PLANMECA

Planmeca Compact™ i5

EN

installation manual

30011828

The manufacturer, assembler and importer are responsible for the safety, reliability and performance of the unit only if:

- installation, calibration, modification and repairs are carried out by qualified authorised personnel
- electrical installations are carried out according to the appropriate requirements such as IEC 60364
- equipment is used according to the operating instructions.

Planmeca pursues a policy of continual product development. Although every effort is made to produce up-to-date product documentation this publication should not be regarded as an infallible guide to current specifications. We reserve the right to make changes without prior notice.

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Table of contents

1 Introduction

This manual contains all the information required to install and set up the Planmeca Compact i dental unit. Please read this manual carefully before installing the unit.

NOTE

The information given in this manual should be taken as a general guide for proper installation of the Planmeca Compact i dental unit. However, in the cases that this information is contradictory to any local or national building regulations, the building regulations must always override this manual. In these cases of contradictory contact your local Planmeca dealer before proceeding with any changes.

1.1 Contents of packing

The contents of the delivery package are as follows:

- Cuspidor
- Delivery arm, suction arm and bowl
- Patient chair with the upholsteries
- Tray, suction tubes, instruments, mounting accessories, suction system cleaning accessories, foot control, adapter cover for the lifting adapter and Planmeca Compact i dental unit documentation

1.2 Associated documentation

This Planmeca dental unit is delivered with the following manuals and diagrams:

- User’s manual

  For dental care professionals. Describes the dental unit and its different parts as well as instructs how to operate and clean the dental unit.
- Installation manual

  For service personnel. Describes how to install the dental unit.

  NOTE

  Use the installation template (included in delivery) to position the unit correctly.
- Technical manual

  For service personnel. Gives instructions for service situations.
- Wiring diagrams (30015321)
- Pneumatic diagrams (30019050)
- User's manual for optional WEK water disinfection system

  For dental care professionals. Gives instructions for use and maintenance.

Planmeca Romexis software is delivered with the following manuals:

- Planmeca Romexis user’s manual

  For dental care professionals. Describes how to monitor and control the activities as well as gather data related to dental treatments.
- Planmeca Romexis quick installation guide

For service personnel. Describes how to install Planmeca Romexis software.

- Planmeca Romexis technical manual

  For service personnel. Gives instructions for service situations.

The Planmeca Solanna or Planmeca Solanna Vision operating light is delivered with the following manual:

- User's manual

  For dental care professionals. Describes the operating light and instructs how to operate and clean it.

- Installation and technical manual

  For service personnel. Describes how to install the operating light to the ceiling or wall, and gives instructions for service situations.

  The operating light's installation to the dental unit is described in the dental unit's installation manual.

The intraoral X-ray unit Planmeca ProX can be installed to the Planmeca dental unit. Planmeca ProX is delivered with the following manuals:

- User’s manual

  For dental/health care professionals. Describes the intraoral X-ray unit and its different parts as well as instructs how to operate and clean the X-ray unit.

- Installation manual

  For service personnel. Describes how to install the intraoral X-ray unit.

- Technical manual

  For service personnel. Gives instructions for service situations.

The Planmeca intraoral scanner is delivered with the following manual:

- Planmeca FIT user’s manual

  For dental care professionals who take digital impressions for dental restorations.

- Planmeca FIT installation manual

  For service personnel. Describes how to install the intraoral scanner.

The Planmeca ProSensor sensor is delivered with the following manuals:

- User’s manual

  For dental care professionals. Describes the sensor that is intended to be used for capturing digital intraoral X-ray images and instructs how to use it.

- Installation manual

  For service personnel. Describes how to install the sensor.

Before using surface disinfectants, upholstery disinfectants, dental unit water and waterline disinfectants, or suction disinfectants, read the disinfectant’s material safety data sheet and the document *Planmeca approved disinfectants* (30007097). The document can be found in the Planmeca Material bank.

Before using an instrument, read the instrument’s user’s manual.

For a full list of accessories, refer to the Planmeca product price list.

1.3 Original manufacturer

Planmeca Oy, Asentajankatu 6, FIN-00880, Helsinki, Finland

Phone: +358 20 7795 500, Fax: +358 20 7795 555,
http://www.planmeca.com

2 Pre-installation requirements

CAUTION

Do not connect items which are not specified as part of the system.

CAUTION

Do not connect a Multiple Portable Socket-Outlet or extension cord to the system.

2.1 Floor strength

NOTE

The dealer must check the floor material and strength of the installation site before the installation.

The floor must be straight within 1%. Antistatic floor materials should be preferred.

The concrete floor must be 50mm (2in.) thick. The concrete strength must be type C20/25-C50/60 **(According to standard EN 206-1:2000)**, non-cracked concrete.

With concrete floor, the unit can be installed without installation plate.

The required attachment hardware depends on the floor material. The attachment hardware, as well as floor material must endure a pullout force of 5900 N.

The person installing the unit is responsible for using the appropriate attachment hardware and ensuring the sufficient pullout strength of the floor. Consult a local structural engineer if necessary,and always follow local construction regulations.

2.2 Environmental requirements

2.2.1 Transportation conditions

Accepted limits for unit transportation are the following:

- **Temperatures:** -20 °C to +60 °C (-4 °F to 140 °F)
- **Relative humidity:** 5% RH to 95% RH “Absence of condensation”
- **Air pressure:** 700 hPa to 1060 hPa (10 psi to 15 psi)

2.2.2 Storage conditions

Accepted limits for unit storage are the following:

- **Temperatures:** -5 °C to +60 °C (23 °F to 140 °F)
- **Relative humidity:** 5% RH to 95% RH “Absence of condensation”
- **Air pressure:** 700 hPa to 1060 hPa (10 psi to 15 psi)

NOTE

If the unit has been stored at temperatures below +10 °C (50 °F) for more than few hours, time must be allowed for the unit to reach the room temperature in its own package, before connecting the dental unit to mains voltage.

2.2.3 Unit operating conditions

Accepted limits for unit operating are the following:

- **Temperatures:** +15 °C to +35 °C (59 °F to 95 °F)
- **Relative humidity:** 5% RH to 95% RH “Absence of condensation”
- **Air pressure:** 800 hPa to 1060 hPa (12 psi to 15 psi)
- **Altitude:** < 2000 m (less than 1.25 miles)

2.3 Plumbing requirements

2.3.1 Air supply

NOTE

Take into account national and international regulations concerning the quality of dental air.

The air pressure used must be between 550 - 900 kPa (5.5 – 9 bar) (80 - 130 psi) with a flow of at least 55 l/min. The dew point must be no greater than −20 °C at atmospheric pressure.

A compressor with an air dryer must be used to ensure that the air is clean, dry and oil free. The air may contain a maximum of 100 particles per cubic meter when the particle size is 1 - 5 µm, and oil contamination must be max. 0.5 mg/m^3.

2.3.2 Water supply

The requirements for inlet water are as follows:

- Water pressure: 300 - 900 kPa (3 - 9 bar) (44 - 130 psi)

  Note the differing water pressure requirements for Planmeca WEK and Planmeca ActiveAqua below.
- Water flow: At least 4 l/min
- pH value: 6.5 – 8.5.
- Hardness: ≤ 8°dH

  If the water has a hardness greater than 8 °dH, a water conditioner must be fitted to the water inlet pipe. Hard water can very quickly ruin a dental unit.

  Note the differing water hardness requirement for Planmeca ActiveAqua below.
- The water must be of drinking quality and free of all particles larger than 5 µm that could block the small tubes in the dental unit. If the water supply contains particles larger than 5 µm an accessible filter (5 micron) must be fitted to the water inlet pipe.

NOTE

Water is also used for suction line rinsing and suction line cleaning. Suction rinsing is set as default to 300 ml per minute.

To guarantee proper microbial quality of incoming water, water piping with dead ends should be avoided.

NOTE

The water supply line must be equipped with a backflow prevention valve according to local requirements. E.g. in most European countries according to EN1717 standard, BA Type backflow preventer.

In dental units with Planmeca WEK water disinfection system or Planmeca ActiveAqua water treatment system, a backflow prevention valve is not needed as they are separated from mains water with an AB type air gap.

Dental units with WEK water disinfection system

In dental units with Planmeca WEK water disinfection system, the pressure range must be 300 - 600 kPa (3 - 6 bar) (44 - 87 psi).

Dental units with Planmeca ActiveAqua water treatment system

The water requirements for Planmeca ActiveAqua are as follows:

- Inlet water pressure: 100 - 900 kPa (1 - 9 bar) (15 - 130 psi) (*)

  (*if inlet water pressure is below 200 kPa (2 bar) (29 psi), water for bowl flushing, cup fill and suction flush may be reduced)
- Conductivity: Above 80 µS/cm
- Chloride content: Recommended above 8 mg/l but feasible 4 - 8 mg/l
- Hardness: 0 - 40 °dH

Inlet water parameters can be obtained from the local water supplier or measured with the Planmeca ActiveAqua water measurement kit (30024144).

CAUTION

Do not use Planmeca ActiveAqua without filters of with liquids other than water. Planmeca ActiveAqua is designed to disinfect the water in the dental unit. The water that is disinfected should have a water quality equivalent to that of drinking water. Using Planmeca ActiveAqua with liquids other than water and/or without the correct filters will damage the system and make it less effective.

CAUTION

Use of pre-treatment systems such as desalination-, softening-, and chemical treatment systems change the water quality. If a pre-treatment system is used before the dental unit, ensure that the dental unit's water parameters after pre-treatment comply with the requirements listed above.

CAUTION

It is generally not advised to use chemical water treatment/disinfection systems, such as hydrogen peroxide systems in connection with Planmeca ActiveAqua

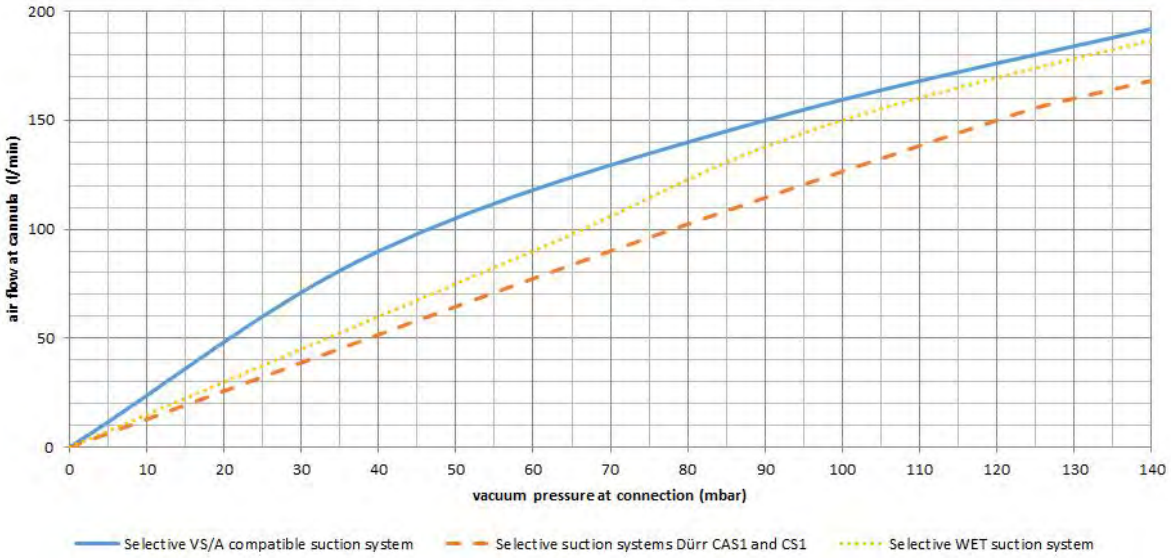
2.3.3 Suction

The static vacuum must be at least 150 mbar. The vacuum pump must be able to produce a flow of at least 550 l/min. when measured at the installation position.

The suction line must be fitted with a suction calibrating valve, which limits the maximum vacuum to 140 mbar.

NOTE

The below diagram presents air flow at cannula as a function of vacuum pressure at the dental unit suction source connection point for available suction systems.



Avoid using sharp bends or joints in the suction line. Seal all joints to avoid air leakage. Care should be taken to avoid condensation, particularly when the pipe is exposed to different ambient temperatures. Moisture traps must be used if necessary.

2.3.4 Centralised suction tube cleaning system

If your dental unit is equipped with a centralised suction tube cleaning system, refer to the centralised system manufacturer's documentation for piping and electrical requirements.

The service connection pipe for centralised suction disinfectant shall be size 6/4mm and made of polyethylene. The connection shall be terminated 200 mm above the floor.

2.4 Electrical requirements

2.4.1 Mains voltage

The unit has been preset at the factory to one of the 3 different mains voltage settings. Please check that the rating indicated on the type shield corresponds to the local mains voltage.

CAUTION

Never connect the unit to the mains without first checking the voltage setting. Incorrect voltage setting can cause damage to the unit electronics.

The possible voltage settings are:

- 100V~
- 115V~
- 220-240V~

The mains voltage setting for the complete unit can be altered by re-wiring the voltage jumper on the Main control PCB (connector P21). For re-wiring the voltage jumper, refer to the Technical Manual.

NOTE

Please note that the ratings of the internal (as well as external) mains fuses are depending on the selected voltage settings.

2.4.2 Mains frequency

The mains frequency is 50 or 60 Hz and is independent on the mains voltage setting.

2.4.3 Internal mains fuse ratings

The unit is equipped with dual mains fuses (live and neutral). However, in some areas it is not allowed to have a fuse in the neutral wire. The neutral fuse is bypassed by default with the same voltage setting jumper (connector P21). For details how to bypass the neutral fuse, see *Planmeca Compact i5 technical manual*.

The ratings for the internal mains fuses are:

- F1, F2= Schurter 0001.1014 10A/250V/FAST ACTING/HIGH BR CAP. (100V, 115V)
- F1, F2= Bussmann S501-10-R 10A 250V FAST ACTING/HIGH BR CAP. (100V, 115V)
- F1, F2= Schurter 0001.1012 6.3A/250V/FAST ACTING/HIGH BR CAP. (220V – 240V)
- F1, F2= Bussmann S501-6.3-R 6,3A 250V FAST ACTING/HIGH BR CAP. (220V- 240V)

In the case that the neutral fuse is bypassed with the voltage jumper, the neutral fuse can be left open.

2.4.4 External mains fuse recommendation

The recommendation for the external fuses are:

- Units with 100V~ or 115V~ voltage setting: 16A, time lag
- Units with 220-240V~ voltage setting: 10A, time lag

No other equipment should be connected to the same fused mains line as the unit. In some countries an additional external fault current guard is also required. Some electronic circuit breakers are very fast and can unintentionally trip during the unit turn-on. This is fully normal and is due to the unit's mains transformer inrush current. Selecting a circuit breaker with a higher current rating solves this nuisance.

Canada only:

- External fuse: Max. 20A branch circuit fuse

2.4.5 External mains switch

Mains voltage supply for the dental unit shall be equipped with a separate fixed assembled mains switch according to standard IEC 61058-1:2000 + A1:2001 + A2:2007 complying with isolation distances for 4 kV requirements.

The external mains switch shall disconnect the mains power supply from both the mains and the neutral lines. The switch must be capable of being locked in the **off** position.

2.4.6 Grounding

The dental unit must always be connected to a grounded outlet to fulfil the safety directives stated.

2.4.7 Power supply cable

The quality and cross-section area of the mains power cable must fulfil the requirements of the local standards (must be e.g. IEC-approved (CE marked), UL / CSA approved).

2.4.8 Power consumption

The idle (instruments in holders, chair not moving) power consumption is less than 300VA. Maximum power consumption is 1450VA, and occurs when the chair backrest and lifting mechanisms are moving simultaneously.

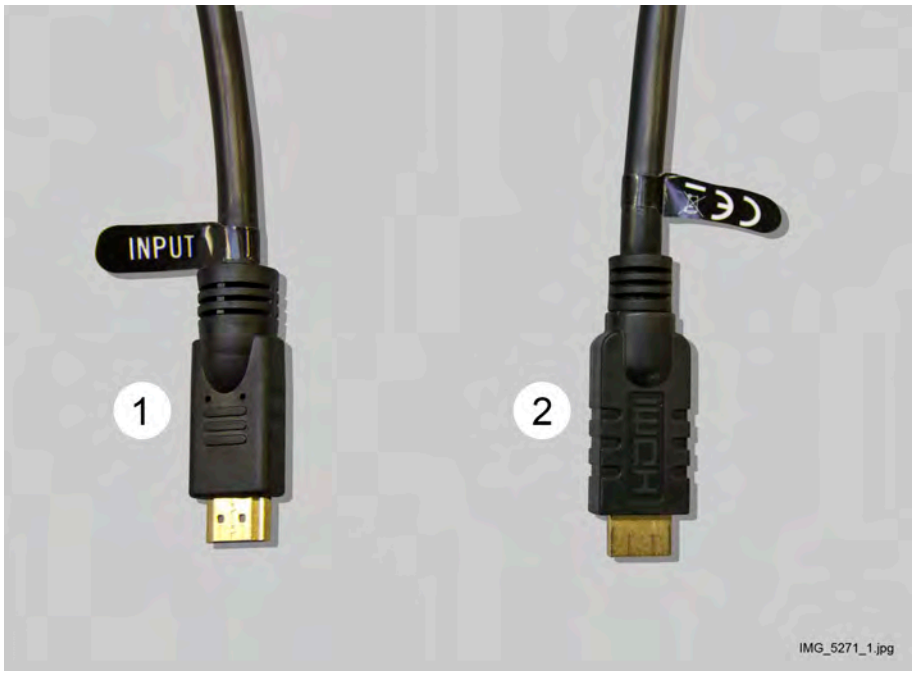
2.4.9 Cabling for options

Some optional features (monitor, Planmeca ProX etc.) require cables between the dental unit and PC or other equipment. Make sure that the needed cables are routed through the service pipe inside the floor.

The cabling from the dental unit are shown in section "Connections" on page 226.

Monitor HDMI cable

Note the direction of the HDMI cable supplied with the dental unit (part number 10030561). The end marked with text “INPUT” (**1**) must be connected to the PC. The other end of the cable (**2**) is connected to the HDMI cable located inside the cuspidor.



NOTE

The HDMI cable supplied with the dental unit is an active HDMI cable. Do NOT connect another active cable to this cable.

Ethernet cable

The Ethernet cable is needed for dental unit / Planmeca Romexis server connection.

USB cable

The USB cable is needed for USB intraoral camera connection. The repeater cable is routed from the dental unit to the PC. If the distance is over 5 m, another repeater cable must be added.

Other cables

Refer to diagram in section "Connections" on page 226.

2.4.10 Network connection

An Ethernet network is used to connect to the Romexis Clinic Management for equipment diagnostics and remote user assistance.

For more information on network connection requirements, see section "Network architecture requirements" on page 10.

2.5 Network architecture requirements

The dental unit requires a network connection for the purposes of connecting with Planmeca Romexis.

The user organisation must take care of protecting the network by using an up-to-date virus and malware protection software and a firewall. The network must be private and access to the network must be strictly restricted. The network must not be connected to the Internet.

The recommended connection speed is 100 Mb/s.

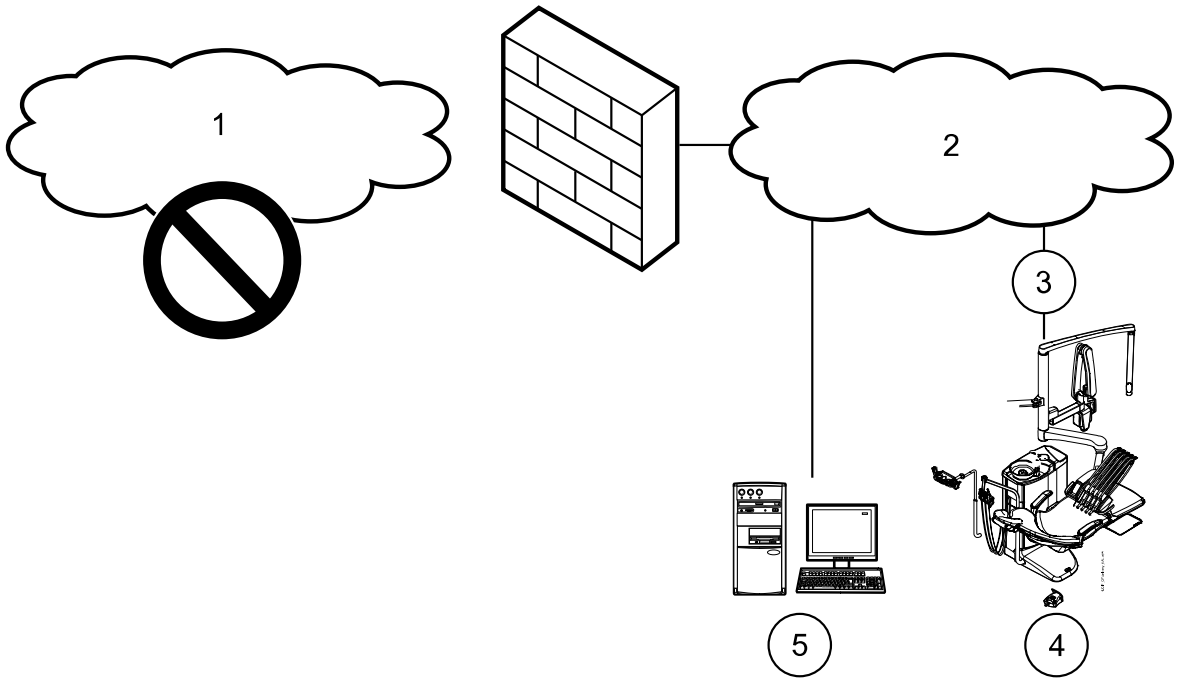
For instructions on how to enable remote connection (PMUAPI) and configure the unit's IP address, see technical manual section *Network settings*.

CAUTION

Never connect the unit to the Internet. Connecting the unit to Internet will result in previously unidentified risks to patients, operators or third parties. Connect the unit to private network only.

CAUTION

Never turn on unit power while having your fingers in patient chair mechanics. Remote user at Romexis Clinic Management may start chair automatic movements via Ethernet connection.



1 Internet
2 Secure network
3 CAT5 Ethernet
4 Planmeca dental unit
5 Planmeca Romexis Clinic Management module

Required configuration

The following network settings must be set during installation:

- IP address
- Subnet mask
- Gateway
- Romexis server IP address
- Romexis communication port

The hospital network firewall must be configured to allow connection between the dental unit and Planmeca Romexis.

Technical specifications of network connection

- Fast Ethernet (IEEE 802.310/100BASE-T)
- Minimum requirements: CAT5 cable with RJ45 connector

Intended information flow

The dental unit uses legacy PMU API protocol to communicate with Planmeca Romexis software.

Hazardous situations resulting from network failure

None.

Changes to the network

Changes to the network could introduce risks requiring additional analysis. Connection to networks including other equipment could result in previously unidentified risks to patients, operators or third parties. The user organisation is responsible for identifying, analysing, evaluating and controlling these risks.

Changes to the IT-NETWORK include:

- Changes in network configuration
- Connection of additional items
- Disconnection of items
- Update of equipment
- Upgrade of equipment

2.6 Patient area

The patient area is 1.5 m (59.1”) in each direction from the dental unit.

The external PC, its keyboard and mouse, as well as Planmeca ProSensor’s power supply and the Planmeca ProX generator assembly must be located outside the patient area. The dentist, assistant and patient must not touch the equipment outside the patient area during treatment.

CAUTION

Use only Planmeca specified devices inside the patient area.

CAUTION

The floor of the patient area must be dry.

NOTE

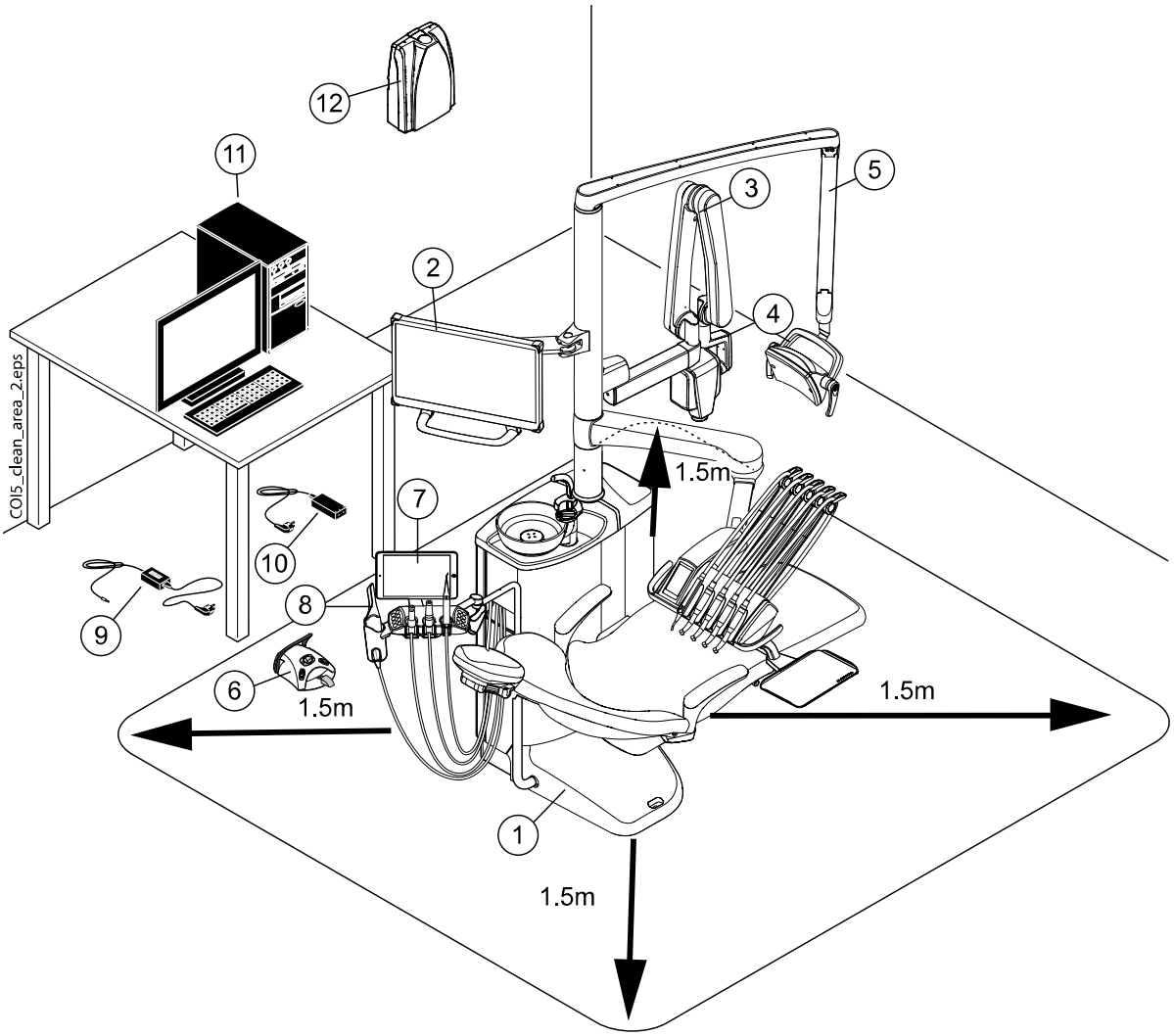
Connect only Planmeca specified devices to the dental unit.

NOTE

The external PC must be protectively earthed and IEC 60950 -approved (CE marked).

NOTE

The monitor must fulfil IEC 60601-1 ed.3 requirements.



Inside patient area:	Outside patient area:
1. Dental unit	9. Foot control battery charger
2. Planmeca monitor	10. Planmeca ProSensor PoE port and power cable
3. Planmeca ProX X-ray tube head and arm assembly	11. External PC
4. Planmeca ProSensor control box	12. Planmeca ProX generator assembly
5. Planmeca operating light	
6. Foot control. Use only IEC 60601-1 approved power source supplied by Planmeca	
7. Tablet	
8. Planmeca intraoral scanner	

2.7 Fire stopping of installation site

NOTE

The pipe and cable penetrations must be sealed with fire stopping materials. The products given in this section are only examples.

The fire stopping must be performed in accordance with the national regulations.

