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1. REQUIRED INSTRUMENTS

Calibration kit, including:

- Support plate
- Dentition phantom
- Aluminium filter
- Laser reference sheet

- Allen wrench set
- Screwdriver set

When you will be required to assemble the support plate and the dentition phantom, remove the chinrest from the machine and insert the highlighted pins into the holes where the chinrest was assembled.
Insert the phantom, making sure that the pins coincide with the holes highlighted in the following images.
2. PRELIMINARY OPERATIONS

Open the acquisition server software, click on “Settings”, then on “Change Mode” and confirm when prompted.

Select “Service mode” and enter the password “cefla”.

Open the Acquisistion server software and click on “Calibration”.

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NewTom GO 2D/3D
EN
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Enter the serial number and the part number of the column in the suitable fields (96600231 in case of floor-mounted column, 96600230 in case of wall-mounted column). Click on OK.
3. 2D CALIBRATION

3.1 X-RAY ALIGNMENT CHECK

The aim is to check that the X-ray beam is inside the red demarcation lines;

click on “Start procedure”
Remove any object between source and sensor and press "Start".

Press the button when prompted.

Check that the entire length of the X-ray beam is centred inside the red lines (compare with the following images), in particular concerning rotation, horizontal alignment and vertical alignment.

If adjustments are necessary, open the generator cover and operate on the collimator as follows:
**Rotation**

If the X-ray beam is turned, open the monobloc cover and slightly loosen the following screws (A, B, C):

Correct the rotation manually; tighten the screws, select “Image not centred” and press “ok”.

Repeat the procedure until a perfectly vertical image is obtained.
• Horizontal alignment

Slightly loosen the following screws (D, E):

Correct the horizontal alignment manually; tighten the screws, select “Image not centred” and press “ok”.

Repeat the procedure until a horizontally-centred image is obtained.
• Vertical alignment

Slightly loosen the following screws (F, G, H, I).

Correct the vertical alignment manually; tighten the screws, select “Image not centred” and press “ok”.

Repeat the procedure until a vertically-centred image is obtained.

When the image is perfectly centred, select “Image centred” and press OK; the software will automatically check the proper alignment even for the Bitewing and Children panoramic positions.

At the end of the procedure, press Ok to confirm and save the data.
3.2 SENSOR CALIBRATION CHECK

Press “Start procedure” and make sure that any object between source and sensor has been removed.

The procedure is automatic; just press the X-ray button when required; at the end, save the data.
3.3 VERIFYING THE MECHANICAL CENTERING

Remove bite, chinrest and aluminium filter and position the calibration phantom as shown in the figure.

Click on “Acquire”.

The calibration tool will acquire a complete panoramic image and will display it; make sure that the focus is centred with respect to the series of circles in the middle of the image, i.e. the number of off-focus circles must be the same both above and below the median horizontal line.
To correct the positioning of the vertical line, adjust the highlighted grub screws and screws (placed in the lower part of the kinematic mechanism – remove the accessory drawer to see them).

If the image obtained is similar to the following one, adjust the left-hand screw and grub screw; slightly loosen screw B and tighten grub screw A (some strength is necessary) to modify the position of the chinrest.

Vice versa, if the image is similar to the following one, adjust the right-hand screw and grub screw.

At the end of each adjustment, press “Retry” to acquire a new image and assess it; if necessary, repeat the operation until an image similar to the following one is obtained.

To change the image focus position, modify the value contained in the “offset Y” field, confirm by means of the arrow and press “Retry” in the dialog box in the foreground.

At the end of the procedure, when the focus is centred and the line is perfectly vertical, press “OK” to confirm and save the data.
3.4 LASER CALIBRATION

Position the laser reference template on the support (as shown in the figure)

Press “Start calibration”
The machine will turn automatically until it has reached the right position; assess the alignment between the three laser beams (midsagittal, canine and Frankfurt plane) and the references on the template.

If one or more lasers are not aligned, use a gripper to loosen the springs of the corresponding supports and adjust them manually; the Frankfurt plane laser and the canine laser are inside the generator block.

The midsagittal laser is under the mirror.

At the end, press "Exit".
3.5 CALIBRATION DATA BACKUP

Select “Device data” and “Tubehead calibration data”.

Select the folder where the calibration data copy is going to be saved and confirm.
4. 3D CALIBRATION

4.1 RAY BEAM CALIBRATION

From NNT main menu, press Ctrl+Alt+Shift+End keys together to set software in service mode (“Service Level” will be displayed at the bottom left, under NNT)

From the “Tools” menu, select “Scanner tests”,

press “Reset” to set device in 3D mode.

