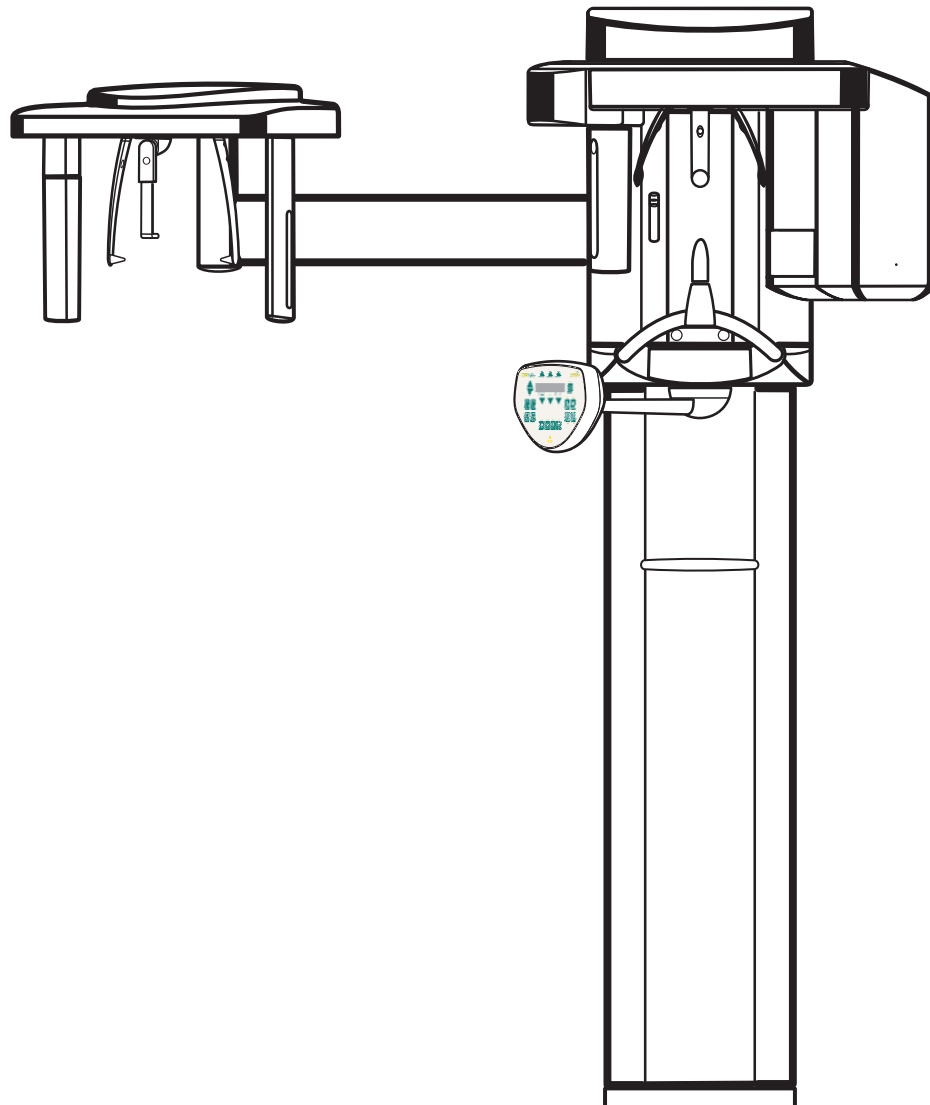


CDR PanElite

Maintenance Instructions

English



General information

ATTENTION !

**Proper shielding of room and operator position is essential.
Since these requirements vary from state to state it is the assembler's/installer's responsibility that all local radiation safety requirements are met.**

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1 General

To stay in compliance with the DHHS requirements the **CDR PanElite** must be maintained annually. It is the responsibility of the user to insure that the equipment is maintained with the manufacturer's recommended **Maintenance Instructions** to insure compliance with the Federal Performance Standard. The manufacturer and the assembler/installer are relieved from responsibility in those cases where the user fails to have the manufacturer's recommended maintenance performed. The actual maintenance inspection and consequent service must be accomplished by a trained serviceman. Neither the inspection nor service is part of the equipment warranty.

Technical instructions required

Operating Instructions
Service Manual

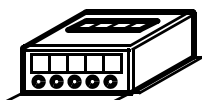
Instruments and adjustment tools required

All measuring devices must be suitable for measurements on the mains potential. This includes the pulse counter. This means: A voltage of 1000 V between a connection and ground must be possible.

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



2. Electromechanical pulse counter, model KESSLER ELLIS KT 203 ± 1 pulse, or equivalent..



3. Adjustment set with alignment tool for X-ray beam, test block and needle phantom delivered with the unit, (customer's property).

ATTENTION

RADIATION!

Observe the radiation protection guide lines as outlined in the Operating Instructions manual.
X-radiation is emitted as long as the exposure switch is depressed.
The X-ray indicator must light up on the Control Pad during radiation. An acoustic signal should also be heard.

Power Supply Adequacy

To assure that the CDR PanElite system performance is in accordance with Schick specifications, an adequate power supply for permanent installation is essential.

The Federal Performance Standard for diagnostic X-ray units, code of Federal Regulations, Title 21 CFR, Subchapter J, mandates an adequate power supply.



Duty Cycle

Between exposures a minimum cool-off time is maintained (automatic exposure blockage, see Operating Instructions manual).

Operating Instructions

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

CAUTION with PC Boards!

All PC boards are fitted with electronic components sensitive to electrostatic discharge (ESD). Electrostatic charges are unavoidable due to friction caused by clothing, carpeting etc.

ATTENTION

To prevent damage of electronic chips do not touch components.
Always handle circuit boards by their edges.



ATTENTION

Electrical Shock Hazard!
Always turn unit OFF before connecting and disconnecting the test leads to the test points

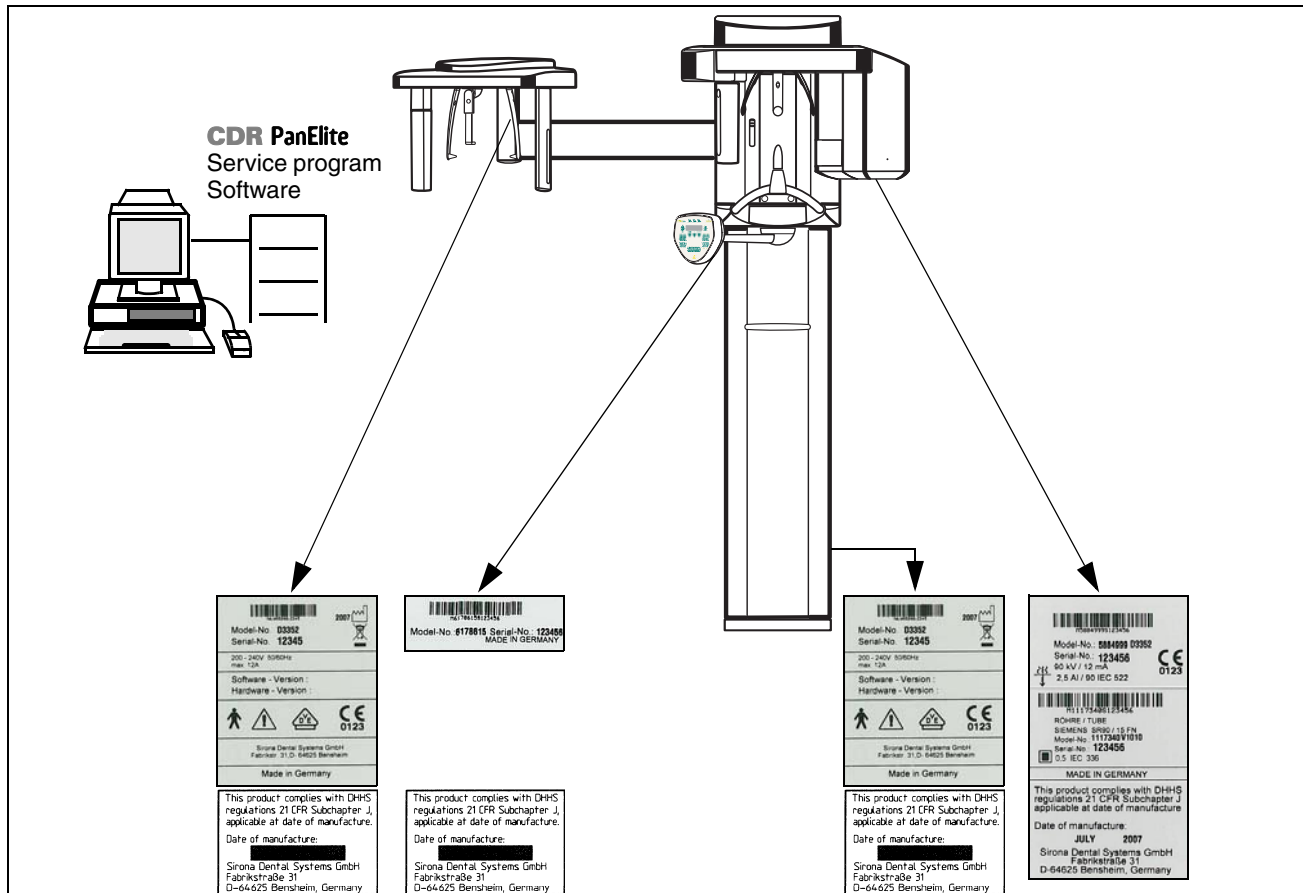
ON
OFF



WARNING

Life-threatening voltage on DX6.

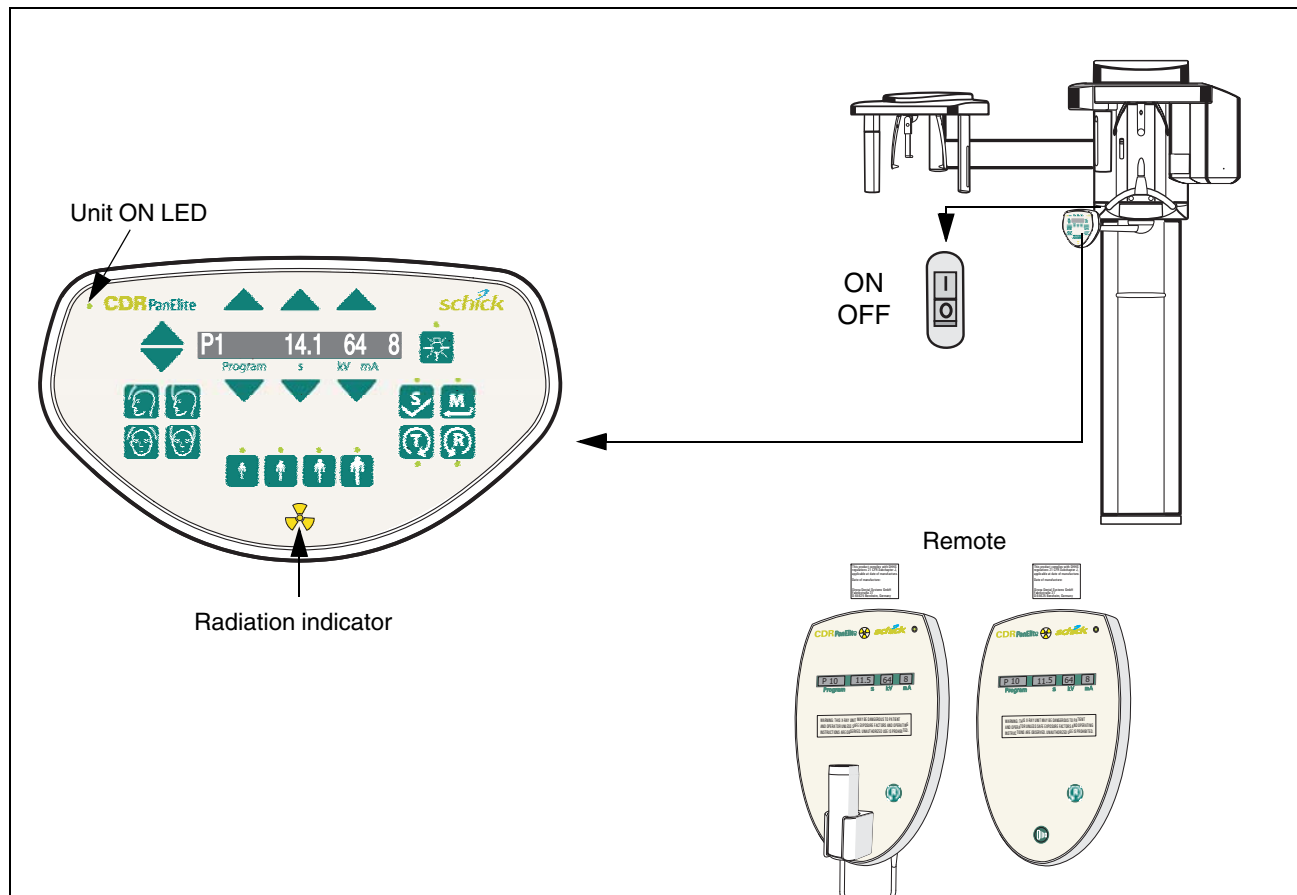
2 Visual Check



- Look for mechanical damage that may affect radiation safety.
- Verify that all labels are affixed and legible.
Defaced labels must be replaced.
Order labels from Schick (address, see rear)
in writing stating:
 - Customer Name
 - Customer Address

All Model Numbers with Serial Numbers should be legible on the unit for identification purposes. For serial numbers see also **Installation Report**.

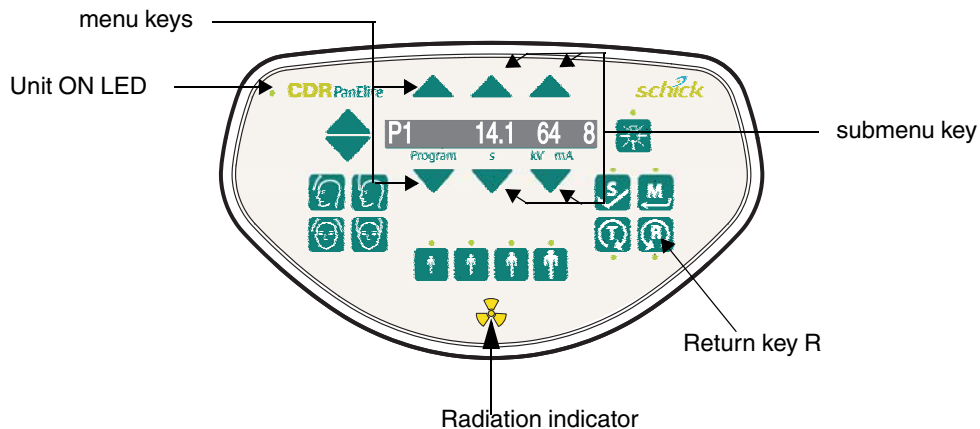
3 Indicator Lights and audible Signal



- **Unit ON LED:**
Press the main switch to the "I" position to turn unit ON. Power ON tests to take about 1 minute. The "Unit ON LED" in the upper right corner of the **user interface** will then be lit".
- **Testing the keys and the functions on the user interface.**
 - When the height is adjusted, an acoustic signal is active.
 - If the forehead support functions correctly, the max. holding torque is still present.
 - If remote is installed, test the remote keys and verify proper operation of the display.
 - The exposure switch must not be defective or broken.

