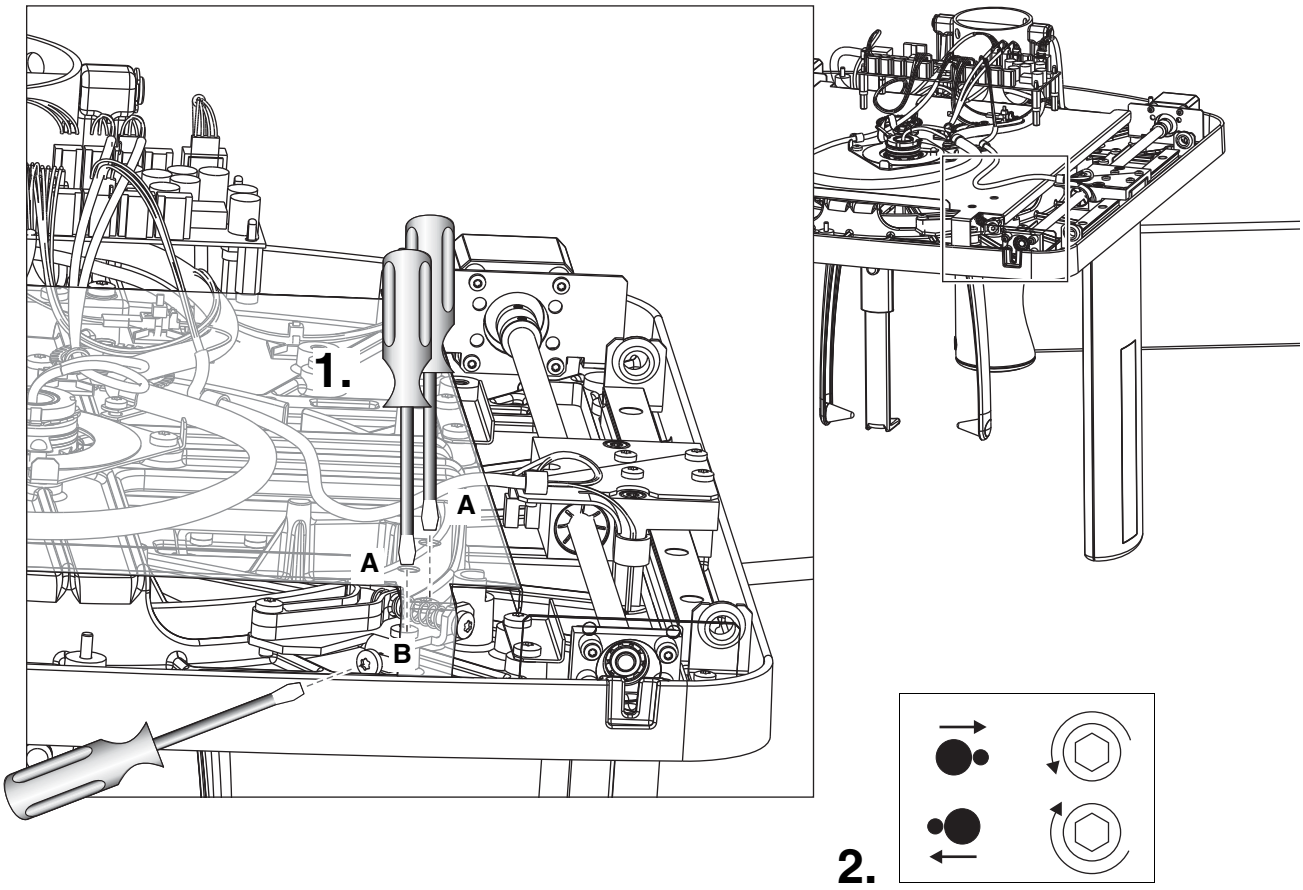
The exposure dialog box showing the exposure status appears in Sidexis.

6. Take an exposure:

– Press the **R key** on the Multipad to move the unit back to the starting position.

– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

The lead balls in the adjusting caps appear as dots on the image. The two dots must be coincident.



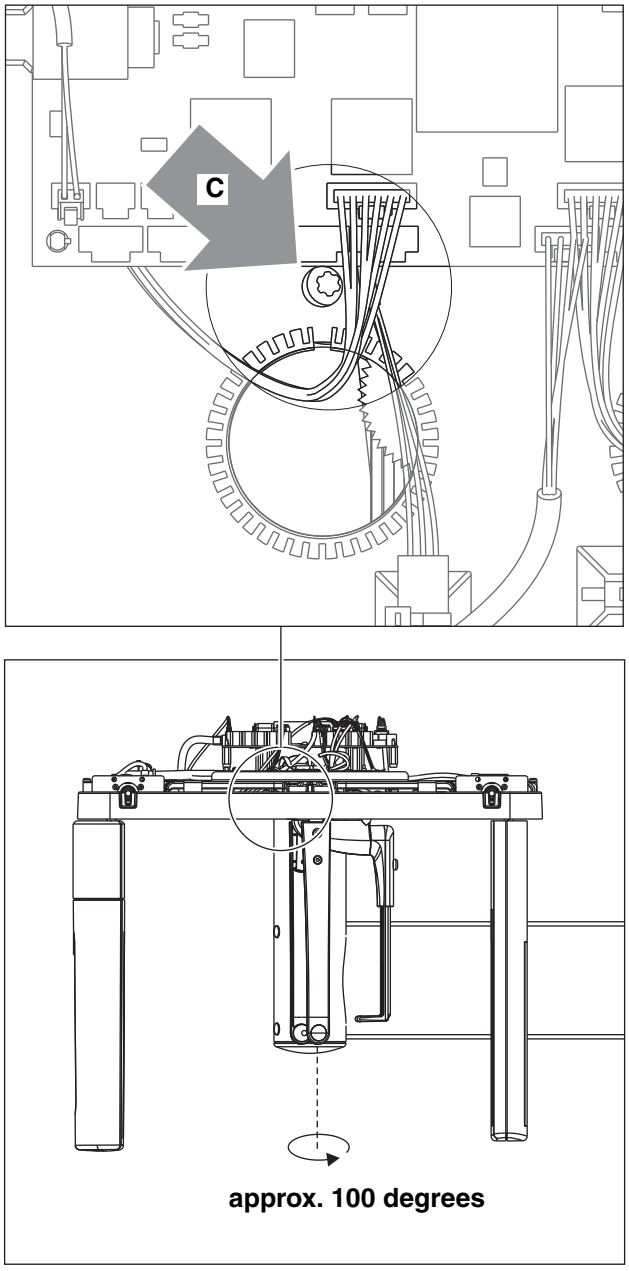
10.3.3Adjusting the ear plugs

Horizontal correction

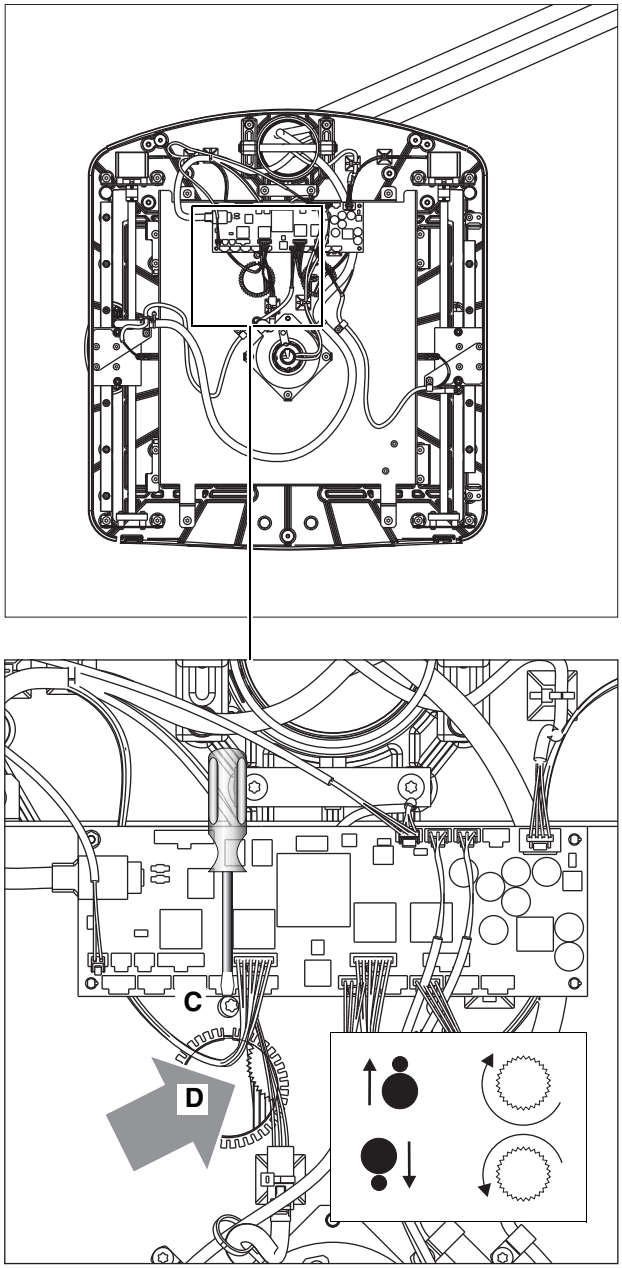
1. Loosen screws **A** slightly.
   Do not unscrew them completely!
2. Adjust the ear plugs in the **horizontal direction** by turning screw **B** counterclockwise or clockwise.

- Tighten screws **A** again.

3.



4.



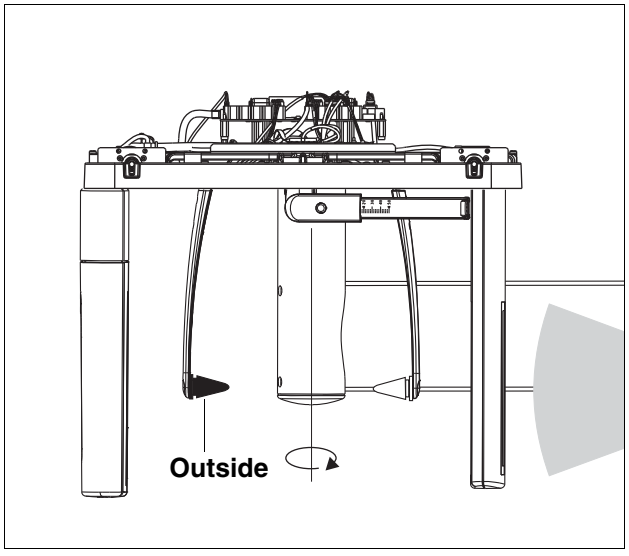
Vertical correction

3. Turn the rotary table counterclockwise approx. 100 degrees until you can see screw **C** through the opening in the cover plate.

4. Loosen screw **C** slightly (**do not unscrew it completely!**) and adjust the ear plugs in the **vertical direction** with knurled nut **D**.

- Tighten screw **C** again.

5.



5. Turn the ear plug holders back into the beam direction. Make sure that the black adjusting cap is located on the outside again.

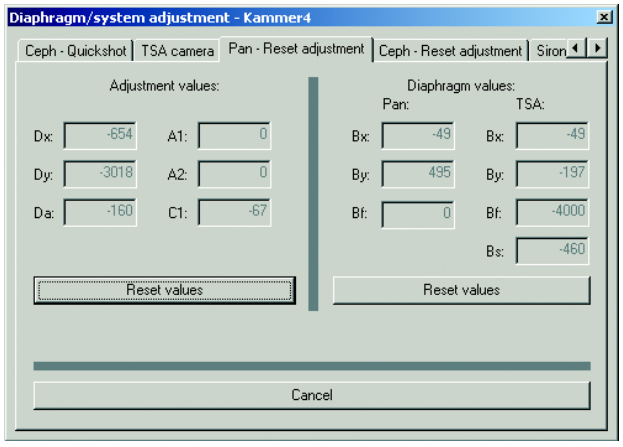
- Release radiation again to check the adjustment (see page 131).

  – **If the two dots displayed on the screen are coincident, reattach the cover (see page 129).**
  – **If the two dots displayed on the screen are not yet coincident, repeat the adjustment procedure.**

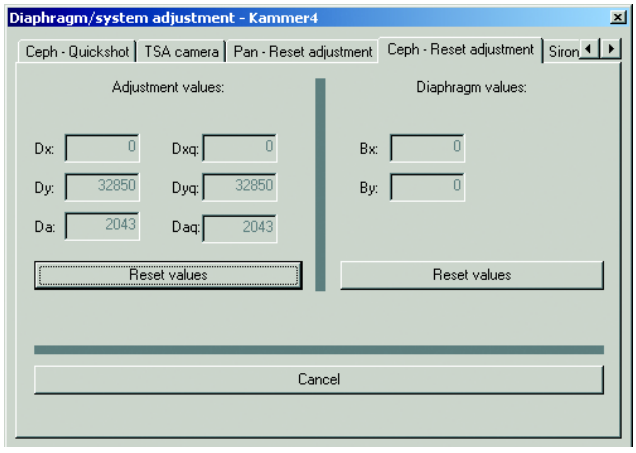
- The adjustment of the unit is now completed.

10.4Resetting the adjustment

1.



2.



NOTICE

Important: Be sure to take screenshots of the PAN - RESET ADJUSTMENT and CEPH - RESET ADJUSTMENT and save them to the C:\SIDEXIS\XGRAW directory along with the time and date! This will enable you to reset the adjustment values to the factory settings if necessary.

Contact the SIRONA Customer Service Center for more information (or to enable the menu):

Phone: 0 62 51 / 16 - 16 70

The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu offers you the possibility of resetting or manually modifying any or all of the pan or ceph adjustment settings you have made **in very exceptional cases**.

- To reset the pan settings, open the **PAN - RESET ADJUSTMENT** menu **(1.)**.
- To reset the ceph settings, open the **CEPH - RESET ADJUSTMENT** menu **(2.)**.

IMPORTANT

If the adjustment values have been reset, the unit must be readjusted.

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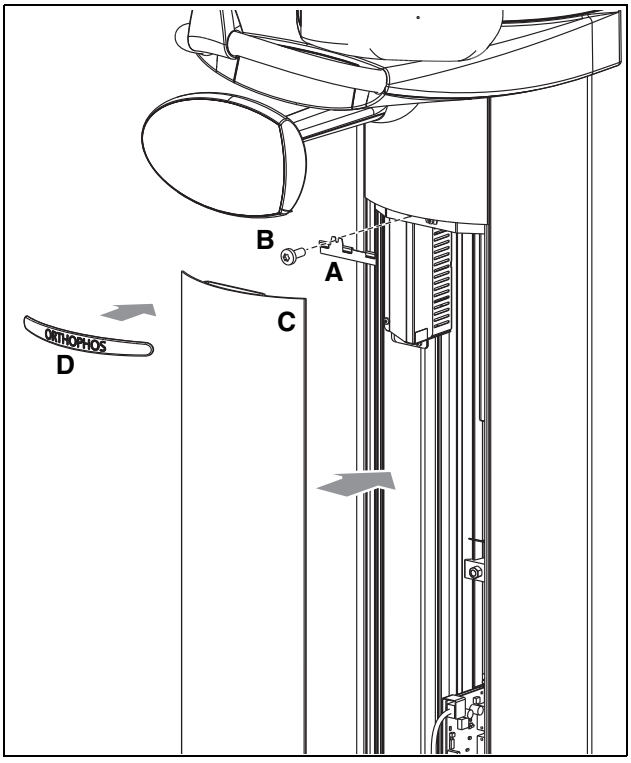
11 Final work

ORTHOPHOS XG 5 / Ceph

11.1 Attaching the profile covers

1.



1. Attach the profile cover.
- Screw holder A onto the column with screw **B**.
- Clip on profile **C**.
- Insert intermediate piece **D** in the gap.

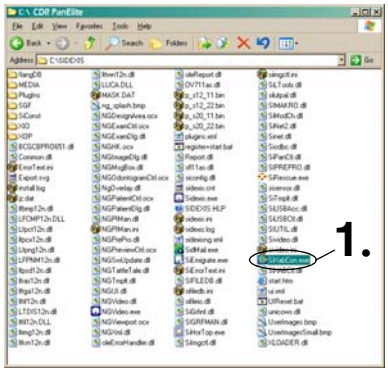
IMPORTANT
*Make sure that intermediate piece **D** lies flush on the stand surface.*

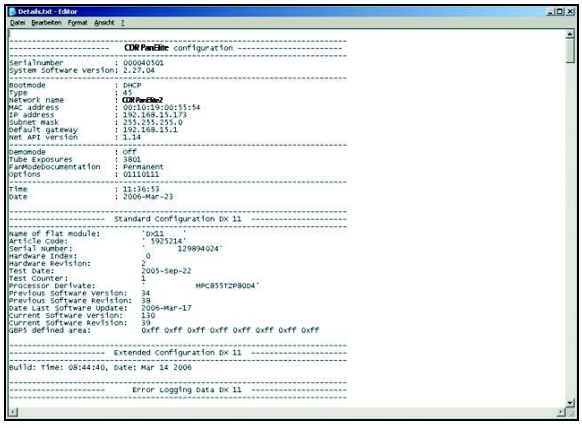
- **The unit is now ready for operation.**

11.2Selecting More details

1.

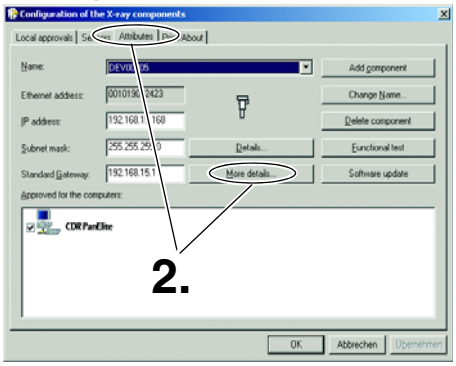
Opening SIXABCON.exe

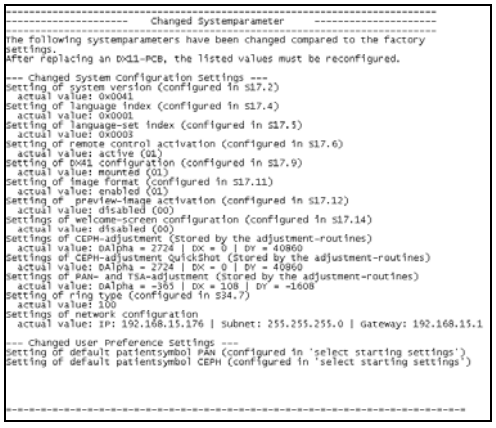




2.

Opening the EXTENDED DETAILS menu





1. Open the SIXABCON utility from the SIDEXIS XG program folder.
   Click the SIXABCON.exe file (see screenshot) or use the pull-down menus **PROGRAM** → **SIDEXIS** → configuration of the X-ray components.
2. Open the **MORE DETAILS** menu.
   Click the **PROPERTIES** tab, then click **MORE DETAILS**.
   The current parameters are retrieved from the unit and stored as an XML file in the PDATA/P2K_Config folder using the unit's network name.
   This step may take up to 30 seconds.

- After the parameters are read, an editor displaying the XML file is opened automatically.

IMPORTANT

You can scroll down further in the file using the scroll bar. Among other things, the "Changed system parameters", i.e. the system parameters that were modified in relation to the factory setting, are also displayed there. This is especially interesting after a module change. The parameter settings can thus be easily traced.

11.3Declaration of Conformity

1.