Then, from the “Tools” menu, select “Beam limiter test”,
tick “Enable manual tuning”.

During this procedure, collimator horizontal position must be adjusted for the different available types of view.
The aim of the procedure is to make the area hit by the rays (in grey) match with the green box delimiting the view field. In addition, the shadow area at the edges must be within the red lines (see next image).

Before continuing, make sure that the scan area is free from any object.

- **DIAMETER 10**

- Select the 10x10 field, enter the values -3 and -7 inside the “Left” and “Right” fields, then press “Move”.

Enter the 8 and 10 values in the mA and time fields, then press “Acquisition” to perform a ray acquisition.

If the resulting image is like the following one
slightly “close” left and right collimators (using the arrows under the “left” and “right” fields, press “move” and acquire a new image; repeat this procedure until an image like the following one is acquired

where you can distinguish the black colour on the side edges. Slightly “open” collimators to get a uniform grey image again.

Once finished, press “Save” to save the new setting.

Then, select and save also for the following view fields:
- 10x7
- 10x6
- 10x10 HiRes
- 10x7 HiRes
- 10x6 HiRes
**Diameter 8**

Select the 8x10 field, enter the -17 and -18 values in the “Left” and “Right” fields and press “move”. As soon as the machine is ready, perform a new acquisition (8 mA and 20 ms).

Evaluate the image quality and, if necessary, change collimator position until obtaining an image like the following one (…)

Once finished, press “Save” to save the new setting.

Then, select and save also for the following view fields:

- 7x7
- 8x6
- 8x10 HiRes
- 8x7 HiRes
- 8x6 HiRes

**Diameter 6**

Select the 6x7 field, enter the -31 and -28 values in the “Left” and “Right” fields and press “move”. As soon as the machine is ready, perform a new acquisition (8 mA and 20 ms).

Evaluate the image quality and, if necessary, change collimator position until obtaining an image like the following one.
Once finished, press “Save” to save the new setting.

Then, select and save also for the following view fields:

- 6x6
- 6x7 HiRes
- 6x6 HiRes

After having calibrated all view fields, press “close”.

The software will ask you whether you want to cancel blanks; press yes.
4.2 DAILY CHECK AND BLANK ACQUISITION

From NNT main menu, select “Scan”, “Daily Check”, then “Start”.
As indicated by the software, some automatic exposures will be performed; before continuing, make sure that nobody is present in the room and that the scan area is free.

The procedure, fully automatic, lasts approx. five minutes. Once finished, the blank acquisition window will be displayed.

In this case as well, some automatic exposures will be performed; once procedure is completed, make sure that the final image is uniform. Then press “Close”.

4.3 TIN SCAN

From NNT main menu, select “Scan” and “Mattarellum acquisition”.

Position Tin on octagonal plate, as shown in the figure, then press “XRay Flash”.

Press rays button when prompted; the system acquires the first scout to check cylinder positioning. Make sure that the image is similar to the next one, and that there are no error messages about a wrong Tin positioning.
Press “Next”.

The device acquires the second evaluation scout image; make an evaluation like the previous one.

Press “Next”,

then press “Start”
Press the rays button when prompted; the system makes a complete tin acquisition, then it will automatically open the “Tin Report” with the results.

Make sure that none of the reported values has asterisks; should this not be the case, check tin position and repeat the procedure.
4.4 QA PHANTOM ACQUISITION (OPTIONAL)

From NNT main menu, select “scan” and “QA Phantom scan”

Position phantom on the octagonal plate, as shown in the figure (positioning is not that important, as it has a central symmetry).

From scout acquisition window, click on “X-ray Flash” and press the rays button when prompted.
Evaluate phantom position; if necessary, correct the side position to reach a position similar to the one shown in the figure.

Press CTRL, click the image with the left mouse button and move it (keeping both keys pressed). Once the desired position has been reached, release mouse button and wait for the Software to warn you to release also the CTRL button. Once finished, press the rays button when prompted; the system acquires a new scout to evaluate the new position.

To confirm the correct position, press “Next”, then press “X-ray Flash”.

The front scout is acquired, no corrections are needed.

Press “Next”, then press “Start”.

Press the rays button when prompted. The system
performs a complete acquisition of the QA phantom; once finished, when system prompts you to continue the analysis, press “Yes”.

The calculations are made automatically; once finished, a report like the one shown in the figure will be displayed:

If no value has asterisks, close the window; should this not be the case, check QA phantom positioning and repeat the procedure.

4.5 CALIBRATION DATA BACKUP

From NNT main page, select “Setting Backup”

Select the folder for the Backup and press OK