

User Manual

Simodont Dental Trainer

(CDS51094, issue 3.3 June 2024)



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REVISION HISTORY

Revision					
Rev.	Date	Status *1)	Description	Author Signature	Checked Signature
2.0	Apr 2019	FF	New layout	EB	EB
2.1	Oct 2019	FF	Added contents of Quick Guide Manual	JdG	KvL
3.0	Dec 2021	FF	Update for Rev G release	JdG	KvL
3.1	Apr 2022	FF	Updated Declaration of Conformity	KvL	JdG
3.2	Feb 2023	FF	New layout, updated Declaration of Conformity, Updated ESD requirements, various small improvements	KvL	JvdP
3.3	Jun 2024	FF	Various small layout fixes Updated picture system label and software screenshots Declaration of conformity is now a separate insert	KvL	RH
<p>*1) Status description:</p> <p>FR: For Review, Comments requested, no hold point</p> <p>FA: For Approval, Approval required, hold point</p> <p>FF: For Final, Final Issue</p>					

GENERAL INFORMATION

About this document

Each Simodont Dental Trainer installation is delivered with a complete set of technical documents. The table below lists all technical documents associated with the Simodont Dental Trainer and lists each ID number, target audience and the contents of each document. The source language for the technical documents is English. As a translation can result in deviations in interpretation of the content and meaning of the text, the original English text will be legally binding and shall prevail if any difference between the source text and a translation occurs.

Other important documents

In this User manual we may refer to other documents that are important:

- Cleaning Instructions Document CDS34645 (cleaning procedure explained)
- Teacher Manual Document CDS52001 (software explained)
- Installation and Service Manual Document CDS50637 (installation explained)

Service and support

For information about issues related to preparation, transport, storage, installation, operation, maintenance and repair that are beyond the scope of this document, please contact the nearest NISSIN facility. See the back cover of this document, or consult:

Company name	Nissin Dental Products Europe B.V.
Address	Pesetaweg 51
Postal code	2153 PJ
City	Nieuw-Vennep
Country	The Netherlands
Email address	support@nissin-dental.nl
Telephone number	+31 (0) 85 081 4900

Document storage

This document and all other product-related documents must be kept in a safe place, near the Simodont Dental Trainer. The document must be accessible at all times.

Safety alerts



Danger: Identifies safety instructions that are intended to warn of immediate imminent danger to life and limb or serious damage to property. Failure to comply with these safety instructions will result in fatalities, serious personal injuries (disablement) or serious damage to property.



Warning: Identifies safety instructions that are intended to warn of possible danger to life and limb or possible serious damage to property. Failure to comply with these safety instructions could result in fatalities, serious personal injuries (disablement) or serious damage to property.



Caution: Identifies safety instructions that are intended to warn of minor personal injuries or minor damage to property. Failure to comply with these safety instructions may result in minor personal injuries or minor damage to property.



Entrapment hazard: Moving parts. Failure to comply with these safety instruction may result in fatalities , serious personal injuries (disablement).

Other notifications



Note! Identifies an important note or an instruction that must always be observed.

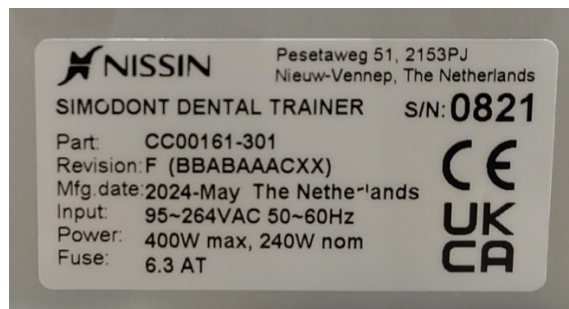


Tip! Identifies an important recommendation.

Unit identification

Each Simodont Dental Trainer is provided with an identification label. This identification label is located on the rear side of the Simodont Dental Trainer. The identification label shows the following information:

- Manufacturer's address
- Product name
- Serial number
- Part number
- Product revision number and configuration code
- Manufactured date
- Input rating
- Power rating
- Fuse rating



Example of identification label

Qualified Personnel / Engineer

The Simodont Dental Trainer shall only be installed, operated, and maintained by qualified personnel.
Definition of available qualified personnel / Engineer:

- **Level 1 Support Engineer.**

A Nissin Support Engineer or representative, trained by Nissin Europe that can independently:

- ✓ Do basic Simodont trouble shooting,
- ✓ Do Simodont system calibration,
- ✓ Act as 'eyes and hands' when guided by Nissin Europe technical specialists.

- **Level 2 Support Engineer.**

A Nissin Support Engineer or representative, trained by Nissin Europe that can independently:

- ✓ Do all Level 1 support,
- ✓ Do Simodont installation and commissioning,
- ✓ Do replacements of Line Replaceable Units (LRU) with guidance of technical documentation and/or guidance by Nissin Europe technical specialists.

- **Level 3 Support Engineer.**

A Nissin Support Engineer or representative, trained by Nissin Europe that can independently:

- ✓ Do all Level 1 and Level 2 support,
- ✓ Do on-site repairs more complex than LRU replacements,
- ✓ Do advanced troubleshooting,
- ✓ Do software- and firmware upgrades.