ORTHOPHOS XG 5 / Ceph,
ORTHOPHOS XG 3

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Kompatibilitätsliste / Konformitätserklärung durch den Systemintegrator
für digitales Röntgen mit SIDEXIS

Systemintegrator (Installateur des Systems)	
Firma, Adresse	

Betreiber	
Name, Adresse	

	Komponente		Anforderung / Zulassung	erfüllt? ⊠=ja	technische Merkmale	erfüllt? ⊠=ja	Inst.-Vorschrift Funktionsprüfung	erfüllt? ⊠=ja
PC-Einheit	Hersteller		IEC 60 950-1 und CE-Kennzeichnung gemäß EG Richtlinie 89/336/EWG	○	IBM-kompatibler **PC ab DualCore 1 GHz**, RAM ≥1 GB bei Windows 2000/XP/7 Professional/7 Ultimate; freie Festplattenspeicherkapazität ≥ 5 GB	○	Für die Bundesrepublik Deutschland: Bauseitige Installation gemäß DIN VDE 0100-710	○
	Typ				**Grafikkarte** ≥1024 x 768, ≥ 16,7 Mio Farben (True Color), ≥ 128 MB Bildwiederholfrequenz > 70Hz	○		
	Nr.				**Betriebssystem:** gemäß den in Inst.-Anleitung freigegebenen B.-Systemen	○		○
					Wechselspeicherlaufwerk[1]**:** CD/DVD-ROM Dual Layer	○		○
Monitor	Hersteller		IEC 60 950-1 und CE-Kennzeichnung gemäß EG Richtlinie 89/336/EWG	○	Bildschirmdiagonale mind. 15” bei Flachbildschirm; 17 " bei CRT Auflösung mind. 1024 x 768 Bildwiederholfrequenz > 70Hz CRT: Lochmaske min. 0,28mm Flachbildschirm: Pixel pitch 0,30 mm x 0,30 mm	○ ○	Abnahmeprüfung gemäß Qualitätssicherungs-Richtlinien, nur für Befundungsmonitor , siehe Röntgenanlagebuch	○
	Typ							
	Nr.							
ORTHOPHOS XG 5 / Ceph, ORTHOPHOS XG 3	Hersteller	Sirona Dental Systems	CE-Kennzeichnung gemäß EG Richtlinie 93/42/EWG	⊠	siehe Installationsanleitung / Einbauanleitung	⊠	Für die BRD: Abnahmeprüfung gemäß DIN V 6868-151; Für alle Länder: Erstellung einer Aufnahme mit Abspeicherung und Darstellung	○
	Typ							
	Nr.							
	Hersteller	Sirona Dental Systems	CE-Kennzeichnung gemäß EG Richtlinie 93/42/EWG	⊠	siehe Installationsanleitung / Einbauanleitung	⊠	Für die BRD: Abnahmeprüfung gemäß DIN V 6868-151; Für alle Länder: Erstellung einer Aufnahme mit Abspeicherung und Darstellung	○
	Typ							
	Nr.							
	Hersteller	Sirona Dental Systems	CE-Kennzeichnung gemäß EG Richtlinie 93/42/EWG	⊠	siehe Installationsanleitung / Einbauanleitung	⊠	Für die BRD: Abnahmeprüfung gemäß DIN V 6868-151; Für alle Länder: Erstellung einer Aufnahme mit Abspeicherung und Darstellung	○
	Typ							
	Nr.							
	Hersteller	Sirona Dental Systems	CE-Kennzeichnung gemäß EG Richtlinie 93/42/EWG	⊠	siehe Installationsanleitung / Einbauanleitung	⊠	Für die BRD: Abnahmeprüfung gemäß DIN V 6868-151; Für alle Länder: Erstellung einer Aufnahme mit Abspeicherung und Darstellung	○
	Typ							
	Nr.							
Weitere, optional am PC angeschlossene Geräte (Drucker, LAN...)	Hersteller		IEC 60 950-1 und CE-Kennzeichnung gemäß EG Richtlinie 89/336/EWG	○			Gerät ist nach Herstellerangaben installiert	○
	Typ							
	Nr.							
	Hersteller		IEC 60 950-1 und CE-Kennzeichnung gemäß EG Richtlinie 89/336/EWG	○			Gerät ist nach Herstellerangaben installiert	○
	Typ							
	Nr.							
	Hersteller		IEC 60 950-1 und CE-Kennzeichnung gemäß EG Richtlinie 89/336/EWG	○			Gerät ist nach Herstellerangaben installiert	○
	Typ							
	Nr.							

1. von SIDEXIS unterstützt, Funktion nur notwendig, falls nicht von zusätzlichem Server übernommen

Erklärung nach Medizinproduktegesetz (MPG) und IEC 60 601-1-1 Abschnitt 3.201.4
Hiermit bestätigt der Unterschreibende, dass das oben beschriebene System aus CE gekennzeichneten Medizinprodukten zur erstmaligen Inverkehrbringung entsprechend den vorliegenden Herstelleranweisungen zusammengesetzt ist, für die vorgesehene Anwendung geprüft sowie die sachdienlichen Benutzerhinweise, einschließlich der einschlägigen Hinweise der jeweiligen Hersteller, gegeben wurden und diese Erklärung für die zuständigen Behörden fünf Jahre bereitgehalten wird.

Ort, Datum | Name des Systemintegrators (in Blockbuchstaben) | Unterschrift

Für den Betreiber

D 3352.128.01.04.01 12.2010 Ä.-Nr: 113 429 59 91 612 D 3352

1. Complete the Declaration of Conformity.

   The system integrator certifies the CE conformity of the installed SIDEXIS system by means of the compatibility list.

   The list is designed so that only the white fields must be filled in. The original list remains in the practice, the copy is given to the system integrator.

Only for Germany

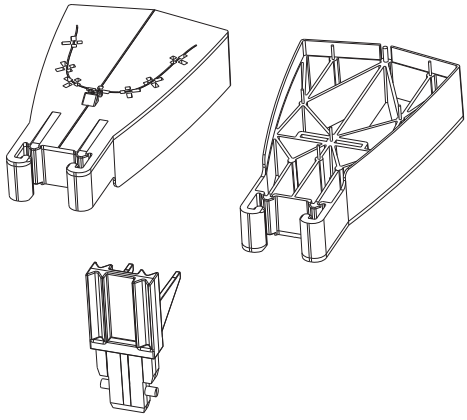
Perform the acceptance test required according to Art. 16 of the X-Ray Ordinance now. Use the test phantom, plug-in plate, contrast elements, needle phantom and relevant instructions included in delivery for this purpose.

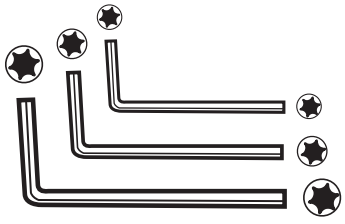
* In Germany: File in the X-ray System Logbook.

11.4Unit handover

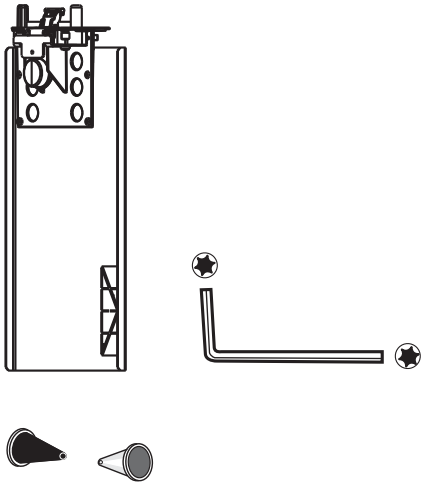
1.

Panoramic unit





Cephalometer



1. Give the customer the technical documentation as well as all of the patient positioning aids, test phantoms and special tools included in delivery, including packaging. These are important components of the unit and must be stored carefully.

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12 Appendix

ORTHOPHOS XG 5 / Ceph

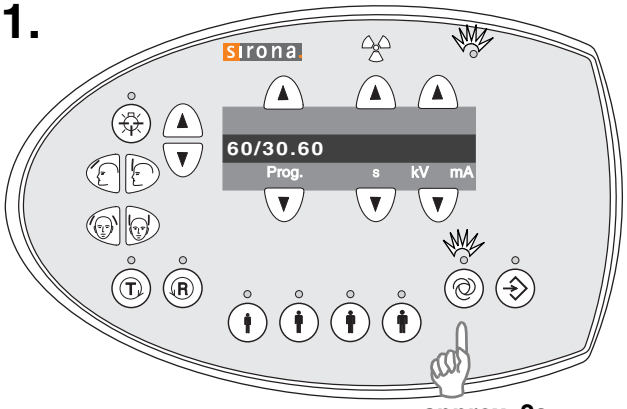
12.1Service routines (for installation)

Service routine	Designation	Described in this Appendix	Page
S17.2	Configuring the hardware version	Configuring the hardware version	149
S17.6	Configuring the remote control	Enable/disable the remote control	150
S17.15	Configuring the acoustic signal for end of exposure	Activate/deactivate the acoustic signal for end of exposure	151
S18.2	Setting the maximum Travel height for the unit	Setting the maximum travel height	152
S18.3	Undoing the maximum travel height setting	Undo the maximum travel height setting	153
S18.5	Setting the minimum Travel height for the unit	Setting the minimum travel height	154
S18.6	Canceling the limitation for the minimum travel height	Canceling the limitation of the minimum travel height	155

The service routines listed above may be required for installation of the ORTHOPHOS XG X-ray unit and are described in this Appendix.

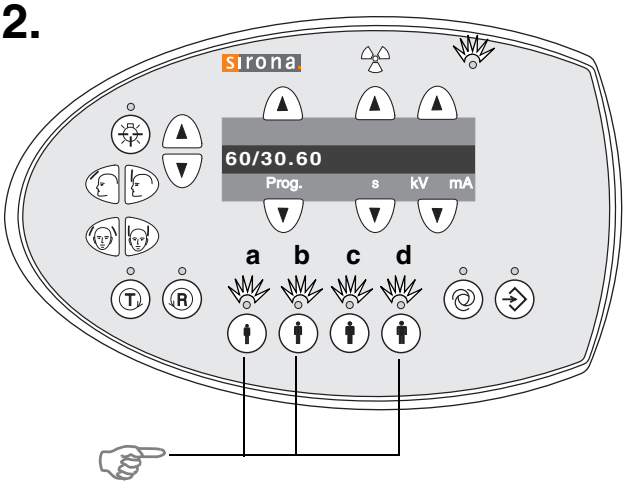
A complete list and comprehensive description of all service routines can be found in the Service Manual.

1.

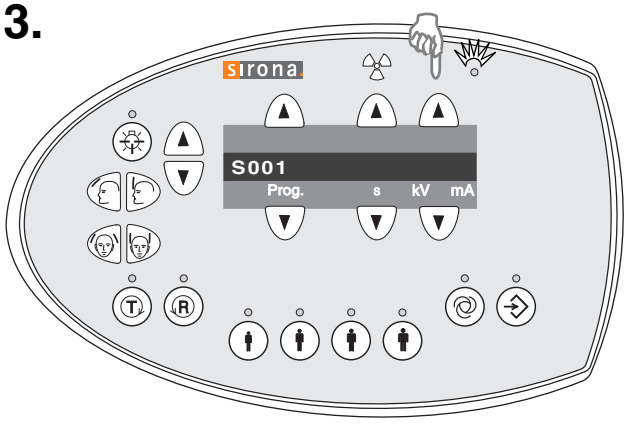


approx. 2s

2.



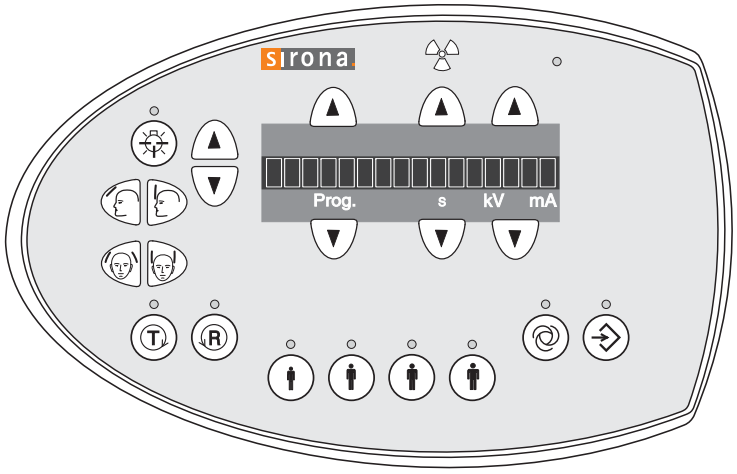
3.



12.1.1Selecting the Service menu

1. Press the Service key for approx. 2 seconds.
2. Then press the patient symbol keys in the following order within 4 s:
   b – **d** – **a**.

   After you have entered the key combination correctly, the Service menu appears.
3. To quit the Service menu and return to the main menu, press the **up arrow key** ▲ at the very right.



12.1.2 Displays and symbols on the Multipad

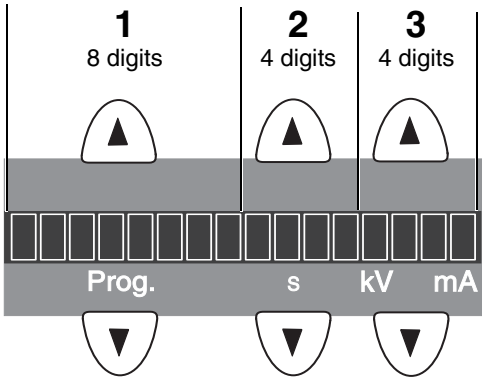
From the Multipad, you can start all available service routines and perform important system settings and tests as well as calibrations.

Depending on the procedure step, different hints, error messages and parameters are displayed in a context-sensitive way on the Multipad:

Display:

Error messages: Ex yy zz (see Service Manual)

Service routines, test steps, values, codes, etc. in selection fields 1 - 3:



Keys:

Patient symbol keys a - d: a b c d — Different functions, depending on the service routine

Memory key: For saving an input

Service key: (formerly AES key) — Different functions depending on service routine, but in most cases for confirming a selection or jumping to the next test step

Test key: For starting a test

Return key: For moving the unit to the starting position or confirming a save operation

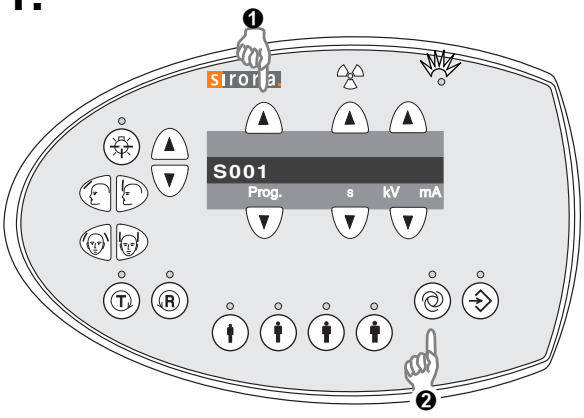
Light localizer key: For switching on the light localizers

Up/Down keys: For moving the unit up and down

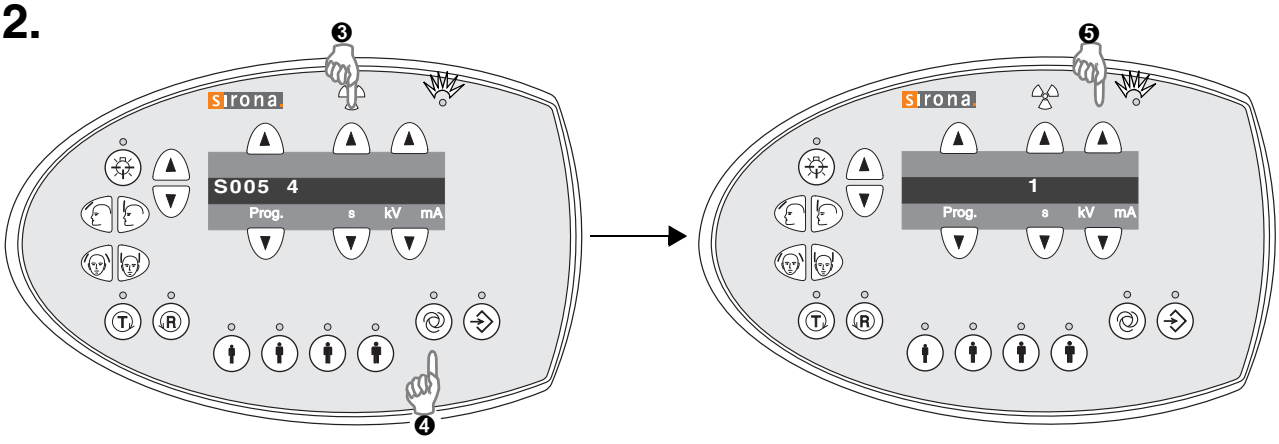
Forehead support key: For moving the forehead support

Temple support key: For moving the temple support

1.



2.



12.1.3Selecting service routines

- Select the Service menu (see page 145).

Selecting a service routine

1. Select the desired service routine using the arrow keys of selection field 1 and confirm your selection by pressing the **Service key**.

IMPORTANT

If the selected service routine comprises several test steps, the first selectable test step is displayed in selection field 2.

Selecting a test step

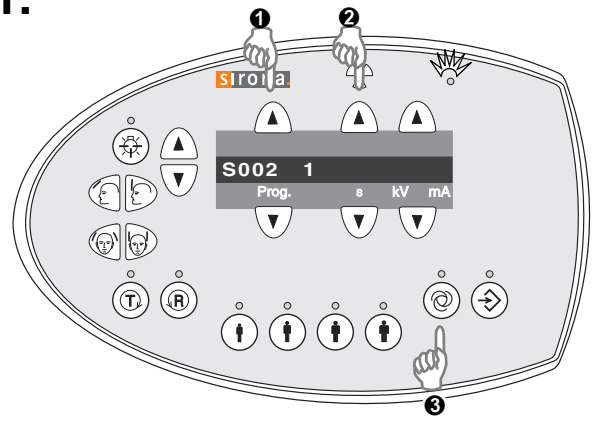
2. Select the desired test step using the arrow keys of selection field 2 and confirm your selection by pressing the **Service key**.

Quitting the service routine

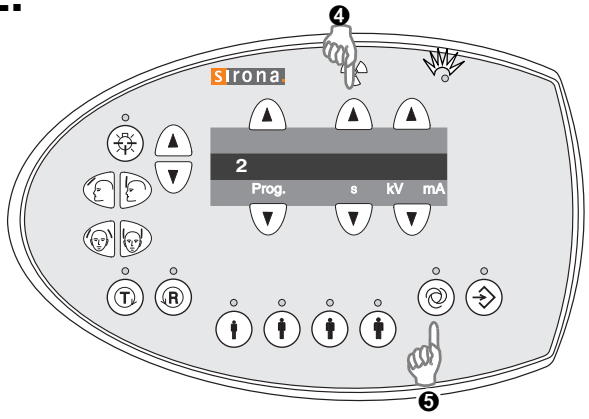
To return to the service routine selection menu, press the **Service key** or the right **up arrow key**.

To quit the Service menu and return to the main menu, press the right **up arrow key** .

1.



2.



12.1.4Service routines with security access

IMPORTANT

A security code is required for accessing service routines involving functions such as radiation release or editing of configuration data or stored values.
This procedure prevents the inadvertent selection or activation of these service routines.

To select a service routine or test step with security access, proceed as follows:

WARNING

Be sure to observe the radiation protection regulations applicable in your country.

Selecting the service routine/test step

1. Select the service routine or the test step and confirm your selection with the **Service key**.

   After you have confirmed your selection, a 0 appears in selection field 1.

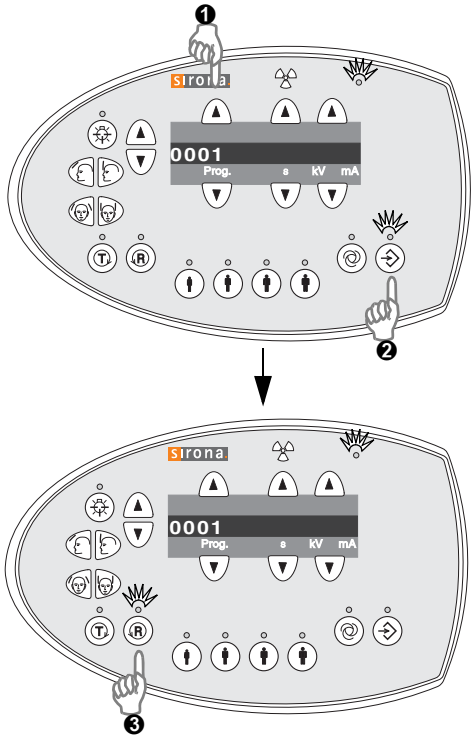
Confirming the security access

2. Confirm the security access by once again selecting the number of the main routine (in our example 2) in selection field 2 with the **arrow keys**.

   Confirm your input by pressing the **Service key**.

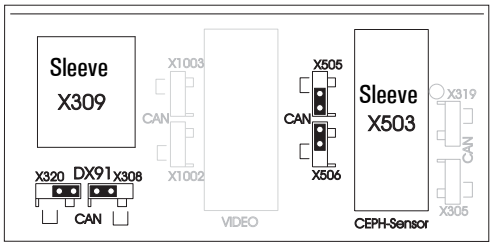
   Following this double selection and confirmation, the service routine is activated.

1.



2.

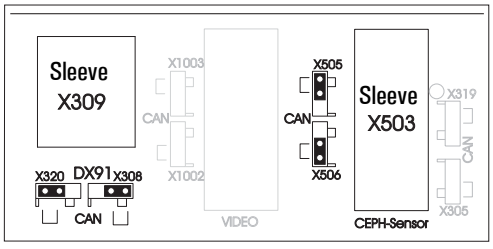
0001 = Pan



Jumper inside

Cephalometer not connected,
i.e. connector not plugged in

0003 = Ceph



Jumper outside

Cephalometer connected,

12.1.5Configuring the system version (S017.2)

- Select service routine **S017.2** with security access (see section 12.1.3 and 12.1.4).

  Following selection, the ID of the currently selected system version appears in selection field 1.

1. Select the desired system version using the **arrow keys** of selection field 1 and confirm your selection by pressing the **Service key**.

   0001 = Panorama digital
   0003 = Panorama digital, Ceph left digital
   0005 = Panorama digital, Ceph right digital (XG^{Plus} only)
   0041 = Panorama digital, TSA (XG^{Plus} only)
   0043 = Panorama digital, Ceph left digital, TSA (XG^{Plus} only)

   After the selection of the system version, the LED above the **Memory key** Ⓢ lights up.

   To save the selected system version, first press the **Memory key** Ⓢ (the LED above the **R key** lights up) and then the **R key** Ⓡ.

IMPORTANT

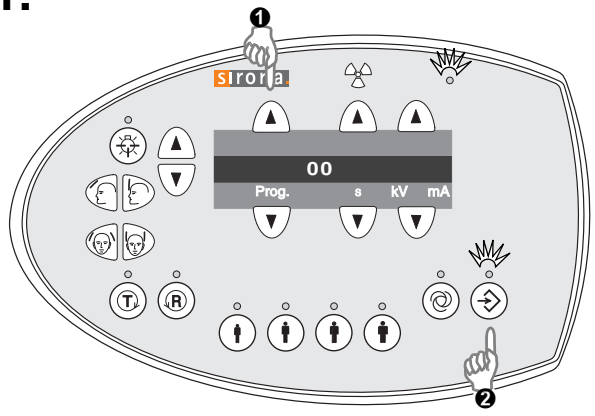
The set value is permanently saved as the relevant system version.

