sirona.

The Dental Company

ORTHOPHOS XG 3D / Ceph

Installation Manual

English

Table of contents

1 About these Installation Instructions

1.1 Scope

These installation instructions describe the installation of the ORTHOPHOS XG 3D/Ceph digital volume tomograph. They are intended for use exclusively by trained and authorized distributors and service technicians.

1.2 Other documentation required

In addition to these installation instructions you will require the following documentation:

Wiring diagrams

- ORTHOPHOS XG 3D / 3D^{ready} Wiring References: REF 63 03 494

Installation Instructions

- GALILEOS / ORTHOPHOS XG 3D Software installation: REF 61 42 389
- GALAXIS Operator's Manual: REF 61 23 488
- SIDEXIS XG Digital Radiography Installation Instructions: REF 59 67 356

IMPORTANT
Operation with SIDEXIS 4
When operating the unit with SIDEXIS 4, please refer also to the document *"Supplements for operation with SIDEXIS 4"* (REF 6524776).

Service manual

- ORTHOPHOS XG 3D Service Manual: REF 63 03 510

Current Service Documentation, such as the Service Manual, can be downloaded from the Sirona dealer website.

Sirona Dental Systems GmbH
Installation Manual ORTHOPHOS XG 3D / Ceph

1 About these Installation Instructions
1.1 Scope

63 03 452 D3352
D3352.031.05.08.02   10.2015

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1.3 Structure of the document

1.3.1 Identification of the danger levels

To prevent personal injury and material damage, please observe the warning and safety information provided in the present operating instructions. Such information is highlighted as follows:

⚠ **DANGER**

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

⚠ **WARNING**

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

⚠ **CAUTION**

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

NOTICE

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

IMPORTANT

Application instructions and other important information.

Tip: Information on making work easier.

1.3.2 Formats and symbols used

The formats and symbols used in this document have the following meaning:

✔ Prerequisite 1. First action step 2. Second action step or ➢ Alternative action ↪ Result ➢ Individual action step	Requests you to do something.
See "Formats and symbols used [→ 10]"	Identifies a reference to another text passage and specifies its page number.
• List	Designates a list.
"Command / menu item"	Indicates commands, menu items or quotations.

2 Safety instructions

2.1 Information on the unit

The following symbols are applied to the unit:

Accompanying documents

This symbol is affixed next to the unit rating plate.

Meaning: When operating the unit, observe the operating instructions.

This symbol is affixed on the unit rating plate.

Meaning: The accompanying documents are available on the homepage of Sirona.

Electrostatic discharge (ESD)

Connector pins or sockets bearing ESD warning labels must not be touched or interconnected without ESD protective measures. See also "Electrostatic Discharge" and "Electromagnetic Compatibility" [→ 13].

Identification of single use devices

Prior to each exposure, the hygienic protective sleeves (single use devices) must be fitted.

Single use devices are identified with the symbol shown on the left. They must be disposed of immediately after use. Do not use single use devices more than once.

2.2 Fixed connection

⚠ DANGER
Potentially lethal shock hazard!
Fixed connection!
Installing a mains plug instead of the specified fixed connection infringes international medical regulatory actions and is prohibited. In case of error, this puts patients, users, and other parties seriously at risk.

2.3 Ventilation slots

Never cover the ventilation slots on the unit under any circumstances, since this may obstruct air circulation. This can cause the unit to overheat.

2.4 Condensation

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

2.5 Qualifications of service personnel

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

2.6 Switching the unit on

Due to the risk of injury caused by malfunction, no person may be positioned in the unit when it is switched on.

2.7 Radiation protection

The valid radiation protection regulations and measures must be observed. The statutory radiation protection equipment must be used.

During an exposure, the service engineer should move as far away from the X-ray tube assembly as the coiled cable of the manual release permits.

With the exception of the service engineer, no other persons are allowed to stay in the room during an exposure.

In case of malfunctions, cancel the exposure immediately by letting go of the exposure release button.

2.8 Laser light localizer

LASER KLASSE 1
CLASS 1 LASER PRODUCT
APPAREIL A ´LASER DE CLASSE 1

Date of manufacture:
August 2007

Complies with 21 CFR 1040.10 and 1040.11
except for deviations pursant to
Laser Notice No. 50, dated (June 24, 2007)

Sirona Dental Systems GmbH
Fabrikstr. 31
D-64625 Bensheim, Germany
Manufactured in Bensheim

The system incorporates Class 1 laser products.

A minimum distance of 10 cm (4") is required between the eye and the laser. 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.

2.9 Modifications to the unit

Modifications to this unit which might affect the safety of the system owner, patients or other persons are prohibited by law!

For reasons of product safety, this product may be operated only with original Sirona accessories or third-party accessories expressly approved by Sirona. The user is responsible for any damage resulting from the use of non-approved accessories.

2.10 Transport safety devices

IMPORTANT
The transport safety devices (marked in red) attached to the unit must be removed prior to initial startup.

2.11 Electromagnetic compatibility
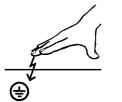
The unit complies with the requirements of standard IEC 60601-1-2.

Medical electrical equipment is subject to special EMC preventive measures. It must be installed and operated as specified in the document "Installation Requirements".

If high-voltage systems, radio link systems or MRI systems are located within 5 m of the unit, please observe the specifications stated in the installation requirements.

Portable and mobile RF communications equipment may interfere with medical electrical equipment. Therefore, the use of mobile wireless phones in medical office or hospital environments must be prohibited.

2.12 Electrostatic discharge
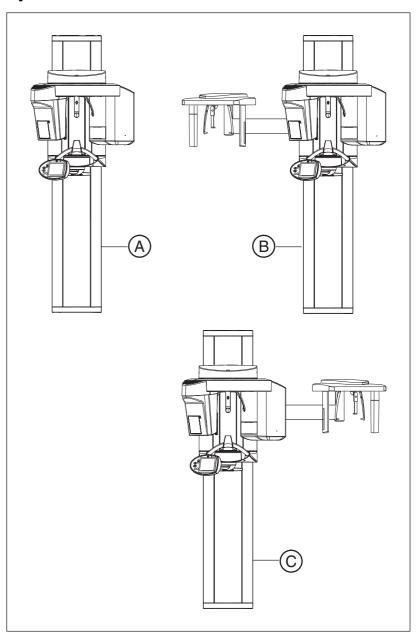
Electrostatic discharge (abbreviated: ESD – **E**lectro**S**tatic **D**ischarge)

Electrostatic discharge from people can damage electronic components when the components are touched.

Touch a ground point to discharge static electricity before touching any boards.

3 Unit description

3.1 System versions

A	ORTHOPHOS XG 3D, digital volume tomograph
B	ORTHOPHOS XG 3D/Ceph, digital volume tomograph with cephalometer, left-arm version
C	ORTHOPHOS XG 3D/Ceph, digital volume tomograph with cephalometer, right-arm version

3.2 Dimensions/Space requirements

3.2.1 Front view
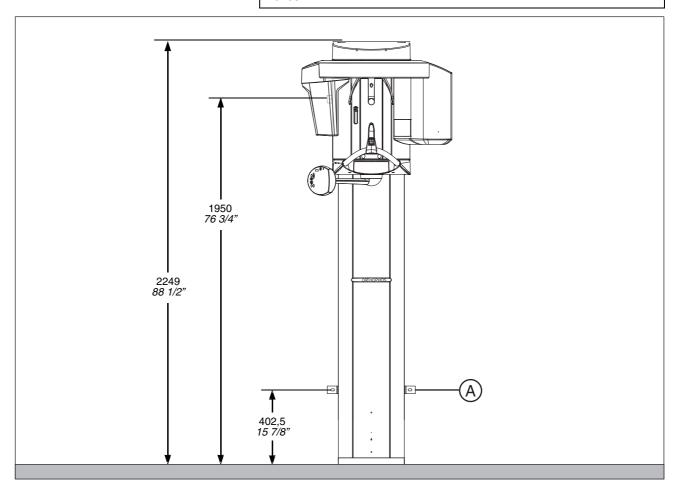
NOTICE
Unit can travel to the ceiling.
The minimum ceiling height should be 2.10 m (82 3/4"). If the ceiling height is lower than 2.27 m (89 1/2") (max. travel height of 2.25 m (88 1/2")), the travel height of the unit must be adjusted or limited prior to startup via service routine S018.2.

IMPORTANT
The measurements on the drawings are specified in both mm and inches.

1950
76 3/4"

2249
88 1/2"

402,5
15 7/8"

Ⓐ
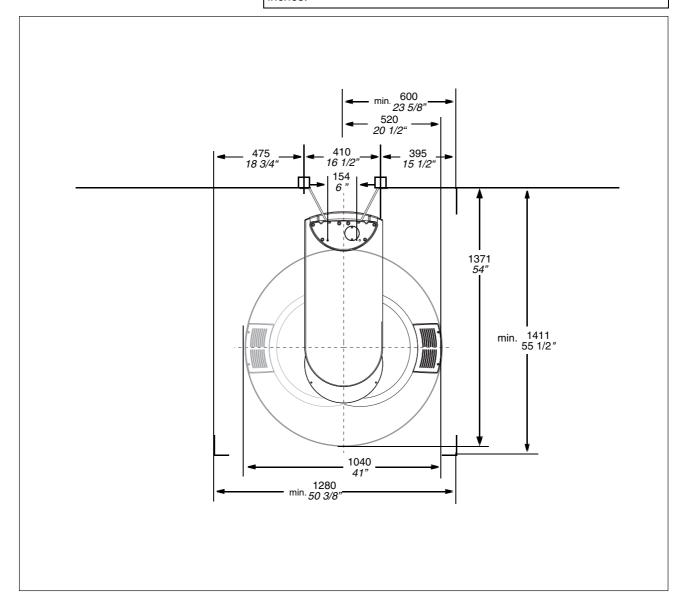
A	Alternative fastening if it is not possible to screw the unit onto the floor. Order bracket separately.

These dimensions apply to installation of the unit without the floor stand. Installation with the floor stand results in an additional 30 mm (1 1/4") increase of all height dimensions (see also separate Installation Requirements document).

3.2.2   Top view

IMPORTANT
The measurements on the drawings are specified in both mm and inches.
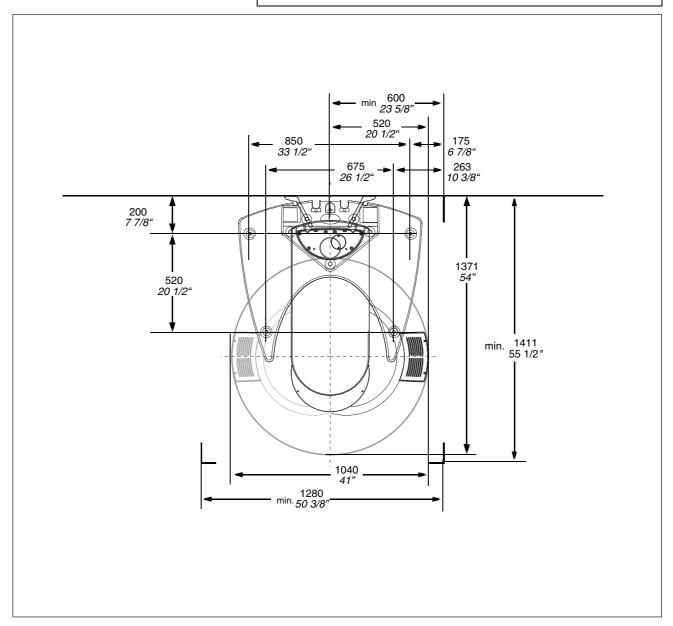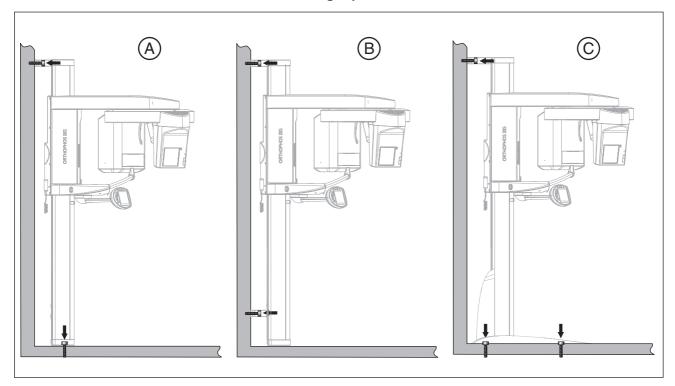
3.2.3 Top view of floor stand

IMPORTANT

The measurements on the drawings are specified in both mm and inches.

3.3   Mounting options

A	**Standard version**
	Wall-mounted installation with 1 wall holder (short) and floor fastening if both wall and floor installation are possible on-site (see section "Standard version [→ 36]").
B	**Option 1**
	Wall-mounted installation with 2 wall holders (short) (and no floor fastening) if only wall installation is possible on-site (see section ".Option 1: with second wall holder [→ 38]".
C	**Option 2**
	Installation using a floor stand and 1 wall holder (long) if it is possible to mount the unit on the wall and on the floor on-site and x-rays are often taken while the patient is seated on a chair → better positioning of seated patient (see section "Option 2: Floor stand installation [→ 39]".
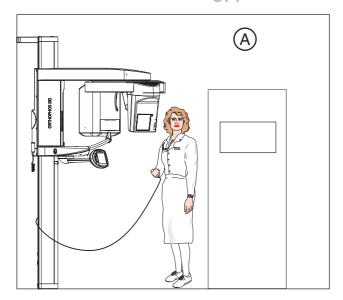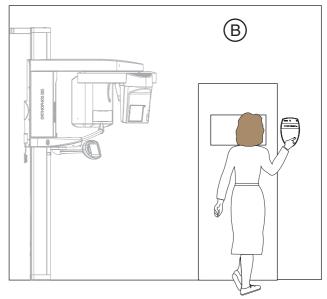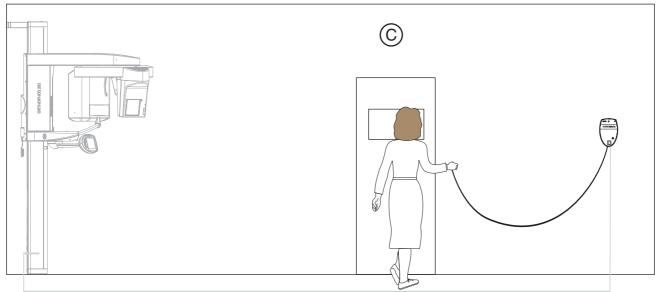
3.4 Installation versions

A	**Standard installation**
	Unit *without remote control with release button on the coiled cable* in the treatment room.
B	**Installation version 1**
	Unit *with remote control* outside the X-ray room *without release button on the coiled cable.* (see section Installation version 1: Without coiled cable [→ 68]).
C	**Installation version 2**
	Unit *with remote control* outside the X-ray room *with release button on the coiled cable.* (see section Installation version 2: With spiral cable [→ 69]).

4 Delivery and transport
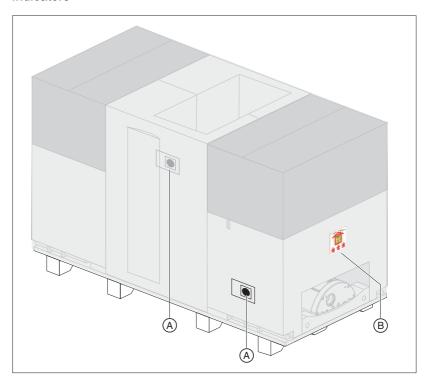
4.1 Delivery

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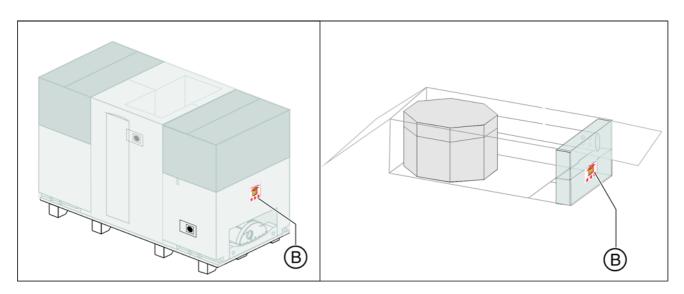
Indicators

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

- White indicator: No shock

- Red indicator: Shock

Tilt indicators (**B**) are attached to the panoramic unit and X-ray detector packaging to indicate whether the units were improperly transported.

- 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. Ensure that the driver from the transport company confirms this on the delivery slip. Fax the delivery slip to the Sirona Customer Service Center (CSC).

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

Disposal of packaging materials
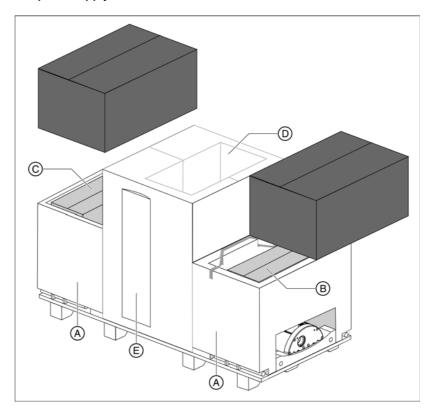
Return the packaging materials to Sirona or dispose of them in compliance with the legal regulations applicable in your country.

4.1.1 ORTHOPHOS XG 3D

Dimensions and weight

Dimensions		Length	Width	Height
	in cm	199	69	122
	in inches	78 3/4	27 1/8	48
Weight	in kg	183		
	in lbs	404		
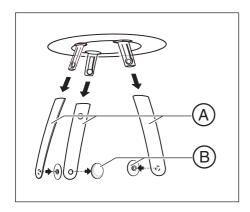
Scope of supply
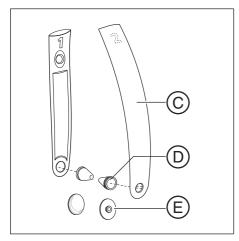
The packaging of the X-ray unit is designed both for protection during transport and as an installation aid. Therefore, please remove only the surrounding packaging prior to installation. Please leave the Styrofoam packaging and transport pallet attached to the unit. Save the two lateral Styrofoam packaging parts for later use as an installation aid (**A**).

A	Installation aid (please save the two lateral Styrofoam packaging parts)
Scope of supply:	
B	• Software 2D / 3D • Accessories and hygienic protective sleeves [→ 27] • Installation material 1+2 [→ 36] • Safety strap • Needle phantom OP XG, adjustment phantom ceph OP XG 3D, constancy test phantom OP XG 3D, contrast element OP XG • Geometry phantom • Pan sensor, ceph sensor (optional)
C	• Complete 3D module • 3D cover attachment set: top 3D module, bottom 3D module
D	Remote control (optional)
E	Profile cover

4.1.1.1   **Accessories**
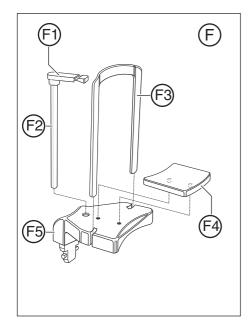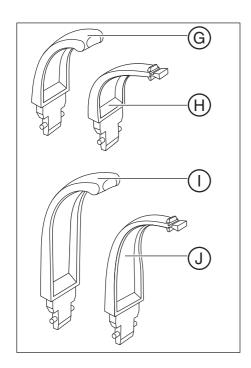
A	Forehead support and	(1x)
	Temple support	(2x)
B	Buttons for forehead and temple support	(3x)
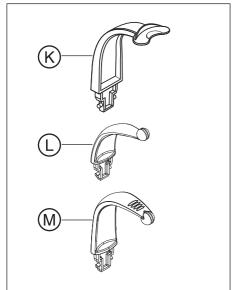
C	TMJ supports 1 and	(1x)
	TMJ support 2	(1x)
D	Ear holders	(4x)
E	Buttons for TMJ supports	(2x)
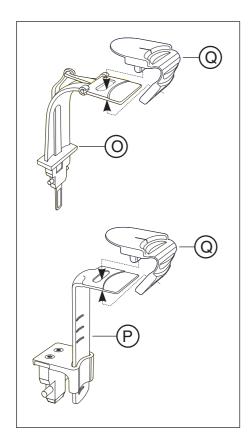
F	Chin rest accessories		1x
	F1	Bite block	(5x)
	F2	Bite block rod	(1x)
	F3	Bar	(1x)
	F4	Chin pad	(1x)
	F5	Chin rest	(1x)

G	Contact segment blue	(1x)
H	Bite block part blue	(1x)
I	Contact segment standard yellow	(1x)
J	Bite block part standard yellow	(1x)
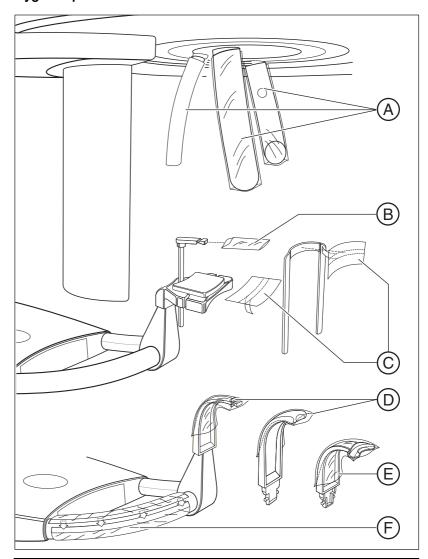
K	Rigid bite block	(1x)
L	Bite block plate holder OK (upper jaw)	(1x)
M	Bite block plate holder UK (lower jaw)	(1x)

O	Occlusal bite block	(1x)
P	Universal bite block	(1x)
Q	Bite block foam	(100x)

4.1.1.2 Hygienic protection
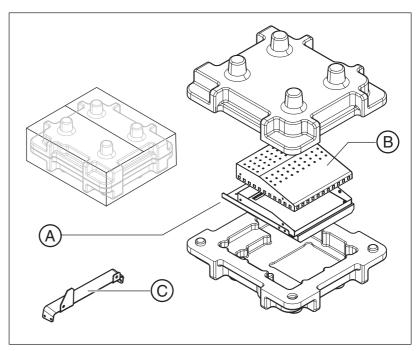
A	Forehead and temple supports	(500x)
B	Bite block	(500x)
C	Chin rest and bar	(100x)
D	Bite block parts and contact segments	(500x)
E	Rigid bite block	500x
F	XG hygienic handle	(100x)

3D module

Dimensions and weight

Dimensions		Length	Width	Height
	in cm	40	36	23
	in inches	15 3/4	14 1/8	9
Weight	in kg	6		
	in lbs	13 1/4		

Scope of supply

A	3D module
B	**NOTICE! The cover plate is only attached loosely.**

4.1.2 Ceph arm
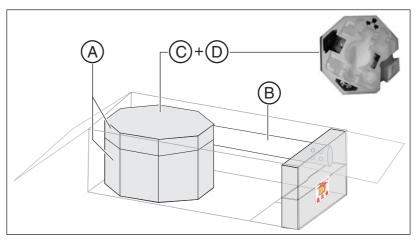
Dimensions and weight

Dimensions	(cm)	175 x 78 x 73
	(inches)	68 7/8 x 30 3/4 x 28 3/4
Weight	(kg)	40
	(lbs)	88

Scope of supply

IMPORTANT
The right-handed ceph arm (only available for ORTHOPHOS XG 3D/ Ceph) is packed laterally reversed.
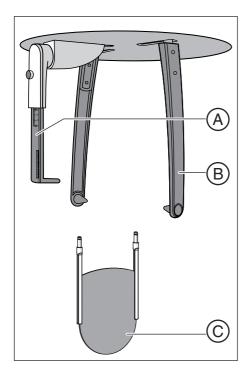
A	Styrofoam packaging
Scope of supply:	
B	Ceph arm
C	Accessories [→ 30] and hygienic protective sleeves [→ 30]
D	Installation material [→ 81]
E	Ceph sensor

NOTICE
Risk of damage to the cephalometer
The cephalometer inside the styrofoam part (**A**) is a sensitive unit and is at risk of damage when mounting the ceph arm. Remove the styrofoam packaging material only following installation.

4.1.2.1 Accessories

A	Nose support	(1x)
B	Ear plug holders with ear plug fixation	(2x)
C	Carpus support plate	(1x)
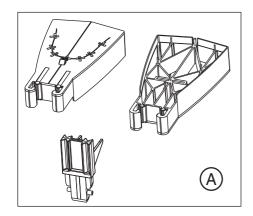
4.1.2.2 Hygienic protection
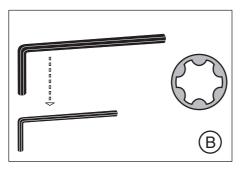
A	Hygienic protective sleeves for nose support	(100x)
B	Hygienic caps for ear plugs, sterilizable	(4x)

4.1.3 Adjustment sets

2D adjustment: Panoramic
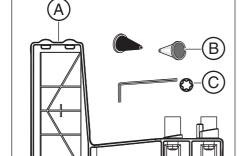
A	OP XG needle phantom
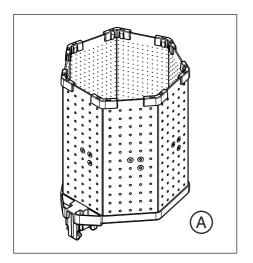
B	Set of Torx offset screwdrivers
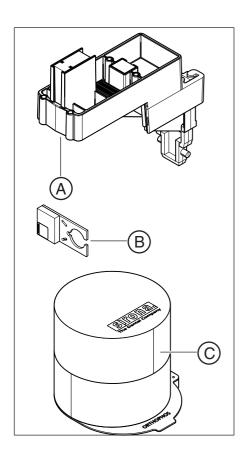
2D adjustment: Cephalometer

A	Adjustment phantom Ceph OP XG 3D	
B	Adjusting caps	(1x black, 1x transparent)
C	Torx offset screwdriver	

3D adjustment/calibration

A	Geometry phantom

Acceptance and constancy test

A	OP XG 3D constancy test phantom; worldwide, Germany up to 06.2015
B	OP XG contrast element
C	OP XG 3D constancy test phantom; Germany from 07.2015

4.2 Transport to the installation site

4.2.1 ORTHOPHOS

NOTICE
Possible transport damage
Leave the packaging attached to the unit during the entire transport to the installation site.
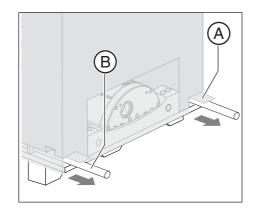
4.2.1.1 Transport with packaging attached (normal case)

NOTICE
Unit can tilt
In its transport position, the center of gravity of the unit is very high.
➢ Take care that the unit does not tip over during transport.
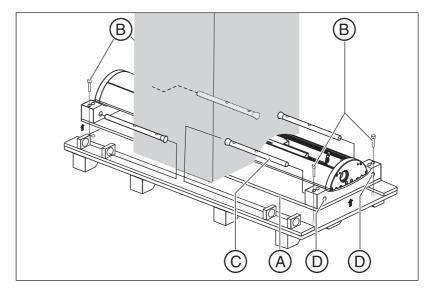
1. Open the surrounding packaging using the straps provided (A).
2. Pull out the carrying handles (B).
3. Transport the unit to the installation site.

4.2.1.2 Transport without pallet (exception)

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

NOTICE
Possible transport damage
Leave the center styrofoam packaging attached to the unit for protection.
If this is not possible, secure the position of the tube assembly prior to further transport.
➢ Secure the position of the tube assembly using the strap provided (see label on the styrofoam packaging).
➢ Tighten the strap only gently. Do not tension the strap.
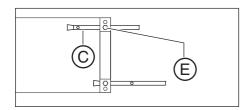
1. Remove the surrounding packaging.
2. Take the remote control (if supplied) out of the center styrofoam packaging and store everything in a safe place.
3. Remove the two lateral styrofoam packaging parts.
4. Loosen the four screws (B).
5. Pull the carrying handles (C) out of their holders and insert them through the drillings (D) of the wooden support (A) from the inside.
6. Insert screws (B) through drillings (E) and into the drillings of the carrying handles to attach them firmly. The handles can be made short or long.
   The carrying handles have rims which prevent them from slipping out of the holes.

4.2.2 3D module

NOTICE
Possible transport damage
The 3D module is a sensitive instrument. Only remove the packaging immediately prior to installing the 3D module on the unit.
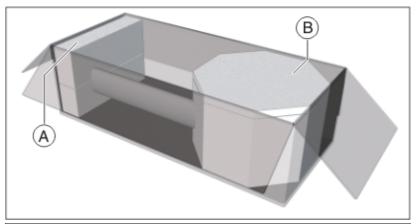
4.2.3 Ceph arm

NOTICE
Risk of damage to the cephalometer
The cephalometer inside the styrofoam part (**B**) is a sensitive unit and is at risk of damage when mounting the ceph arm. Remove the styrofoam packaging material only following installation.

IMPORTANT
The right-arm ceph (only available for ORTHOPHOS XG 3D / XG 3D^{ready}) is packed in a laterally reversed way.
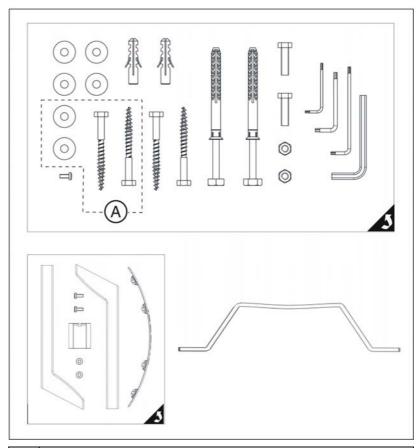
1. Open the cardboard case and remove the styrofoam part (**B**).
2. Lift the ceph arm out of the cardboard case and transport it to the installation site.

5 Installation: X-ray unit

5.1 Installation material

5.1.1 Standard version
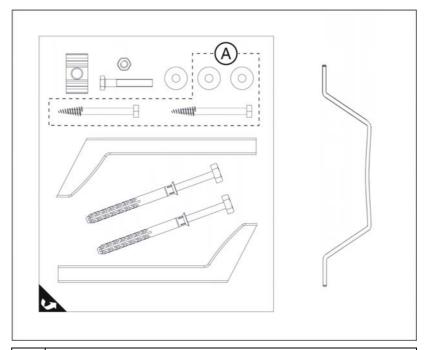
A	For installation on wooden stud frame structures

Wall/floor mounting

Hexagon wood screw 8x80 (5/16x3")	4 pc.
Plastic wall plug S10	2 pc.
Screw M8x30	2 pc.
Washer Ø 8.4	6 pc.
M8 nut	2 pc.
Screw M4x10	3 pc.
Washer Ø 4.3	2 pc.
Mounting kit Ø 10 SXR	2 pc.
TORX offset screwdrivers TX10, TX20, TX25	1 pc. each
Allen wrench (size 6)	1 pc.
Wall holder (long):	1 pc.
Wall holder cover (long)	2 pc.
Intermediate piece	1 pc.
Release button holder	1 pc.

5.1.2 Option 1: with second wall holder
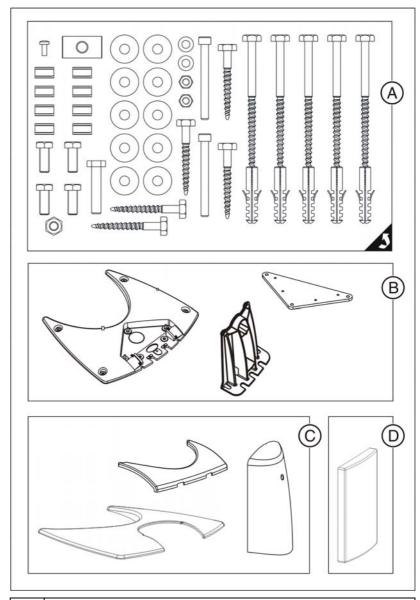
A	for installation on wooden stud frame structures

Additional wall holder (for bottom wall mounting)

Wall holder (long):	1 pc.
Hexagon wood screw 8x80 (5/16x3")	2 pc.
Washer Ø 8.4	3 pc.
Hexagon head screw M8x50	1 pc.
M8 nut	1 pc.
Mounting kit Ø 10 SXR	2 pc.
Profile clamp	1 pc.
Wall holder cover (long)	2 pc.

5.1.3 Option 2: Floor stand installation

A	Mounting hardware
B	Floor stand
C	Floor stand covers
D	Slide cover
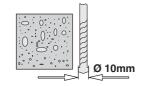
Floor stand installation

Floor stand	1 pc.
Floor stand cover	1 pc.
Wood screw 10x160 (3/8x6")	5 pc.
Plastic wall plug S12	5 pc.
Screw M8x80	2 pc.
Washer Ø 8.4	2 pc.
M8 nut	2 pc.
Screw M10x50	1 pc.
Profile clamp	1 pc.
Screw M5x12	1 pc.
Washer Ø 10.5	10 pc.
M10 nut	1 pc.
Spring steel clamp	8 pc.
Screw M10x25	4 pc.
Wood screw M10x80 (3/8x3)	5 pc.
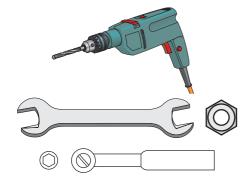
5.2 Tools, materials, and measurement tools you will need

5.2.1 Tools and materials
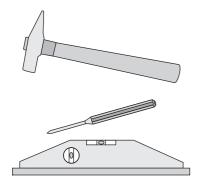
● Masonry drill bit 10mm (3/8")

Ø 10mm

● Drill or drill hammer, depending on the ground

● Open-end wrench, 13 mm A/F

● Socket wrench
  – Wrench insert 13

● Hammer

● Center punch

● Spirit level

● Adhesive tape
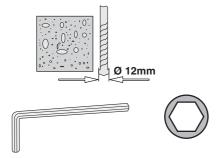
Included in the scope of supply:
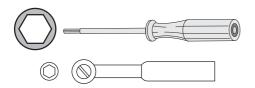
● Offset screwdriver, Torx
  – TX10
  – TX20
  – TX25

Additional requirements for installation with floor stand:

- Masonry drill bit 12mm (1/2")
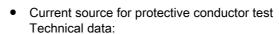
- Allen key 2 mm

- Socket wrench and extension
  Wrench insert 17

5.2.2 Measurement tools

- Multimeter or ammeter (battery-operated)

- Test unit for measuring the leakage current of the unit:

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.

- Current source for protective conductor test
  Technical data:

  – No-load voltage min. 4 V - max. 24 V

  – Short-circuit current min. 0.2 A

5.3 Wall mounting (standard and option 1)
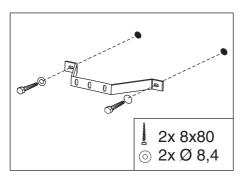
NOTICE
Reduced image quality
Note the wall and ground conditions. If a carpet is present at the unit installation site, it must be removed. Each wall plug must support a tensile force of 700 N. The wall construction must be suitable for the installation of the unit.