See also Operating Instructions under "Preparing the Exposure" subchapter "Switching the system on".

CAUTION RADIATION !
Observe Radiation Protection Guide Lines
see **Operating Instructions**



- **Take an exposure:**
 - X-ray head must be in the initial position (If not, press return key R).
 - Make sure that **CDR PanElite** Service program is ready to take an image.
For more details and possible error messages see Operating Instructions.
 - Set the **P1** exposure program using the menu keys.
 - Select **68kV/8mA** using submenu keys.

CAUTION RADIATION

- **Press and hold the exposure switch until the exposure terminates automatically.**
- **The exposure ends when the rotation and radiation switch off automatically.**
- **The radiation indication must light up during the exposure period.**
- **Simultaneously an audible beep must sound at the unit.**

- **Interrupt an exposure – deadman feature:**
 - Observe a cool-off time of max. 5 mins. between exposures (automatic exposure blockage).
 - Setting same as above.

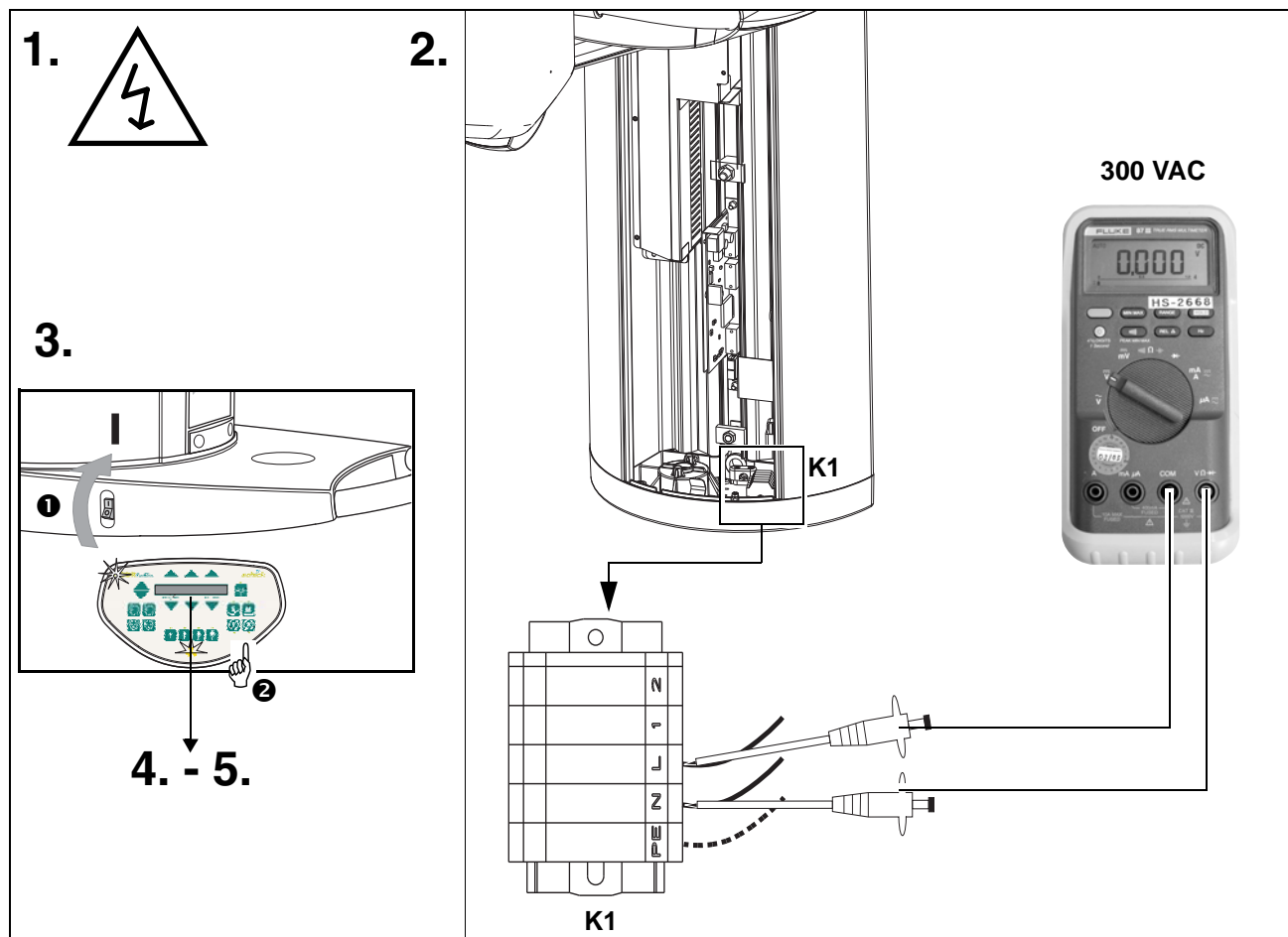
CAUTION RADIATION

- **Press the exposure switch until X-ray lights up and subsequently release – the exposure must terminate immediately. The radiation indicator lights up.**

ATTENTION

Defective light indicators constitute a safety hazard to the patient as well as to the operator.
The user is not permitted to use the unit, until repairs are made!

4 Power supply adequacy



- To determine power supply adequacy, the **line voltage drop** during exposure must be measured.
- 1. Be sure power is disconnected at the central distribution panel!
- Remove front cover (for details see Service Manual).
- 2. Select 300VAC line voltage range on multimeter . Connect measuring leads to terminal **K1**, **L** and **N**.
- 3. Connect power and switch unit **ON** ① . Wait 1 min. for self-adjustment of the unit. Press key **R** ② to return X-ray tube head into the initial position.
- 4. Make sure that **CDR PanElite** Service program is ready to take an image.
- 5. Select **highest exposure level** e.g., 90kV/12mA.

CAUTION RADIATION

– Press and hold the exposure switch until the meter reading is obtained.

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

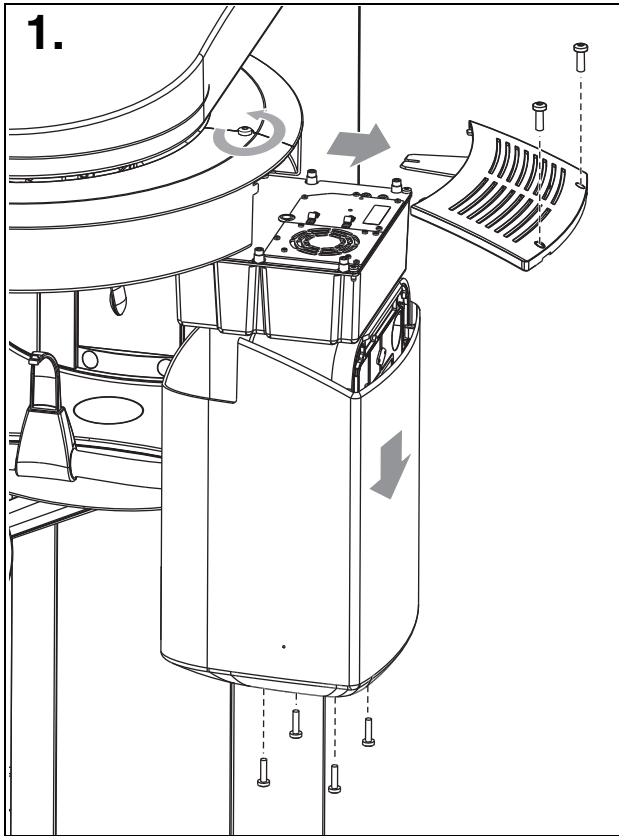
Record reading.

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

NOTE

If the voltage drop is not within the specified range advise the customer, that an adequate power supply must be installed. Refer to Pre-Installation Instructions. Disconnect unit and do not release for use!

5 kV – verification, kV ramp during panoramic exposure



WARNING

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

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

WARNING

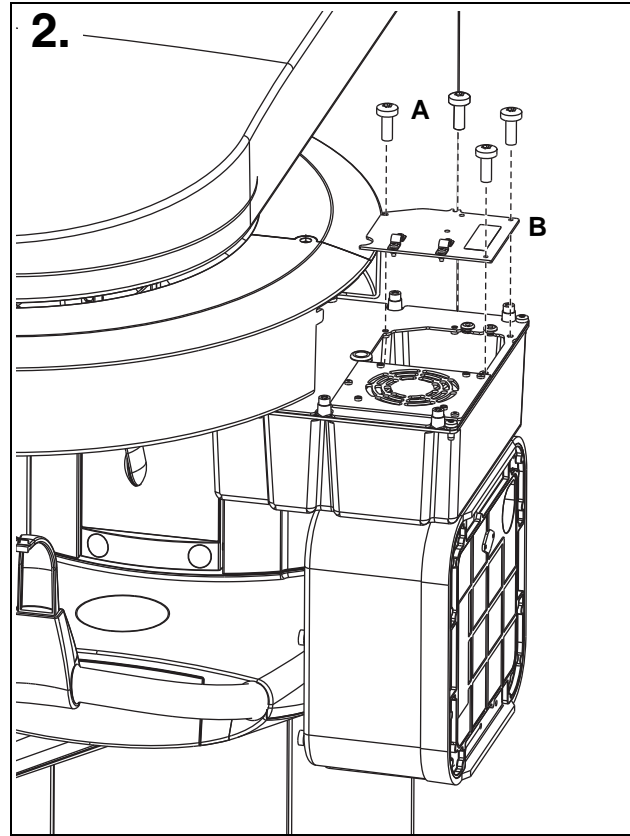
The test leads and measuring instruments used must have a dielectric strength of at least 1000V!

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

Use only test leads with shock protection.

ATTENTION

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



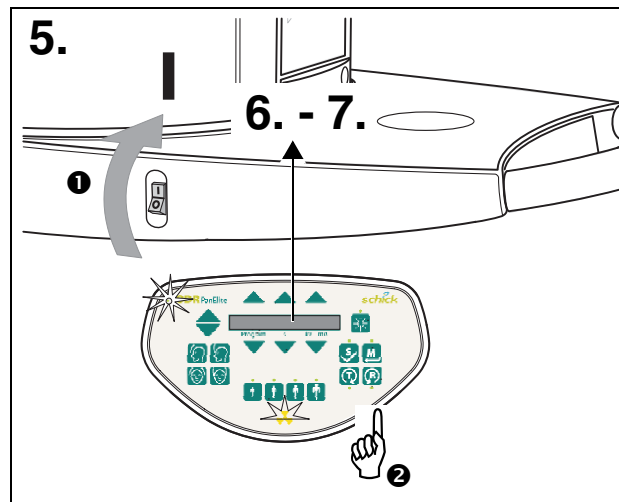
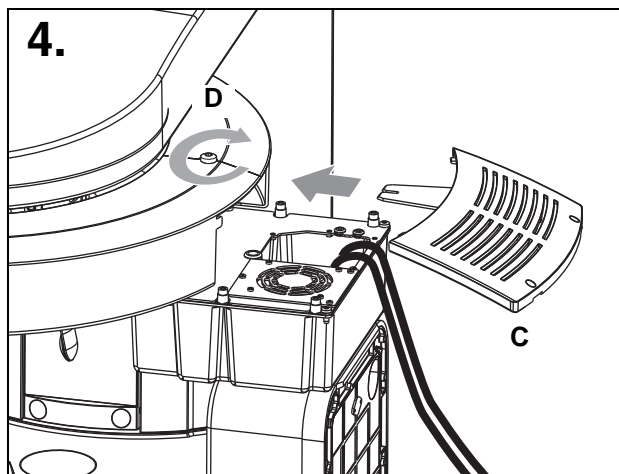
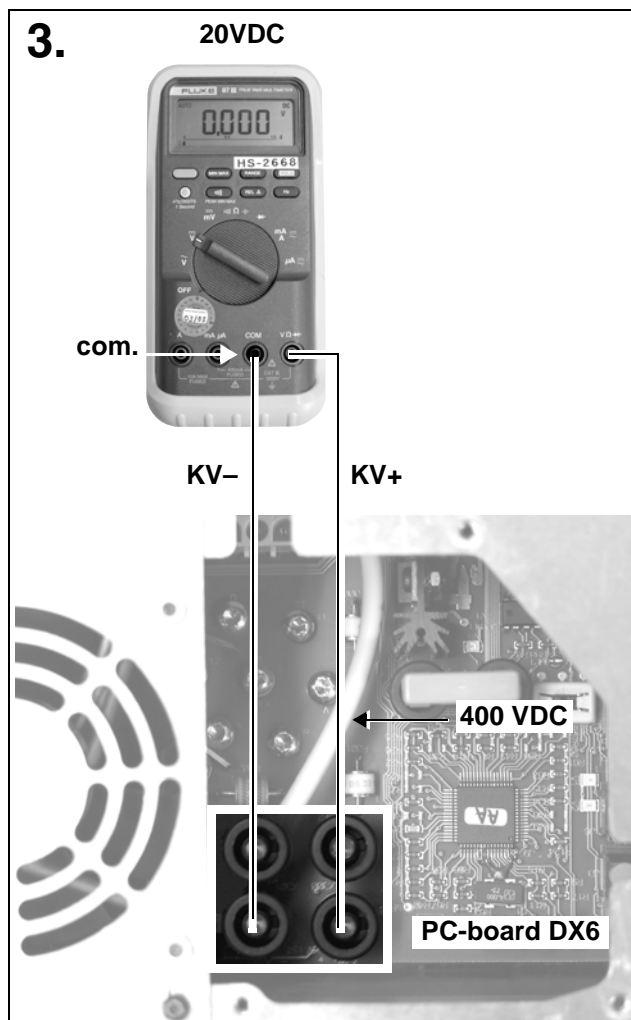
NOTE

*Measurements:
62kV correspond to 3.1V, tolerance +/- 10%*

NOTE

During exposure the kV is increased in the central region depending on kV/mA selected by up to 10%. This increase can be measured in VDC.

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



3. Connect digital voltmeter to KV+ and KV– test points on PC board DX6 and select range 20 VDC.
4. Refit cover **C** and tighten screw **D** securely.
5. Switch unit ON **1**.
Wait 1 min. for power on of the unit.
Press key **R** **2** to return X-ray tube head into the initial position.
6. Make sure that **CDR PanElite** Service program is ready to take an image.
7. Select **P1** program and **62kV/8mA**.