2. Check the jumper settings of sockets 309 and 503 on board DX1.

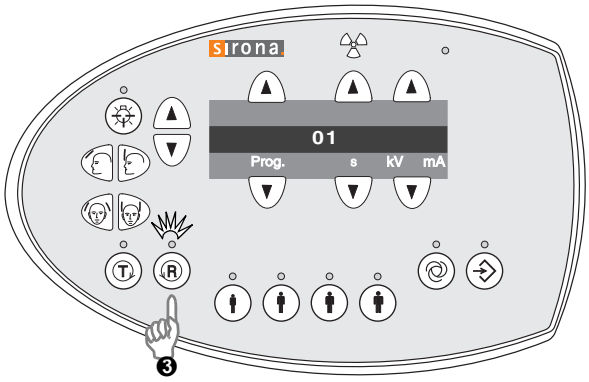
   0001 = Jumpers in inner position
   0003 = Jumpers in outer position

- Quit service routine S017 (see page 147).
- Switch the unit OFF and restart it.
  After the restart, the selected language is active.

1.



2.



12.1.6Configuring the remote control (S017.6)

- Select service routine **S017.6** with security access (see sections 12.1.3 and 12.1.4).

  Following selection, the ID of the currently selected system configuration appears in selection field 1.

1. Select the desired system configuration using the **arrow keys** of selection field 1 and confirm your selection by pressing the **Service key**.

00=Remote control disabled
01=Remote control enabled

After the selection of the system version, the LED above the **Memory key** ⓜ lights up.

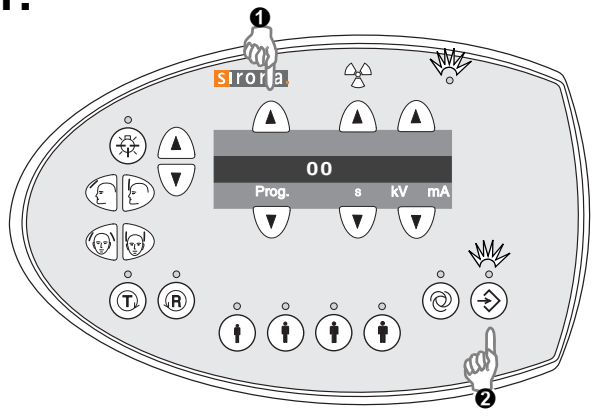
To save the selected system version, first press the **Memory key** ⓜ (the LED above the **R key** lights up) and then the **R key** Ⓡ.

IMPORTANT
The set value is permanently saved as the relevant system configuration.

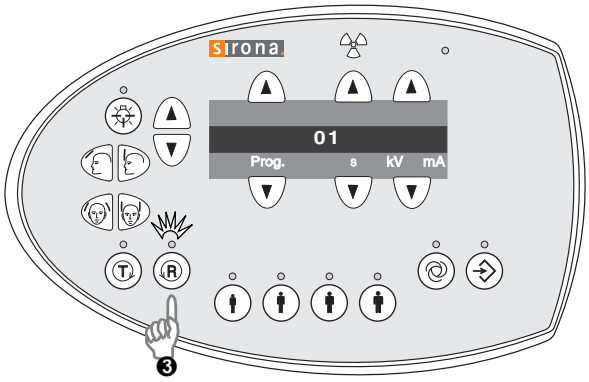
- Quit service routine S017.
- Switch the unit OFF and restart it.

  After the restart, the new system configuration is active.

1.



2.



12.1.7Configuring the acoustic signal for end of exposure (S017.15)

- Select service routine **S017.15** with security access (see sections 12.1.3 and 12.1.4).

  Following selection, the ID of the configuration currently selected for the acoustic signal indicating the end of exposure appears in selection field 1.

1. Select the code for activating or deactivating the acoustic signal using the **arrow keys** of selection field 1.

00 = acoustic signal for end of exposure = OFF
01 = acoustic signal for end of exposure = ON

After the selection of the configuration, the LED above the **Memory key** lights up.

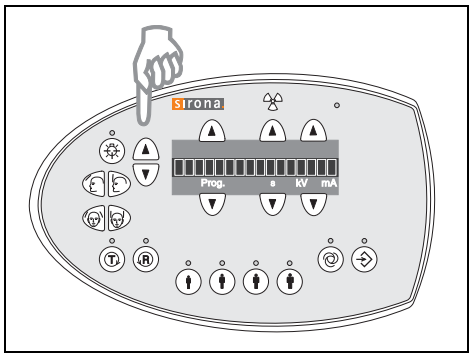
To save the selected configuration for the acoustic signal, first press the **Memory key** (the LED above the **R key** lights up) and then the **R key** .

IMPORTANT
The setting is permanently saved as the system configuration.

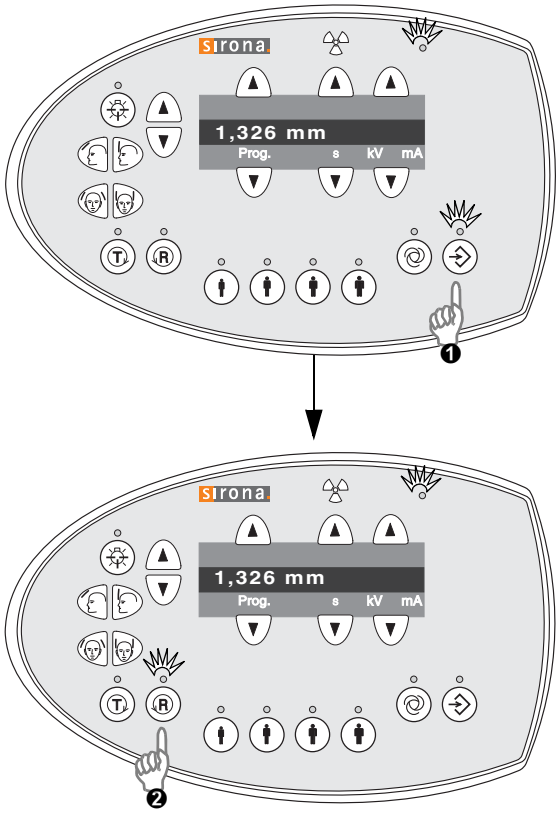
- Quit service routine S017.
- Switch the unit OFF and restart it.

  After the restart, the new system configuration is active.

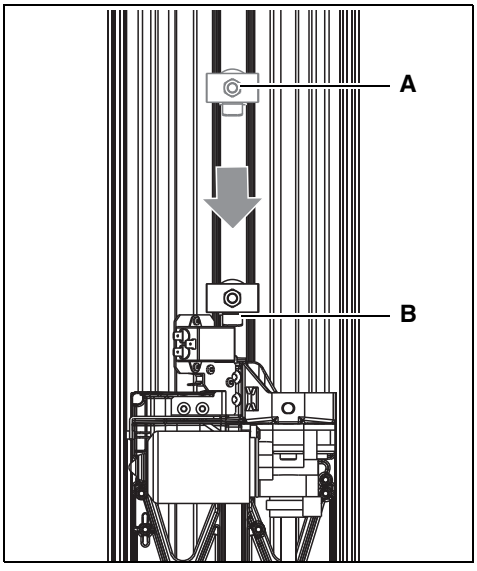
1.



2.



3.



12.1.8Setting the maximum travel height (S018.2)

1. Move the unit to the required maximum travel height by pressing the Up/Down keys in the user mode.

IMPORTANT

The travel height currently set (= current height at "center of bite block") is displayed as a numerical value.

- Select service routine **S018.2**.

IMPORTANT

The current travel height minus 10 mm is displayed and saved.

2. Confirm the travel height by pressing the **save values** key ❶ and the **Service key** ❷ .

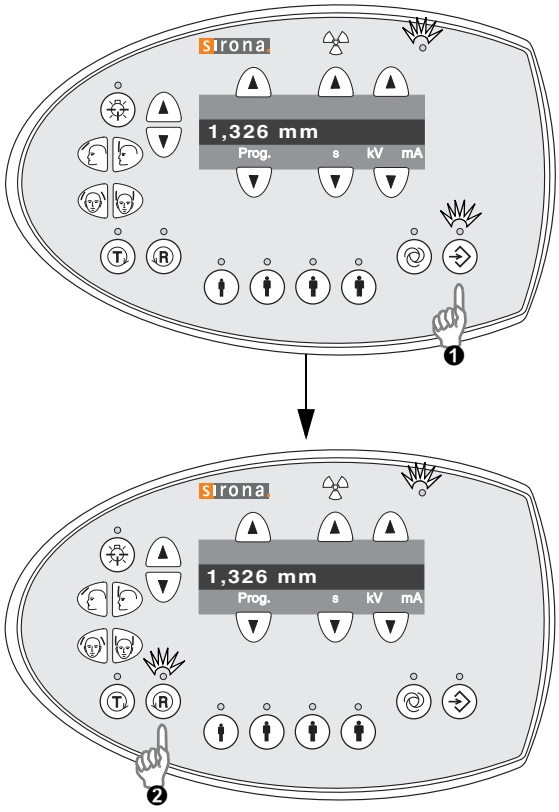
Setting the mechanical limit stop on the unit

3. Loosen the nut **A** and slide the mechanical limit stop **B** for the limit switch to the new maximum position until it switches. Retighten the nut firmly.

- Quit service routine S018.
- Switch the unit OFF and restart it.

  After the restart, the new maximum travel height is active.

1.



12.1.9Canceling the maximum travel height setting

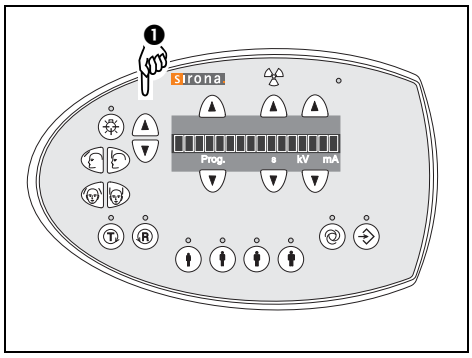
- Select service routine **S018.3**.

IMPORTANT
The current travel height minus 10 mm is displayed and saved.

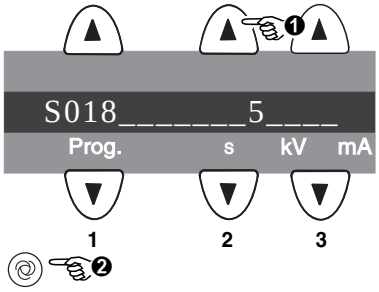
1. To cancel the maximum travel height setting, first press the **Memory key ❶** and then the **R key ❷** .

- Quit service routine S018.
- Switch the unit OFF and restart it.
- After the restart, the previously set maximum travel height is undone.

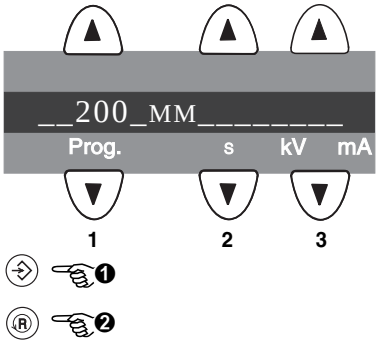
1.



2.



3.



12.1.10Setting the minimum travel height (S018.5)

1. Move the unit to the required minimum travel height by pressing the **Up/Down keys** in the user mode.

IMPORTANT

Programming the minimum travel height is possible only for a system height that is below the lower correction switch level (< position value of 1500)!

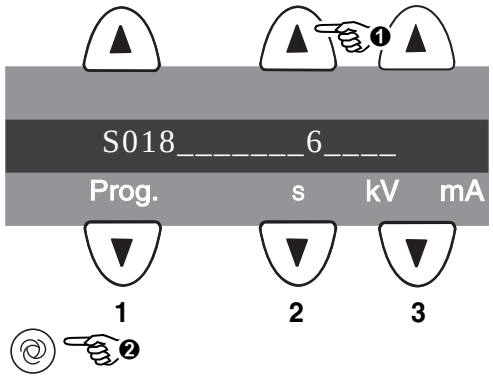
2. Select test step 2 in selection field 2 with the **arrow keys** and confirm your selection by pressing the **Service key** ⓞ.
   The current height position is displayed in selection field 1. The LED above the **Memory key** ⓜ lights up.
3. To save the minimum travel height, first press the **Memory key** ⓜ, LED above the R key lights up and then the **R key** Ⓡ.

IMPORTANT

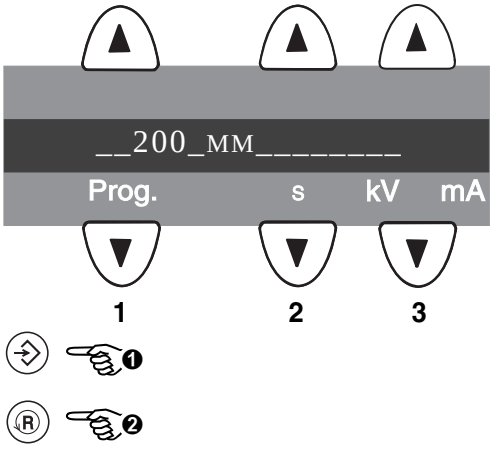
The limitation of the minimum travel height is purely software based. The lower limit switch is not adapted to the new minimum travel height.

- Quit service routine S018 (see page 147).
- Switch the unit OFF and restart it.
  After the restart, the new maximum travel height is active.

1.



2.



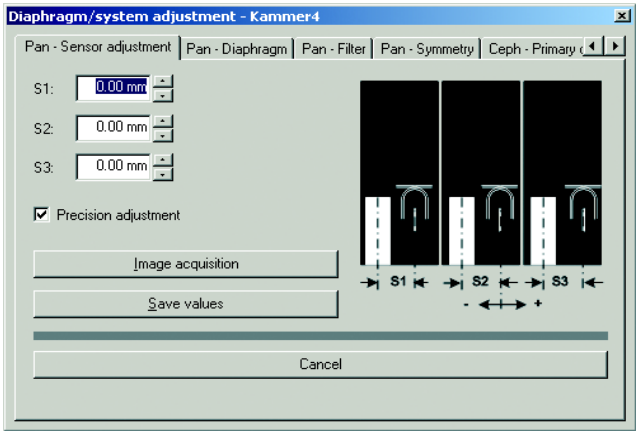
12.1.11 Canceling the setting for the minimum travel height (S018.6)

1. Select test step 6 in selection field 2 with the **arrow keys** and confirm your selection by pressing the **Service key** ⓢ.
   The current height position is displayed in selection field 1. The LED above the **Memory key** ⓜ lights up.
2. To cancel the limitation for the maximum travel height, first press the **Memory key** ⓜ (LED above the R key lights up) and then the **R key** Ⓡ.

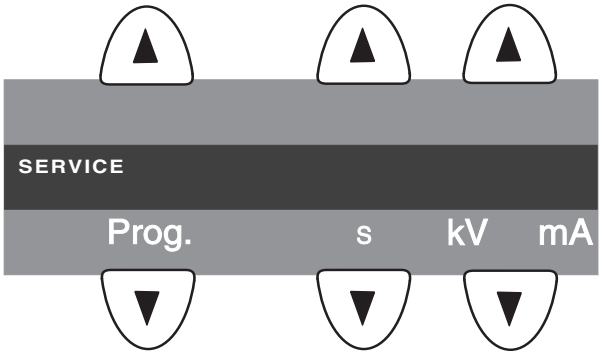
- Quit service routine S018 (see page 147).
- Switch the unit OFF and restart it.
  After the restart, the minimum travel height previously set is canceled.

12.2Adjusting the panoramic X-ray unit

1.



2.



12.2.1Diaphragm/system adjustment menu

The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu guides you through the adjustment of the panoramic unit and the cephalometer. This service routine is started from **SIDEXIS XG**:

UTILITIES → CONSTANCY TEST → XCXP → SELECT X-RAY DEVICE → SERVICE EXPOSURE → DIAPHRAGM/SYSTEM ADJUSTMENT

IMPORTANT

The **DIAPHRAGM/SYSTEM ADJUSTMENT** *menu is password-protected. As password, enter the first four digits of the current system date (PC) in reverse order.*

Example: On 05/30/2004, the service password is ***5003***

IMPORTANT

The ***SELECT X-RAY DEVICE*** *and* ***SELECT X-RAY COMONENT*** *dialogs appear only if several x-ray devices or x-ray components are available for selection.*

IMPORTANT

When you open the **DIAPHRAGM/SYSTEM ADJUSTMENT** *menu, the unit switches from the user mode to the PC service mode logged by the PC. The service mode is indicated by the* **SERVICE** *display on the Multipad (**2.**).*

In the ***PC service mode****, the control options that are available on the Multipad are determined by SIDEXIS and the currently selected service routine. General control of the unit by means of the Multipad (as in the user mode) is not possible in this mode.*

The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu has 11 submenus:

- PAN - Sensor adjustment
- PAN - Diaphragm
- PAN - Filter
- PAN - Symmetry
- CEPH - Primary diaphragm
- CEPH - Fixed point of rotation
- CEPH - Main X-ray beam direction
- CEPH quickshot (XG 3D^{ready} and full version only)
- PAN - Reset adjustment
- CEPH - Reset adjustment

You can change between the individual submenus by clicking the **menu tabs** with the mouse. To quit the **DIAPHRAGM/SYSTEM ADJUSTMENT** menu, click **CANCEL**.

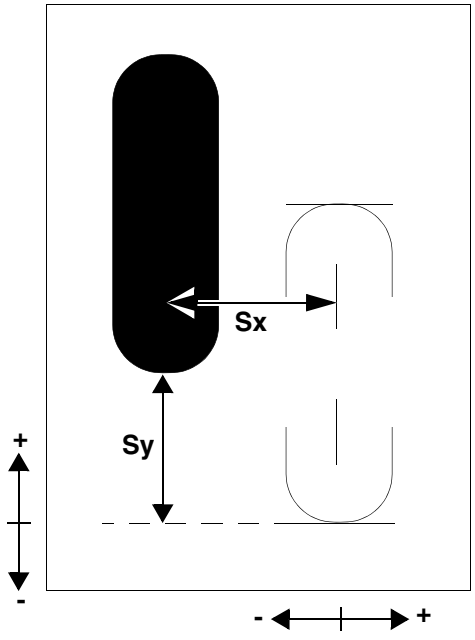
The following submenus are required for the PAN adjustment:

- PAN - Sensor adjustment (see page 160)
- PAN - Diaphragm (see page 167)
- PAN - Filter (see page 173)
- PAN - Symmetry (see page 178)

The adjustment of the cephalometer is described in section 10.2 on pages 107 ff.

Direction of displacement of the exposed image area/ Information on the pictographs in the system adjustment menu

Depending on the selected submenu, the system adjustment menu contains a pictographic representation of the expected adjustment image to help you perform the adjustment. The shifting directions indicated by the plus and minus signs located below and next to the pictograph refer to shifting of the exposed image area in the direction of the stationary auxiliary lines (see the following example):



In the example the exposed image area is offset to the left by the value **Sx** and upward by the value **Sy**. In order to shift the image area so that it comes to lie inside the auxiliary lines, you must enter …

- **Sx (shift to the right) with a positive sign**
- **Sy (shift downward) with a negative sign**

in the text boxes of the submenu.

Generally speaking, the exposed image area must always be shifted toward the auxiliary lines:

- **Shift to the right or upward**: Enter the value (measured offset from the auxiliary line) with a **positive sign**

- **Shift to the left or downward**: Enter the value (measured offset from the auxiliary line) with a **negative sign**

Displays on the Multipad

During the adjustment procedure, different service routines are started from Sidexis; they are displayed one after the other on the Multipad.

If there are any error messages displayed during adjustment, please follow the instructions provided in the Service Manual.

For adjustment, please proceed as described in the following sections.

12.2.2Important information concerning adjustment

WARNING

When performing the following tests, be sure to observe the radiation protection regulations applicable in your country (see Operating Instructions).

WARNING

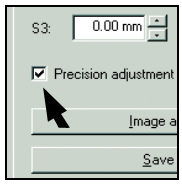
"Radiation" is signaled by an X-ray LED and a beep.

IMPORTANT

*Be sure to take screenshots of the **PAN - RESET ADJUSTMENT** and **CEPH - RESET ADJUSTMENT** menus before and after the adjustment (see section 12.2.8) and save them to the C:\SIDEXIS\XGRAW directory along with the time and date!*

IMPORTANT

Before starting the service routines for system adjustment, make sure that no unit movements are active (especially diaphragm travels)! Otherwise the system may become inoperable in rare cases.



Coarse and precision adjustment using the Diaphragm/system adjustment menu in SIDEXIS XG

IMPORTANT

The PAN - Sensor adjustment, PAN - Diaphragm and CEPH - Fixed point of rotation submenus provide a coarse adjustment and a precision adjustment (precision adjustment is preset). Always try to use precision adjustment first when adjusting the unit. In most cases, previous coarse adjustment is not necessary.

With SIDEXIS Version V02.20 and higher, a message window indicates when a coarse adjustment is necessary.