General precautions

- Treat electronic parts carefully. Always prevent electrostatic discharge (ESD), Also see section *ESD precautions*.
- Always check if the mains power to the Simodont Dental Trainer parts has the proper voltage level.
- Use a power cable according to local regulations but with a minimum wire gauge of 3x 0,75 mm² (Line / Neutral / PE) and equipped with a C13 main entry connector for connecting the cable to the Simodont Dental Trainer.
- Make sure PE (Protective Earth) is available and connected to the Simodont Dental Trainer.
- To prevent damage, store all parts in their transport packaging until the part is ready to be installed. If any damage has occurred, do not install the part without consulting Nissin Europe.
- Always disconnect the mains plug from the wall outlet before opening any part of the Simodont Dental Trainer.

Equipment Grounding



Make sure PE * (Protective Earth) is always available and connected to the Simodont Dental Trainer.

* Protective Earth is for personal protection against electrical shocks.



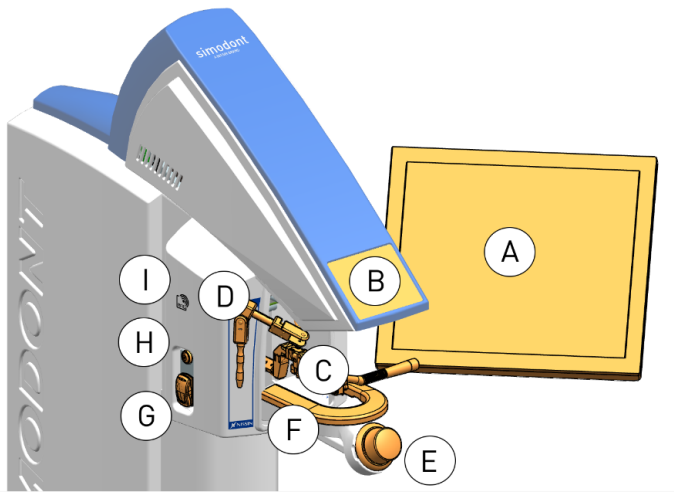
In case of incorrect and/or no connection of PE (Protective Earth), Nissin Dental Europe cannot guaranty the safety of the user and therefore cannot be held liable for any (personal) damage that may occur.

ESD precautions

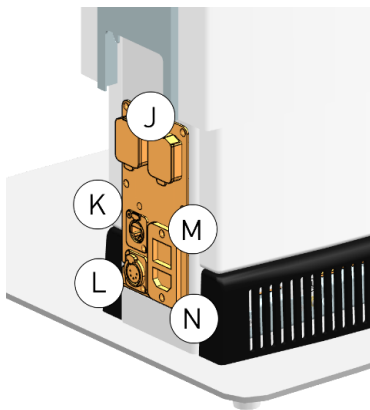
- Only use antistatic packaging for the transport and storage of electrostatic sensitive devices.
- Always store electrostatic sensitive devices in their original packing.
- Avoid touching the connections of the components and printed circuit boards and the circuit tracks.

SYSTEM INFORMATION

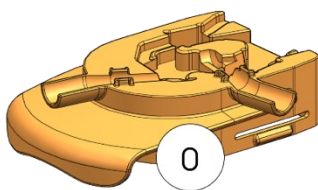
The Simodont Dental Trainer consists of the following major components illustrated and explained below.



- A** Touch screen
- B** 3D display
- C** Drill gimbal with hand piece
- D** Mirror gimbal
- E** Space mouse
- F** Hand rest
- G** Height adjustment
- H** Standby / on switch
- I** RFID card reader



- J** USB service connection (2x)
- K** SimoNet network connection
- L** Foot pedal connection
- M** Main power switch
- N** Mains entry



- O** Calibration tool

Main system components

Please ensure you are familiar with the major components listed above as these will be referred to in the instructions given throughout the rest of this manual.

SITE PREPARATION

Electrical requirements



Warning: It is recommended that most appliances be placed on a dedicated circuit. This means a single outlet circuit which supplies power to a single appliance with no additional outlets or branch circuits. Do not overload wall outlets. Overloaded wall outlets, loose or damaged wall outlets, extension cords, frayed power cords, damaged or cracked wire insulation are dangerous. Any of these conditions could result in electric shock or fire.



Warning: Protect the power cord from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door or being walked upon. Pay particular attention to plugs, wall outlets and the point where the power cord exits the appliance.

Specification	Requirement
Voltage range	95 - 264V AC / 50 ~ 60 Hz
Power consumption	<ul style="list-style-type: none">• Peak: 400 W• Typical: 230 W
Fuse rating	110 - 230V AC: 6.3 AT, slow blow
Mains entry	IEC60320-1 C14 Power Inlet (Simodont Side)



Warning: Make sure the facility mains power has a grounded (PE) connection. Use a three-wire AC lead cable to a three-prong grounded AC outlet. Do not attempt to ground the Simodont Dental Trainer by connecting it to telephone wires, lightning rods or gas pipes.

Network cable requirements

The Simodont Dental trainer system is supplied with all required network hardware and cables. If desired, it can be used with the existing customer cable network infrastructure. The following cable specifications are applicable.

Specification	Requirement
Ethernet	CAT 5E or CAT 6 shielded cable with RJ45 connector
Connection speed	1000Mbit/s



Warning: Protect the ethernet cable from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door or being walked upon. Pay particular attention to plugs, wall outlets and the point where the ethernet cable exits the appliance.