Measurement:

CAUTION RADIATION

- **Press and hold the exposure switch until the exposure terminates automatically.**

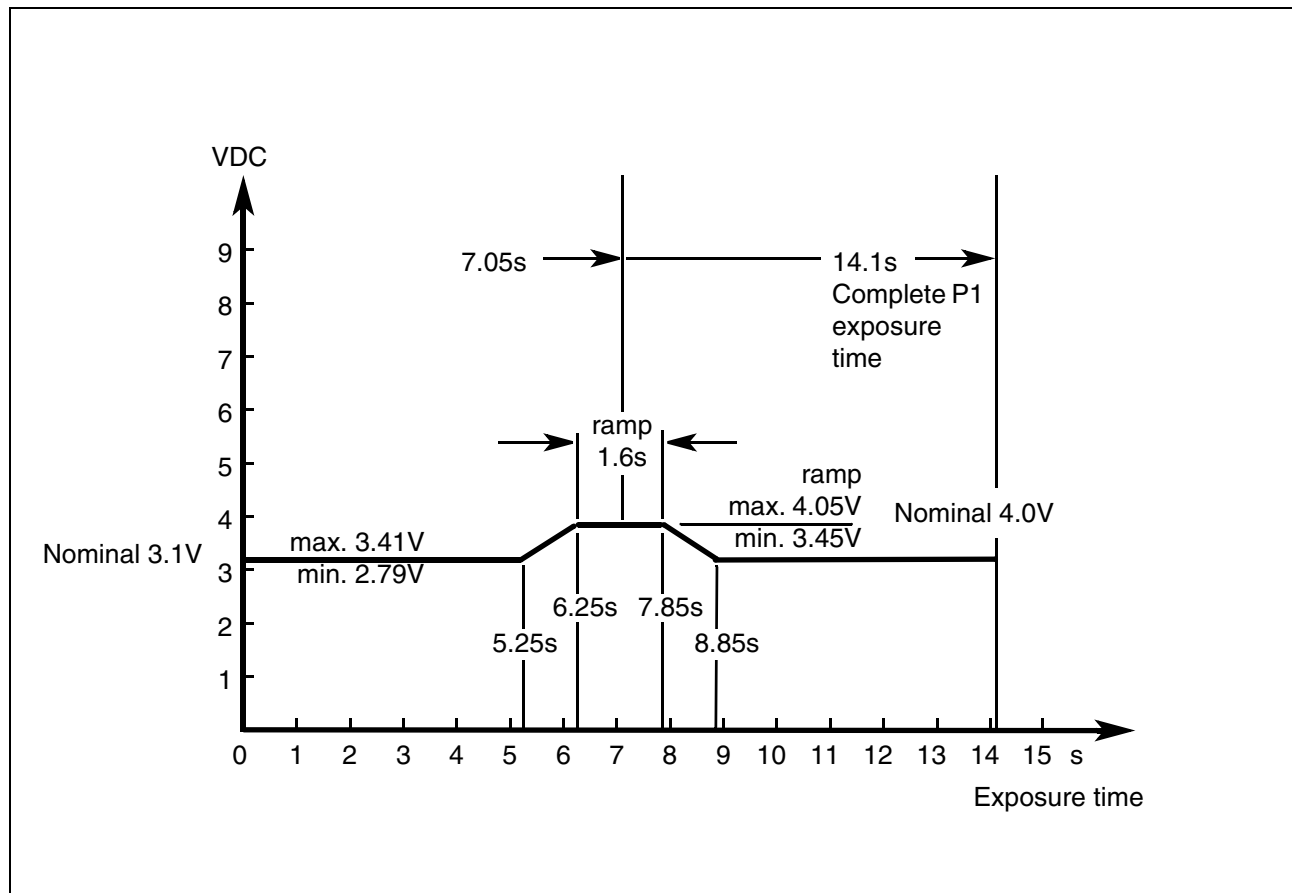
The following values must be obtained
(see also diagram on next page)

- up to 5.25 seconds: **3.1 V ±0.3V**
- from 6.25 to 7.85 s KV-ramp: e.g., **4 V ±0.4V**
- after 8.85 seconds: **3 V ±0.3V**

NOTE

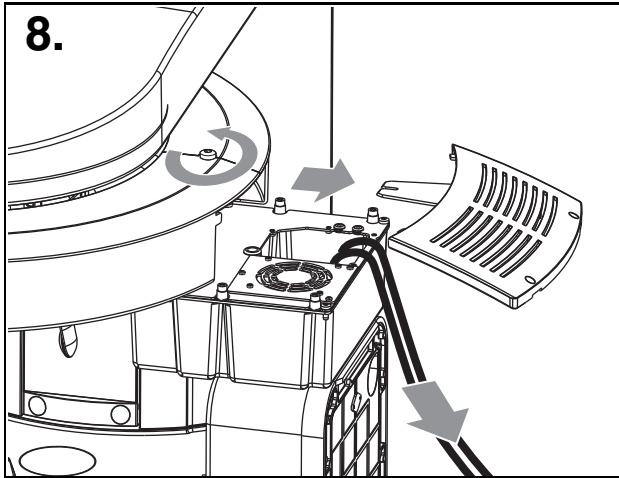
If specified values cannot be obtained, see Service Manual for troubleshooting.

kV – Verification, kV–ramp during panoramic exposure



kV ramp diagram

with program P1 and 62kV/8mA set on the Control Pad and temple support fully open.



- Turn unit OFF.
8. Remove top cover and meter leads.

6 Tube Current Verification



WARNING

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

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



WARNING

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

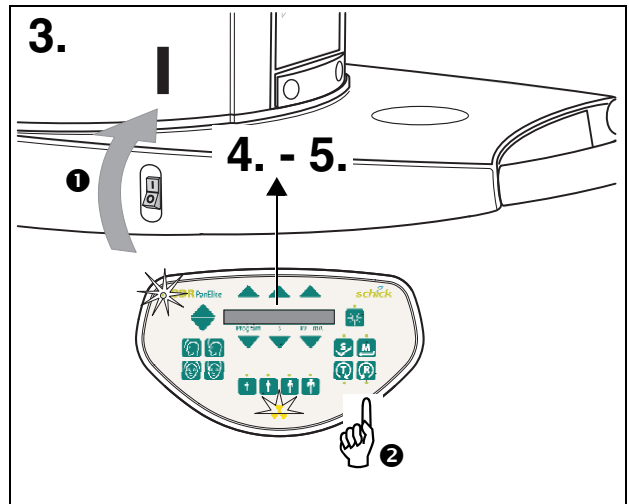
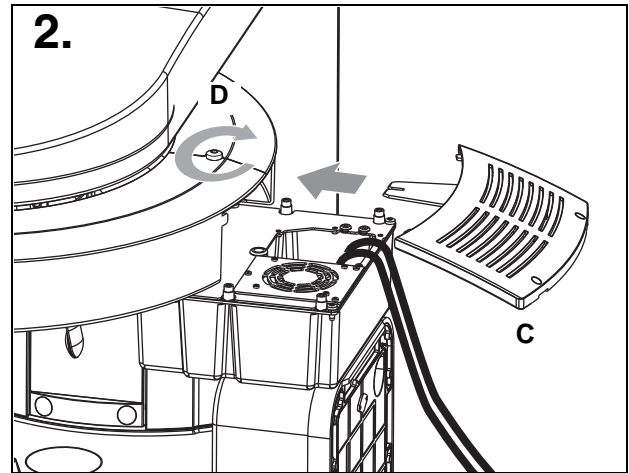
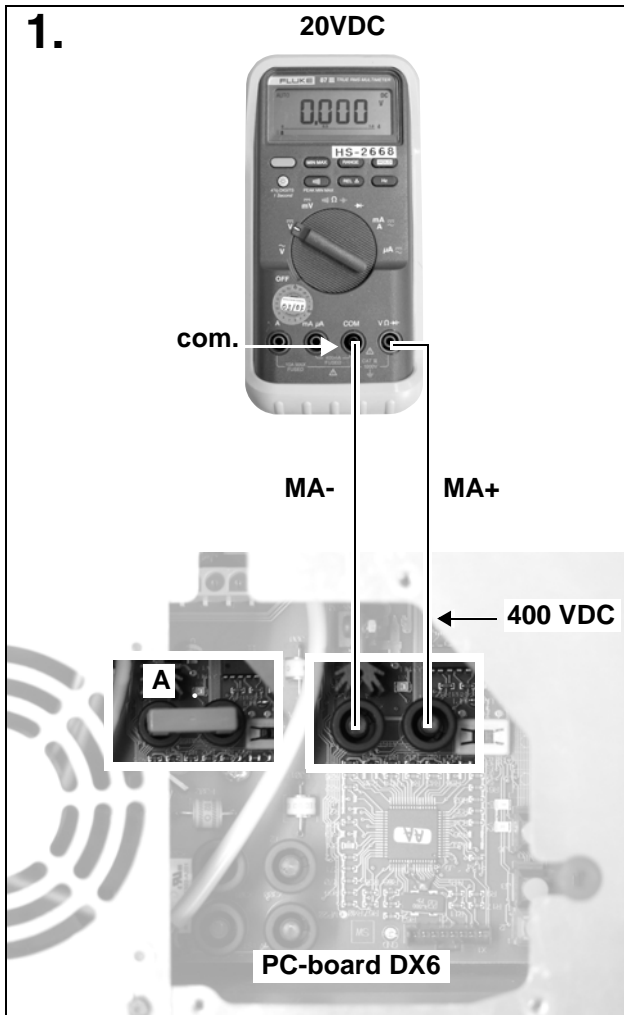
Be sure to use a battery-powered measuring instrument with shock-hazard-protected sockets.

Use only test leads with shock protection.



WARNING

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



1. Remove shunt jumper **A** from MA+/MA – test points on PC board DX6. Connect digital multimeter to VDC and select range 20 mVDC.
2. Reattach cover **C** and tighten screw **D** securely.
3. Switch unit ON **1**.
Wait 1 min. for self-adjustment of the unit.
Press key **R** **2** to return X-ray tube head into the initial position.
4. Select **66kV/8mA**. Make sure that **CDR PanElite** Service program is ready to take an image.
5. If **P1** program and **66kV/8mA** are selected .
The unit must be ready for radiation.

Measurement:

CAUTION RADIATION

– Press and hold the exposure switch until meter reading is obtained.

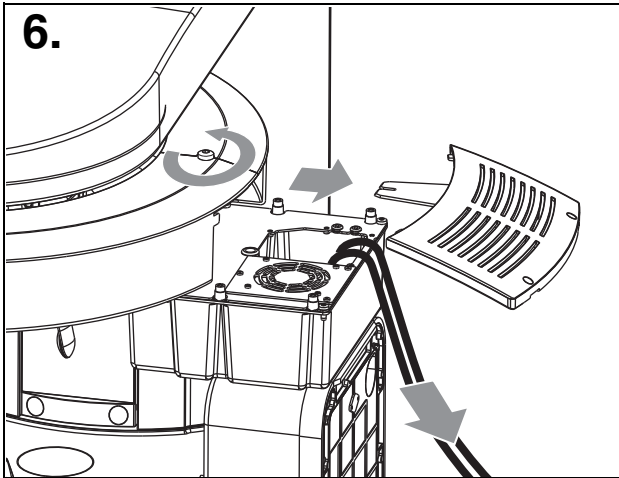
The multimeter shall indicate **8mV ±1.6mV**.
Record reading.

NOTE

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

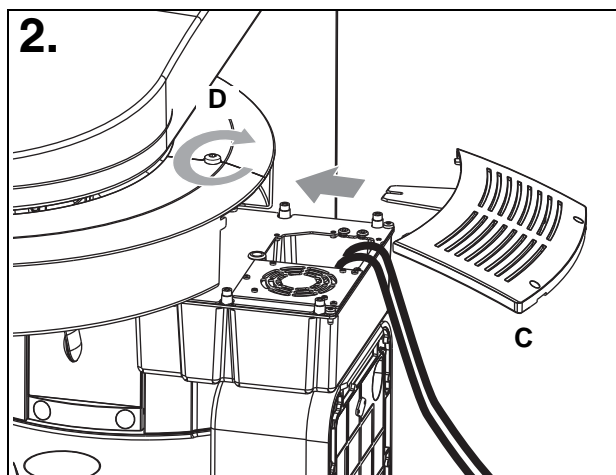
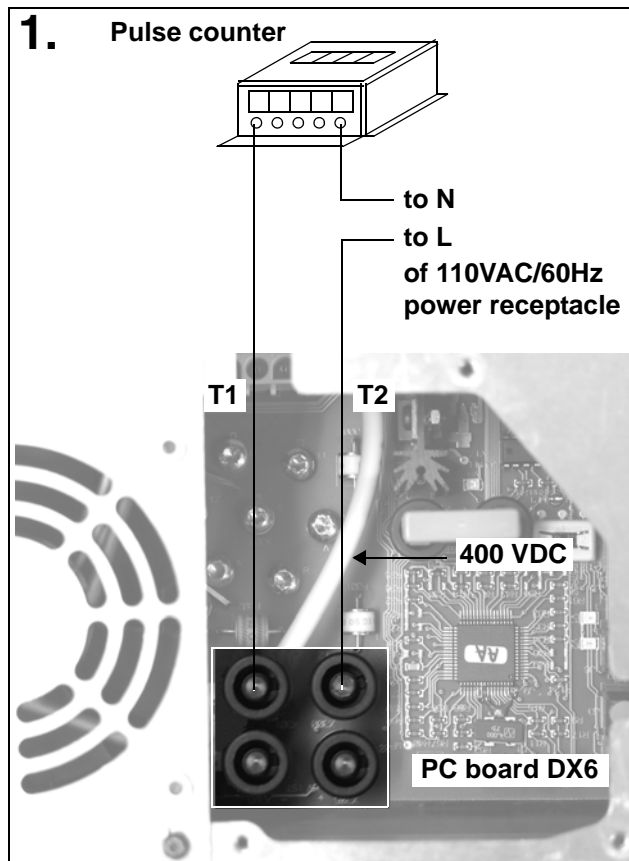
NOTE

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



- If specified value is obtained switch unit OFF.
- 6. Remove upper cover and meter leads
- Replace jumper!