NOTE

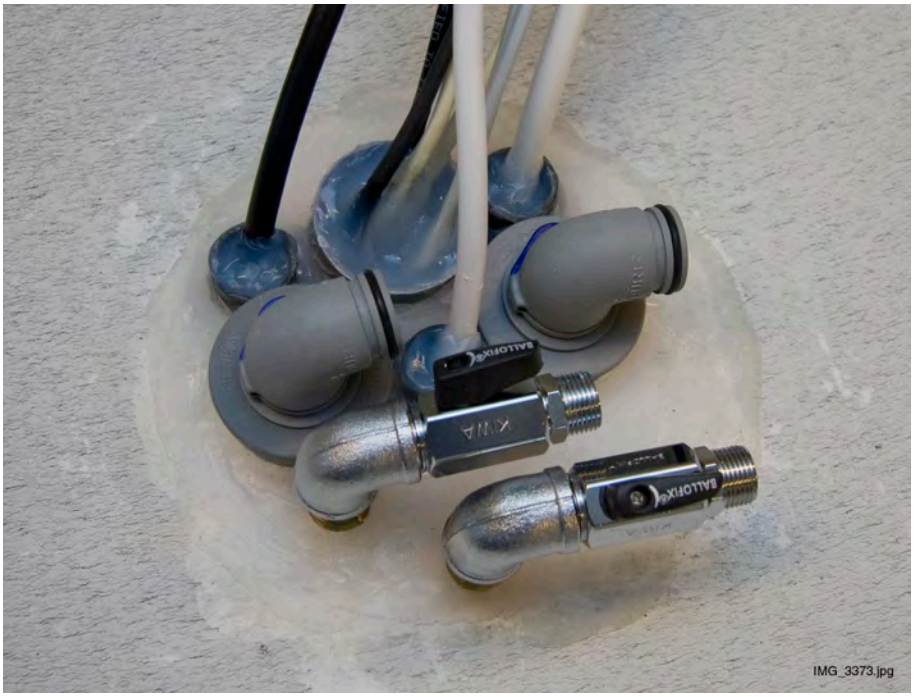
Follow the fire stopping products' installation instructions.

Add fire stopping laminate or mastic (e.g. Intumex LF, Intumex MG) to the pipes as shown in the figure below.

Fill the floor opening with fire stop sealing compound (e.g. FIREPRO M799 GPG Fire Stop sealing compound).

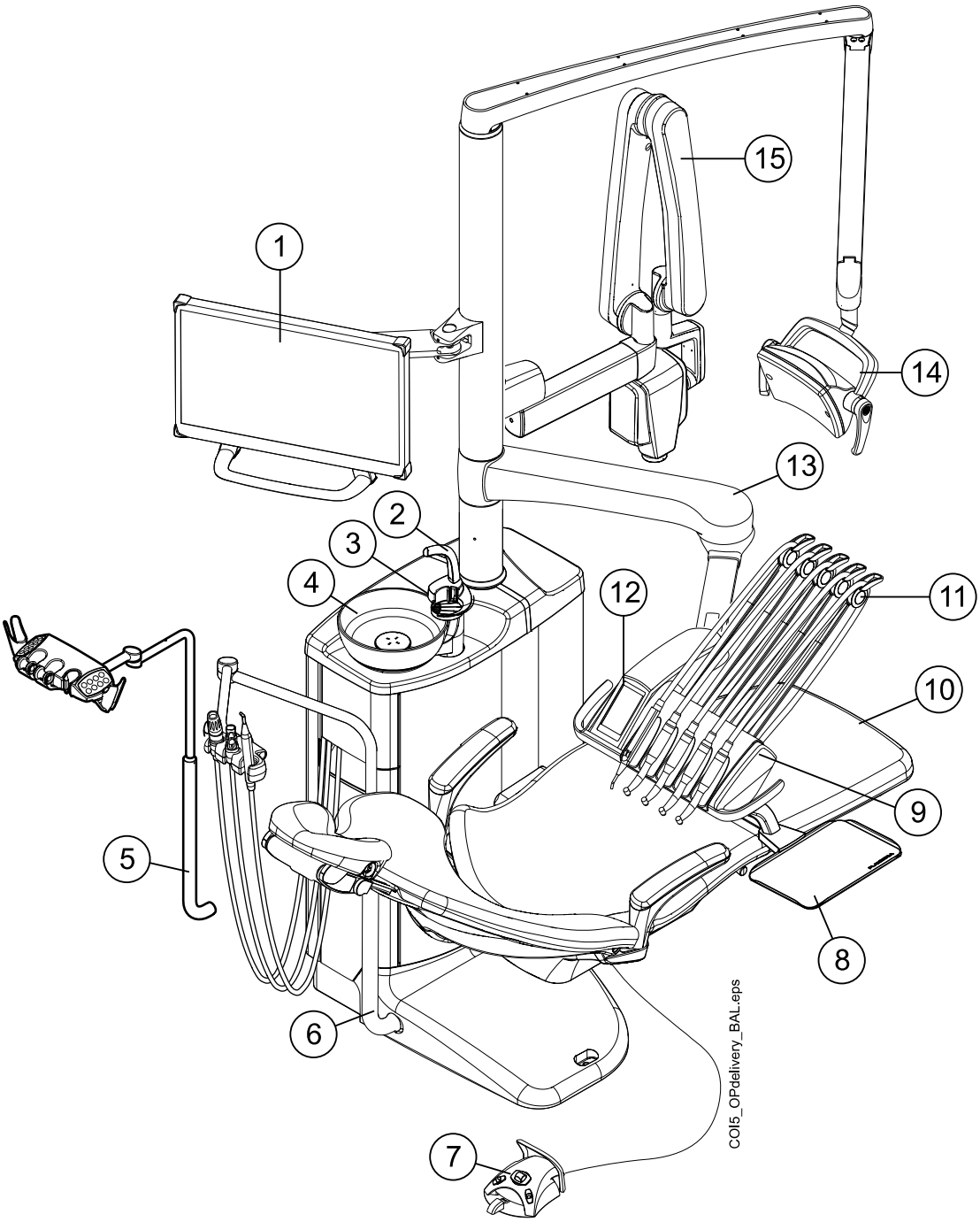
Add waterproof material (e.g. Loctite 5366) above the compound and into the cable pipe.

The figure below is an example (installation to a ready-made concrete floor).



3 Unit configuration

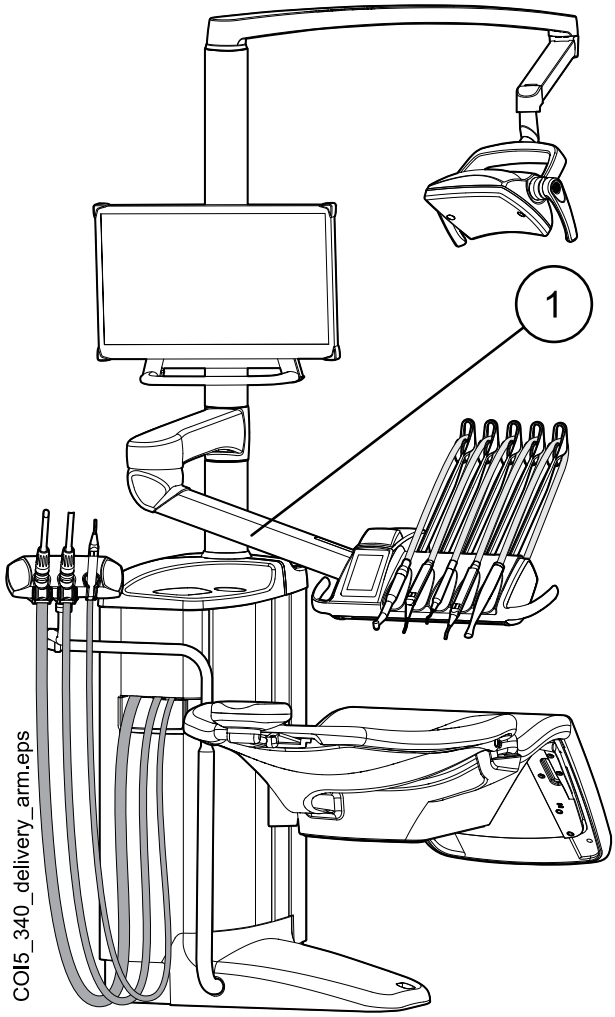
3.1 Over-the-patient delivery with balanced instrument arms



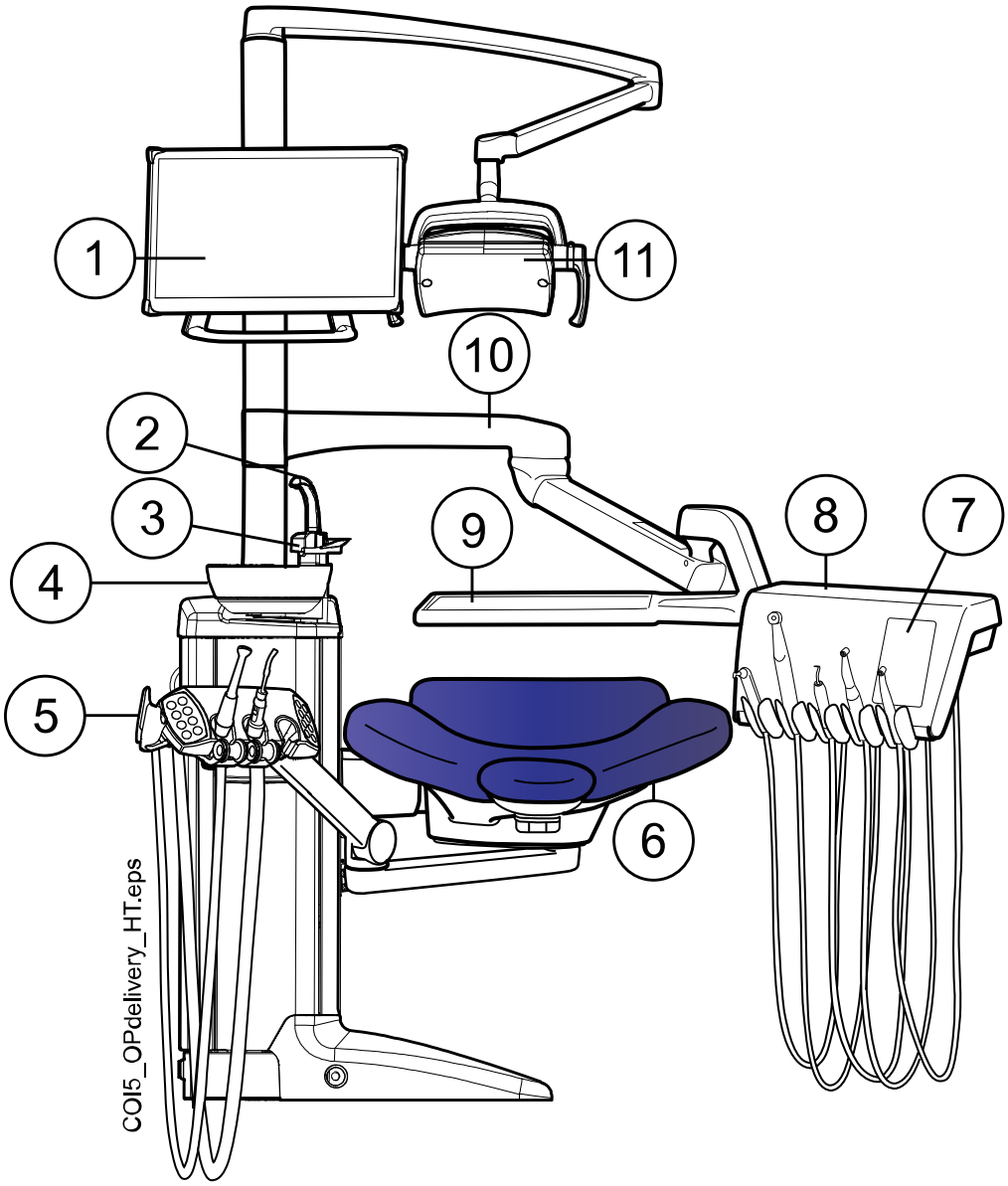
1. Monitor	6. Adjustable suction arm	11. Balanced instrument arms
2. Cup fill tube	7. Foot control	12. Control panel
3. Bowl rinse tube	8. Tray	13. OP delivery arm 520 mm
4. Bowl	9. Instrument console	14. Operating light
5. Adjustable suction arm with Flexy-holder	10. Patient chair	15. ProX X-ray unit

This type of dental unit configuration has the option of a shorter OP delivery arm (340 mm). The shortened console arm (1) allows easy access to the

patient chair if the instrument console is placed on the assistant's side during patient change. The shortened console arm is especially well suited for dental units without bowl.

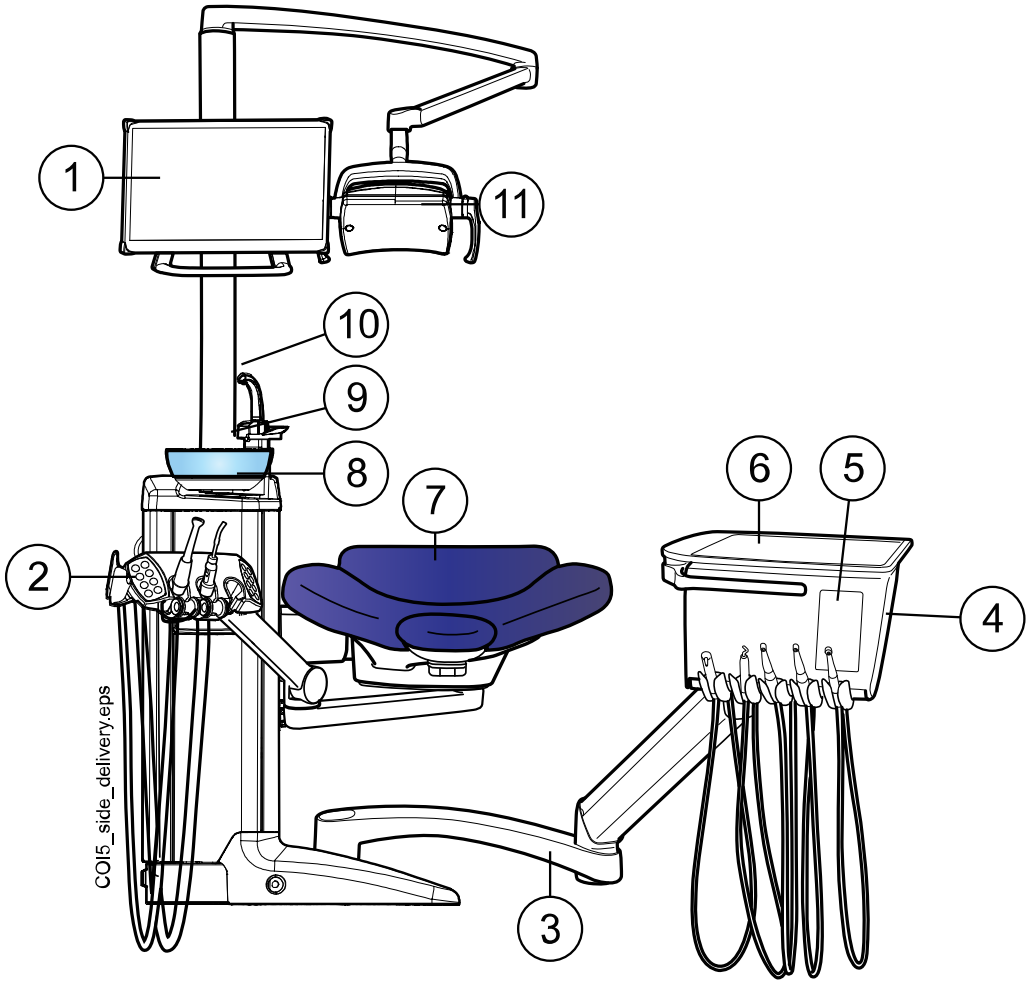


3.2 Over-the-patient delivery with hanging-tube instruments



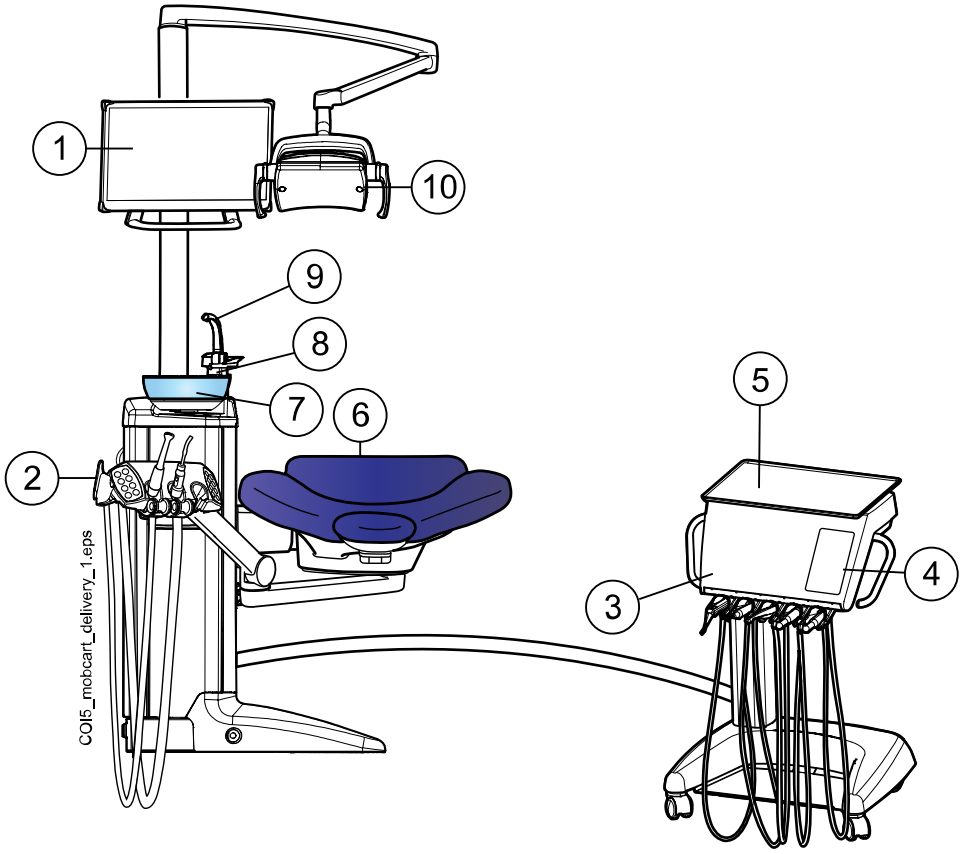
1. Monitor	7. Control panel
2. Cup fill tube	8. Instrument console with hanging-tube (HT) instruments
3. Bowl rinse tube	9. Tray
4. Bowl	10. OP delivery arm
5. Chair-mounted left-right suction arm with Flexy-holder	11. Operating light
6. Patient chair	

3.3 Side delivery with hanging-tube instruments



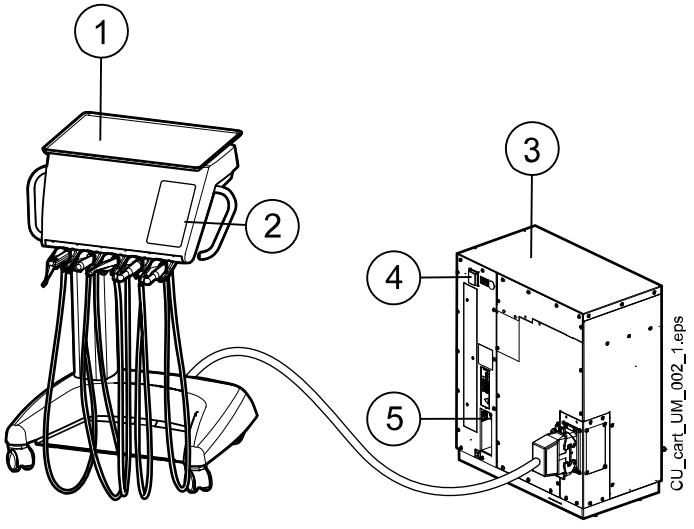
1. Monitor	7. Patient chair
2. Chair-mounted left-right suction arm with Flexy-holder	8. Bowl
3. Side delivery arm	9. Bowl rinse tube
4. Instrument console with hanging-tube (HT) instruments	10. Cup fill tube
5. Control panel	11. Operating light
6. Tray	

3.4 Mobile cart with hanging tube instruments



1. Monitor	6. Patient chair
2. Chair-mounted left-right suction arm with Flexy-holder	7. Bowl
3. Instrument console with hanging-tube (HT) instruments	8. Bowl rinse tube
4. Control panel	9. Cup fill tube
5. Tray	10. Operating light

3.5 Independent cart with hanging-tube instruments



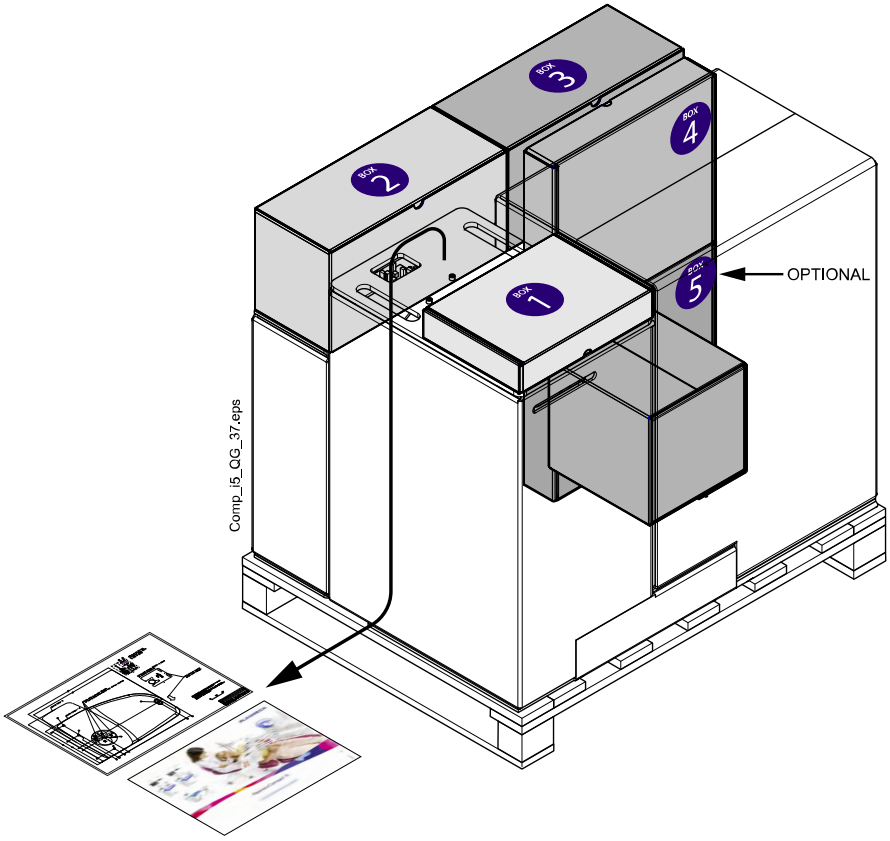
1. Tray	3. Cart box
2. Control panel	4. On/off switch
	5. Connections for USB memory stick, Ethernet cable and foot control

4 Unpacking dental unit

The contents of the delivery package depend on the specific configuration and accessories ordered for the unit. For more information on the basic package contents, see section "Contents of packing" on page 1.

For more information on pre-installation setup, see section "Operations prior to cuspidor attachment" on page 24.

Unpack and place the different unit components to one side for ease of access and installation. The following figure shows the different packaged components packed around the cuspidor.



1 Installation accessories
2 Cuspidor accessories
3 Foot control and suction tubes
4 Trays
5 Sterile accessories (optional)

Installation quick guide and installation template also included.

NOTE

The bowl delivery box (also pictured in the figure above) is not delivered with a numbered sticker. If a bowl is not ordered with the dental unit, this box is delivered empty.

Open the accessories box to check the installation kit picture and contents. The accessories box contains a printed list of the contents.

The cuspidor is delivered with plywood packaging plates bolted to its top and underside, for transport and positioning purposes.

5 Installing cuspidor

5.1 Operations prior to cuspidor attachment

WARNING

The dental unit must be secured to the floor with the screws prior to operation.

The dental unit delivery includes the following aids to installation.

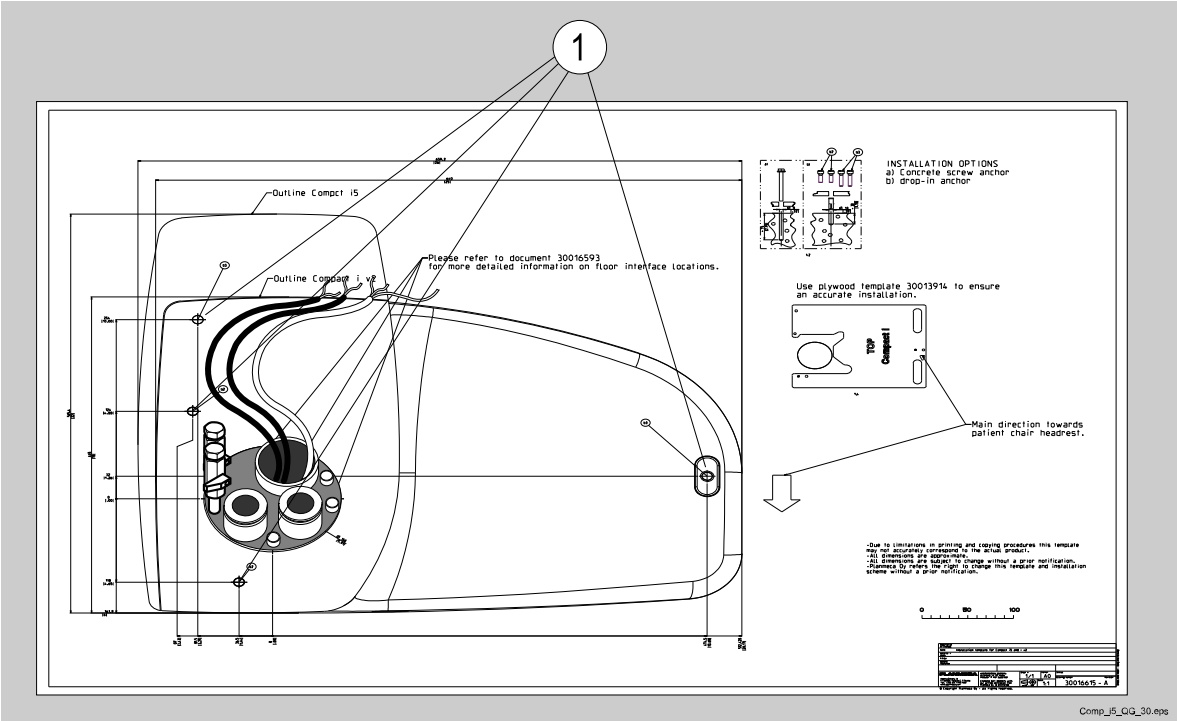
Installation template

NOTE

Before using the installation template, check the scaling of the template.

Use the installation template to position the cuspidor over the cables, the water/air inlets and the suction/drain tubes that come from the floor. Remove the drawn area of the cables and tubes from the installation template with scissors. Place the template over the cables and tubes.

Mark the drilling positions for all four attaching screws (**1**).

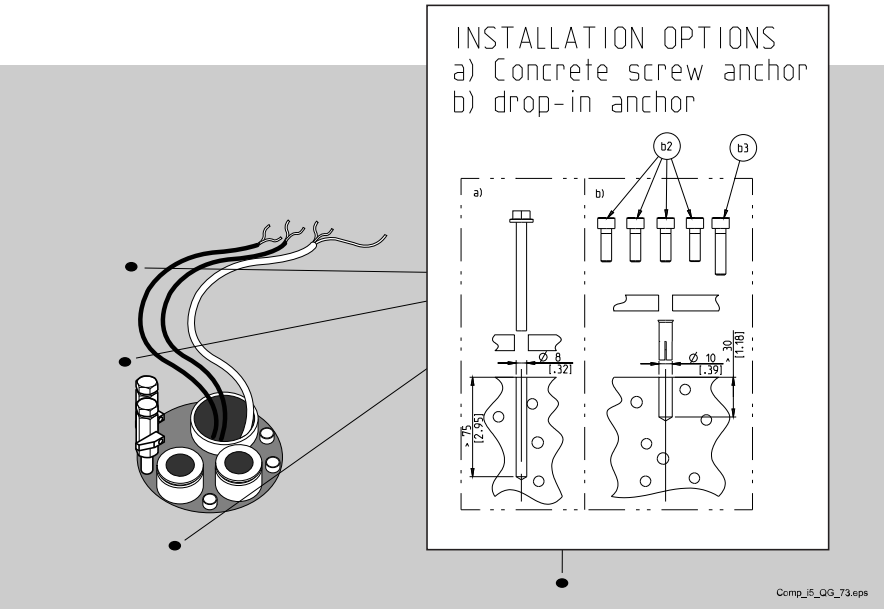


NOTE

If the floor is made of wood, the installation plate must be placed between the floor and the cuspidor, and different screws and holes are required. For more information, see the "Installation plate" section below.