Operating conditions

The ambient conditions for operation or storage of the Simodont Dental Trainer system are listed in the table below.

Specification	Requirement
Temperature	<ul style="list-style-type: none">• Operating: 15 - 25°C• Storage: -20 - 40°C
Humidity	<ul style="list-style-type: none">• Operating: 20 - 75%, non-condensing• Storage: 10 - 85%, non-condensing

UNPACKING AND TRANSPORTING

Weight and Dimensions

This section describes how the Simodont Dental trainer system can be unpacked and moved to desired location.

Necessary tools

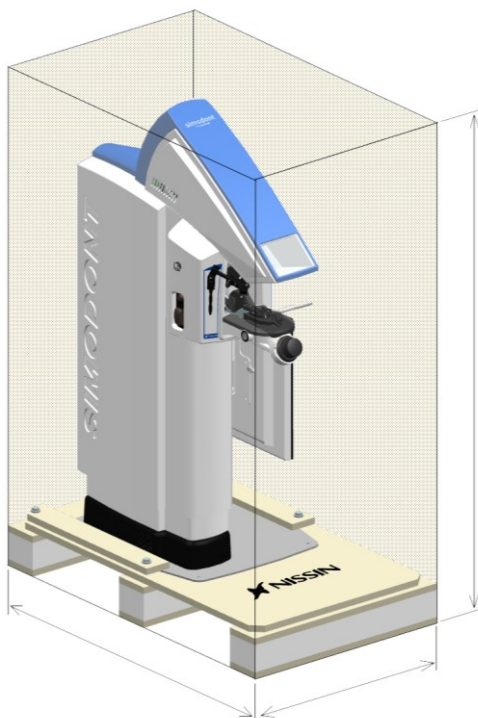
Description	Qty (Installation)	Qty (Maintenance)	Additional information
Pallet truck	1	1	Or equivalent
Spanner	1	1	No. 17 metric
Scissors	1	1	General purpose
Simodont transport tool	1	1	Supplied with system

Simodont weight and dimensions (packaged)

The Simodont Dental Trainer total weights and dimensions are as follows:

Weight	Description
91 kg	Total weight with packaging and additional parts
64 kg	Total weight without packaging

Simodont Dental Trainer - package dimensions



A: Width = 60 cm

B: Length = 100 cm

C: Height = 142 cm

Supplied parts

The Simodont Dental Trainer is supplied with the following parts:

Simodont package:

- Simodont Dental Trainer
- Calibration tool CB99695-101
- Box with:
 - Foot pedal
 - Polarized glasses (3D glasses)
 - Mains power cable with mains plug (length: 1,5 meters)
 - CAT6 Ethernet cable (length: 2 meters)
 - Cleaning instructions CDS34645-003

The Teacher Station PC package:

- PC
- Keyboard
- Mouse
- Monitor
- CAT6 Ethernet cable (length: 10 meters)

The Simodont Server package:

- Server computer
- CAT6 Ethernet cable (length: 10 meters)
- Network switch, 8 port (quantity as required, depending on number of Simodont units)
- Simodont Teacher Manual CDS52001
- Simodont User Manual CDS51094
- Simodont Content Catalog CDS52002

Unpacking the Simodont Dental Trainer

This section describes how to unpack the Simodont Dental Trainer from the pallet with the cardboard box.



Note! The Simodont package consists of a cardboard box strapped to a small pallet.



Note! Often 2 Simodont packages are shipped on a larger pallet and are wrapped in protective plastic. In this case the Simodont packages must first be gently slid from the larger pallet to the floor.



Note! When possible move the Simodont package to the room where the unit is to be installed before unpacking. This will help prevent damage.



Note! Make sure the Simodont package is located in a room that is at least 240cm high before unpacking. This height is required to lift the cardboard box from the pallet.

Procedure

Step 1 Ensure that the Simodont package (box strapped to pallet) is on the ground. See notes above.

Step 2 Cut and discard the plastic straps that attach the cardboard box to the pallet.

Step 3 Slide the cardboard box upwards to remove it from the pallet. Discard the box.



Note! This requires two persons.

Step 4 Remove and discard the packing foam and the plastic cover from the Simodont Dental Trainer.

Step 5 Remove and discard the elastic bands, plastic sack and bubble wrap from the Touch Screen of the Simodont Dental Trainer.

Result The Simodont unit is now unpackaged but is still fixed to the transport pallet.



Tip! Use the QR code below and watch the video

How to



Unpack / pack

Moving the Simodont Dental Trainer with the transport tool

This section describes how to remove the Simodont Dental Trainer from the pallet and how to move it using the transport tool.



Warning: The Simodont Dental Trainer must only be transported as described in this section. Only use the official Nissin transport tool. Serious injury and damage can occur if you do not follow these instructions.



Warning: The Simodont Dental Trainer is top heavy. Always carefully support the Simodont unit to prevent it from tilting.