Only if you cannot achieve your goal with precision adjustment, e.g. if the exposed area is completely outside the image field, should you perform a coarse and then a precision adjustment.

*If a coarse adjustment proves necessary, deactivate the **PRECISION ADJUSTMENT** check box and follow the adjustment steps described in the present chapter to perform a coarse adjustment.*

The steps and correction procedure required for coarse adjustment are identical to those for precision adjustment. The only difference between the two modes is the size of the image section considered. Furthermore, there are fewer auxiliary lines in the coarse adjustment mode.

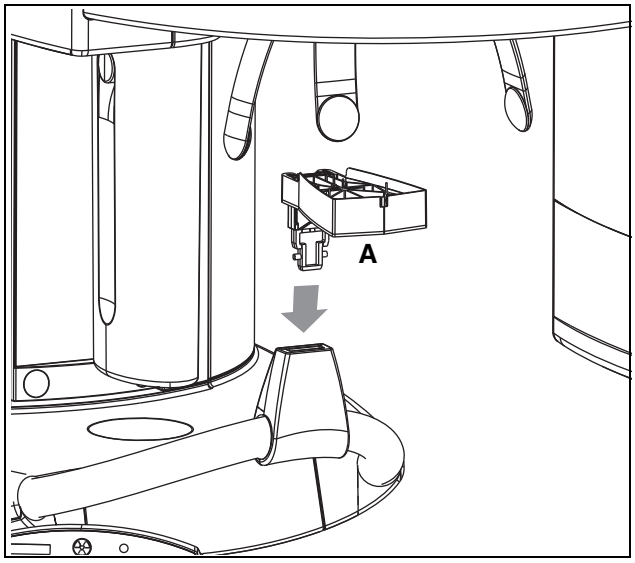
Default values in the Diaphragm/system adjustment menu in SIDEXIS XG

During the adjustment, the default adjustment values are displayed in the text boxes of the Diaphragm/system adjustment menu.

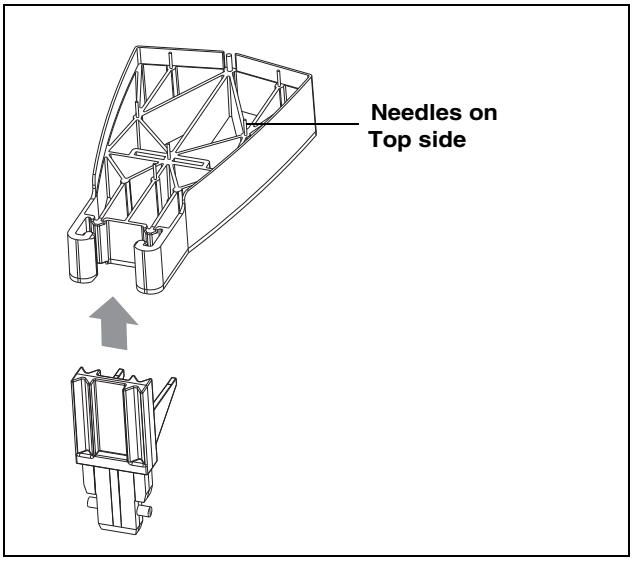
First perform the adjustment with these default values. If you do not attain the desired result via this automatic adjustment, you should determine the adjustment values manually by measuring the exposure with the SIDEXIS measuring ruler and then overwrite the default values in the menu.

This procedure is described in the following sections.

1.



2.



12.2.3PAN needle phantom

In order to perform the **PAN sensor adjustment** and the **symmetry adjustment** you must insert needle phantom **A** in the bite block holder of the panoramic X-ray unit.

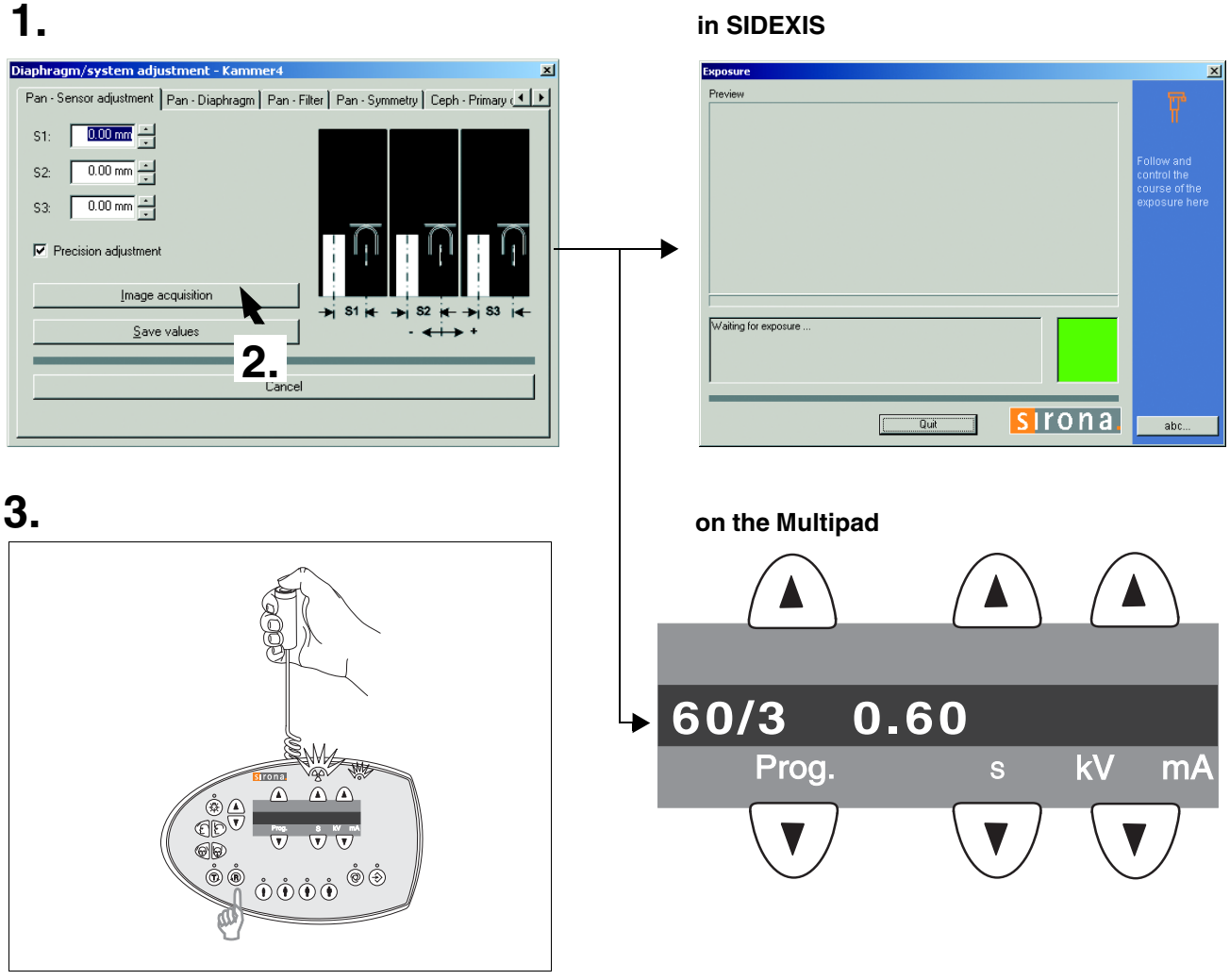
The needle phantom must be removed from the bite block holder for the PAN **diaphragm adjustment**.

IMPORTANT

*When fitting the needle phantom, make sure that it is **correctly oriented**. For the adjustment of the X-ray unit, the phantom must be fitted in such a way that the **needles point upward** (2.).*

NOTICE

It is essential that the needle phantom is removed from bite block holder of the panoramic X-ray unit again before a Ceph exposure is taken; otherwise the phantom may collide with the sensor.



12.2.4Adjusting the PAN sensor

- Plug the sensor into the sensor slot on the panoramic X-ray unit.
- Insert the needle phantom in the bite block holder of the panoramic X-ray unit (see page 159).

1. Open the **PAN - SENSOR ADJUSTMENT** submenu (see section 12.2.1).

IMPORTANT

The menu provides a precision adjustment and a coarse adjustment. Always try to use precision adjustment first when adjusting the unit. In most cases, it is not necessary to perform a coarse adjustment prior to precision adjustment.

2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

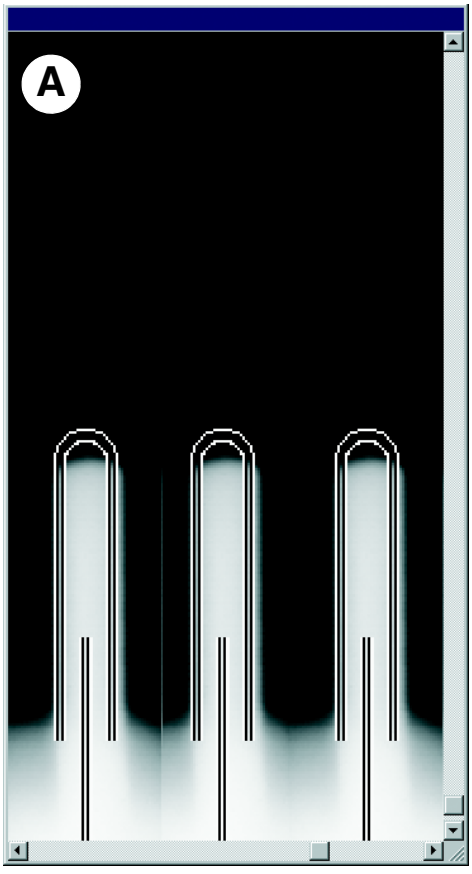
   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

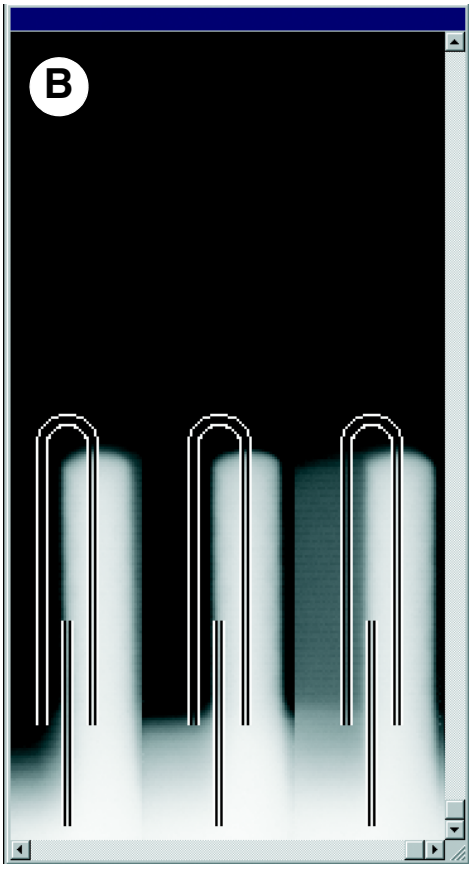
   The initialization procedure is completed when the exposure parameters of service routine **S010.1** (60 kV / 3 mA; 0.6 s) are displayed and the progress indicator disappears.

3. Take an exposure (60 kV / 3 mA):
   – Press the **R key** on the Multipad to move the unit back to the starting position.
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok



Adjustment: not ok

4. Evaluate the X-ray image:

– **The three needle images must lie in the center of the exposed areas and inside the auxiliary lines A.**

IMPORTANT

*If these criteria are not fulfilled **(B)**, the PAN sensor must be adjusted.*

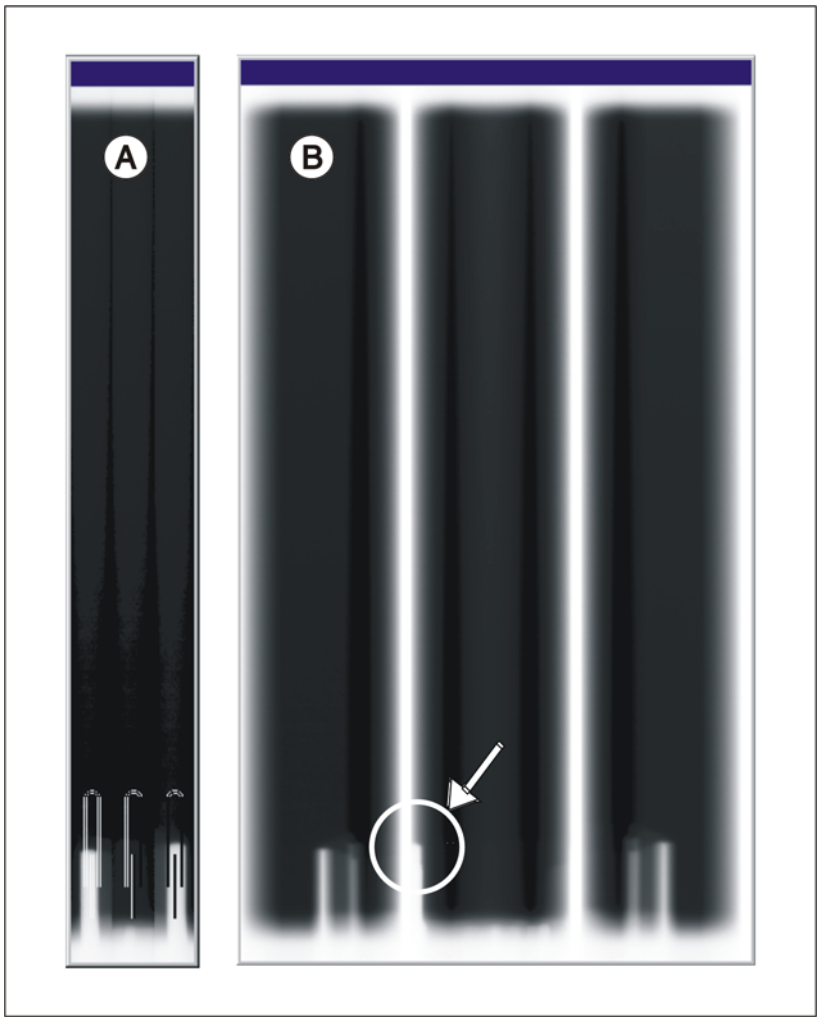


Image: X-ray image with unadjusted pan sensor: Alternatively with precision adjustment setting B and coarse adjustment setting A

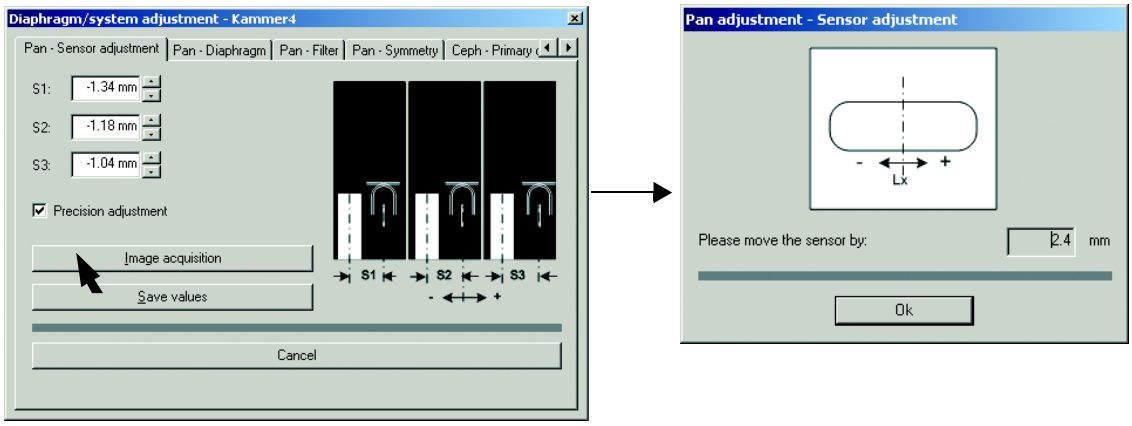
Coarse or precision adjustment?

Sensor adjustment can usually be performed directly via precision adjustment. Only in exceptional cases, e.g. if one or more needles are completely outside of the image field **(A)** in an image acquired with the **PRECISION ADJUSTMENT** presetting, is it necessary to perform a coarse adjustment prior to precision adjustment **(B)**. To do this, deactivate the **PRECISION ADJUSTMENT** check box (see page 158) and then perform a coarse adjustment proceeding in the same way as for precision adjustment. The only difference between coarse and precision adjustment is the size of the image area considered. Furthermore, there are fewer auxiliary lines in the coarse adjustment mode.

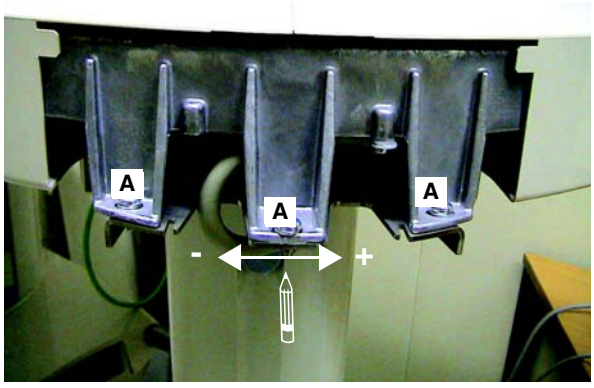
IMPORTANT

With SIDEXIS SW V01.45 and higher, a message window indicates whether a coarse adjustment is required on completion of the precision exposure.

5.



6.



System version 1: Fixed sensor holder

IMPORTANT

The default values for S1, S2 and S3 were automatically determined by SIDEXIS based on the exposure and entered in the text boxes of the menu.

For manual adjustment, the values displayed at this position in the text boxes of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment values is required only if you fail to reach your goal via automatic adjustment (see page 166).

5. Make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

The **PAN - SENSOR ADJUSTMENT** dialog box appears in Sidexis.

The dialog box suggests a value **Lx** for the mechanical adjustment of the sensor.

If the suggested value is greater than ± 0.5 mm, then perform a mechanical adjustment of the sensor.

6. Adjust the sensor:

IMPORTANT

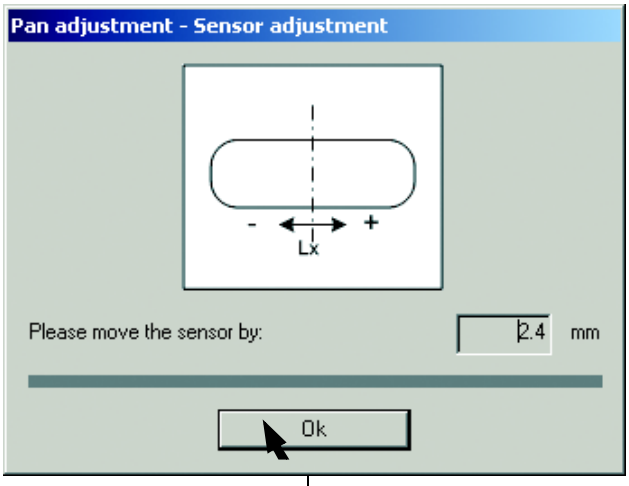
Positive sign =
Moves the sensor to the right
Negative sign =
Moves the sensor to the left

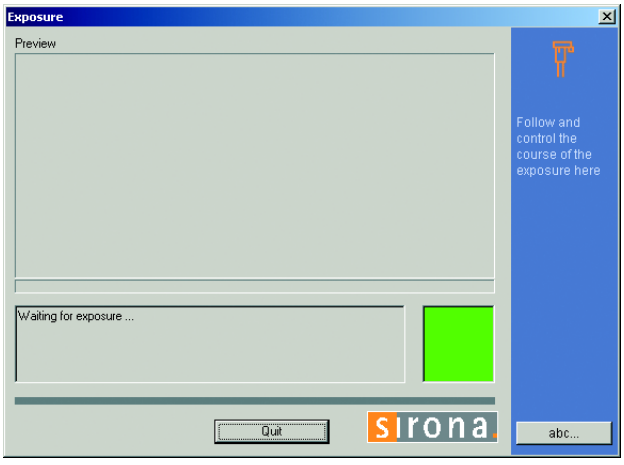
To do this, proceed as follows:

– Mark the current position of the sensor with a permanent marker.
– Loosen the three screws **A**
(approx. 2 turns, do not unscrew fully)
– Move the sensor to the left or right by the displayed value **Lx**.

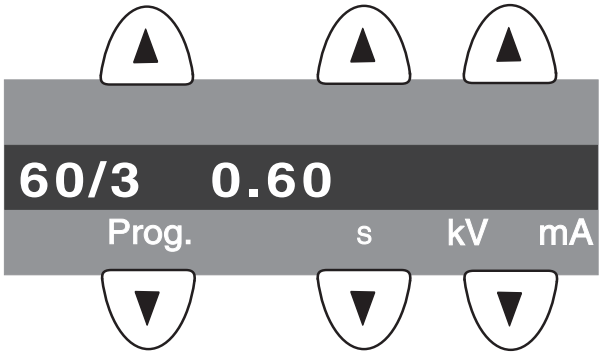
Tighten screws **A** again.