In case of mounting on weight-bearing wood structures
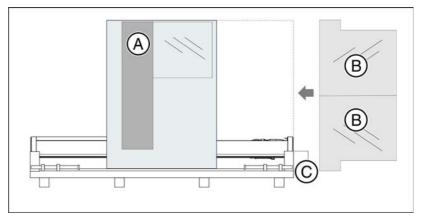
2x 8x80
2x Ø 8,4

Use the enclosed wood screws and washers from the mounting kit for mounting the unit on weight-bearing wood structures.

Setting up the unit

NOTICE
Possible transport damage
Leave the center styrofoam packaging attached to the unit for protection.

1. Remove the profile cover (**A**).
2. 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.
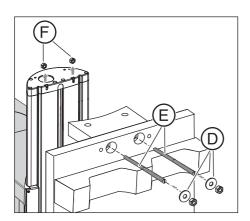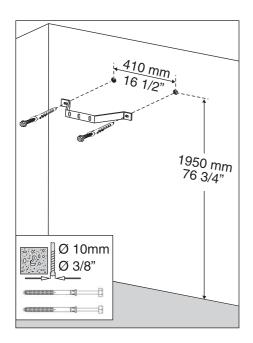
3. Set up the unit by tilting the transport pallet upward.
   Tip: If you have transported the unit on the wooden support without a pallet, set the unit upright with the wooden support. You can also use the lateral styrofoam packaging as a support with this variation.

4. Loosen the nuts with washers (**D**) on both sides of the pallet (or wooden support).

5. Take off the pallet (or wooden support).

6. Remove the threaded bolts (**E**).
   Tip: Remove the lower bolts first, then the upper bolts.
   The nuts (**F**) 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.

Mounting the first (upper) wall holder (standard)

➤ Mount the upper wall holder.

Mounting the second (lower) wall holder (option 1)

➤ Mount the lower wall holder.

Mounting the unit on the wall holder (standard and option 1)
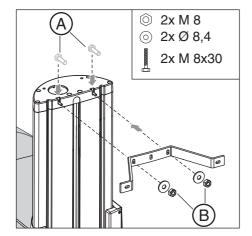
NOTICE
Possible transport damage
Leave the middle styrofoam packaging on the unit throughout the entire installation. If, due to on-site conditions, it is necessary to remove the styrofoam packaging at this point, move the unit *carefully* by grasping the bite block bar and the stand.
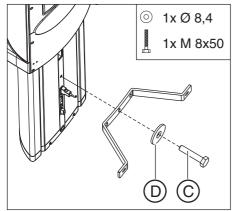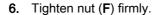
1. Move the unit into its installation position against the wall. Hold the unit laterally at the styrofoam packaging to do this.
2. Place screws (**A**) in the grooves.
3. Screw the unit firmly onto the wall holder using nuts and washers (**B**). The wall holder must be flush with the upper edge of the unit.
   ↳ The unit is now mounted on the upper wall holder.

◎ 2x M 8
◉ 2x Ø 8,4
▐ 2x M 8x30
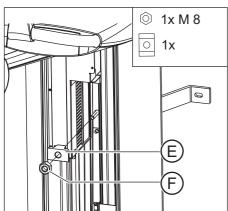
4. Insert screw (**C**) through washer (**D**) and then through the wall holder and into the stand from behind.

◉ 1x Ø 8,4
▐ 1x M 8x50
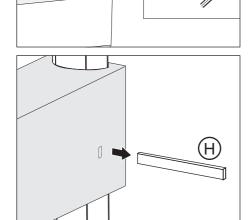
5. Fit profile clamp (**E**) onto screw (**C**) from the other (front) side and screw nut (**F**) onto the screw.
6. Tighten nut (**F**) firmly.

◎ 1x M 8
▢ 1x
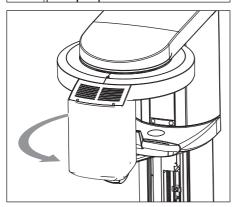
Leveling the unit and fastening it to the floor (standard and option 1)
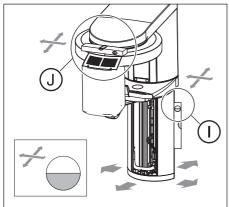
1. Remove the transport safety device (**G**).
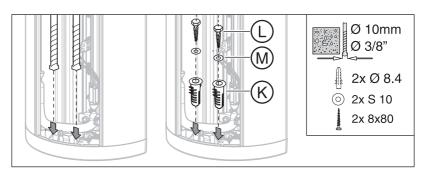
2. Pull wooden board (**H**) out of the styrofoam packaging and remove all styrofoam packaging.
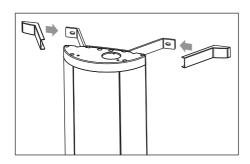
3. Rotate the X-ray tube assembly counterclockwise to the front side of the unit.

4. Level the unit in both directions with the help of the spirit level by adjusting the unit base:
   Align the stand by placing the spirit level on the side and rear of the stand (**I**).
   Align the ring in both directions using the spirit level by placing the spirit level on the ring (**J**).

Ø 10mm
Ø 3/8"

2x Ø 8.4

2x S 10

2x 8x80

5. Drill through the recesses of the stand into the floor.

6. Insert plugs (**K**) and check the alignment of the stand again.

7. Screw the stand to the floor with the two wood screws (**L**) and washers (**M**).

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

5.4 Installing the floor stand (option 2)

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

| NOTICE |
| --- |
| **Reduced image quality** |
| Note the wall and ground conditions. If a carpet is present at the unit installation site, it must be removed.
 Each wall plug must support a tensile force of 700 N.
 The wall construction must be suitable for the installation of the unit. |
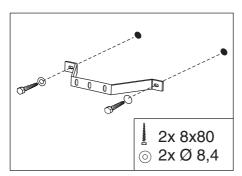
IMPORTANT
The unit must remain on the pallet until the floor stand has been fully installed. Only then may the unit be installed. For enhanced representation, some of the following drawings are shown in the standing state.

IMPORTANT
The floor stand version is 30 mm (1 3/16") higher than the standard version.

**In case of mounting on weight-bearing wood structures**

2x 8x80
2x Ø 8,4

Use the enclosed wood screws and washers from the mounting kit for mounting the unit on weight-bearing wood structures.
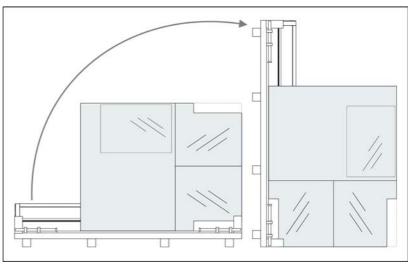
Installing the floor stand

NOTICE
Possible transport damage
Leave the center styrofoam packaging attached to the unit for protection.
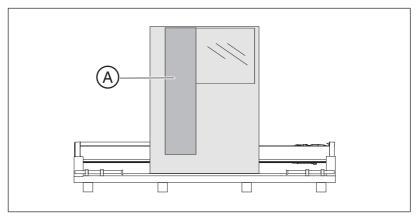
NOTICE
Sensors can be damaged
Make sure that the styrofoam packaging no longer contains any sensors before using it as an installation aid.
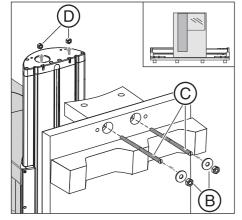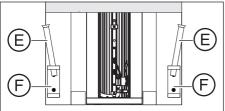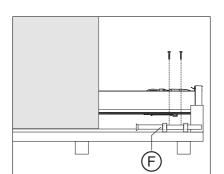
1. Remove the surrounding packaging, the two lateral styrofoam parts and the profile cover (**A**).

2. Loosen the nuts with washers (**B**) on both sides of the pallet (or wooden support).

3. Take off the pallet (or wooden support).

4. Remove the threaded bolts (**C**).
   The nuts (**D**) on the unit may remain inside the unit when the threaded rods are removed. Remove the nuts.
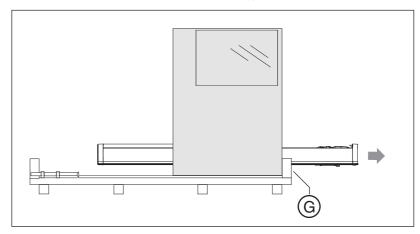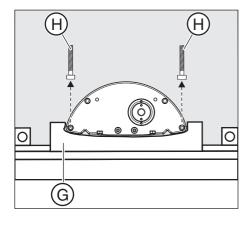
5. Remove the carrying handles (**E**) from the holders (**F**) on the underside of the pallet.
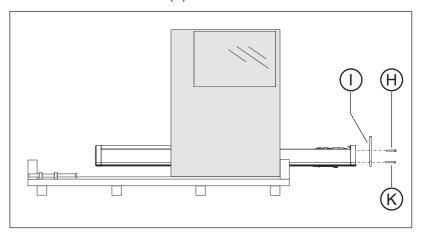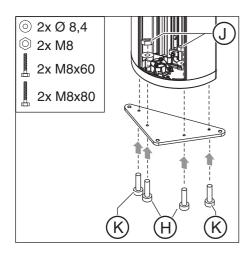
6. Loosen the screws and remove the holder (**F**).

7. Remove the cables from the stand and pull them out toward the rear.
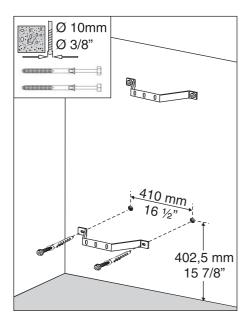
8. Carefully push the unit toward the base just far enough so that the center styrofoam part nudges the lower supporting block (**G**).
    NOTICE! Do not damage the interfaces or cables. Make sure that the interfaces and cables do not bear on the supporting block (**G**) and are not damaged when you push the unit.

9. Remove the two screws (**H**) from the bottom of the stand.
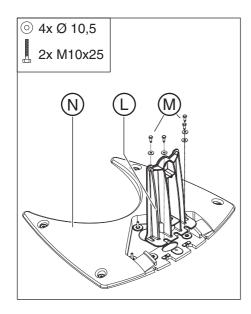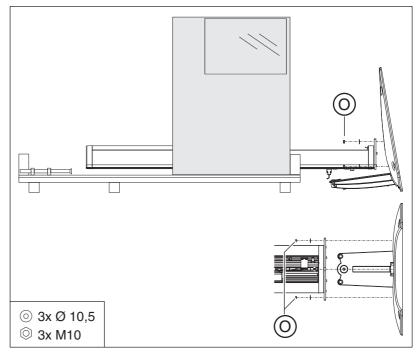
IMPORTANT

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

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10. Screw the adjustment plate (**I**) firmly onto the stand.
    Use the M8x60 screws (**H**) for the front two holes. Secure the two screws with the accompanying nuts and washers (**J**) (included in the installation material). Use two new M8x80 screws (**K**) for the rear holes.

2x Ø 8,4
2x M8
2x M8x60
2x M8x80

⊚ 4x Ø 10,5

▯ 2x M10x25
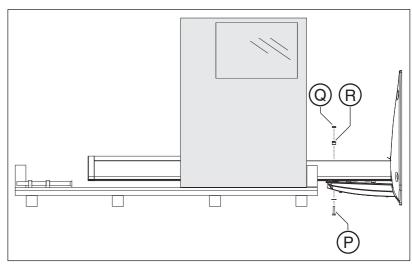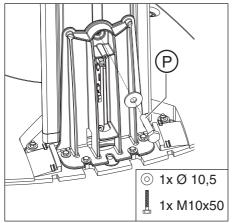
11. Screw the support (**L**) firmly onto the base plate (**N**) using the 4 screws and washers (**M**).

⊚ 3x Ø 10,5

⊚ 3x M10
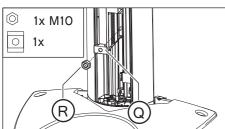
12. **NOTICE!** Do not damage the cables. Ensure that the cables are correctly routed through the support and are not crushed.
Position the base plate (**N**) on the adjustment plate with the set screws (incl. mounted support (**L**)) and affix the base plate loosely with the 3 adjusting nuts and washers (**O**).
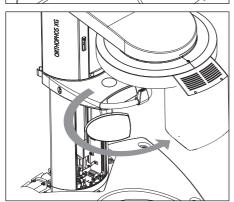
Setting up and leveling the unit

1. Insert screw (**P**) through the washer and then from the rear through the support and into the stand.

⊙ 1x Ø 10,5

▯ 1x M10x50

◯ 1x M10

▢ 1x
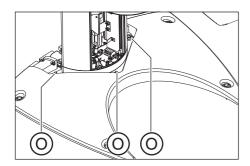
2. Fit profile clamp (**Q**) onto screw (**P**) from the other (front) side and screw nut (**R**) onto screw (**P**).
3. Tighten adjusting nuts (**O**) and screw (**P**) firmly.
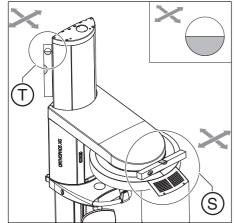
IMPORTANT
Observe the required movement range of the unit during installation.

4. Set up the unit including the center styrofoam part.
5. Remove the styrofoam packaging and rotate the X-ray tube assembly counterclockwise to the front side of the unit.

6. Loosen screws (**P**) and adjusting nuts (**O**) again slightly.
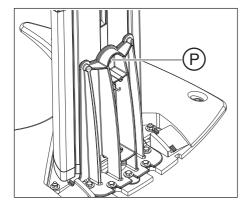
7. Level the unit in both directions with the help of the spirit level by adjusting adjusting nuts (**O**):
   Align the stand by placing the spirit level on the side and rear of stand (**T**).
   Align the ring in both directions by placing the spirit level on ring (**S**).

IMPORTANT

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

8. Retighten screw (**P**) firmly.

Attaching to the wall and floor

IMPORTANT
Use the long wall holder for the floor stand installation [→ 39].
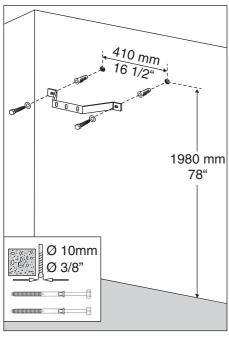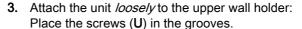
1. Mount the upper wall holder.

IMPORTANT
Observe the required movement range of the unit during installation.

2. Slide the unit with the assembled floor stand up to the wall.
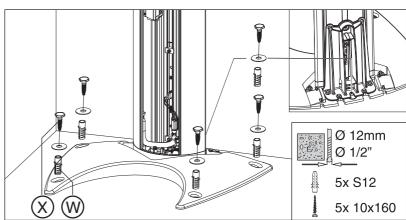
3. Attach the unit *loosely* to the upper wall holder:
   Place the screws (**U**) in the grooves.
   Screw the unit onto the wall holder *loosely* using nuts and washers (**V**).
   NOTICE! Do not tighten the screws firmly.
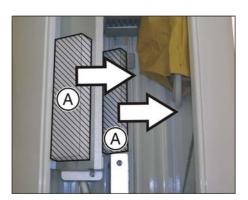
4. Level the unit again in both directions with the help of the spirit level and tighten the screws on the wall holder firmly.
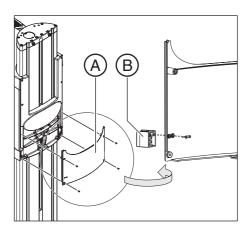
5. Drill the fastening holes in the floor through the holes in the base plate. Remove the drilling dust with a vacuum cleaner.

6. Slide the wall plugs (**W**) through the base plate and into the drillings.

7. Use the five screws and washers (**X**) to screw the base plate to the floor.

5.5 Remove the transport safety device

1. Remove transport safety devices (**A**) on board DX32 before starting up the unit.
2. Keep transport safety devices (**A**) in a safe place. You will need them should the unit be moved again.

5.6 Installing the release button holder

IMPORTANT
Only attach the holder to the unit if you are *not using remote control*. If you are using remote control, the holder is attached to the remote control.
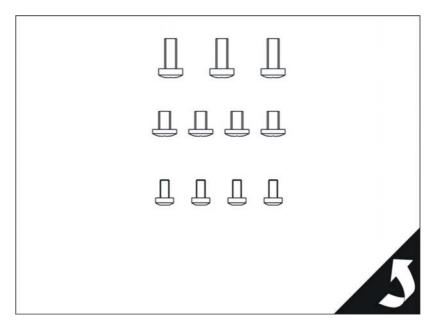
1. Unscrew and remove the cover (**A**).
2. Attach the holder (**B**).
3. Screw the cover (**A**) onto the unit.
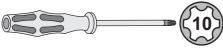
6 Installation: Combisensor

The combisensor consists of the 3D module and a 2D sensor (panoramic).
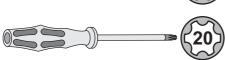
6.1 Installation material

6.2 Required tools

- Screwdriver, Torx® / T10

- Screwdriver, Torx®/TX20

6.3 Installing the 3D module

NOTICE
Damage to the flat panel
The flat panel of the 3D module is a sensitive component. Be careful not to touch the flat panel during assembly.
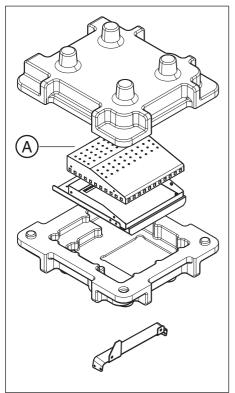
NOTICE
Damage to the rotation unit
The 3D module is rotated via a motor drive. The gearing of the 3D module can be damaged if it is turned by hand.

1. Carefully remove the elements of the 3D module from the packaging.
2. **NOTICE!** The EMC cover is only attached to the 3D module on delivery. Remove the EMC cover (**A**) from the 3D module.
3. Switch the unit on [→ 100].
4. Acknowledge the error messages that appear using the R key on the control panel.
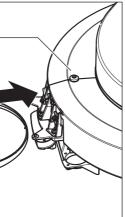
5. Touch the 3D symbol at the top of the touchscreen.
   ⮎ The exposure program VOL1 is displayed.
6. Press the R key.
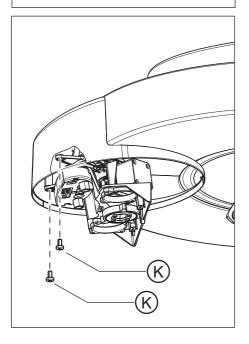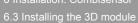
↳ The diaphragm and the sensor move into the starting position for volume exposures.

7. Switch the unit off again.
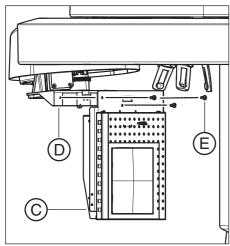
8. Attach the "top 3D module" cover:
   Loosen the screw (**B**) (approx. 2-3 turns).
   Thread the ring of the "top 3D module" cover over the rotation unit and slide the cover under the ring cover.
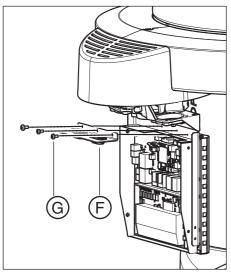
9. Screw the cover tight to the rotation unit with the two screws (**K**) (included with the installation material).
   Re-tighten screw **B**.

10. Hook the 3D module (**C**) onto the rotation unit (**D**) and secure it immediately with the 3 screws (**E**).

11. Attach the sheet metal bracket (**F**) (incl. cables and strain reliefs) to the 3D module using the 3 screws (**G**).
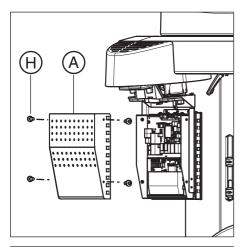
12. Plug the cables into the sockets of board **DX88** according to their color coding:
X212 = white
X211 = black
X210 = red
X209 = blue
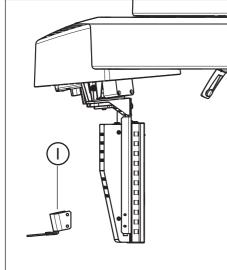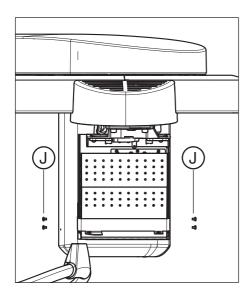
13. Reattach the EMC cover (**A**) and fasten it with the 4 screws (**H**).

14. Screw the retaining bracket (**I**) onto the 3D module with the 4 screws (**J**).
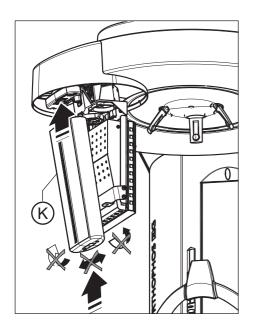
6.4 Inserting the 2D sensor

NOTICE
Damage to the rotation unit
Insert the 2D sensor carefully into the sensor holder from below and avoid any unnecessary leverage.
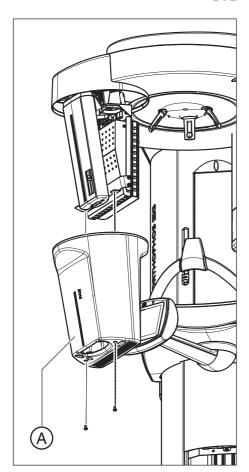
➤ **NOTICE!** The lock must engage audibly.
Insert the 2D sensor (**K**) (included in the ORTHOPHOS XG 3D/Ceph scope of supply) into the sensor holder of the 3D module.

6.5 Final installation work

➤ Attach the "bottom 3D module" covers (**A**).
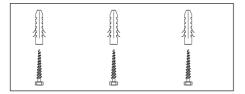
The installation of the combisensor is now complete.

7 Installation: Remote control

IMPORTANT
For operation with a remote control, the unit must be configured accordingly. Check the configuration after startup via the service routine S017: Test step 6.
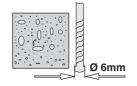
7.1 Installation material

Wood screw 4x30 (3/16x1 1/4)	3 pc.
Plastic wall plug S6	3 pc.
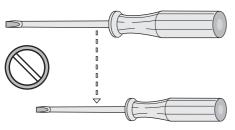
7.2 Required tools
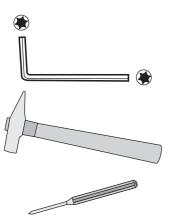
- Masonry drill bit 6 mm (1/4")

- Drill or drill hammer, depending on the ground

- Slot screwdriver

- Torx offset screwdriver TX20

- Hammer
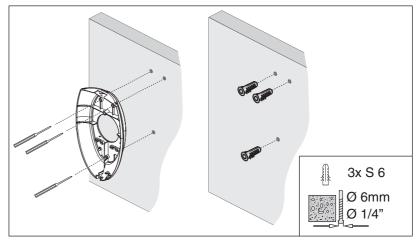
- Center punch/awl

7.3 Installation

The cable for the remote control can be installed on the surface or beneath the surface (concealed). For *concealed installation*, the control cable is drawn into the chassis from the rear. For *surface installation*, the control cable is drawn into the chassis from underneath.

Preparations
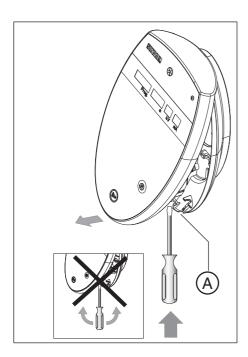
1. Press carefully into the groove (A) from below with the slotted screwdriver (do not lever).
2. Remove the lid from the chassis.

3x S 6

Ø 6mm
Ø 1/4"
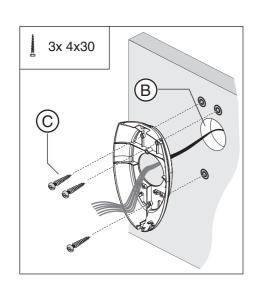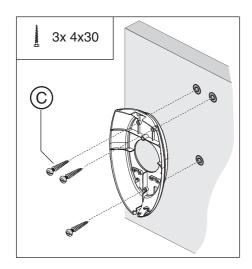
3. Hold the chassis against the wall in its mounting position and mark the positions for the three drill holes with an awl.
4. Drill the holes and insert the wall anchors.

Concealed installation

1. Feed the control cable from the wall into the chassis through the rear opening (B). The cable length between the wall outlet and the stripped wire ends should be 250 mm (10").
2. Fasten the chassis firmly to the wall with the three screws (C).

3x 4x30
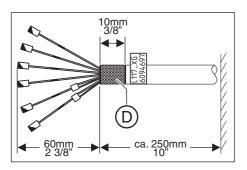
surface installation

➢ Fasten the chassis firmly to the wall with the three screws (C).

3x 4x30
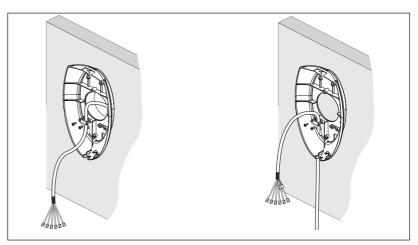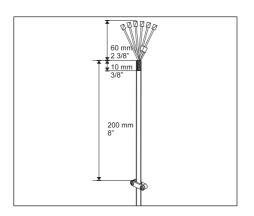
Shortening the cable

1. Shorten cable **L117** to the desired length.

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

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

4. Strip the wire ends to 5 mm (1/5").

5. Crimp on the end sleeves. Crimp the orange with white/blue and blue with white/orange wires each into an end sleeve.

Attaching the strain relief
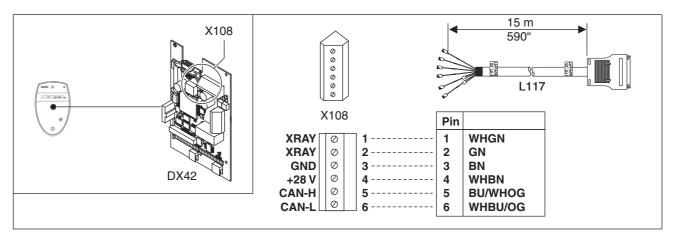
Left: concealed installation; right: surface installation
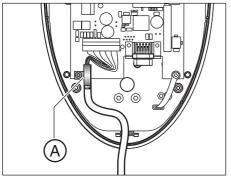
➤ Attach cable **L117** to the strain relief in the chassis. The cable length between the strain relief and the stripped wire ends should be 200 mm (8").

7.4 Connecting the control cables (REMOTE)

7.4.1 Installation version 1: Without coiled cable

PIN	Code	Appearance
1	WHGN	White/green
2	GN	Green
3	BN	Brown
4	WHBN	White/brown
5	BU/WHOG	Blue / white/orange
6	WHBU/OG	White/blue / orange
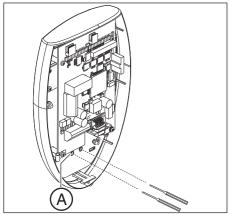
1. Unscrew clamp (A) from the board.
2. Place cable **L117** in the clamp so that the turned up cable shield is completely enclosed.
3. Re-attach the clamp to the board.
4. Connect control cable **L117** to terminal **X108** (board **DX42**) as shown in the connection diagram. Shorten control cable **L117** as required.

5. Lay cable **L117** in a loop following the bottom edge of the chassis.
6. Close the housing.

For information on how to connect a door contact switch, refer to the section entitled "Connecting a door contact switch [→ 72]".
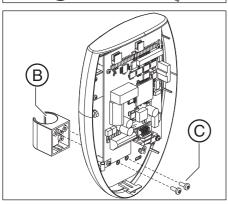
7.4.2 Installation version 2: With spiral cable

> ⚠ **CAUTION**
>
> Operation of the remote control via the membrane keyboard is prohibited when installing the remote control with release button.
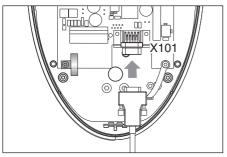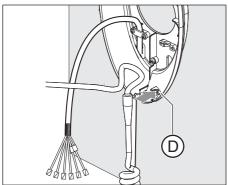
1. Use an awl to puncture the membrane keyboard at the prepared points (A) from the rear.

2. Using the two screws (C), 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. Hook the coiled cable onto the strain relief (D) of the assembled chassis.
5. Connect control cable **L117** (see section "Installation version 1: Without coiled cable [→ 68]").

7.5 Connecting the X-ray warning lamp
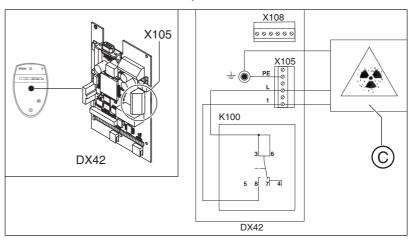
You can activate an X-ray warning lamp via the remote control.
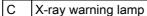
NOTICE
A maximum load of 50W is permissible. No additional circuit may be connected.
Use a 3-wire cable (1.5mm²) to connect the X-ray warning lamp.
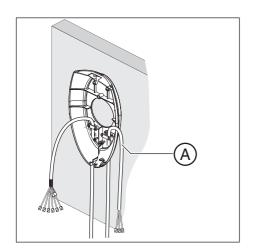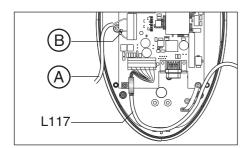
1. Guide the cable (A) for connecting the X-ray warning lamp into the chassis (concealed or surface installation).

2. Attach the cable to the still exposed strain relief.

C	X-ray warning lamp
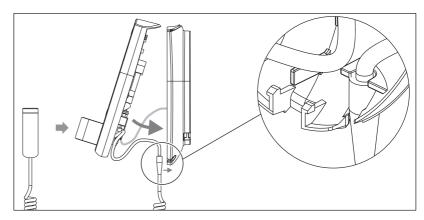
3. Connect the current-carrying cables and the ground wire to terminal **X105** (board **DX42**) as shown in the connection diagram.

4. Secure the current-carrying cables with a cable tie (B) to prevent them from slipping out.

5. Lay the cable (A) parallel to control cable **L117** and close the housing.
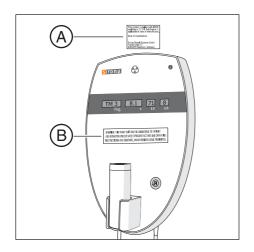
7.6 Final installation work
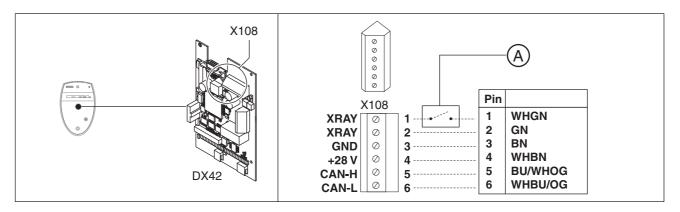
1. Reassemble the remote control.

2. **NOTICE!** Make sure that no cables are pulled off when you clip the cover on. Hang the release button (if available) in the holder.

For the USA/Canada only

Affix DHHS label (A) and warning label (B).

7.7 Connecting a door contact switch
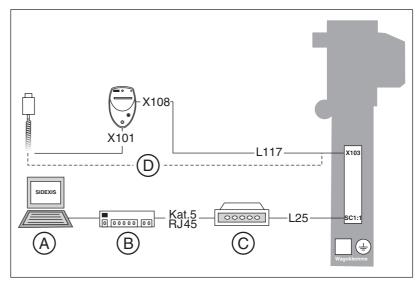
A	Door contact switch

PIN	Code	Appearance
1	WHGN	White/green
2	GN	Green
3	BN	Brown
4	WHBN	White/brown
5	BU/WHOG	Blue / white/orange
6	WHBU/OG	White/blue / orange

➤ Connect the door contact switch between terminal **X108 pin 1** (board DX42) and control cable **L117 pin 1** (BU).

8 Electrical connection

8.1 Connecting the control cables

A	PC	C	Media converter
B	Switch (not included in the scope of supply)	D	Coiled cable

1. Use the media converter to connect the PC to the **SC:SC** socket on the unit (see Operating Instructions of the media converter).

IMPORTANT
Use a duplex patch cable (L25), 1:1 connection, SC/SC 50/125 µm.
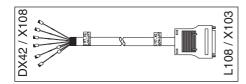
2. Install the media converter at a suitable location using fastening screws or the Velcro strap supplied for this purpose. Do *not* attach the media converter to the X-ray unit.

Installation version without remote control

➤ Connect the coiled cable of the release button to socket **X103** of the unit.

Installation version with remote control

1. Use cable **L117** to connect the remote control to socket **X103** on the unit.
2. Secure the connector on socket **X103**.

8.2 Connecting the line voltage

IMPORTANT
When operating the unit at exhibitions and trade fairs, read the chapter entitled Using demo mode – operation without radiation release [→ 173].

8.2.1 Connecting the unit

⚠ DANGER
Perilous shock hazard!
Switch off the power supply connection before connecting the line voltage.
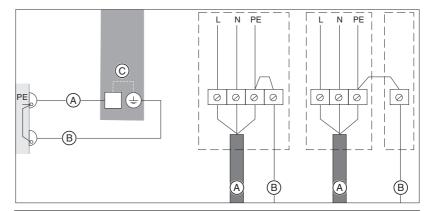
⚠ DANGER
Perilous shock hazard!
Fixed connection!
Installing a mains plug instead of the specified fixed connection infringes international medical regulatory actions and is prohibited. In case of error, this puts patients, users, and other parties seriously at risk.

A	Power cable to the unit
B	Second protective ground wire
C	Device

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

Connect the unit to the central distributor of the building installation, preferably using a 3-wire power cable (N, L, PE, at least 3x2.5 mm² or 3x4 mm² (14 AWG or 12 AWG)). *25 A overcurrent circuit breaker B*.

⚠ WARNING
Potentially lethal shock hazard!
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 the documentation titled Installation Requirements (REF 63 03 551).

1. Check the protective ground wires and the unit leakage current according to IEC 62353 (see section Checking the protective ground wires and Checking the device leakage current.)

2. Record the measured values in the document titled Inspection and maintanance and safety-related checks (REF 63 03 601).

3. Now connect the power supply as shown.

8.2.2 Connecting the media converter

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

9 Safety checks

9.1 Checking the protective ground wires
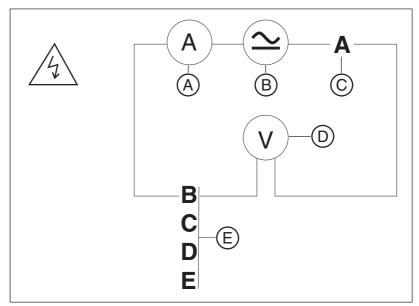
⚠ DANGER
Perilous shock hazard!
It is essential to switch the unit off and to wait at least one more 1 minute before beginning the check!