7 Exposure Time Verification



⚠ WARNING

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

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

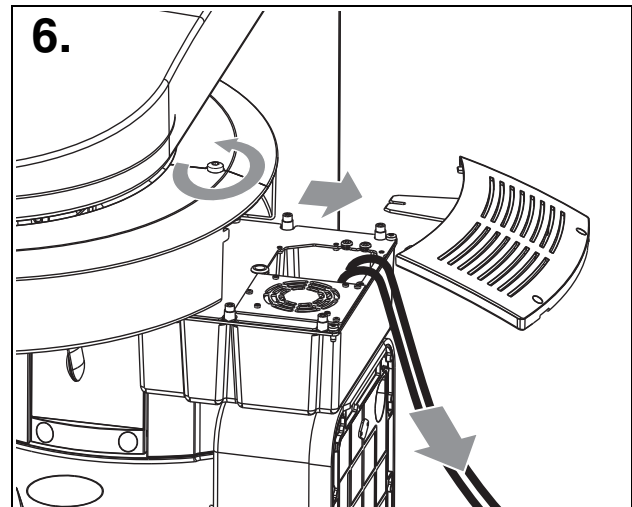
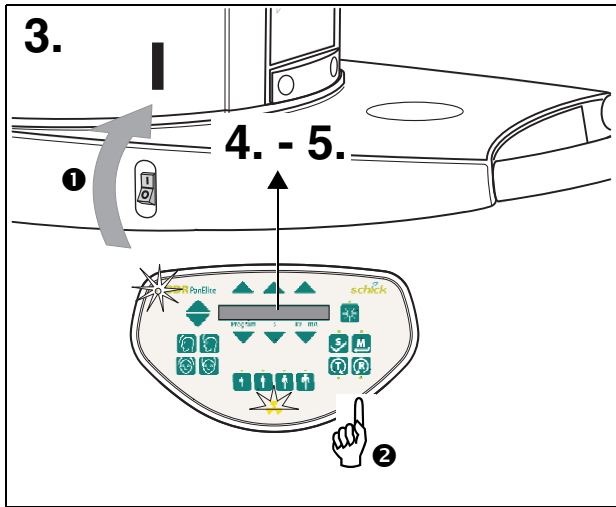
⚠ WARNING

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

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

Use only test leads with shock protection.

1. Connect...
 - test point **T2** of terminal on PC board DX6 to **L** of **110V** power receptacle
 - the common lead of the pulse counter to **N** of the **110V** power receptacle
 - the second measuring lead of the pulse counter to test point **T1**
2. Refit cover **C** and tighten screw **D** securely.



3. Switch unit ON **1**.
Wait 1 min. for power on of the unit.
Press key **R** **2** to return X-ray tube head to the initial position.
4. Select **66kV/8mA**.
Make sure that **CDR PanElite** Service program is ready to take an image.

Measurement:

CAUTION RADIATION

– **Press and hold the exposure switch until the exposure terminates automatically.**

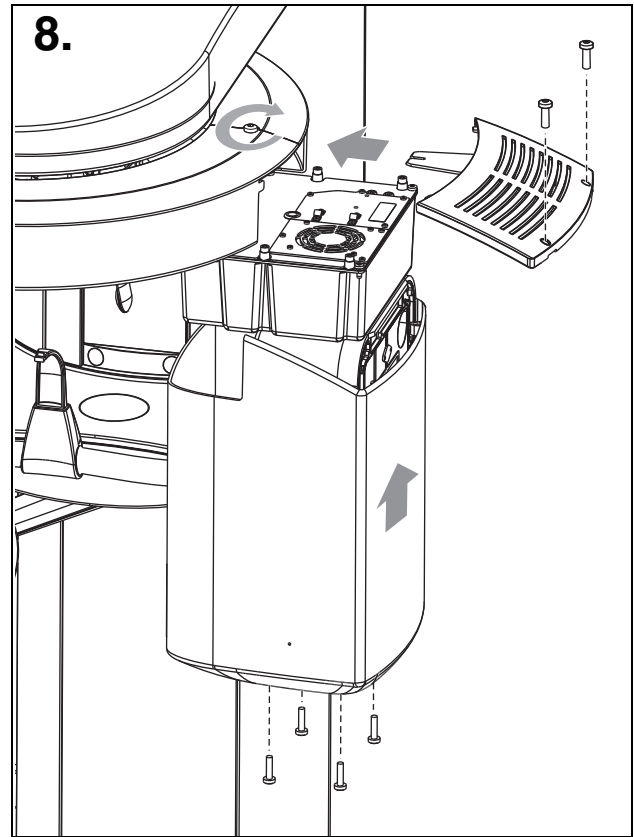
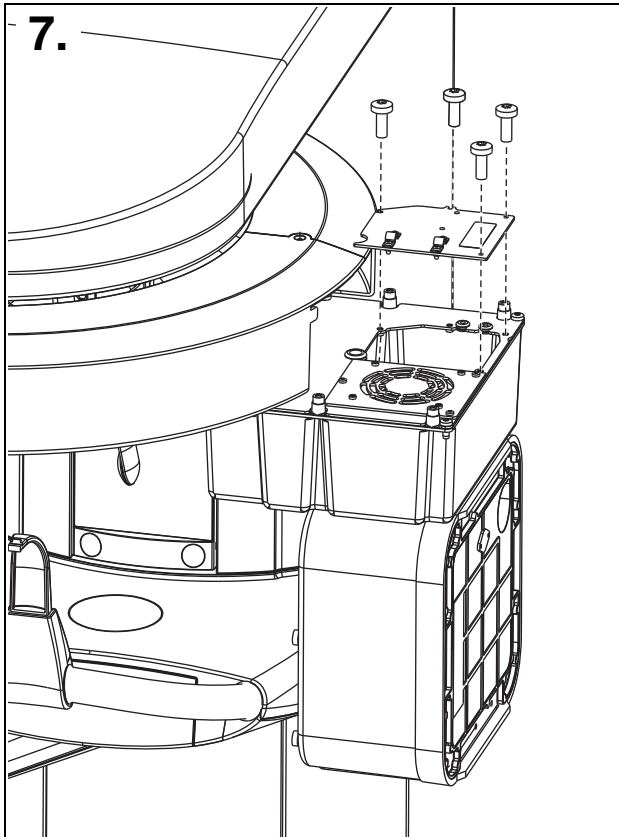
5. Select service routine **S2** (Selecting a service routine: See Service Manual):
 - Set radiation time to 1 sec.
 - Measured values at 50 Hz 50 pulses +/-10%
 - Measured values at 60 Hz 60 pulses +/-10%

Record average pulse count.

NOTE

If specified value cannot be obtained, see Service Manual, chapter "Exposure Time Verification".

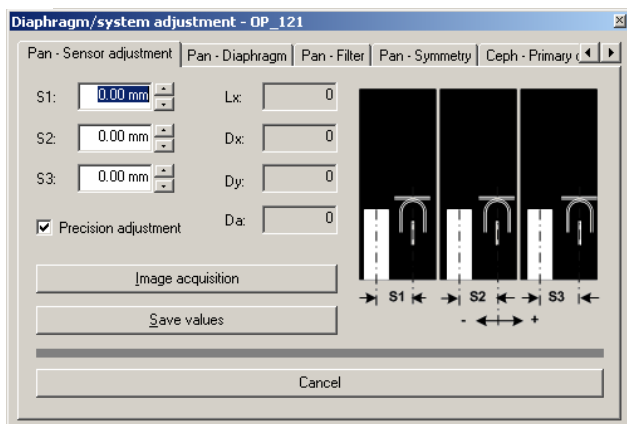
- If specified value is obtained, switch unit OFF.
6. Remove upper cover and meter leads.



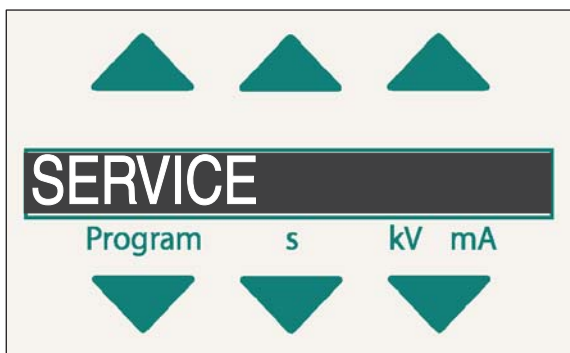
7. Screw the cover plate back on to the electronics box.
8. Reattach the housing covers.

8 Checking the X-Ray Beam

1.



2.



8.1 Diaphragm/system adjustment menu

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

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

i NOTE

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

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

i NOTE

When you open the **DIAPHRAGM/SYSTEM ADJUSTMENT** menu, the unit switches from the user mode to the PC service mode logged by the PC.

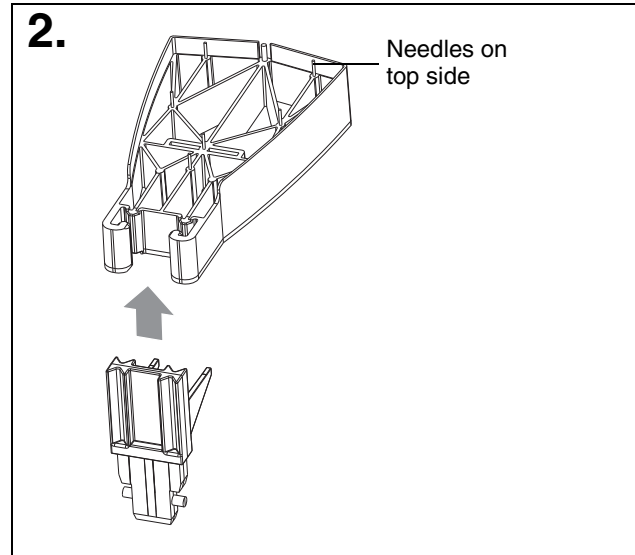
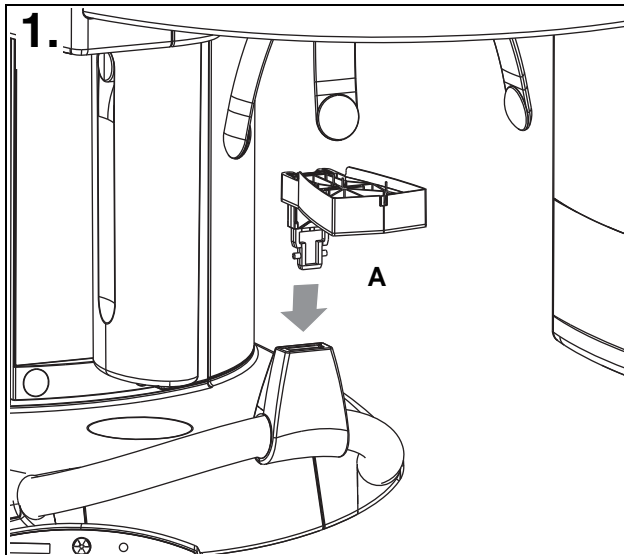
This mode is indicated by the **message SERVICE (2.)** on the Control Pad. In PC service mode, the Control Pad control options are determined by **CDR PanElite Service program** and the currently selected service routine. General control of the unit by means of the Control Pad (as in the user mode) is not possible in this mode.

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

- Pan - Sensor adjustment
- Pan - Diaphragm
- Pan - Filter
- Pan - Symmetry
- Ceph - Primary diaphragm
- Ceph - Fixed point of rotation
- Ceph - Main X-ray beam direction
- Pan - Reset adjustment
- Ceph - Reset adjustment

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

9 Checking the X-Ray Beam for panorama exposure



9.1 Preparing the Pan adjustment

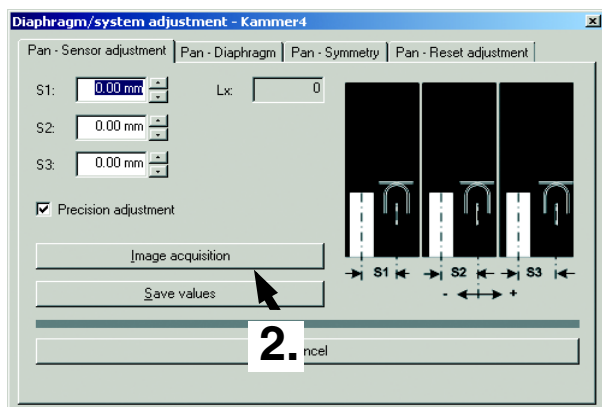
In order to perform the **PAN sensor adjustment** and the **symmetry adjustment** you must insert needle phantom **A** in the bite block holder of the panoramic X-ray unit.

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

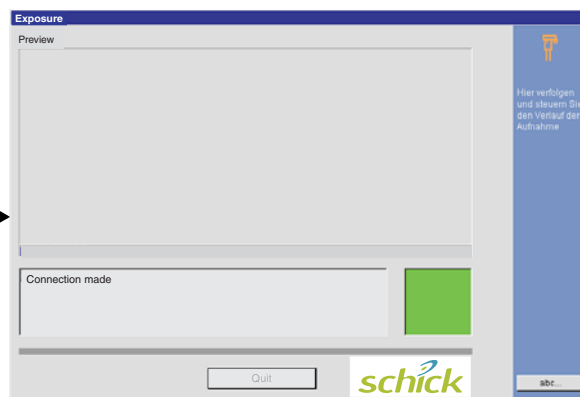
i NOTE

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

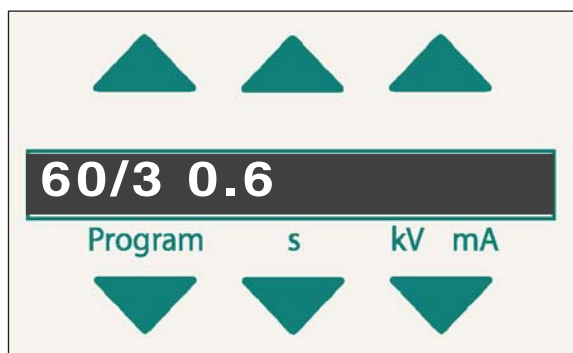
1.



in **CDRPanElite Service program**



on the Control Pad



9.2 Checking the Pan sensor adjustment

- Plug the sensor into the sensor slot on the panoramic X-ray unit.
- Insert the needle phantom in the bite block holder of the panoramic X-ray unit (see page 22).