If the floor is made of concrete or stone, there are two possibilities to attach the unit:

1. Concrete screws (option a in picture): Drill ø 8 mm (0.3 in.) holes, 75 mm (3 in.) in depth. Remove dust from the drill holes with a vacuum cleaner or compressed air.
2. Metric screws and expansion anchors (option b in picture): Drill ø 10 mm (0.4 in.) holes, 30 mm (1.2 in.) in depth. Remove dust from the holes with a vacuum cleaner or compressed air. Place an expansion anchor in each hole and hammer the wedge into the hole with a ø 6 mm (0.24 in.) drift and hammer.



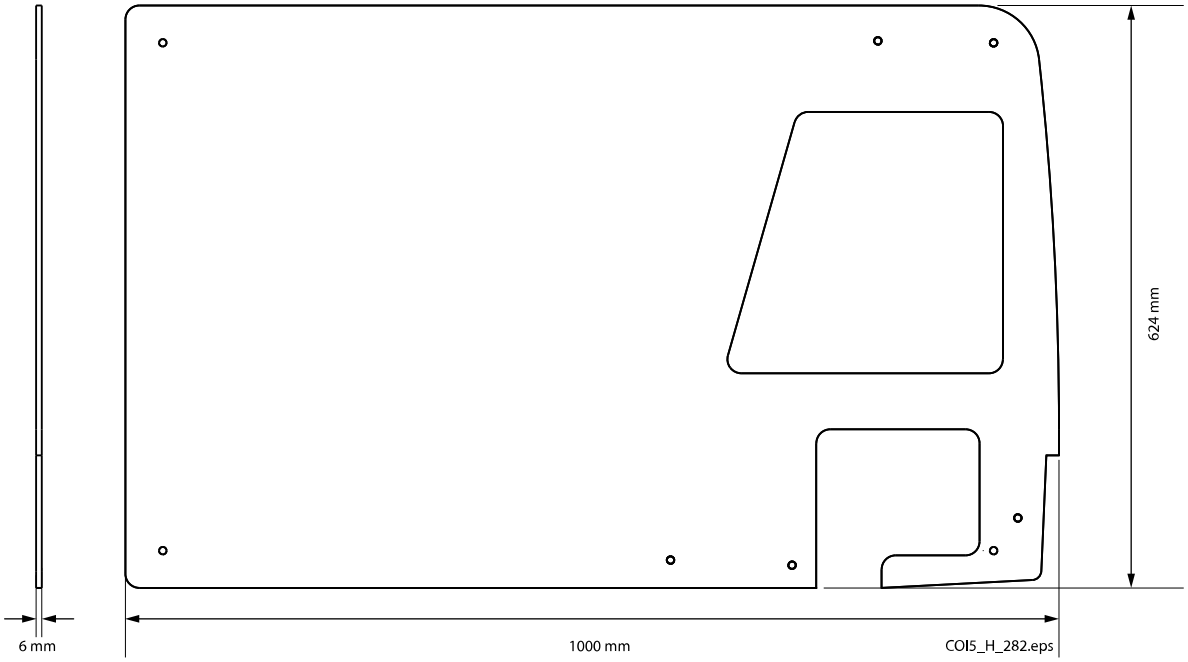
Packaging plates

The dental unit is delivered with plywood packaging plates attached to the top and bottom of the cuspidor for transportation and placement, as well as for use as a quick reference for installation of subsequent units if more than one was ordered.

Installation plate

NOTE

With a concrete floor, the unit can be installed without the installation plate.



With any floor types **other** than concrete, for example wood floors, the installation plate (02822001) must be used **before** the cuspidor is moved into place. Appropriate attachment hardware must also be used, and the floor's pull out strength must be verified carefully. For more information, see section "Floor strength" on page 4.

1. Align the installation plate perpendicular to the intended cuspidor placement, with the installation plate access holes around the service tubes as shown in the figures below.
2. Mark the drilling positions for the installation plate attaching screws.
3. Mark the remaining positions for the screws attaching the cuspidor to the installation plate. The screws extend through the installation plate a short distance and require holes to be drilled in the floor.

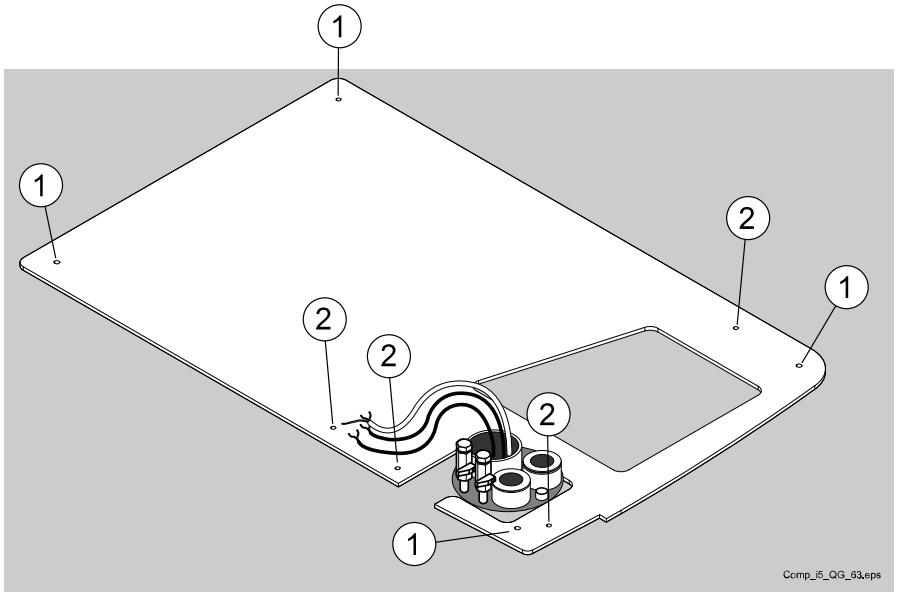
   NOTE

   The figure below shows the holes in the installation plate for illustrative purposes. Move the installation plate aside to drill the holes.

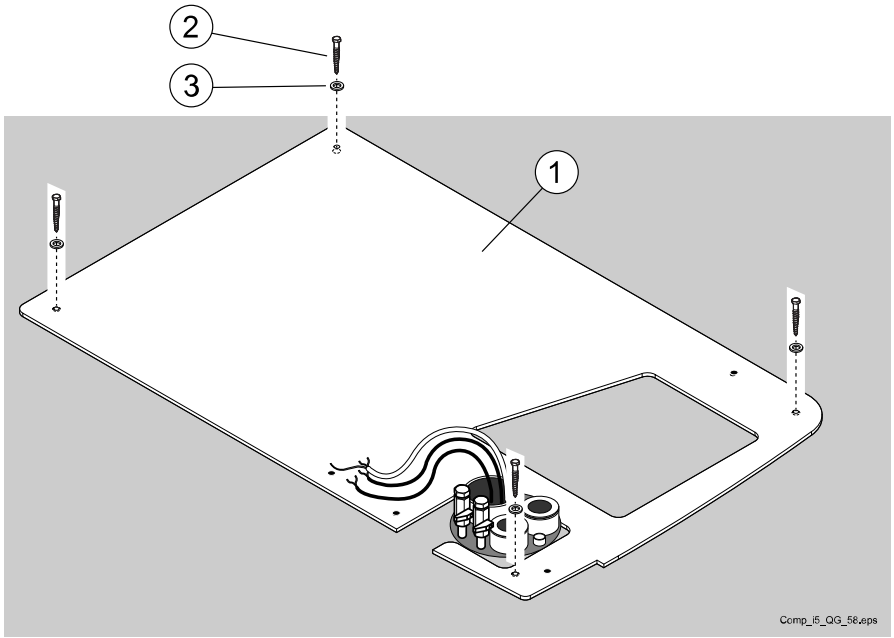
4. In the corner positions (**1** in the figure below), drill ø 5 mm (0.2 in.) holes, 55 … 60 mm (2.2 in.) in depth, for the installation plate attaching screws.

5. In the cuspidor attachment positions (**2**), drill ø 10 mm (0.4 in.) holes, 10 mm (0.4 in.) in depth, for the cuspidor attaching screws.

   Put the installation plate back in place.



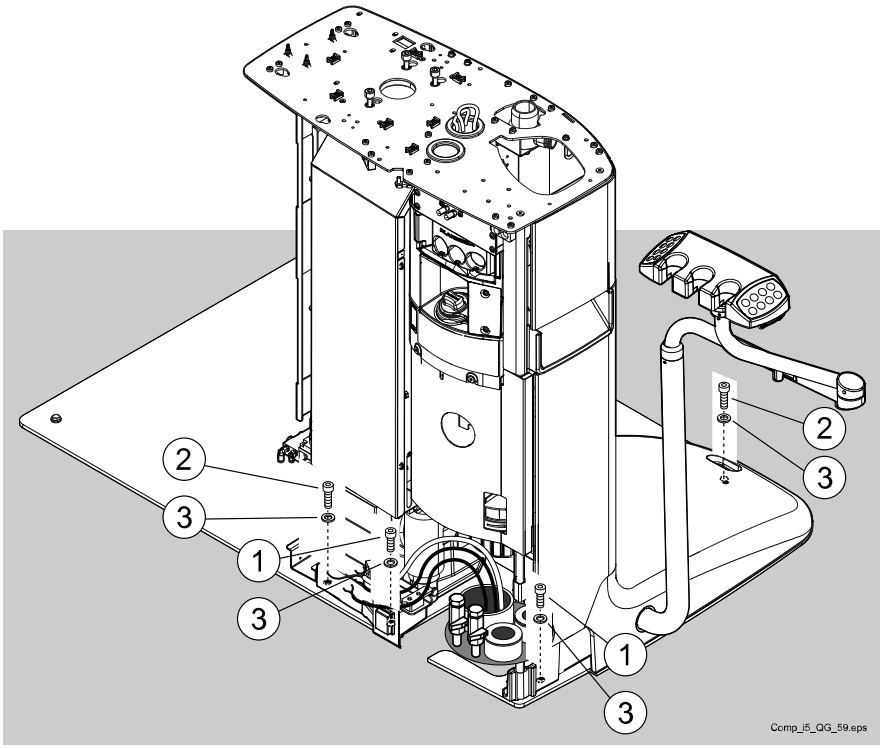
6. Attach the installation plate (**1**) to the floor with four DIN571 8x80 8.8 FeZn screws (**2**) and washers (**3**) according to local regulations and requirements based on the floor material. Place the screws through the four corner holes.



7. The cuspidor is attached to the installation plate by screws through the four intersecting holes in the cuspidor base and the installation plate.

NOTE

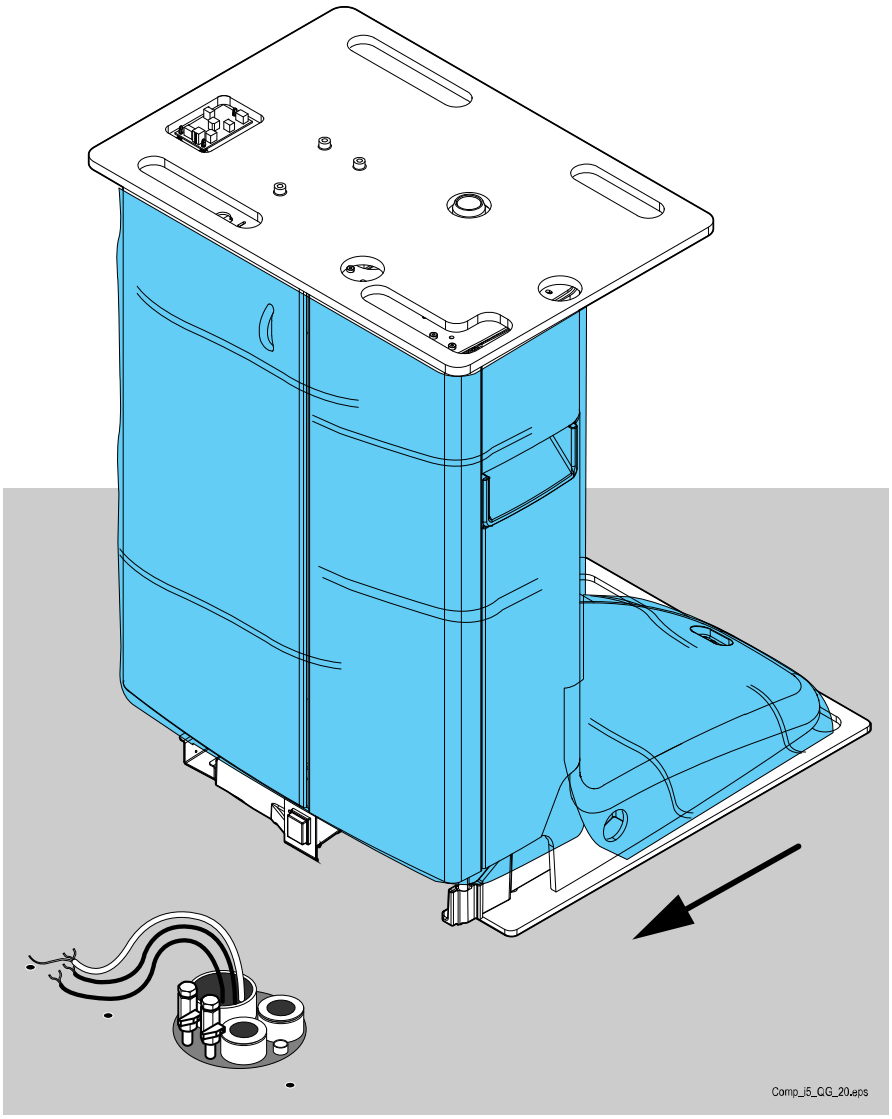
Before attaching the cuspidor as shown in the figure below, you need to move it into position and remove the plywood packaging plates as instructed in section "Attaching cuspidor to floor and connecting service tubes" on page 29.



1 DIN 912 8x25 screws
2 DIN 912 8x35 screws
3 Washers

Preparing installation

Once the floor is prepared, move the cuspidor close to installation position before removing the final packaging.



NOTE

If you are going to install an adjustable suction arm, install the arm before connecting the cuspidor to the floor while the cuspidor is lying down on the edges of its wooden support plates. For more information, see section "Installing adjustable suction arm" on page 162.

5.2 Attaching cuspidor to floor and connecting service tubes

WARNING

Never use the cuspidor door or any other parts not mentioned below to lift the cuspidor into position.

WARNING

Never tilt the cuspidor to the mains power switch side.

Tilt the cuspidor sideways to get a good hold from the cuspidor base. Holding the cuspidor by its plywood packaging plates, move the cuspidor to its installation point.

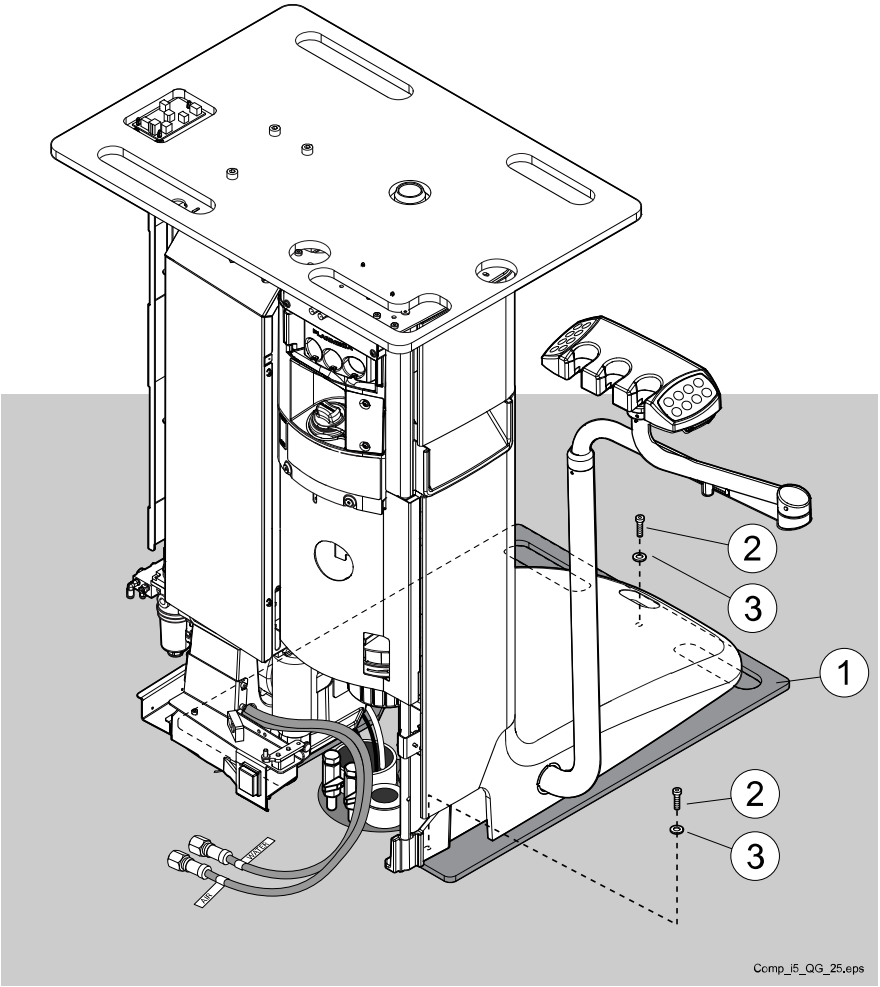
Moving cuspidor to installation position

NOTE

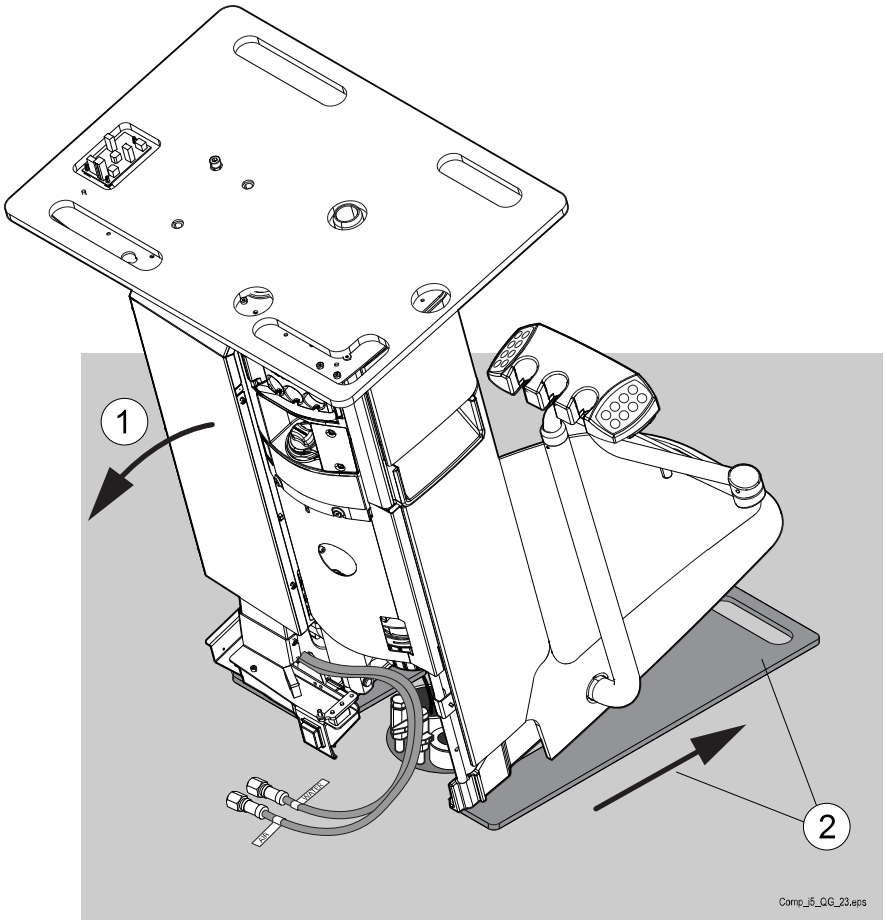
For more information about preparing the floor for cuspidor installation, see sections "Floor strength" on page 4 and "Operations prior to cuspidor attachment" on page 24.

Move the cuspidor into installation position, using the bottom packaging plate as a lifting point and position reference (**1**).

Unscrew the screws (**2**) and remove the washers (**3**) that connect the cuspidor base to the bottom packaging plate.



Tilt the cuspidor (**1**) and remove the plywood packaging plate from under the unit (**2**).



Remove the plastic wrapping from the unit.

Removing and replacing cuspidor doors

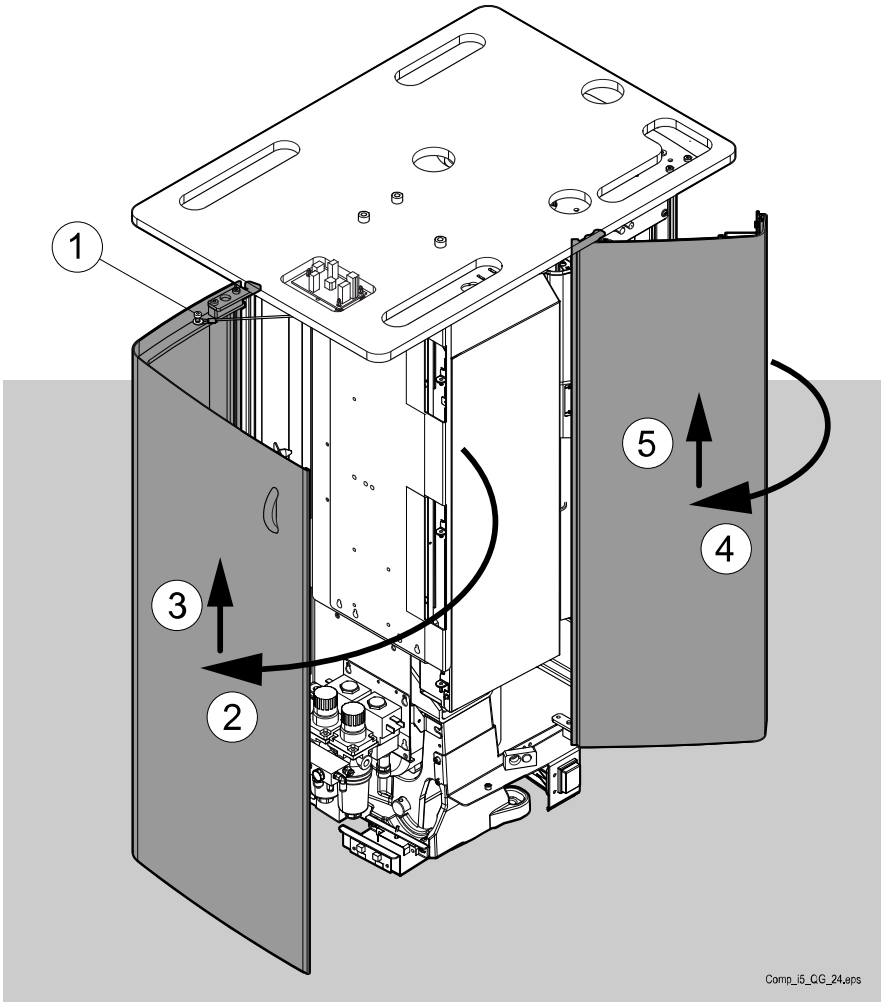
NOTE

Removing the cuspidor doors is optional to better enable the following installation procedures.

NOTE

You can remove the dental unit doors before or after removing the top packaging plate.

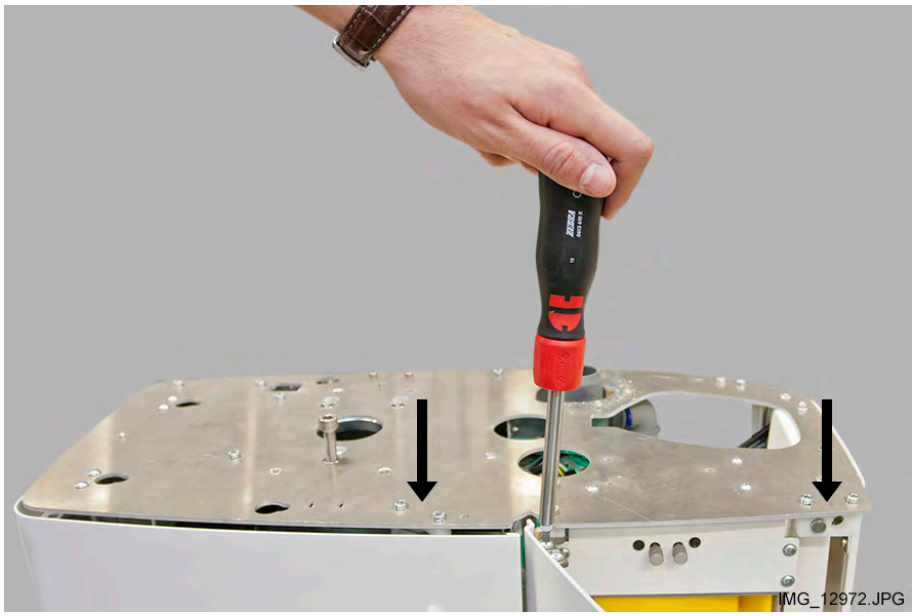
1. Open the cuspidor door (**2**) and unscrew the cuspidor door limiting cable from the top edge of the door (**1**).
2. Angle the door and lift it off its securing pins (**3**).
3. Open the suction door (**4**) and remove it by lifting it from its securing pins (**5**).



Replace the cuspidor doors once the initial installation setup is complete, or leave them to one side until the cabling is installed in order to optimise access to the cuspidor interior.

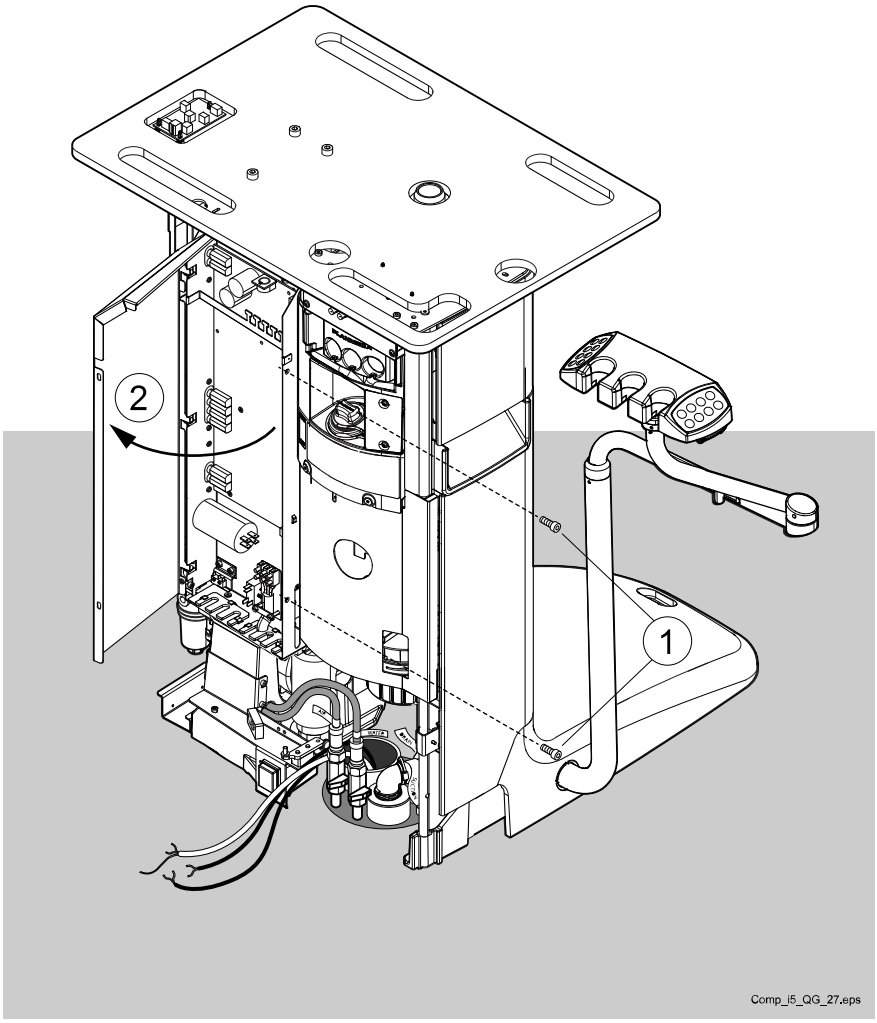
NOTE

When replacing the doors, if necessary, adjust the door-fastening magnets to ensure the doors close flush to one another.