1. Switch the line voltage off at the main switch of the building installation.

2. Disconnect the power cable and the second protective ground wire from the building installation.

3. Remove the "bottom profile", "front tube assembly", and "rear tube assembly" covers.

Measuring setup for protective ground wire test

A	Ammeter
B	Power source
C	Measuring point **A**, central protective ground wire
D	Voltmeter
E	Measuring points **B** - **E**
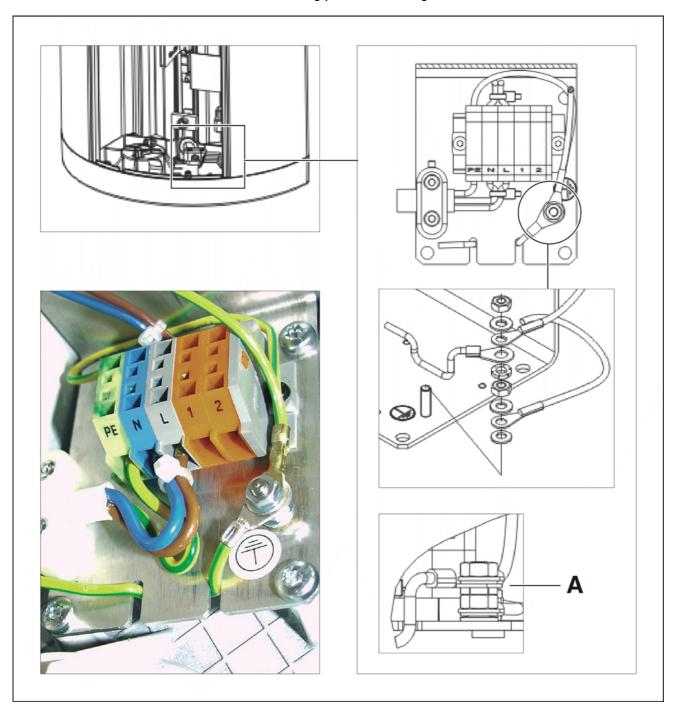
Check whether the ground wire resistance complies with the specifications

A and B	GNYE wire	0.1 Ω
A and C	2. Protective ground wire	0.1 Ω
A and D	Housing DX32	0.2 Ω
A and E	Tube assembly housing	0.2 Ω
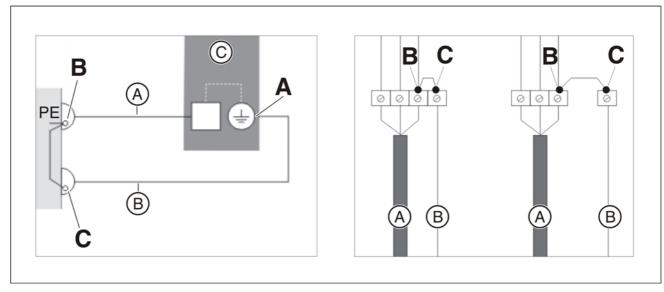
✔ A power source with a current of at least 0.2 A , a no-load voltage of 24 V max. and 4 V min. is required.

1. Connect the power source between the measuring points specified in the table for at least 5 s.

2. Measure the voltage drop with the voltmeter, measure the current with the ammeter, and calculate the resistance using the formula **R = U / I**.
   ↳ If the resistance value is greater than indicated in the adjacent table, check whether the protective ground wires are fastened according to the specifications.
   Check whether plain washer, tooth lock washer and cable lug are installed on the protective ground wire in the correct order and whether the nuts of the protective ground wire connections are firmly tightened.
   If the fastening of the protective ground wires does not meet the specifications, fasten the protective ground wires correctly.

Tip: Do not connect the power cable and the second ground wire to the building installation yet. Check the device leakage current first.

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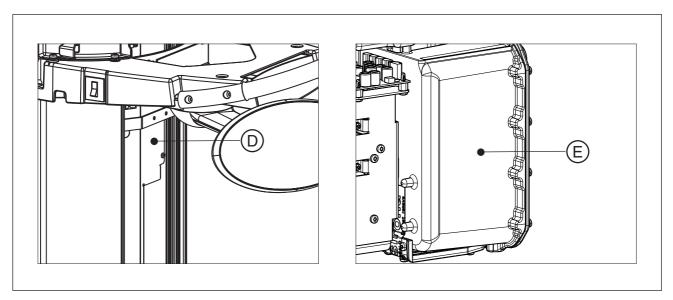
Measuring points B and C: GNYE power connection and 2nd ground wire

A	Power cable to the unit
B	Second protective ground wire
C	Unit

Measuring points D and E: Board cage DX32 and tube assembly housing

D	Board cage DX32
E	Tube assembly housing

9.2 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 64 95 100) 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).

9. Reconnect the unit to the building installation (fixed connection) (see the installation instructions for the unit).
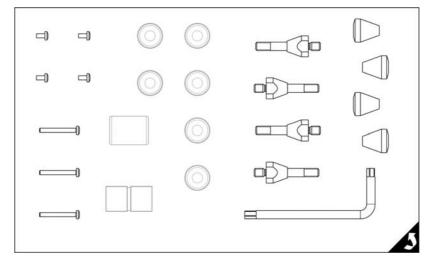
10 Installation: Ceph arm

NOTICE
Reduced image quality
For operation of the unit with floor stand and Ceph, an additional mounting using the upper wall holder is absolutely necessary. No Ceph installation is allowed for free-standing assembly of the unit with floor stand.

10.1 Installation material

Conical nut	4 pc.
Bearing bolt	4 pc.
Screw M4x8	4 pc.
Screw M4x35	3 pc.
Torx offset screwdriver TX50	1 pc.

10.2 Required tools

- Open-end wrench, 8 mm A/F
- Open-end wrench, 10 mm A/F

- Allen wrench 2.5

- Spirit level

Included in the scope of supply:
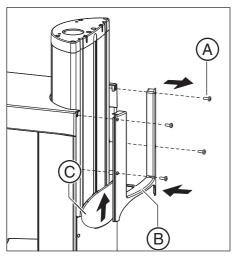
- Torx offset screwdriver TX50

10.3   Installation
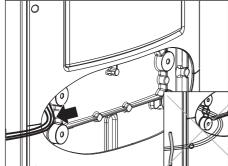
10.3.1   Ceph arm mounted on left-hand side

Preparing the unit
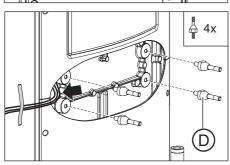
1. Loosen the screws (**A**).
2. Detach the cover (**B**).
3. Remove the cover (**C**) by pulling it upwards.
4. Attach the cover (**B**).
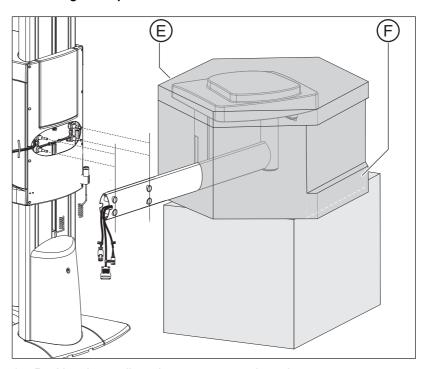
5. Detach the cable fastening.
6. Unpack the cables.
7. Pull the cable a short way behind the cover.
8. Run out the cable and fasten it with adhesive tape.

9. Screw the four bearing bolts (**D**) into the unit.

Positioning the ceph arm

1. Position the cardboard support next to the unit.
2. Position the ceph arm with the styrofoam packaging on top.
3. Remove the adhesive tape and the cover (**E**) from the ceph packaging.
4. Break off the wall part (**F**) of the packaging at the perforation.
5. Slide the cardboard support with the ceph arm up to the wall so that the drill holes of the support arm are horizontally aligned with the positions of the threaded bolts.

> ⚠ **CAUTION**
>
> **X-rays**
>
> Be sure to observe the radiation protection regulations applicable in your country.
>
> ➤ No person may be positioned in the unit when it is switched on.

6. Switch on the unit (**G**).
   - ↳ During the unit startup phase, the message *"System is starting"* appears on the control panel.
   - ↳ The unit's self-adjustment routine begins.

7. Acknowledge the error messages that appear using the R key (**H**) on the control panel.
   - ↳ The main menu and help message **H301** appear. You are requested to move the unit to its starting position.

8. Press the R key (**H**) on the control panel.
   - ↳ The unit moves to its starting position.

9. Use the arrow keys (**I**) on the control panel to lower the unit until the bearing bolts on the unit are at the same height as the drillings on the ceph support arm.
NOTICE! Check the room height before you raise the unit. If the room height is less than 2.27m (89 3/8") or 2.30m (90 1/2") for installation with floor stand, you must limit the maximum travel height (S018: Test step 2).

Installing the ceph arm

1. Attach the support arm to the four bearing bolts.
NOTICE! The connecting cables must not be crushed. Make sure that the connecting cables lie in the groove of the support arm and are not crushed.
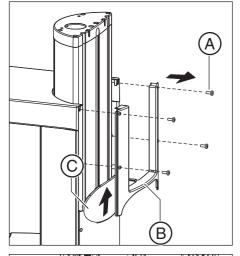
2. Screw in the conical nuts (**J**) and tighten them firmly.
Tip: The support arm may get tilted while you are tightening the conical nuts. You can avoid this by lifting and moving the support arm gently while you are tightening the nuts.

3. Remove the styrofoam packaging from the ceph.

4. Follow the instructions in the chapter entitled Installing the secondary diaphragm [→ 90].
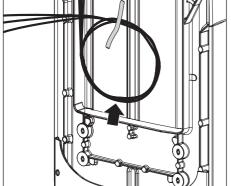
10.3.2 Ceph arm mounted on right-hand side

Preparing the unit
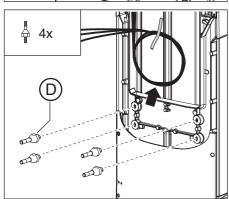
1. Loosen the screws (**A**).
2. Detach the cover (**B**).
3. Remove the cover (**C**) by pulling it upwards.
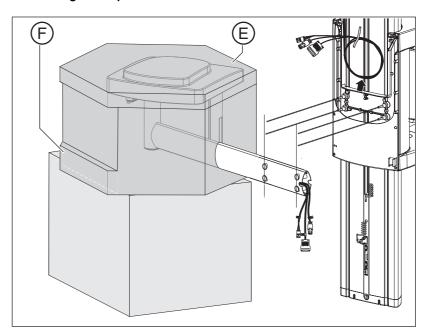
4. Detach the cable fastening.
5. Unpack the cables.
6. Roll the cables up and fasten the cable roll above the bearing bolts with adhesive tape.

7. Screw the four bearing bolts (**D**) into the unit.

Positioning the ceph arm

1. Position the cardboard support next to the unit.
2. Position the ceph arm with the styrofoam packaging on top.
3. Remove the adhesive tape and the cover (**E**) from the ceph packaging.
4. Break off the wall part (**F**) of the packaging at the perforation.
5. Slide the cardboard support with the ceph arm up to the wall so that the drill holes of the support arm are horizontally aligned with the positions of the threaded bolts.

> ⚠ **CAUTION**
>
> **X-rays**
>
> Be sure to observe the radiation protection regulations applicable in your country.
>
> ➢ No person may be positioned in the unit when it is switched on.

6. Switch on the unit (**G**).
   - ✋ During the unit startup phase, the message *"System is starting"* appears on the control panel.
   - ✋ The unit's self-adjustment routine begins.
7. Acknowledge the error messages that appear using the R key (**H**) on the control panel.
   - ✋ The main menu and help message **H301** appear. You are requested to move the unit to its starting position.
8. Press the R key (**H**) on the control panel.
   - ✋ The unit moves to its starting position.

9. Use the arrow keys (**I**) on the control panel to lower the unit until the bearing bolts on the unit are at the same height as the drillings on the ceph support arm.
NOTICE! Check the room height before you raise the unit. If the room height is less than 2.27m (89 3/8") or 2.30m (90 1/2") for installation with floor stand, you must limit the maximum travel height (S018: Test step 2).

Installing the ceph arm

1. Fit the support arm onto the four bearing bolts.
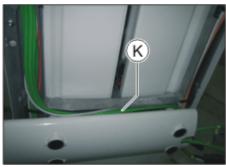
IMPORTANT
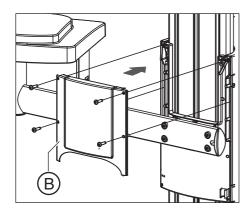
The support arm may get tilted while you are tightening the conical nuts. You can avoid this by lifting and moving the support arm gently while you are tightening the nuts.

2. Screw in the conical nuts (**J**) and tighten them firmly.

3. Detach the cables from the holder. Lay the cables over the support arm in the groove between the slide and the support arm (from left to right toward the opening (**K**)).
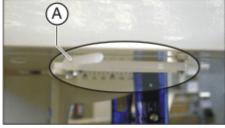
4. **NOTICE!** Never crush the cables. Ensure that the cover can be easily attached.
   Attach the cover (**B**).

5. Remove the styrofoam packaging from the ceph arm.

6. Follow the instructions in the chapter entitled Installing the secondary diaphragm [→ 90].
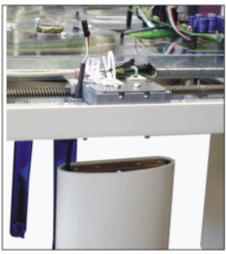
10.3.3 Installing the secondary diaphragm
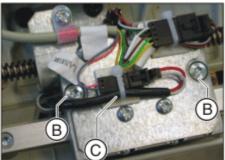
1. Remove the secondary diaphragm from the packaging.

2. Remove the safety cable tie (**A**) for the screws.
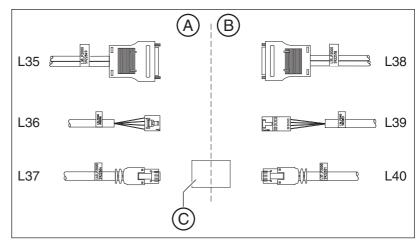
3. Guide the secondary diaphragm beneath the ceph arm and slide the connector upward through the opening.

4. Attach and secure the secondary diaphragm with the 2 screws (**B**).
5. Establish the plug connection with the connector of the laser (**C**).
6. Secure the plug connection with the cable tie.

10.4 Connecting control cables
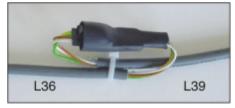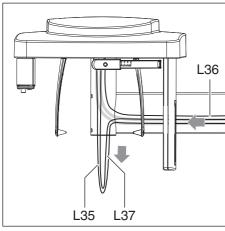
A	Device
B	Ceph arm
C	LAN coupling

IMPORTANT
Use the LAN coupling supplied (C) to connect cables **L37** and **L40**.

1. Connect the unit and the Ceph arm as shown in the connection diagram above.

2. Screw in place the plug connections **L35/L38**.

3. Roll the plug connection **L36/L39** into a loop and secure it with a cable tie.
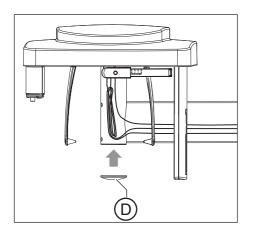
IMPORTANT
Do *not* remove cable **L36**.
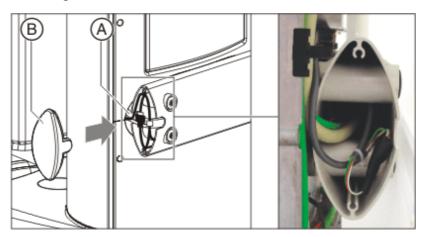
4. Grasping inside the ceph arm tube from below, carefully pull cable **L35** (two green Cat5 cables) and then cable **L37** (green Cat5 cable) downward and out of the support arm.
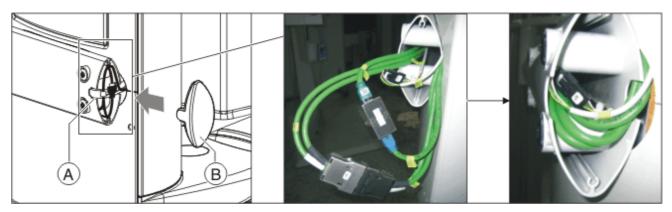
5. Roll the cable into a loop and stow it away in the tube.

6. Close the tube by attaching the cover (D).

10.4.1 Running the cables for the left-hand arm

1. Guide the cable on the unit through the groove (A).

2. Lay the cable and the cable loop (**L36/L39**) as illustrated.

3. **NOTICE!** Ensure that you do not crush or kink the cables.
   Attach the cover (B).

10.4.2 Running the cables for the right-hand arm

1. Guide the cable on the unit through the groove (A).
2. Lay the cable and the cable loop (**L36/L39**) as illustrated.
3. **NOTICE!** Ensure that you do not crush or kink the cables. Attach the cover (B).

10.5 Final installation work
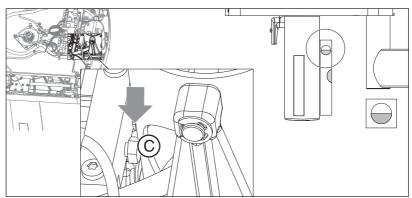
The following steps apply to both left-handed and right-handed arms.

1. Use the spirit level to check that the secondary diaphragm is vertical. To ensure this, place the spirit level on the side of the secondary diaphragm.
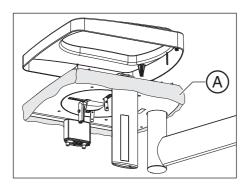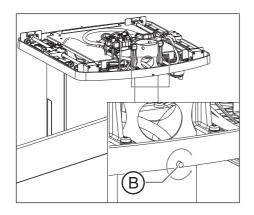
IMPORTANT
Only perform the following steps if the secondary diaphragm is not included in the batch.
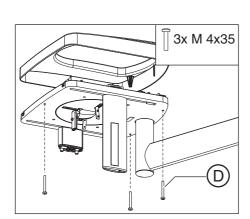
2. **NOTICE!** Do not damage the unit. Do not move the secondary diaphragm or sensor adapter by hand or apply any force. Remove the top cover.

3. Remove the protective canvas (A).

4. Loosen the stud screw (B) (2-3 turns).
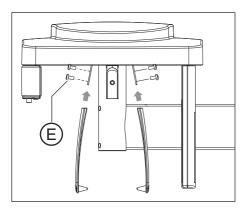
5. Set the tilt of the ceph arm on the screw (C). The secondary diaphragm must stand upright. To ensure this, place the spirit level on the side of the secondary diaphragm.

6. Retighten the stud screw firmly.

7. Attach the cover with the 3 screws (D).

3x M 4x35
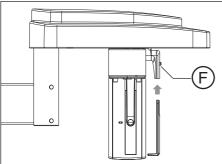
8. Insert both ear plug holders and fasten them securely using the screws (E).
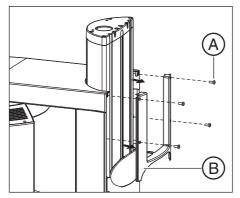
9. Press the button (F) and insert the nose support.
10. Swivel the nose support upward.

11 Initial startup
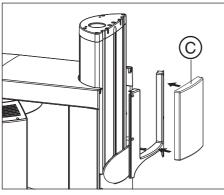
11.1 Attaching the covers

IMPORTANT
Only attach these covers (**B** and **C**) if the unit is installed with the floor stand and is not standing against a wall.
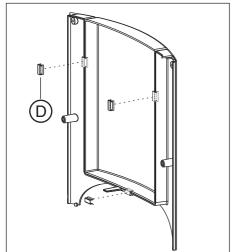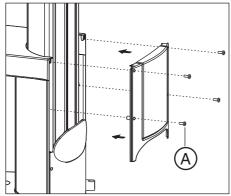
1. Loosen the 4 screws (**A**) on the upper housing cover (**B**) and remove this housing cover toward the rear.
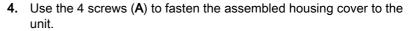
2. Insert the cover (**C**) included with the installation material for installation with the floor stand (Option 2: Floor stand installation [→ 39]) into the outer cover (**B**).
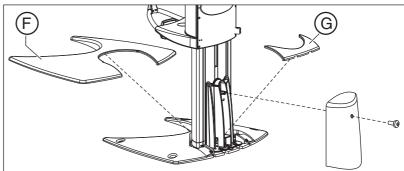
3. Fasten the cover (**C**) to the cover (**B**) with the 3 spring steel clamps (**D**) included with the installation material for installation with the floor stand (Option 2: Floor stand installation [→ 39]).

4. Use the 4 screws (**A**) to fasten the assembled housing cover to the unit.
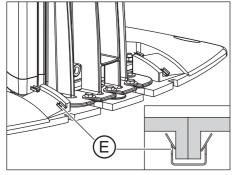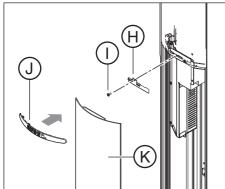
5. *For installation with floor stand only:* Place the four spring clips (**E**) on the base plate. The two covers (**F**) and (**G**) must hold together after they have been attached.

6. Screw holder (**H**) to the column with screw (**I**).

7. Clip on the profile (**K**).

8. **NOTICE! Make sure that intermediate piece (J) lies flush on the stand surface.**
Insert intermediate piece (**J**) in the gap.
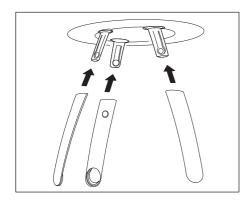
11.2 Inserting the forehead and temple supports

➤ Insert the forehead and temple supports until they lock in place.
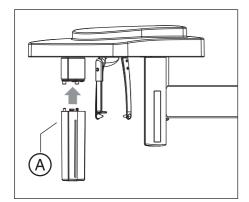
11.3 Inserting the ceph sensor (for ceph versions)

NOTICE
Damage to the sensor
The sensor is a sensitive component, and therefore must be handled with special care.

➤ **NOTICE!** Ensure that the correct sensor for cephalometry (ceph sensor) is plugged in.Insert the ceph sensor
 (A) carefully upward into the holder until it audibly clicks into place.

11.4 Installing the IT package

Information on the connection of the Reconstruction and Control Unit (RCU) and the software installations can be found in the separate GALILEOS / ORTHOPHOS XG 3D Software installation Instructions (REF 61 42 389).

11.5 Switching the unit on

> ⚠️ **WARNING**
>
> **X-rays**
>
> Be sure to observe the radiation protection regulations applicable in your country.
>
> ➢ No person may be positioned in the unit when it is switched on.

> **NOTICE**
>
> **Damage to the unit**
>
> Check the room height before you raise the unit.
>
> ➢ If the room height is less than 2.27 m (89 3/8") or 2.30 m (90 1/2") for installation with the floor stand, you must limit the maximum travel height.
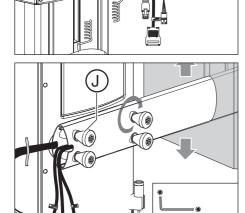
> **NOTICE**
>
> **Fluctuations in temperature can cause condensation to form in the unit.**
>
> Electrical components are destroyed by short circuits.
>
> ➢ Do not switch the unit on until the temperature of the unit has adapted to the ambient temperature and the condensation has evaporated.

> **NOTICE**
>
> **The unit must not be switched on/off constantly.**
>
> Constant switching on and off reduces the service life of individual unit components and results in increased power consumption.
>
> ➢ After switching the unit off, wait for approx. 60 seconds before switching it on again.

> **NOTICE**
>
> **The surface of the touchscreen is sensitive.**
>
> The touchscreen can be damaged or its surface scratched.
>
> ➢ Never use pointed objects such as ballpoint pens, pencils, etc. to operate the touchscreen.
> ➢ Only use your fingertips to operate the touchscreen.

> **IMPORTANT**
>
> After the unit is switched on, the touchscreen has only limited readability for several minutes until the background lighting has completed its warm-up phase.
> After the unit is switched off with the main switch, the touchscreen remains lit for approx. another 3 to 5 seconds.

IMPORTANT
After switch-on, the unit requires approx. 1 min. of warm-up time. At the same time, the self-adjustment routine for the mechanics and the electronics of the unit is performed. If a key is pressed during the self-adjustment routine, an error message will display on the control panel.

1. Turn the main switch (A) to position **I**.
2. Wait for approx. 1 minute.
   - ↳ The radiation indicator X-ray (C) lights up for approx. one second as a functional check.
   - ↳ After approx. 2 seconds, the green LED B in the upper part of the control panel lights up. This LED remains lit as long as the unit is on.
   - ↳ The start screen is displayed on the touchscreen for several seconds.
   - ↳ The program selection is then displayed on the touchscreen.
   - ↳ The forehead support and temple supports are completely open.
3. Check whether the patient symbols on the touchscreen can be selected in exactly the right position.
   If problems occur during selection, adjust the touchscreen [→ 259].
4. Press the R key.
   - ↳ The unit moves to its starting position.
5. Switch on the PC.
6. Start SIDEXIS.
   - ↳ As long as no connection has been made to SIDEXIS, the message *"Switch SIDEXIS to ready for exposure state"* is displayed in the comment line of the control panel.

11.5.1 Factory setting after switch-on

The unit has the following factory configuration on delivery:

- The acoustic signal for end of exposure is activated.
- The unit language is preconfigured as ordered.
- The preview image is switched on.
- The welcome screen is switched on.
- The first name, last name and date of birth lines are displayed on the welcome screen.

If the customer requires a different configuration, this can be implemented via service routine S017.
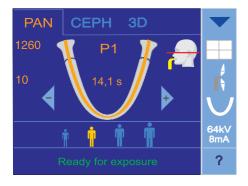
11.6 Performing a mechanical function test

The mechanical function of the rotation unit is checked via a test cycle. The test cycle is executed without radiation. The test cycle is used to check that the unit is functioning correctly and to ensure that a complete, uninterrupted cycle is possible. The rotating unit stops automatically if the resistance increases.

If any untypical noises occur during the test cycle or the rotation unit stops due to increased resistance, the assembly of the combisensor must be checked again.

Performing a 2D (panoramic) test cycle

✔ The unit must be switched on.

1. Touch the PAN symbol at the top of the touchscreen.
   ↳ The exposure program for panoramic exposure (2D) is selected.

2. Press the T key.
   ↳ On the touchscreen, the display of the kV/mA value, the exposure time and the patient symbols is hidden. Two test cycle symbols appear.

3. Press the release button.
   ↳ The test cycle is started.

4. Wait until the test cycle has been completed.

Performing a 3D (volume) test cycle

✔ The unit must be switched on.

1. Touch the 3D symbol at the top of the touchscreen.
   ↳ The exposure program for volume exposure (3D) is selected.

2. Press the T key.
   ↳ On the touchscreen, the display of the kV/mA value, the exposure time and the patient symbols is hidden. Two test cycle symbols appear.

3. Press the release button.
   ↳ The test cycle is started.

4. Wait until the test cycle has been completed.

Quitting the test mode

➢ Press the T key again.
   ↳ The program exits test cycle mode.

11.7 Setting up the X-ray component via the SIXABCon program

Since it is addressable via the network, the X-ray component can in principle be activated for X-ray image acquisition by any of the PCs connected to the network.

The program SiXABCon is used to manage networkable X-ray components. It can be executed on any PC in the network on which SIDEXIS has been installed.

IMPORTANT! In order to avoid IP address conflicts, you should never operate several networkable X-ray components in the network using the same IP address. Each X-ray component needs to be assigned a unique IP address.

Factory setting of the TCP/IP address of the unit:

192.168.15.240 (subnet mask: 255.255.255.0)

Checking existing IP addresses
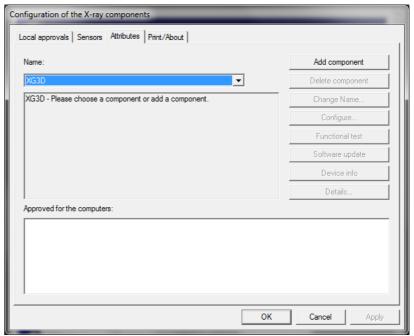
To find out whether an IP address already exists in the network, enter the "PING" function in the input prompt (DOS window).

1. Switch on *all* network devices (computers, printers, X-ray components) which have been operated to date.

2. Invoke the input prompt (DOS window) from a network computer.

3. At the prompt, enter "ping" followed by the address to be checked and then press the Enter key.
   Example: "ping 192.168.15.13"

✎ If a network device responds, then this address has already been assigned.

```
C:\>ping 192.168.15.13

Ping wird ausgeführt für 192.168.15.13 mit 32 Bytes Daten:

Antwort von 192.168.15.13: Bytes=32 Zeit<1ms TTL=63
Antwort von 192.168.15.13: Bytes=32 Zeit<1ms TTL=63
Antwort von 192.168.15.13: Bytes=32 Zeit<1ms TTL=63
Antwort von 192.168.15.13: Bytes=32 Zeit<1ms TTL=63

Ping-Statistik für 192.168.15.13:
    Pakete: Gesendet = 4, Empfangen = 4, Verloren = 0 (0% Verlust),
Ca. Zeitangaben in Millisek.:
    Minimum = 0ms, Maximum = 0ms, Mittelwert = 0ms

C:\>
```

11.7.1 Starting SIXABCon

SiXABConProgram

**When using SIDEXIS XG
(Version 2.0 or later)**
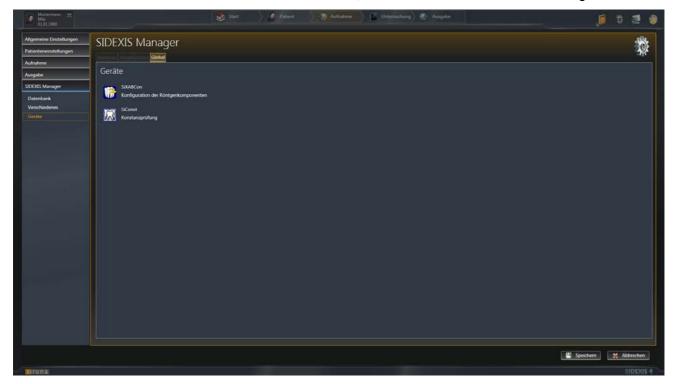
✔ SIDEXIS XG is installed.

1. Start the SIDEXIS Manager via "start/Program Files/SIDEXIS XG/ SIDEXIS Manager".
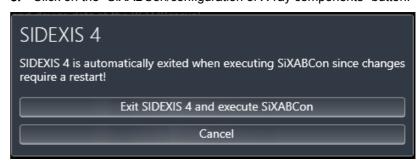
2. Click on the *"SiXABCon"* or *"Configuration of the X-ray components"* button.

    ↳ The *"SiXABCon"* program starts.

**When using
SIDEXIS 4**

✔ SIDEXIS 4 is installed.

1. Start SIDEXIS 4.

2. In SIDEXIS 4, call the "SIDEXIS Tools/Devices" configuration menu.
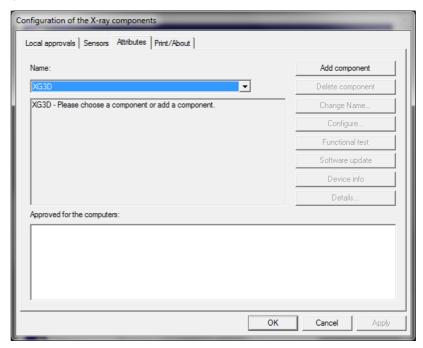
3. Click on the "SiXABCon/configuration of X-ray components" button.

   ↳ A dialog box opens.

4. Click on the *"Exit SIDEXIS 4 and execute SIXABCon"* button.

   ↳ The *"SiXABCon"* program starts.

11.7.2 Selecting an X-ray component
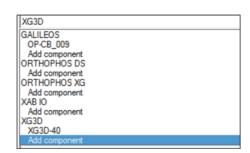
1. Switch all networkable X-ray components off.
2. Start the SiXABCon program.
3. Select the *"Attributes"* tab.
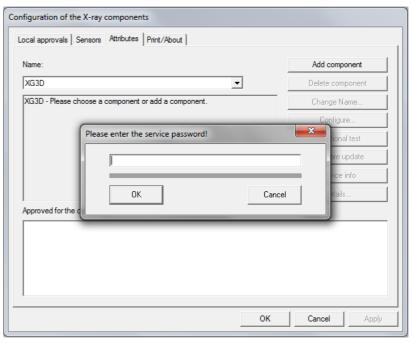
4. Select the name of the desired X-ray component in the *"Name"* pull-down menu ("XG3D" in the example); then click the *"Add component"* button.
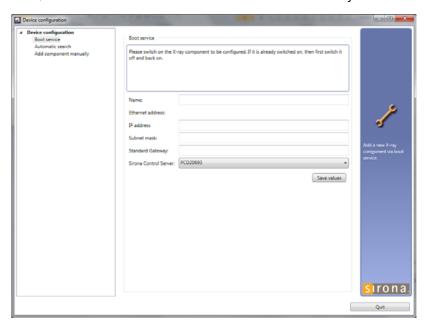
or

➢ Select the text *"Add component"* under the desired X-ray component in the *"Name"* pull-down menu.

✎ The password dialog box appears.

5. Enter the service password [→ 196] and confirm your input by clicking the *"OK"* button.

   ↳ The *"Device configuration"* menu opens.

   ↳ The *"Boot service"* element is selected automatically.

Boot service

IMPORTANT
Automatic addition and setup of the X-ray component via the boot service functions properly only if the unit is started with the default factory-set IP address. If the IP address already has been changed, reset it to the factory setting via service routine S037.2 or use the elements *"Automatic search"* or *"Add component manually"* (see section on "Alternatives to the boot service").
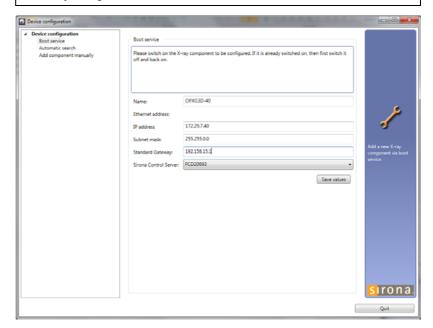
✔ The element *"Boot service"* is selected in the structure tree.

1. Switch the unit on.

   ↳ The unit is detected in the network and the values for the IP address, subnet mask and standard gateway are automatically imported to the input fields of the menu.

IMPORTANT
If the unit is not automatically detected in the network, it is possible to manually assign a static IP address via service routine S037.4.
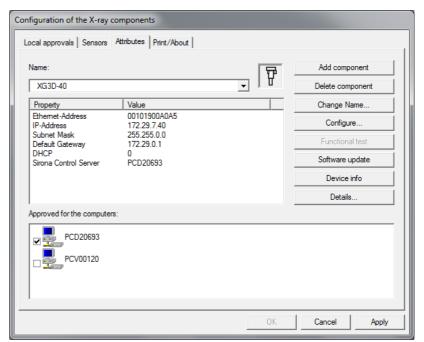
IMPORTANT
Each unit must be assigned a unique IP address in the network.

2. If you want to, you can enter an individual IP address in the *"IP address"* input field and then click into one of the other input fields with the cursor.

   ↳ Default values suitable for the IP address are automatically entered in the *"Subnet mask"* and *"Standard Gateway"* input fields.