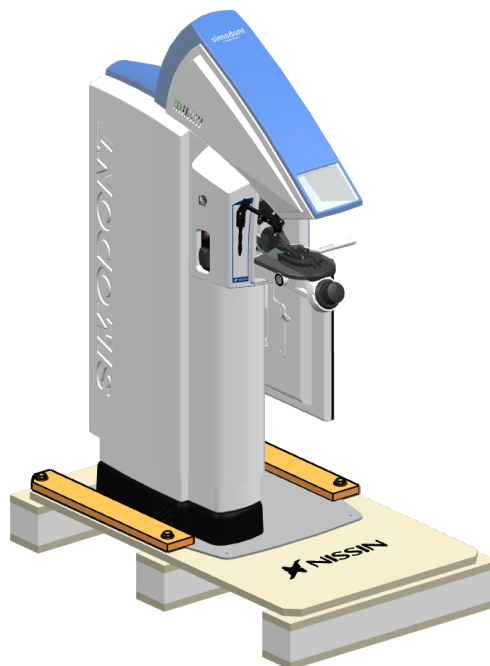
Note! Make sure that access doors to the lab room are wide enough.

Necessary tools

Description	Qty (Installation)	Qty (Maintenance)	Additional information
Spanner	1	1	Size 17 (Metric)
Simodont transport tool	1	1	Supplied with system

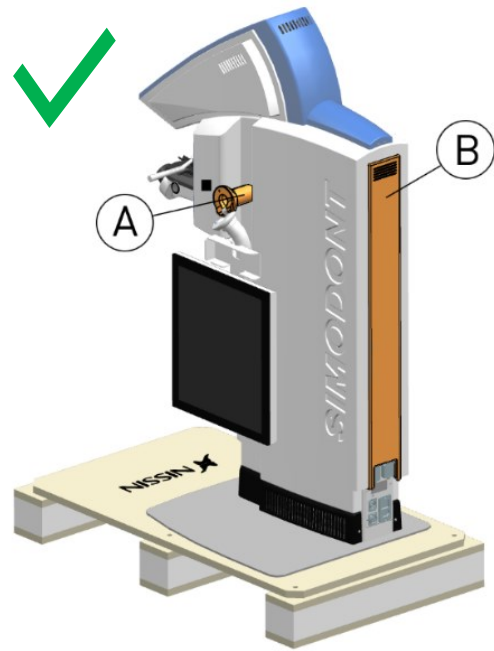
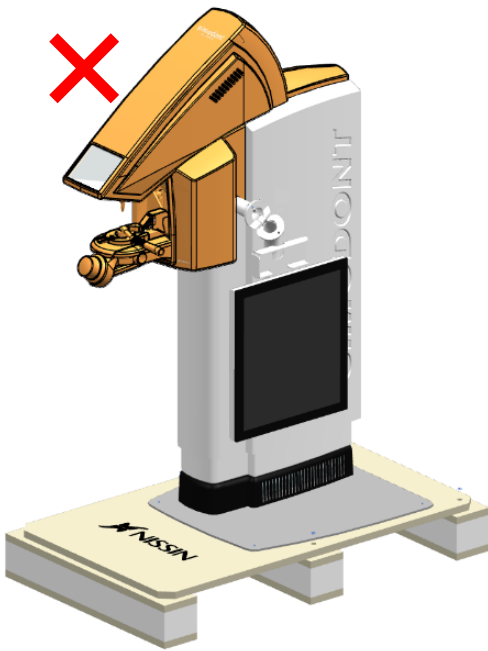
Procedure

Step 1 Remove the four fastener bolts that fix the Simodont Dental Trainer to the pallet. Use spanner size M17.



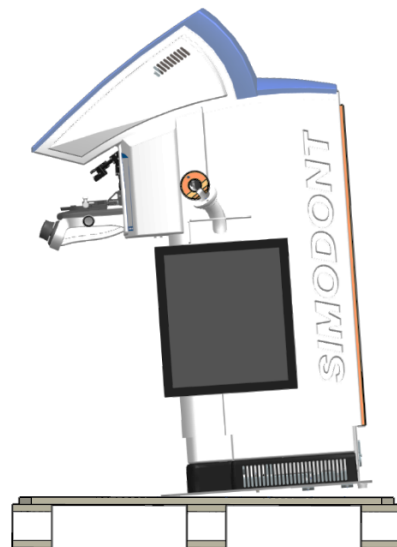
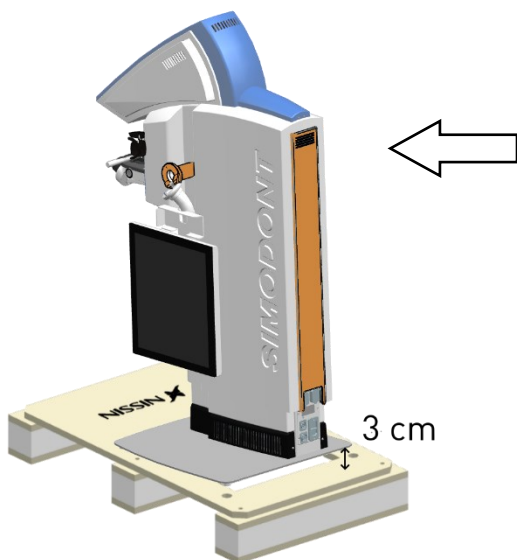
Pallet with fixation strips and bolts (orange)

Step 2 Gently push the Simodont unit forward so that it will tilt forward. There should be a 3 cm gap at the back of the floor plate.