Opening electronics control box

Unscrew the two screws holding the electronics control box closed (**1**) and open the box (**2**).



Attaching cuspidor base to floor and service tubes

Attach the cuspidor base to the floor with the screws and washers provided in the installation accessories box.

There are two attachment options:

a) Concrete screws

1 & 2 DIN 571 8x80 Zn screws, 4 pieces

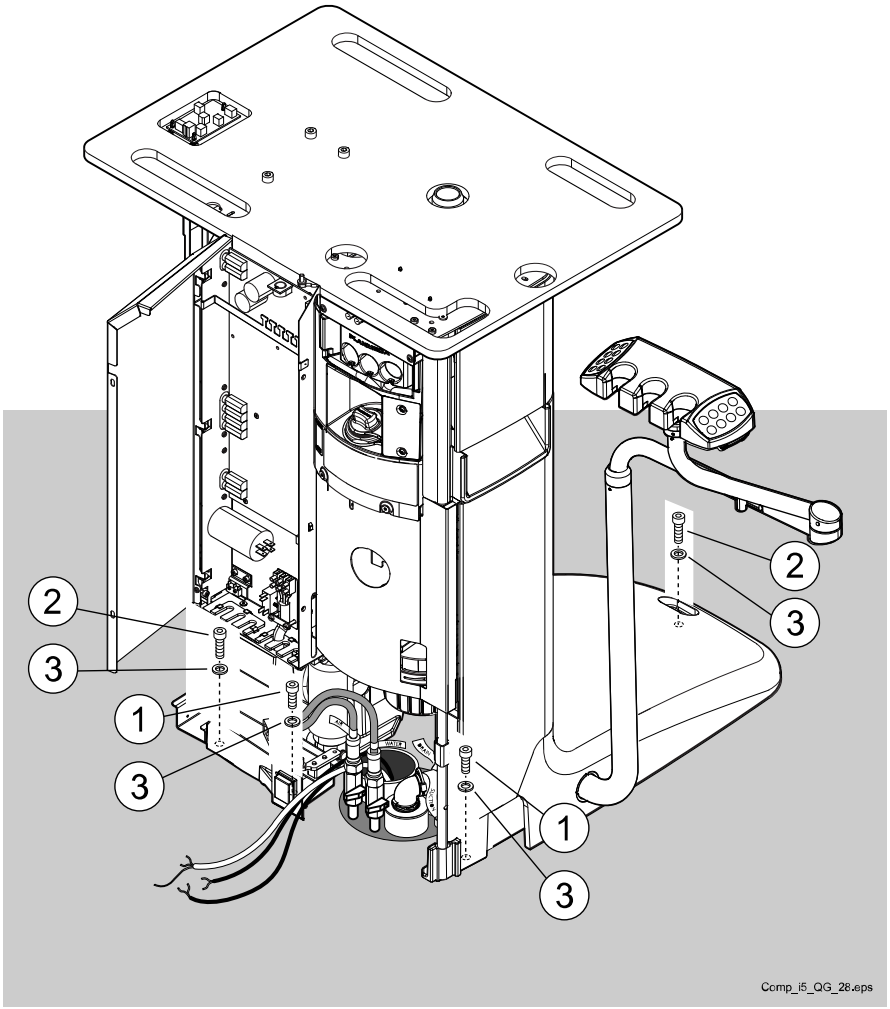
3 Washers, 4 pieces

b) Metric screws

1 DIN 912 8x25 screws, 2 pieces

2 DIN 912 8x35 screws, 2 pieces

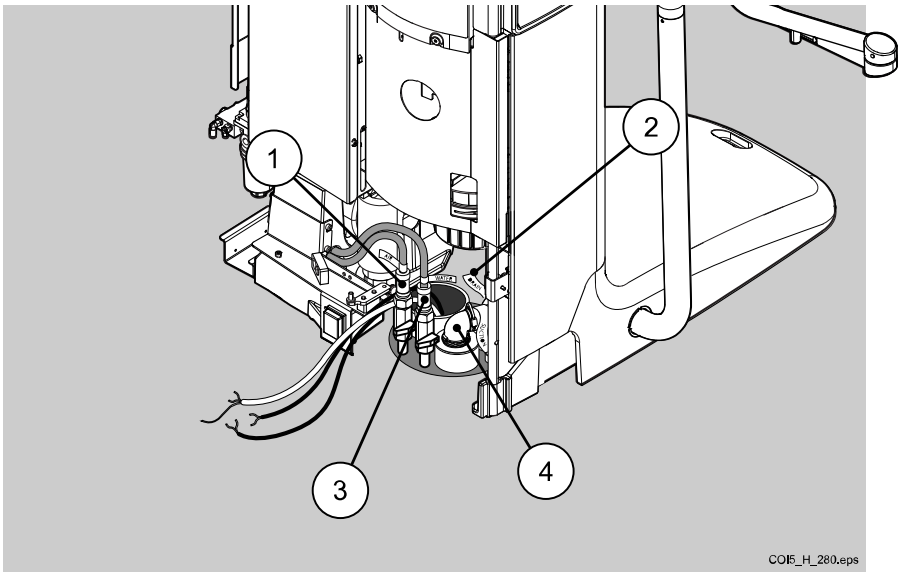
3 Washers, 4 pieces



When connecting the service tubes observe local and national plumbing regulations as well as the instructions given in section "Pre-installation requirements" on page 4.

Before connecting the air and water tubes make sure that you have correctly identified the floor tubes. Even when they are already labelled it is good to double-check them.

The following figure shows the service tubes.



1 Air supply
2 Drain
3 Water supply
4 Suction

The main water and air valves are located in the lower part of the cuspidor on the left-hand edge, and are attached to the pressure regulators. The right main valve controls air to the unit and the left one controls water (seen from the side of the mains power switch).

The magnetic valve/pressure regulator assembly can be removed from the cuspidor. Loosen the two screws that hold the assembly in cuspidor support plate and lift the assembly from its position. Removing the assembly gives extra space for connecting the service tubes.

NOTE

If the dental unit is equipped with Waterline Cleaning System (WCS) the water and air inlet tubes are attached to the WCS adapter, not to the magnetic valve/pressure regulator assembly.

Connect the suction and drain tubes to the corresponding tubes from the floor.

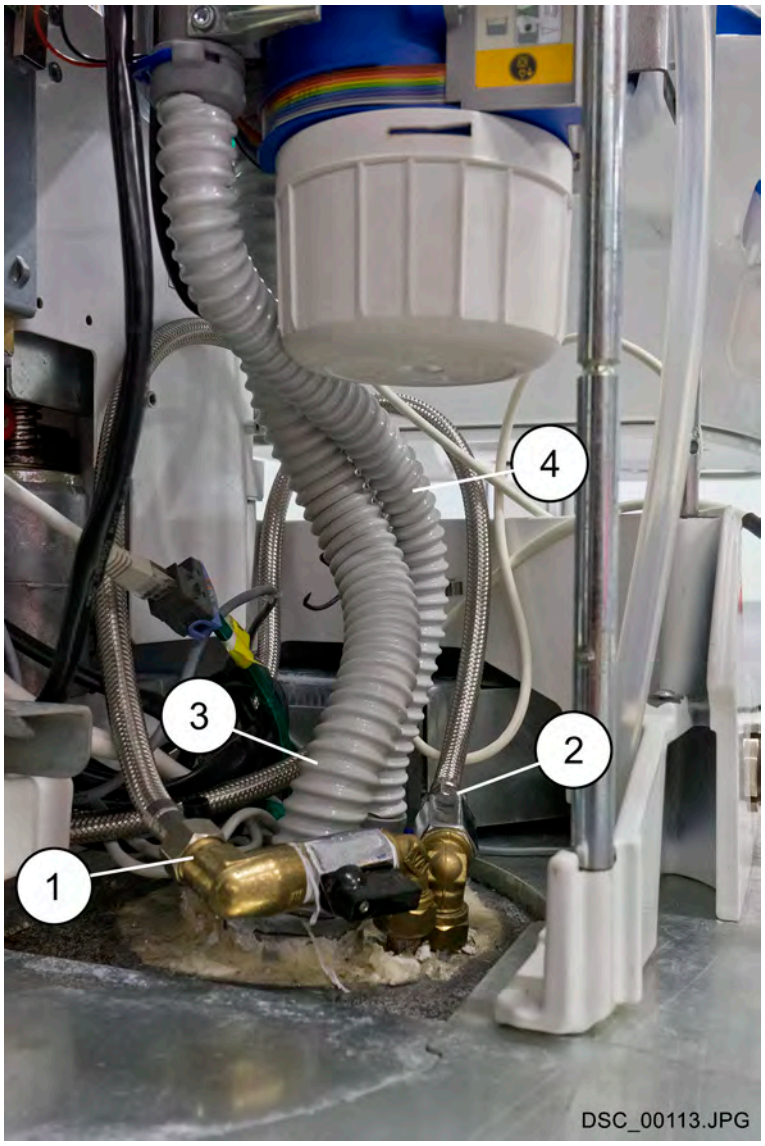
Shorten the tubes if necessary.

NOTE

There is no need to make an additional drain trap to the drain tube.

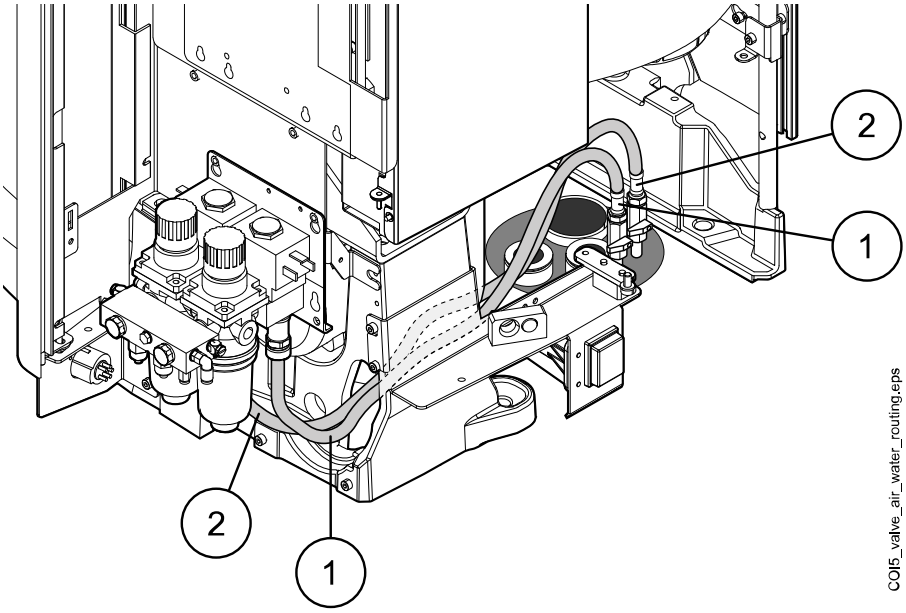
NOTE

Connect the drain and suction tubes in a way that the connections do not cause any pull-out force to the ends of the tubes.



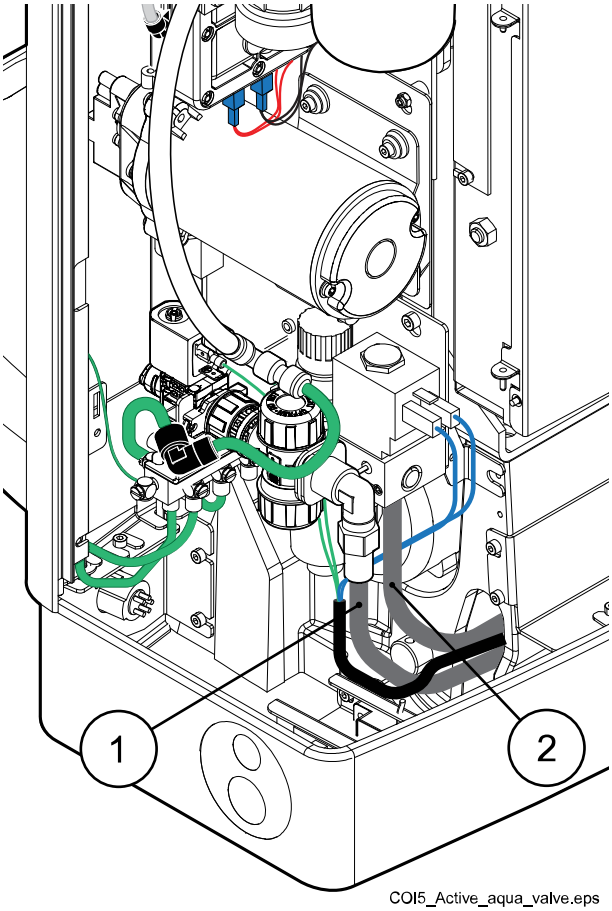
1 Air supply tube
2 Water supply tube
3 Suction tube
4 Drain tube

Connect the air (**1**) and water (**2**) tubes as shown in the figure below. Note the routing of the tubes through the cuspidor base.



Dental units with Planmeca ActiveAqua

Connect the water (**1**) and air (**2**) tubes as shown in the figure below.

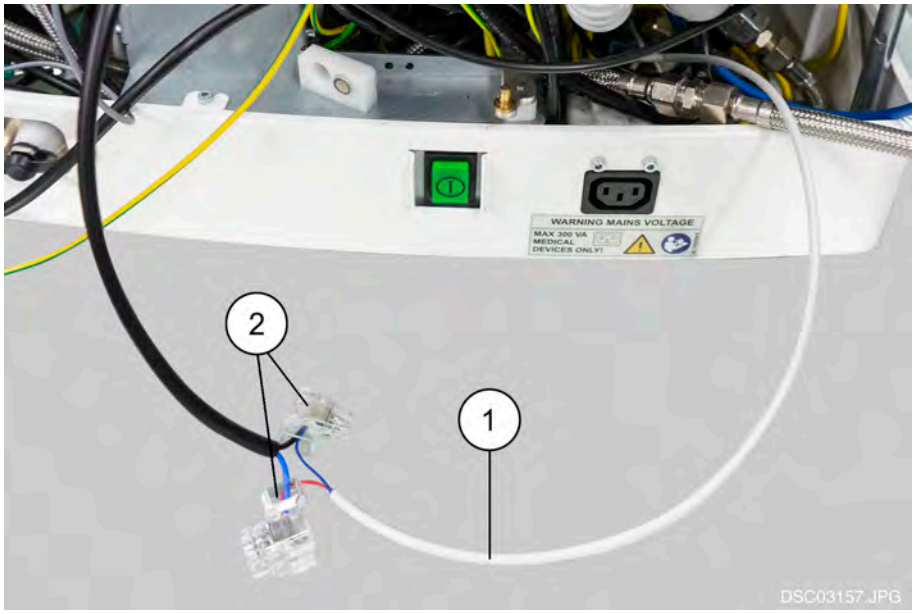


Dental units with Centralised suction tube cleaning system

In dental units with a centralised suction tube cleaning system (CSTCS) the control signal cable and suction disinfectant feeding tube come from the

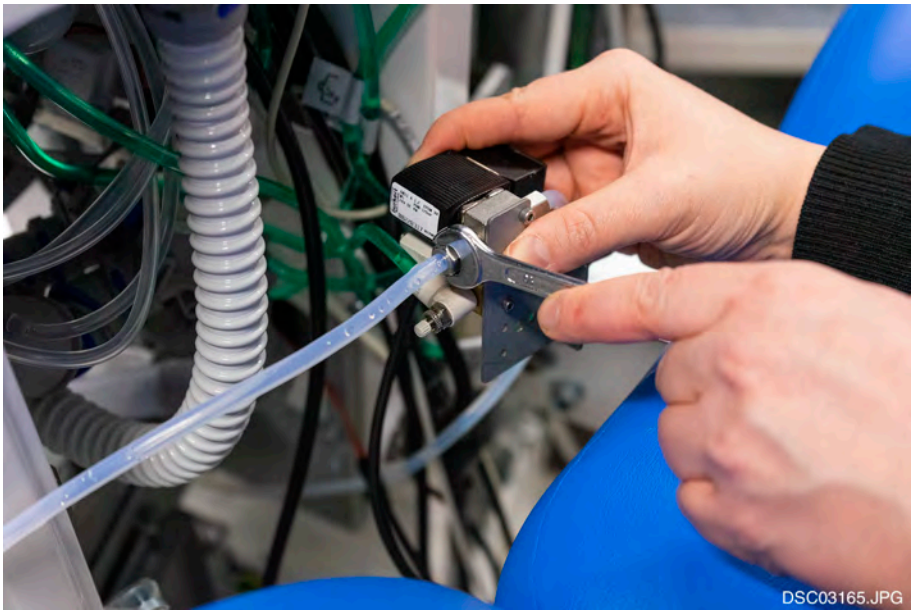
centralised suction system to the dental unit through the service pipe in the floor.

Connect the wires of the control signal cable (1) to the cable for centralised suction tube cleaning (2) that is connected to the main PCB.



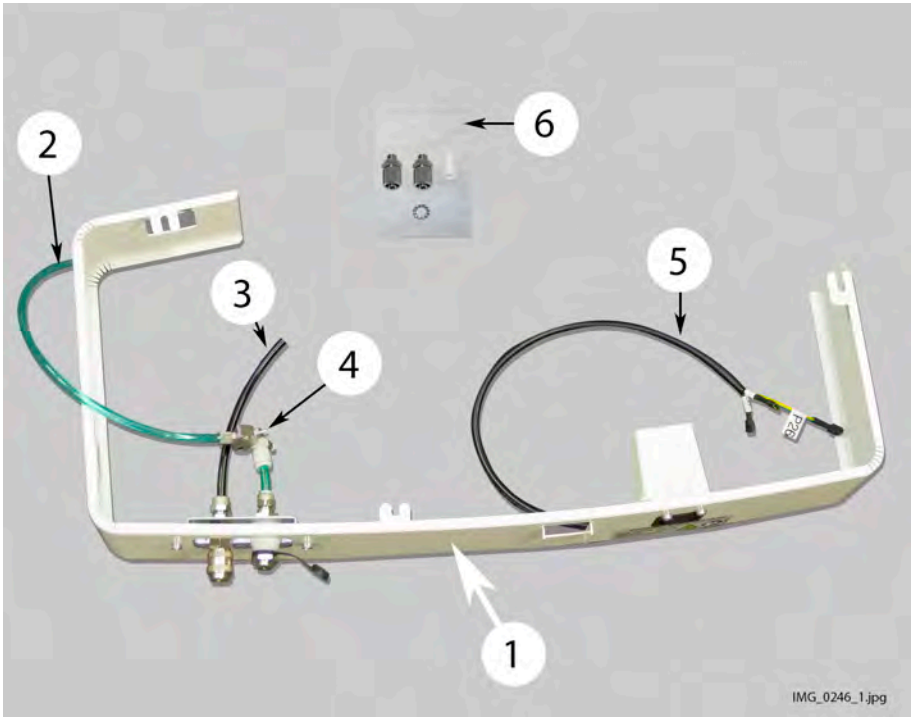
Detach the tube clamp from the disinfectant inlet nipple on the CSTCS dosing valve using a 10 mm spanner. Put the tube clamp on the suction disinfectant feeding tube and attach the tube to the disinfectant inlet nipple.

Secure the suction disinfectant feeding tube to the disinfectant inlet nipple by fastening the tube clamp.



Attaching rear frame

The rear frame can optionally be delivered as an assembly with air and water quick-connectors and multiple socket outlet shown in the figure below.

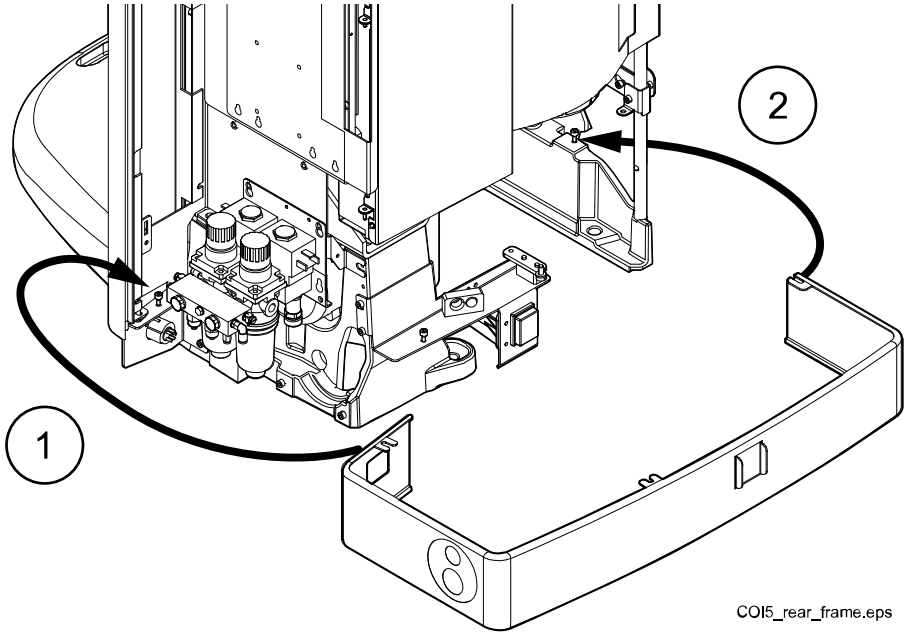


1 Rear frame
2 **WATER** to magnetic valve / pressure regulator assembly
3 **AIR** to magnetic valve / pressure regulator assembly
4 **WATER** to OP delivery arm / instrument console
5 Socket outlet cable
6 Accessory bag containing star washer for grounding point

NOTE

The following instructions apply to both the standard rear frame delivery and the optional rear frame assembly, unless specified.

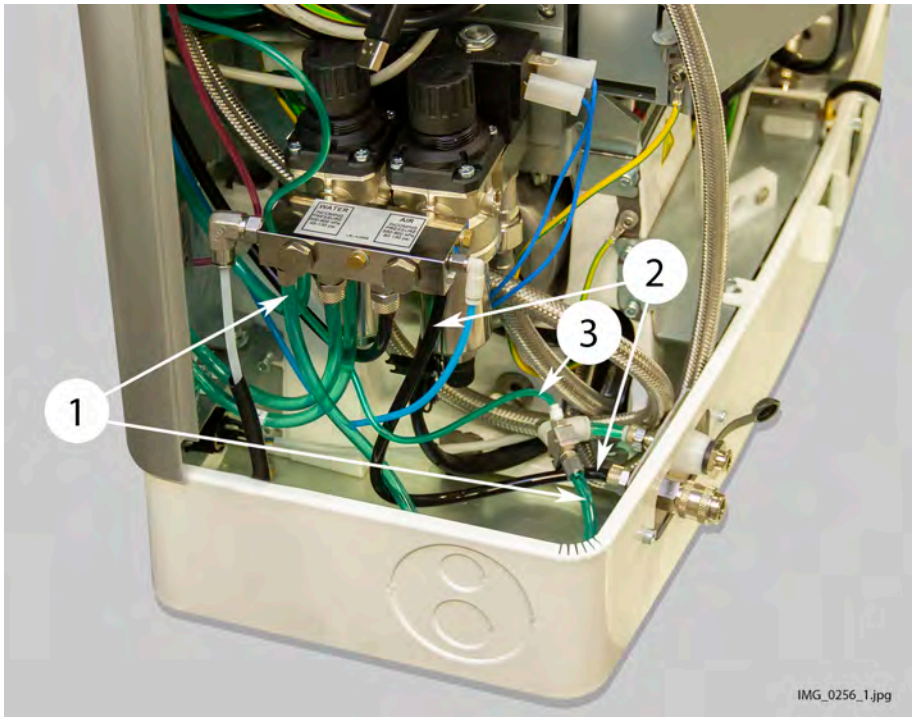
Attach the rear frame to the cuspidor base, fitting it to the front corner and around the power switch first (**1**) and then angling into position (**2**).



For the optional assembly with air and water quick-connectors and multiple socket outlet:

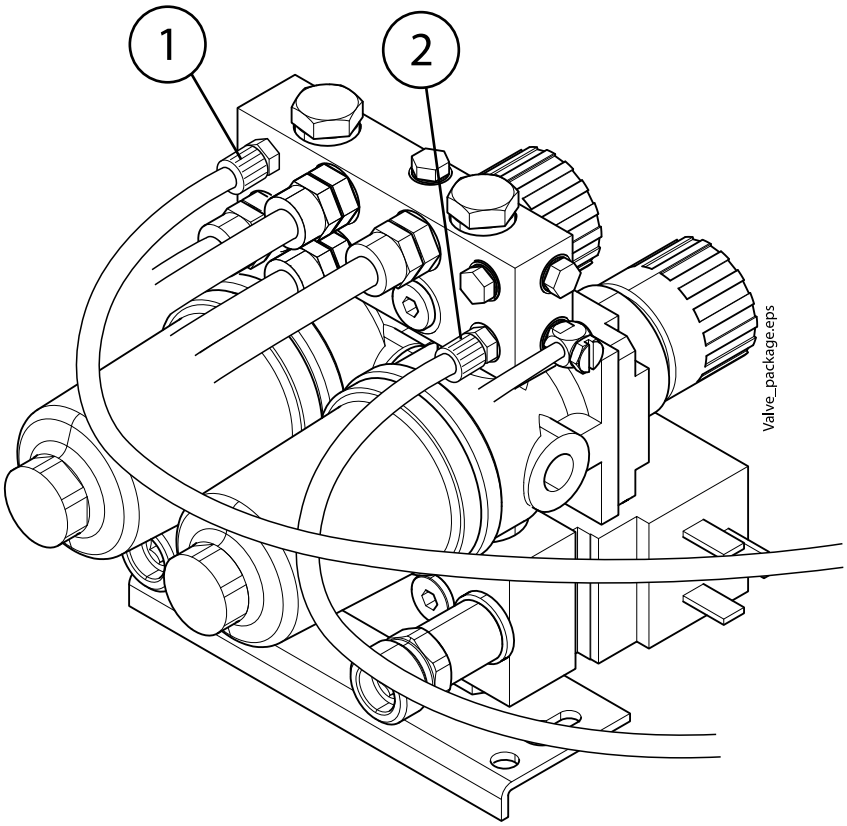
Connect the water tube (**1**) and the air tube (**2**) as shown in the following figure.

Once the OP delivery arm is installed, connect the OP delivery arm water tube (**3**) as shown in the following figure. For more information, see section "Installing OP delivery arm" on page 73.



For the optional assembly with air and water quick-connectors and multiple socket outlet:

The following figure shows the water tube (**1**) and air tube (**2**) attachment points on the magnetic valve / pressure regulator assembly. Connect the water and air tubes to the outlet nipples.