3. You can either overwrite the default values in the input fields or leave them unchanged, depending on the network involved.

4. Select the desired RCU in the *"Sirona Control Server"* drop-down menu.

5. Confirm the settings by clicking on the *"Save values"* button.

    ♥ The settings are saved.

    ♥ The *"Device configuration"* dialog window appears and informs you that the configuration of the X-ray component has been completed successfully.

6. Confirm this dialog by clicking on the *"OK"* button.

7. Close the *"Device configuration"* menu by clicking on the *"Quit"* button.

    ♥ The new X-ray component appears in the device list of the menu *"Configuration of the X-ray component"* .
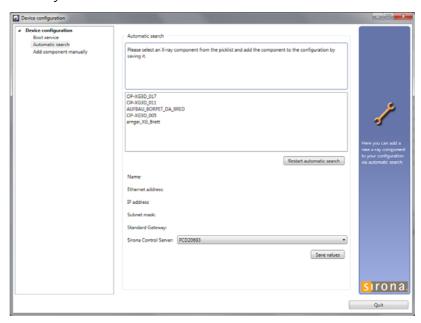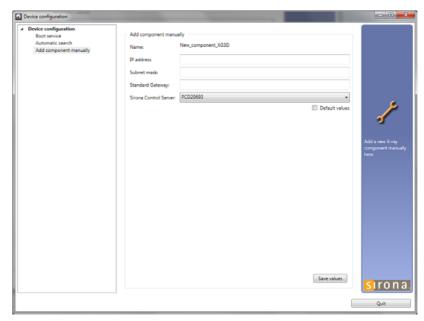
Alternatives to the boot service

As an alternative to adding new X-ray components via the boot service, you also can add them via the *"Automatic search"* or the *"Add component manually"* function.

Automatic search

1. Select the *"Automatic search"* element.
   ↳ The network is searched for existing X-ray components. All X-ray components found appear in the menu list.

2. Select the desired X-ray component from the list.
   ↳ The values for the IP address, subnet mask and standard gateway are automatically imported to the input fields of the menu.

3. Select the desired RCU in the *"Sirona Control Server"* drop-down menu.

4. Confirm the settings by clicking on the *"Save values"* button.
   ↳ The settings are saved.

   ↳ The *"Device configuration"* dialog window appears and informs you that the configuration of the X-ray component has been completed successfully.

5. Confirm this dialog by clicking on the *"OK"* button.

6. Close the *"Device configuration"* menu by clicking on the *"Quit"* button.
   ↳ The new X-ray component appears in the device list of the menu *"Configuration of the X-ray component"* .

Adding the component manually
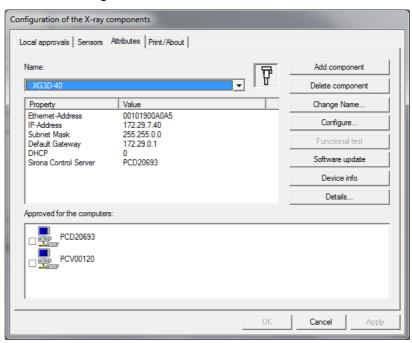
1. Select the *"Add component manually"* element.
2. Enter the values in the menu input fields manually.
3. Select the desired RCU in the *"Sirona Control Server"* drop-down menu.
4. Confirm the settings by clicking on the *"Save values"* button.
   - ↳ The settings are saved.
   - ↳ The *"Device configuration"* dialog window appears and informs you that the configuration of the X-ray component has been completed successfully.
5. Confirm this dialog by clicking on the *"OK"* button.
6. Close the *"Device configuration"* menu by clicking on the *"Quit"* button.
   - ↳ The new X-ray component appears in the device list of the menu *"Configuration of the X-ray component"* .
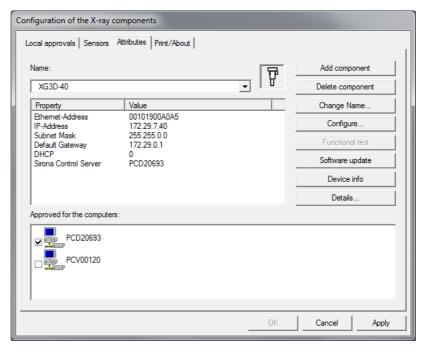
11.7.3 Approval of the X-ray component

✔ The X-ray component must have been selected [→ 108] via the *"Device configuration"* menu.

➤ Click on the check box in front of the X-ray component that you would like to enable and accept the setting by clicking on the *"Apply"* button.

↳ The X-ray component is enabled.

Checking enablement

➢ To check the communication with the unit, click the *"Device info"* button.

    ↳ If the unit is communicating, a logfile with information on the unit configuration appears.

```
 1 ------------------------------------------------------------
 2 -------------------- Orthophos XG3D configuration ----------
 3 ------------------------------------------------------------
 4 Serialnumber            : 000023199
 5 System Software Version: V04.02.06
 6 ------------------------------------------------------------
 7 Bootmode                : Static
 8 Type                    : 203
 9 Network Name            : XG3D-40
10 MAC Address             : 00:10:19:00:a0:a5
11 IP Address              : 172.29.7.40
12 Subnet Mask             : 255.255.0.0
13 Default Gateway         : 172.29.0.1
14 NetAPI Version (comp.) : 1.15
15 NetAPI Version (conn.) : 1.15
16 ------------------------------------------------------------
17 Demomode                : Off
18 Tube Exposures          : 777
19 Total Exposure Load     : 2522493
20 Tube Exposures Permanent  : 469
21 Tube Exposures Pulsed     : 306
22 Tube Exposures DualEnergy : 0
23 Exposure Load Permanent   : 2002367
24 Exposure Load Pulsed      : 520126
25 Exposure Load DualEnergy  : 0
26 ------------------------------------------------------------
27 Active Keys             :
28                         : No active keys found
29 ------------------------------------------------------------
30 Time                    : 10:00:07
31 Date                    : 2010-Nov-18
32
33 ------------------------------------------------------------
34 -------------------- Standard Configuration DX 11  ---------
35 ------------------------------------------------------------
36 Name of flat module:       'DX11    '
37 Code Number:               ' 5925214'
38 Serial Number:             '       329039368'
```
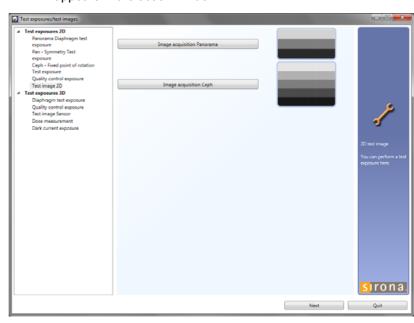
11.8 Checking the data paths

The 2D and 3D data paths can be checked by creating panoramic, ceph and sensor (3D) test images. To create test images, proceed as follows:
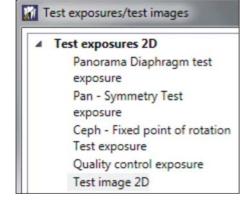
✔ SIDEXIS XG must be open.

➢ In SIDEXIS XG, call the *"Test exposures/test images"* menu: *"Utilities" | "Constancy test..." | "3D" | "Select X-ray device" | "Service exposure " | "Select X-ray component" | "Test exposures/ test images"*

11.8.1 Creating 2D test images

✔ The menu *"Test exposures/test images"* is called.

1. In the structure tree, under *"Test exposures 2D"*, select the *"2D test image"* element.

   ↳ The menu for creating the panoramic and ceph test image appears in the action window.

2. Click on the *"Image acquisition Panorama"* or *"Image acquisition Ceph"* button to create the appropriate test image.

   ↳ The exposure window opens in SIDEXIS XG. It indicates the current status of exposure readiness.
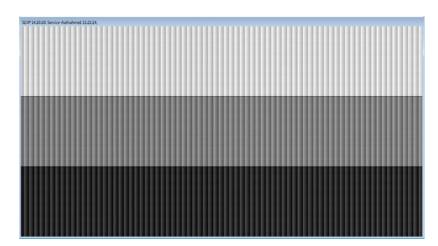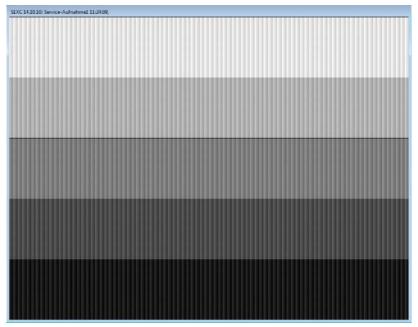
3. Press the release button. Press and hold down the button until the exposure is complete, the preview image is displayed in the exposure window, and the acoustic signal indicating the end of the exposure (double beep) sounds (if it has been configured).

   ↳ The test image appears in the exposure window.

Panoramic test image

Ceph test image

11.8.2 Creating a 3D test image
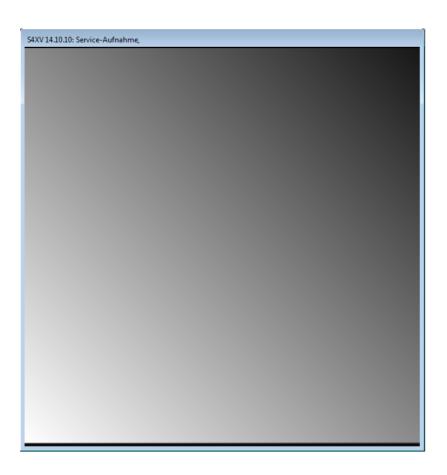
✔ The *"Test exposures/test images"* menu is called [→ 116].

1. In the structure tree, under *"Test exposures 3D"*, select the *"Test image Sensor"* element.

   ✎ The menu for creating the test image for the 3D sensor appears in the action window.

2. Click on the *"Image acquisition"* button to create the test image.

   ✎ The exposure window opens in SIDEXIS XG. It indicates the current status of exposure readiness.

3. Press the release button. Press and hold down the button until the exposure is complete, the preview image is displayed in the exposure window, and the acoustic signal that indicates the end of the exposure (double beep) sounds (if it has been configured).

   ✎ The test image appears in the exposure window.

S4XV 14.10.10: Service-Aufnahme,

11.9 Checking the unit configuration

Room and travel height

1. Check the room height before you raise the unit using the UP/DOWN keys.
2. If the room height is less than 2.27 m (89 3/8") or 2.30 m (90 1/2") for installation with the floor stand, you must limit the maximum travel height.

Hardware version

All units ordered with or without a ceph arm are preconfigured for this version at the factory. You should, however, check the unit configuration anyway.

➢ Select ceph mode on the control panel.
If ceph mode cannot be selected, even though a ceph arm is installed, check the unit configuration using service routine S017.2.

Remote control

All units ordered with or without remote control are preconfigured for this version at the factory. You should still check the unit configuration using service routine S017.6.

Occlusal bite block

All units ordered with or without occlusal bite block are preconfigured for this version at the factory. You should still check the unit configuration using service routine S017.18.

Set up the occlusal bite block in accordance with customer requirements using service routines S018.7 through S018.10.

11.10 Service routines for startup
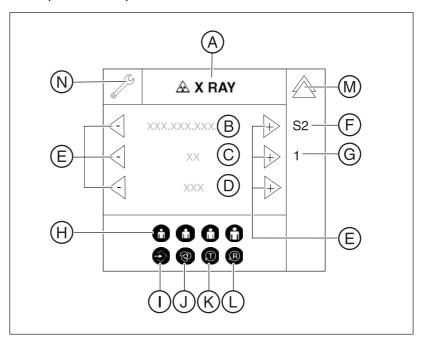
11.10.1 Service menu and service routines

You can use the service routines to check the function of certain unit components and modules, as well as to set important unit parameters.

11.10.1.1 Displays and symbols in the service menu

11.10.1.1.1 Easypad

There are many different control symbols and display fields on the touchscreen; these are activated on a context-sensitive basis depending on the procedure step.

A	X RAY	Radiation can be released.
	X RAY Active!	Caution! Radiation is being released.
B	Selection field 1	Display fields for service routines, test steps, values, unit parameters, etc.
C	Selection field 2	
D	Selection field 3	
E	Arrow keys	Touch the "+" and "-" arrow keys to select unit parameters in the selection fields [→ 128].
F	S1 - S37	Selected service routine.
G	1 - n	Selected test step.
H	Patient symbol keys	Different functions, depending on service routine.
I	Memory key	Save selection.
J	Service key	Different functions, depending on service routine. Most, however, confirm a selection or the activation of the next test step.
K	T(est rotation) key	Start a test.
L	R(eturn) key	Move the unit to the starting position or confirm a save operation.
M	Double arrow key	Return to the main menu.
N	Wrench symbol	Displayed if level 4 (service menu) is activated.

11.10.2   Basic operating procedures in the service menu

11.10.2.1   Activating the service menu
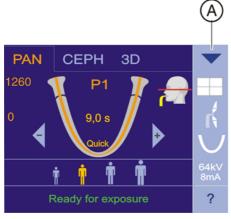
11.10.2.1.1   Easypad
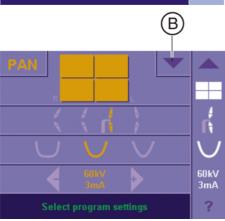
The structure of the touchscreen user interface on the control panel is subdivided into 4 levels:

- **Level 1:** Main menu
- **Level 2:** Program Settings
- **Level 3:** Basic Settings
- **Level 4:** Service menu
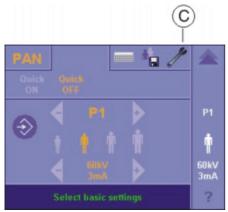
When the unit starts up, the main menu appears on the touchscreen.

1. To select **level 2** (*"Select program settings"*), touch the blue arrow in the top right corner of the touchscreen (**A**).
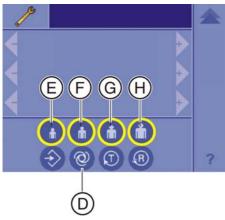
2. To select **level 3** (*"Select basic settings"*), touch the left-hand blue arrow in the top right corner of the touchscreen (**B**).
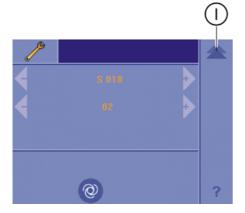
3. To select **level 4** (service menu/access), touch the wrench symbol (**C**).

4. Switch to the service menu:
   Press and hold down the Service key (**D**) until the patient symbol keys light up (**E-H**) (approx. 2 s). Then press the patient symbol keys in the sequence **F** – **H** – **E** within the next 4 s.
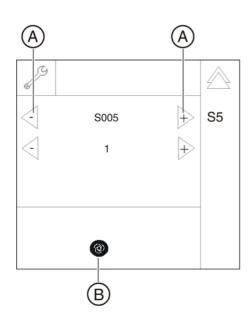
↳ After you have entered the key combination correctly, the service menu is displayed. You can return to the next higher level with the double arrow key (**I**) at any time.

11.10.2.2   **Selecting service routines and test steps**

11.10.2.2.1   **Selecting a service routine**
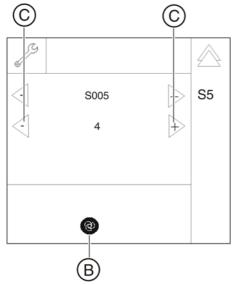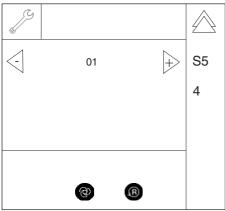
✓ The service menu must be selected [→ 123].

➢ Select the desired service routine via the arrow keys in the selection field 1 (**A**) and confirm the selection via the service key (**B**).
If the selected service routine has several test steps, the first selectable test step is displayed in selection field 2 (test step 1 in the example).

11.10.2.2.2 **Selecting a test step**

✔ The service menu must be selected [→ 123].

✔ The required service routine must be selected [→ 125].

➣ Select the required test step in selection field 2 with the arrow keys (**C**) and confirm your selection by pressing the Service key (**B**).
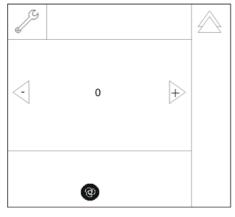
↳ The selected service routine as well as the selected test step are displayed in the right-hand column (S005.4 in the example).
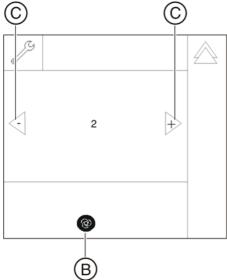
11.10.2.2.3 **Service routines with security access**

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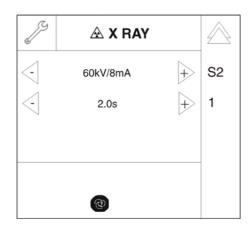
To select a service routine or test step with security access, proceed as follows:

1. Select the service routine or the test step, and confirm your selection with the Service key [→ 125].
   - After you have confirmed your selection, a "0" appears in selection field 2.

2. Confirm security access by once again selecting the number of the main routine (2 in the example) with the arrow keys in selection field 2 (**C**) and press the Service key (**B**) to confirm your selection.

↳ Following this double selection and confirmation via the Service key, the service routine is activated.
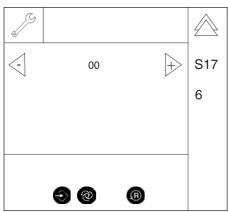
11.10.2.3 Select parameters

If arrow keys are displayed in the selection fields once the required service routine has been selected, you can use these arrow keys to choose between different parameters.

Example

You want to run service routine S017.6 to activate the remote control.

✔ Once you have selected service routine S017.6, the code "00" is pre-selected for the "Remote control disabled" option.

➢ Touch the + or - arrow keys (**A**) to select the code 01 (**B**) for the "Remote control enabled" option.

↳ Once the selected parameter has been changed (in this case the code for the activation of the remote control), the Memory key (**C**) lights up.
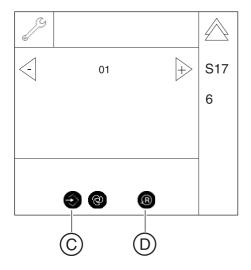
11.10.2.4   **Saving parameters**

Once one or a number of parameters have been selected via a service routine, the current selection must be saved so that it is applied in the unit.

Example

You want to run service routine S017.6 to save the selected option "Remote control enabled".

✔ The Memory key (**C**) lights up.

1. Touch the Memory key (**C**).
     ↳   The R key (**D**) lights up.

2. Touch the R key (**D**).
↳ The selected setting is saved to non-volatile memory.

11.10.2.5   **Exiting the test step and service routine**
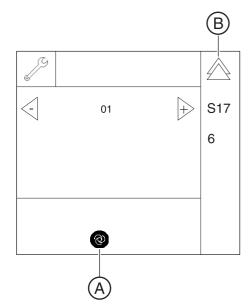
Touch the Service key (**A**) or the double arrow key (**B**) to go back to the menu for selecting service routines.

Touch the double arrow key (**B**) in the service menu to go back to the main menu.

Exception: Service routine S017

In service menu S017, touch the Service key (**A**) to go to the next test step in the service routine.

11.10.3 S017: Configuration service

SR*	SA**	Function
S017		Unit configuration
S017.2	Yes	Configuring the hardware version
S017.3	Yes	Enter the country group code
S017.4	Yes	Select a language
S017.5	Yes	Select a language set
S017.6	Yes	Enable/disable the remote control
S017.8	Yes	Selecting the kV/mA level series
S017.12	Yes	Enabling/disabling the preview image
S017.13	Yes	Enable/disable the welcome screen
S017.14	Yes	Enable/disable certain lines of the welcome screen
S017.15	Yes	Activate/deactivate the acoustic signal for end of exposure
S017.17	Yes	Trigger save/restore function for DX61 data
S017.18	Yes	Activation of the occlusal bite block function (for occlusal bite block only) **NOTICE!** This service routine may be selected only for units with an occlusal bite block; otherwise, the unit will malfunction!
S017.21	Yes	Configuration of angle pre-selection (temporomandibular joint) for the TM1 and TM2 user programs
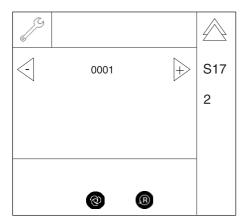
* SR=service routine, ** SA=security access

11.10.3.1 S017: Test step 2
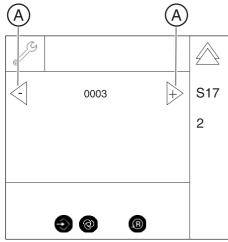
Configuring the hardware version

Selection field	Code	Function
1	0001	Panoramic digital
	0003	Panoramic digital, ceph left digital
	0005	Panoramic digital, ceph right digital
	0201	XG 3D + panoramic digital*
	0203	XG 3D + panoramic digital, ceph left digital
	0205	XG 3D + panoramic digital, ceph right digital

* Factory setting
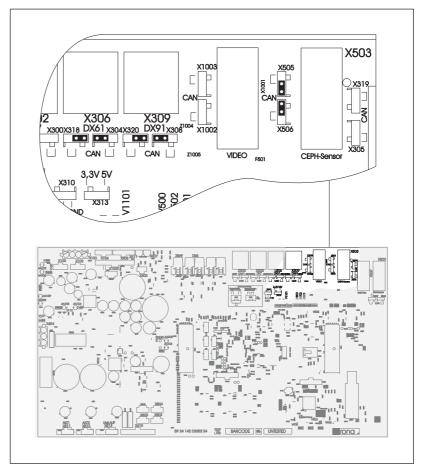
1. Call service routine S017.2 [→ 125].
   ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the code for the required hardware version in selection field 1 (see table).
   ↳ Once the hardware version has been selected, the Memory key lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].
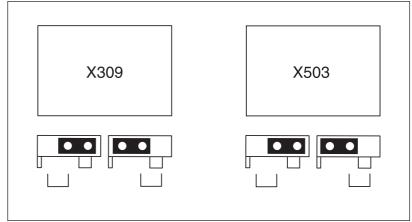
Checking the jumper position on board DX1

➤ Check the jumper positions of the sockets on board DX1:
X309 (DX91, ceph sensor) and
X503 (DX81, ceph sensor)
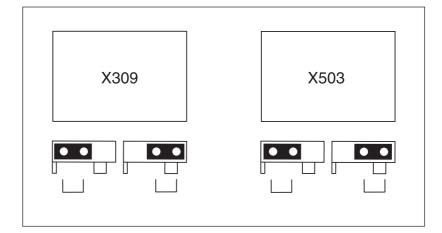
0001 = Panoramic digital

Jumper inside: Cephalometer not connected, i.e. connector not plugged in.

0003 and 0005 = Panoramic digital, ceph left and ceph right respectively

Jumper outside: Cephalometer connected, i.e. connector plugged in.
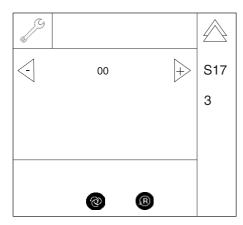
11.10.3.2 **S017: Test step 3**

Enter the country group code
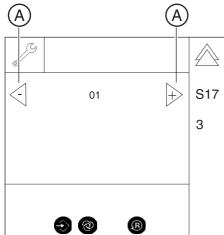
Selection field	Code	Function
1	00	Worldwide*
	01	Asia
	02	USA

* Factory settings:

1. Call service routine S017.3 [→ 125].
    ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the required country group code in selection field 1 (see table).
    ↳ Once the country group code has been selected, the Memory key lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].
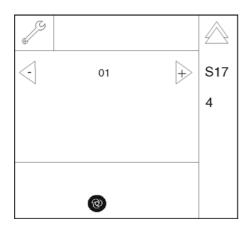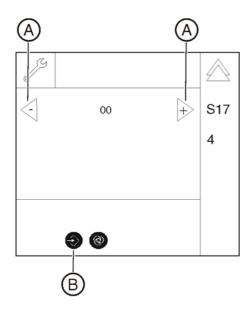
S017: Test step 4

Select a language

Selection field	Code	Function*
1	00	English
	01	German
	02	French
	03	Italian
	04	Dutch
	05	Spanish
	06	Russian
	08	Portuguese
	10	Chinese (PRC)
	11	Korean
	12	Japanese
	13	Chinese (Taiwan)

* Factory setting varies by order

1. Call service routine S017.4 [→ 125].

   ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the code for the required language in selection field 1 (see table).

   ↳ Once the language has been selected, the Memory key (**B**) lights up.

3. Save the setting [→ 129].
   IMPORTANT: If the selected language is not in the installed language set (S017: Test step 5 [→ 137]), "English" is set by default.

4. Exit the service routine [→ 129].

11.10.3.4   S017: Test step 5
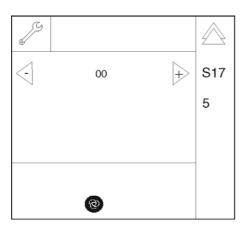
Select a language set

IMPORTANT
A software update must be performed every time the language set changes, in order to install the corresponding languages in the system.
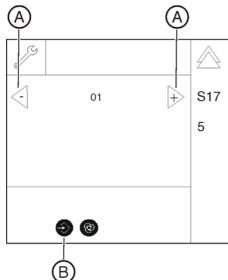
Selection field	Code	Function*
1	00	German, English, French, Italian
	01	German, English, French, Dutch
	02	German, English, Spanish, Russian
	03	German, English, Korean, Japanese
	04	German, English, Spanish, Portuguese
	05	German, English, Chinese (PRC), Chinese (Taiwan)

* Factory setting varies by order

1. Call service routine S017.5 [→ 125].
   ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the code for the required language set in selection field 1 (see table).
   ↳ Once the language set has been selected, the Memory key (**B**) lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].
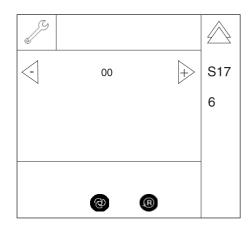
11.10.3.5   S017: Test step 6

Enable/disable the remote control
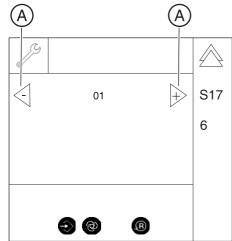
Selection field	Code	Function
1	00	Remote control disabled*
	01	Remote control enabled

* Factory setting

1. Call service routine S017.6 [→ 125].
   - ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the code for the required setting in selection field 1 (see table).
   - ↳ Once the required setting has been selected, the Memory key lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].
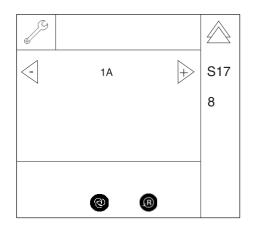
11.10.3.6 S017: Test step 8
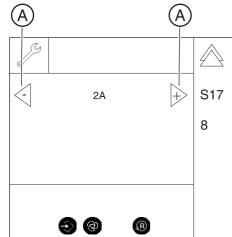
Selecting the kV/mA level series

Selection field	Code	Function
1	1A	16 mA series for pan
		16 mA series for ceph
	2A	8 mA series for pan
		16 mA series for ceph
	4A*	8 mA/16 mA series for pan
		16 mA series for ceph

* Factory setting

1. Call service routine S017.8 [→ 125].
   ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use arrow keys (**A**) to select the required setting in selection field 1 (see table).
   ↳ Once the required setting has been selected, the Memory key lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].
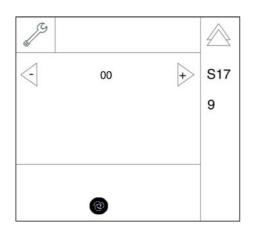
11.10.3.7 S017: Test step 9

Activate/deactivate operation with board DX41
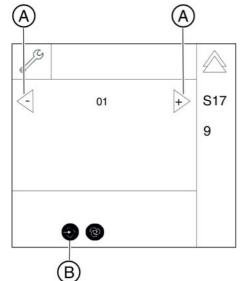
This service routine is used to configure operation of the system with or without module DX41. This configuration is necessary for software updates and module replacement of board DX11 if systems with or without board DX41 should be supported.

Selection field	Code	Function
1	00	Board DX41 inactive*
	01	Board DX41 active

* Factory setting

1. Call service routine S017.9 [→ 125].
   - ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use arrow keys (**A**) to select the required code in selection field 1 (see table).
   - ↳ Once the required setting has been selected, the Memory key (**B**) lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].

11.10.3.8   S017: Test step 12
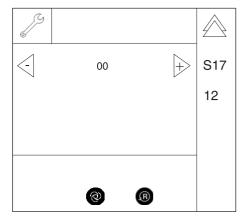
Enabling/disabling the preview image

IMPORTANT
The preview image is automatically disabled for volume exposures, regardless of the setting in service routine S017.12.
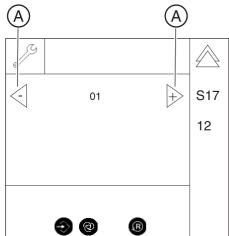
Selection field	Code	Function
01	00	Preview image disabled
	01	Preview image enabled*

* Factory setting

1. Call service routine S017.12 [→ 125].
   - ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use arrow keys (**A**) to select the required setting in selection field 1 (see table).
   - ↳ Once the required setting has been selected, the Memory key lights up.

3. Save the setting [→ 129].
4. Exit the service routine [→ 129].
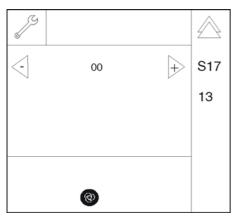
11.10.3.9   **S017: Test step 13**

Enable/disable the welcome screen
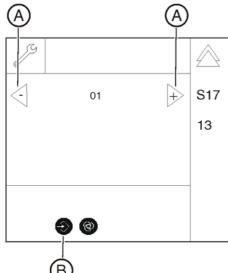
Selection field	Code	Function
01	00	Welcome screen disabled
	01	Welcome screen enabled*

* Factory setting

1. Call service routine S017.13 [→ 125].
   - ↳ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use arrow keys (**A**) to select the required setting in selection field 1 (see table).
   - ↳ Once the required setting has been selected, the Memory key (**B**) lights up.

3. Save the setting [→ 129].

4. Exit the service routine [→ 129].
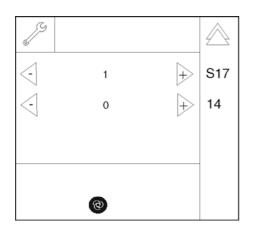
11.10.3.10 S017: Test step 14

Enable/disable certain lines of the welcome screen
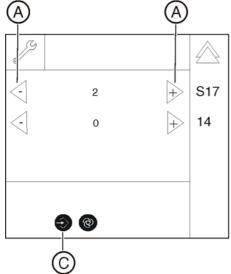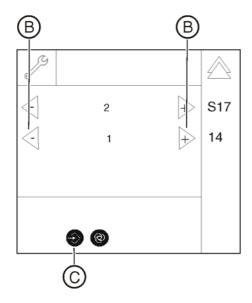
Selection field	Code	Meaning/Function
1	1	First name
	2	Last name
	3	Date of birth
	4	Patient number
2	0	Inactive*
	1	Active

* Factory setting

1. Call service routine S017.14 [→ 125].
   ↳ Once the service routine has been selected, the code for the line currently selected is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the required line in selection field 1 (see table).
   ↳ The activation status code is displayed in selection field 2.

3. Use the arrow keys (**B**) to select the code for the required state of the line selected in selection field 1 in selection field 2 (see table).

   ⮥ Once the required setting has been selected, the Memory key (**C**) lights up.

4. Save the setting [→ 129].

5. Exit the service routine [→ 129].
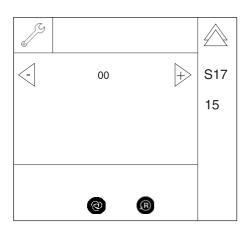
11.10.3.11   **S017: Test step 15**

Selection field	Code	Function
1	00	Acoustic signal indicating the end of the exposure is disabled
	01	Acoustic signal indicating the end of the exposure is enabled*
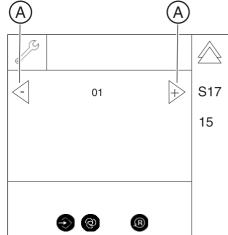
* Factory setting

Activate/deactivate the acoustic signal for end of exposure

1. Call service routine S017.15 [→ 125].
    ⮡ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the required setting in selection field 1 (see table).
    ⮡ Once the required setting has been selected, the Memory key lights up.
3. Save the setting [→ 129].
4. Exit the service routine [→ 129].

11.10.3.12   S017: Test step 17

Trigger save/restore function for DX61 data
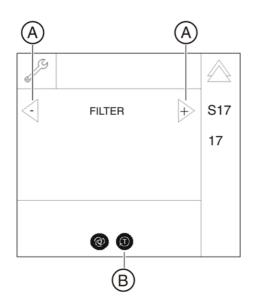
Selection field	Parameter/Display	Meaning/Range of values
1	FILTER	Type of filter*
	MECHANICS	Type of mechanics
2	For FILTER setting:	
	01	0.8 mm Cu (worldwide)
	02	1.8mm Cu (BRD)*
	03	Not in use
	For MECHANICS setting:	
	01	ORTHOPHOS XG3D^{ready}
	02	ORTHOPHOS XG 3D*
3	61 → 11	Direction of data transfer = DX61 → DX11
	11 → 61	Direction of data transfer = DX11 → DX61
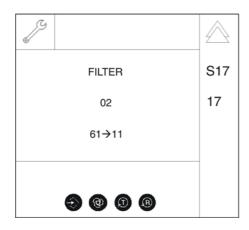
* Factory setting

IMPORTANT
Filter type "02" (1.6 mm Cu) and mechanics type "02" (ORTHOPHOS XG 3D) must be set in the ORTHOPHOS XG 3D volume tomograph.
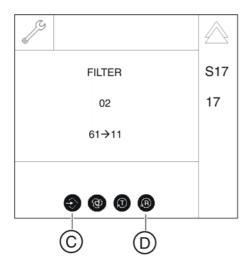
1. Call service routine S017.17 [→ 125].
   - ↳ Once the service routine has been selected, "FILTER" is displayed in selection field 1.

2. Use the arrow keys (**A**) to select which type ("FILTER" or "MECHANICS") you wish to check in selection field 1.
   NOTICE! Check the need for adjustment for both "FILTER" and "MECHANICS" one after the other.

3. Confirm your selection by pressing the T key (**B**).
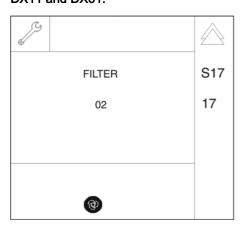
The filter or mechanics type configuration is not identical on modules DX11 and DX61.

The filter or mechanics type configuration is identical on modules DX11 and DX61.

Ꙫ The code for the standard setting (filter, and mechanics type) is displayed in selection field 2 (see table).

Ꙫ The transfer direction for the subsequent recovery (adjustment) of the data is displayed in selection field 3 (see table).
Pressing the T key (**B**) reverses the data transfer direction.