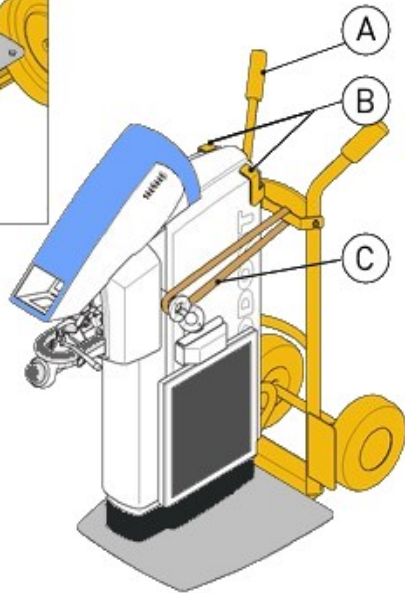
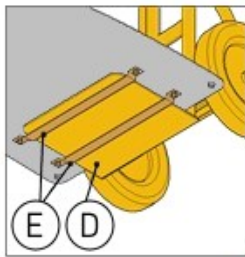
Caution: do not hold, push or pull these parts with force.

- A Strong point, for holding
- B Strong point, for pushing



Step 3. Slide the transport tool 'A' in place:

- Ensure that the Stabilization bracket 'B' is aligned with the top of the Simodont
- Ensure that the lifting plate 'D' of the transport tool slides into the safety brackets 'E' of the dental trainer.



- A Transport tool
- B Stabilization bracket on the transport tool
- C Safety strap on the transport tool
- D Transport tool lifting plate
- E Trolley brackets under the floor plate of the Simodont Dental Trainer

Step 4 Secure the Simodont unit to the transport tool with safety strap 'C'.

Step 5 Tilt the transport tool and dental trainer backwards and gently roll it from the pallet.

Step 6 Move the Simodont Dental Trainer to the required installation position by using the transport tool.



Caution: The touch screen must always be in folded-down position when the Simodont is transported.

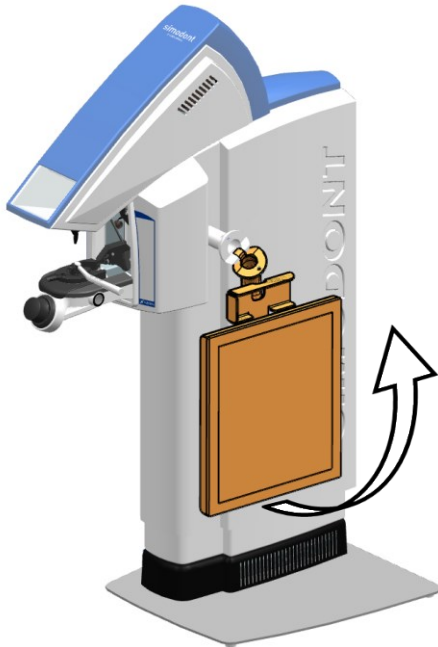
Step 7 Remove the strap 'C' and slide the transport tool away from the Simodont.

Result The Simodont unit is now located at the desired location.

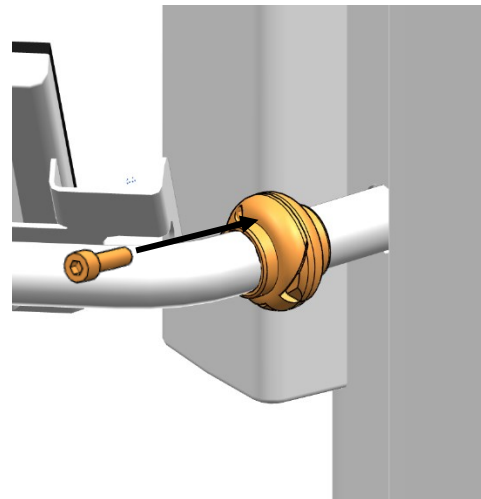
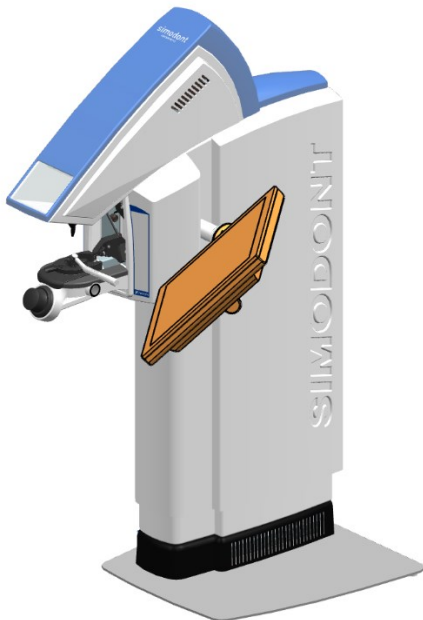
The next steps explain how to install the Simodont unit at the desired location.

Step 8 Place the Simodont unit at the desired location using the transport tool.

Step 9 Carefully lift the touchscreen up to the horizontal position.



Step 10 Fix the hinge arm in place with the hinge screw (already installed). Use a metric #4 Allen key (the use of a bold-head Allen key is preferred).