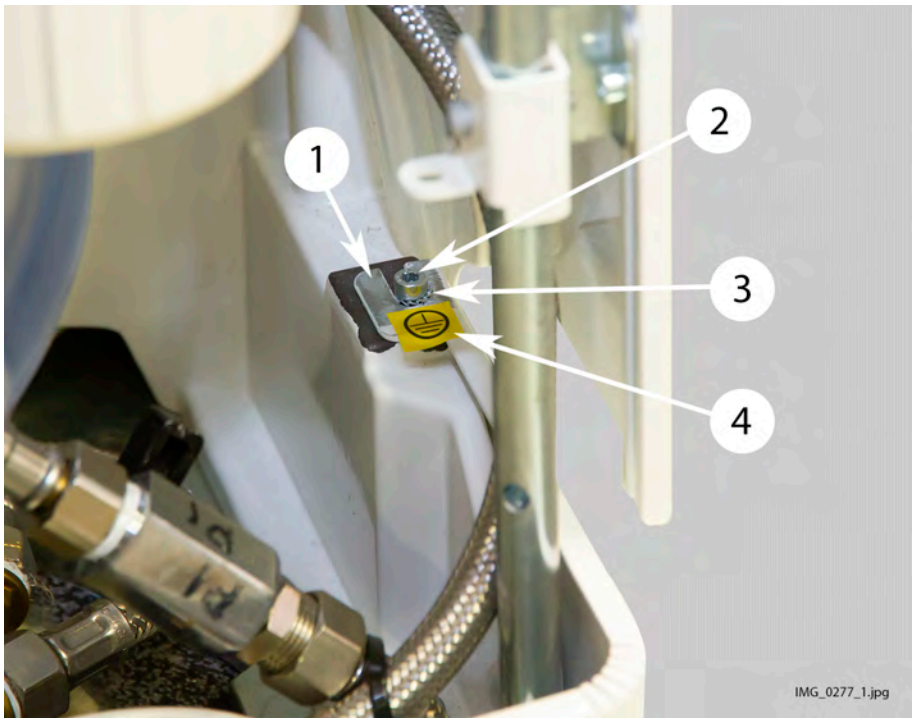
Attach the rear frame to the cuspidor with the three screws as shown in the figure below (black arrows).

Note the grounding point (black arrow on the right in the figure above). For more information, see the following step.

Scrape away the paint from the rear frame as shown in the figure below so that the rear frame can be properly grounded (**1**).

Attach with screw (**2**) and star washer (**3**).

Attach a grounding label (**4**).

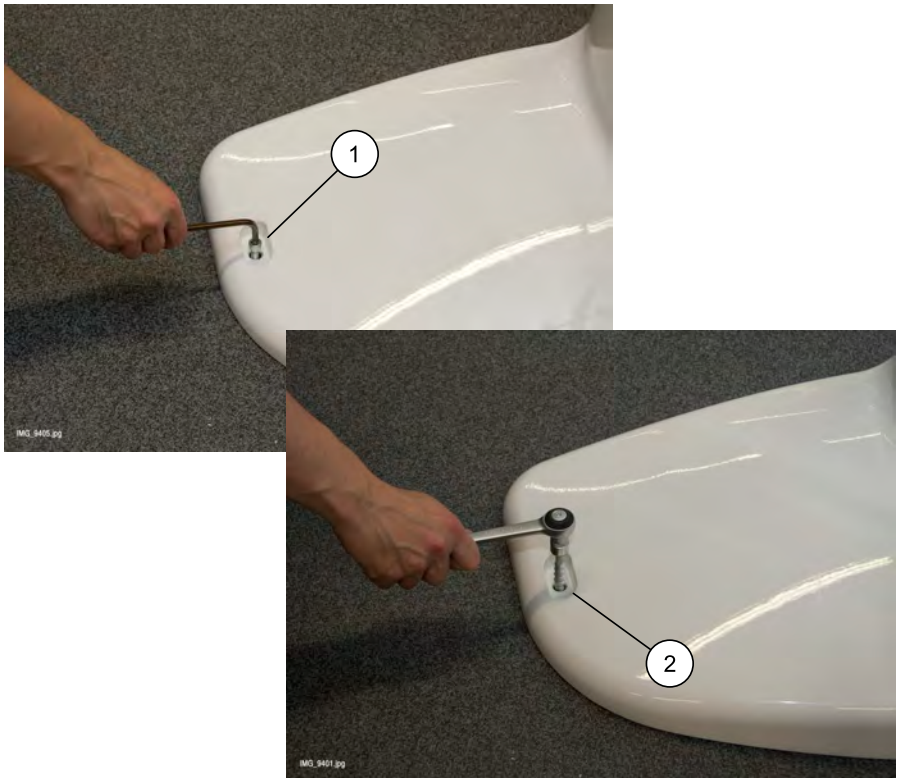


Loosen the water leakage sensor thumb wheel and lower it to the floor level. Tighten the thumb wheel.

NOTE

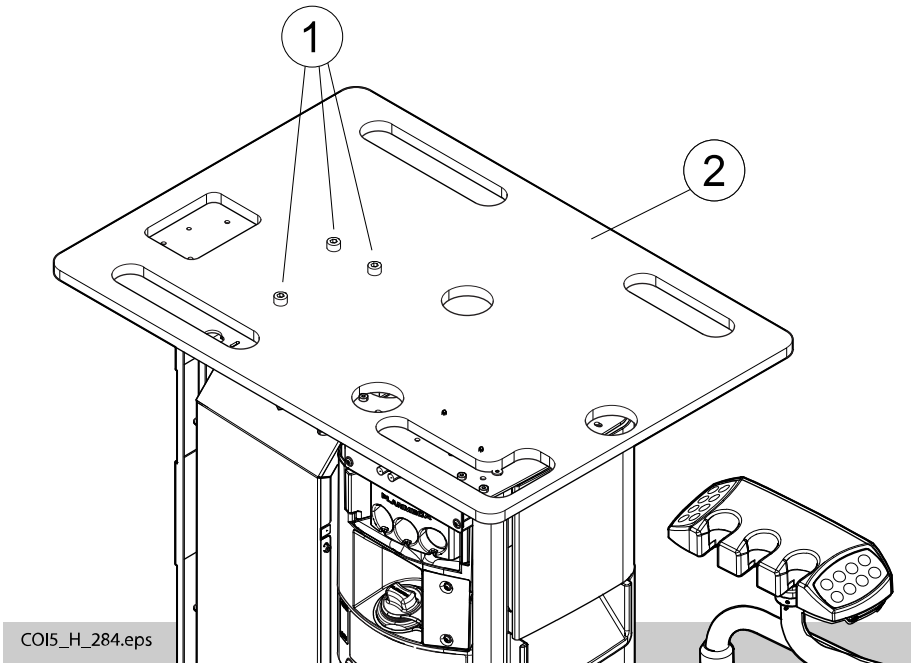
If you are going to install an adjustable suction arm to the unit, it is recommended to attach it before removing the plywood packaging plates and attaching the unit to the floor, refer to section "Installing adjustable suction arm" on page 162.

Secure the cuspidor to the floor with the four screws and washers. Place the base cover plug over the attachment hole on the cuspidor base.



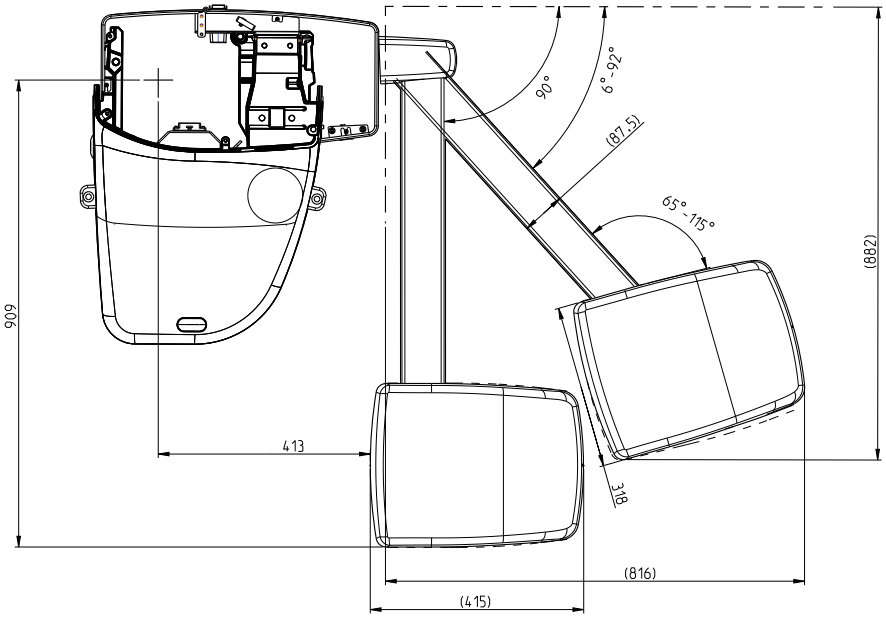
1. M8 x 35 DIN 912 screw	2. Concrete screw anchor 8 x 80

Remove the three screws (**1**) and lift off the top packaging plate (**2**).



5.3 Installing junction box (optional)

If the floor connections are made in accordance with ISO 11144 standard, a junction box must be used. The following figure shows the alternative installation layouts.



NOTE

The delivery does not contain all the tubes, nipples and cables shown in this section.

Use the installation pattern as a template to position the cuspidor, refer to the section "Operations prior to cuspidor attachment" on page 24.

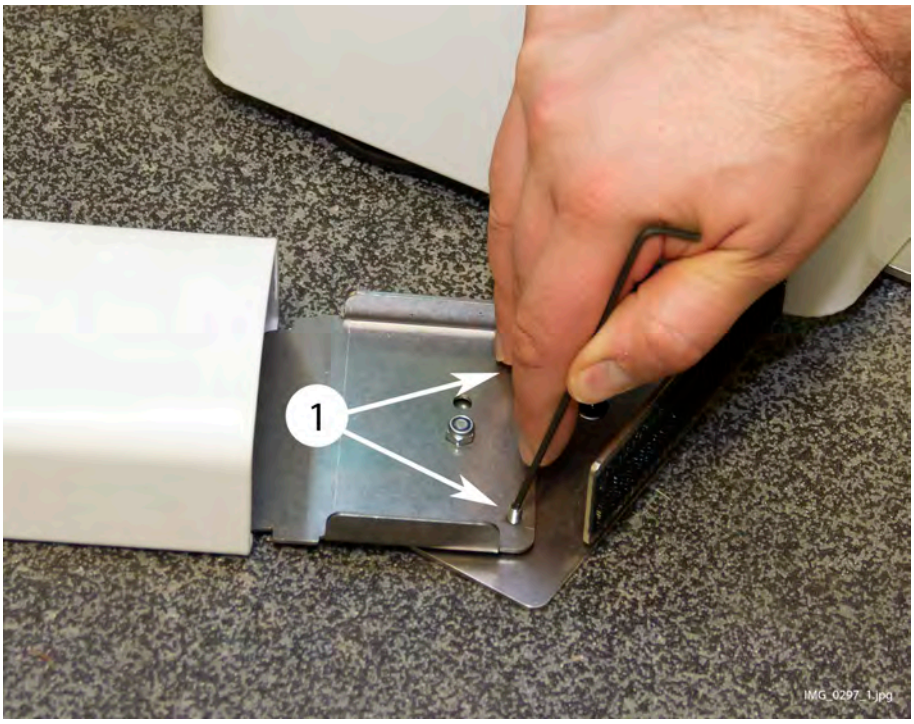
Remove the unit's suction and drain tubes that are attached to the suction system and connect the corresponding tubes that are routed from the cuspidor to the junction box.

Remove the unit's water and air inlet tubes that are attached to the water and air main valves and connect the corresponding tubes that are routed from the cuspidor to the junction box.

Connect the power and control cables that are routed into the unit as described in section "Connecting cables" on page 175.

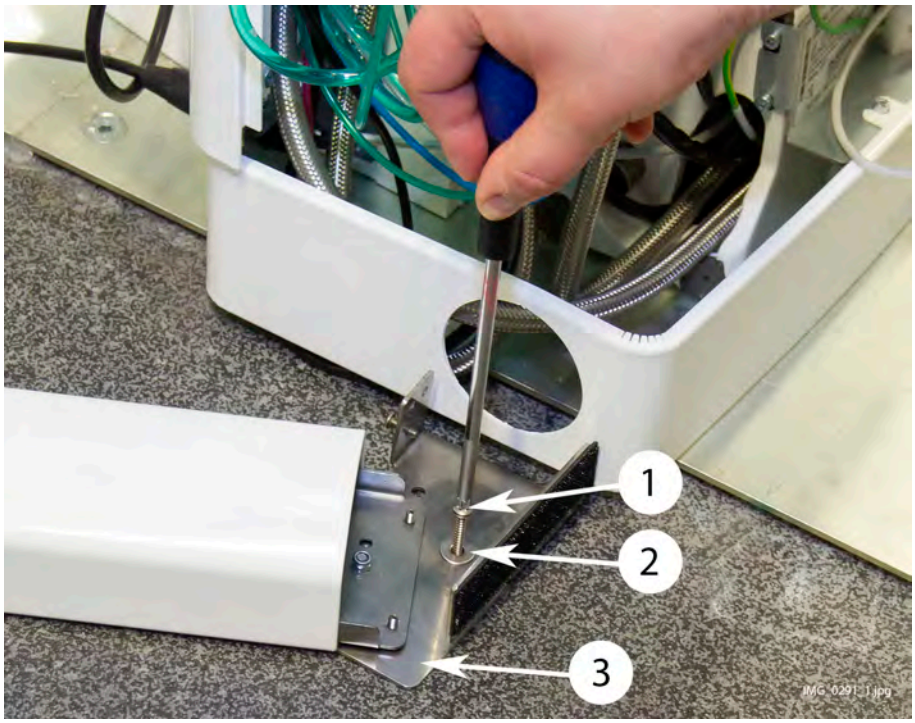
1. Remove the cover plate from the junction box base frame. Position the the junction box over the cables, the water/air inlets and the suction/drain tubes that come from the floor. Make sure that the cuspidor door can be opened.
2. Remove the cuspidor knock-out opening cover with a hammer.

3. Position the corner support assembly and interlocking plate beside the cuspidor knock-out opening. Direct the interconnection plate towards the base frame opening. Tighten two interlocking plate attachment screws (1).



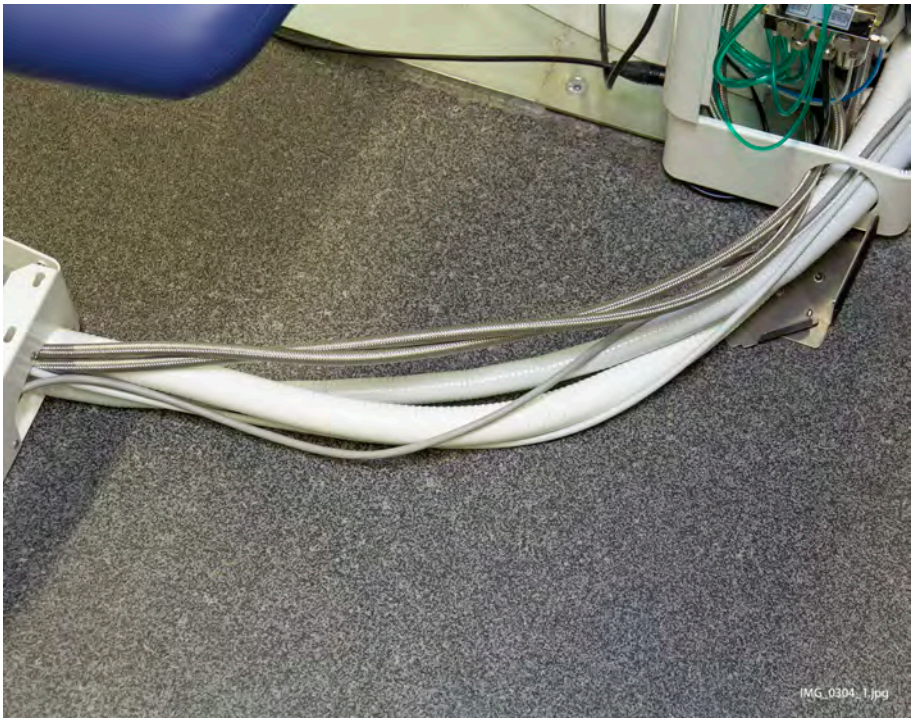
4. If needed, remove a piece from the junction corner cover.

5. Mark the position of the corner support plate attachment screws to the floor. Drill the attachment holes. Clean the dust caused by the drilling from the hole with a vacuum cleaner or with compressed air. Insert the anchors to the floor. Use two 4.2x25 DIN 7981 screws (**1**) and M5 DIN9021washers (**2**) and attach the corner support plate (**3**) to the floor.

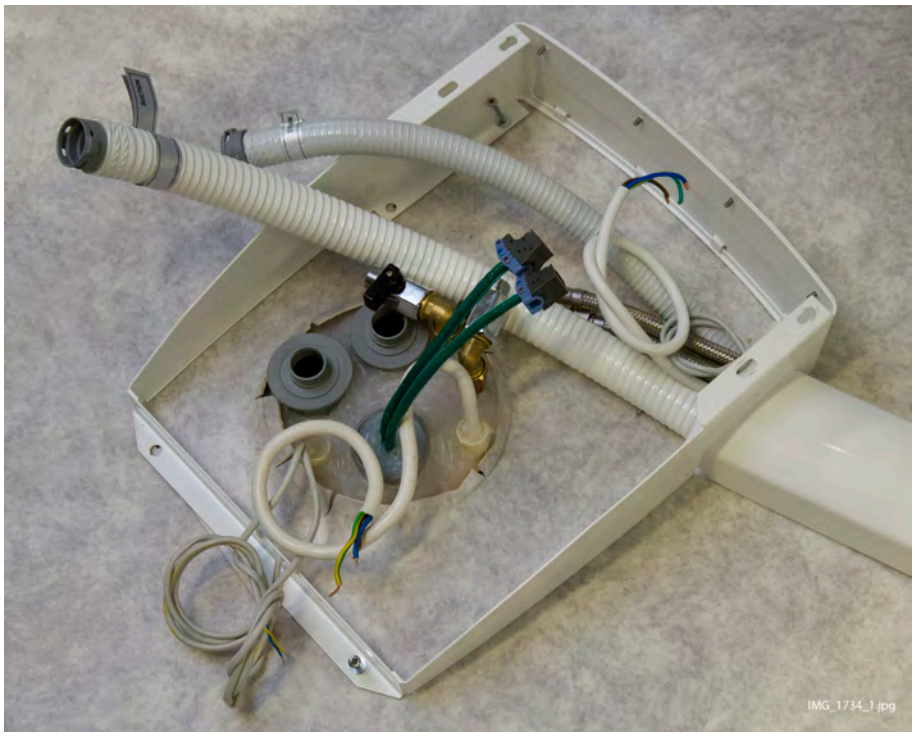


6. Route the cables and tubes out from the cuspidor.
7. Remove the chute from the interlocking plate.
8. Position the junction chute through the base frame opening and check that the chute is long enough. If needed, shorten the chute from the cuspidor end.

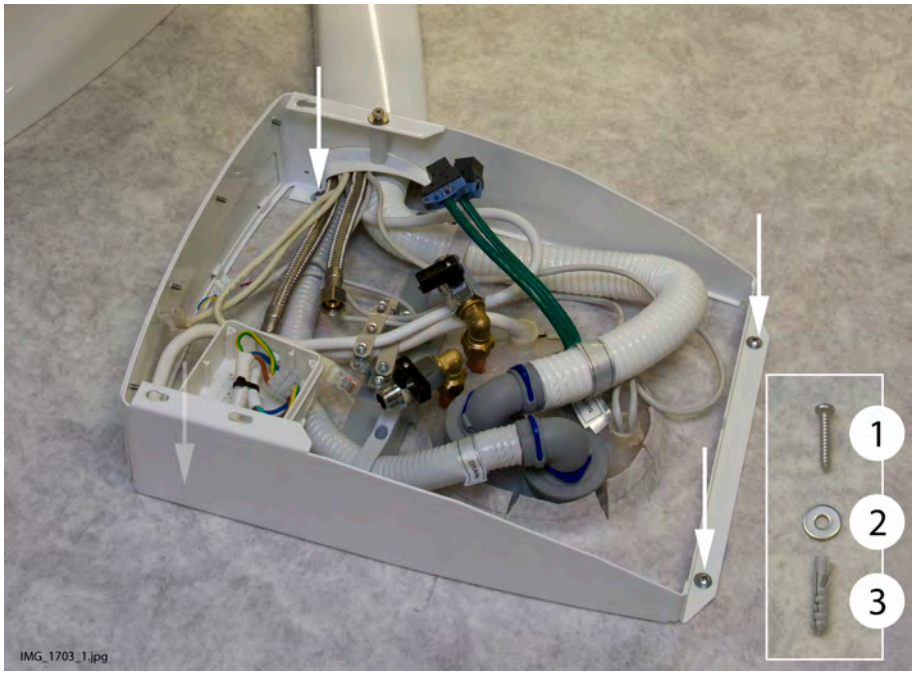
9. Cut the water/air and suction/drain tubes that come from the floor so that they extend 25…50 mm (1…2 in.) from the floor.
10. Connect the water/air angle nipples delivered with the unit to the water and air tubes. Either thread the tubes and screw the angle nipples to the tubes or solder the angle nipples directly to the tubes. If you screw the angle nipples to the tubes wrap sealing tape around the threads.
11. Mark the positions of the base frame attachment screws to the floor. Drill four attachment holes. Clean the dust caused by the drilling from the holes with a vacuum cleaner or with compressed air. Attach the 6x30 anchors to the floor.
12. Route the cables and tubes into the junction box.



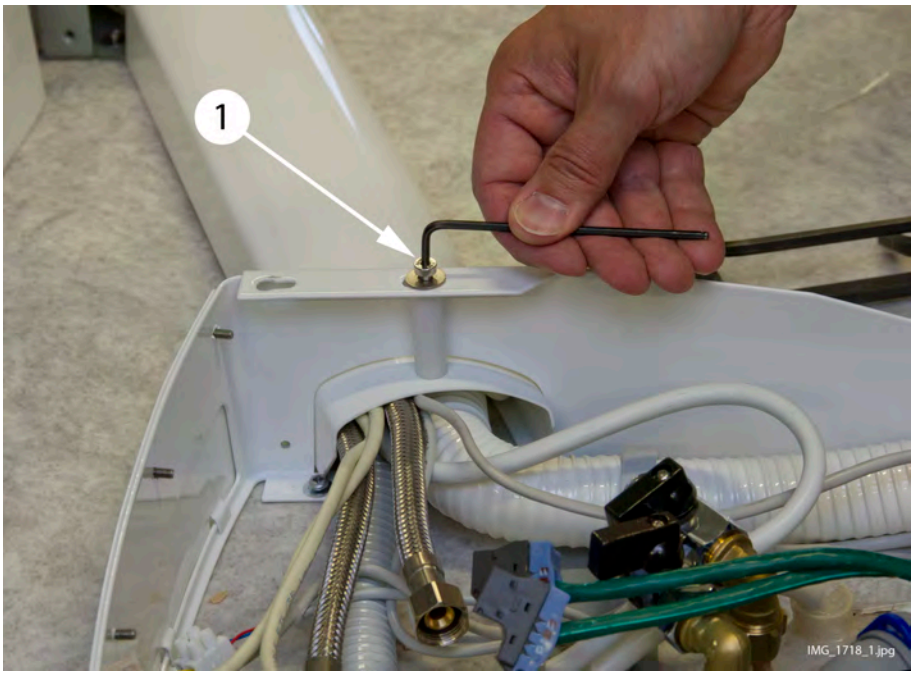
13. Place the chute in position.



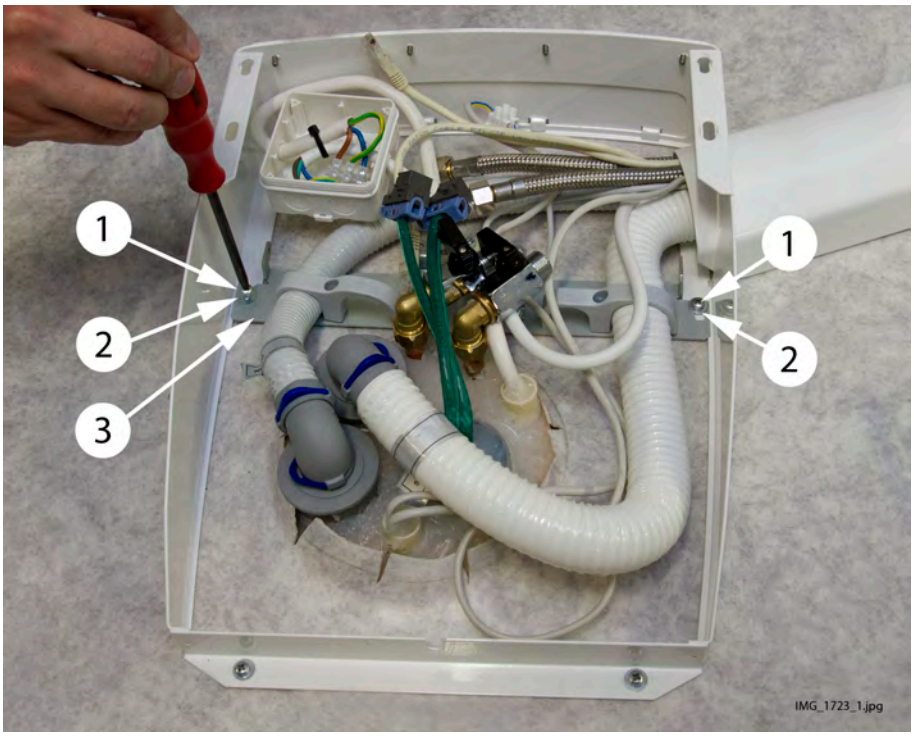
14. Attach the base frame to the floor with four attachment screws (**1**), washers (**2**) and anchors (**3**). Connect the tubes.



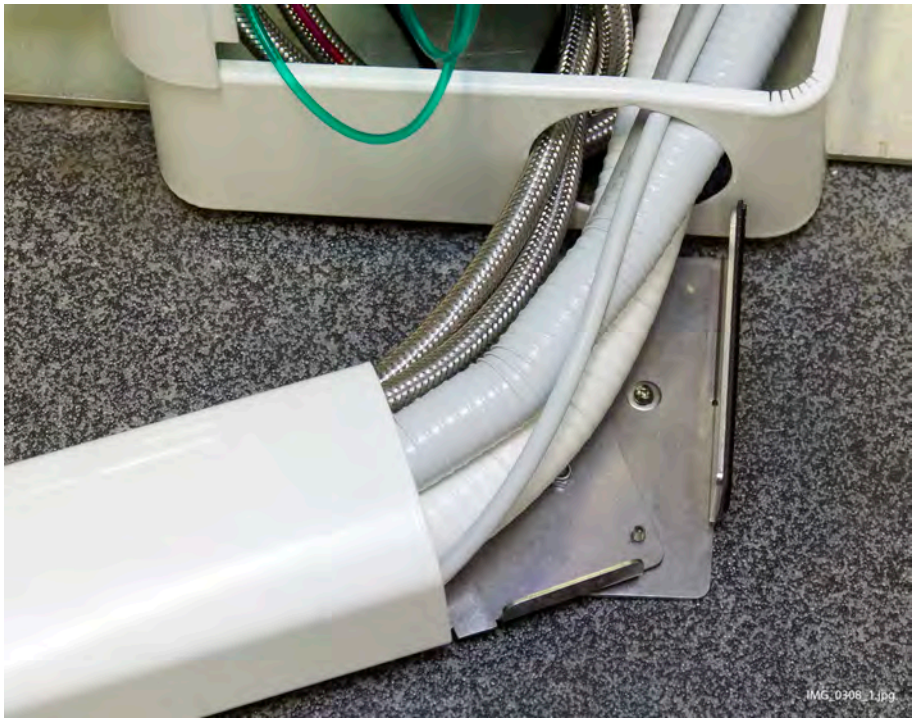
15. Attach the chute to the base frame (**1**).