1. Open the **PAN - SENSOR ADJUSTMENT** submenu.

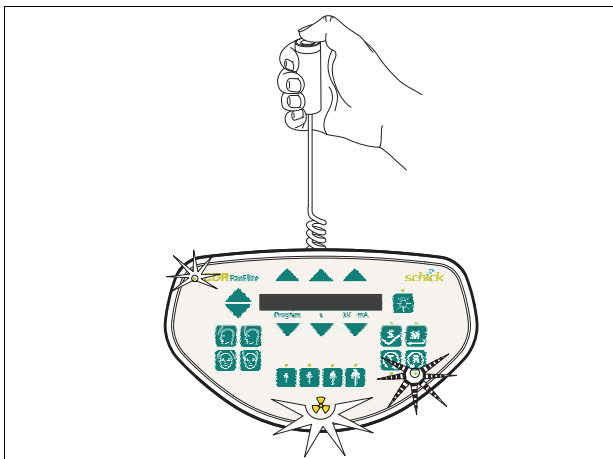
i NOTE

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

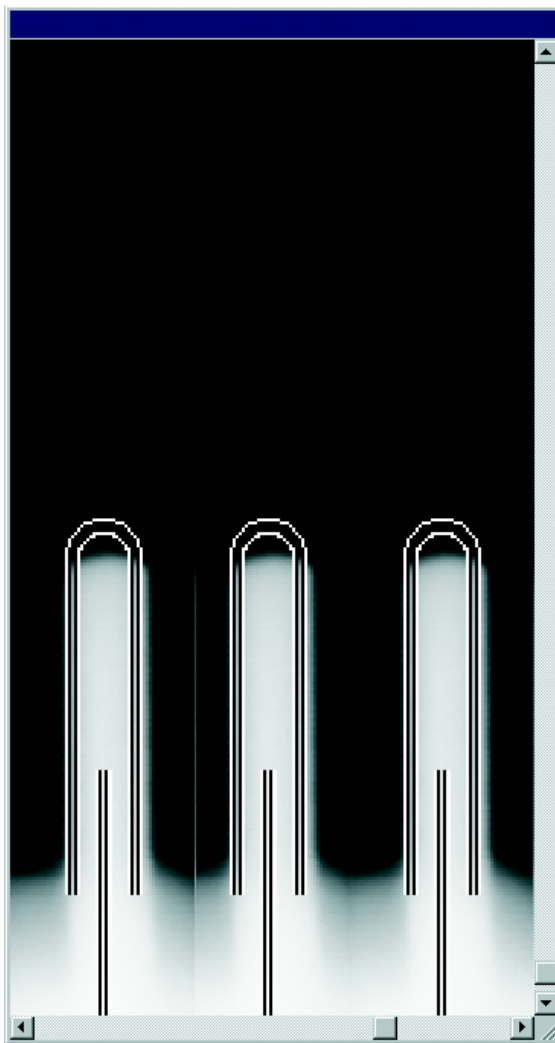
2. Make sure that **CDR PanElite Service program** is ready to take an image:
Click **IMAGE ACQUISITION**.

- The exposure dialog box showing the exposure status appears in **CDR PanElite Service program**.
- The initialization status is visualized by a progress indicator on the Control Pad.
- The initialization procedure is completed when the exposure parameters of service routine **S010.1** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



4.



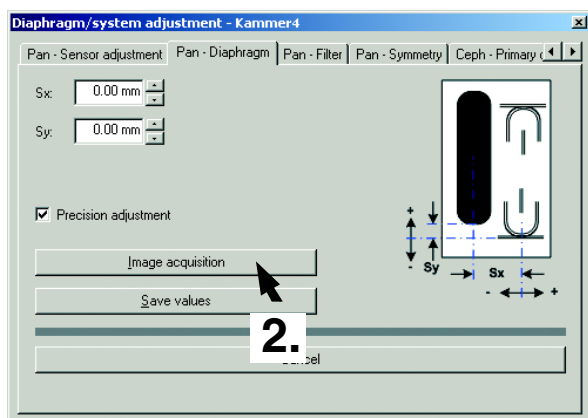
Adjustment: ok

3. Take an exposure (60 kV/3 mA):
 - Press the **R key** to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.
4. Evaluate the exposed image:
 - **The three needle images must lie in the center of the exposed areas and inside the auxiliary lines (see image 4.).**

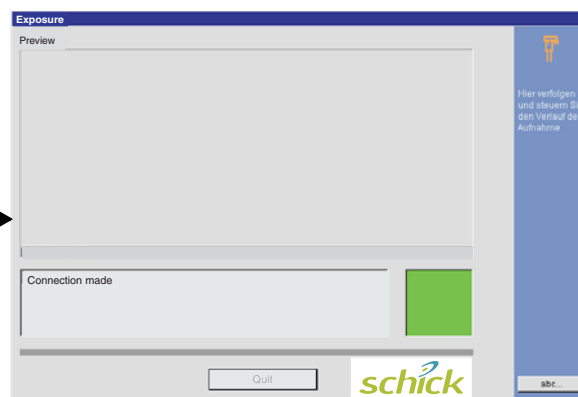
i NOTE

If the criteria specified above are not fulfilled, the sensor must be adjusted. The procedure for adjusting the unit is described in the service manual.

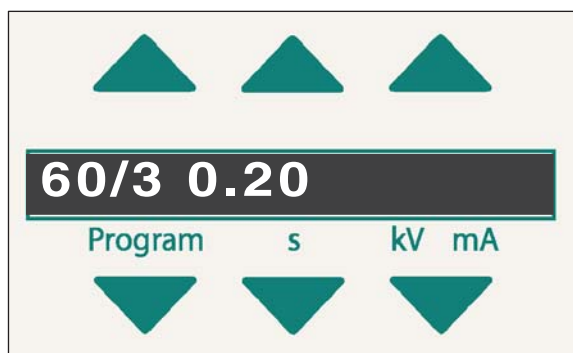
1.



in **CDRPanElite Service program**



on the Control Pad



9.3 Checking the Pan diaphragm adjustment

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

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

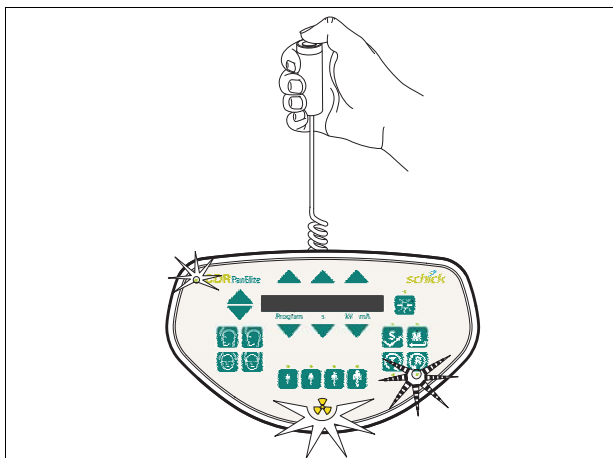
i NOTE

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

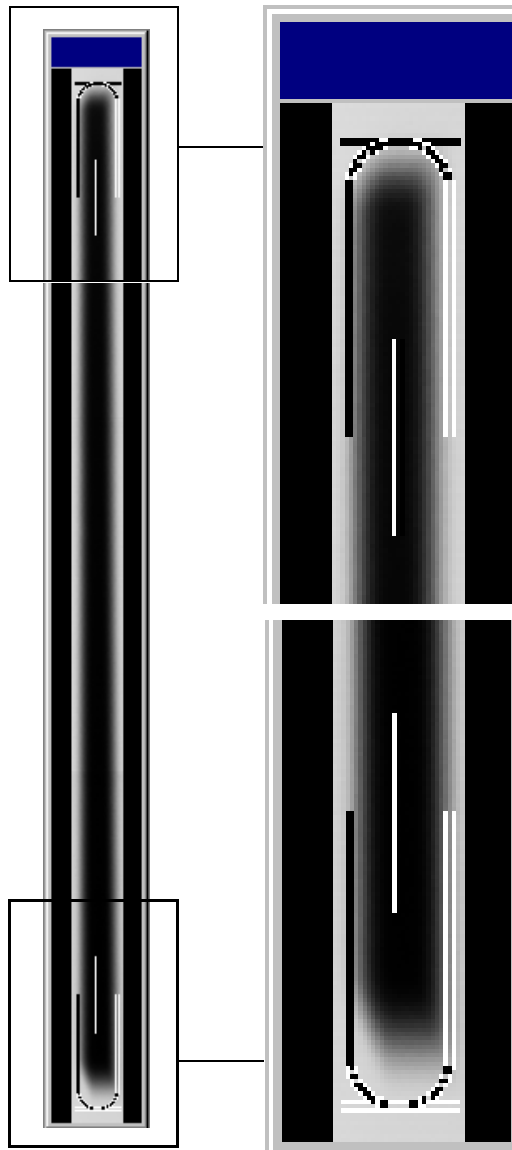
2. Make sure that **CDR PanElite** Service program is ready to take an image:
Click **IMAGE ACQUISITION**.
- The exposure dialog box showing the exposure status appears in **CDR PanElite** Service program.

- The initialization status is visualized by a progress indicator on the Control Pad.
- The initialization procedure is completed when the exposure parameters of service routine **S030.2** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



4.



Adjustment: ok

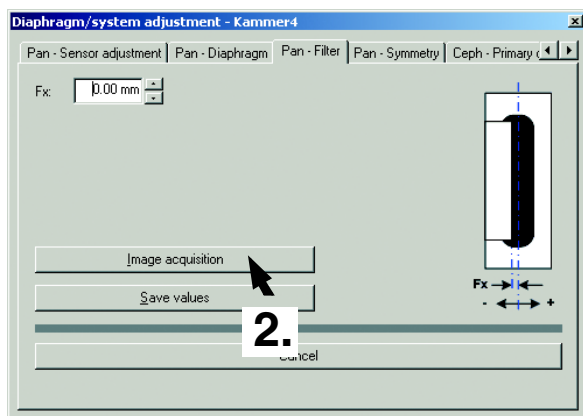
3. Take an exposure (60 kV/3 mA):
 - Press the **R key** to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.
4. Evaluate the exposed image:

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

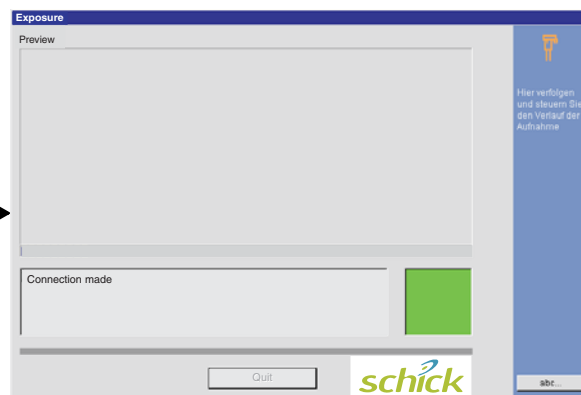
i NOTE

If the current image differs from the ideal image (see image 4.), the diaphragm must be adjusted. The procedure for adjusting the unit is described in the service manual.

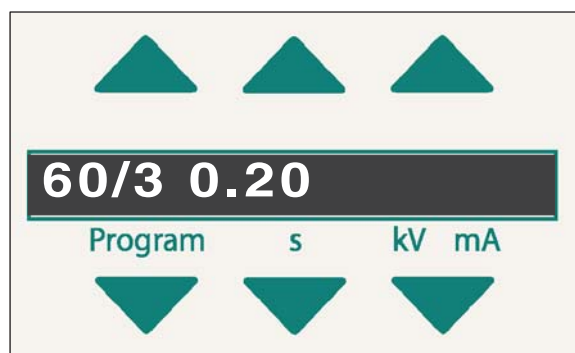
1.



in **CDRPanElite Service program**



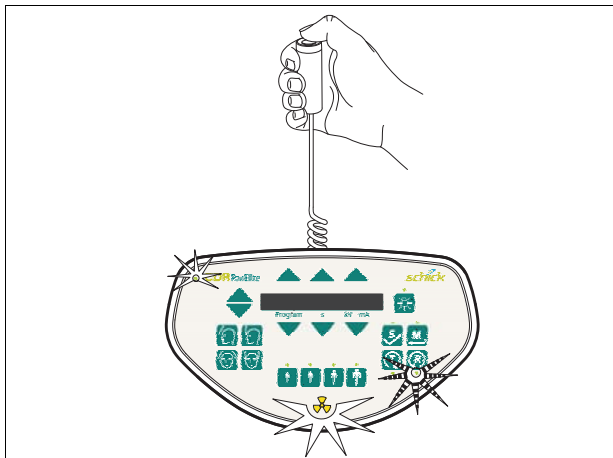
on the Control Pad



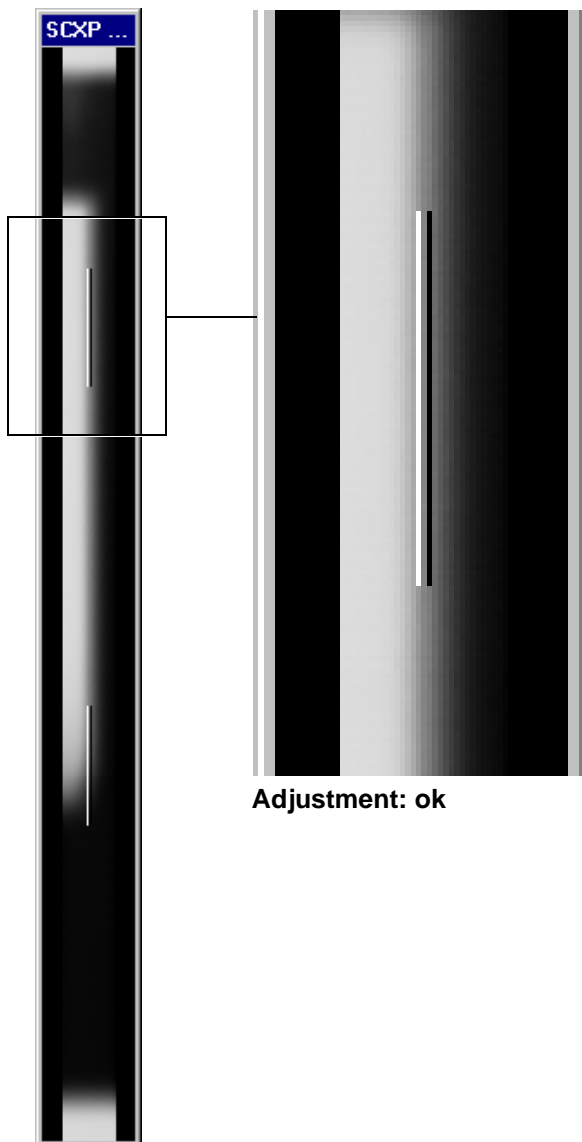
9.4 Checking the Pan filter adjustment

1. Change to the **PAN - FILTER** submenu.
2. Make sure that **CDR PanElite** Service program is ready to take an image:
Click **IMAGE ACQUISITION**.
 - The exposure dialog box showing the exposure status appears in **CDR PanElite** Service program.
 - The initialization status is visualized by a progress indicator on the Control Pad.
 - The initialization procedure is completed when the exposure parameters of service routine **S030.3** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



4.