4. Perform the adjustment for the second type ("FILTER" or "MECHANICS").

IMPORTANT
Adjustment can only be performed once for each type ("FILTER" or "MECHANICS"). If the configuration on both modules is identical, it is only displayed but cannot be modified.

Scenario 1: After replacing the DX11 board or the complete diaphragm mechanism ex works. In a scenario like this, the data must be transferred from the DX61 board to the DX11 board.

1. Touch the T key (**B**) to set the transfer direction "DX61 → DX11".

2. To transfer and save the DX61 data to board DX11, press the Memory key (**C**) (R key (**D**) lights up) followed by the R key (**D**).

   Ꙫ The data is saved from board DX61 to board DX11.

Scenario 2: After replacing the DX61 board in an installed diaphragm mechanism. In a scenario like this, the data must be transferred from the DX11 board to the DX61 board.

1. Touch the T key (**B**) to set the transfer direction "DX11 → DX61".

2. To transfer and save the DX11 data to board DX61, press the Memory key (**C**) (R key (**D**) lights up) followed by the R key (**D**).

   Ꙫ The data is saved from board DX11 to board DX61.

3. Exit the service routine [→ 129].

IMPORTANT
If no valid information is available on the DX11 board, "initial" is displayed as the filter type on the Easypad. This value cannot be transferred; it can only be overwritten.

The configuration is read-only and cannot be edited.
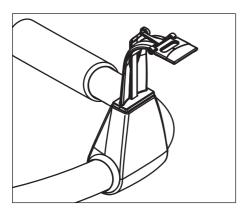
The filter or mechanics type configuration is not valid on either module, DX11 or DX61.

If there is not a valid configuration on either of the two modules, use the arrow keys (**A**) to select the filter or mechanics type manually in selection field 2.

11.10.3.13 S017: Test step 18 (occlusal bite block only)

Activation of occlusal bite block function

When the occlusal bite block function is activated, all previously existing calibration values are overwritten with default data (factory setting) where applicable. Once the function has been activated, the unit sends error message E1 11 18 to indicate the need for adjustment.

Following activation of the function, service routine S018.9 also has to be run to check or execute the adjustment function.

A check also has to be made to ascertain whether the creep speed required for operation has been configured on this unit. To do this, run service routine S018.10.
Error message E1 11 18 disappears as soon as the two service routines mentioned above have been performed.
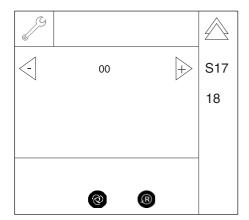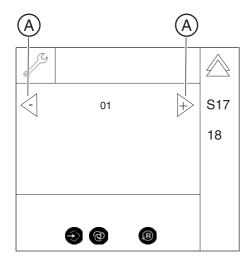
Should the customer wish to set a nominal angle deviating from the factory setting (7°), make the corresponding configuration settings via service routine S018.7).

Selection field	Code	Function
1	00	Occlusal bite block function deactivated*
	01	Occlusal bite block function activated

* Factory setting

1. Call service routine S017.18 [→ 149].

    ⮎ Once the service routine has been selected, the code for the current setting is displayed in selection field 1.

2. Use arrow keys (**A**) to select the required setting in selection field 1 (see table).

   ↳ Once the required setting has been selected, the Memory key lights up.

3. Save the setting [→ 129].
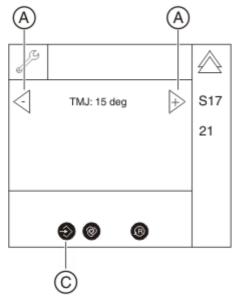
4. Exit the service routine [→ 129].
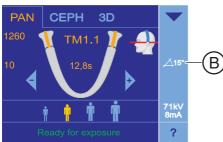
11.10.3.14 ## S017: Test step 21

Configuration of angle pre-selection (temporomandibular joint) for the TM1 and TM2 user programs

Selection field	Parameters	Function
1	Angle pre-selection	00 deg*
		05 deg
		10 deg
		15 deg

* Factory setting

1. Call service routine S017.21 [→ 125].
   - ↳ Once the service routine has been selected, the current angle pre-selection setting is displayed in selection field 1.

2. Use the arrow keys (**A**) to select the required angle pre-selection in selection field 1 (see table).
   - ↳ Once the country group code has been selected, the Memory key (**C**) lights up.

3. Save the setting [→ 129].

↳ The angle pre-selection is displayed on the touchscreen on the control panel (**B**) (see also Operating Instructions).

4. Exit the service routine [→ 129].

11.10.4 S018: Service for height adjustment

SR*	SHZ**	Function
S018		Service for height adjustment
S018.2	No	Setting the maximum travel height
S018.3	No	Undoing the maximum travel height setting
S018.4	No	Checking the height adjustment sensor system
S018.5	No	Setting the minimum travel height
S018.6	No	Undoing the minimum travel height setting
S018.7	No	Setting the nominal angle for the occlusal bite block (as required by the customer) (occlusal bite block only) **NOTICE!** This routine may only be selected for units with occlusal bite block; otherwise, the unit will malfunction!
S018.8	No	Function test of the occlusal bite block (occlusal bite block only) **NOTICE!** This routine may only be selected for units with occlusal bite block; otherwise, the unit will malfunction!
S018.9	No	Adjustment of the AD acceptance angle values and the zero point **NOTICE!** This routine may only be selected for units with occlusal bite block; otherwise, the unit will malfunction!
S018.10	No	Setting the PWM values for the height adjustment creep speed (PWM=Pulse Width Modulation) **NOTICE!** This routine may only be selected for units with occlusal bite block; otherwise, the unit will malfunction!

* SR=service routine, ** SHZ=security access
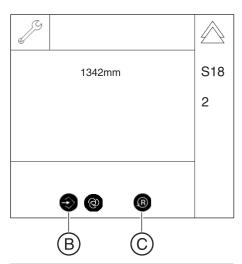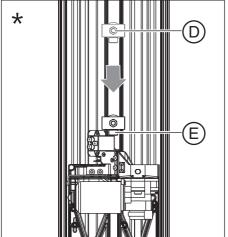
S018: Test step 2

Set the maximum travel height

1. Move the unit to the required maximum travel height by pressing the Up/Down keys in the user mode on the control panel.
2. Call service routine S018.2 [→ 125].
   - ↳ Once the service routine has been selected, the current height position is displayed in selection field 1.
   - ↳ The Memory key (**B**) lights up.
3. To save the maximum travel height, touch the Memory key (**B**) (R key (**C**) lights up) followed by the R key (**C**).
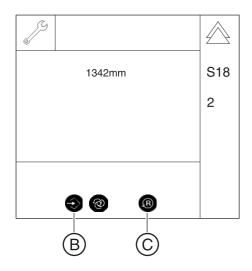
4. Set the mechanical limit stop at the unit:
   Loosen nut (**D**) and move mechanical limit stop (**E**) for the limit switch until it engages. Tighten the nut (**D**) again.
   The next time the UP key is pressed, the unit stops 10 mm below the limit switch.
5. Exit the service routine [→ 129].

11.10.4.2   S018: Test step 3

Undo the maximum travel height setting

1. Call service routine S018.3 [→ 125].

   ↳ Once the service routine has been selected, the current height position is displayed in selection field 1.

   ↳ The Memory key (**B**) lights up.

2. To lift the limit for the maximum travel height setting, touch the Memory key (**B**) (R key (**C**) lights up) followed by the R key (**C**).

3. Exit the service routine [→ 129].

1342mm

S18

2

B   C
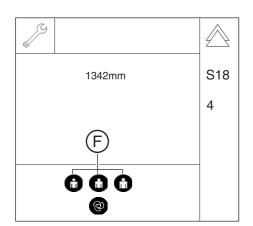
S018: Test step 4

Check the height adjustment sensor system

This service routine is used to move the unit up or down as far as the limit switches using the Up/Down keys on the control panel. The "soft limit positions" set by the software are ignored in this case.

Display on the control panel	Status	Meaning
Patient symbol key 1	lit	Correction switch activated
	not lit	Correction switch not activated
Patient symbol key 2	lit	Lower limit switch activated
	not lit	Lower limit switch not activated
Patient symbol key 3	lit	Upper limit switch activated
	not lit	Upper limit switch not activated

1. Call service routine S018.4 [→ 125].
   - ↳ Once the service routine has been selected, the current height position is displayed in selection field 1.
   - ↳ Patient symbol keys 1 to 3 (**F**) show the switching state of the limit switches (see table)
     If the patient symbol key is lit, the corresponding switch is activated, i.e. the unit is at a position value greater than 1500.

2. Use the UP/DOWN keys on the control panel to move the unit up and down and use the patient symbol keys (**F**) to check the switching states.
3. Exit the service routine [→ 129].
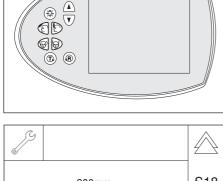
11.10.4.4 **S018: Test step 5**

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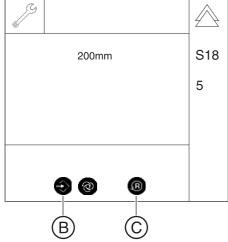
Setting the minimum travel height is possible only for a unit height that is below the lower correction switch level (< position value of 1500)!

1. In user mode, move the unit to the required minimum travel height by pressing the Up/Down keys (**A**).

2. Call service routine S018.5 [→ 125].

   ⮡ Once the service routine has been selected, the current height position is displayed in selection field 1.

   ⮡ The Memory key (**B**) lights up.

3. To save the minimum travel height, touch the Memory key (**B**) (R key (**C**) lights up) followed by the R key (**C**).

4. Exit the service routine [→ 129].
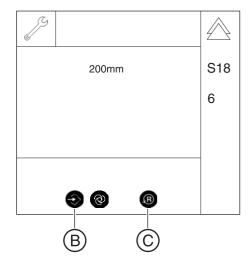
The limitation of the minimum travel height is purely software based. The lower limit switch is not mechanically adapted to the new minimum travel height!

200mm

S18

5

11.10.4.5   ### S018: Test step 6

Undoing the minimum travel height setting

1. Call service routine S018.6 [→ 125].
   - ⤷ Once the service routine has been selected, the current height position is displayed in selection field 1.
   - ⤷ The Memory key (**B**) lights up.

2. To undo the minimum travel height setting, touch the Memory key (**B**) (R key (**C**) lights up) followed by the R key (**C**).

3. Exit the service routine [→ 129].

| 200mm | S18 6 |

Ⓑ   Ⓒ
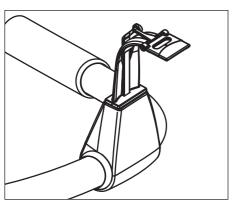
11.10.4.6   S018: Test step 7 (occlusal bite block only)
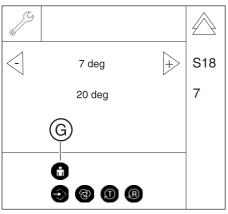
Setting the nominal angle for the occlusal bite block (as required by the customer)

Symbol on the control panel	Status	Meaning
Patient symbol key 1 (**G**)	lit	Occlusal bite block connected
	not lit	Occlusal bite block not connected
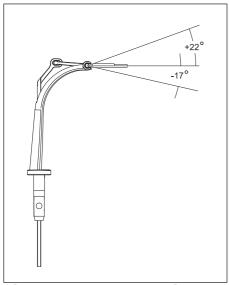
Selection field	Parameter/Display	Range of values
1	Nominal angle of the bite block plate	-17° to +22°
2	Measured deflection of the bite block plate	-17° to +22°
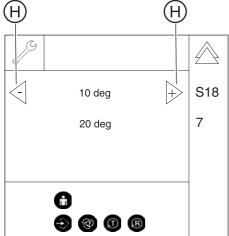
1. Call service routine S018.7 [→ 125].
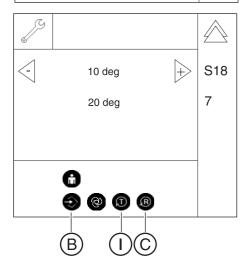
↳   The currently measured angle of the bite block plate is displayed and permanently updated in selection field 2 (possible deflection: -17° to +22°).

↳   The display of patient symbol key 1 (**G**) indicates whether or not the bite block is connected (see table).

2. Use the arrow keys (**H**) to set the required nominal angle in selection field 1 (possible range: -17° to +22°).
   Tip: You can also set the required angle manually on the occlusal bite block and transfer this angle setting to selection field 1 by pressing the T key (**I**).
   - ⮑ The Memory key (**B**) lights up.
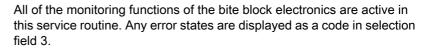
3. To save the nominal value, touch the Memory key (**B**) (R key (**C**) lights up) followed by the R key (**C**).

4. Exit the service routine [→ 129].

11.10.4.7   S018: Test step 8 (occlusal bite block only)
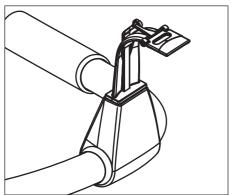
Functional test of the occlusal bite block

Symbol on the control panel	Status	Meaning
Patient symbol key 1 (**G**)	lit	Occlusal bite block connected
	not lit	Occlusal bite block not connected

Selection field	Display
1	Angle of the bite block plate calculated on the basis of the calibration
2	Measured AD value providing the basis for the angle calculation
3	Codes for possible error modes [→ 161]

All of the monitoring functions of the bite block electronics are active in this service routine. Any error states are displayed as a code in selection field 3.

1. Call service routine S018.8 [→ 125].

↳ The current angle of the bite block plate or the one calculated based on the calibration is displayed in selection field 1.

↳ The currently measured AD value leading to the angle calculation is displayed in selection field 2.

↳ The codes of the possible error modes of the acquisition electronics are displayed in selection field 3 (see Codes of possible error modes [→ 161]).

↳ The display of patient symbol key 1 (**G**) indicates whether or not the bite block is connected (see table).

2. Exit the service routine [→ 129].

11.10.4.7.1 Codes of possible error modes

Display	Error	Troubleshooting measures
01	Normal state	No action
02	Plug X1000 is not plugged in on board DX1	Check plug for occlusal bite block on board DX1.
03	Persistent ADC values	Check cabling and plug connections on board DX1 and occlusal bite block electronics.
04	Interruption of the 5 V line	
05	Interruption of V_{ref-} line	
06	Interruption of V_{out-} line	
07	Interruption of V_{GND} line	
08	Interruption of "Connect" line	
09	Defective choke, pin 3 detached	Replace occlusal bite block electronics (board DX51).
10	Defective choke, pin 1 detached	
11	Defective clock generator	
12	Resistor R11 not soldered	
13	Plug on occlusal bite block not inserted	Check plug for occlusal bite block on occlusal bite block electronics (board DX51).
14	Composite error	Check cabling and plug connections on board DX1 and occlusal bite block electronics.
15	Calculated angle too small	Perform a readjustment via service routine S018.9.
16	Calculated angle too large	
17	Error on ADC channel 2	Replace occlusal bite block electronics (board DX51); check cabling and plug connections on board DX1 and occlusal bite block electronics.

You can draw conclusions concerning the correctness of the angle acquisition based on the plausibility of these displays. A plausible constellation (reference unit) would be:

+22° → AD = 1273

-17° → AD = 3124

The settings may differ unit specifically.

11.10.4.8   S018: Test step 9 (occlusal bite block only)

Adjustment of the AD acceptance angle values and the zero point

In the adjustment of the AD acceptance angle values, three AD values must be adjusted and saved:
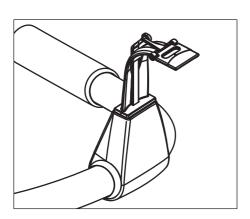
- *ZP (zero point):* Zero point; applied whenever no bite block is plugged in.

- *U (Upper):* Upper value; applied whenever the bite block is plugged in and the bite block plate is deflected all the way up.

- *L (Lower):* Lower value; applied whenever the bite block is plugged in and the bite block plate is deflected all the way down.
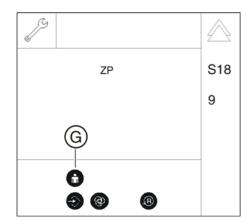
Symbol on the control panel	Status	Meaning
Patient symbol key 1 (**G**)	lit	Occlusal bite block connected
	not lit	Occlusal bite block not connected

Selection field	Display	Meaning
1	ZP	Zero point
2	U	Upper value
3	L	Lower value

➤ Call service routine S018.9 [→ 125].
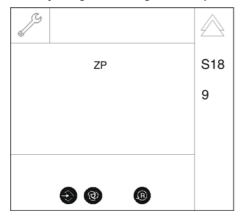
   ↳ The data type intended for the next storage function is displayed in selection field 1.

   ↳ The display of patient symbol key 1 (**G**) indicates whether or not the bite block is connected (see table).
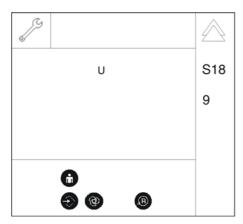
ZP: Adjusting and saving the zero point
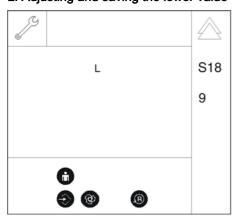
1. Take the occlusal bite block out of the bite block holder.

☙ "ZP" (for zero point) is displayed in selection field 1.

☙ The Memory key lights up.

2. To save the zero point "ZP", first press the Memory key (the R key lights up) and then the R key.

☙ The value for the zero point "ZP" is accepted.

U: Adjusting and saving the upper value

1. Insert the occlusal bite block into the bite block holder and deflect the bite block plate all the way up (up to the stop).

☙ "U" (for upper value) is displayed in selection field 1.

☙ The Memory key lights up.

2. To save the upper value "U", first press the Memory key (the R key lights up) and then the R key.

☙ The value for the upper value "U" is accepted.

L: Adjusting and saving the lower value

1. Deflect the bite block plate all the way down (up to the stop).

☙ "L" (for lower value) is displayed in selection field 1.

☙ The Memory key lights up.

2. To save the lower value "L", first press the Memory key (the R key lights up) and then the R key.

☙ The value for the lower value "L" is accepted.

☙ The adjustment of the AD values is now finished.

Checking the adjustment

1. Check the adjustment via service routine S018.7 [→ 158]. To do this, move the bite block plate and check whether the adjustment range is between -17° and +22°.

2. Exit the service routine [→ 129].

11.10.4.9   ### S018: Test step 10 (occlusal bite block only)

Setting the PWM values for the height adjustment creep speed

In user mode, check whether a correction is required for the speed for upward and downward movement (creep speed). Here the bite block must be deflected in such a way that the creep speed is effective in the relevant direction (observe green arrows). The PWM index values are set correctly if:
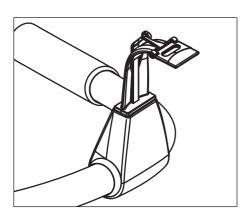
- the drive runs at approximately the same speed in both directions

- the drive spontaneously starts without jolting and concurrent to key actuation

- the travel speed does not exceed 5 mm/s.

Symbol on the control panel	Status	Meaning
Patient symbol key 1 (**G**)	lit	Occlusal bite block connected
	not lit	Occlusal bite block not connected
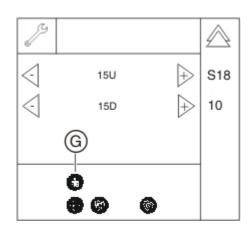
Selection field	Parameters	Range of values
1	U (upward travel)	1U – 15U*
2	D (downward travel)	1D – 15D*

* Factory setting

Adjusting and saving the PWM index values

1. Call service routine S018.10 [→ 125].
   - ↳ The PWM index for upward travel "U" (up) is displayed in selection field 1.
   - ↳ The PWM index for downward travel "D" (down) is displayed in selection field 2.
   - ↳ The display of patient symbol key 1 (**G**) indicates whether or not the occlusal bite block is connected (see table).

2. Select the desired index values using the arrow keys in selection fields 1 and 2 (see table).

3. To save the index values, first press the Memory key (the R key lights up) and then the R key.

4. Exit the service routine [→ 129].

11.10.5 S037: Network service

SR*	SA**	Function
S037		Network service
S037.1	No	Displaying the network data
S037.2	Yes	Delete network addresses or set them to factory defaults
S037.3	Yes	Set boot mode: DYNAMIC (DHCP/AutoIP) / STATIC (fixed address)
S037.4	Yes	Manual input of static network settings (IP address, default gateway address, and subnet mask)

* SR=service routine, ** SHZ=security access

11.10.5.1 S037: Test step 1

Displaying the network data
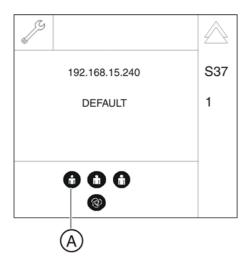
If all network data is set to default, the system is in UDP boot mode.

Symbol on the control panel	Status	Meaning
Patient symbol key 1 (**A**)	lit	The IP address is displayed in selection field 1*
Patient symbol key 2 (**B**)	lit	The default gateway is displayed in selection field 1
Patient symbol key 3 (**C**)	lit	The subnet mask is displayed in selection field 1

* Factory setting
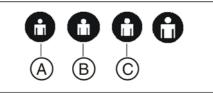
Selection field	Parameter/Display	Meaning
1	IP address, default gateway, or subnet mask of the unit	
2	default	Fixed address*
	static	Fixed address, modified setting
	dynamic	Automatic address assignment

* Factory setting

1. Call service routine S037.1 [→ 125].

   ↳ Once the service routine has been selected, the IP address of the unit is displayed in selection field 1 (see table).

   ↳ "default", "static" or "dynamic" is displayed in selection field 2 (see table).

2. You can display various items of network data in selection field 1 by pressing the patient symbol keys (**A**, **B**, or **C**) (see table).

   ↳ The patient symbol key selected in each case lights up.

3. Exit the service routine [→ 129].

11.10.5.2 S037: Test step 2
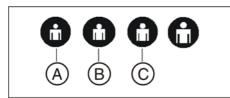
Setting the default IP address, default gateway address and default subnet mask

IMPORTANT
The network address can only be restored to the factory setting (default value) in fixed address boot mode (STATIC or no DHCP).
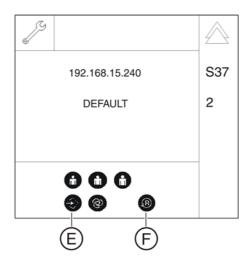
Symbol on the control panel	Status	Meaning
Patient symbol key 1 (**A**)	lit	The IP address is displayed in selection field 1*
Patient symbol key 2 (**B**)	lit	The default gateway is displayed in selection field 1
Patient symbol key 3 (**C**)	lit	The subnet mask is displayed in selection field 1

1. Call service routine S037.2 [→ 125].
   - ↳ Once the service routine has been selected, the network data is displayed as in test step 1 [→ 165].
   - ↳ The Memory key and the R key also become visible.
   - ↳ The Memory key lights up.

2. Use the patient symbol keys (**A**, **B**, or **C**) to check the network data existing in the system prior to the restore operation (see table).
   - ↳ The patient symbol key selected in each case lights up.

192.168.15.240   S37

DEFAULT   2

E   F
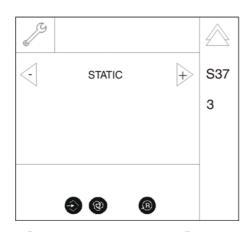
3. To reset the network data, press the Memory key (**E**) (R key lights up) followed by the R key (**F**).

   ⮕ The default network data (factory default setting) is displayed. To toggle the display of the various items of network data, proceed as in test step 1 [→ 165].

4. Restart the unit.

5. Exit the service routine [→ 129].

S037: Test step 3

Configuring boot mode

Selection field	Parameters	Meaning
1	DYNAMIC	Automatic address assignment (DHCP/AutoIP)
	STATIC	Fixed address*

* Factory setting

1. Call service routine S037.3 [→ 125].
   - ↳ Once the service routine has been selected, the current boot mode of the unit is displayed in selection field 1.

2. Use arrow keys (**A**) to select the required boot mode "automatic address assignment" (DYNAMIC) or "fixed address" (STATIC) in selection field 1 (see table).
   - ↳ The Memory key (**B**) lights up.

3. Save the setting [→ 129].
4. Exit the service routine [→ 129].

11.10.5.4   S037: Test step 4

Manual input of static network settings (IP address, default gateway address, and subnet mask)
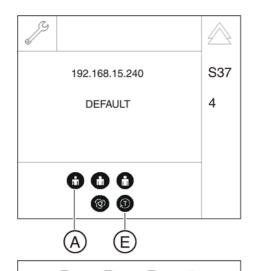
This service routine cannot run in DYNAMIC mode (T key is blocked).

Symbol on the control panel	Status	Function
Patient symbol key 1 (**A**)	lit	The IP address is displayed in selection field 1*
		or - after pressing the T key - number pad B1 is selected
Patient symbol key 2 (**B**)	lit	The default gateway is displayed in selection field 1
		or - after pressing the T key - number pad B2 is selected
Patient symbol key 3 (**C**)	lit	The subnet mask is displayed in selection field 1
		or - after pressing the T key - number pad B3 is selected
Patient symbol key 4 (**D**)		or - after pressing the T key - number pad B4 is selected
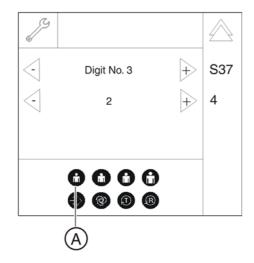
* Factory setting

Selection field	Parameter/Display	Meaning
1	IP address, default gateway, or subnet mask of the unit	
	or - after pressing the T key - selected digit	
2	default	Fixed address*
	static	Fixed address, modified setting
	dynamic	Automatic address assignment

* Factory setting

1. Call service routine S037.4 [→ 125].
   - ⅁ Once the service routine has been selected, the IP address of the unit is displayed in selection field 1.
   - ⅁ "DEFAULT", or "STATIC" or "DYNAMIC" is displayed in selection field 2 (see table).

2. You can display various items of network data in selection field 1 by pressing the patient symbol keys (**A**, **B**, or **C**) (see table).
   - ⅁ The patient symbol key selected in each case lights up.

3. To change the selected parameter, first press the T key (**E**).

4. Now use the patient symbol keys to select the required number pad 1-4 (**A-D**) (see also table):
   A = Number pad B1
   B = Number pad B2
   C = Number pad B3
   D = Number pad B4
   - ⅁ The patient symbol key selected in each case lights up.
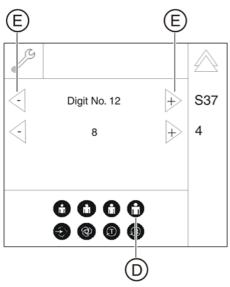
   - ⅁ The digit currently selected for changing is displayed in selection field 1 ("Digit No. 3" in the example).
   Important: The number of the digit always refers to the currently selected number pad.

   - ⅁ The current value of the corresponding digit is displayed in selection field 2 ("2" in the example).

Digit No. 12

192.168.015.**178**

B4

5. Use arrow keys (**E**) to select the digit to be changed in selection field 1 ("Digit No. 12" in the example).
   - ↳ The corresponding patient symbol key (**D**) lights up.
   - ↳ Selection field 2 displays the value of the currently selected digit.

Digit No. 12

192.168.015.**179**

B4

6. To change the value for the digit, use arrow keys (**F**) in selection field 2.
   - ↳ The Memory key (**G**) lights up.
7. Save the setting [→ 129].
8. Exit the service routine [→ 129].
9. Perform a restart of the device.

11.11 Using demo mode – operation without radiation release

If the unit is to be presented as a demo unit at trade fairs or exhibitions, it must be ensured that radiation release is blocked.

11.11.1 Switching on demo mode

When operated in demo mode, the unit must not release any radiation.

For this reason, you must take the following safety measures:
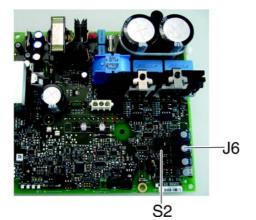
1. Switch off the unit.
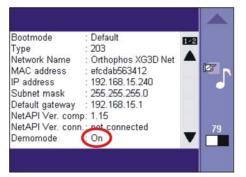
⚠ DANGER

Perilous shock hazard!

It is essential to switch off the unit and to wait at least another 4 minutes before taking off the covers of the X-ray tube assembly.

---

2. Remove the "Rear tube assembly" cover.

3. Remove the cover plate of board DX6.

4. Set dip switch **S2** (DX6) to **position 2**.
   IMPORTANT: If switch **S2** is not set to position 2 in demo mode before switching off the unit, various error messages will display when the unit is turned back on.

5. Pull cable **L5** (XRAY) off connector **J6/J103** (DX6).
   ⮡ Radiation release is now no longer possible.

6. Switch on the unit and check the mode on the info screen.
   Demo mode: ON means that: Demo mode is switched on (radiation release is not possible)
   Demo mode: OFF means that: Demo mode is switched off (radiography, X-ray radiation are possible!)

7. Switch the unit off again and reattach the cover plate and the tube assembly cover by following the dismantling procedure in reverse order.

11.11.2 Switching off demo mode

1. Switch off the unit.

<table>
<tr><td>⚠ DANGER</td></tr>
<tr><td>Perilous shock hazard!</td></tr>
<tr><td>It is essential to switch off the unit and to wait at least another 4 minutes before taking off the covers of the X-ray tube assembly.</td></tr>
</table>

2. Remove the "Rear tube assembly" cover.

3. Remove the cover plate of board DX6.

4. Set the dip switch **S2** (DX6) to **position 1**.

5. Connect cable **L5** (XRAY) to connector **J6/J103** (DX6).

   ↳ Radiation release is now once again possible.

6. Switch on the unit and check the mode on the info screen.
   Demo mode: ON means that: Demo mode is switched on (radiation release is not possible)
   Demo mode: OFF means that: Demo mode is switched off (radiography, X-ray radiation are possible!)

7. Switch the unit off again and reattach the cover plate and the tube assembly cover by following the dismantling procedure in reverse order.
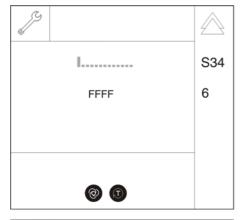
11.11.3   Important information for repacking and transport

IMPORTANT
If a used carton on which one of the shockwatch or tiltwatch indicators has already been tripped is used to package the unit, please make an entry to that effect on the delivery note.
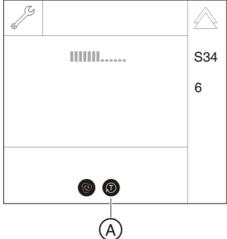
Packing the cephalometer

1. Call service routine S034.6.
   ↳ After calling the service routine, an inactive progress indicator is displayed in selection field 1. Selection field 2 shows the characters "FFFF".

2. Touch the T key (**A**).
   ↳ The cephalometer moves to the packing position. The procedure is visualized by an active progress indicator in selection field 1.

   ↳ When the cephalometer has reached its packing position, "0000" is displayed in selection field 2.

3. Exit the service routine [→ 129].

Packing the panoramic unit
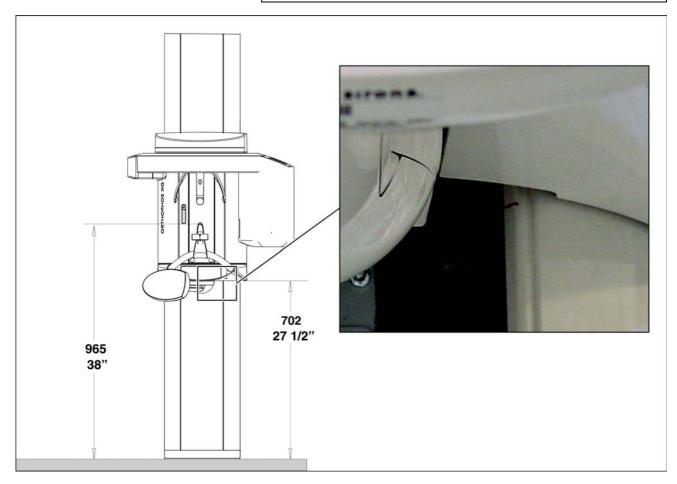
IMPORTANT
The bottom edge of the slide cover must be at the same height as the markings **A** in the column.

⚠ DANGER
Shock hazard!
Be sure to switch off the line power supply before connecting the line voltage!

1. Switch the unit on and move it to its packing height by actuating the up/down keys on the control panel.
   - ↳ Bite block height = 965 mm (displayed as height on the control panel)
   - ↳ Bottom edge of slide cover = 702 mm
2. Pack the panoramic X-ray unit
   (Packing condition (see section "Delivery" [→ 20]).

Dismantling and packaging the X-ray detector

IMPORTANT
For transport, pack the X-ray detector in its original packaging (for packing condition see section "Delivery" [→ 20]).

➤ To dismantle the X-ray detector, follow the same procedure as Installation in reverse order.

Attaching the transport safety device

➤ Install the transport safety device by following the same procedure as Dismantling [→ 56] in reverse order.

12 Startup, measurements and tests (for USA/Canada only)

12.1 Safety

NOTICE
Qualifications of service personnel
Installation and startup may be carried out only by personnel specifically authorized by Sirona.

⚠ WARNING
Perilous shock hazard!
You must switch off the unit and then wait at least 1 minute, for measurements at the tube assembly at least 4 minutes, before you start to connect test cables or remove a cover! For measurements in the area of the power supply terminal, the unit must be disconnected from the junction box of the building installation before you start to connect test cables!

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

⚠ DANGER
X-rays
"Radiation" is signaled by the message "X-RAY active!", a beep, and an X-ray LED.

NOTICE
Risk of damage to boards
Please observe the usual precautionary measures for handling printed circuit boards (ESD). Touch a ground point to discharge static electricity before touching any boards.

IMPORTANT
It is essential that you also observe the notes about the operation of the unit in the Operating Instructions.

12.2 Operation notes

Nominal line voltage

The unit operates in the following nominal line voltage ranges:

- 200 – 240 V
- 50/60 Hz

The permissible line voltage fluctuation is ±10%.

The internal line impedance must not exceed 0.8 Ω.

Only permanent electrical connection of the unit is allowed.

IMPORTANT
The regulation "Federal Performance Standard for Diagnostic X-ray Units, Code of Federal Regulations, Title 21 CFR, Subchapter J" requires a corresponding power supply connection.

Cooling period

The cooling period between two exposures is maintained by an automatic exposure blocking function according to the pulse/pause ratio (see Operating Instructions). The decrementing waiting time count is displayed on the control panel.

Measurements

Always switch the unit off before connecting a measuring instrument.

For safety reasons, the power supply should be switched off at the junction box of the building installation when performing measurements in the vicinity of the power supply unit.

Select the correct current/voltage type and adjust the measuring range to match the expected readings.

Perform continuity tests only on units which are switched off.