16. Attach the box attachment plate (**3**) to the base frame using screws and washers (**1**, **2**).



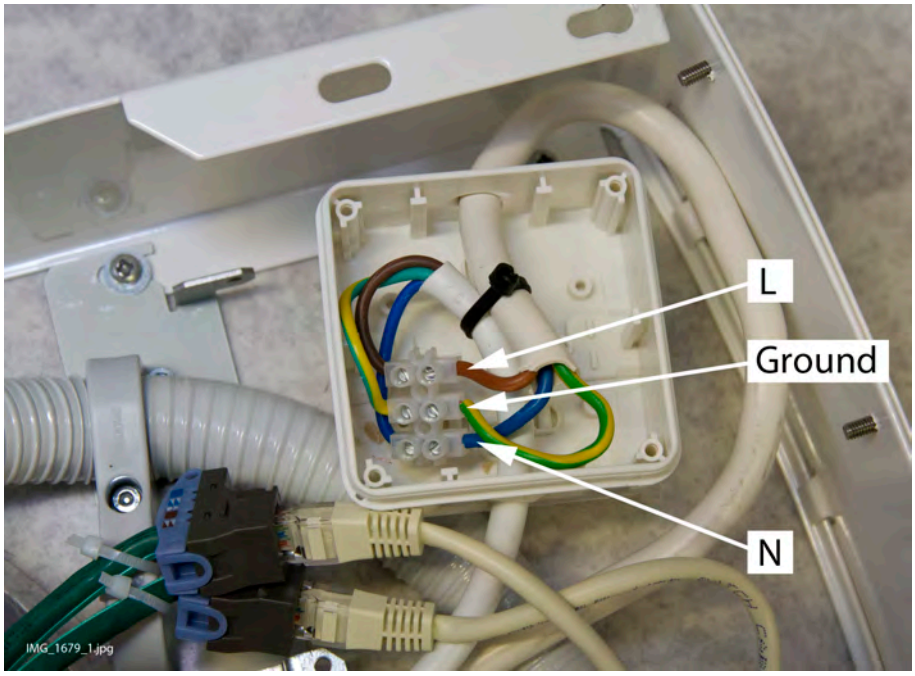
17. Attach the chute to the interlocking plate by sliding the chute flanges below the interlocking plate.



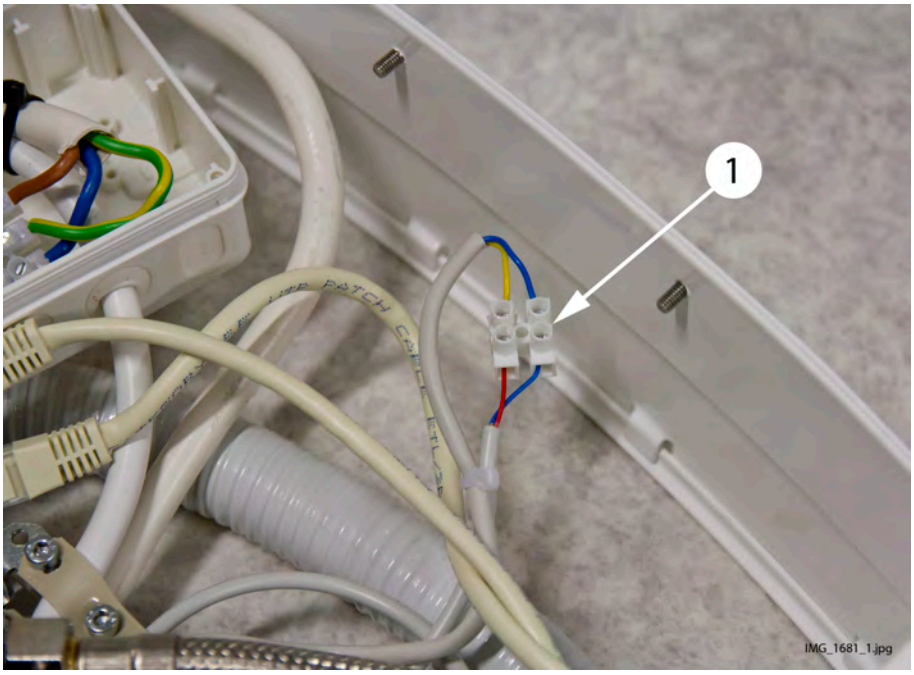
WARNING

Ensure that the mains leads are not connected to any power source before connecting them to the unit.

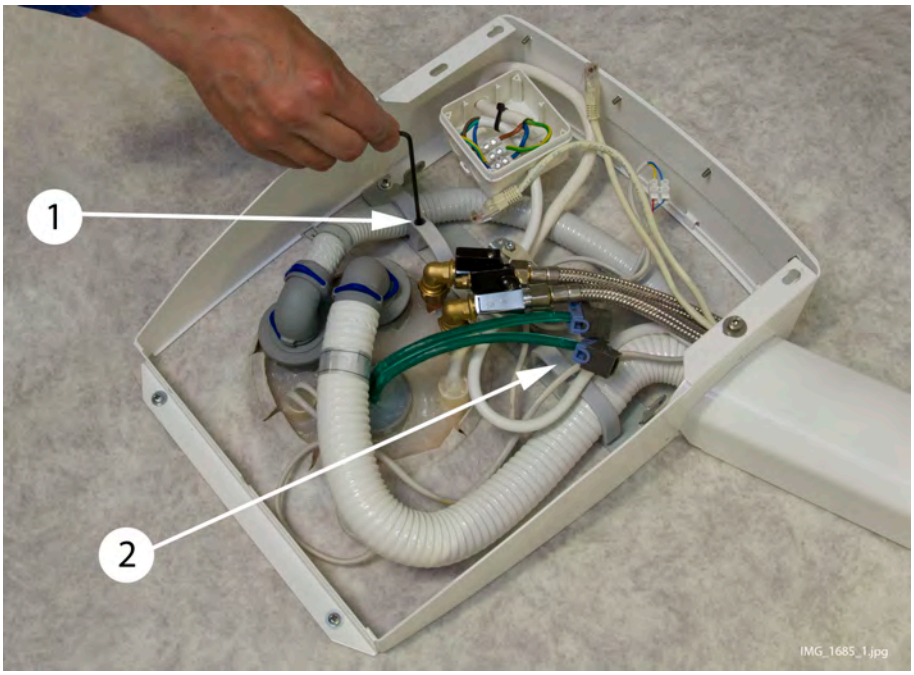
18. Connect the mains cable coming from the floor as well as the power cable from the dental unit to the terminal block located in the control box.



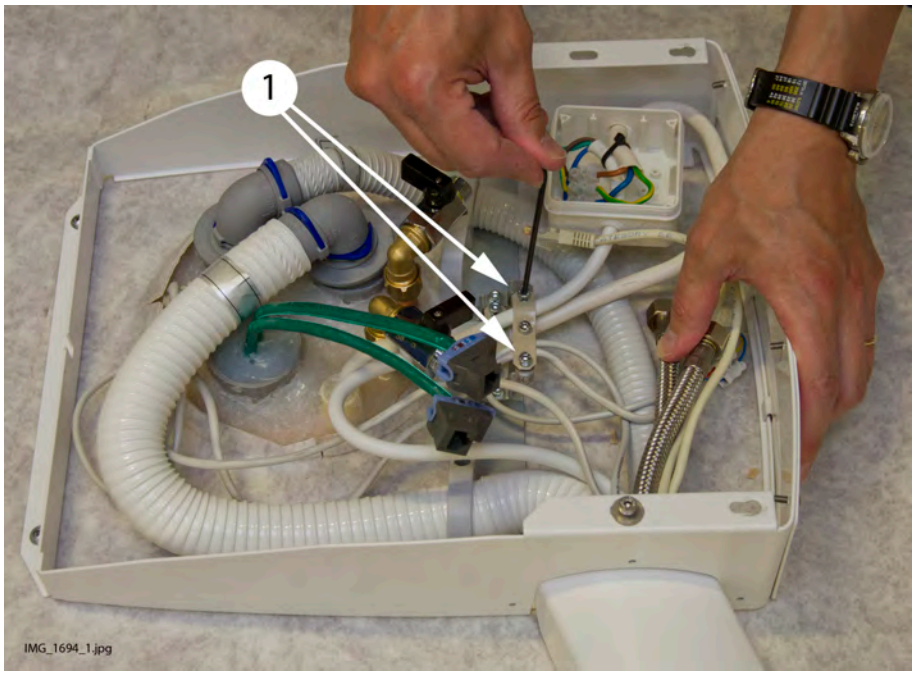
19. Connect the leads of the suction motor control/assistant call/door open cable. Secure the cables to each other with a cable tie.



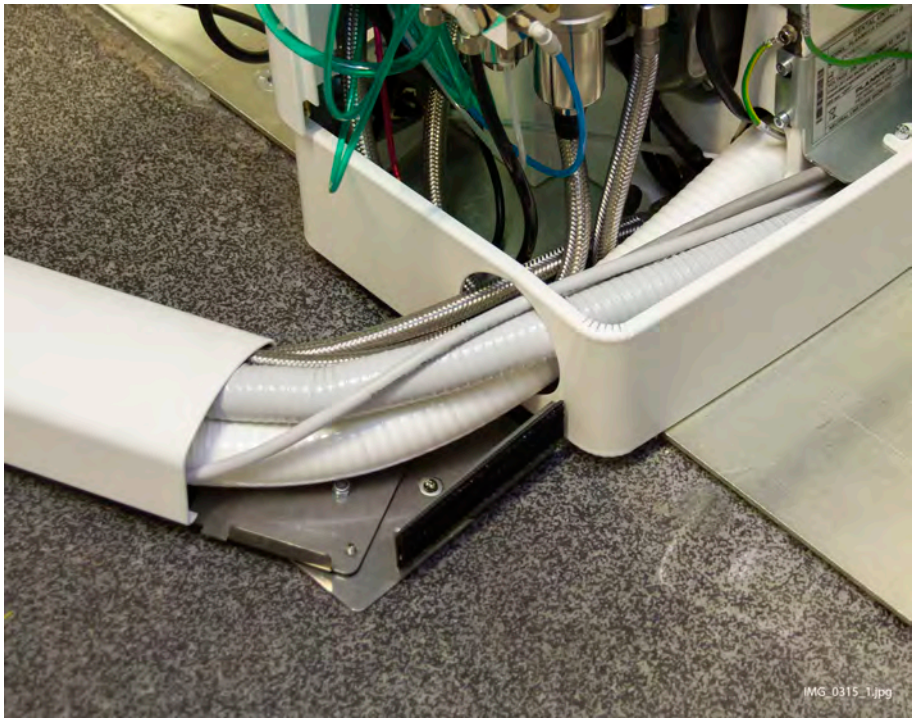
20. Attach the suction and drain tube strain reliefers (**1**, **2**).



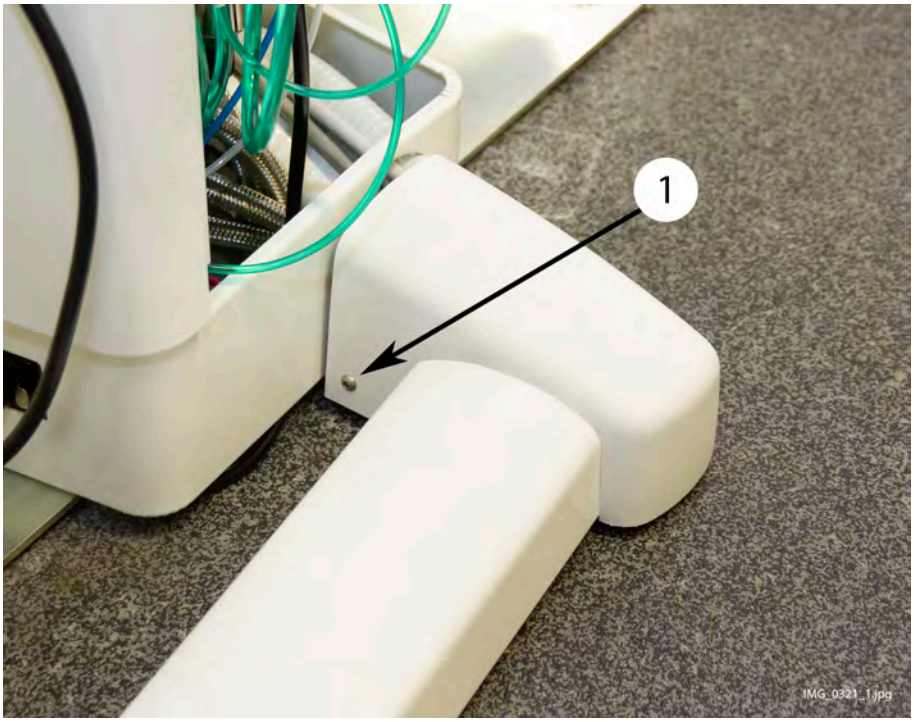
21. Attach the cable strain reliefer (**1**).



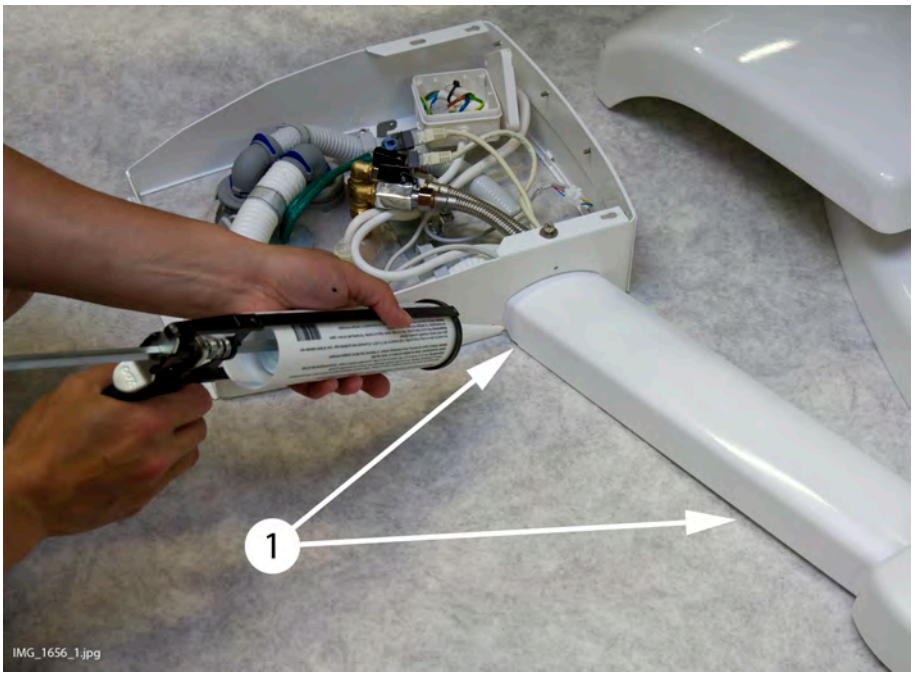
22. Secure the cables and tubes inside the dental unit base.



23. Attach velcro tapes to the side of the corner support plate and into the junction corner cover. Press the cover to its position and attach with a M4x12 ISO 7380 screw (**1**).

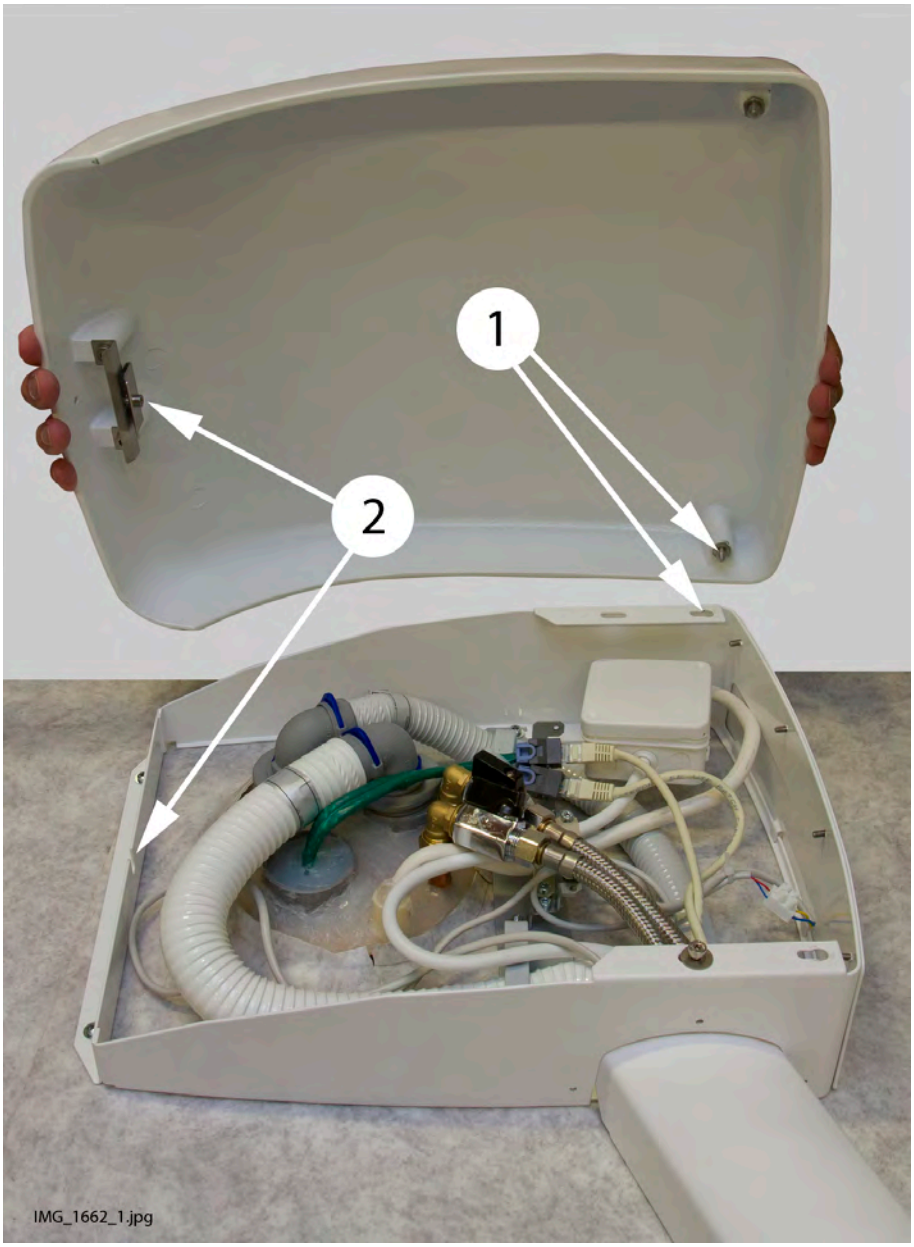


24. Add silicone between the box/chute and floor (**1**).

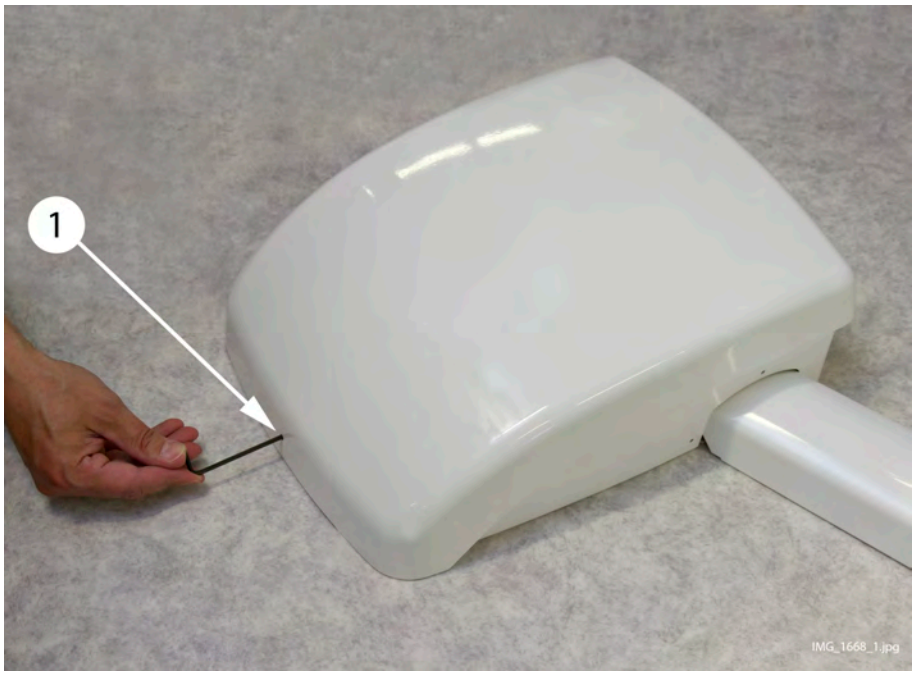


25. Open the valves and tap. Close the connection box.

26. Place the junction cover to its position so that the pins (**1**) and attachment screw (**2**) go into base frame openings.



27. Tighten the cover attachment screw (**1**).



28. The junction box installation is ready.

6 Installing patient chair

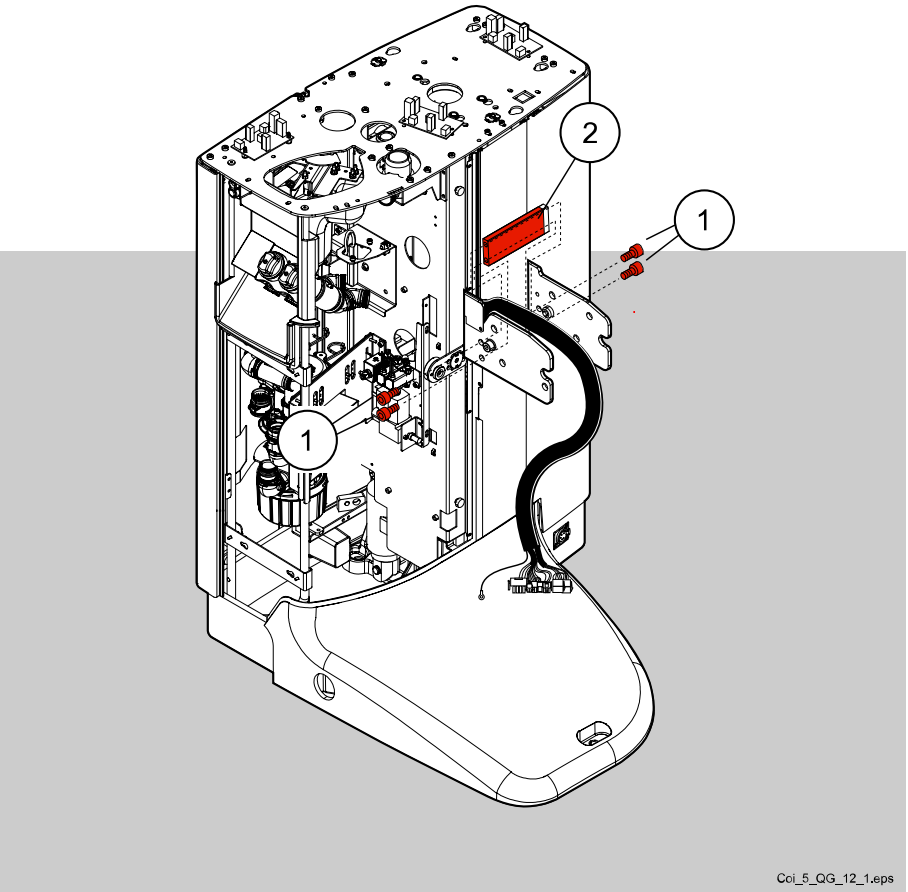
The patient chair consists of six main parts: the chair seat and the backrest with their upholsteries and the headrest with its upholstery. The chair is to be attached to the lifting adapter in the cuspidor and the legrest to the leg end of the chair.

6.1 Attaching chair to cuspidor

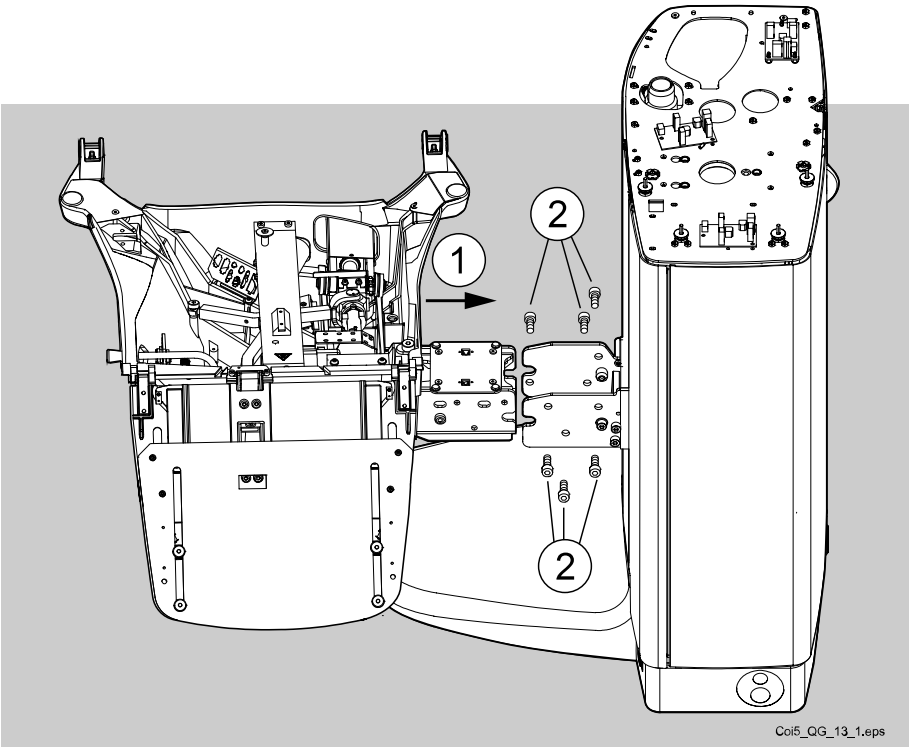
CAUTION

Take care when attaching the chair not to damage the chair cables.

Attach the support bar (**2**) to the lifting adapter with four attachment screws (**1**). Do not tighten the screws firmly yet.



Slide the chair into the lifting adapter of the cuspidor (**1**). Place the chair in a way that the patient chair supports that are attached to the lifting adapter go to the grooves of the chair adapter. Slide the chair into position along the lifting adapter. Secure the chair into position with six attachment screws (**2**). Tighten also the support rod attachment screws.



Route the chair cable through the adapter into the seat (**1** in the figure below).

Route the chair seat cable through the opening on the chair adapter to inside the chair casting. Secure the chair seat cable to the chair seat with the two cable holders (**2**).

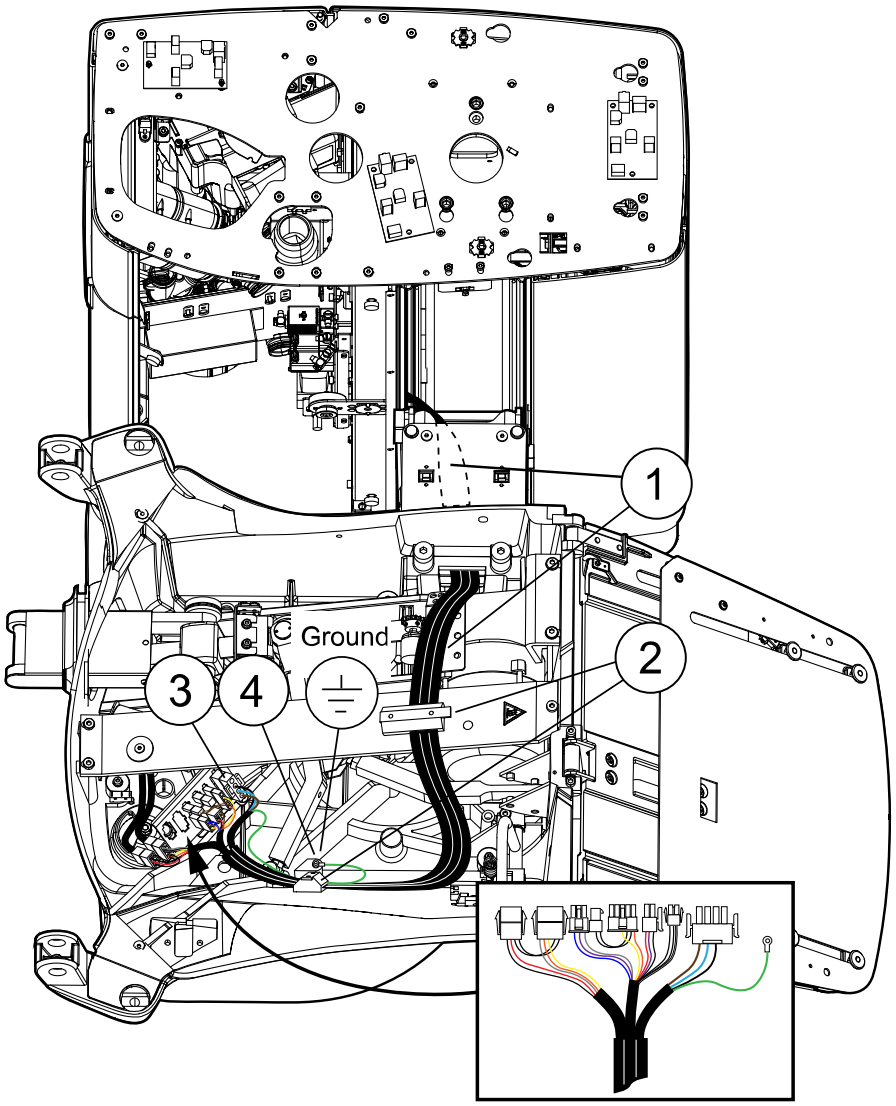
Connect the chair cable connectors (**3**). All the counterparts of the connectors are located in the small metal plate in the chair seat casting.