7.





on the Multipad



7. Confirm the displacement of the sensor:

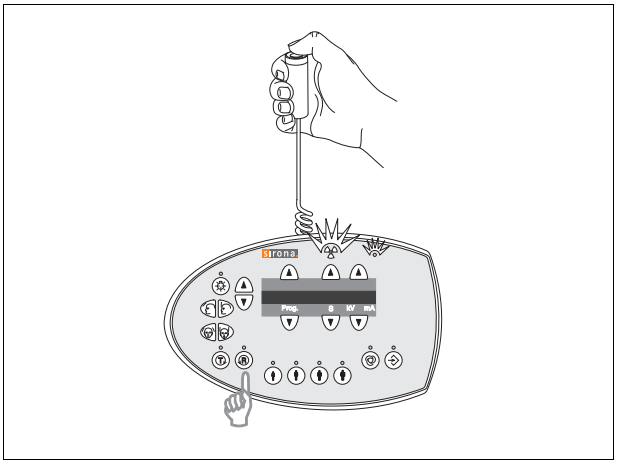
Click **OK**

The exposure dialog box showing the exposure status appears in Sidexis.

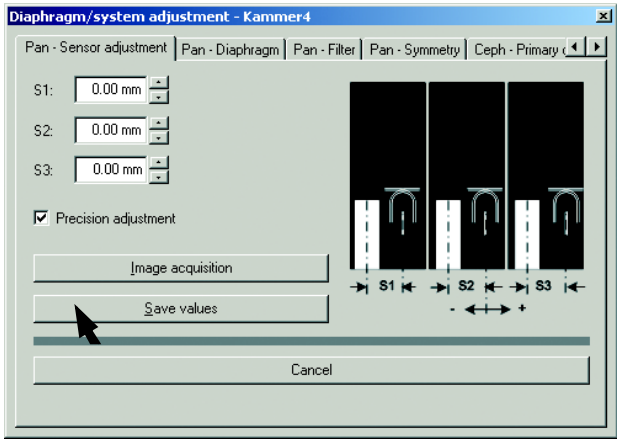
The initialization status is visualized by a progress indicator on the Multipad.

The initialization procedure is completed when the exposure parameters of service routine **S010.1** (60 kV / 3 mA; 0.6 s) are displayed and the progress indicator disappears.

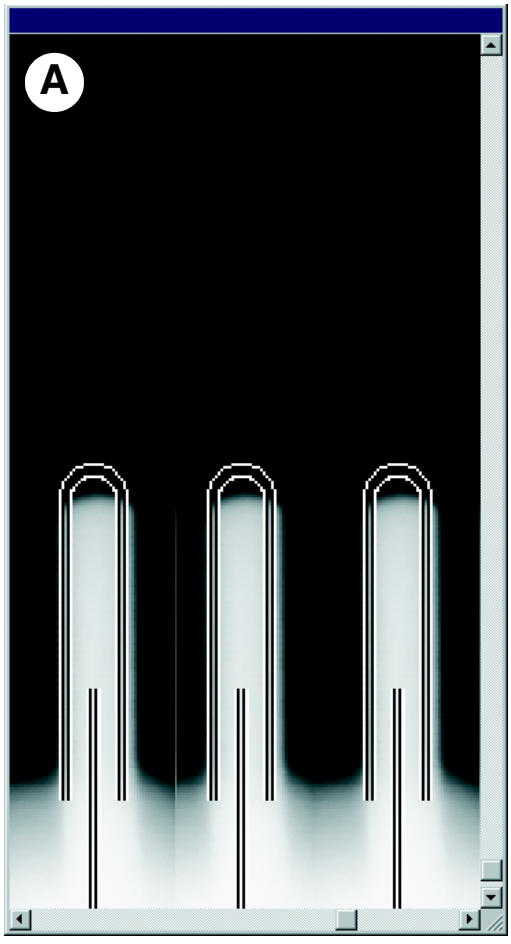
8.



10.



9.



Adjustment: ok

8. Take an exposure (60 kV / 3 mA):

– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

9. Evaluate the X-ray image:

– The three needle images must lie in the center of the exposed areas and inside the auxiliary lines A.

IMPORTANT

If these criteria are not yet fulfilled, repeat the adjustment procedure starting with step 5.

IMPORTANT

If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with manually determined adjustment values (see page 166).

10. If the image is identical to the ideal image **A**, save the values:

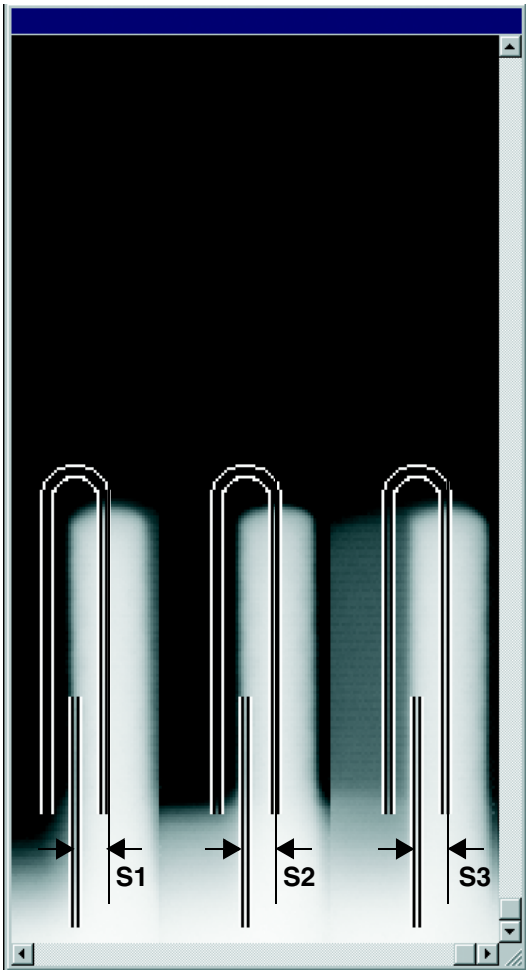
Click **SAVE VALUES**

IMPORTANT

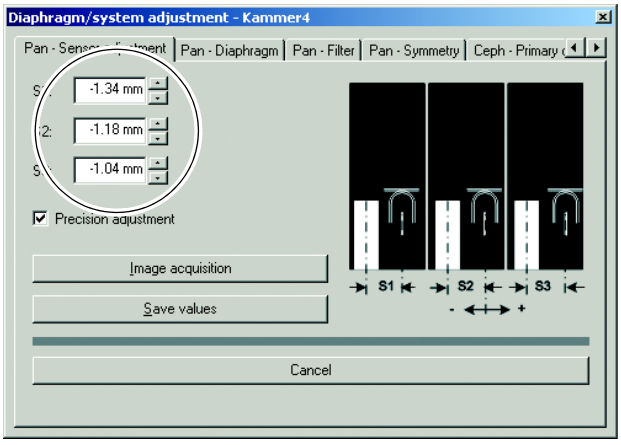
*In SIDEXIS versions higher than V01.50. the values for **S1 - S3** in the **PAN - SENSOR ADJUSTMENT** submenu are set **equal to zero** with a correct adjustment, i.e. if they are within the permissible tolerance. For versions < V01.50, the values in the text boxes may deviate slightly from zero even with a correct adjustment.*

- Go on to the next adjustment step.

1.



2.



Manual adjustment of the PAN sensor

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values automatically determined by SIDEXIS are overwritten by manually determined adjustment values in the **PAN - SENSOR ADJUSTMENT** submenu.

1. Measure distances **S1**, **S2** and **S3** with the SIDEXIS measuring ruler.

IMPORTANT

To measure S1, S2 and S3, estimate the horizontal center position of the displayed needles. Measure in the lower area of the needles if possible, since they may have been bent slightly after repeated use.

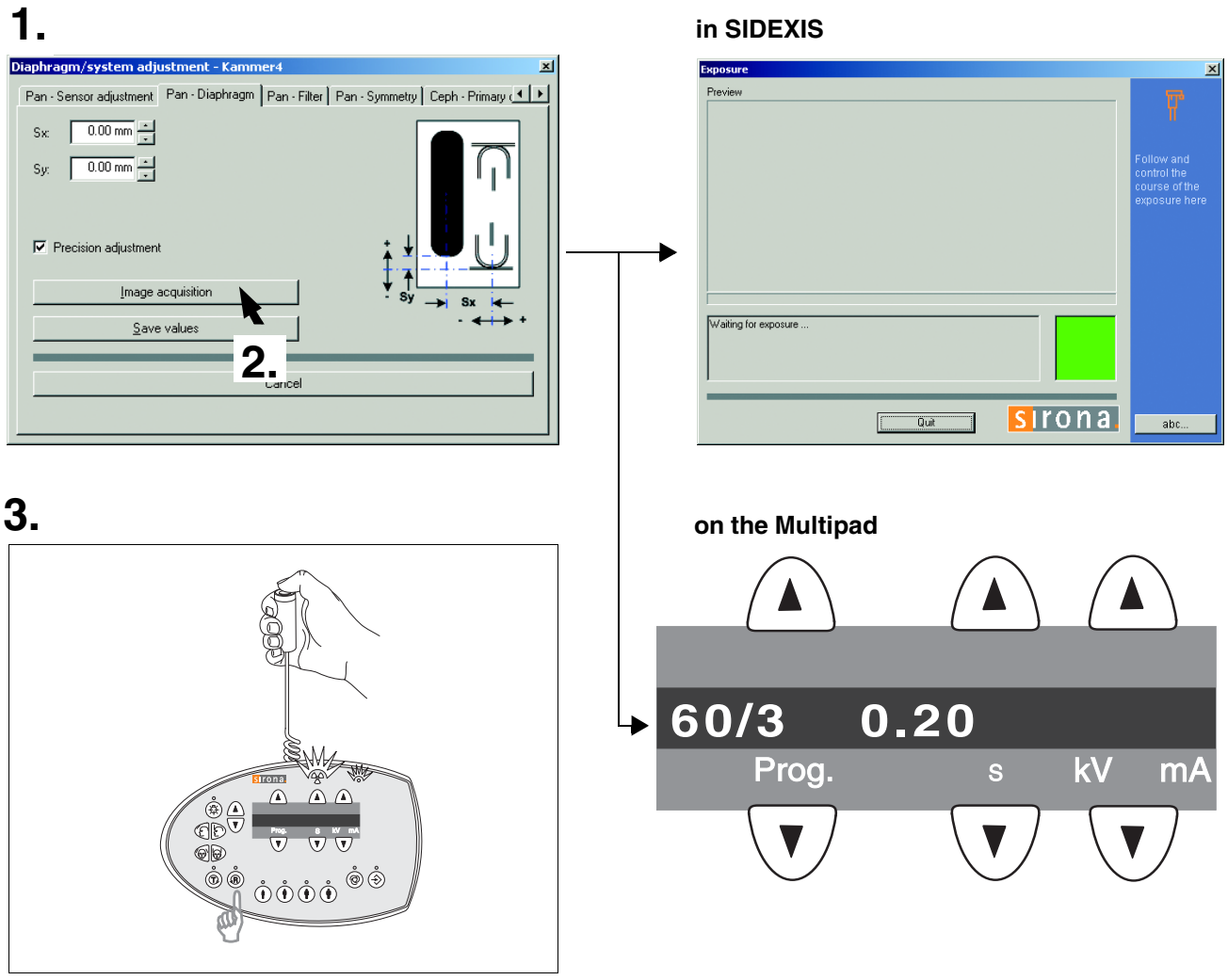
Tip: *To facilitate the measuring procedure, you can color the image in SIDEXIS (see also SIDEXIS Operator's Manual).*

2. Overwrite the default values for **S1, S2** and **S3** with the measured values in the text boxes of the **PAN - SENSOR ADJUSTMENT** submenu.

IMPORTANT

For information on the direction of displacement (input of +/- sign in the menu) see page 157. Use points as decimal separators!

- Proceed with step 5 of the adjustment procedure on page 163.



12.2.5Adjusting the PAN diaphragm

- Remove the needle phantom from the bite block holder of the panoramic X-ray unit.

1. Go to the **PAN - DIAPHRAGM** submenu.

IMPORTANT

The menu provides a precision adjustment and a coarse adjustment. Always try to use precision adjustment first when adjusting the unit. In most cases, it is not necessary to perform a coarse adjustment prior to precision adjustment.

2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

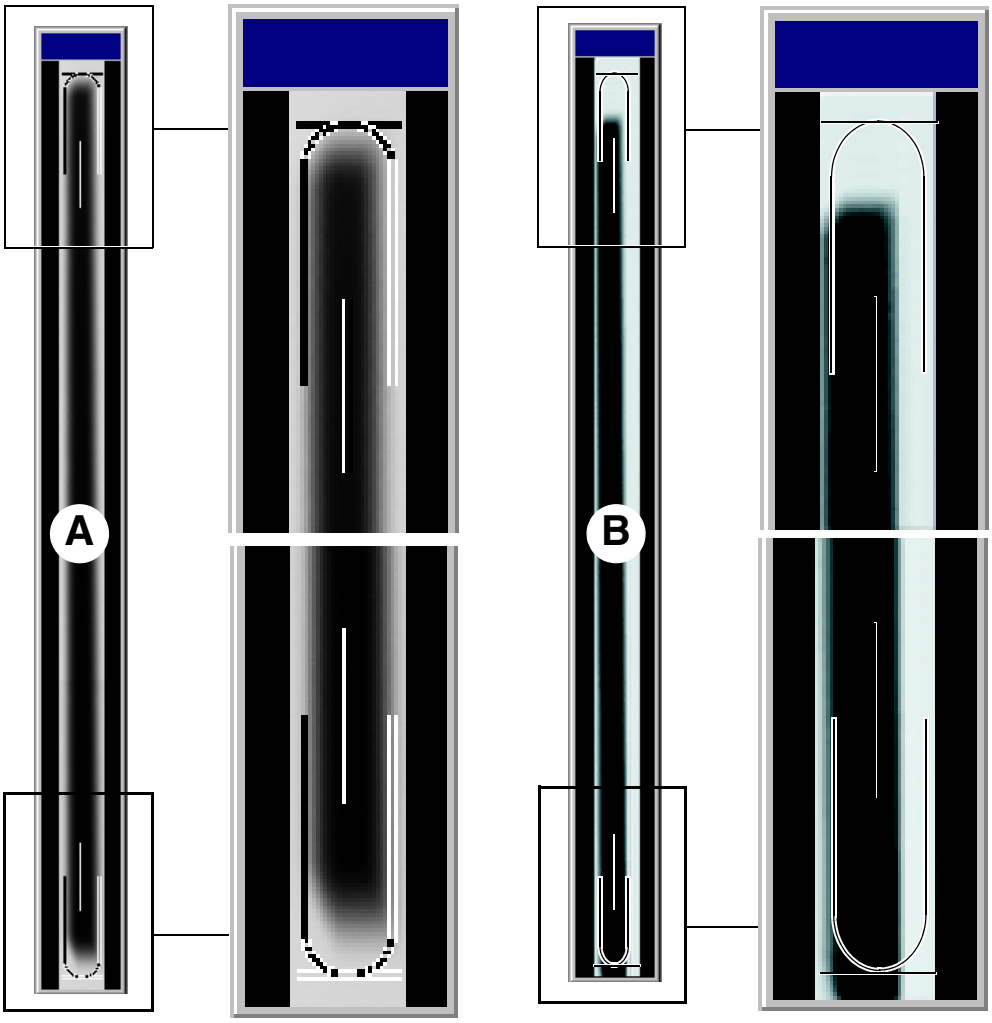
   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S030.2** (60 kV / 3 mA; 0.2 s) are displayed and the progress indicator disappears.

3. Take an exposure (60 kV / 3 mA):
   – Press the **R key** on the Multipad to move the unit back to the starting position. Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok

Adjustment: not ok

4. Evaluate the X-ray image:

- **The exposed diaphragm area must lie horizontally centered in the image field as well as inside the superimposed auxiliary lines A.**
- **A white border surrounding the image on all sides must be visible. The maximum density must lie in the center of the diaphragm area A.**

IMPORTANT

*If these criteria are not fulfilled **B**, the pan diaphragm must be adjusted.*

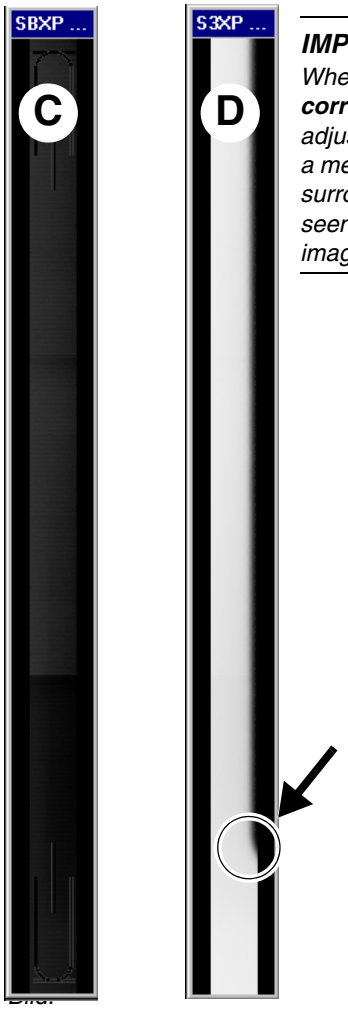


Image: X-ray image with unadjusted pan diaphragm: Alternatively with precision adjustment setting C and coarse adjustment setting D

IMPORTANT

*When the **diaphragm is correctly adjusted**, a course adjustment does not produce a meaningful image, since no surrounding border can be seen in this case (similar to image C).*

Coarse or precision adjustment?

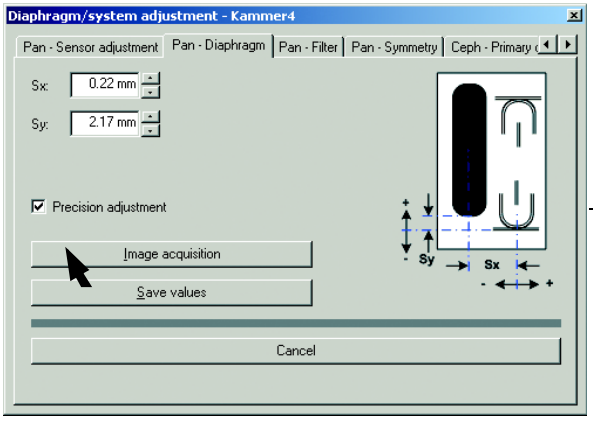
Sensor adjustment can usually be performed directly via precision adjustment. Only in exceptional cases, e.g. if one or more needles are completely outside of the image field **(C)** in an image acquired with the **PRECISION ADJUSTMENT** presetting, is it necessary to perform a coarse adjustment prior to precision adjustment **(D)**. To do this, deactivate the **PRECISION ADJUSTMENT** check box (see page 158) and then perform a coarse adjustment proceeding in the same way as for precision adjustment. The only difference between coarse and precision adjustment is the size of the image area considered. Furthermore, there are fewer auxiliary lines in the coarse adjustment mode.

On the X-ray image with coarse adjustment D, the exposed area is just barely visible at the right margin of the image field. Even in this extreme case, an adjustment would still be possible.

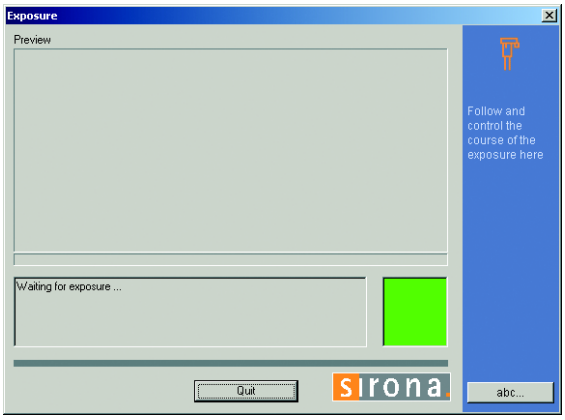
IMPORTANT

With SIDEXIS SW V01.45 and higher, a message window indicates whether a coarse adjustment is required on completion of the precision exposure.

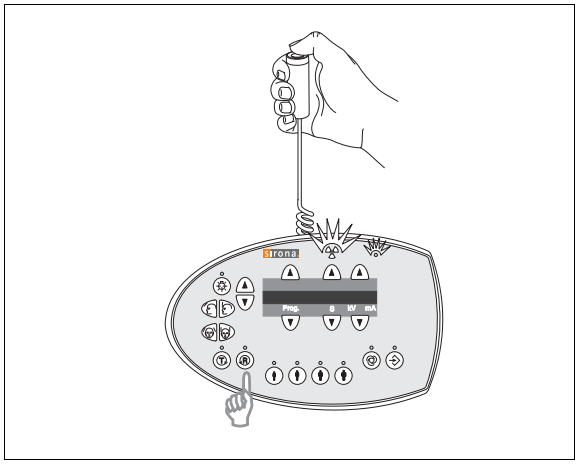
5.



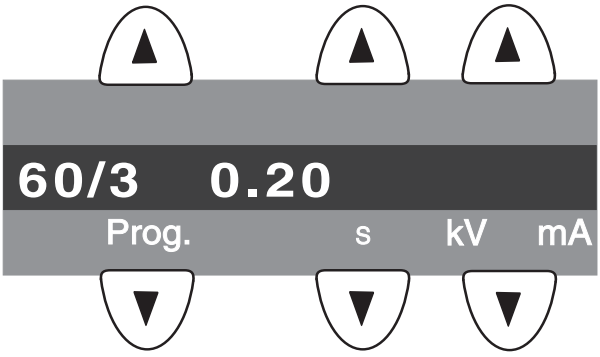
in SIDEXIS



6.



on the Multipad



IMPORTANT

The default values for Sx and Sy were automatically determined by SIDEXIS based on the exposure and entered in the text boxes of the menu.