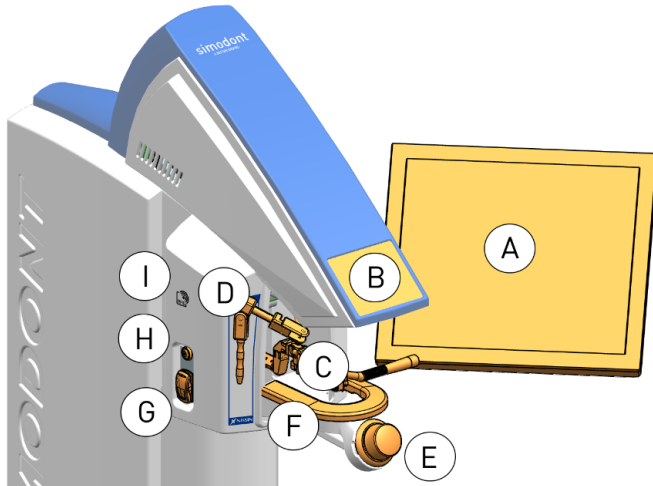
Detail

Result The Simodont unit is now ready for wiring according to the Installation and Service Manual and further use.

USING THE SIMODONT DENTAL TRAINER

Starting the Simodont Dental Trainer

The Simodont Dental Trainer is switched on using the standby / on switch as illustrated below.



- A** Touch screen
- B** 3D display
- C** Drill gimbal with hand piece
- D** Mirror gimbal
- E** Space mouse
- F** Hand rest
- G** Height adjustment
- H** Standby / on switch
- I** RFID card reader

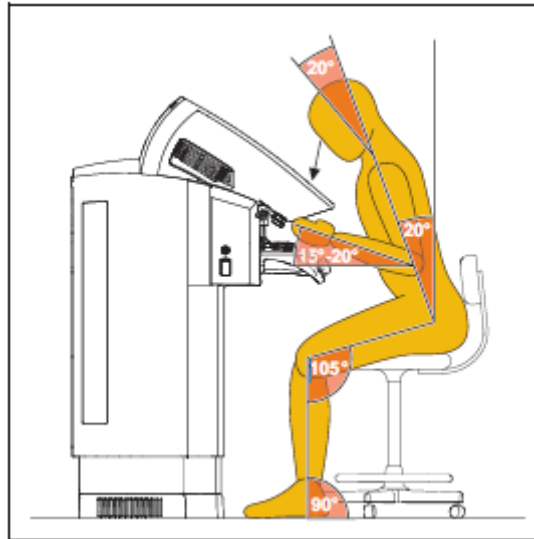
Part Identification

To switch on the Simodont Dental Trainer:

- Step 1** Make sure the main switch on the rear of the Simodont Dental Trainer is in the "ON" position (See Page 10 item [M] for location on the Simodont).
- Step 2** Press the Standby switch
- Step 3** Listen for the single audible beep.
- Step 4** Wait for the system to complete the start-up sequence. Once completed the login screen will be available.
- Step 5** Use the touchscreen to log in the application. See section Login / Logout Student application. After a correct login, the Simodont Dental Trainer is ready to use. If not, refer to your facility technical support department for further help.

Ergonomic seating position

Before starting to work at the Simodont Dental Trainer you are advised to read the following advice in order to maintain an optimal ergonomic working position. The following illustration demonstrates a user seated in an optimal position at the Simodont Dental Trainer.



Optimal user seating position

In order to achieve the seated position illustrated above, please observe the following advice:

- Step 1** Set the height of the chair such that your feet are comfortably placed flat on the ground.
- Step 2** Make sure your lower legs are straight and that your upper legs are slightly bent downwards.
- Step 3** Make sure your lower back rests against the back of the chair.
- Step 4** When you are seated correctly, as explained above, you need to check if you are positioned at the correct working height for the Simodont Dental Trainer. As a reference, the bottom of the 3D display viewer should be at approximately the same height as your breastbone, as illustrated above. If the height position is incorrect, see the previous section for the location of the switch used to adjust the height of the Simodont Dental Trainer.

Foot pedal

The foot pedal can be operated by either your right or left foot depending on your preference. When you have achieved the correct seating position, as described in section Ergonomic seating position, place the foot pedal next to your left or right foot. Now place your foot on the pedal and move the foot pedal as necessary to find a comfortable position that does not place excessive strain on your foot. The ideal position for the foot pedal is one that does not require your body to move when the foot pedal is in use.

Login / logout

One or more user accounts are created for your staff members when the system is installed at your institute. In addition to that, one generic administrator account is always available. The login credentials are not shared in this manual for security reasons. Passwords are provided during the introduction training. In case needed, please contact NISSIN Dental Products Europe B.V. for the login credentials of the administrator account and other staff members.

In order to login:

- Step 1** Enter your username, by touching the username field a keyboard will automatically pop up
- Step 2** Enter your password
- Step 3** Click on the login button on the touch screen

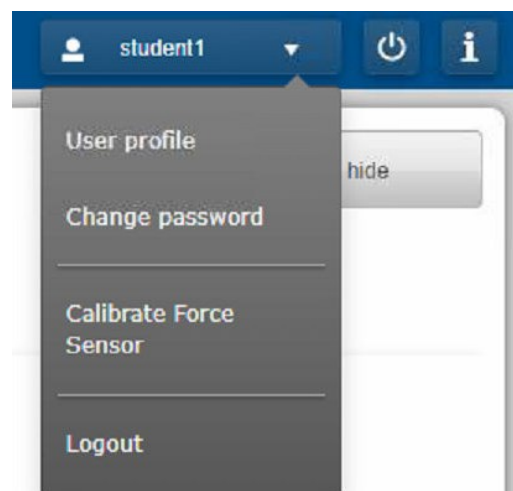
After login the cases that are selected for this specific user to work on will be presented.