NOTE

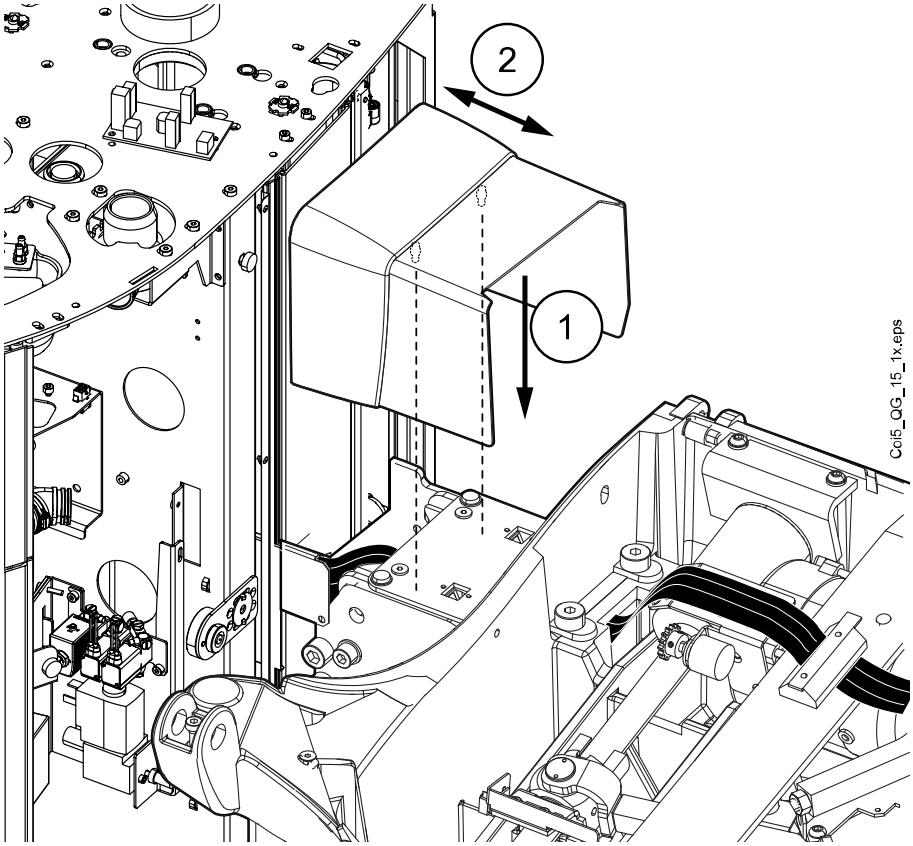
You must remove the safety switch jumper from the cable to be able to connect all the cables.

Attach the grounding lead (**4**).

Check that the cables cannot touch any moving parts inside the chair casting. Attach the safety switch jumper.



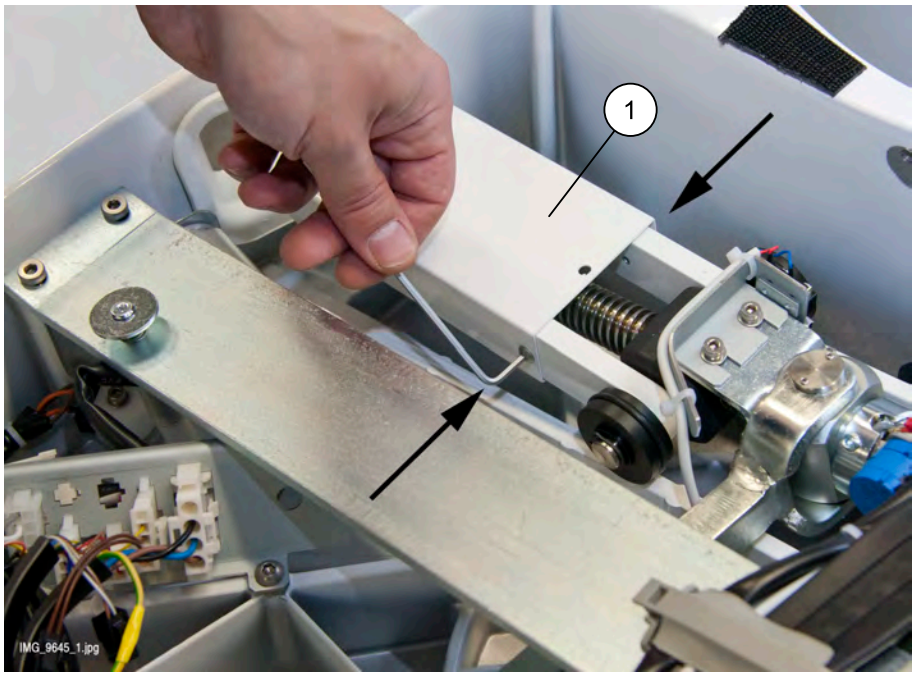
Place the adapter cover into position over the chair adapter (**1**) and adjust the gap between the cover and the cuspidor to 2…3 mm by moving the silicone collar (**2**).



6.2 Attaching backrest to chair

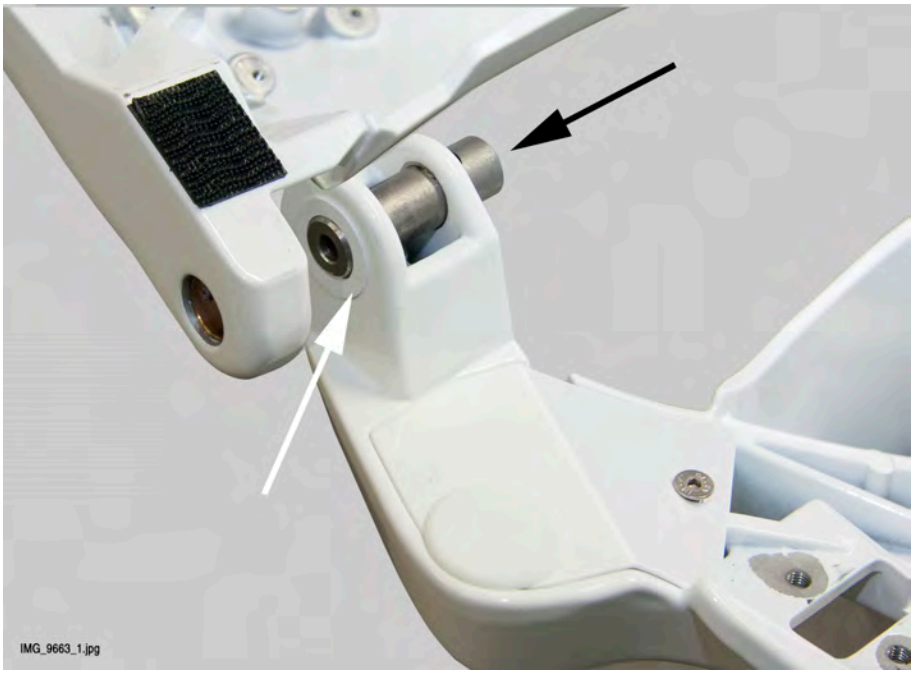
6.2.1 Backrest with motorised headrest

Unscrew the two attachment screws of the pushing rod cover (**1**).

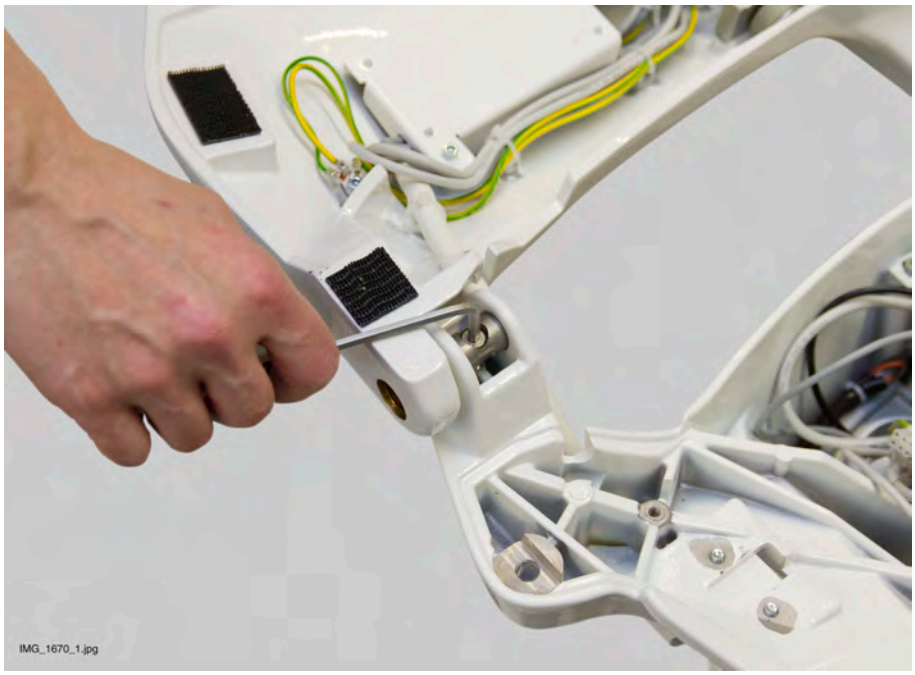


Slide the cover towards backrest motor and push the pushing rod pivot to its position (see figure below).

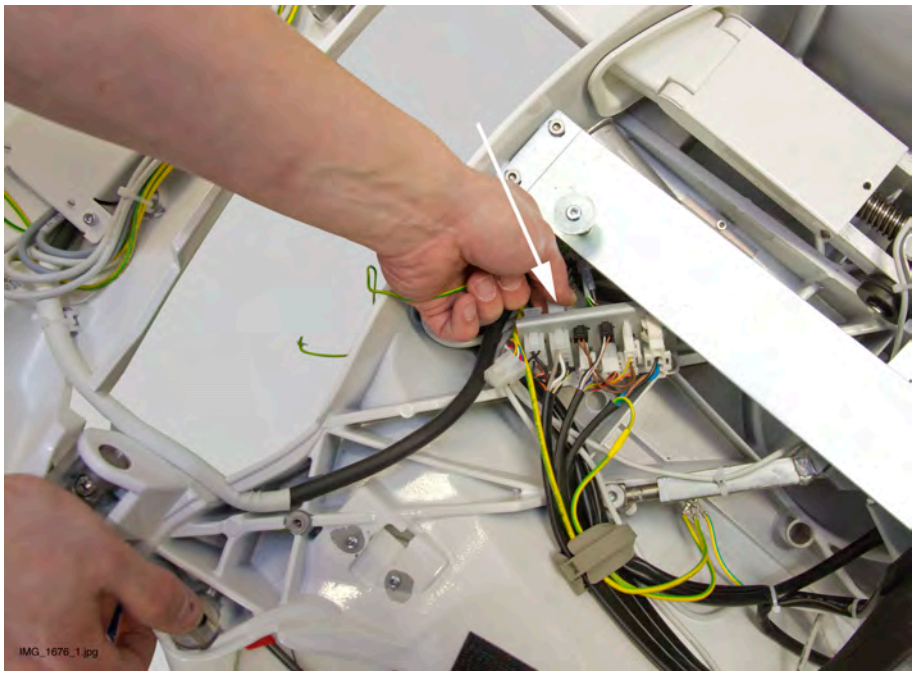
Plastic washers included in the mounting accessories set must be placed between the backrest and seat castings (white arrow). Push the backrest joint pivots into the joints (black arrow).



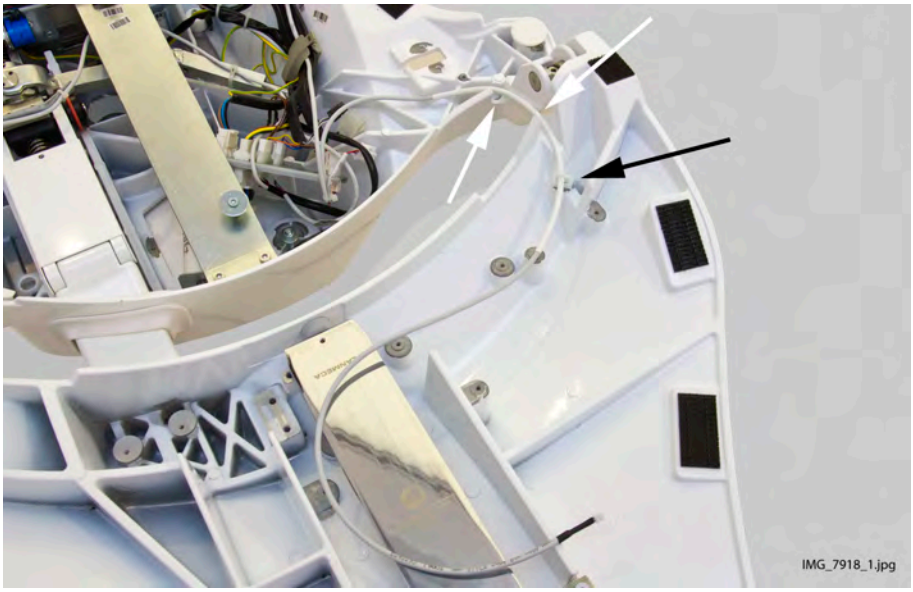
Attach the backrest joint pivots to the seat casting with attachment screws.



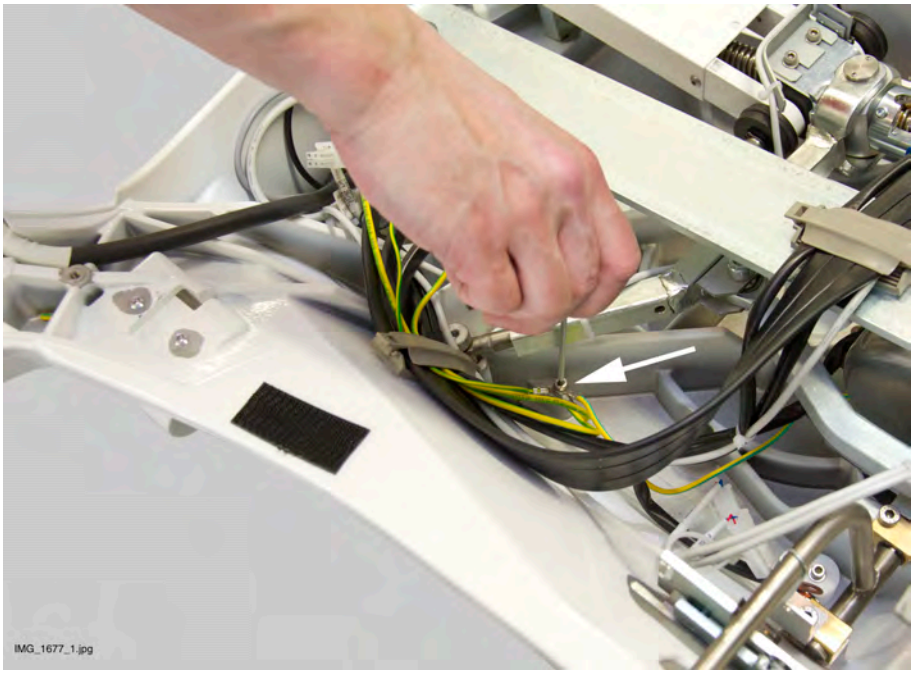
Route the headrest cable into the seat casting. Connect the headrest cable to the connector located on the seat casting (white arrow).



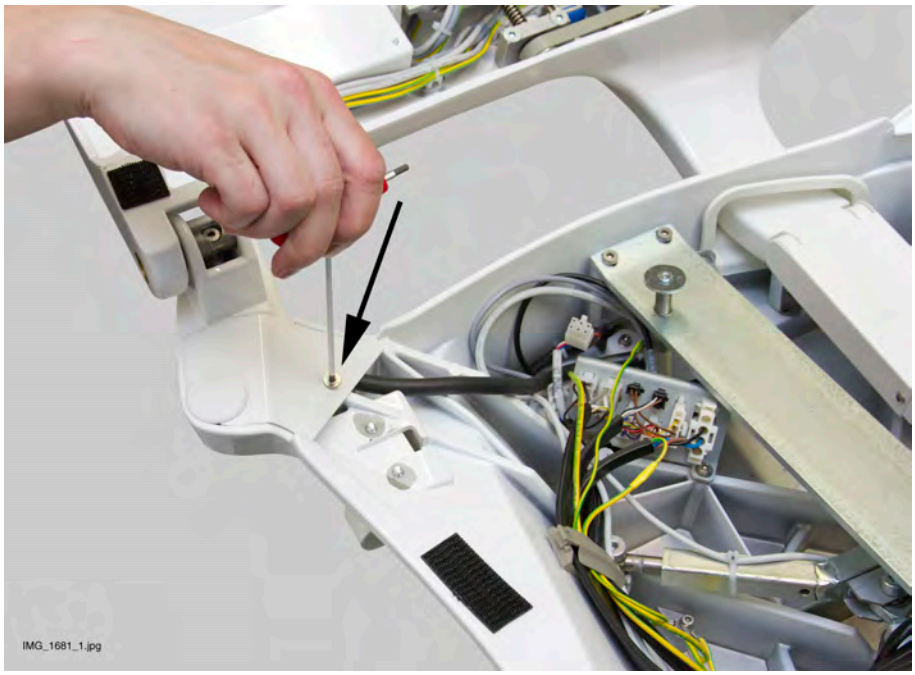
Route the cable for backrest patient detection sensor from the seat casting to the backrest (white arrows) and secure it to the cable tie holder (black arrow).



Attach the headrest grounding cable to the seat (white arrow).

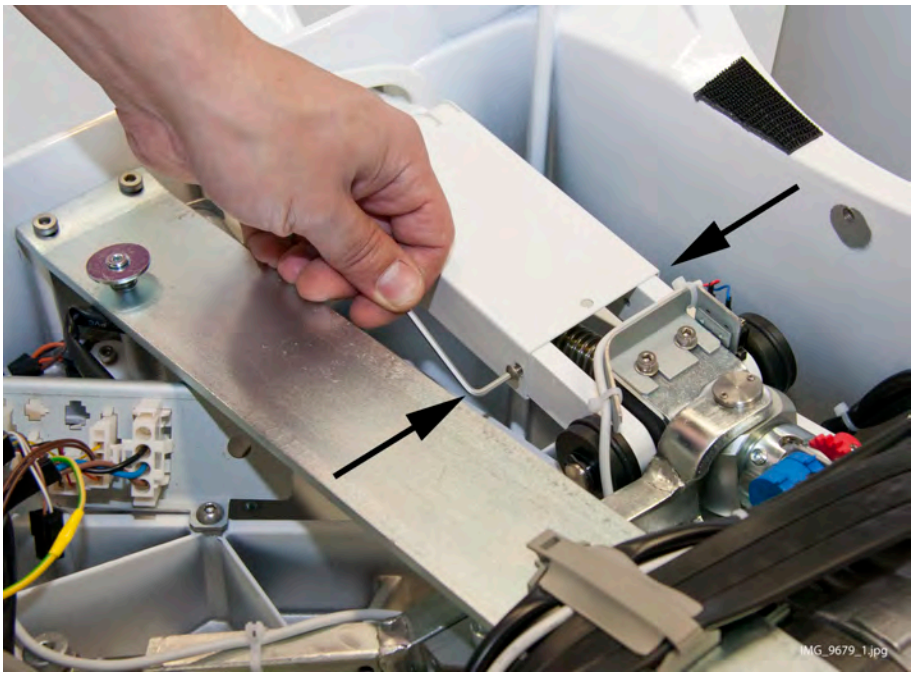


Attach the armrest plate (black arrow).



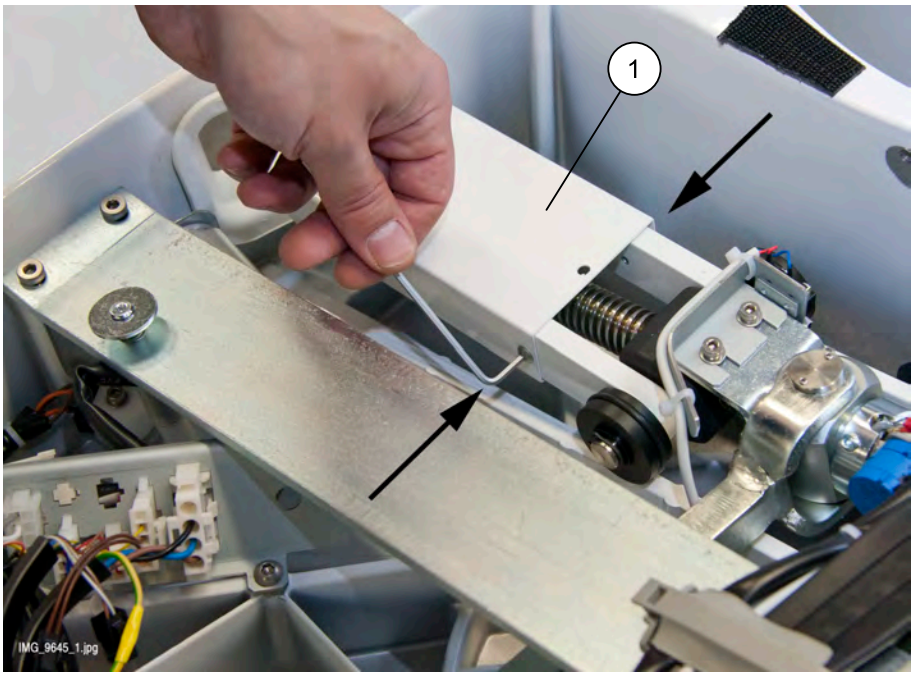
Push the white cover plugs to the end of the pivots.

Slide the cover back to its position and attach the cover attachment screws.



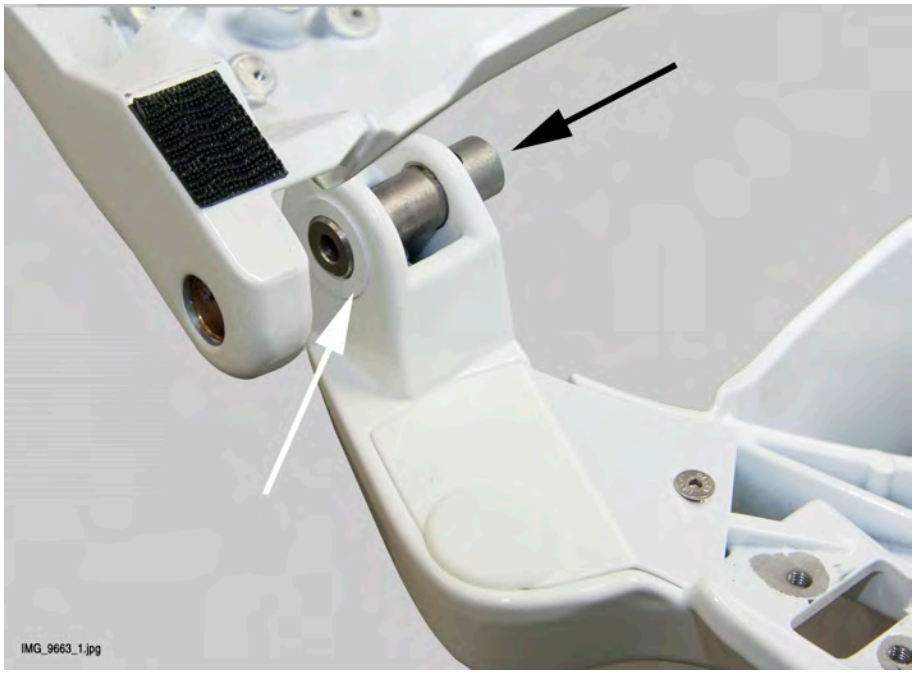
6.2.2 Backrest with manual headrest

Unscrew the two attachment screws of the pushing rod cover (**1**).



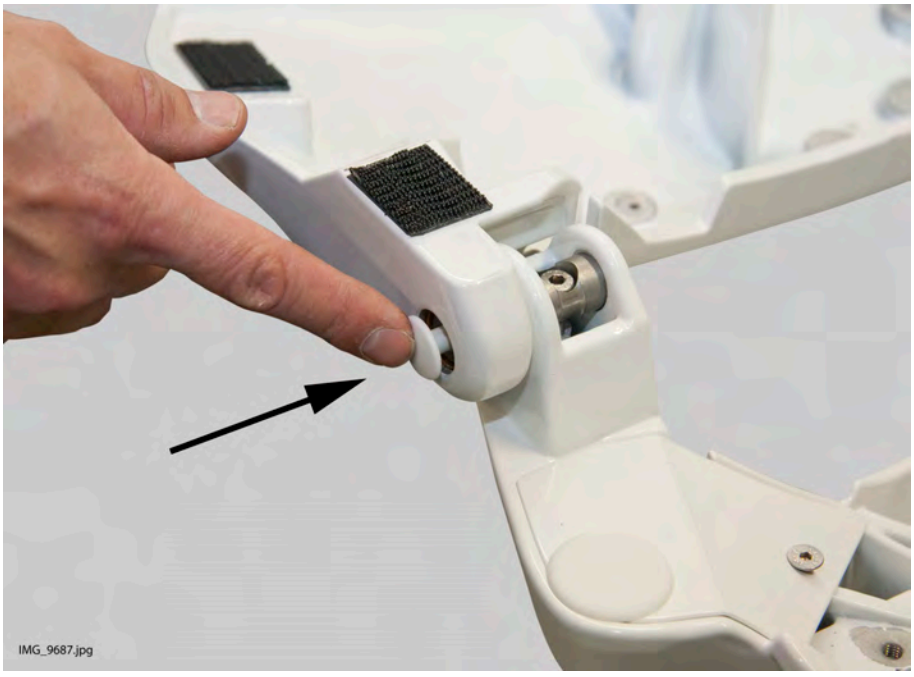
Slide the cover towards backrest motor and push the pushing rod pivot to its position (see figure below).

Plastic washers included in the mounting accessories set must be placed between the backrest and seat castings (white arrow). Push the backrest joint pivots into the joints (black arrow).

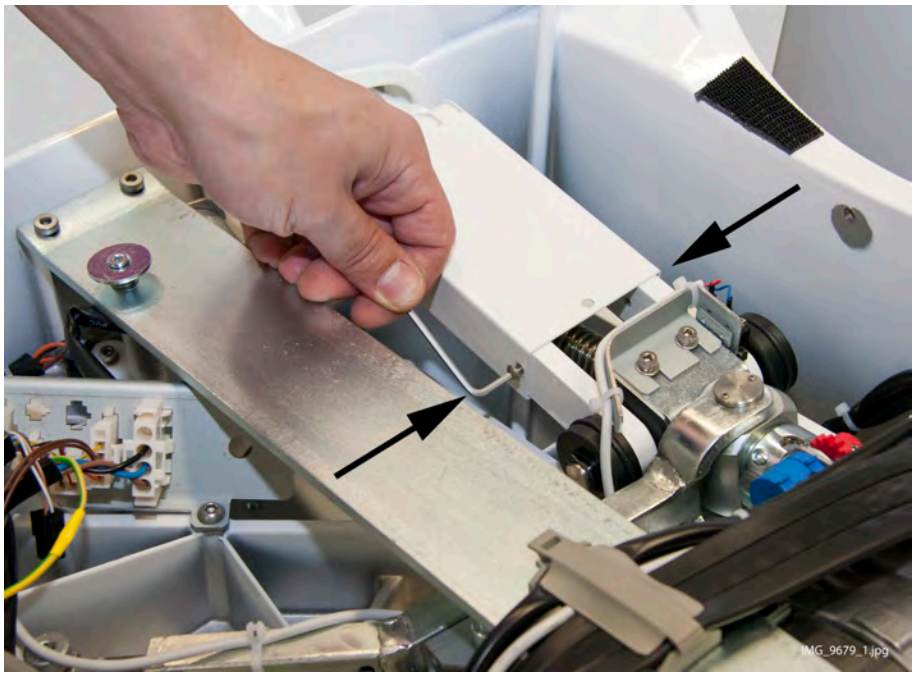


Attach the backrest joint pivots to the seat casting with attachment screws.