For manual adjustment, the values displayed at this position in the text boxes of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment values is required only if you fail to reach your goal via automatic adjustment (see page 172).

5. Make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

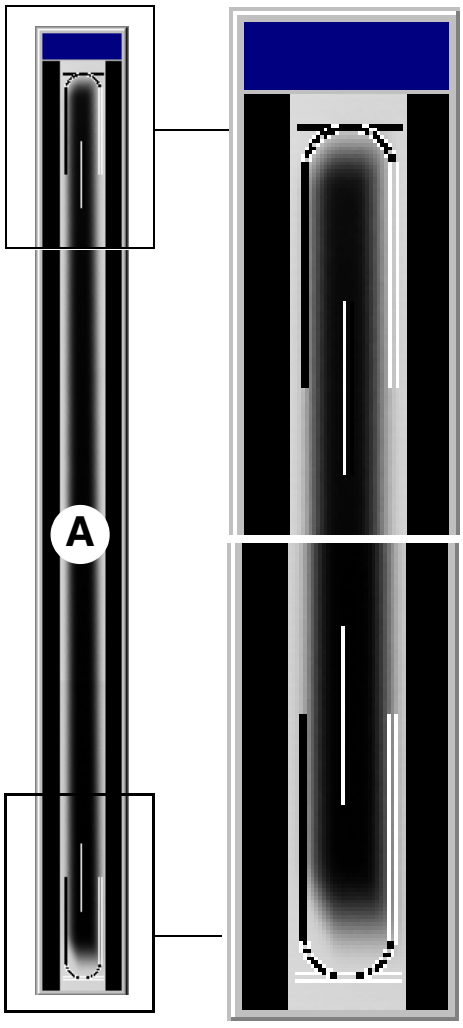
   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

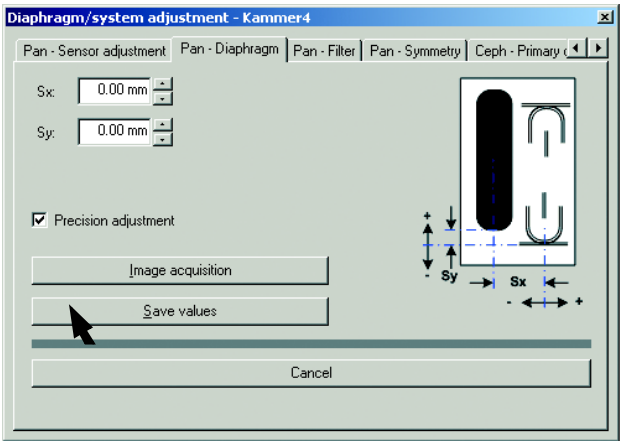
   The initialization procedure is completed when the exposure parameters of service routine **S030.2** (60 kV / 3 mA; 0.2 s) are displayed and the progress indicator disappears.

6. Take an exposure (60 kV / 3 mA):
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

7.



8.



7. Evaluate the X-ray image:

- **The exposed diaphragm area must lie horizontally centered in the image field as well as inside the superimposed auxiliary lines A.**
- **A white border surrounding the image on all sides must be visible. The maximum density must lie in the center of the diaphragm area A.**

IMPORTANT

If these criteria are not yet fulfilled, repeat the adjustment procedure starting with step 5.

IMPORTANT

If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with manually determined adjustment values (see page 172).

8. If the image is identical to the ideal image **A**, save the values:

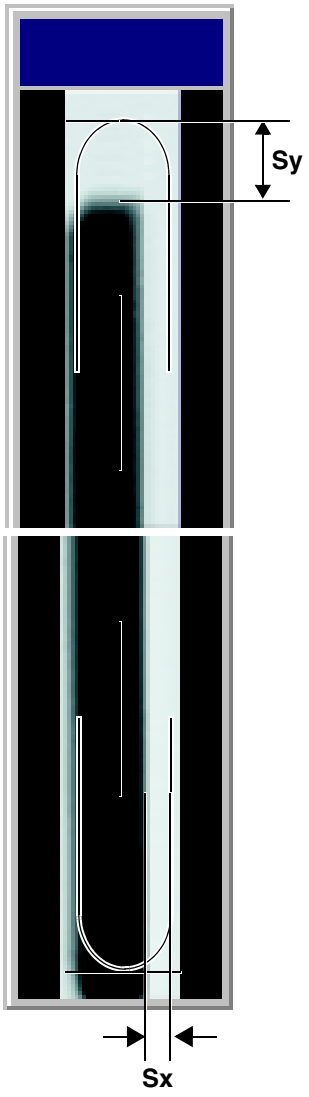
Click **SAVE VALUES**

IMPORTANT

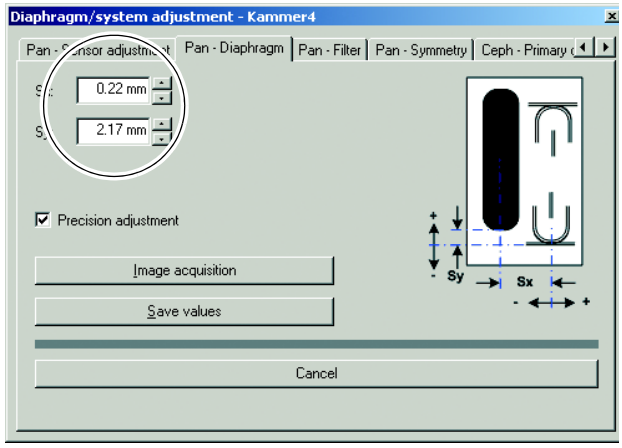
*The values for Sx and Sy in the **PAN - DIAPHRAGM** submenu **do not have to be exactly equal to zero** for a correct adjustment.*

- Go on to the next adjustment step.

1.



2.



Manual adjustment of the PAN diaphragm

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values automatically determined by SIDEXIS are overwritten by manually determined adjustment values in the **PAN - DIAPHRAGM** submenu.

1. Measure distances **Sx** and **Sy** with the SIDEXIS measuring ruler.

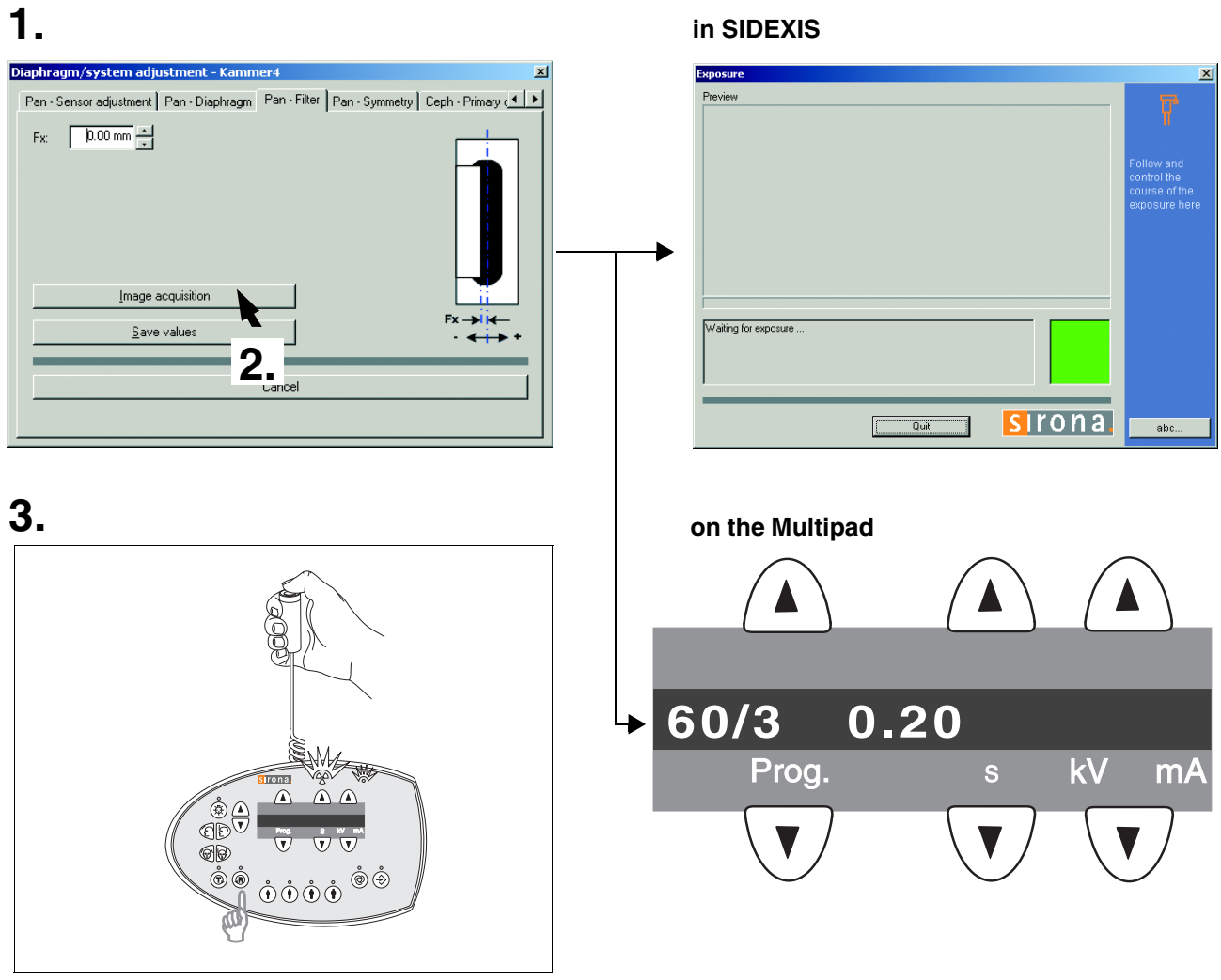
Tip: To facilitate the measuring procedure, you can color the image in SIDEXIS (see also SIDEXIS Operator's Manual).

2. Overwrite the default values for **Sx** and **Sy** with the measured values in the text boxes of the **PAN - DIAPHRAGM** submenu.

IMPORTANT

For information on the direction of displacement (input of +/- sign in the menu) see page 157. Use points as decimal separators!

- Proceed with step 5 of the adjustment procedure on page 170.



12.2.6Adjusting the PAN filter

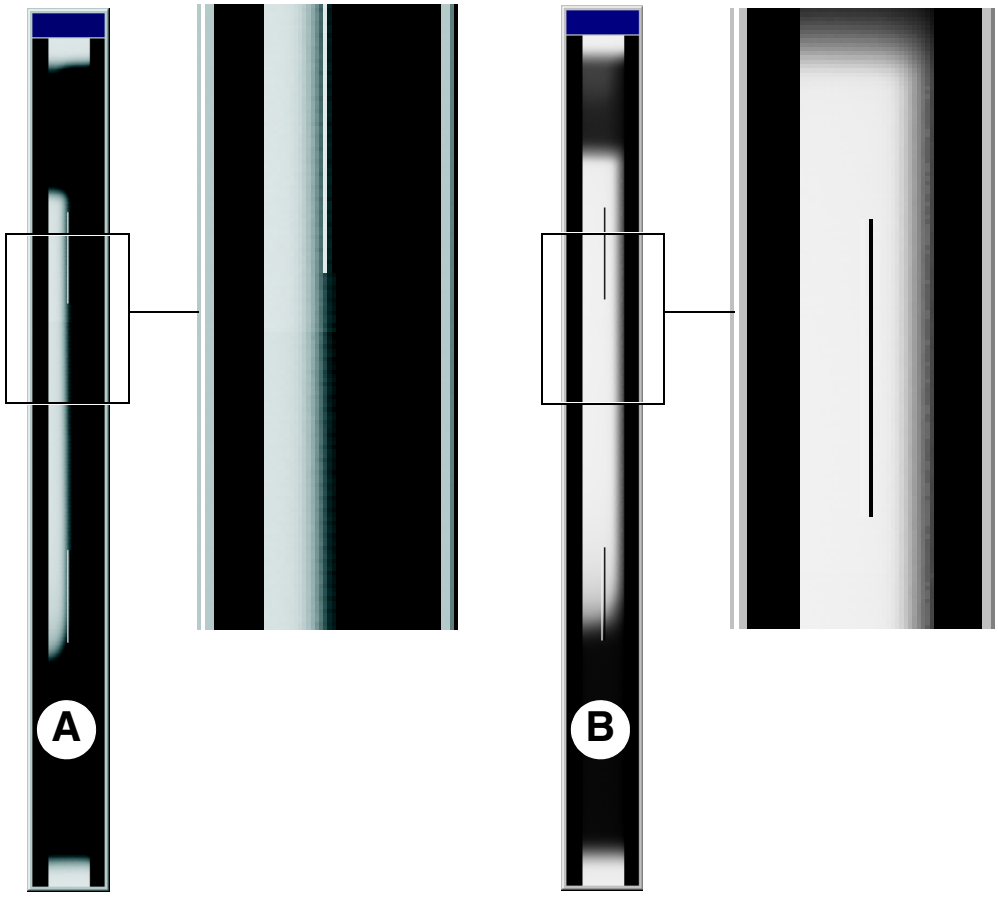
1. Go to the **PAN - FILTER** submenu.
2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S030.3** (60 kV / 3 mA; 0.2 s) are displayed and the progress indicator disappears.
3. Take an exposure (60 kV / 3 mA):
   - Press the **R key** on the Multipad to move the unit back to the starting position.
   - Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok **Adjustment: not ok**

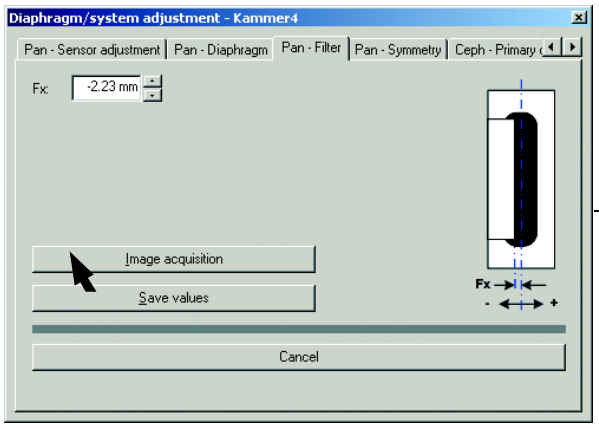
4. Evaluate the X-ray image:

– **The superimposed filter must cover one half of the diaphragm A.**

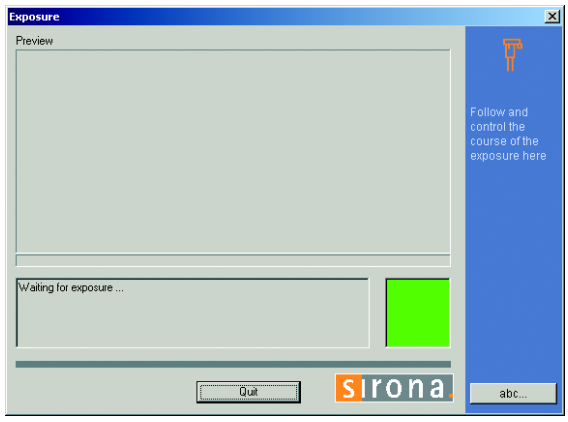
IMPORTANT

*If these criteria are not fulfilled **B**, the pan filter must be adjusted.*

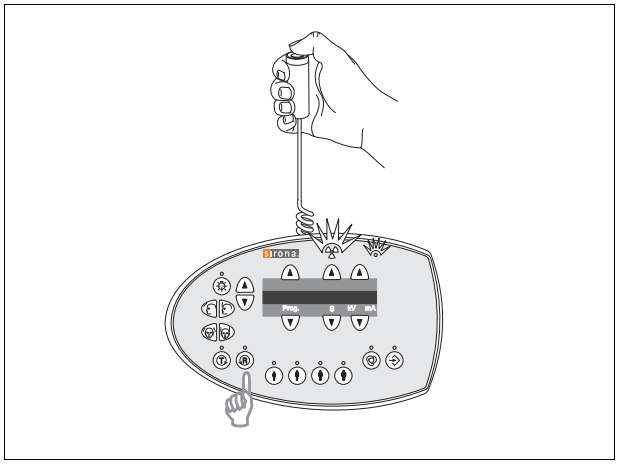
5.



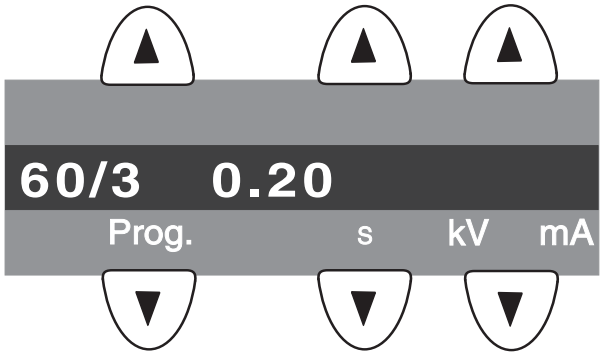
in SIDEXIS



6.



on the Multipad



IMPORTANT

The default value for Fx was automatically determined by SIDEXIS based on the exposure and entered in the text box of the menu.

For manual adjustment, the value displayed at this position in the text box of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment value is required only if you fail to reach your goal via automatic adjustment (see page 177).

5. Make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

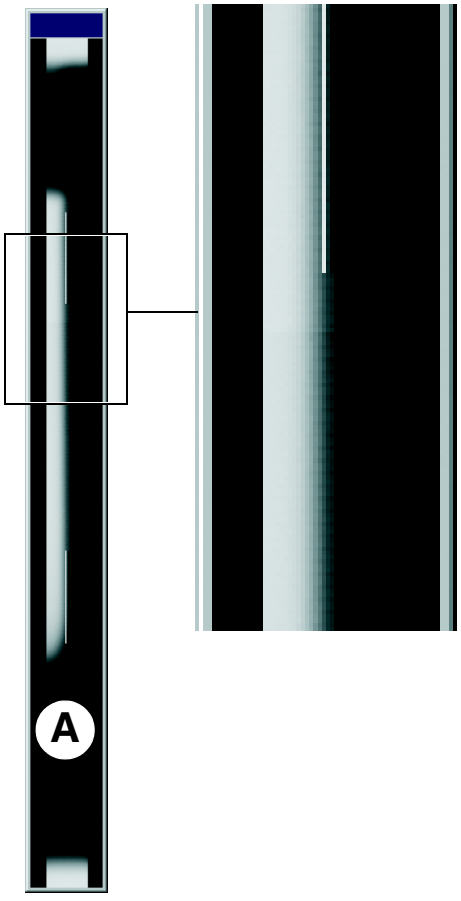
   The exposure dialog box showing the exposure status appears in Sidexis.

   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S030.3** (60 kV / 3 mA; 0.2 s) are displayed and the progress indicator disappears.

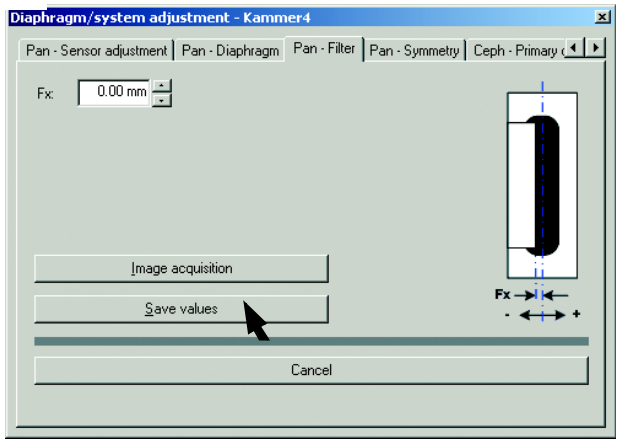
6. Take an exposure (60 kV / 3 mA):
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

7.



Adjustment: ok

8.



7. Evaluate the X-ray image:

– **The superimposed filter must cover one half of the diaphragm A.**

IMPORTANT

If these criteria are not yet fulfilled, repeat the adjustment procedure starting with step 5.

IMPORTANT

If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with a manually determined adjustment value (see page 177).