If several exposures with radiation must be taken to check a measurement, make sure that the prescribed cool-down intervals are observed. They are maintained by an automatic exposure blocking function (see Operating Instructions).

The pulse/pause ratio is 1:20, i.e. a 20-second pause is maintained for each second of radiation cycle. The pulse/pause ratio is automatically maintained (automatic exposure blocking).

It is essential that you observe the radiation protection regulations applicable in your country prior to radiation release.

12.3 Auxiliary devices required

> ⚠ **CAUTION**
>
> Only use a battery-operated digital multimeter with safety sockets.
> It is essential that you observe the safety and operating notes provided in the operating instructions of the multimeter.

- Battery-operated digital multimeter of type:
    - Fluke 8000 A
    - Philips PM 2816 rms
    - or similar

> ⚠ **CAUTION**
>
> It is essential that you observe the safety and operating notes provided in the operating instructions of the dosimeter.

- Dosimeter for pulsed radiation of type:
    - Mult-O-Meter 512L
    - or similar

> ⚠ **CAUTION**
>
> Use exclusively fully insulated measuring wires.
> Check the measuring wires for damages before use.

- Measuring wires with the following properties:
    - dielectric strength > 1000 V

12.4 Checking the power supply connection
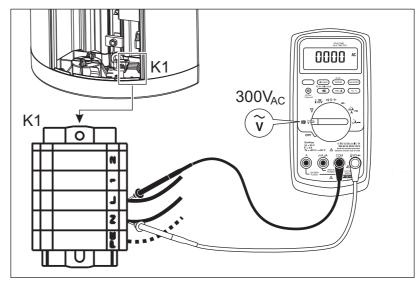
To check the line voltage, the *line voltage drop* must be determined while creating an X-ray. To do this, proceed as follows:

Preparing the measurement

1. **DANGER! After disconnecting the unit from the junction box of the building installation, wait at least 1 minute before starting to check the line voltage!**
    Disconnect the unit from the junction box of the building installation.

2. Remove the "Bottom profile" cover (see Service Manual).

3. **CAUTION! Only use fully insulated measuring wires.**
    Connect the measuring wires as shown in the illustration to the connectors **L** and **N** of the power supply terminal **K1**.

4. On the multimeter, select the voltage measuring range "300 V$_{AC}$".

5. Re-attach the unit to the junction box of the building installation.

6. **DANGER! Do not touch any live components!**
    Set the main switch (A) to I (see also Operating Instructions).

7. Wait for approx. 1 minute.

8. Press the R key.

    ✍   The unit moves to its starting position.

Performing and analyzing a measurement

1. Set the highest kV/mA level, e.g. **90kV/12mA** (see Operating Instructions).

2. Make ready for exposure in SIDEXIS.

3. **CAUTION! Activating the release button triggers X-rays.**
   Activate the release button and take the voltage drop reading on the multimeter display.

   ↳ If the measured voltage drop does *not fall within the permissible tolerance range* (see the following table), notify the customer that a suitable line voltage (according to the notes listed in the Installation Requirements) must be installed.

IMPORTANT
In such a case, the unit must be switched off immediately and disconnected from the junction box of the building installation. It must not be placed in operation!

   ↳ If the measured voltage drop falls within the permissible tolerance range (see the following table), finalize the measurement.

Permissible voltage drop:
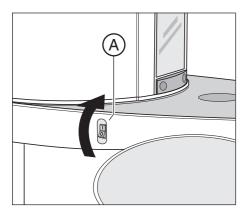
Line voltage, with zero load	Max. permissible line voltage drop
180-208 V	9 V
208-230 V	8 V
230-240 V	7.5 V
240-264 V	7 V

Concluding the measurement

1. Switch the unit on via switch (**A**) (see also Operating Instructions).

2. Disconnect the unit from the junction box of the building installation.

3. **DANGER! Wait at least 1 minute after disconnecting the unit from the junction box of the building installation before removing the measuring wires!**
   Remove the measuring units from the unit.

4. Re-attach the "Bottom profile" cover to the unit.

12.5 Testing the tube voltage (tube assembly 2.0)

Preparing the measurement

1. Attach the Mult-O-Meter sensor in the middle of the combisensor (on 2D sensor side).

2. Set the main switch (**A**) to **I** (see also Operating Instructions).

3. Wait for approx. 1 minute.

4. Press the R key.
   - ⮫ The unit moves to its starting position.

Performing measurements

1. Select the **P1** program (see Operating Instructions).

2. Set the kV/mA level **62 kV/8 mA** (see Operating Instructions).

3. Make ready for exposure in SIDEXIS (see Operating Instructions).

4. **CAUTION! Activating the release button triggers X-rays.**
   Start the exposure by pressing the release button. Hold down the release button until image acquisition is completed and the acoustic signal that indicates the end of the exposure can be heard.

Analyzing measurements

➤ Read the voltage values on the display of the Mult-O-Meter.
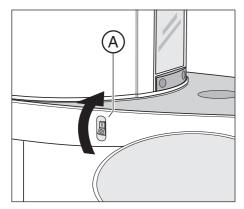
IMPORTANT
The measured tube voltage must correspond with the tube voltage set of 62 kV. The permissible tolerance is ± 10 %.
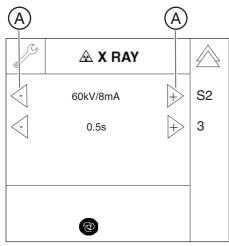
- ⮫ If the measured values *do not fall within the permissible tolerance range*, replace the *tube assembly* (see Service Manual).

- ⮫ If the measured values are within the permissible tolerance range, finalize the measurement.

Concluding the measurement

➤ Switch the unit on via switch (**A**) (see also Operating Instructions).

12.6 Checking the radiation time

Preparing the measurement

1. Attach the Mult-O-Meter sensor in the middle of the combisensor (on 2D sensor side).
2. Set the main switch (**A**) to **I** (see also Operating Instructions).
3. Wait for approx. 1 minute.
4. Press the R key.
   ↳ The unit moves to its starting position.

5. Call the Service menu and the Service routine S002.3 (see Service Manual).
6. Use the arrow keys (**A**) in *selection field 1* to select the kV/mA level **60 kV/8 mA**.
7. Use the arrow keys (**A**) in *selection field 2* to select the radiation time **0.5 s**.

Performing measurements

➢ Initiate the radiation. Hold the release button pressed until the set radiation time has expired.

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 **0.5s** 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

1. Exit the service routine.
2. Switch the unit on via switch (**A**) (see also Operating Instructions).

12.7   Checking the tube current
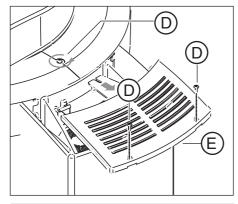
NOTICE
Damage to the measuring unit
The ring assembly and the tube assembly move during the measurement. Make sure that the measuring wires are sufficiently long to allow for the ring movement and that the measuring unit is in a secure position so that it will not fall down.
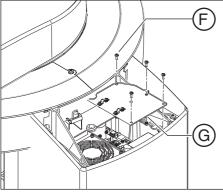
Preparing the measurement

1. Switch off the unit (see Operating Instructions).
   DANGER! After switching off the unit, wait at least 4 minutes (LED V500 on the DX6 must no longer be on) before removing the cover on the tube assembly.

2. Loosen the 3 screws (**D**) and remove the lid of the tube assembly cover (**E**).
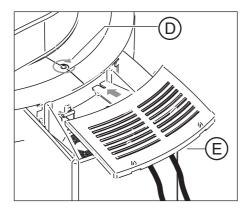
3. Loosen the 4 screws (**F**) and remove the cover plate (**G**).

4. **DANGER! After switching off the unit, wait at least 4 minutes (LED V500 on the DX6 must no longer be on) before removing jumper H from the DX6 board.**
   Remove the jumper (**H**) from connector **X302** on the **DX6** board.

5. **DANGER! Only use fully insulated measuring wires.**
   Connect the digital multimeter with the measuring wires to test points **MA-** (X5-) and **MA+** (X4+) at connector **X302** on the **DX6** board.

6. On the multimeter, select the **current measuring range 20mA DC**.

7. **NOTICE! If the lid of the tube assembly cover is not attached, the ring circulation is impeded and the unit can be damaged.**
   Temporarily install the lid of the tube assembly cover (**E**) on the unit using the screw (**D**).

8. **DANGER! Do not touch any live components!**
   Set the main switch (**A**) to **I** (see also Operating Instructions).

9. Wait for approx. 1 minute.

10. Press the R key.
    ↳ The unit moves to its starting position.

Performing measurements
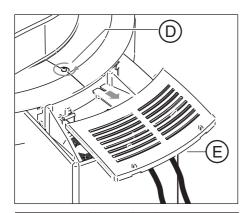
1. Select the **P1** program (see Operating Instructions).

2. Set the highest kV/mA level, **66kV/8mA** (see Operating Instructions).

3. Make ready for exposure in SIDEXIS (see Operating Instructions).

4. **CAUTION! Activating the release button triggers X-rays.**
   Start the exposure by pressing the release button. Hold down the release button until image acquisition is completed and the acoustic signal that indicates the end of the exposure can be heard.
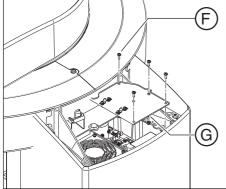
IMPORTANT
1 mA corresponds to a tube current of 1 mA. The permissible tolerance is ± 20 %.

Analyzing measurements
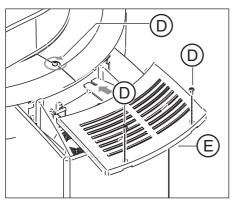
➤ Read the voltage value on the display of the multimeter.

↳ The tube current must be **8mA ± 1.6mA**.

↳ If the measured value does *not* fall within the permissible tolerance, replace the *tube assembly* (see Service Manual).

↳ If the measured value falls within the permissible tolerance, conclude the measurement.

Concluding the measurement

1. Switch the unit on via switch (**A**) (see also Operating Instructions).

2. Loosen the screw (**D**) and remove the lid of the tube assembly cover (**E**).

3. **DANGER! After switching off the unit, wait at least 4 minutes before removing the measuring wires or reinserting the jumper!**
   Remove the measuring wires and bridge with the **test points MA+/ MA-** on the **DX6** board again with the jumper (**H**).

4. Reattach the cover plate (**G**) to the tube assembly with the 4 screws (**F**).

5. Reattach the lid of the tube assembly cover (**E**) to the unit and secure it with the 3 screws (**D**).

12.8   Checking the laser light localizers

> **⚠ CAUTION**
>
> **Risk of injury to eyes.**
>
> The unit contains lasers of Class 1.
> Keep a distance of at least 4" (10 cm) between eye and laser. Do not look into the laser beam.
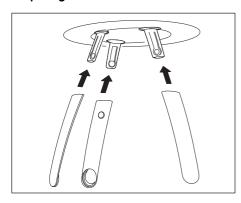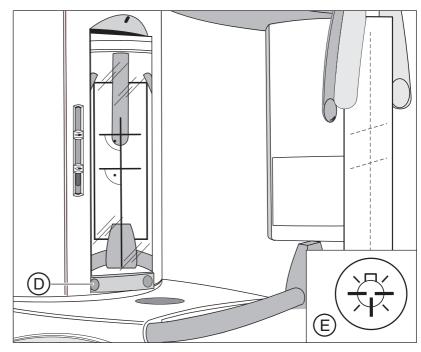
Preparing the test
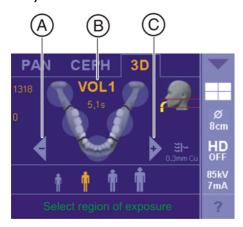
1. Insert the forehead and temple supports.
2. Set the main switch (**A**) to **I** (see also Operating Instructions).
3. Wait for approx. 1 minute.
4. Press the R key.
   - ⮑   The unit moves to its starting position.

Checking the vertical laser beam (MS)
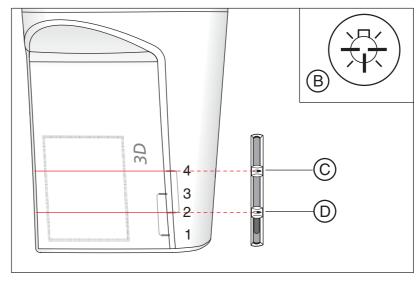
1. Affix a piece of white cardboard between the temple supports.
2. Rotate the mirror by pressing into the left depression (**D**) of the toolbar.
3. Press the light localizer key (**E**) on the control panel.
   - ↳ Then light localizers are switched on.
   - ↳ The laser beam is displayed on the cardboard by a red line.
   - ↳ The vertical laser beam must be displayed in the center of the forehead support and the bite block holder. If this is not the case, adjust the laser light localizer.
4. Switch the light localizers off.

Checking the horizontal laser beam (FH/Pan)

1. Touch the 3D symbol at the top of the touchscreen.
   - ⮑ The exposure program VOL1 is displayed.

2. Press the R key.
   - ⮑ The diaphragm and the sensor move into the starting position for volume exposures.

3. Press the light localizer key (**B**) on the control panel.
   - ⮑ Then light localizers are switched on.

4. Move the upper horizontal laser beam by moving the top slides (**C**) into the upper area of the 3D sensor area.
   - ⮑ The laser beam must be parallel to the top border marking of the 3D sensor area. If this is not the case, adjust the double laser light localizer.

   - ⮑ Minimum and maximum distances apply between the two laser localizers. If the action of moving the slide controls causes these distances to be undershot or exceeded, the slide controls must act in tandem with one another. In other words, as soon as the minimum or maximum distance is undershot or exceeded, whenever the top control moves, the bottom control must move along with it.
   If the dual laser light localizer does not respond as required, replace it.

5. Move the lower horizontal laser beam by moving the bottom slider (**D**) into the lower area of the 3D sensor area.

↳ The laser beam must be parallel to the bottom border marking of the 3D sensor area. If this is not the case, adjust the double laser light localizer.

↳ Minimum and maximum distances apply between the two laser localizers. If the action of moving the slide controls causes these distances to be undershot or exceeded, the slide controls must act in tandem with one another. In other words, as soon as the minimum or maximum distance is undershot or exceeded, whenever the top control moves, the bottom control must move along with it.
If the dual laser light localizer does not respond as required, replace it.

6. Switch the light localizers off.

13 Adjusting and calibrating the unit

⚠ DANGER
X-rays
When performing the following tests, be sure to observe the radiation protection regulations applicable in your country (see Operating Instructions).
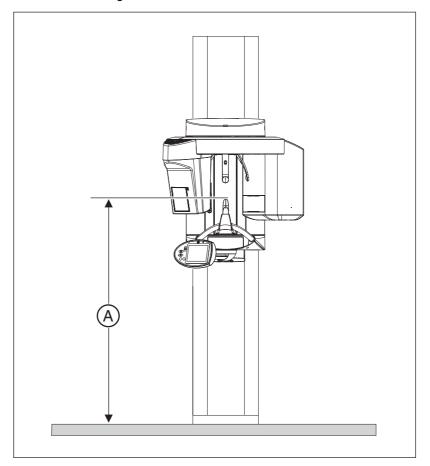
⚠ DANGER
X-rays
"Radiation" is signaled by the message "X-RAY active!", a beep, and an X-RAY LED.

IMPORTANT
If you encounter problems with unit calibration, check whether the required EMC conditions have been met. No other heavy-duty electric equipment (e.g. air conditioning systems, fan motors, etc.) should be present in the vicinity of the unit.

Tip: Move the unit to a typical working height (bite block height (A) = approx. 1520 mm (60")) with the Up/Down keys on the control panel before commencing calibration.

As of unit software version V 03.04.00, you can even adjust the height of the unit during the calibration procedure. If the unit is ready for an exposure (after the *"Image acquisition"* button has been pressed in the SIDEXIS XG *"Adjustment/calibration"* menu), the corresponding service routine (S002.6/S010.10-14/S011.8, and S030.5) is displayed on the control panel. All of these service routines allow the height adjustment menu to be opened by pressing the Test key. The current unit height is displayed in selection field 1 in this menu. You can then set the unit to the desired height using the UP/DOWN keys on the control panel.
Press the Service key or the double arrow key to exit the height adjustment menu.

13.1 General information about unit adjustment and calibration

Please adhere to the following order when adjusting and calibrating the system:

2D adjustment (panoramic)

- Pan sensor adjustment
- Pan - Diaphragm
- Pan - Symmetry

If a cephalometer is installed:

- Ceph - Primary diaphragm
- Ceph - Fixed point of rotation
- Ceph - Main X-ray beam direction
- Ceph - Fixed point of rotation for Quickshot
- Ear plug alignment

3D adjustment/calibration (volume)

- Sensor
- Aperture
- Shading
- Shading (5x5)*
- Geometry
- Dosimetry

* Unit SW version V04.07.00 and higher

Tip: It may be helpful to use the SIDEXIS XG coloring function to evaluate the image.

13.1.1 Displays and help messages during adjustment/ calibration

The most frequent help and status messages during calibration are listed below.

Help messages

H3 01: Move unit to starting position, press the R key.

H3 07: Remove the occlusal bite block.

H3 21: Close the door.

H4 02: Plug the sensor into the ceph slot (sensor missing).

H4 03: SIDEXIS XG is not ready for exposure, make unit ready for exposure.

H4 04: Plug the sensor into the ceph slot (incorrect sensor plugged in).

H4 06: Move cephalometer to starting position, press the R key.

H5 01: Turn cephalometer into lateral position.

H5 02: Turn cephalometer into AP or PA position.

H6 10: Wait until preview image is acknowledged.

Status messages

- *"Ready for exposure"*
- *"Exposure not possible"*
- *"Please wait"*
- *"Ready for exposure in XXs"*
- *"X RAY Active!"*

If error message E1 11 20 is displayed on the control panel and/or the remote control during the calibration process, this does not necessarily indicate an equipment error. This error message only indicates that the adjustment or calibration data of the unit is incomplete at this point. Acknowledge the error message with the R key, if applicable, and continue the adjustment or calibration procedure.
For assistance with other help messages or error messages displayed during the adjustment or calibration process, please refer to the section of these instructions entitled Messages.

13.1.2 "Adjustment/Calibration" menu

The menu guides you through the procedure to adjust and calibrate the unit.

13.1.2.1 Calling the "Adjustment/Calibration" menu

You can call the *"Adjustment/calibration"* menu via SIDEXIS XG:

"Utilities" | *"Constancy test..."* | *"3D"* | *"Select X-ray device"* | *"Service exposure "* | *"Select X-ray component"* | *"Adjustment/calibration"* | Password prompt (see section entitled "Password protection")

The *"Select X-ray device"* and *"Select X-ray component"* prompts are only displayed if more than one unit has been set up in SIDEXIS XG.

Password protection

The *"Adjustment/calibration"* menu is password-protected.
Reverse the number of the month and the number of the day and use them as the password:
March 12th = 03 12 becomes 3021, which is the password of that day.
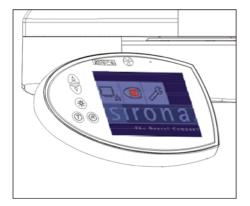
Service mode
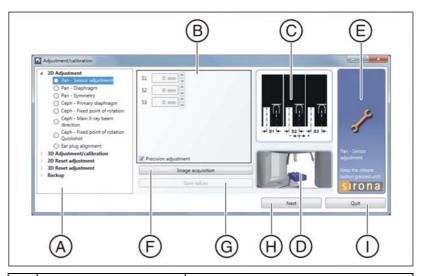
When you open the *"Adjustment/calibration"* menu, the unit switches from user mode to the PC service mode logged by the PC. In PC service mode, the control options that are available on the control panel are determined by SIDEXIS XG and the service routine currently selected. General control of the unit by means of the control panel (as in the user mode) is not possible in this mode.

Service mode is displayed on the Easypad via the PC service image.

13.1.2.2 **Menu structure**

The menu is divided into five areas.

A	Navigation area	Structure tree for adjustment and calibration [→ 198]
B	Action area	Data entry and display window
C	Preview image	Shows the exposure to be taken in this stage of the adjustment/calibration procedure.
D	Tools pictograph	Shows which (if any) test phantom must be used for this stage of the adjustment/calibration procedure.
E	Message window	Shows messages and information about this stage of the adjustment/calibration procedure.

In addition to the five areas, the menu also contains the following buttons:

F	Image acquisition	Makes the unit ready for exposure [→ 206].
G	Save values	Saves the current adjustment/calibration values.
H	Next	Switches to the next stage of the adjustment/calibration procedure.
I	Exit	Exits adjustment/calibration and closes the menu.

13.1.2.2.1   **Navigation area**

The navigation area contains a structure tree similar to the one you will be familiar with from your Windows interface. The structure tree contains all stages of the adjustment and calibration procedure you need to complete in order to adjust and calibrate your system. The order in which the elements appear in the structure tree determines the chronological order of the procedure to adjust and calibrate the unit:

2D adjustment

● Pan sensor adjustment

● Pan - Diaphragm

● Pan - Symmetry

● Ceph - Primary diaphragm

● Ceph - Fixed point of rotation

● Ceph - Main X-ray beam direction

● Ceph - Fixed point of rotation for Quickshot

● Ear plug alignment

3D adjustment/calibration

● Sensor

● Diaphragm

● Shading

● Shading (5x5)* *(unit SW version V04.07.00 and higher)*

● Geometry
  (up to unit SW version V04.04.00)

  – Center of rotation 1

  – Center of rotation 2

  – Center of rotation 3

  – Center of rotation 4

  – Center of rotation 5

or alternatively:

- Geometry
  (unit SW version V04.07.00 and higher)

    – Center of rotation (8x8) 1

    – Center of rotation (8x8) 2

    – Center of rotation (8x8) 3

    – Center of rotation (8x8) 4

    – Center of rotation (8x8) 5

    – Center of rotation (5x5) 1

    – Center of rotation (5x5) 2

    – Center of rotation (5x5) 3

    – Center of rotation (5x5) 4

    – Center of rotation (5x5) 5

In addition to the elements required for adjustment and calibration of the unit described above, the structure tree also contains three other elements:

NOTICE
The adjustment data should be reset only in an **absolute emergency**.

Resetting 2D adjustment

- Reset panoramic adjustment
- Reset ceph adjustment

Resetting 3D adjustment

- Resetting the adjustment

Backup

- Calibration data

Validity of existing adjustment/calibration settings

The elements of the structure tree used for adjusting (calibrating) the device are prefixed by symbols indicating the current status of the corresponding adjustment or calibration operation.

The elements for resetting adjustments (calibrations) are not prefixed by symbols.

2D adjustment

Not checked	Invalid data record or no record present	Adjustment necessary
Checked	Valid data record, adjustment performed and saved (up to date)	No adjustment necessary

3D adjustment/calibration

Green and checked	Valid data record; adjustment/calibration is in progress	No adjustment/calibration required
yellow	Data record available, but not yet saved	Data record must be saved
Red	Invalid data record or no record present	Adjustment/calibration required

Working with the structure tree

You can navigate between the elements of the structure tree by clicking on them with the mouse.

NOTICE! You must follow the prescribed sequence in order to obtain a valid adjustment or calibration.

Click with the mouse on the small triangles in front of the elements to collapse and expand the structure tree.

13.1.2.2.2 Coarse and precision adjustment

The *"Pan - Sensor Adjustment"* , *"Pan - Diaphragm"* , and *"Ceph - Fixed point of rotation"* menus support coarse and precision adjustment (precision adjustment is pre-selected). Always try to use precision adjustment first when adjusting the unit. In most cases, previous coarse adjustment is not necessary. If a coarse adjustment is required, you are informed via a message window.

To perform coarse adjustment, uncheck the *"Precision adjustment"* box and complete the adjustment procedure in the same way as for precision adjustment.
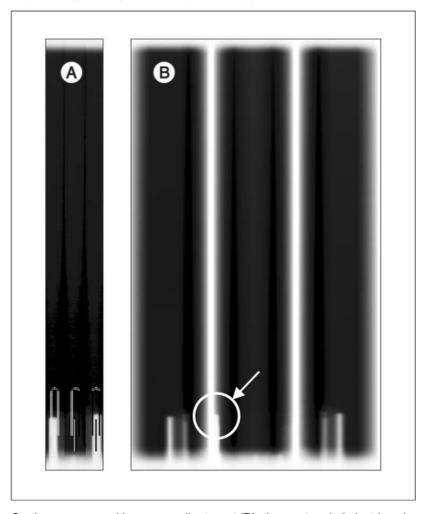
The correction procedure required for coarse adjustment is identical to that for precision adjustment. The only difference between the two modes is the size of the image field considered. Furthermore, there are fewer auxiliary lines in the coarse adjustment mode.

Examples of image acquisition with precision and coarse adjustment

Pan - Sensor Adjustment

Sensor adjustment can usually be performed directly via precision adjustment. Only in exceptional cases, e.g. if one or several needles are completely outside of the image section in an image acquired with the *"Precision adjustment"* presetting (**A**), is it necessary to perform coarse adjustment prior to precision adjustment (**B**).

On the exposure with coarse adjustment (**B**), the center pin is just barely visible on the left margin of the image section in the middle. Even in this extreme case, an adjustment would still be possible.

Pan - Diaphragm
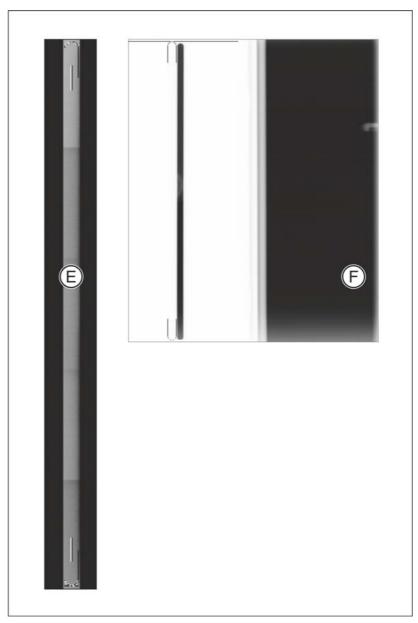
Diaphragm adjustment can usually be performed directly via precision adjustment. Only in exceptional cases, e.g. if the exposed image area is completely outside the image section in an image acquired with the *"Precision adjustment"* setting (**C**), is it necessary to perform coarse adjustment prior to precision adjustment (**D**).

On the exposure 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.

Ceph - Fixed point of rotation

Adjustment of the fixed point of rotation can usually be performed directly via precision adjustment. Only in exceptional cases, e.g. if the exposed image area is completely outside the image section in an image acquired with the *"Precision adjustment"* setting (**E**), is it necessary to perform coarse adjustment prior to precision adjustment (**F**).

On the exposure with coarse adjustment (**F**), the exposed area is still visible in the image field. Even in this extreme case, an adjustment would still be possible.

13.1.2.2.3   **Shifting direction of the exposed image area**
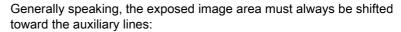
The menus contain a pictographic representation of the expected adjustment image to help you perform software-based adjustment and calibration. The shifting direction indicated by the plus and minus signs located below and next to the pictograph refers to shifting of the exposed image section in the direction of the stationary auxiliary lines (see the example).

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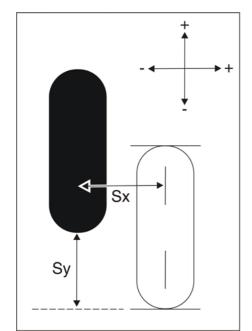
In the example, the exposed image section is offset to the left by the value **Sx** and upward by the value **Sy**. In order to shift the image area so that it comes to lie inside the auxiliary lines, you must enter …

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

- **Sy** (shift downward) with a **negative sign**

in the text boxes on the tab.

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**.

13.1.2.2.4   **Automatic adjustment**

During automatic adjustment via the *"Adjustment/calibration"* menu, default values for adjustment are displayed in the menu's text boxes after every exposure. Repeat automatic adjustment until the default values in the text boxes are equal to "zero". (This means that adjustment has been successful.)

If the values do not converge toward "zero" despite repeating the adjustment procedure several times, calculate the adjustment values manually by measuring the exposure with the SIDEXIS measuring ruler and overwrite the default values in the menu. This procedure is described in the following sections.

13.1.3 Enabling exposure readiness

To take an exposure in SIDEXIS XG, the system must first be made ready for exposure.

✔ Call the *"Adjustment/calibration"* menu.

✔ Select the corresponding element in the structure tree.

➢ Click on the *"Image acquisition"* button.

    ↳ The exposure window opens in SIDEXIS XG. It indicates the current status of exposure readiness.

    ↳ The service routine used for the corresponding exposure is displayed on the control panel, along with the specific exposure parameters.

13.1.4 Taking an exposure

✔ Call the *"Adjustment/calibration"* menu.

✔ Select the corresponding element in the structure tree.

✔ SIDEXIS XG must be ready for exposure.

➢ Press the release button. Press and hold down the button until the exposure is complete, the preview image is displayed in the exposure window, and the acoustic signal that indicates the end of the exposure (double beep) sounds (if it has been configured).

13.1.5 Save values

✔ Adjustment or calibration must be OK, i.e. the values in the menu's text boxes must be equal to zero.

➢ To save the adjustment or calibration values, click the *"Save values"* button.

    ↳ The adjustment or calibration is saved.

    ↳ The saved adjustment or calibration is identified in the structure tree by a check mark (2D adjustment) or a green traffic light symbol with a check mark (3D adjustment).

13.1.6 Test phantoms for adjustment and calibration

13.1.6.1 OP XG needle phantom for panoramic adjustment

NOTICE
Risk of damage to unit
Make absolutely sure that the OP XG needle phantom is inserted in the bite block holder of the unit in such a way that the front needle (**B**) of the phantom points *away from the unit in the direction of the patient* (see figure). Otherwise, this can result in a collision between the combisensor and the OP XG needle phantom and thereby damage the unit.
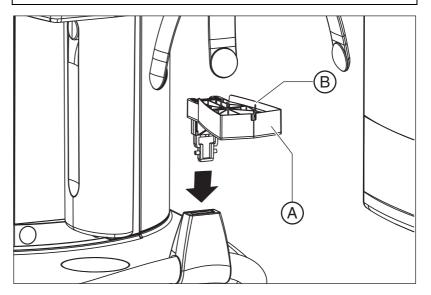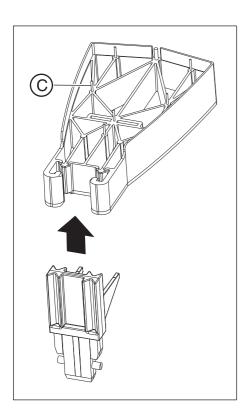
NOTICE
Risk of damage to unit
It is essential that the needle phantom is removed from the bite block holder on the device *before* a ceph exposure is taken; otherwise, the phantom could collide with the sensor.
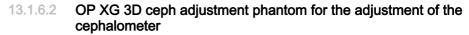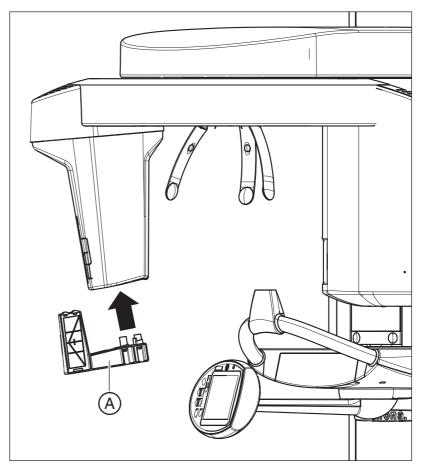
For **panoramic sensor** and **pan symmetry** panorama adjustments, the OP XG needle phantom (**A**) must be inserted into the pan bite block holder of the unit. For **pan diaphragm** panorama adjustment, the needle phantom must be taken out of the bite block holder.

When fitting the needle phantom, make sure that it is correctly oriented. For the panorama adjustment of the unit, the phantom must be fitted so that the needles (**C**) point upward.

13.1.6.2 **OP XG 3D ceph adjustment phantom for the adjustment of the cephalometer**

For **ceph diaphragm** and **ceph main X-ray beam direction** 2D adjustment, you must insert the OP XG ceph adjustment phantom (**A**) into the cover of the dual sensor.
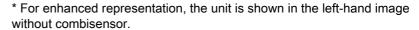
You must take the adjustment phantom back out again for **ceph fixed rotation point** 2D adjustment.

13.1.6.3 Geometry phantom for volume calibration

NOTICE
Risk of damage to unit
Make absolutely sure that the geometry phantom is inserted in the bite block holder of the unit in such a way that the body of the phantom and the screw (**C**) point *away from the unit in the direction of the patient* (see figure). Otherwise, this can result in a collision between the combisensor and the geometry phantom and thereby damage the unit.
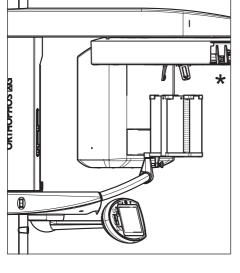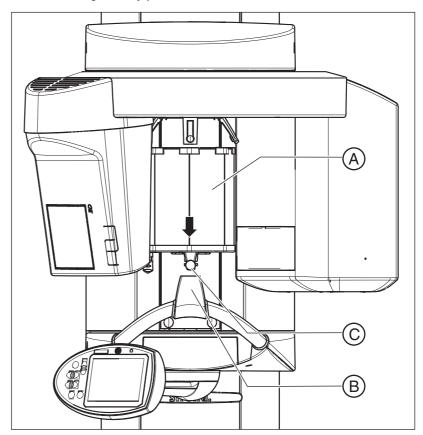
* For enhanced representation, the unit is shown in the left-hand image without combisensor.

For **sensor** 3D adjustment, as well as for **geometry** 3D calibration, you must insert the geometry phantom (**A**) into the pan bite block holder (**B**) on the unit.
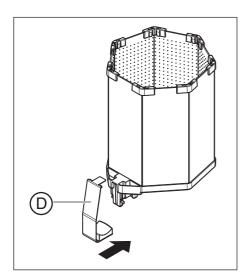
For **diaphragm** 3D adjustment, as well as for **shading** 3D calibration, you must take the geometry phantom back out of the bite block holder.

IMPORTANT
Once it has been inserted into the bite block holder, the geometry phantom must be aligned vertically and horizontally with the spirit level, so that calibration can be performed correctly.

1. Insert the geometry phantom (**A**) into the pan bite block holder (**B**) on the unit and secure it with the screw (**C**).
2. Attach the clip (**D**) for better stability.
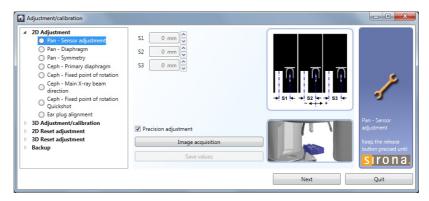
13.2 Adjustment and calibration via the "Unit adjustment/calibration" menu

IMPORTANT
After every adjustment or calibration of the unit, the reference values for the constancy measurement must be recalculated and entered in the "Test results" form, "Reference value" column.