In order to logout:

- Step 1** Go to the right upper corner, and select your username
- Step 2** Click 'Logout'



Login screen



Logout in upper right user menu

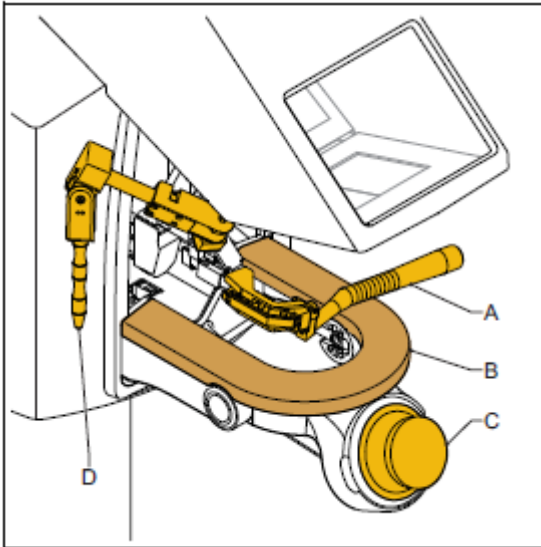
Automatic Logout and Shutdown

Users are automatically logged out from the Simodont Dental Trainer application after 60 minutes in case no activity is being registered. By default, the Simodont Dental Trainer will also shut down after 60 minutes in case no activity is being registered.

This is a safety measure to minimize the chance of access by unauthorized users when the system is left unattended.

Set up for left-handed use

The Simodont Dental Trainer is per default set up for right-handed users. However, it is designed to be used by both right and left-handed users. The figure below shows a detailed illustration of the haptic display instruments and components for a right-handed use position.



Haptic display components

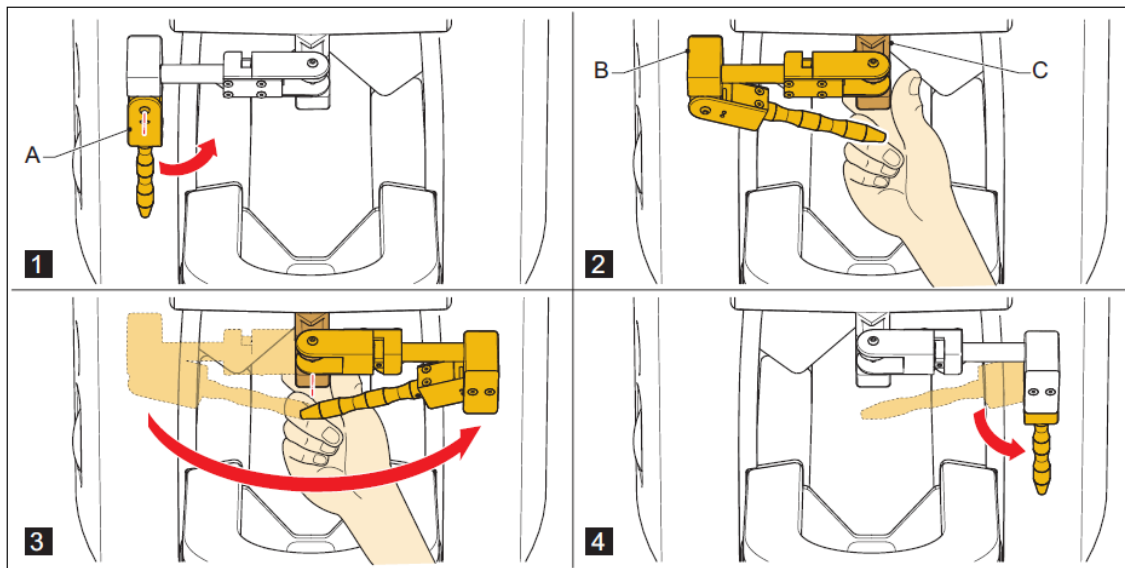
- A. Drill gimbal
- B. Hand support
- C. Space mouse
- D. Mirror gimbal

To set up the Simodont Dental Trainer for left-handed use, the mirror and drill gimbal positions can be switched. This is explained in detail in the following sections. However, please first observe the following important warning before carrying out these tasks.



Warning: It is essential that no excessive force is used when moving the mirror and drill gimbals to a left-handed use position. Gently move the gimbals and follow the instructions given in the sections below precisely. If you feel any resistance in the gimbals during the switching process - stop - and gently return the gimbal to its original position, then try again. Do not try to push the gimbal further. Failure to observe this warning will result in damage to the gimbals and/or the Simodont Dental Trainer.

The following illustrations demonstrate the gentle movements to be carried out to switch the mirror gimbal from its normal right-handed use position to a left-handed use position. Do not use excessive force throughout these movements and observe the above warning advice before carrying out this process.