8. If the image is identical to the ideal image **A**, save the value:

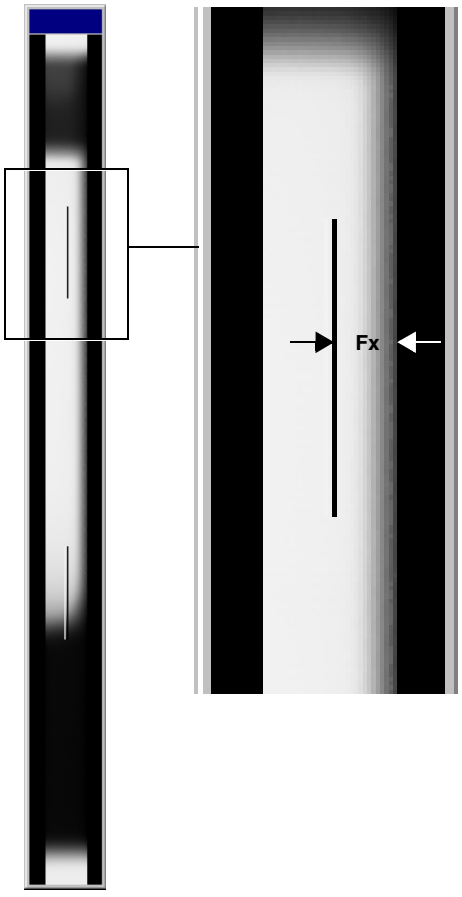
Click **SAVE VALUES**

IMPORTANT

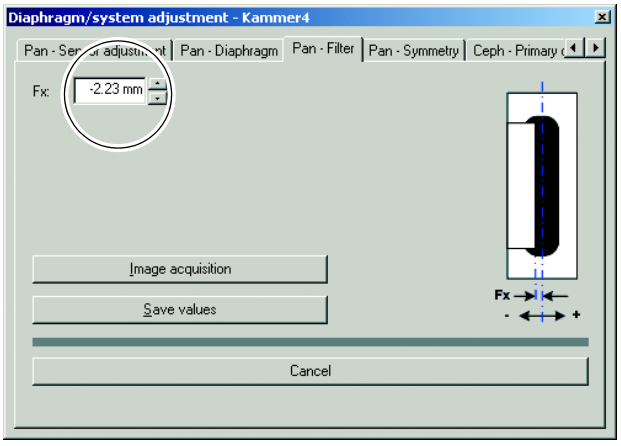
*The value for Fx in the **PAN - FILTER** submenu **does not have to be exactly equal to zero** for a correct adjustment.*

- Go on to the next adjustment step.

1.



2.



Manual adjustment of the PAN filter

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment value automatically determined by SIDEXIS is overwritten by a manually determined adjustment value in the **PAN - FILTER** submenu.

1. Measure distance **Fx** with the SIDEXIS measuring ruler.

Tip: To facilitate the measuring procedure, you can color the image in SIDEXIS (see also SIDEXIS Operator's Manual).

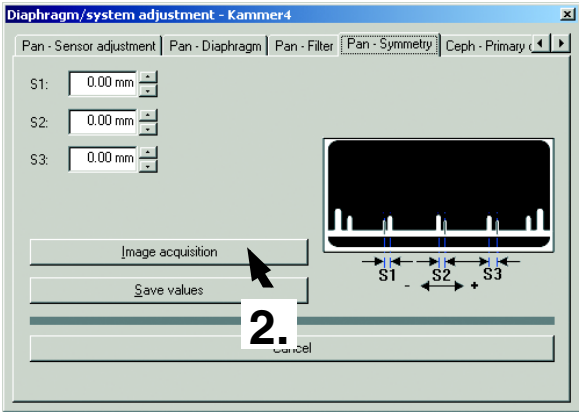
2. Replace the default value for **Fx** by entering the measured value in the text box of the **PAN - FILTER** submenu.

IMPORTANT

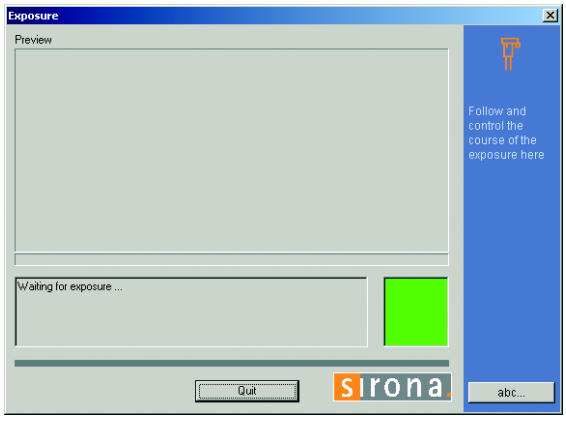
For information on the direction of displacement (input of +/- sign in the menu) see page 157. Use points as decimal separators!

- Proceed with step 5 of the adjustment procedure on page 175.

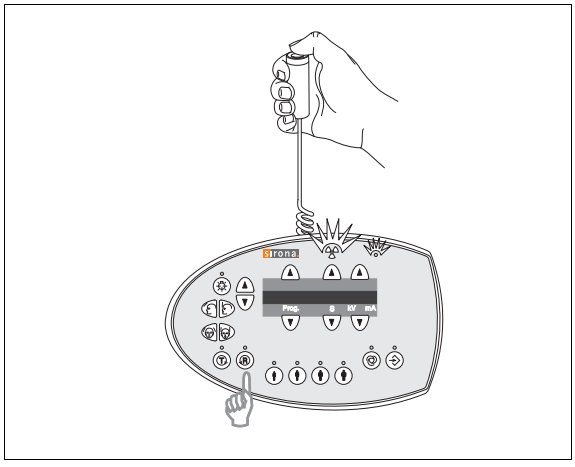
1.



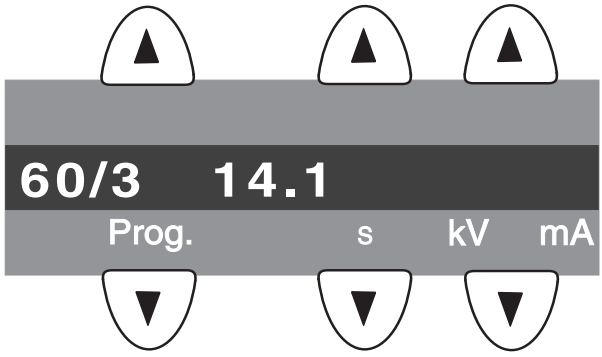
in SIDEXIS



3.



on the Multipad



12.2.7Adjusting the PAN symmetry

- Insert the needle phantom in the bite block holder of the panoramic X-ray unit (see page 159).

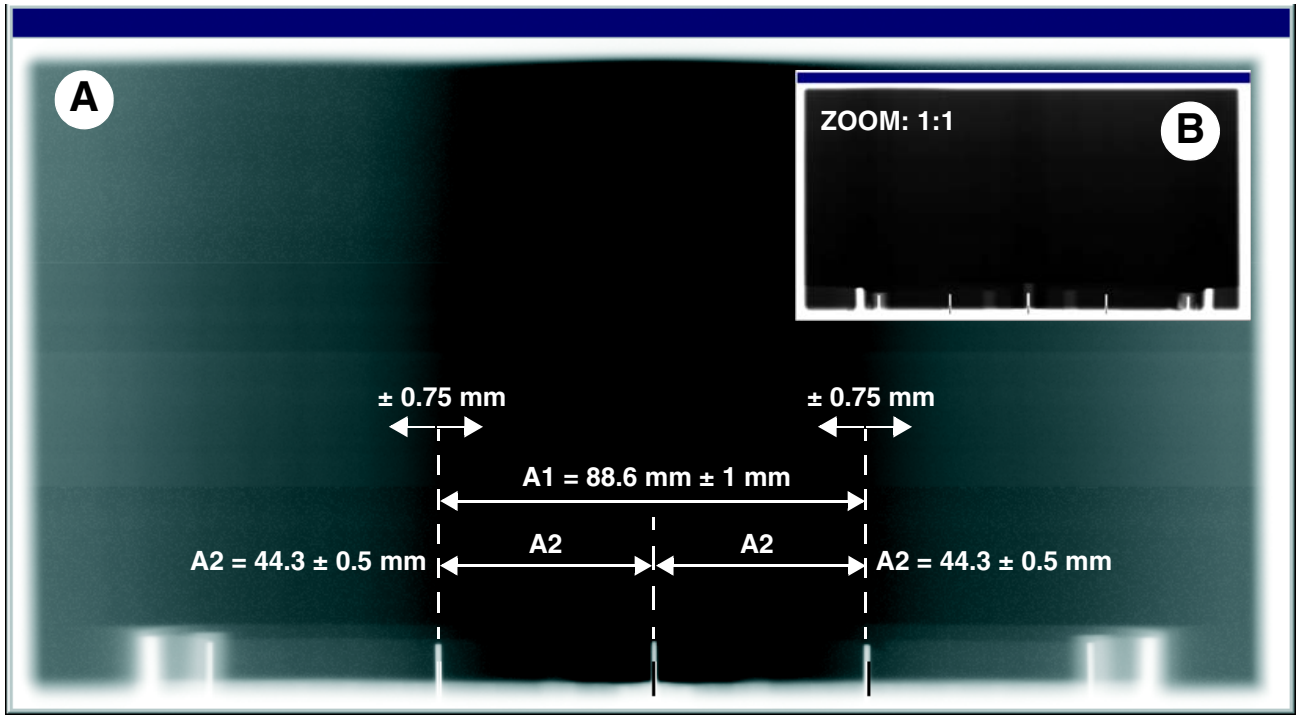
1. Go to the **PAN - SYMMETRY** submenu.
2. To make SIDEXIS XG ready for exposure:
   Click **IMAGE ACQUISITION**

   The exposure dialog box showing the exposure status appears in Sidexis.

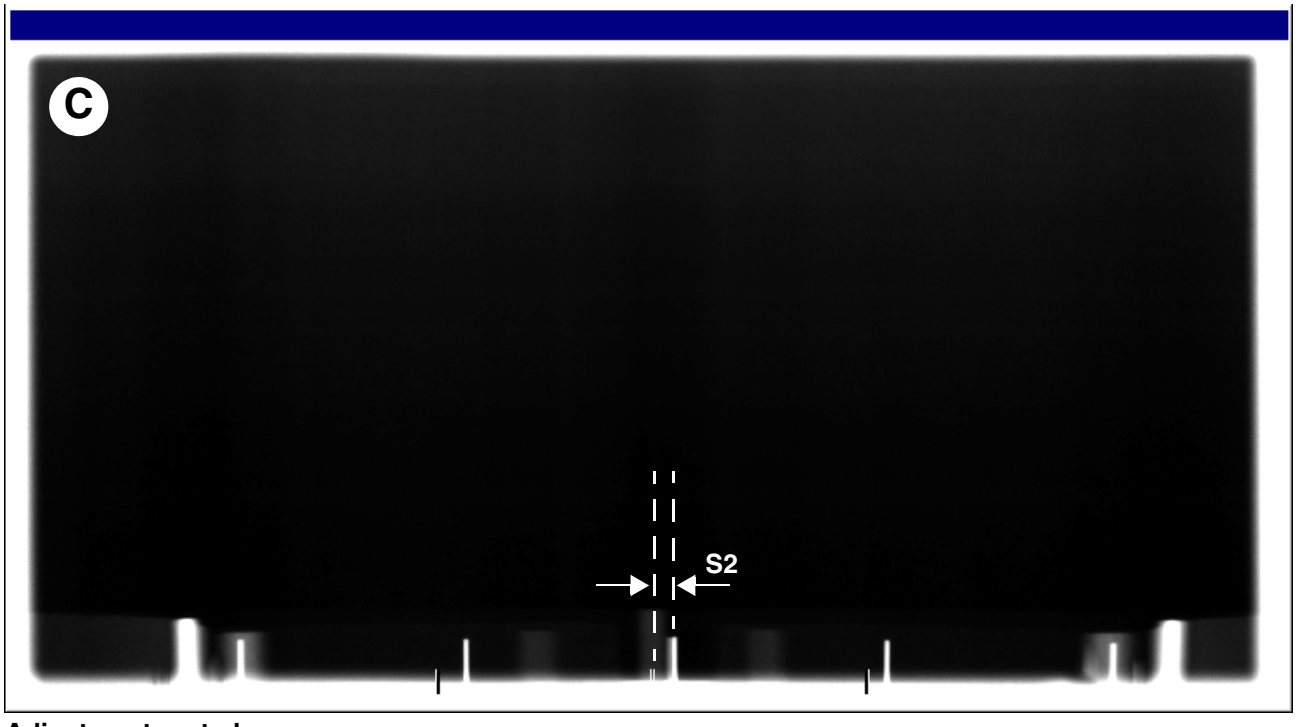
   The initialization status is visualized by a progress indicator on the Multipad.

   The initialization procedure is completed when the exposure parameters of service routine **S010.2** (60 kV / 3 mA; 14.1 s) are displayed and the progress indicator disappears.
3. Take an exposure (60 kV / 3 mA):
   – Press the **R key** on the Multipad to move the unit back to the starting position.
   – Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



Adjustment: ok (length measurement with SIDEXIS)



Adjustment: not ok

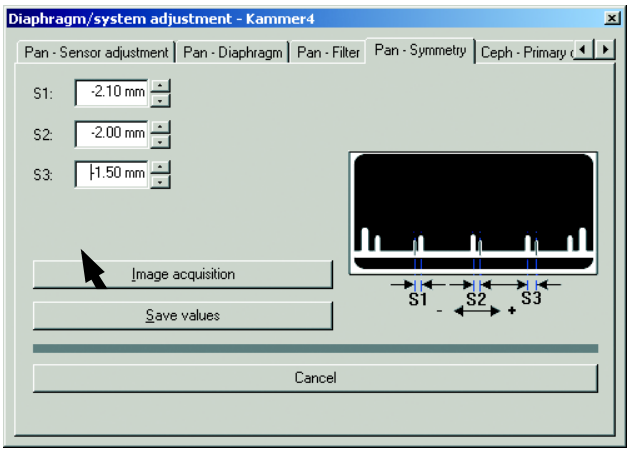
4. Evaluate the X-ray image (see page 179):

- **The shadow of the center needle, the needle image and the auxiliary line must be coincident and located behind each other.**
  A tolerance (offset of needle from the central auxiliary line) of ± 0.75 mm is admissible A.
- **Distance A1 must be 88.6 ± 1 mm A.**
- **Distances A2 must be identical, each being 44.3 ± 0.5 mm A.**
- **A white border surrounding the image on all sides must be visible B.**

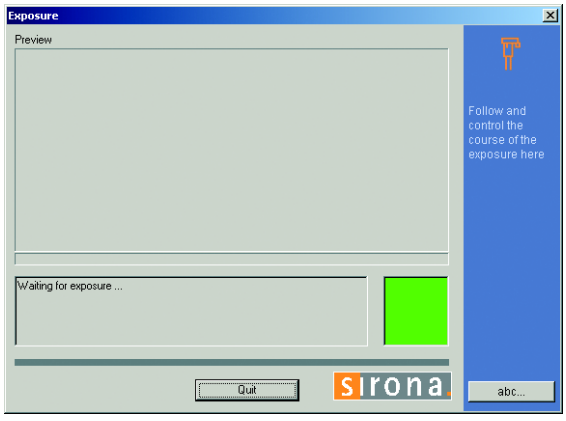
IMPORTANT

*If one of these criteria is not fulfilled **C**, the pan symmetry must be adjusted.*

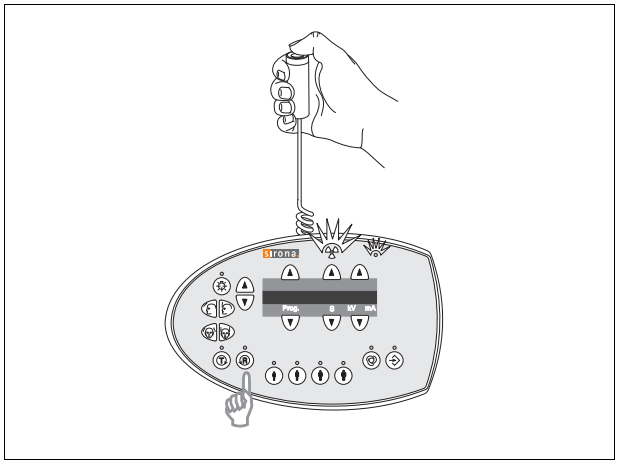
5.



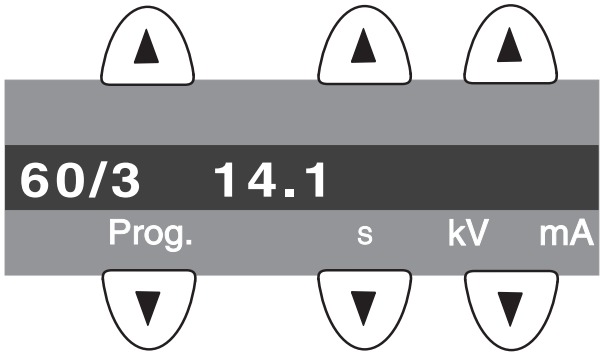
in SIDEXIS



6.



on the Multipad



IMPORTANT

The default values for S1, S2 and S3 were automatically determined by SIDEXIS based on the exposure and entered in the text boxes of the menu.

For manual adjustment, the values displayed at this position in the text boxes of the menu can be overwritten.

First continue with the automatic adjustment. Manual determination of the adjustment values is required only if you fail to reach your goal via automatic adjustment (see page 184).

5. Make SIDEXIS XG ready for exposure:
Click **IMAGE ACQUISITION**

The exposure dialog box showing the exposure status appears in Sidexis.

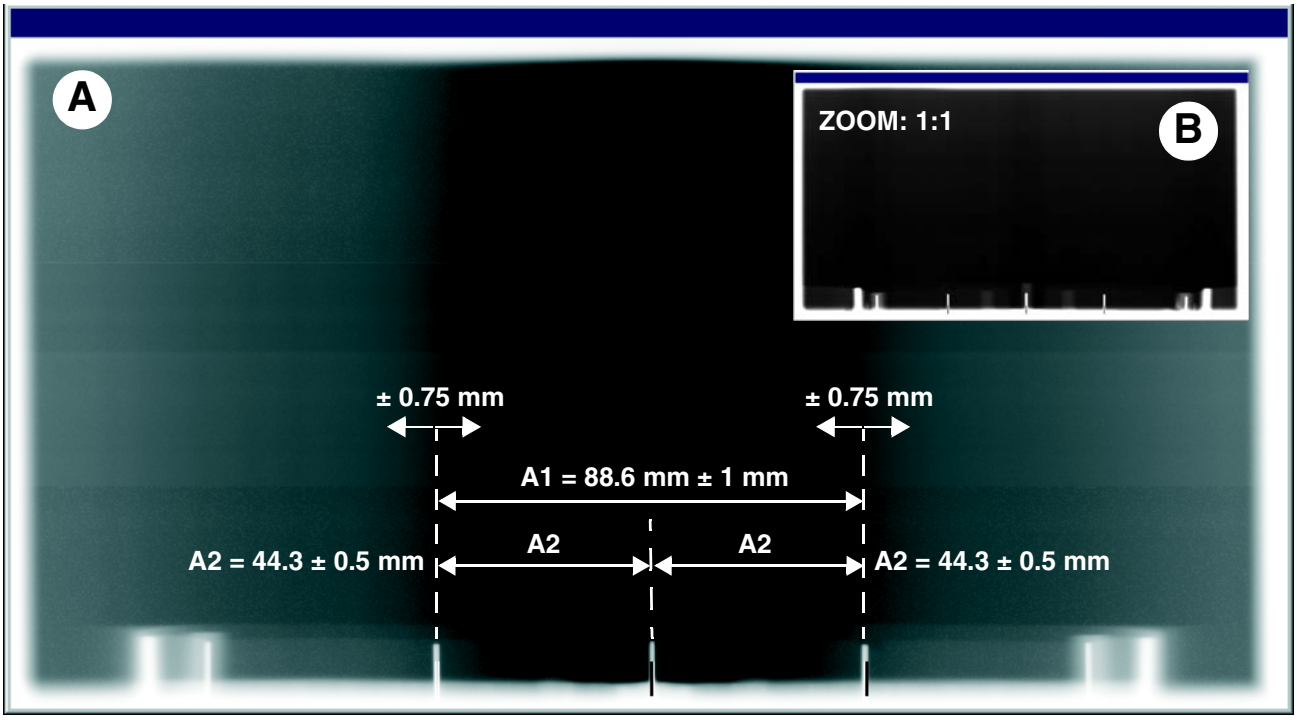
The initialization status is visualized by a progress indicator on the Multipad.

The initialization procedure is completed when the exposure parameters of service routine **S010.2** (60 kV / 3 mA; 14.1 s) are displayed and the progress indicator disappears.

6. Take an exposure (60 kV / 3 mA):

– Press the release button. Hold down the release button until image acquisition is completed and the preview image appears in the exposure dialog box.

7.



Adjustment: ok (length measurement with SIDEXIS)

7. Evaluate the X-ray image:

- **The shadow of the center needle, the needle image and the auxiliary line must be coincident and located behind each other.**
  A tolerance (offset of needle from the central auxiliary line) of ± 0.75 mm is admissible A.
- **Distance A1 must be 88.6 ± 1 mm A.**
- **Distances A2 must be identical, each being 44.3 ± 0.5 mm A.**
- **A white border surrounding the image on all sides must be visible B.**

IMPORTANT

Always measure exactly from pin center to pin center.

IMPORTANT

If the X-ray image still does not correspond to the ideal image, it is possible that one or more criteria have not yet been fulfilled:

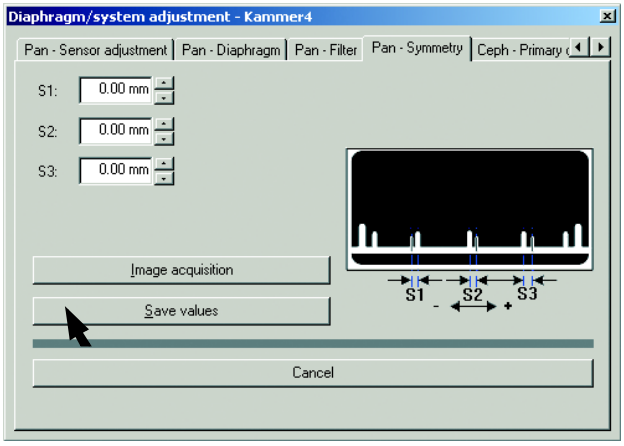
Case 1: Center needle not coincident with auxiliary line
If the shadow of the center needle, the needle image and the auxiliary line do not yet coincide, then repeat the adjustment procedure starting with step 5.