13.2.1 2D adjustment
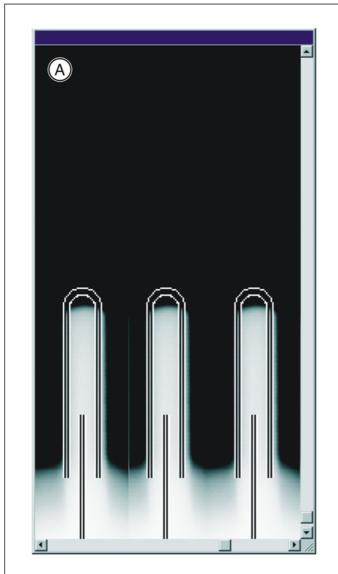
13.2.1.1 Pan sensor adjustment
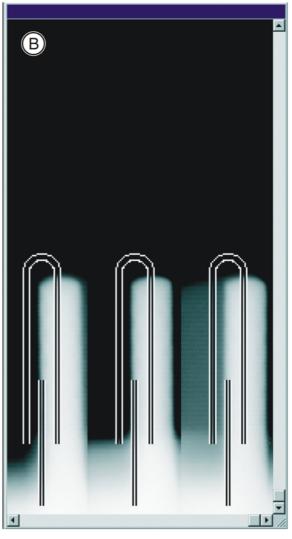
13.2.1.1.1 Automatic adjustment: Panoramic sensor (standard)

✓ The pan sensor is plugged into the pan slot on the unit.

✓ The OP XG needle phantom is in the pan bite block holder on the unit [→ 207].

1. Call the *"Adjustment/calibration"* menu [→ 196].

2. In the structure tree, under *"2D Adjustment"* , click on the *"Pan - Sensor Adjustment"* element.

   ↳ The *"Pan - Sensor Adjustment"* menu is displayed in the action area. The menu supports precision adjustment and coarse adjustment (precision adjustment is pre-selected). Perform a precision adjustment first. In most cases, previous coarse adjustment is not necessary.

3. Make SIDEXIS XG ready for exposure. [→ 206]

4. Take an exposure (60 kV/3 mA; 0.6 s) [→ 206].

   ↳ SIDEXIS XG calculates the adjustment values **S1**, **S2**, and **S3** automatically from the exposure and enters them in the text boxes of the *"Pan - Sensor Adjustment"* menu.

   ↳ The exposure is displayed in the exposure window in SIDEXIS XG.
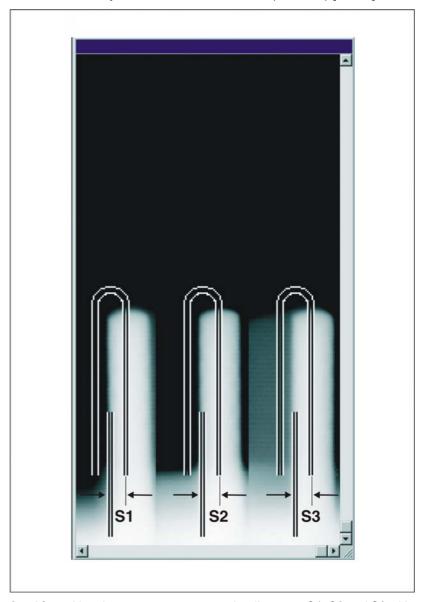
A	Adjustment OK	•	The three needle images must lie in the center and inside the auxiliary lines.
B	Adjustment not OK		

5. Repeat the procedure starting at Step 3 until the values in the menu's text boxes are equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce values equal to zero, calculate the adjustment values manually and overwrite the values in the menu's text boxes with these values [→ 214].

6. If adjustment is OK (the adjustment values in the text boxes are equal to zero), save the values. [→ 206]

7. Remove the OP XG needle phantom from the pan bite block holder on the unit.

8. Continue with the next stage of the adjustment procedure [→ 216].

13.2.1.1.2   **Manual adjustment: Panoramic sensor**

The manual adjustment procedure is similar to the one for automatic adjustment [→ 212]. The only difference is that the default adjustment values calculated automatically by SIDEXIS XG in the *"Pan - Sensor Adjustment"* menu are overwritten by adjustment values calculated manually.

1. Start the adjustment procedure as described in the chapter entitled "Automatic adjustment: Panoramic sensor (standard) [→ 212]".

2. After taking the exposure, measure the distances **S1**, **S2** and **S3** with the SIDEXIS XG measuring ruler.
    To measure **S1**, **S2** and **S3**, estimate where the horizontal center of the displayed needles is located. Take the measurement in the lower area of the needles if possible, since they may have become slightly bent after repeated use.
    Tip: To facilitate the measuring procedure, you can also color the image in SIDEXIS XG (see the SIDEXIS Operator's Manual).

S1	1,867
S2	-2,966
S3	-1,871

3. Overwrite the adjustment values for **S1**, **S2** and **S3** in the text boxes of the *"Pan - Sensor Adjustment"* menu with the measured values. For information about the shifting direction (input of +/- sign in the menu), see the chapter entitled "Shifting direction of the exposed image area". Use points as decimal separators!

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Panoramic sensor (standard) [→ 212]".

13.2.1.2 Pan diaphragm

13.2.1.2.1 Automatic adjustment: Pan diaphragm (standard)

IMPORTANT

If a message window indicating that the diaphragm is tilted appears in the menu during adjustment *"Pan - Diaphragm"*, the primary diaphragm is mechanically maladjusted in the vertical axis. In this case you must take the exposure again.

IMPORTANT

If a message window indicating that another X-ray has to be taken appears in the menu during adjustment *"Pan - Diaphragm"*, repeat the procedure starting at Step 2, even if the values in the menu's text boxes are equal to zero. This additional exposure ensures that the diaphragm gap width offset is also adjusted correctly.

✔ The OP XG needle phantom is *not* in the pan bite block holder on the unit.

1. In the structure tree, under *"2D Adjustment"*, click on the *"Pan - Diaphragm"* element (S030.2).
   - ⮑ The *"Pan - Diaphragm"* menu is displayed in the action area. The menu supports precision adjustment and coarse adjustment (precision adjustment is pre-selected). Perform a precision adjustment first. In most cases, previous coarse adjustment is not necessary.

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (60 kV / 3 mA; 0.2 s) [→ 206].
   - ⮑ SIDEXIS XG Calculates the adjustment values **Sx** and **Sy** automatically from the exposure and enters them in the text boxes of the *"Pan - Diaphragm"* menu.
   - ⮑ The exposure is displayed in the exposure window in SIDEXIS XG.

A	Adjustment OK	• The exposed diaphragm area must lie horizontally centered in the image section as well as inside the auxiliary lines. • A surrounding white border must be present. • The maximum density must lie in the center of the diaphragm area.
B	Adjustment not OK	

4. Repeat the procedure starting at Step 2 until the values in the menu's text boxes are equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce values equal to zero, calculate the adjustment values manually and overwrite the values in the menu's text boxes with these values [→ 218].
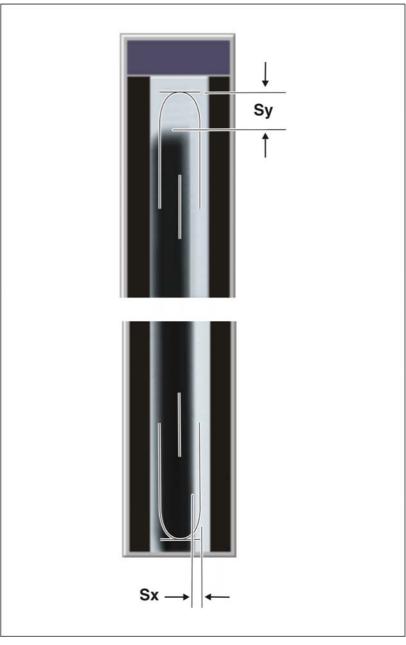
5. If adjustment is OK (the adjustment values in the text boxes are equal to zero), save the values. [→ 206]

6. Continue with the next stage of the adjustment procedure. [→ 220]
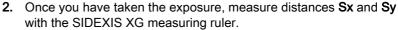
13.2.1.2.2 Manual adjustment: Pan diaphragm

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values calculated automatically by SIDEXIS XG in the *"Pan - Diaphragm"* menu are overwritten by adjustment values calculated manually.

1. Start the *"Pan - Diaphragm"* adjustment procedure as described in the chapter entitled "Automatic adjustment: Pan diaphragm (standard) [→ 216]".

2. Once you have taken the exposure, measure distances **Sx** and **Sy** with the SIDEXIS XG measuring ruler.
   Tip: To facilitate the measuring procedure, you can also color the image in SIDEXIS XG (see the SIDEXIS Operator's Manual).
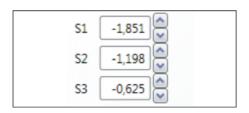
3. Overwrite the adjustment values for **Sx** and **Sy** in the text boxes of the *"Pan - Diaphragm"* menu with the measured values.
   For information about the shifting direction (input of +/- sign in the menu), see the chapter entitled "Shifting direction of the exposed image area". Use points as decimal separators!

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Pan diaphragm (standard) [→ 216]".
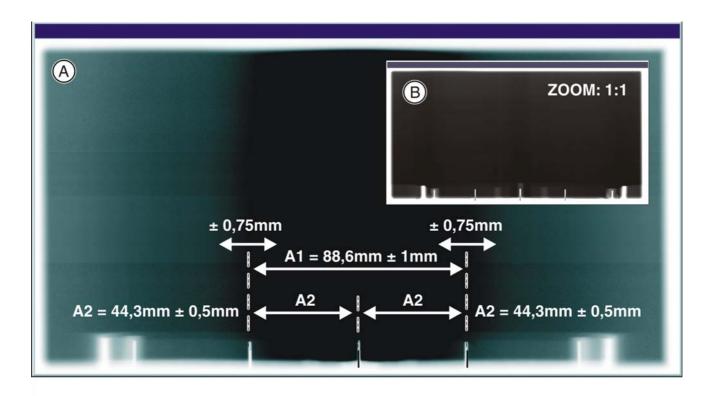
13.2.1.3   Pan symmetry
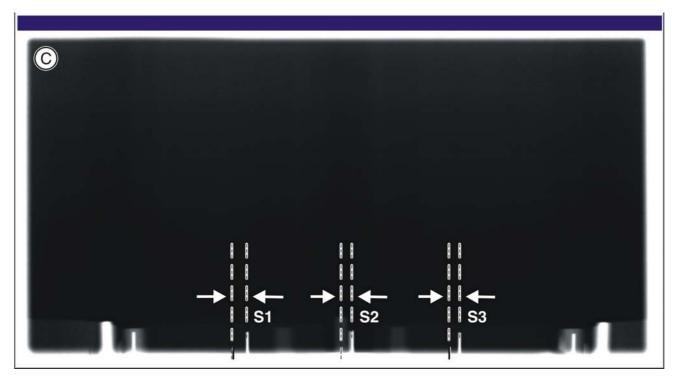
13.2.1.3.1   Automatic adjustment: Pan symmetry

✓   The OP XG needle phantom is in the pan bite block holder on the unit.

1.   In the structure tree, under *"2D Adjustment"* , click on the *"Pan - Symmetrie"* element (S010.2).

   ↳   The *"Pan - Symmetrie"* menu is displayed in the action area.

2.   Make SIDEXIS XG ready for exposure. [→ 206]

3.   Take an exposure (60 kV/3 mA; 14.1 s) [→ 206].

   ↳   SIDEXIS XG calculates the adjustment values **S1**, **S2**, and **S3** automatically from the exposure and enters them in the text boxes of the *"Pan - Symmetrie"* menu.

   ↳   The exposure is displayed in the exposure window in SIDEXIS XG.
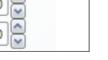
A	Adjustment OK	• The shadow of the center needle, the needle image, and the auxiliary lines must be coincident and located one behind the other. A tolerance (offset of needle from the central auxiliary line) of ± 0.75 mm is admissible. • Distance A1 must be 88.6 ± 1 mm. • Distances A2 must be identical, each being 44.3 ± 0.5 mm.
B		• A surrounding white border must be present.
C	Adjustment not OK	

4. Repeat the procedure starting at Step 2 until the values in the menu's text boxes are equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce values equal to zero, calculate the adjustment values manually and overwrite the values in the menu's text boxes with these values [→ 222].

5. If adjustment is OK (the adjustment values in the text boxes are equal to zero), save the values. [→ 206]

6. Remove the OP XG needle phantom from the pan bite block holder on the unit.

7. Continue with the next stage of the adjustment procedure. [→ 224]

13.2.1.3.2   Manual adjustment: Pan symmetry

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values calculated automatically by SIDEXIS XG in the *"Pan - Symmetrie"* menu are overwritten by adjustment values calculated manually.
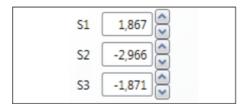
1. Start the *"Pan - Symmetrie"* adjustment procedure as described in the chapter entitled "Automatic adjustment: Pan symmetry [→ 220]".

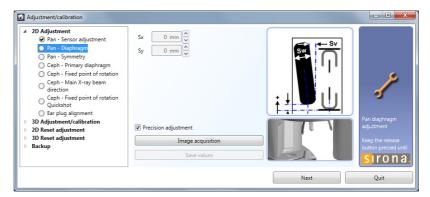2. After taking the exposure, measure the distances **S1**, **S2** and **S3** with the SIDEXIS XG measuring ruler.
   If possible, measure in the lower area of the needles since they may be slightly bent after several uses.
   Always measure exactly from the center of the auxiliary line to the center of the pin.
   Tip: To facilitate the measuring procedure, you can also color the image in SIDEXIS XG (see the SIDEXIS Operator's Manual).
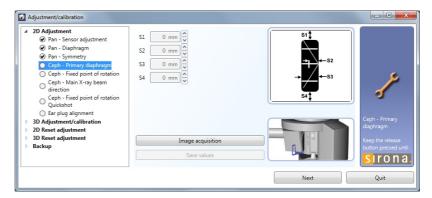
3. Overwrite the adjustment values for **S1**, **S2** and **S3** in the text boxes of the *"Pan - Symmetrie"* menu with the measured values.
   For information about the shifting direction (input of +/- sign in the menu), see the chapter entitled "Shifting direction of the exposed image area". Use points as decimal separators!

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Pan symmetry [→ 220]".

13.2.1.4   **Ceph - Primary diaphragm**
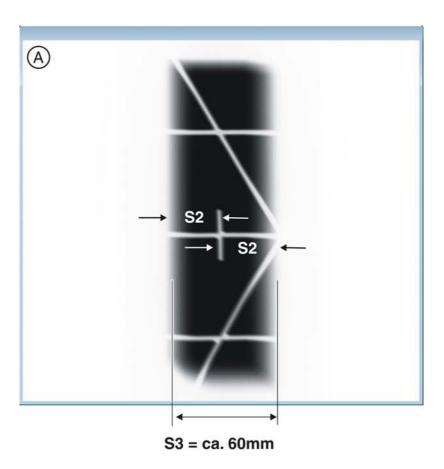
13.2.1.4.1   **Automatic adjustment: Ceph - Primary diaphragm (standard)**
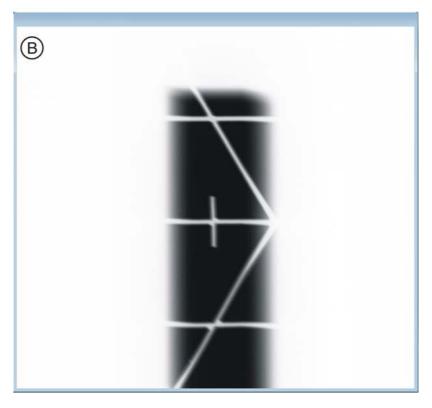
NOTICE

Risk of damage to unit

It is essential that the OP XG needle phantom is removed from the bite block holder on the device **before** a ceph exposure is taken; otherwise, the combisensor could collide with the phantom.

✔ The OP XG needle phantom is *not* in the pan bite block holder on the unit.

✔ The OP XG ceph adjustment phantom is in the pan slot on the unit [→ 209].

✔ The ceph sensor is plugged into the ceph slot on the unit.

✔ The ear plug holders on the ceph arm have been moved completely apart and swung out of the beam direction (ap).

1. In the structure tree, under *"2D Adjustment"*, click on the *"Ceph - Primary diaphragm"* element (S010.3).

   ↳ The *"Ceph - Primary diaphragm"* menu is displayed in the action area.

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (64 kV/16 mA; 6.1 s) [→ 206].

   ↳ SIDEXIS XG calculates the adjustment values **S1**, **S2**, **S3**, and **S4** automatically from the exposure and enters them in the text boxes of the *"Ceph - Primary diaphragm"* menu.

   ↳ The exposure is displayed in the exposure window in SIDEXIS XG.

S3 = ca. 60mm
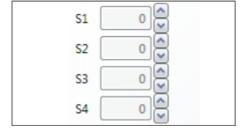
A	Adjustment OK	• The vertical pin must be horizontally centered in the exposed image section. A slight vertical offset of the grid is permissible. • A uniform white border surrounding the image on all sides must be visible. • Distance S3 must be approx. 60 mm.
B	Adjustment not OK	**IMPORTANT!** If S3 is > 70 mm, please contact the Sirona Customer Service Center.

4. Repeat the procedure starting at Step 2 until the values in the menu's text boxes are equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce values equal to zero, calculate the adjustment values manually and overwrite the values in the menu's text boxes with these values [→ 226].

5. If adjustment is OK (the adjustment values in the text boxes are equal to zero), save the values. [→ 206]

6. Remove the OP XG ceph adjustment phantom from the pan slot on the unit.

7. Continue with the next stage of the adjustment procedure. [→ 228]
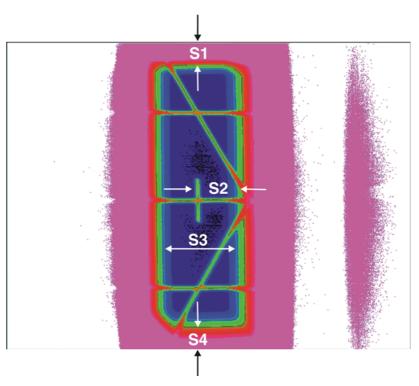
13.2.1.4.2   Manual adjustment: Ceph - Primary diaphragm

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values calculated automatically by SIDEXIS XG in the *"Ceph - Primary diaphragm"* menu are overwritten.
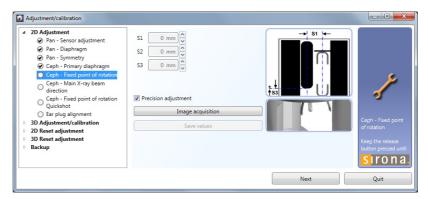
1. Start the *"Ceph - Primary diaphragm"* adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - Primary diaphragm (standard) [→ 224]".

2. Once you have taken the exposure, measure distances **S1**, **S2**, **S3**, and **S4** with the SIDEXIS XG measuring ruler.
   S1: distance to the top edge of the image
   S2: distance from the right edge of the radiation-exposed surface to the middle of the center pin
   S3: width of radiated area
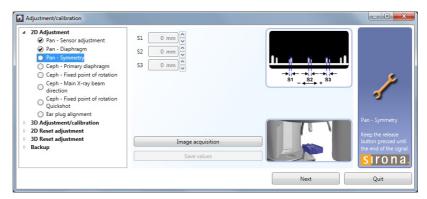   **S4:** distance to the bottom edge of the image
   Tip: To facilitate the measuring procedure, you can invert or color the image in SIDEXIS XG (see also "SIDEXIS XG Operator's Manual").

3. Overwrite the adjustment values for **S1**, **S2**, **S3**, and **S4** in the text boxes of the *"Ceph - Primary diaphragm"* menu with the measured values.

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - Primary diaphragm (standard) [→ 224]".

13.2.1.5 Ceph - Fixed point of rotation
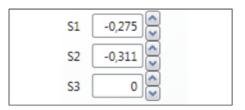
13.2.1.5.1 Automatic adjustment: Ceph - Fixed point of rotation (standard)

> **NOTICE**
>
> **Risk of damage to unit**
>
> It is essential that the OP XG needle phantom is removed from the bite block holder on the device **before** a ceph exposure is taken; otherwise, the combisensor could collide with the phantom.

✔ The OP XG needle phantom is *not* in the pan bite block holder on the unit.

✔ The OP XG ceph adjustment phantom is *not* in the pan slot on the unit.

1. In the structure tree, under *"2D Adjustment"* , click on the *"Ceph - Fixed point of rotation"* element (S010.5).

   ↳ The *"Ceph - Fixed point of rotation"* menu is displayed in the action area. The menu supports precision adjustment and coarse adjustment (precision adjustment is pre-selected). Perform a precision adjustment first. In most cases, previous coarse adjustment is not necessary.

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (80 kV/14 mA; 0.6 s) [→ 206].

   ↳ SIDEXIS XG calculates the adjustment values **S1**, **S2**, and **S3** automatically from the exposure and enters them in the text boxes of the *"Ceph - Fixed point of rotation"* menu.

> ⅍ At the bottom of the action area, the two values **(L)x** and **(L)y** are suggested for adjusting the ceph secondary diaphragm.
> **IMPORTANT!** If the suggested values are greater than ±0.5 mm, the diaphragm must be mechanically adjusted.
> **Positive sign =**
> Moves the diaphragm to the right or upward
> **Negative sign =**
> Moves the diaphragm to the left or downward
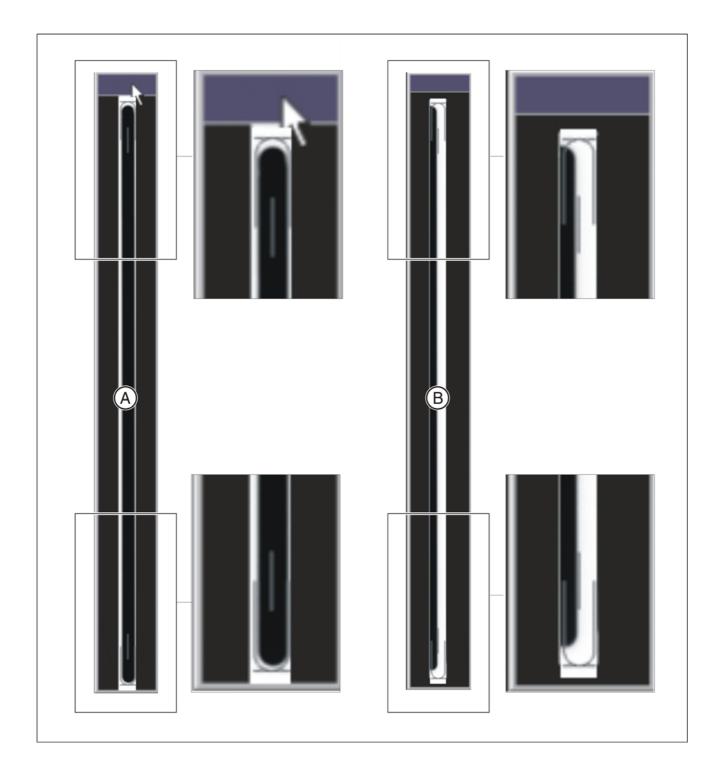
4. If necessary, adjust the diaphragm mechanically at this point [→ 261].

5. Confirm the mechanical correction of the ceph secondary diaphragm by clicking on *"OK"*.

> ⅍ SIDEXIS XG is ready for exposure [→ 206] again.

6. Take an exposure (80 kV/14 mA; 0.6 s) [→ 206].

> ⅍ SIDEXIS XG calculates the adjustment values **S1**, **S2**, and **S3** automatically from the exposure and enters them in the text boxes of the *"Ceph - Fixed point of rotation"* menu.

> ⅍ The exposure is displayed in the exposure window in SIDEXIS XG.
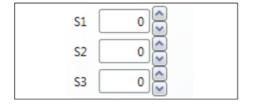
A	Adjustment OK	• The exposed diaphragm area must lie centered and straight in the image section as well as inside the superimposed auxiliary lines. • A surrounding white border must be present. • The maximum density must lie in the center of the diaphragm area.
B	Adjustment not OK	

7. Repeat the procedure starting at Step 2 until the values in the menu's text boxes are equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce values equal to zero, calculate the adjustment values manually and overwrite the values in the menu's text boxes with these values [→ 231].
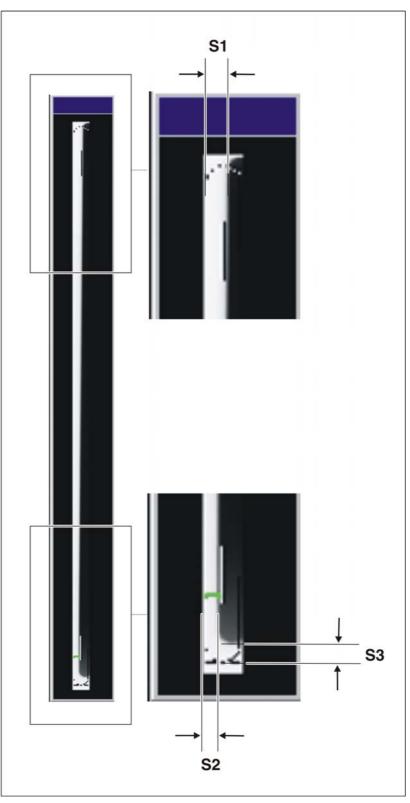
8. If adjustment is OK (the adjustment values in the text boxes are equal to zero), save the values. [→ 206]

9. Continue with the next stage of the adjustment procedure [→ 234].
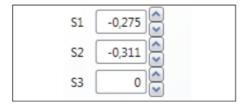
13.2.1.5.2 **Manual adjustment: Ceph - Fixed point of rotation**

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment values calculated automatically by SIDEXIS XG in the *"Ceph - Fixed point of rotation"* menu are overwritten.

1. Start the *"Ceph - Fixed point of rotation"* adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - Fixed point of rotation (standard) [→ 228]".

2. Once you have taken the exposure, measure distances **S1**, **S2**, and **S3** with the SIDEXIS XG measuring ruler.

S1	-0,275
S2	-0,311
S3	0

3. Overwrite the adjustment values for **S1**, **S2**, and **S3** in the text boxes of the *"Ceph - Fixed point of rotation"* menu with the measured values. For information about the shifting direction (input of +/- sign in the menu), see the section entitled "Shifting direction of the exposed image area". Use points as decimal separators!

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - Fixed point of rotation (standard) [→ 228]".

13.2.1.6 Ceph - Main X-ray beam direction

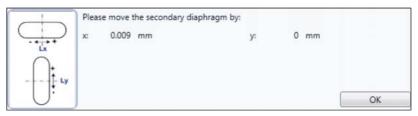#### 13.2.1.6.1 Automatic adjustment: Ceph - Main X-ray beam direction (standard)
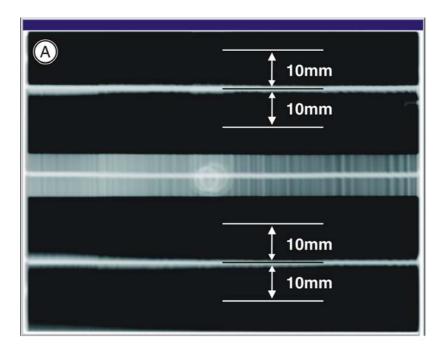
NOTICE
Risk of damage to unit
It is essential that the OP XG needle phantom is removed from the bite block holder on the device **before** a ceph exposure is taken; otherwise, the combisensor could collide with the phantom.
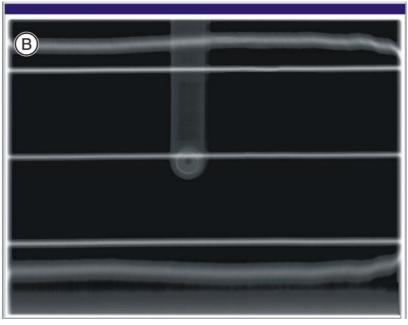
✔ The OP XG ceph adjustment phantom is in the pan slot on the unit [→ 209].

✔ The ear plug holders on the ceph arm have been swung out of the beam direction (ap).

1. In the structure tree, under *"2D Adjustment"* , click on the *"Ceph - Main X-ray beam direction"* element (S010.6).

    ↳ The *"Ceph - Main X-ray beam direction"* menu is displayed in the action area.

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (80 kV/14 mA; 14.9 s). [→ 206]

    ↳ Adjustment value **S1** is calculated automatically by SIDEXIS XG from the exposure and entered in the text box of the *"Ceph - Main X-ray beam direction"* menu.

    ↳ The exposure is displayed in the exposure window in SIDEXIS XG.

A	Adjustment OK	• A horizontal bar must be visible in the center of the image. If this bar is visible, the exposure is OK, and the two beams on the image are within the tolerance range of ±10 mm.
B	Adjustment not OK	
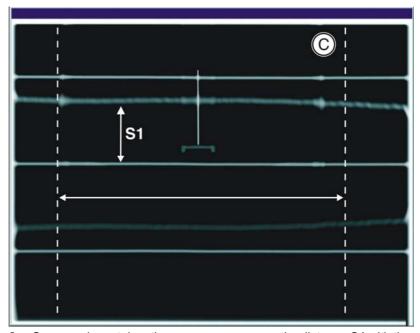
4. Repeat the procedure starting at Step 2 until the value in the menu's text box is equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce a value equal to zero, calculate the adjustment value manually and overwrite the value in the menu's text box with this value [→ 236].
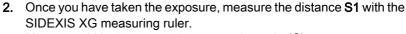
5. If adjustment is OK (the adjustment value in the text box is equal to zero), save the value [→ 206].

6. Remove the OP XG ceph adjustment phantom from the pan slot on the unit.

7. Continue with the next stage of the adjustment procedure [→ 238].

13.2.1.6.2 Manual adjustment: Ceph - Main X-ray beam direction
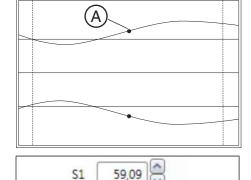
The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment value calculated automatically by SIDEXIS XG in the text box of the *"Ceph - Main X-ray beam direction"* menu is overwritten.

1. Start the *"Ceph - Main X-ray beam direction"* adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - Main X-ray beam direction (standard) [→ 234]".
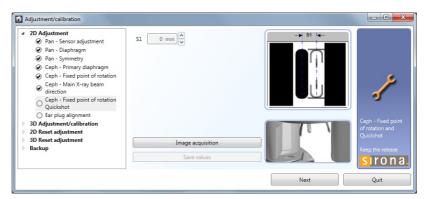
2. Once you have taken the exposure, measure the distance **S1** with the SIDEXIS XG measuring ruler.
   Measure within the measuring range shown in (**C**).
   Measure the maximum distance **S1**. If the X-ray beam is imaged in the form of an S curve, measure **S1** at the inflection point of the curve (**A**), but always within the measuring range shown.

3. Overwrite the adjustment value for **S1** in the text box of the *"Ceph - Main X-ray beam direction"* menu with the measured value.

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - Main X-ray beam direction (standard) [→ 234]".

13.2.1.7 Ceph - Fixed point of rotation for QuickShot
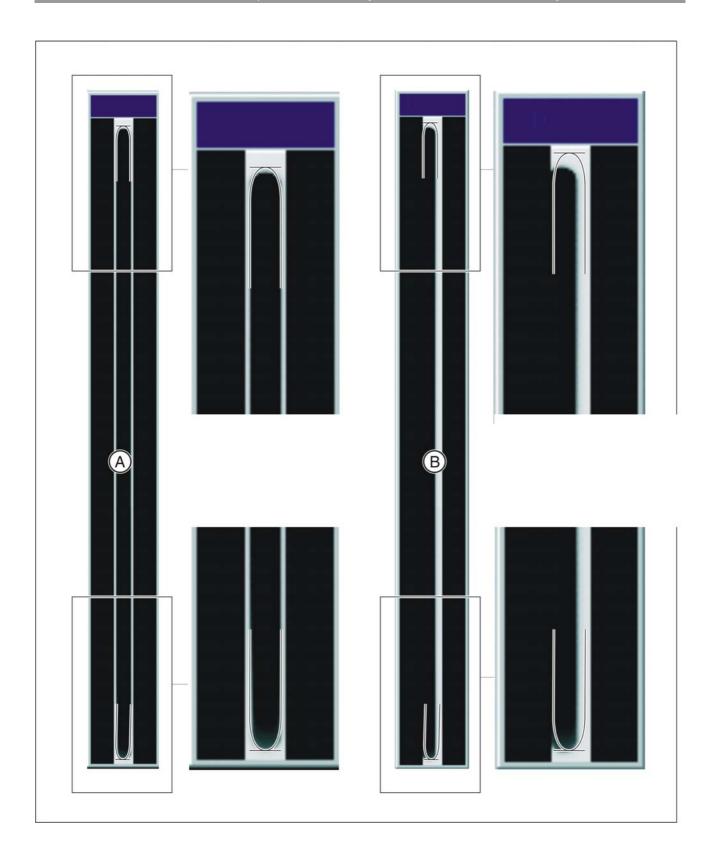
13.2.1.7.1 Automatic adjustment: Ceph - QuickShot fixed point of rotation (standard)

> **NOTICE**
>
> **Risk of damage to unit**
>
> It is essential that the OP XG needle phantom is removed from the bite block holder on the device **before** a ceph exposure is taken; otherwise, the combisensor could collide with the phantom.

✔ The OP XG ceph adjustment phantom is *not* in the pan slot on the unit.

1. In the structure tree, under *"2D Adjustment"* , click on the *"Ceph - Fixed point of rotation Quickshot"* element (S010.8).

   ↳ The *"Ceph - Fixed point of rotation Quickshot"* menu is displayed in the action area.

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (80 kV/14 mA; 0.3 s) [→ 206].

   ↳ Adjustment value **S1** is calculated automatically by SIDEXIS XG from the exposure and entered in the text box of the *"Ceph - Fixed point of rotation Quickshot"* menu.