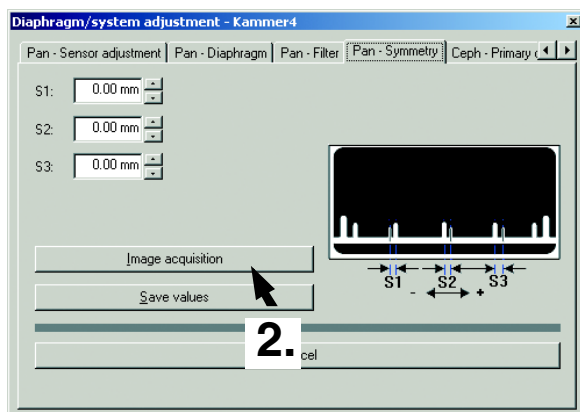


3. Take an exposure (60 kV/3 mA):
 - Press the **R** key to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.
4. Evaluate the exposed image:
 - **The superimposed filter must cover one half of the diaphragm (see image 4.).**

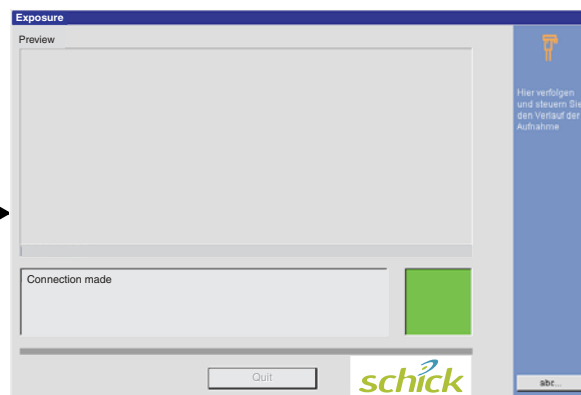
i NOTE

If the current image differs from the ideal image (see image 4.), the diaphragm must be adjusted. The procedure for adjusting the unit is described in the service manual.

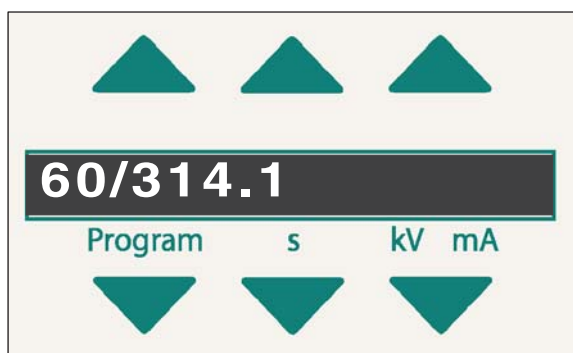
1.



in **CDRPanElite Service** program



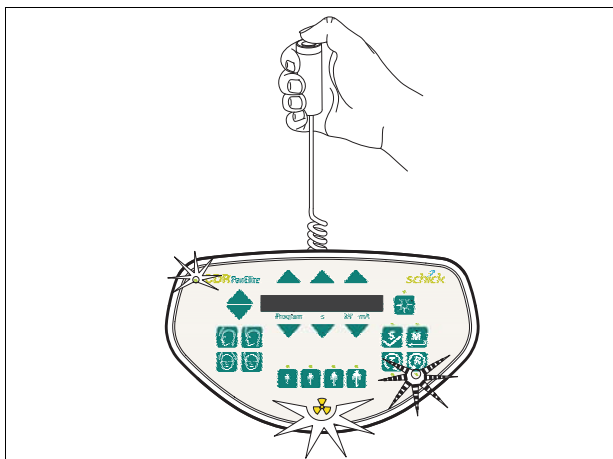
on the Control Pad



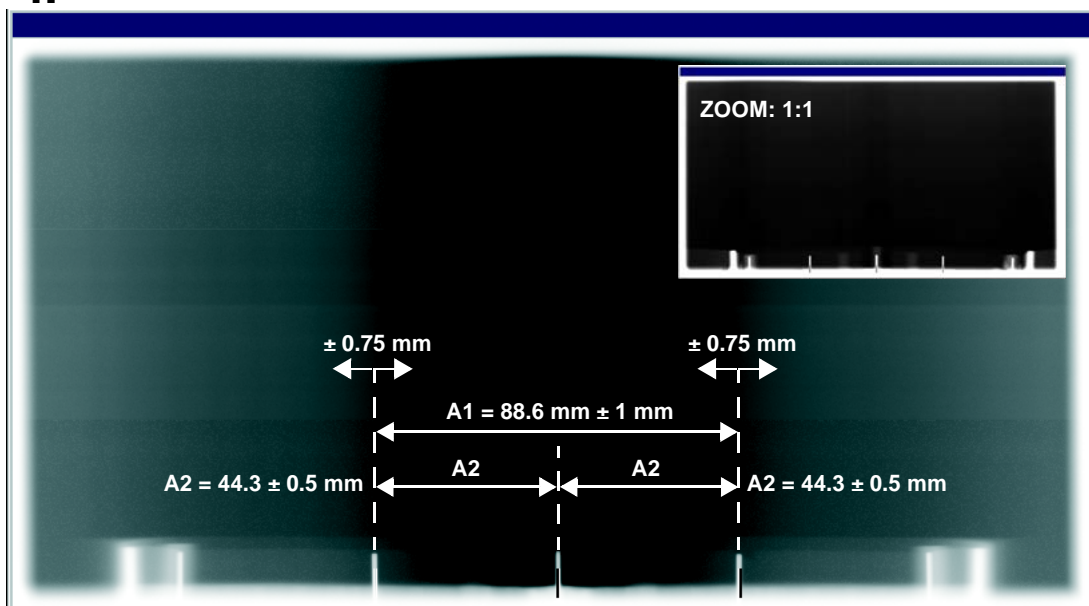
9.5 Checking the Pan symmetry

- Insert the needle phantom in the bite block holder of the panoramic X-ray unit (see page 22).
1. Change to the **PAN - SYMMETRY** submenu.
 2. Make sure that **CDR PanElite** Service program is ready to take an image:
Click **IMAGE ACQUISITION**.
 - The exposure dialog box showing the exposure status appears in **CDR PanElite** Service program.
 - The initialization status is visualized by a progress indicator on the Control Pad.
 - The initialization procedure is completed when the exposure parameters of service routine **S010.2** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



4.



Adjustment: ok

3. Take an exposure (60 kV/3 mA):
 - Press the **R** key to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.
4. Evaluate the captured image.
 - The shadow of the center needle, the needle image and the auxiliary line must be aligned. A tolerance (offset of needle from the central auxiliary line) of ± 0.75 mm is admissible.

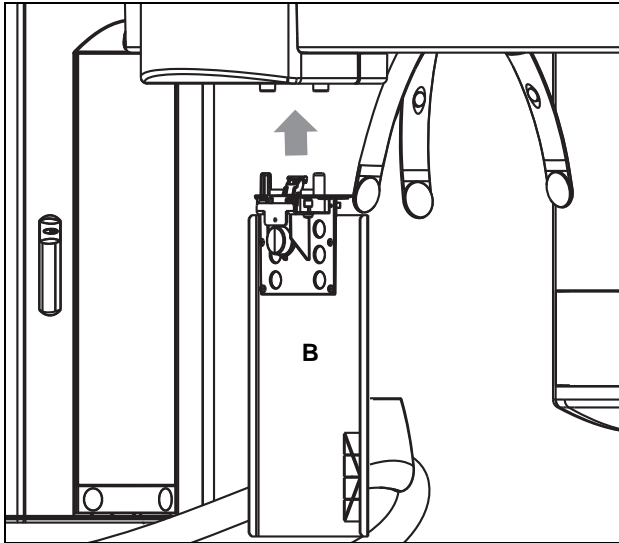
- Distance A1 must be 88.6 ± 1 mm.
- Distances A2 must be 44.3 ± 0.5 mm.
- A white border surrounding the image on all sides must be visible (when zoomed out fully).

i NOTE

If these criteria are not fulfilled, the symmetry must be adjusted. The procedure for adjusting the unit is described in the service manual.

10 Checking the X-Ray Beam for cephalometer exposure

1.

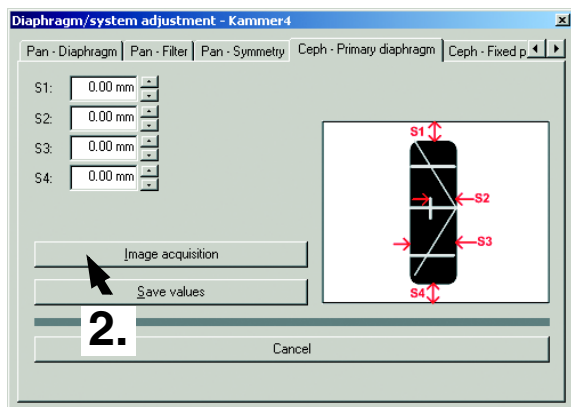


10.1 Preparing the Ceph adjustment

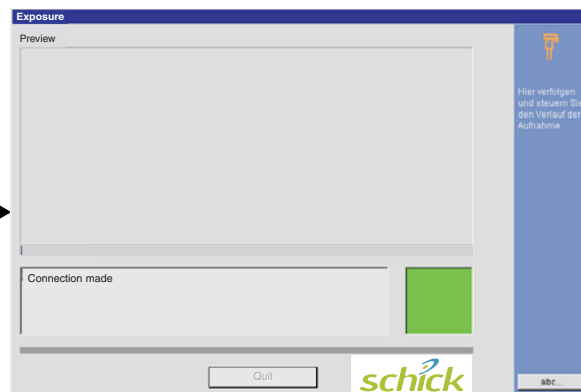
Insert test phantom **B** in the **sensor slot on the panoramic X-ray unit** in order to perform the **adjustment of the Ceph primary diaphragm** and the **adjustment of the Ceph main X-ray beam direction**.

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

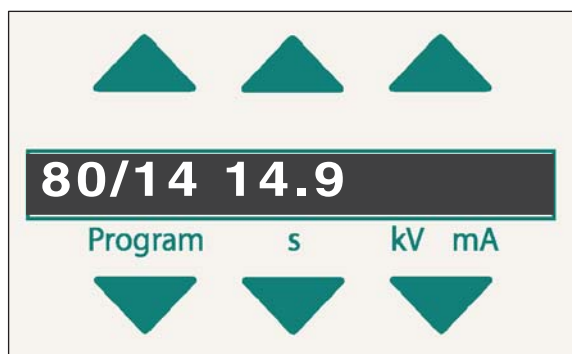
1.



in **CDRPanElite Service program**



on the Control Pad



10.2 Checking the Ceph primary diaphragm adjustment

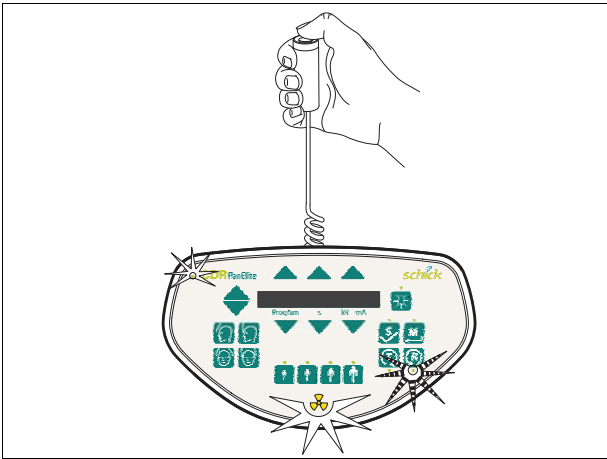
- Move the ear plug holders on the cephalometer completely apart and swing them out of the beam direction (ap).
- Insert the test phantom in the **sensor slot on the panoramic X-ray unit** (see page 31).
- Plug the sensor into the sensor slot on the cephalometer.
- Open the **DIAPHRAGM/SYSTEM ADJUSTMENT** menu.

1. Select the **CEPH - PRIMARY DIAPHRAGM** submenu.

2. Make sure that **CDR PanElite** Service program is ready to take an image:
 Click **IMAGE ACQUISITION**.

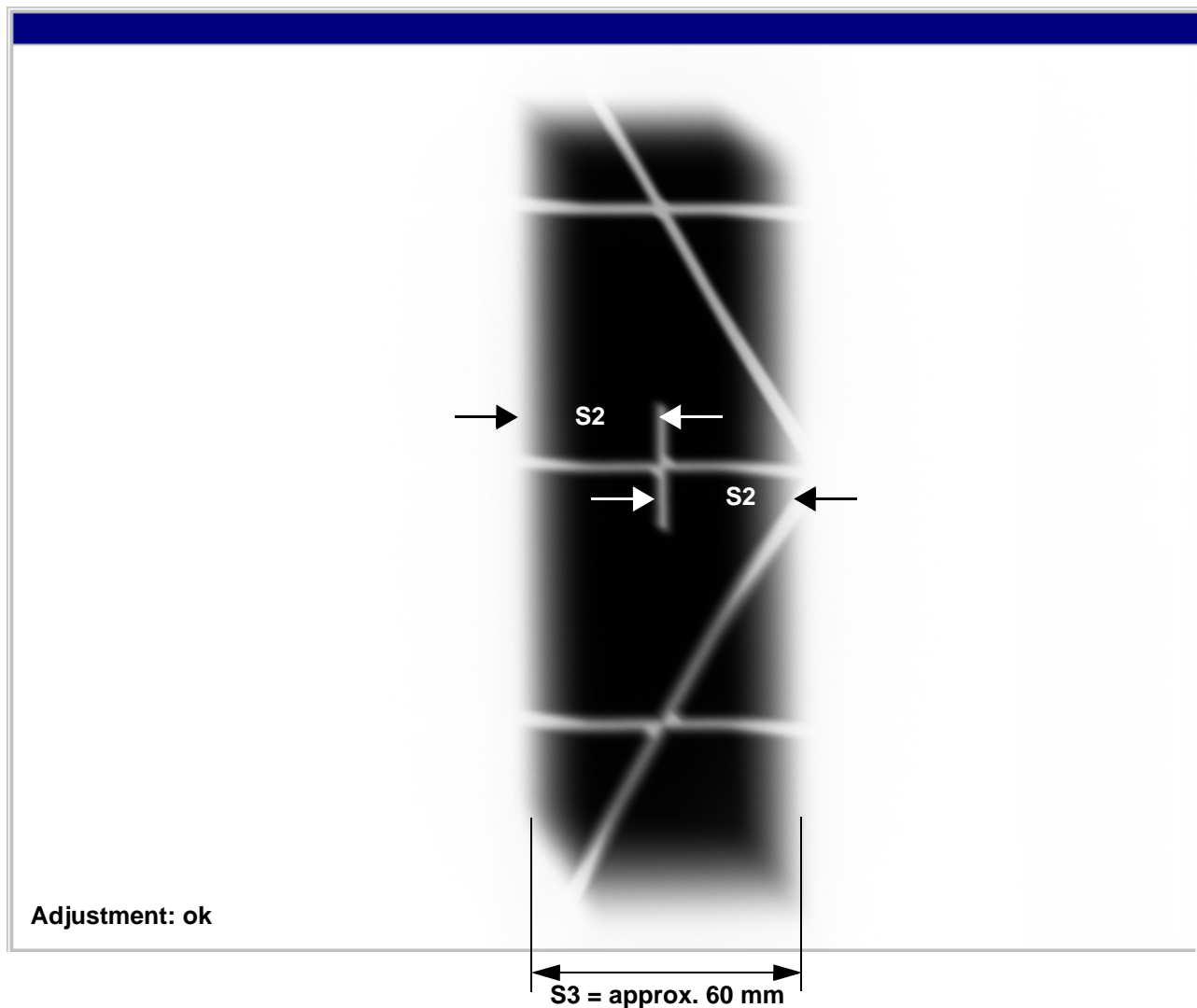
- The exposure dialog box showing the exposure status appears in **CDR PanElite** Service program.
- The initialization status is visualized by a progress indicator on the Control Pad.
- The initialization procedure is completed when the exposure parameters of service routine **S010.3** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



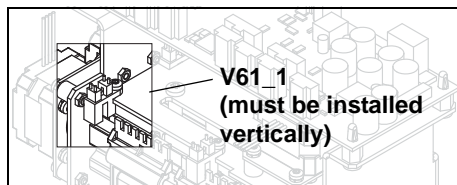
3. Take an exposure (80 kV/14 mA):
- Press the **R key** to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.