Case 2: Symmetry not OK
If the shadow of the center needle, the needle image and the auxiliary line coincide, but the symmetry or the distance between the two outer needles is not yet correct, then repeat the adjustment procedure starting with step 5.

IMPORTANT

If you do not reach your goal via automatic adjustment, repeat the adjustment procedure with manually determined adjustment values (see page 184).

8.



8. If all criteria are fulfilled and the current image is identical to the ideal image **A + B**, then save the values:

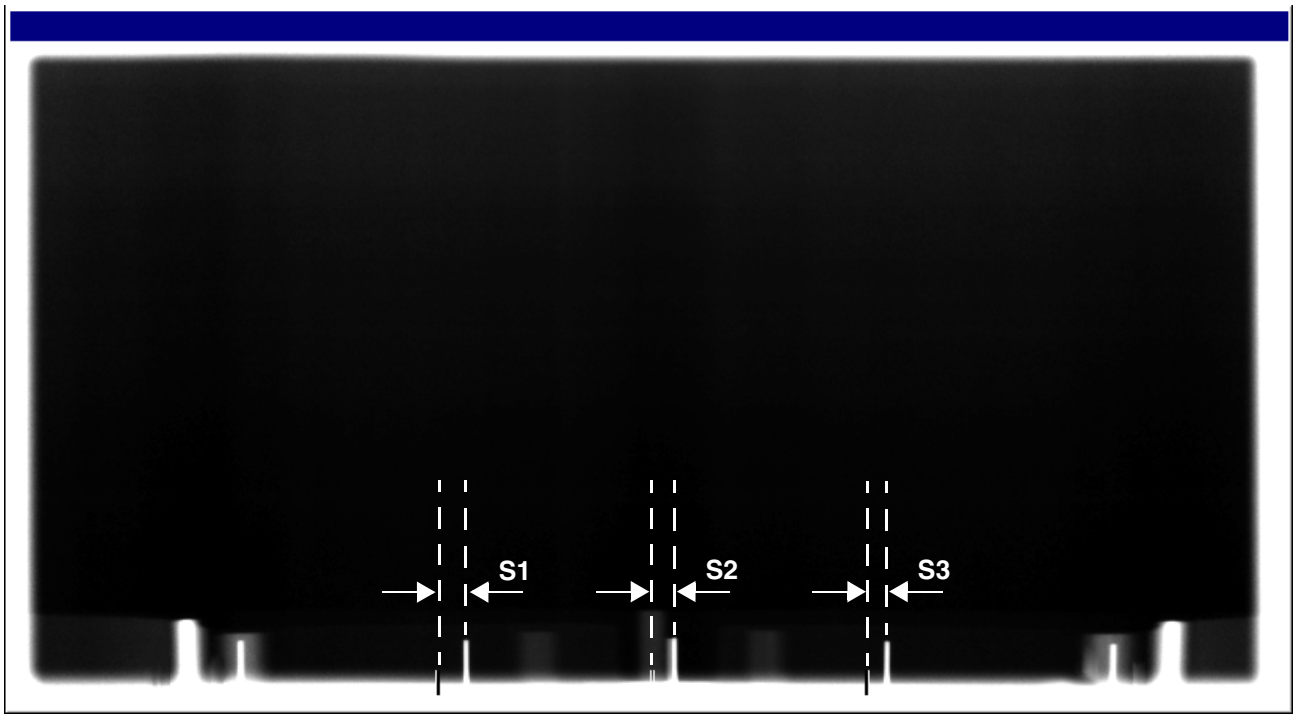
Click **SAVE VALUES**

IMPORTANT

*The values for **S1**, **S2** and **S3** in the **PAN - SYMMETRY** submenu **do not have to be exactly equal to zero** for a correct adjustment.*

- Go on to the next adjustment step.

1.



Manual adjustment of the PAN symmetry

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values automatically determined by SIDEXIS are overwritten by manually determined adjustment values in the **PAN - SYMMETRY** submenu.

1. Measure distances **S1, S2** and **S3** with the SIDEXIS measuring ruler.

IMPORTANT

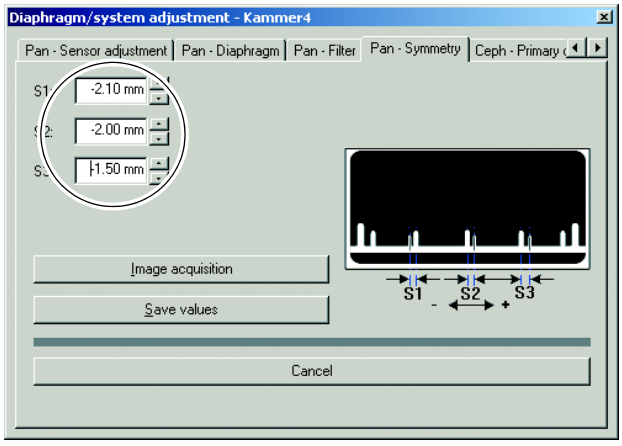
Measure in the lower area of the needles if possible, since they may have been bent slightly after repeated use.

Always measure exactly from pin center to pin center.

IMPORTANT

Tip: *To facilitate the measuring procedure, you can color the image in SIDEXIS (see also SIDEXIS Operator's Manual).*

2.



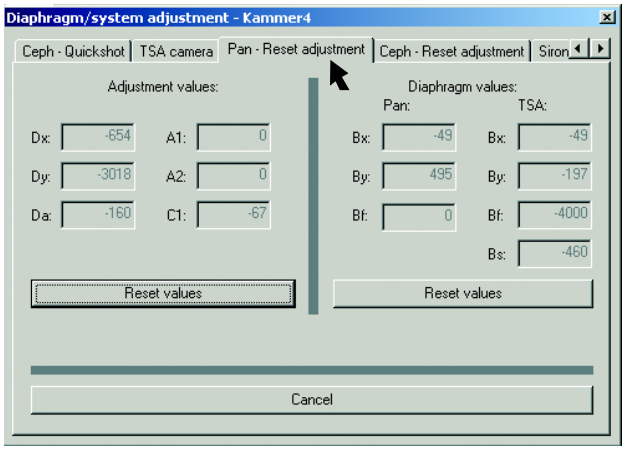
2. Overwrite the default values for **S1, S2** and **S3** with the measured values in the text boxes of the **PAN - SYMMETRY** submenu.

IMPORTANT

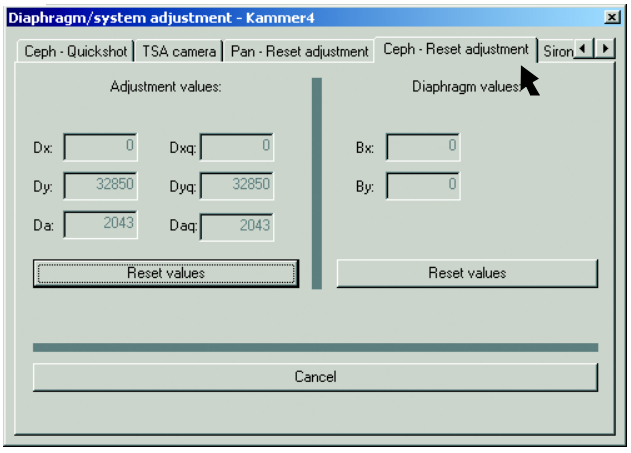
For information on the direction of displacement (input of +/- sign in the menu) see page 157. Use points as decimal separators!

- Proceed with step 5 of the adjustment procedure on page 181.

1.



2.



12.2.8Resetting the adjustment

NOTICE

Important: Make sure to note down the values displayed in the text boxes before modifying them. This will enable you to reset the adjustment values to the factory settings if necessary.

Contact the SIRONA Customer Service Center for more information (or to enable the menu):

Phone: 0 62 51 / 16 - 16 70

The **DIAPHRAGM/SYSTEM ADJUSTMENT** menu offers you the possibility of resetting or manually modifying any or all of the pan or ceph adjustment settings you have made **in very exceptional cases**.

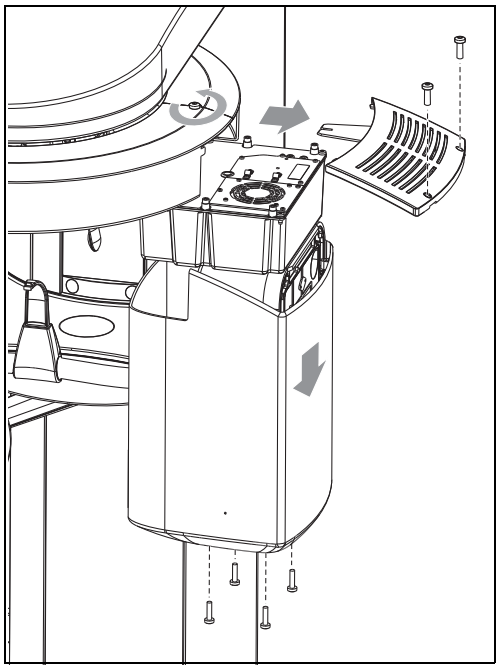
- To reset the pan settings, open the **PAN - RESET ADJUSTMENT** menu **(1.)**.
- To reset the ceph settings, open the **CEPH - RESET ADJUSTMENT** menu **(2.)**.

IMPORTANT

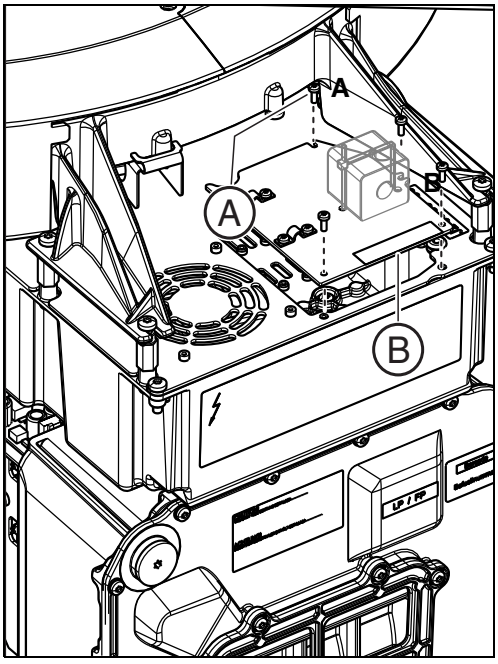
If the adjustment values have been reset, the unit must be readjusted.

12.3Demo mode

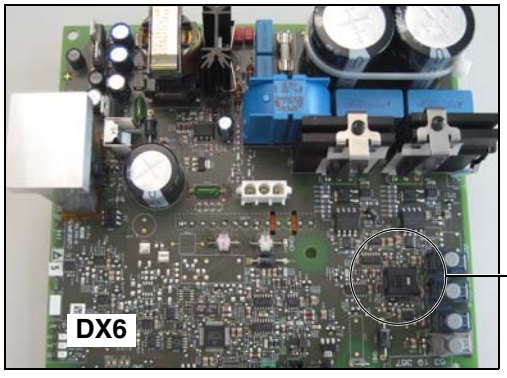
1.



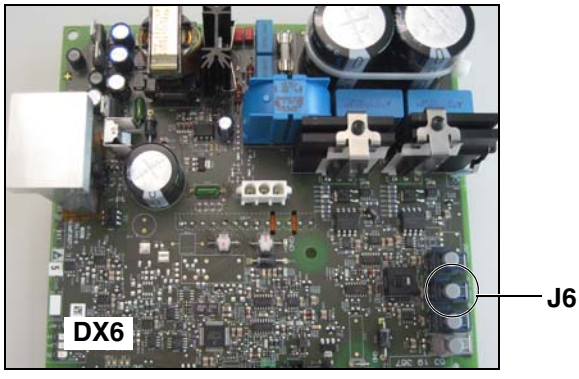
2.



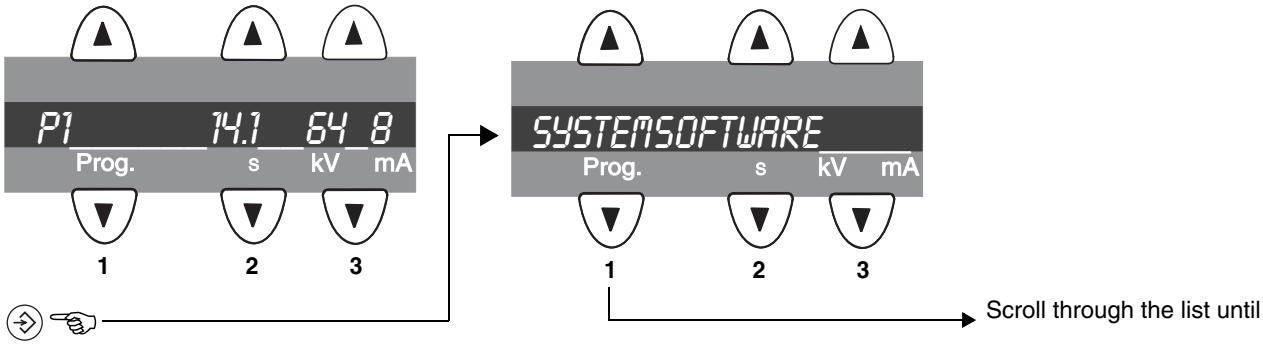
3.



4.



5.



12.3.1 Switching the demo mode ON

When operated in demo mode, the unit must not release any radiation. For this reason, you must take the following safety measures:

1. Remove the cover of the tube assembly.
2. Loosen screws **A** and remove cover plate **B**.
3. Set DIP switch **S2** (DX6) to **position 2**.
4. Pull cable **L5** (X-RAY) off of connector **J6** (DX6).
   Radiation release is now no longer possible.
5. Check the mode using the Info menu.
   Demo mode: ON means that: The demo mode is switched ON
   (Radiation release is not possible)
   Demo mode: OFF means: The demo mode is switched OFF
   (Radiography, X-ray radiation are possible!)

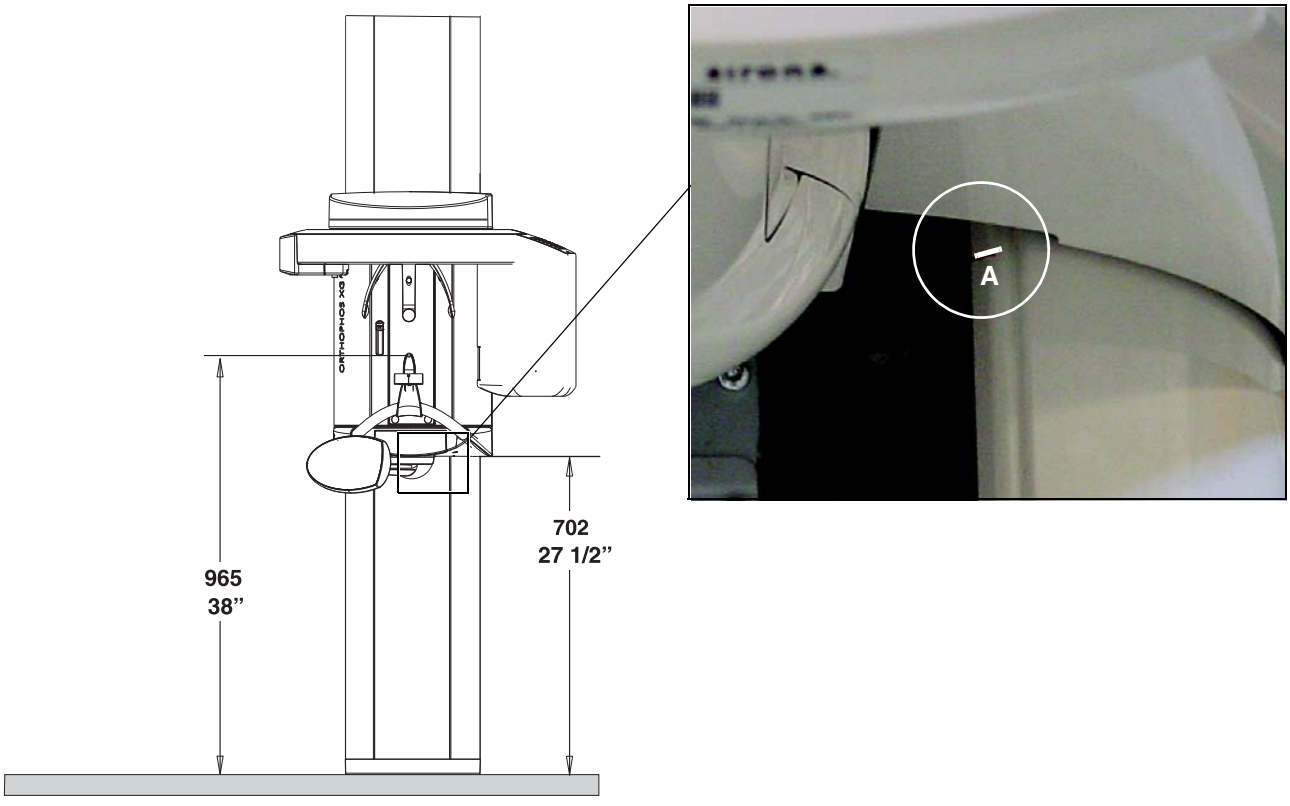
- Reattach cover plate **B** and the tube assembly covers by following the dismantling procedure in reverse order.

12.3.2 Switching the demo mode OFF

1. Remove the cover of the tube assembly.
2. Loosen screws **A** and remove cover plate **B**.
3. Set DIP switch **S2** (DX6) to **position 1**.
4. Connect cable **L5** (X-RAY) to connector **J6** (DX6).
   Radiation release is now once again possible.
5. Check the mode using the Info menu.
   Demo mode: ON means that: The demo mode is switched ON
   (Radiation release is *not* possible)
   Demo mode: OFF means: The demo mode is switched OFF
   (Radiography, X-ray radiation are possible!)

- Reattach cover plate **B** and the tube assembly covers by following the dismantling procedure in reverse order.

1.



12.3.3Important information for repacking and transport

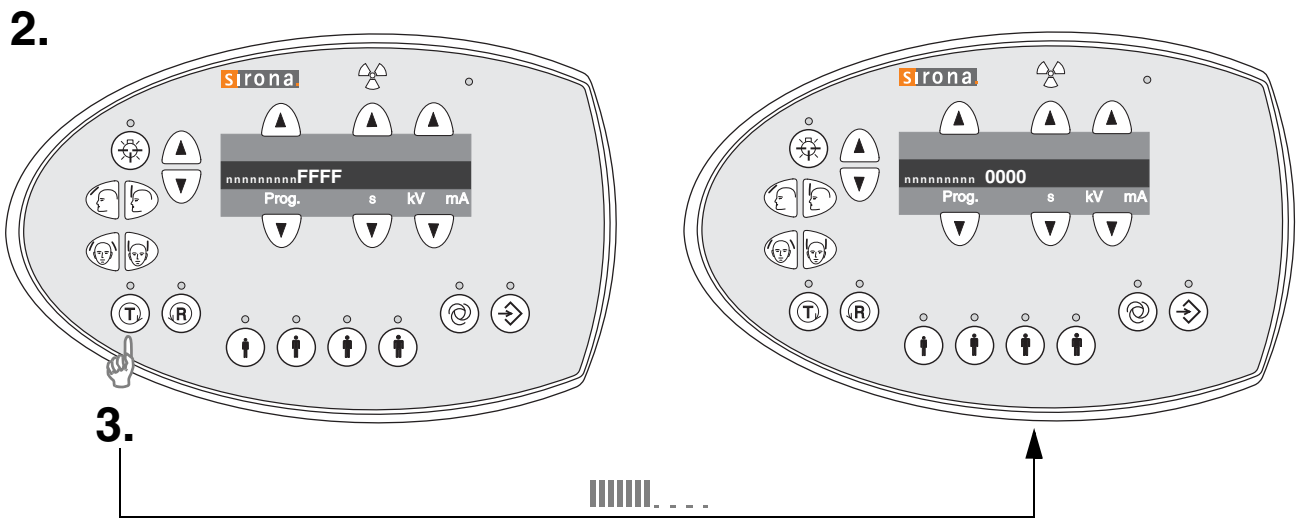
Panoramic X-ray unit

1. Switch the panoramic X-ray unit on and move it to its packing height by pressing the **UP/DOWN** keys on the Multipad.
   - – Bite block height = 965 mm (displayed as height on the Multipad)
   - – Bottom edge of slide cover = 702 mm

IMPORTANT

The bottom edge of the slide cover must be at the same height as the A markings in the column.

- To uninstall and pack the unit, follow the installation procedure in reverse order.



Cephalometer

2. Start service routine S034, test step 6.

Selection field 1 shows an inactive progress indicator.
Selection field 2 shows the characters FFFF.

3. Press the **T key**.

The cephalometer moves to the packing position. The procedure is visualized by an active progress indicator in selection field 1. Once the procedure is completed, the characters **0000** appear in selection field 2.

- Dismantle and pack the cephalometer.
  Packing condition (see section 2.1.2).
- Pack the panoramic X-ray unit.
  Packing condition (see section 2.1.1).

We reserve the right to make any alterations which may be required due to technical improvements.

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