   ↳ The exposure is displayed in the exposure window in SIDEXIS XG.
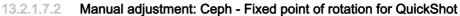
A	Adjustment OK	• The exposed image section must lie centered and straight in the image section as well as inside the superimposed auxiliary lines. • A surrounding white border must be present. • The maximum density must lie in the center of the diaphragm area.
B	Adjustment not OK	

4. Repeat the procedure starting at Step 2 until the value in the menu's text box is equal to "zero". This means that adjustment was performed successfully.
   IMPORTANT: If automatic adjustment fails to produce a value equal to zero, calculate the adjustment value manually and overwrite the value in the menu's text box with this value [→ 240].
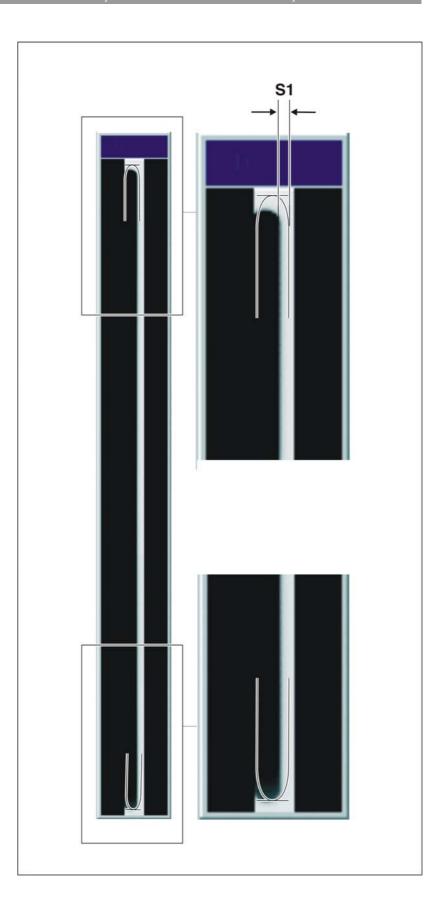
5. If adjustment is OK (the adjustment value in the text box is equal to zero), save the value [→ 206].

6. Continue with the next stage of the adjustment procedure [→ 248].

13.2.1.7.2   **Manual adjustment: Ceph - Fixed point of rotation for QuickShot**

The manual adjustment procedure is similar to the one for automatic adjustment. The only difference is that the default adjustment value calculated automatically by SIDEXIS XG in the *"Ceph - Fixed point of rotation Quickshot"* menu is overwritten.
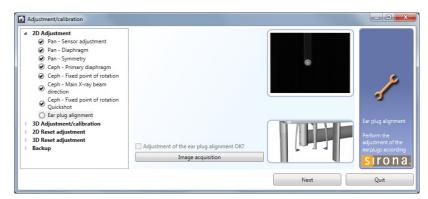
1. Start the *"Ceph - Fixed point of rotation Quickshot"* adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - QuickShot fixed point of rotation (standard) [→ 238]".
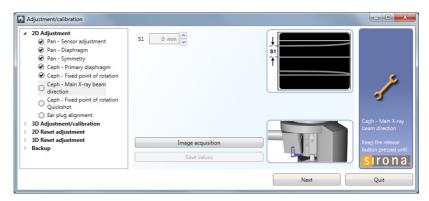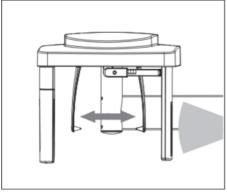
2. Once you have taken the exposure, measure distance **S1** with the SIDEXIS XG measuring ruler.

3. Overwrite the adjustment value for **S1** in the text box of the *"Ceph - Fixed point of rotation Quickshot"* menu with the measured value. For information about the shifting direction (input of +/- sign in the menu), see the chapter entitled "Shifting direction of the exposed image area". Use points as decimal separators!

4. Continue with the adjustment procedure as described in the chapter entitled "Automatic adjustment: Ceph - QuickShot fixed point of rotation (standard) [→ 238]".

13.2.1.8   **Ear plug alignment**
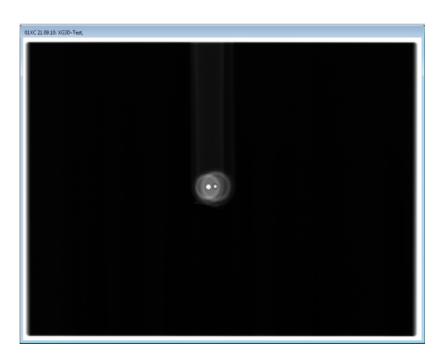
13.2.1.8.1   **Checking the ear plug alignment**

✔   *"Ceph"* operating mode is selected on the control panel.

✔   The ceph sensor is plugged into the ceph slot on the unit.

1.   In the structure tree, under *"2D Adjustment"*, click on the *"Ear plug alignment"* element.

      ↳   The *"Ear plug alignment"* menu is displayed in the action area.

2.   Move the ear plug holders completely apart and swing them into the beam direction.
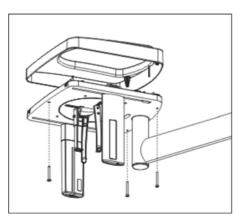
3.   Fit the adjusting caps (**A**) to the ear plugs and secure them with adhesive tape.
      Black adjusting cap: on the outside (sensor side)
      Transparent adjusting cap: on the inside (tube assembly side)
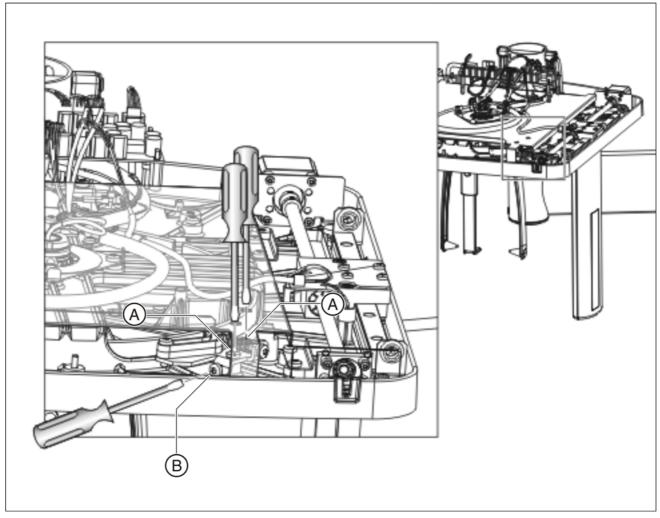
4.   Make SIDEXIS XG ready for exposure. [→ 206]

5.   Take an exposure (80 kV / 14 mA; 14.9 s) [→ 206].

      ↳   The exposure is displayed in the exposure window in SIDEXIS XG.

      ↳   The lead balls in the adjusting caps appear as dots on the image.

      ↳   The two dots must be coincident.

      ↳   If the two dots are not coincident, the ear plug alignment must be adjusted.

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13.2.1.8.2 Adjusting the ear plug alignment
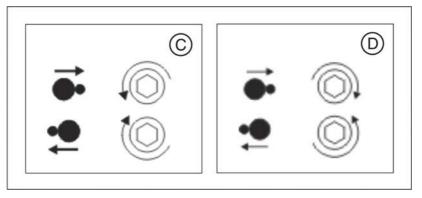
➢ Unscrew the cover from the cephalometer.

Horizontal correction
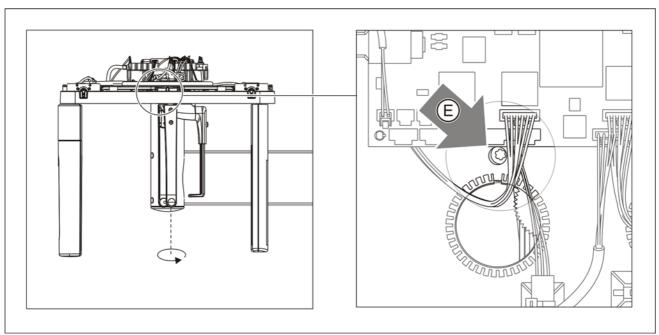
1. Loosen the screws (**A**) slightly (approx. 2 - 3 turns).
   Tip: Do not unscrew them fully!

2. Adjust the ear plugs in the horizontal direction by turning the screw (**B**) counterclockwise or clockwise. The direction of rotation for left-arm (**C**) and right-arm (**D**) versions is shown in the drawing below.
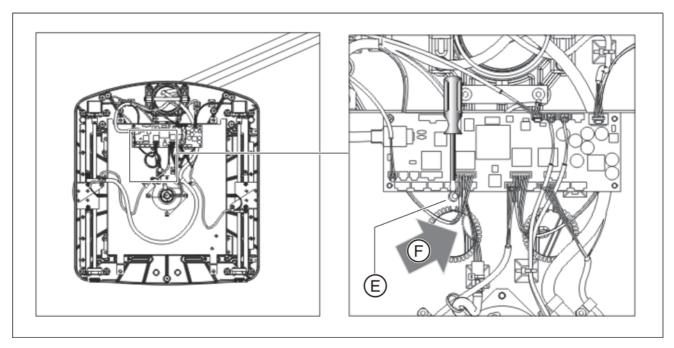
3. Retighten screws (**A**) firmly.

Vertical correction
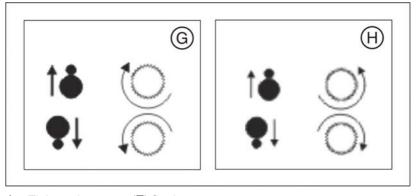
1. Turn the rotary table counterclockwise approx. 100 degrees until you can see the screw (**E**) through the opening in the cover plate.

2. Loosen the screws (**E**) slightly (approx. 2 - 3 turns).
   Tip: Do not unscrew them fully!

3. Adjust the ear plugs in the vertical direction by turning the knurled nut (**F**). The direction of rotation for left-arm (**G**) and right-arm (**H**) versions is shown in the drawing below.
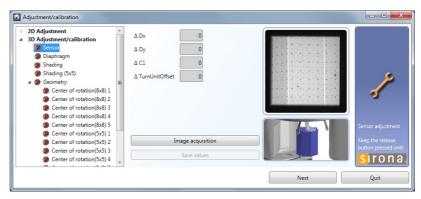
4. Tighten the screw (**E**) firmly.

Following adjustment

1. Swing the ear plug holders back into the beam direction (**black adjusting cap on the outside**).
2. Check the adjustment of the ear plug alignment [→ 243].
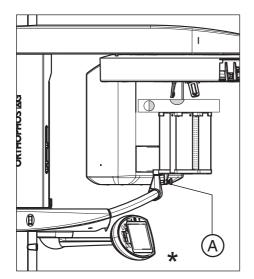
13.2.2 3D adjustment/calibration

13.2.2.1 Sensor
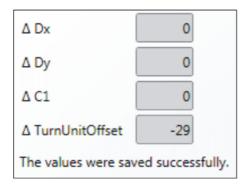
1. Insert the geometry phantom in the pan bite block holder of the unit [→ 207].

2. Align the geometry phantom with the spirit level and tighten the screw (**A**).
   * For enhanced representation, the unit is illustrated without the combisensor.

3. Call the "Adjustment/calibration" menu [→ 196].

4. In the structure tree, under "3D Adjustment/calibration" , click on the "Sensor " element.
   Once the menu has been selected via the button, the "Sensor " element (S010.20) is automatically pre-selected in the structure tree.

5. Make SIDEXIS XG ready for exposure. [→ 206]

6. Take an exposure (85 kV/23 mAs) [→ 206].

   ↳ A message is displayed in the action window to indicate whether adjustment has been successful and the traffic light symbol in front of the "Sensor " element in the structure tree responds accordingly:
   Adjustment not OK = traffic light stays red
   Adjustment OK = traffic light turns yellow

7. Repeat the procedure starting at Step 5 until adjustment is successful.

8. When adjustment is OK, save the values.

Δ Dx	0
Δ Dy	0
Δ C1	0
Δ TurnUnitOffset	-29

The values were saved successfully.

ᗏ A message is displayed in the action window to indicate that the values have been successfully saved.

ᗏ The traffic light symbol in front of the *"Sensor "* element in the structure tree changes color to green (with check mark). This indicates that the adjustment settings are valid.

9. Remove the geometry phantom from the pan bite block holder on the unit.

10. Continue with the next stage of the adjustment procedure [→ 250].

13.2.2.2 **Aperture**
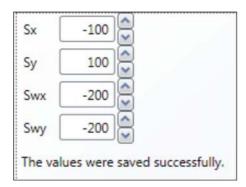
✔ The geometry phantom *is not* in the pan bite block holder on the unit.

1. In the structure tree, under *"3D Adjustment/calibration"* , click on the *"Diaphragm"* element (S030.10).

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (85 kV/0.33 mAs) [→ 206].

   ✎ A message is displayed in the action window to indicate whether adjustment has been successful and the traffic light symbol in front of the *"Diaphragm"* element in the structure tree responds accordingly:
Adjustment not OK = traffic light stays red
Adjustment OK = traffic light turns yellow
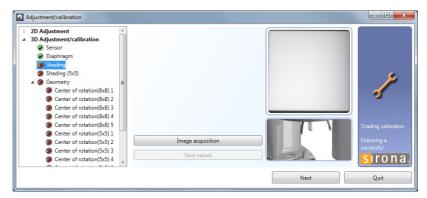
4. Repeat the procedure starting at Step 2 until adjustment is successful.

Sx	-100	
Sy	100	
Swx	-200	
Swy	-200	

The values were saved successfully.

5. When adjustment is OK, save the values.
   - ⮩ A message is displayed in the action window to indicate that the values have been successfully saved.
   - ⮩ The traffic light symbol in front of the *"Diaphragm"* element in the structure tree changes color to green (with check mark). This indicates that the adjustment settings are valid.

6. Continue with the next stage of the calibration procedure [→ 252].

13.2.2.3 **Shading**
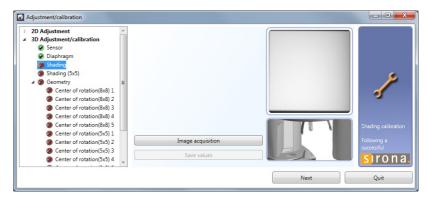
✔ The geometry phantom *is not* in the pan bite block holder on the unit.

1. In the structure tree, under *"3D Adjustment/calibration"* , click on the *"Shading"* element (S010.22).

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (85kV/18mAs) [→ 206].

   ↳ A message is displayed in the action window to indicate whether adjustment has been successful and the traffic light symbol in front of the *"Shading"* element in the structure tree responds accordingly:
   Calibration not OK = traffic light stays red
   Calibration OK = traffic light turns yellow

Calibration step was successful.

4. Repeat the procedure starting at Step 2 until calibration is successful.

5. When calibration is OK, save the values.

   ↳ The traffic light symbol in front of the *"Shading"* element in the structure tree changes color to green (with check mark). This indicates that the calibration settings are valid.

6. Continue with the next stage of the calibration procedure [→ 254].

13.2.2.4   **Shading (5x5)**

✔ The geometry phantom *is not* in the pan bite block holder on the unit.

1. In the structure tree, under *"3D Adjustment/calibration"* , click on the Shading element (S010.18).

2. Make SIDEXIS XG ready for exposure. [→ 206]

3. Take an exposure (85kV/18mAs) [→ 206].

   ↳ A message is displayed in the action window to indicate whether adjustment has been successful and the traffic light symbol in front of the Shading element in the structure tree responds accordingly:
   Calibration not OK = traffic light stays red
   Calibration OK = traffic light turns yellow

   Calibration step was successful.

4. Repeat the procedure starting at Step 2 until calibration is successful.

5. When calibration is OK, save the values.

   ↳ The traffic light symbol in front of the Shading element in the structure tree changes color to green (with check mark). This indicates that the calibration settings are valid.

6. Continue with the next stage of the calibration procedure [→ 254].

13.2.2.5   **Geometry**

1. Insert the geometry phantom in the pan bite block holder of the unit [→ 207].

2. Align the geometry phantom with the spirit level and tighten the screw (**A**).
   * For enhanced representation, the unit is illustrated without the combisensor.

3. In the structure tree, under *"3D Adjustment/calibration"* , click on the *"Center of rotation (8x8) 1"* element (S010.25-29 and S010.35-39).

4. Make SIDEXIS XG ready for exposure. [→ 206]
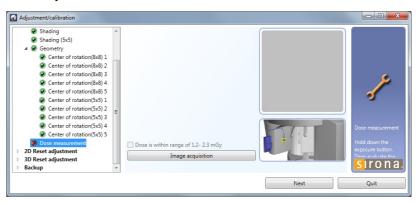
Calibration step was successful.

5. Take an exposure (85kV/23mAs) [→ 206].
   - ⮑ A message is displayed in the action window to indicate whether adjustment has been successful and the traffic light symbol in front of the *"Center of rotation (8x8) 1"* element in the structure tree responds accordingly:
     Calibration not OK = traffic light stays red
     Calibration OK = traffic light turns yellow

6. Repeat the procedure starting at Step 4 until calibration is successful.

7. When calibration is OK, save the values.
   - ⮑ The traffic light symbol in front of the *"Center of rotation (8x8) 1"* element in the structure tree changes color to green (with check mark). This indicates that the calibration settings are valid.

8. Repeat the calibration procedure for the remaining centers of rotation 2-5 (8x8) and 1-5 (5x5).

9. Remove the geometry phantom from the pan bite block holder on the unit.

13.2.2.6   **Dosimetry**
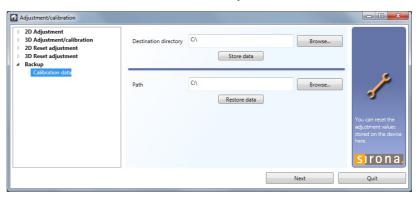
A dosimeter for pulsed radiation (e.g. Mult-O-Meter 512L) is required for dosimetry.

1. In the structure tree, under *"3D Adjustment/calibration"* , click on the *"Dose measurement"* element.

2. Attach the Mult-O-Meter sensor in the middle of the combisensor.

3. Make SIDEXIS XG ready for exposure. [→ 206]

4. Take an exposure (85 kV/35 mAs) [→ 206].

5. Read the dose shown on the Mult-O-Meter.

6. Note down the dose for later recording.

7. If the measured dose is between 1.2 and 2.3 mGy, check the box in the action area next to the text *"Dose is within range of 1,2 - 2,3 mGy"* .

    ⮕ The traffic light symbol in front of the *"Dose measurement"* element in the structure tree changes color to green (with check mark).

8. Remove the Mult-O-Meter from the dual sensor.

13.2.3 Saving adjustment/calibration data

The *"Backup"* menu offers the option of saving the adjustment/calibration data to a freely selectable directory or importing saved adjustment/calibration data to the unit from a directory.

1. Call the *"Adjustment/calibration"* menu [→ 196].

2. In the structure tree, under *"Backup"*, click on the *"Calibration data"* element.

   ↳ The menu for saving and importing adjustment/calibration data is displayed in the action area.

Saving adjustment/calibration data

1. Click the *"Browse"* button in the upper part of the action area and select a target directory.

or

   ➢ Enter the path of the target directory directly in the *"Destination directory"* text box.

2. To save the adjustment or calibration data to the selected directory, click the *"Store data"* button.

Importing adjustment/calibration data to the unit

1. Click the *"Browse"* in the lower part of the action area and select the path under which the desired adjustment or calibration data were saved.

or

   ➢ Enter the path directly in the *"Path"* text box.

2. To save the adjustment or calibration data to the selected directory, click the *"Store data"* button.

13.2.4 Resetting adjustment/calibration

In an absolute emergency, the settings made for adjustment and calibration can be reset in full or in part to the factory settings and/or modified manually in the *"Adjustment/calibration"* menu.
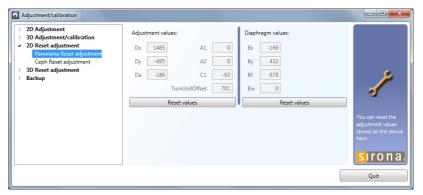
> ⚠ **CAUTION**
>
> You must make a note of the values displayed in the text boxes of the menus before changing them. If necessary, you can then reset the adjustment values to the factory settings.
> Contact the Sirona Customer Service Center for more information (or to enable the menu).
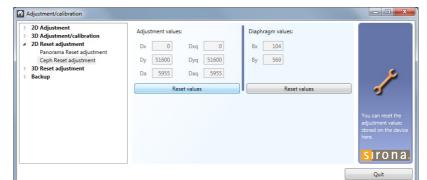
Reset panoramic adjustment

1. To reset panoramic adjustment, click on the *"Panorama Reset adjustment"* element in the structure tree under *"2D Reset adjustment"* .
2. To reset the adjustment values, click on the corresponding button.

Reset ceph adjustment
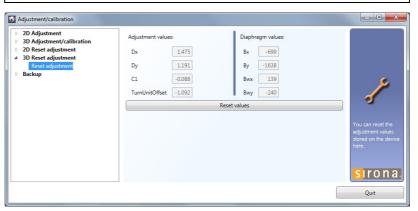
1. To reset ceph adjustment, click on the *"Ceph - Reset adjustment"* element in the structure tree under *"2D Reset adjustment"* .
2. To reset the adjustment values, click the corresponding button.

Resetting 3D adjustment

IMPORTANT

With the *"3D Reset adjustment"* function, only the *"Sensor   "* and *"Diaphragm"* adjustments are reset. The calibration values from the *"Shading"* and *"Geometry"* menus are retained.
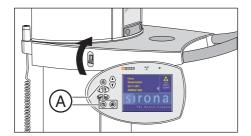
1. To reset 3D adjustment, click on the *"Reset adjustment"* element in the structure tree under *"3D Reset adjustment"* .
2. To reset the adjustment values, click the corresponding button.

After resetting the values

Once the adjustment/calibration values have been reset, the unit must be readjusted/recalibrated.
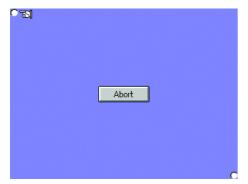
13.3 Checking and adjusting the touchscreen
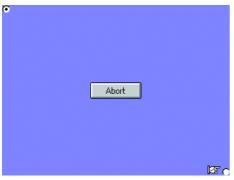
1. Switch the unit on.
   - ⮡ Once the unit software has started up, the start screen is displayed on the touchscreen.

2. As soon as the start screen appears, press the 3 keys **light localizer**, **T**, and **R** simultaneously (see (**A**)).
   IMPORTANT: These keys must be pressed while the unit is booting and the start screen is still displayed.
   - ⮡ The **first adjustment screen** appears on the display.
   - ⮡ You can abort the adjustment procedure at any time by pressing the *"Abort"* button.

3. Touch the **top left** corner of the screen.
   - ⮡ The **second adjustment screen** appears on the display.

4. Touch the **bottom right** corner of the screen.
   - ⮡ The **third adjustment screen** appears on the display.

5. Touch the center of the green square in the **top right** corner of the screen.
   IMPORTANT: Touch the green squares as close to the center as possible so that the black dots that then appear will be positioned exactly in the center of the squares.
   - ⮡ The **fourth adjustment screen** appears on the display.
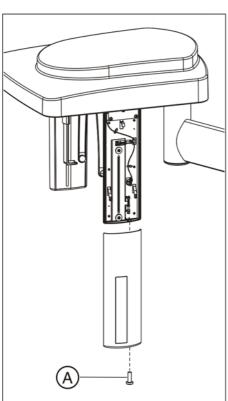
6. Touch the center of the green square in the **bottom left** corner of the screen.

⮡ The **fifth adjustment screen** appears on the display.
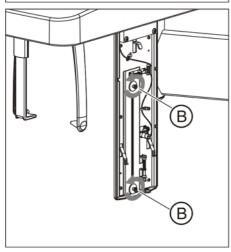
7. Confirm the adjustment settings by clicking the *"Yes"* button.

⮡ The touchscreen is now adjusted.

⮡ To repeat the adjustment procedure, touch the *"No"* button.

⮡ To abort the adjustment procedure, touch the *"Abort"* button.

13.4   Mechanical adjustments
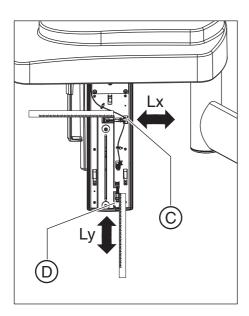
13.4.1   Mechanical adjustment: Ceph secondary diaphragm

1. Loosen screw (**A**) and remove the cover of the secondary diaphragm by pulling it downward.

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

3. Set the diaphragm tilt via screw (**C**) (**Lx** in mm) and the diaphragm height via screw (**D**) (**Ly** in mm).
   Screw (C):
   Turn counterclockwise = adjusts the diaphragm to the right
   Turn clockwise = adjusts the diaphragm to the left
   Screw (D):
   Turn counterclockwise = adjusts the diaphragm downward
   Turn clockwise = adjusts the diaphragm upward
   To measure the adjustment, use a gauge.
   The above-mentioned directions of rotation for the screws apply to both left-arm and right-arm versions.
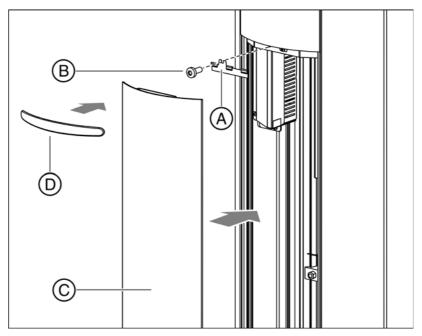
4. Retighten screws (**B**) firmly.

5. Once adjustment is complete, put the secondary diaphragm cover back again and fix it in place with the screw (**A**).

14   Final work
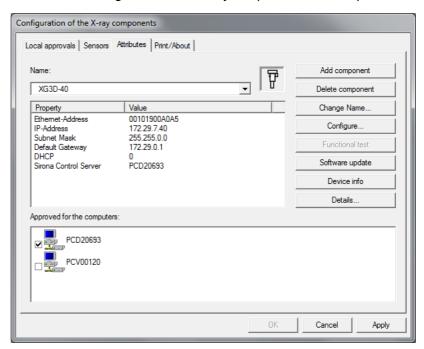
14.1   Attaching the profile cover

1. Screw the holder (**A**) to the column with the screw (**B**).
2. Clip on the profile (**C**).
3. Insert the intermediate piece (**D**) into the gap. Make sure that the intermediate piece (**D**) lies flush on the stand surface.

14.2 Calling "Extended Details"
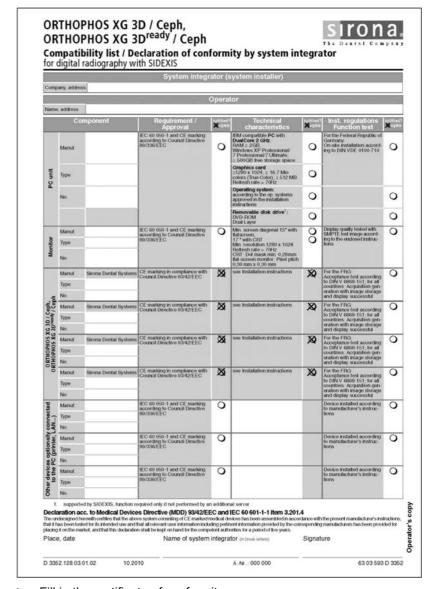
1. Start the *"SIDEXIS Manager"* under "Start"/"Programs"/"SIDEXIS"/ *"SIDEXIS XG"* .

2. Click on *"Configuration of the X-ray components"* .

   ↳ The *"Configuration of the X-ray components"* menu opens.

3. Select the *"Attributes"* tab.

4. Click the *"Details..."* button.

   ↳ The current parameters are read from the unit and filed in an XML file under the network name of the unit in the PDATA/.../ P2K_Config folder. The process can take up to 30 seconds. After the parameters are read, an editor displaying the data is opened automatically.

```
Details.txt ×

     0      1,0      2,0   T  3,0      4,0      5,0      6,0      7,0      8,0

32
33 ----------------------------------------------------------------------------
34 --------------------- Standard Configuration DX 11 ---------------------
35 ----------------------------------------------------------------------------
36 Name of flat module:        'DX11    '
37 Code Number:                ' 5925214'
38 Serial Number:              '        329039368'
39 Hardware Index:             0
40 Hardware Revision:          2
41 Test Date:                  2010-Feb-15
42 Test Counter:               1
43 Processor Derivate:         '            MPC855TZP80D4'
44 Previous Software Version:   132
45 Previous Software Revision:  2
46 Date Last Software Update:   2010-Oct-01
47 Current Software Version:    148
48 Current Software Revision:   39
49 GBP5 defined area:           0xff 0xff 0xff 0xff 0xff 0xff 0xff 0xff
50
51 ----------------------------------------------------------------------------
52 --------------------- Extended Configuration DX 11 ---------------------
53 ----------------------------------------------------------------------------
54 DX11 SerialNo:              18757644
55 DX1FpgaVersion:             3
56 DX1FpgaRevision:            4
57 DX1HwVersion:               8
58 DX11MemorySize:             134217728
59 DX11CpuClock:               80020000
60 BspVersion:                 1.4/2-IX0204
61
62 ----------------------------------------------------------------------------
63 --------------------- Error Logging Data DX 11 ---------------------
64 ----------------------------------------------------------------------------
65
66 Timestamp          Categorie     Message
67 2010-10-12, 10:13:33 [Message     ]: Logbook started
68 2010-10-12, 10:13:55 [Error       ]: E1 11 20 (ERR_DX11_INVALID_CB_CALIBDATA)
69 2010-10-12, 10:17:22 [RTC Date/Time change]: Tried to change to: 2010-Oct-12, 10:17:22
70 2010-10-12, 10:19:57 [Message     ]: Logbook started
71 2010-10-12, 10:20:19 [Error       ]: E1 11 20 (ERR_DX11_INVALID_CB_CALIBDATA)
72 2010-10-12, 10:21:37 [RTC Date/Time change]: Tried to change to: 2010-Oct-12, 10:18:56
73 2010-10-12, 10:40:27 [Message     ]: Logbook started
74 2010-10-12, 10:40:49 [Error       ]: E1 11 20 (ERR_DX11_INVALID_CB_CALIBDATA)
75 2010-10-12, 10:41:36 [RTC Date/Time change]: Tried to change to: 2010-Oct-12, 10:44:17
76 2010-10-12, 10:59:54 [Message     ]: Logbook started
77 2010-10-12, 11:00:15 [Error       ]: E1 11 20 (ERR_DX11_INVALID_CB_CALIBDATA)
78 2010-10-12, 11:00:41 [RTC Date/Time change]: Tried to change to: 2010-Oct-12, 11:00:41
79 2010-10-12, 11:03:10 [Message     ]: Logbook started
80 2010-10-12, 11:06:34 [Message     ]: Logbook started
```

14.3 Filling in the certificate of conformity

ORTHOPHOS XG 3D / Ceph,
ORTHOPHOS XG 3D^ready / Ceph

sirona
The Dental Company

Compatibility list / Declaration of conformity by system integrator
for digital radiography with SIDEXIS

System integrator (system installer)	
Company, address	

Operator	
Name, address	

Component		Requirement / Approval	fulfilled? ✗ yes	Technical characteristics	fulfilled? ✗ yes	Inst. regulations Function test	fulfilled? ✗ yes
PC unit	Manuf.	IEC 60 950-1 and CE marking according to Council Directive 89/336/EEC	○	IBM compatible PC with DualCore 2 GHz, RAM ≥ 2GB, Windows XP Professional/ 7 Professional/7 Ultimate, ≥ 500GB free storage space	○	For the Federal Republic of Germany: On-site installation according to DIN VDE 0100-710	○
	Type			Graphics card ≥1280 x 1024, ≥ 16,7 Mio colors (True Color), ≥ 512 MB Refresh rate ≥ 70Hz	○		
	No.			Operating system: according to the op. systems approved in the installation instructions	○		○
				Removable disk drive¹: DVD-ROM Dual Layer	○		○
Monitor	Manuf.	IEC 60 950-1 and CE marking according to Council Directive 89/336/EEC	○ ○	Min. screen diagonal 15" with flatscreen, 17" with CRT Min. resolution 1280 x 1024 Refresh rate ≥ 70Hz CRT: Dot mask min. 0,28mm flat-screen monitor: Pixel pitch 0,30 mm x 0,30 mm	○ ○	Display quality tested with SMPTE test image according to the enclosed instructions	○
	Type						
	No.						
ORTHOPHOS XG 3D / Ceph, ORTHOPHOS XG 3D ready / Ceph	Manuf. Sirona Dental Systems	CE marking in compliance with Council Directive 93/42/EEC	⊠	see installation instructions	⊠	For the FRG: Acceptance test according to DIN V 6868-151; for all countries: Acquisition generation with image storage and display successful	○
	Type						
	No.						
	Manuf. Sirona Dental Systems	CE marking in compliance with Council Directive 93/42/EEC	⊠	see installation instructions	⊠	For the FRG: Acceptance test according to DIN V 6868-151; for all countries: Acquisition generation with image storage and display successful	○
	Type						
	No.						
	Manuf. Sirona Dental Systems	CE marking in compliance with Council Directive 93/42/EEC	⊠	see installation instructions	⊠	For the FRG: Acceptance test according to DIN V 6868-151; for all countries: Acquisition generation with image storage and display successful	○
	Type						
	No.						
	Manuf. Sirona Dental Systems	CE marking in compliance with Council Directive 93/42/EEC	⊠	see installation instructions	⊠	For the FRG: Acceptance test according to DIN V 6868-151; for all countries: Acquisition generation with image storage and display successful	○
	Type						
	No.						
Other devices optionally connected to the PC (printer, LAN...)	Manuf.	IEC 60 950-1 and CE marking according to Council Directive 89/336/EEC	○			Device installed according to manufacturer's instructions	○
	Type						
	No.						
	Manuf.	IEC 60 950-1 and CE marking according to Council Directive 89/336/EEC	○			Device installed according to manufacturer's instructions	○
	Type						
	No.						
	Manuf.	IEC 60 950-1 and CE marking according to Council Directive 89/336/EEC	○			Device installed according to manufacturer's instructions	○
	Type						
	No.						

1. supported by SIDEXIS, function required only if not performed by an additional server

Declaration acc. to Medical Devices Directive (MDD) 93/42/EEC and IEC 60 601-1-1 item 3.201.4
The undersigned herewith certifies that the above system consisting of CE marked medical devices has been assembled in accordance with the present manufacturer's instructions, that it has been tested for its intended use and that all relevant user information including pertinent information provided by the corresponding manufacturers has been provided for placing it on the market, and that this declaration shall be kept on hand for the competent authorities for a period of five years.

Place, date	Name of system integrator (in block letters)	Signature

D 3352.128.03.01.02   10.2010   Ä.-Nr.: 000 000   63 03 593 D 3352

Operator's copy

➤ Fill in the certificate of conformity.
The system integrator uses the compatibility list as evidence of the installed SIDEXIS system's EC-conformity.
The list is structured in such a way that only the white fields need to be completed. The original list remains in the practice, the copy is given to the system integrator.

Only for Germany
➤ Perform the acceptance test prescribed in the X-ray Ordinance §16. Use the test phantom, plug-in plate, contrast elements, needle phantom and relevant instructions included in delivery for this purpose.

14.4 Unit handover

➢ Give the customer 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.

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

Sirona Dental Systems GmbH

Contact in the USA:

Fabrikstraße 31   Sirona Dental, Inc.   Order No   **63 03 452 D3352**
D-64625 Bensheim   4835 Sirona Drive
Germany   Charlotte, NC 28273
www.sirona.com   USA