4.



i NOTE

If S3 is significantly larger than 60 mm, check whether optical switch V61_1 (LB on the horizontal diaphragm slider) is properly installed. If necessary, correct the alignment of the light barrier and then repeat the entire Pan and Ceph adjustment procedure.



4. Evaluate the captured image.

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

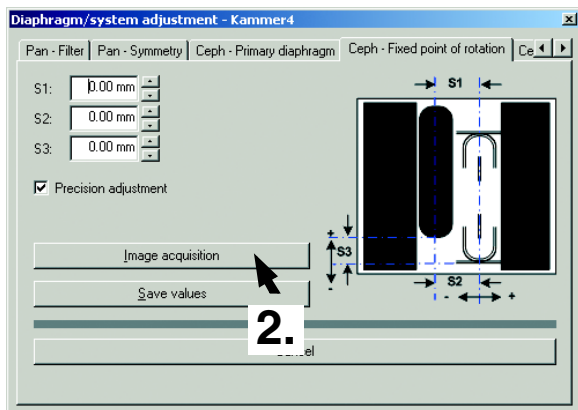
i NOTE

A slight vertical offset of the grid is permissible.

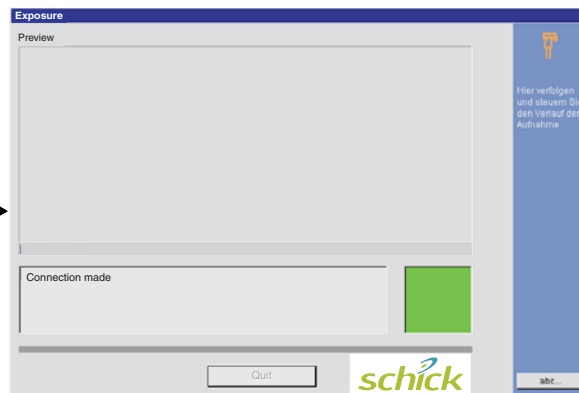
i NOTE

If the image differs from the ideal image 4., the Ceph primary diaphragm must be readjusted. The procedure for adjusting the unit is described in the service manual.

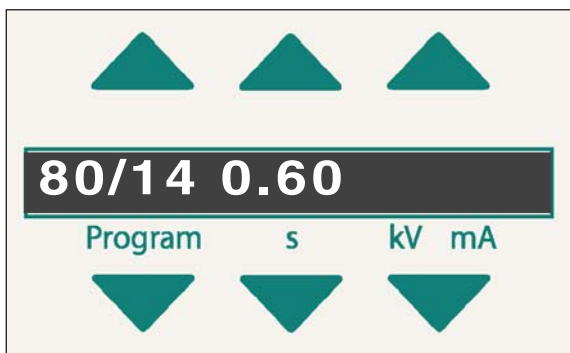
1.



in **CDRPanElite Service program**



on the Control Pad



10.3 Checking the Ceph rotation fixpoint adjustment

- Remove the Ceph test phantom from the sensor slot of the panoramic X-ray unit.
- Change to the **CEPH - FIXED POINT OF ROTATION** submenu.

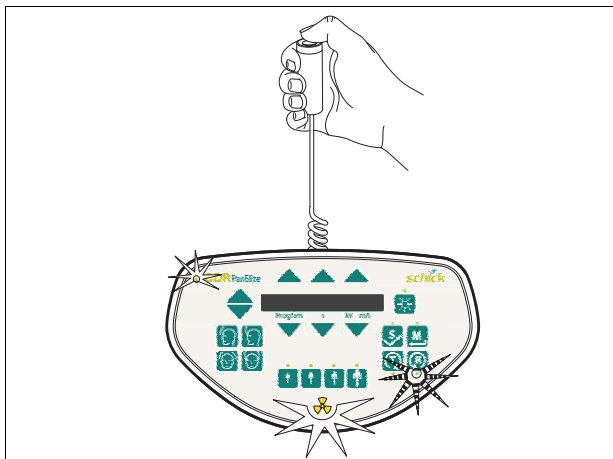
i NOTE

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

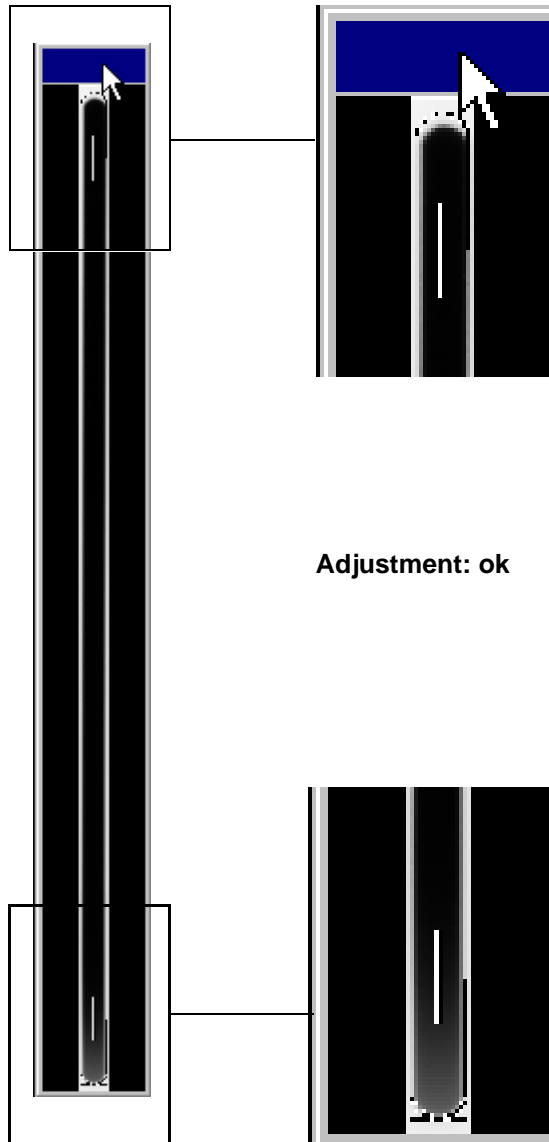
- Make sure that **CDR PanElite Service program** is ready to take an image:
Click **IMAGE ACQUISITION**.

- The exposure dialog box showing the exposure status appears in **CDR PanElite Service program**.
- The initialization status is visualized by a progress indicator on the Control Pad.
- The initialization procedure is completed when the exposure parameters of service routine **S010.5** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



4.

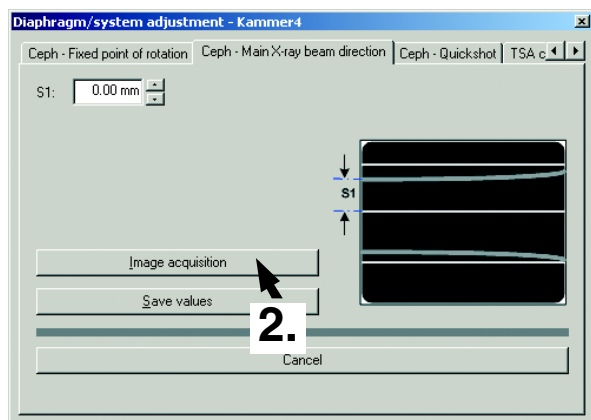


3. Take an exposure (80 kV/14 mA):
 - Press the **R** key to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.
4. Evaluate the exposed image:
 - **The exposed diaphragm area must lie centered and straight in the image field as well as inside the superimposed auxiliary lines (see image 4.).**
 - **A white border surrounding the image on all sides must be visible.**

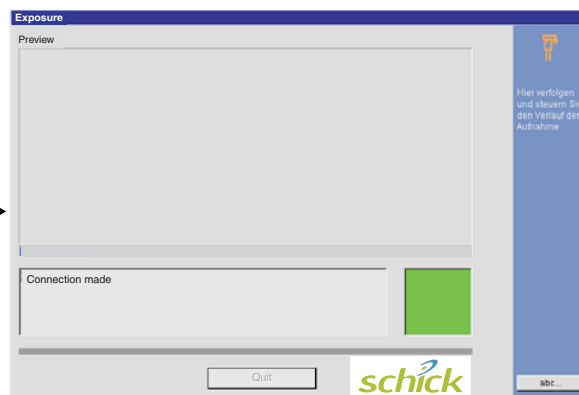
i NOTE

If the criteria specified above are not fulfilled, the Ceph fixed point of rotation must be adjusted. The procedure for adjusting the unit is described in the service manual.

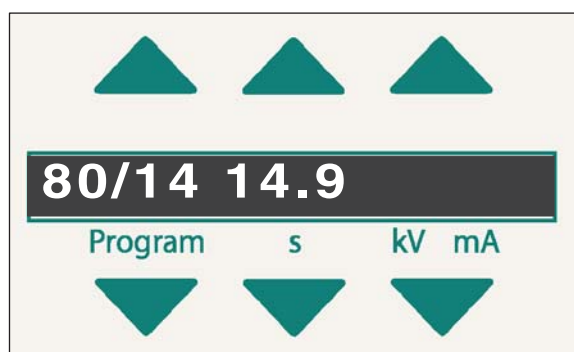
1.



in **CDRPanElite Service program**



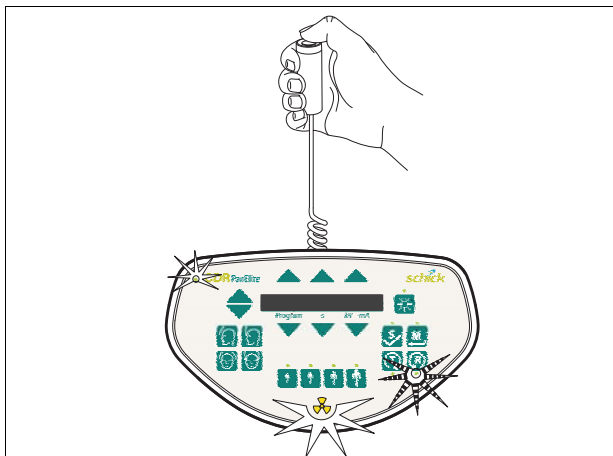
on the Control Pad



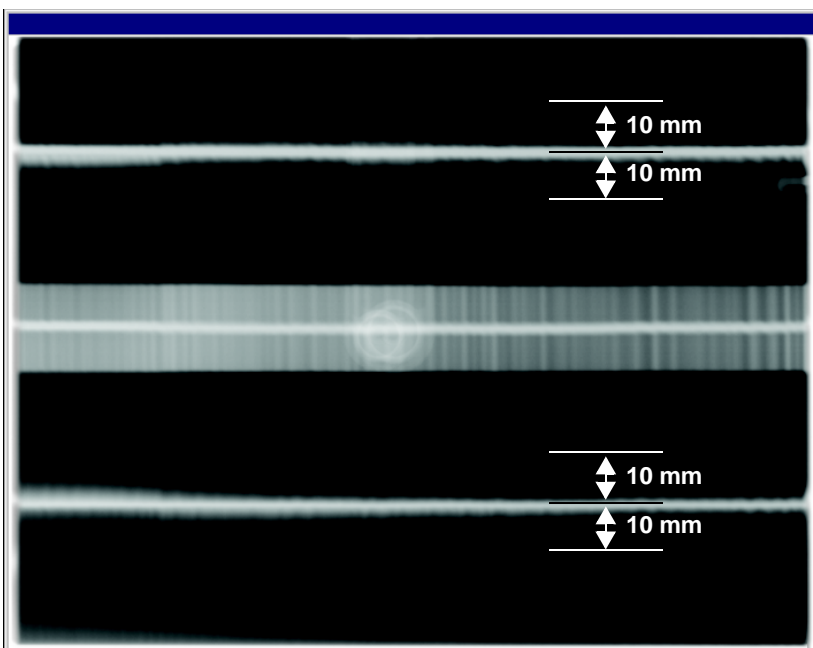
10.4 Checking the Ceph main X-ray beam direction adjustment

- Insert the test phantom in the **sensor slot on the panoramic X-ray unit** (see page 31).
- Swing the ear plug holders out of the beam direction.
- 1. Change to the **CEPH - MAIN X-RAY BEAM DIRECTION** submenu.
- 2. Make sure that **CDR PanElite** Service program is ready to take an image:
Click **IMAGE ACQUISITION**.
 - The exposure dialog box showing the exposure status appears in **CDR PanElite** Service program.
 - The initialization status is visualized by a progress indicator on the Control Pad.
- The initialization procedure is completed when the exposure parameters of service routine **S010.6** (60 kV/3 mA; 0.6 s) are displayed and the progress indicator disappears.

3.



4.



Adjustment: ok

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

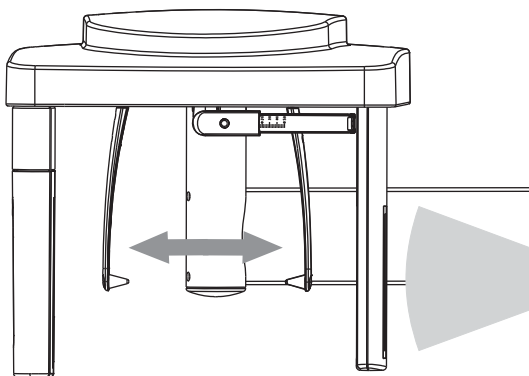
4. Evaluate the exposed image:
 - **A horizontal bar must be visible in the center of the image (see image 4.). If this bar is visible, the exposure is OK and ...**
 - **the two beams imaged are within the tolerance band of ± 10 mm (see image 4.).**

i NOTE

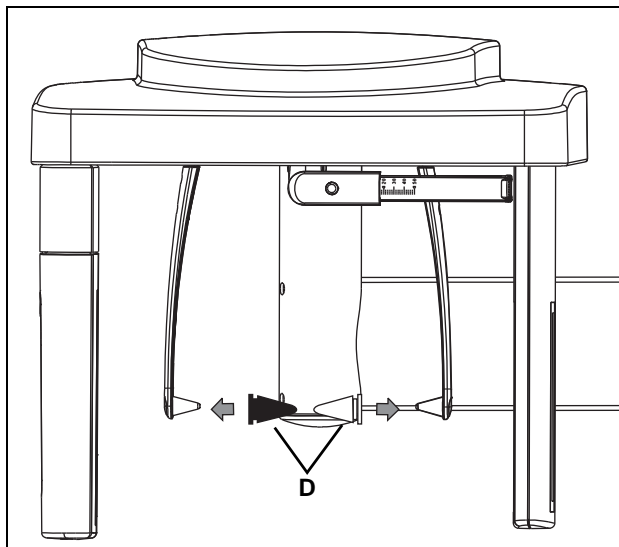
If the criteria specified above are not fulfilled, the Ceph main X-ray beam direction must be adjusted. The procedure for adjusting the unit is described in the service manual.