Move mirror gimbal to left-handed use position

Illustration 1

The above picture shows how the mirror gimbal is removed from its start position. The mirror gimbal is magnetically attached to the cover (see label). To remove the mirror gimbal, detach it from the cover and then gently move it in a backwards direction (A).

Illustration 2

Shows how to manipulate the mirror gimbal into a position so that it is ready to be switched. To do this, move part (B) of the mirror gimbal so that it is perpendicular to the mirror gimbal bracket that secures it to the unit (C). When you have done this, use your hand to steady the mirror gimbal in the position illustrated above so that it is in place for the next movement.

Illustration 3

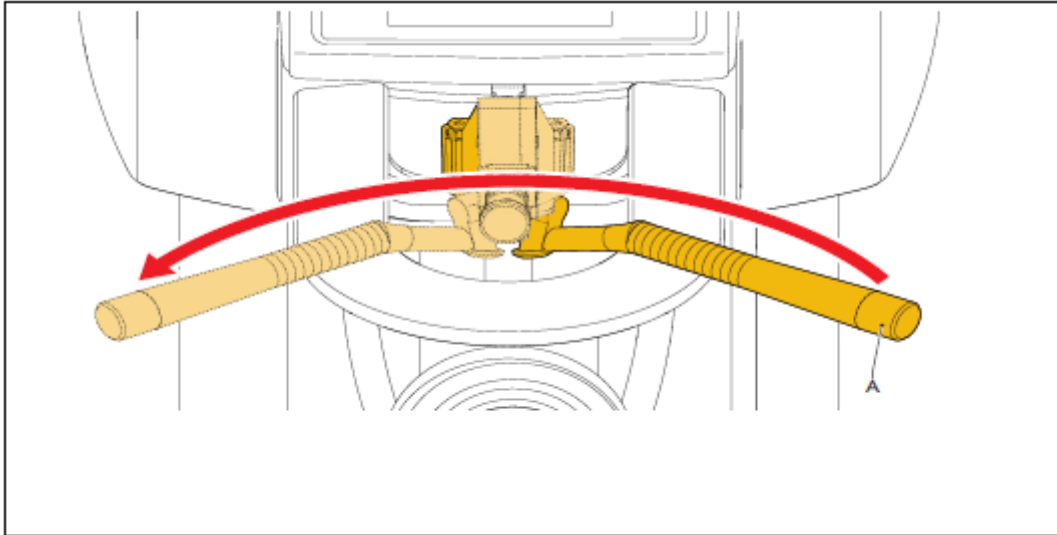
Shows how to switch the mirror gimbal from the left to right position. To do this, use one hand to support the mirror gimbal as explained in item 2 above, then use your other hand to gently move the mirror gimbal from its left to right position (indicated by the red arrow in the illustration above).

Illustration 4

Shows the mirror gimbal in its final position. The mirror gimbal is magnetically secured to the Simodont Dental Trainer. When the mirror gimbal has been switched, as explained in the previous steps, it can be stored against the cover by placing it in the position as indicated on the label. The process of switching the mirror gimbal to the right side of the Simodont Dental Trainer for left-handed

use is now complete. Move the drill gimbal to a left-handed use position and perform this process, if you have not already done so.

The following illustration demonstrates the gentle movement to be carried out to switch the drill gimbal from its normal right-handed use position to a left handed use position. Do not use excessive force throughout this movement and observe the warning advice before carrying out this process given earlier in this paragraph.

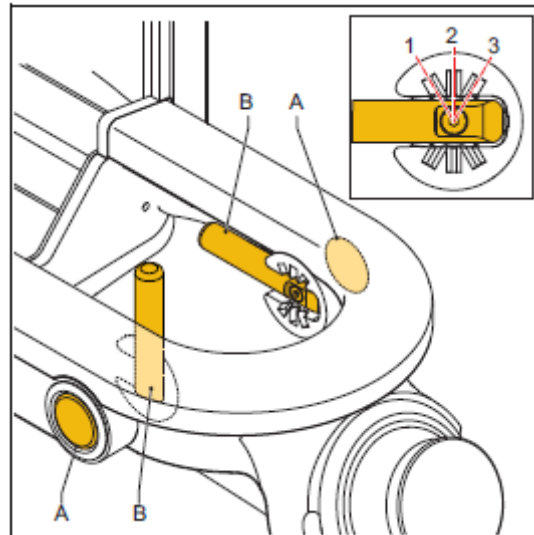


Move drill gimbal to left handed use position

As can be seen from the illustration above, the drill gimbal (A) is gently moved in arc movement (indicated by the red arrow) from its start right position to its end left position. The process of switching the drill gimbal to the left side of the Simodont Dental Trainer for left handed use is now complete.

Extra finger support (hand interface)

For extra support during the exercise, you can use an extra finger support to provide the required extra support. There are 3 available positions in which the finger support can be locked.



Move finger support

To position the finger support, follow the steps below.

- Step 1** Push the button (A) of the finger support (B) you want to use.
- Step 2** The finger support comes forward due to its spring mechanism.
- Step 3** Move the finger support to a lock position.

DECLARATION OF CONFORMITY

See insert or request a new copy via support@nissin-dental.nl



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www.simodontdentaltrainer.com

www.nissin-dental.net