11 Checking the alignment of the ear plugs

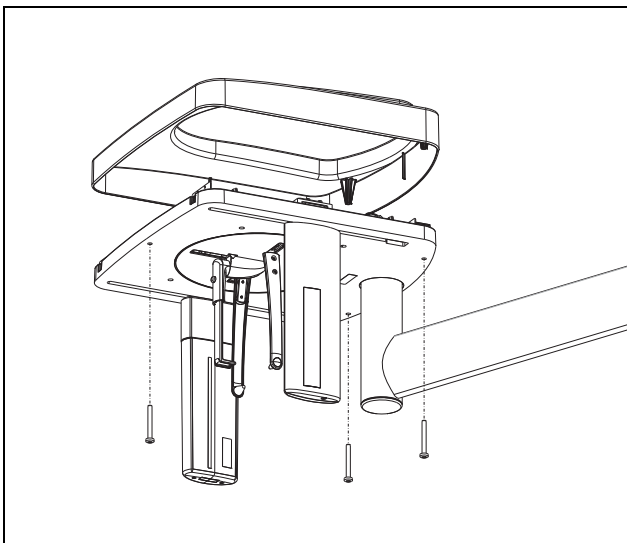
1.



2.



3.



11.1 Preparing the ear plugs

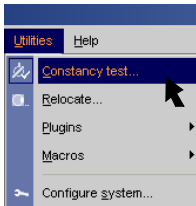
i NOTE

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

- Select the **CEPH** mode on the Control Pad.

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

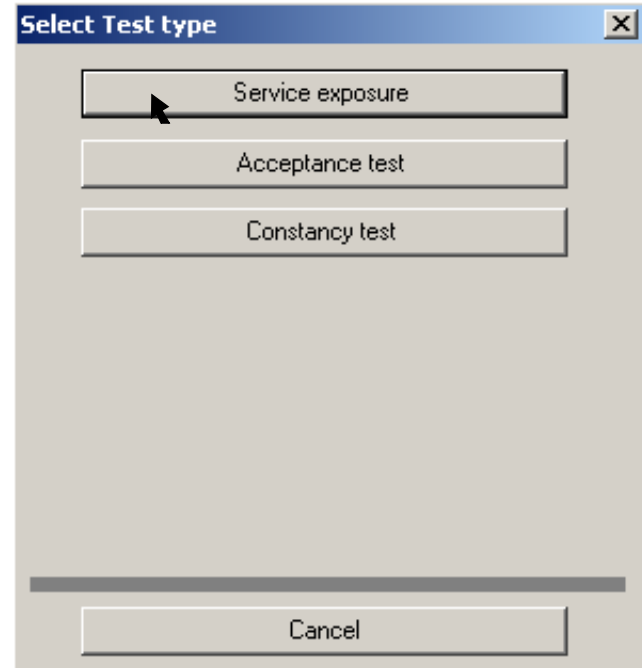
1.



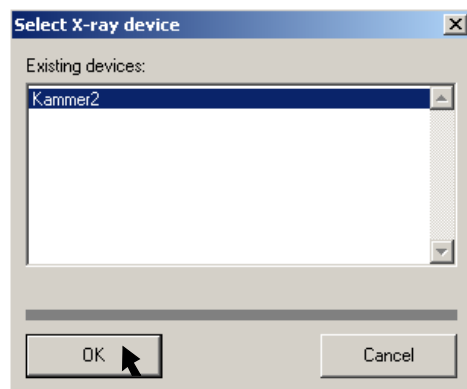
2.



4.



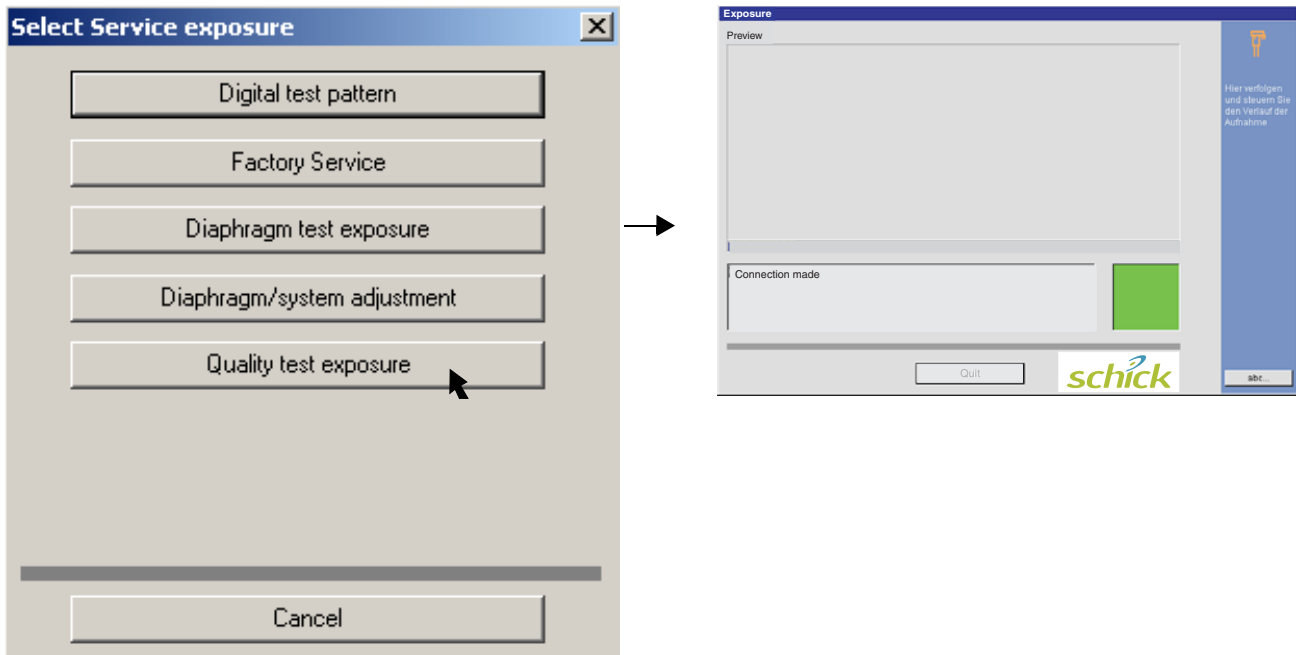
3.



11.2 Checking the ear plug alignment

1. In **CDR PanElite** Service program, select the constancy test:
UTILITIES ± CONSTANCY TEST
The typical **CDR PanElite** Service program user interface is started. The constancy test is preset.
2. Start the exposure mode:
Click **XCXP**
The dialog box for selecting the X-ray device appears on the screen.
3. Select/confirm the X-ray device:
Select e.g., **PanElite** and click **OK**
The dialog box for selecting the test type appears on the screen.
4. Select/confirm the test type:
Click **SERVICE EXPOSURE**
The dialog box for selecting the service exposure appears on the screen.

5.



i NOTE

The Ceph mode must be activated on the Control Pad for the Ceph quality test exposure.

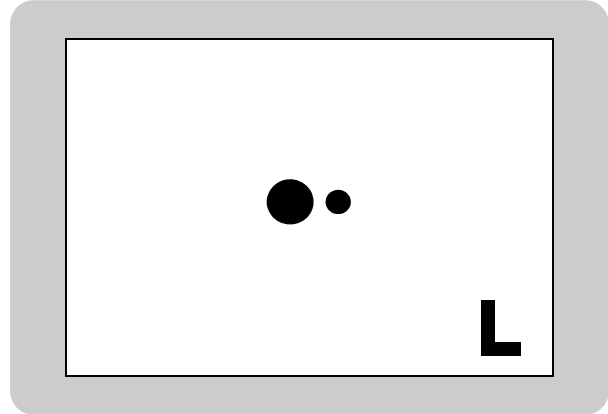
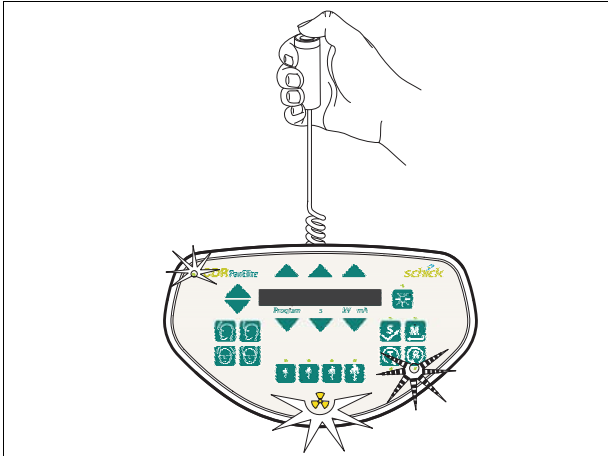
5. Select/confirm the service exposure:
Click **QUALITY TEST EXPOSURE**.

i NOTE

If necessary, select the X-ray component.

The exposure dialog box showing the exposure status appears in **CDR PanElite** Service program.

6.



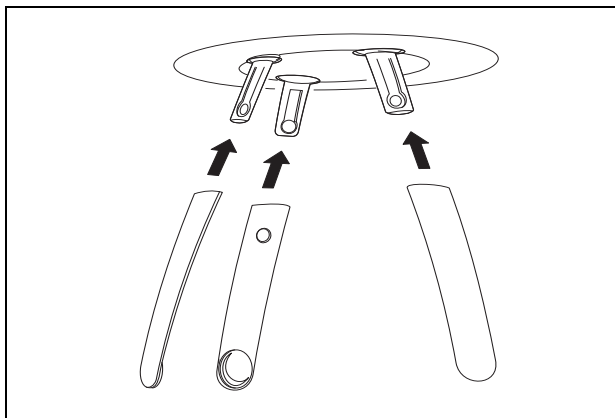
6. Take an exposure (80 kV/14 mA):
- Press the **R** key to move the unit back to the starting position.
 - Press the exposure switch. Hold down the exposure switch until image acquisition is completed and the preview image appears in the exposure dialog box.
- **The lead balls in the adjusting caps appear as dots on the image. The two dots must be coincident.**

i NOTE

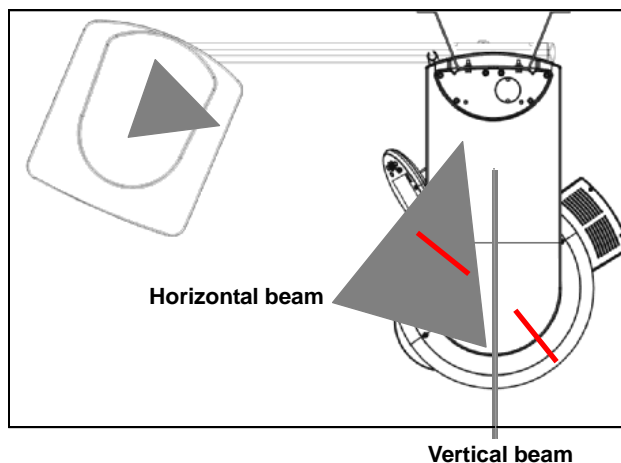
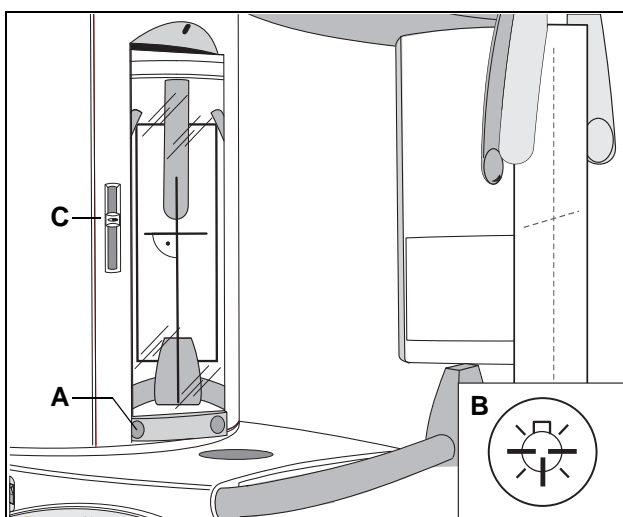
If the criteria specified above is not fulfilled, the ear plugs must be adjusted. The procedure for adjusting the ear plugs is described in the service manual.

12 Checking the laser

1.



2.



Label

1. Insert the forehead and temple supports.
2. Check the laser:
 - Fasten a piece of white cardboard between the temple supports.
 - Swivel the mirror by pressing the left recess **A** on the touch bar.
 - Switch on the **light localizer** with key **B** on the Control Pad. **The Lasers generate a red line.**

WARNING

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

SAG laser (vertical line)

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

FH laser (horizontal line)

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

NOTE

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

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

Date of original installation: _____ Date of inspection: _____

Report of Assembly FD 2579 # _____

SCHEDULE

Yes

No

Remarks

All manuals are present

☐☐

Test instruments as required

☐☐

	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

☐☐

All labels are present and legible

☐☐

All indicator lights are OK

☐☐

Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

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☐☐

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Voltage drop:V

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☐☐

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☐☐

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☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

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Report of Assembly FD 2579 # _____

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No

Remarks

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☐☐

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	Manufacturer	Model	Accuracy	Last calibrated
Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

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☐☐

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Voltage drop:V

kV – Verification is OK

☐☐

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☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

CDR PanElite



Yearly Maintenance Checklist

Customer: _____ Address: _____

Dealer: _____ Address: _____

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Report of Assembly FD 2579 # _____

SCHEDULE

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No

Remarks

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☐☐

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☐☐

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Voltmeter				
Digital Multimeter				
Pulse counter				

Mechanical damage noticed

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☐☐

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Radiation indicator **X-ray** lights up, audible signal OK

☐☐

Exposure switch deadman feature OK

☐☐

Power supply adequate

☐☐

Line voltage:V

Voltage drop:V

kV – Verification is OK

☐☐

Tube current is within specified limits

☐☐

Measurement: mA

Specified exposure time, (pulses) OK

☐☐

Pulse count:

X-ray beam position, panoramic OK

☐☐

X-ray beam position, cephalometric OK

☐☐

The unit is in compliance with MFG specified tests and safety

☐☐

Technician: _____

Dealer: _____

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

D3352.103.02.01.02 09.2007

Sprache: englisch
Ä.-Nr.: 000 000

Printed in Germany
Imprimé en Allemagne

Schick Technologies, Inc.

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www.schicktech.com

Order No

61 88 085 D3352