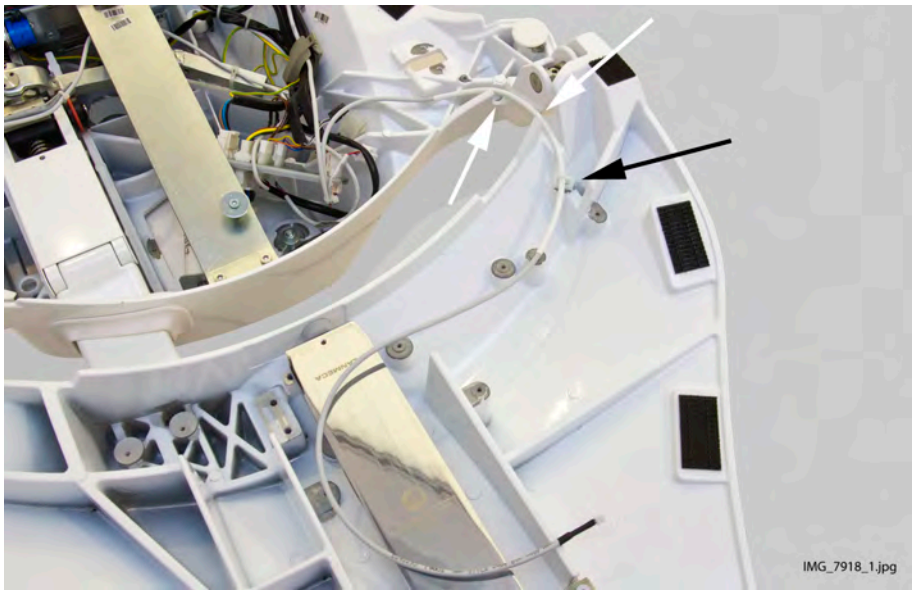
Push the white cover plugs to the end of the pivots.



Slide the cover back to its position and attach the cover attachment screws.



Remove the armrest plate and route the cable for backrest patient detection sensor to the backrest (white arrows). Secure the cable to the cable tie anchor (black arrow). Attach the armrest plate.

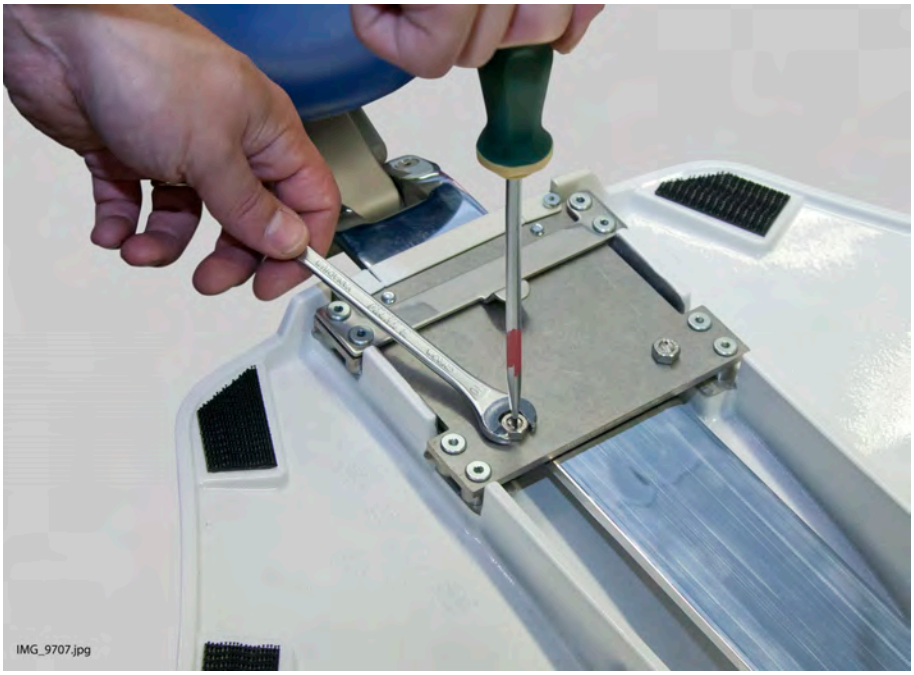


Place the headrest upholstery on the headrest casting. Secure it into position by tightening the screw on the back of the headrest casting.

Slide the headrest arm inside the backrest. The headrest sliding friction is adjusted at the factory. If you want to change the friction, it can be done as follows.

Loosen the two holding nuts using the 10mm fork spanner.

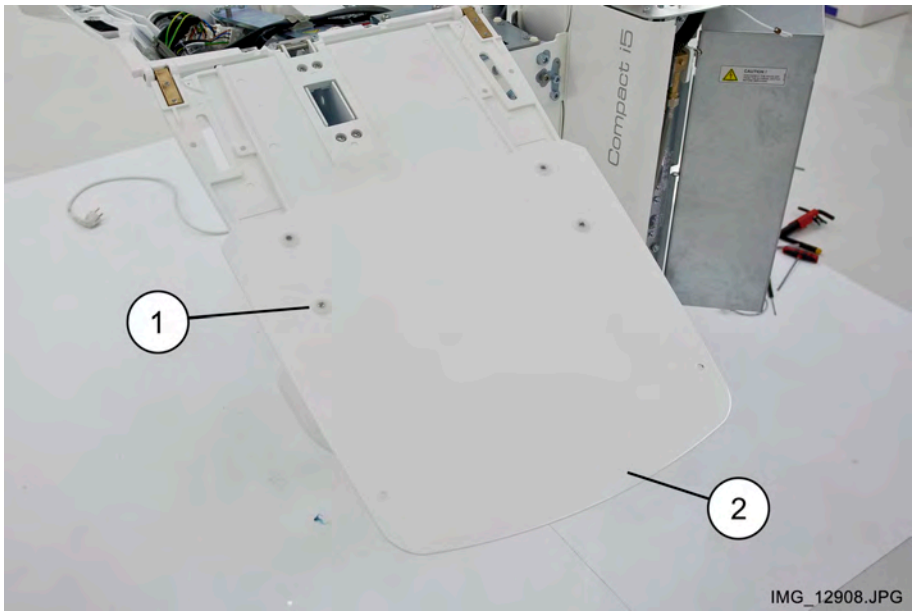
Adjust the sliding friction by turning the attachment screws using the screwdriver. Turning the screw counter-clockwise increases the friction. Lock the screw into position with the holding nut.



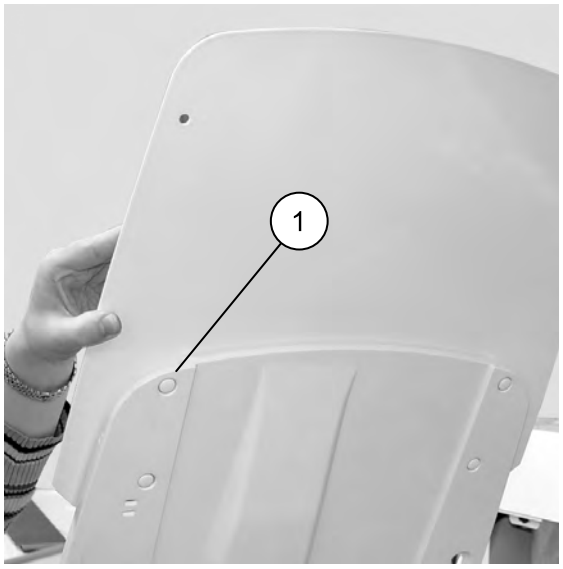
6.3 Attaching upholstery support plate

6.3.1 Manual legrest

Place the upholstery support plate (**2**) to the legrest. Place the plastic sliding parts into the support plate attachment holes (**1**). Insert the four M6x10 DIN 7984 screws to the attachment holes from below the legrest and attach the support plate to the legrest.

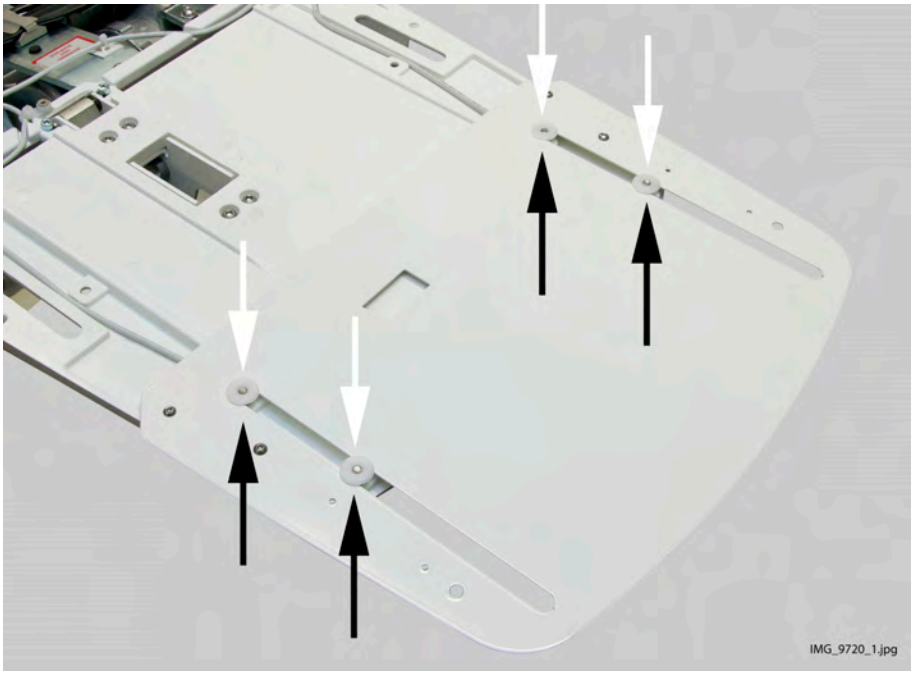


Cover the screw-heads with the cover caps (**1**).



6.3.2 Automatic legrest

Place the upholstery support plate to the legrest. Place the plastic sliding parts into the support plate attachment holes (white arrows). Insert the four M6x10 DIN 7984 screws to the attachment holes from below the legrest and attach the support plate to the legrest (black arrows).



Cover the screw-heads with the cover caps.

7 Installing OP delivery arm

7.1 Attaching OP delivery arm to cuspidor

Remove the delivery arm and monitor / operating light (optional) from packing.

NOTE

Ensure that the patient chair mechanisms and wiring are protected.

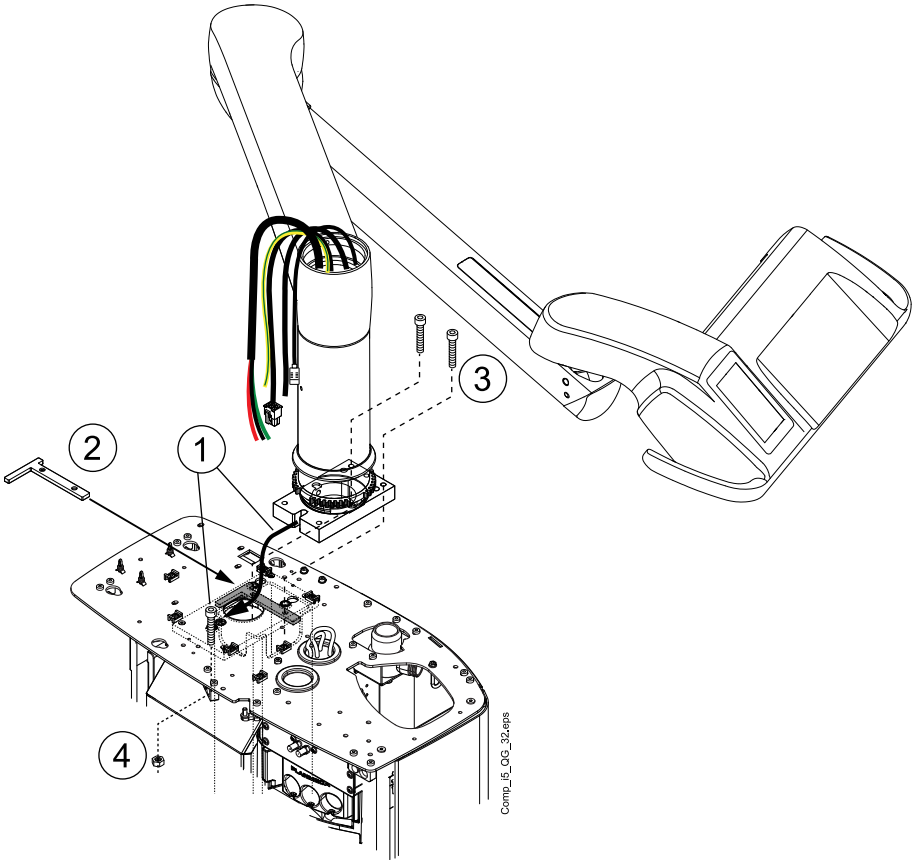
Screw one of the M8x30 DIN 912 screws (the one farthest from the patient chair) into position in the top cover plate (**1** in the figure below; use the same screws that connected the plywood packaging plate to the top cover plate). Screw it in just a couple of turns so that the adapter plate of the arm can be slipped under the head of the screw.

Slip the arm into position over the top cover plate so that the arm attaching screw that is already in position goes into the groove of the arm's adapter plate (**1**).

Push the secondary thread plate into position underneath the cuspidor top plate (**2**).

Secure the delivery arm in position with the M8x30 DIN 912 screws (**3**), making sure that the screws are correctly aligned on the secondary thread plate's threads and that the plate is installed as close to the cuspidor top plate as possible.

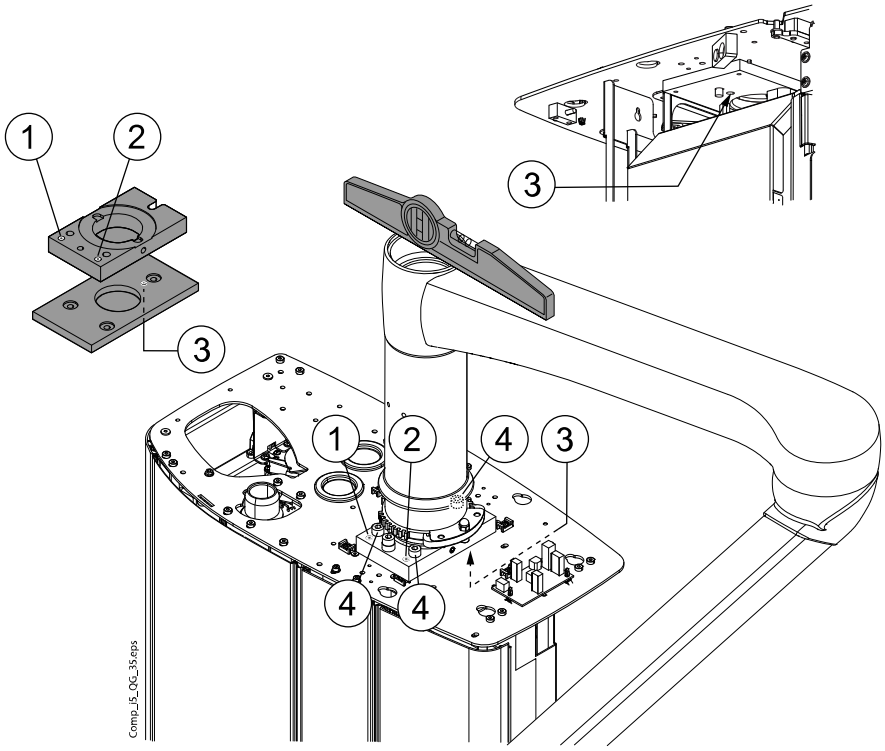
The first screw (**1**) does not attach through the secondary thread plate; secure the screw with a nut (**4**).



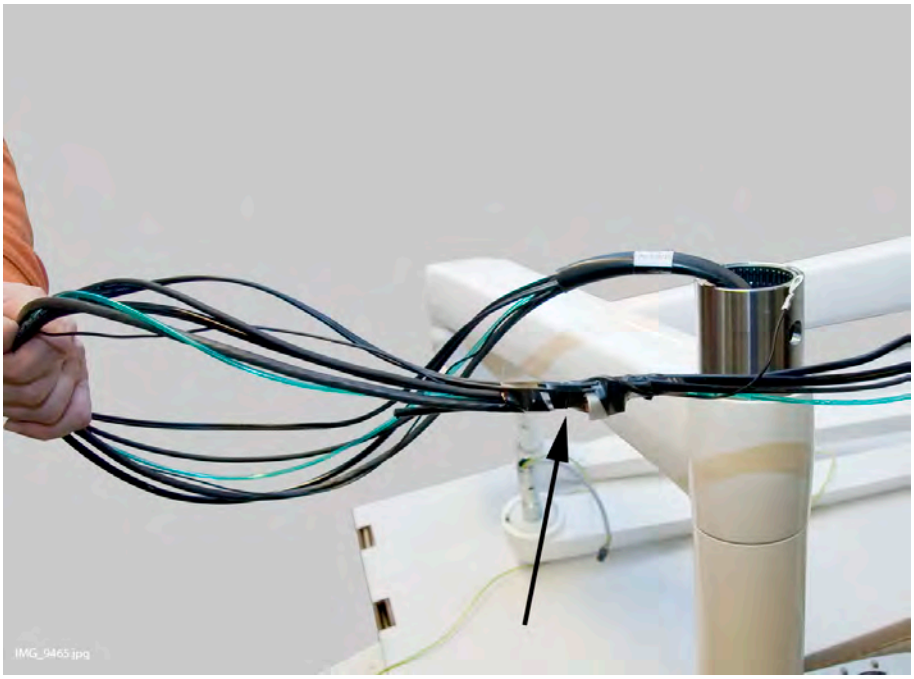
NOTE

The delivery arm must be vertical. You may have to adjust the arm position, if the floor is very inclined. Adjust the position with the three M8x12 DIN 913 screws as shown with arrows on the figures below.

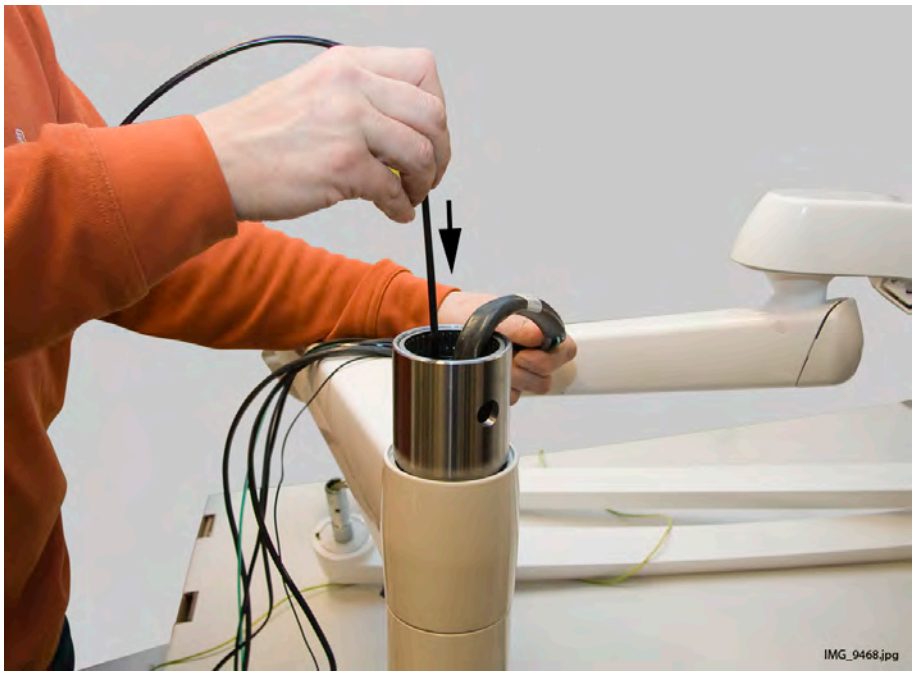
The following figure shows the location of the adjustment screws (**1** - **4**).



Attach the delivery arm cables and tubes to the draw cord.



Route the draw cord with cables and tubes through the delivery arm post.

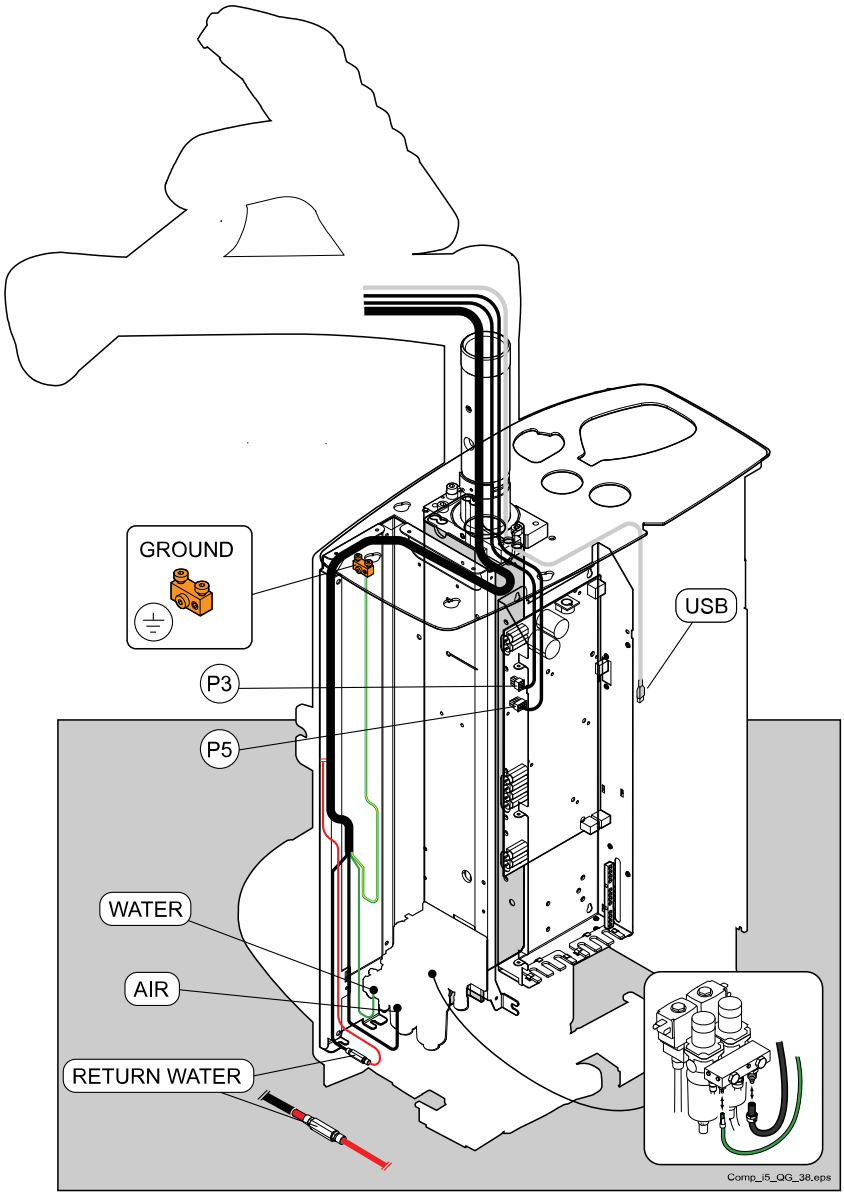


Route the cables and tubes through the opening on the cuspidor top cover plate to inside the lifting column and route them from the openings on the upper part of the lifting column to inside the electronics control box.

Detach the draw cord. Route the arm tubes out from the electronics control box.

7.2 Connecting OP delivery arm cables and tubes

Connect the OP delivery arm cables and tubes according to the following figure.



Route the USB cable out from the electronics control box.

NOTE

This USB cable is needed for the USB intraoral camera located on the console. Refer to section "Installing USB intraoral camera" on page 167.

Connect the delivery arm cable to the connector P3 and the Console display cable to the connector P5. Secure the cables with cable ties. Attach the arm grounding lead to the ground terminal.

After connecting all the cable to the Main control PCB, also the optional operating light, Planmeca ProX X-ray unit and LCD monitor, close the electronics control box cover.

NOTE

For units with optional Planmeca ActiveAqua water treatment system refer to section "Connecting water and air tubes in dental units with Planmeca ActiveAqua" on page 78 for more information on connecting the air and water tubes.

NOTE

For units with an optional water heater, refer to section "Connecting water heater" on page 77 for more information on connecting the water tube. The air tube is connected similarly in all units.

Route the tubes along the side of the lifting column down to the magnetic valve/pressure regulator assembly.

Detach the short pieces of the water and air tubes from the magnetic valve/ pressure regulator assembly nipples.

The magnetic valve/pressure regulator assembly can be removed from the cuspidor. Loosen the two screws that hold the assembly in cuspidor support plate and lift the assembly from its position. Removing the assembly gives extra space for connecting the tubes.

Connect the water and air tubes to the corresponding nipples at the magnetic valve/ pressure regulator assembly as shown on the figure above. Connect the air tube to the nipple in the front of the air pressure regulator. Connect the water tube to the nipple on the left side of the magnetic valve/ pressure regulator assembly (for units **without** an optional water heater). Secure the water tube with the tube clamp.

NOTE

If you have detached the magnetic valve/pressure regulator assembly from its position, attach it back to the cuspidor.

Connect the return water tube (red line in the figure above) by routing it down the chair side of the cuspidor interior. Connect the return water tube for the OP delivery arm using the brass connector near the the magnetic valve/pressure regulator assembly, as shown in the figure above.

Connect the OP delivery arm grounding lead (yellow and green line in the figure above) under the retaining screw at the grounding point on the cuspidor top cover plate as shown in the figure above.

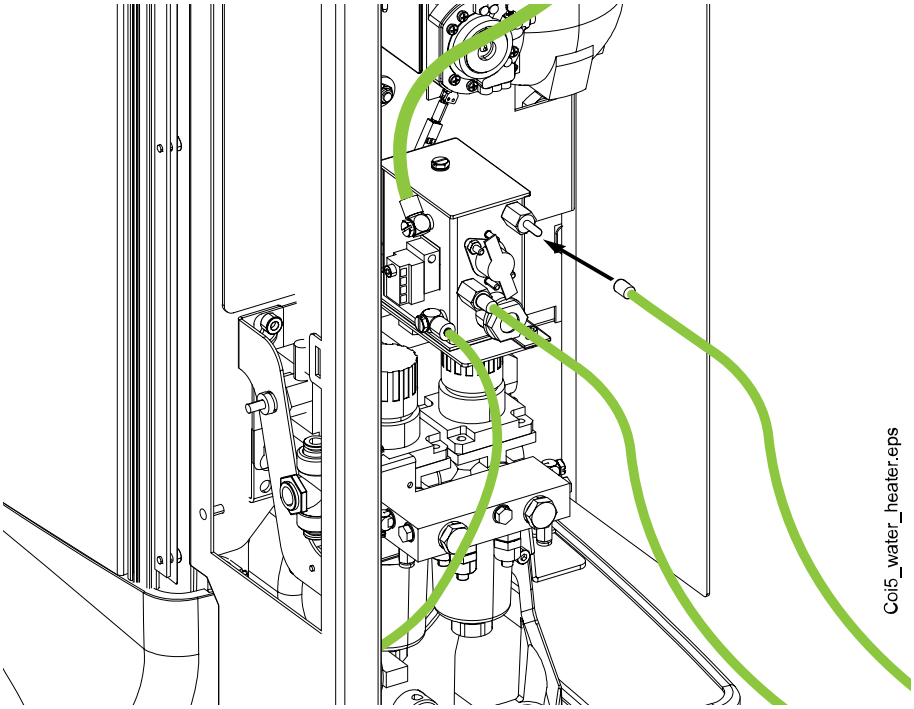
For the optional assembly with air and water quick-connectors and multiple socket outlet: Connect the OP delivery arm water tube to the rear frame assembly as instructed in section "Attaching cuspidor to floor and connecting service tubes" on page 29.

7.2.1 Connecting water heater

NOTE

The water heater is not available for dental units with Planmeca ActiveAqua.

Connect the water tube from the delivery arm to the water outlet nipple of the water heater. Secure the water tube with the tube clamp.

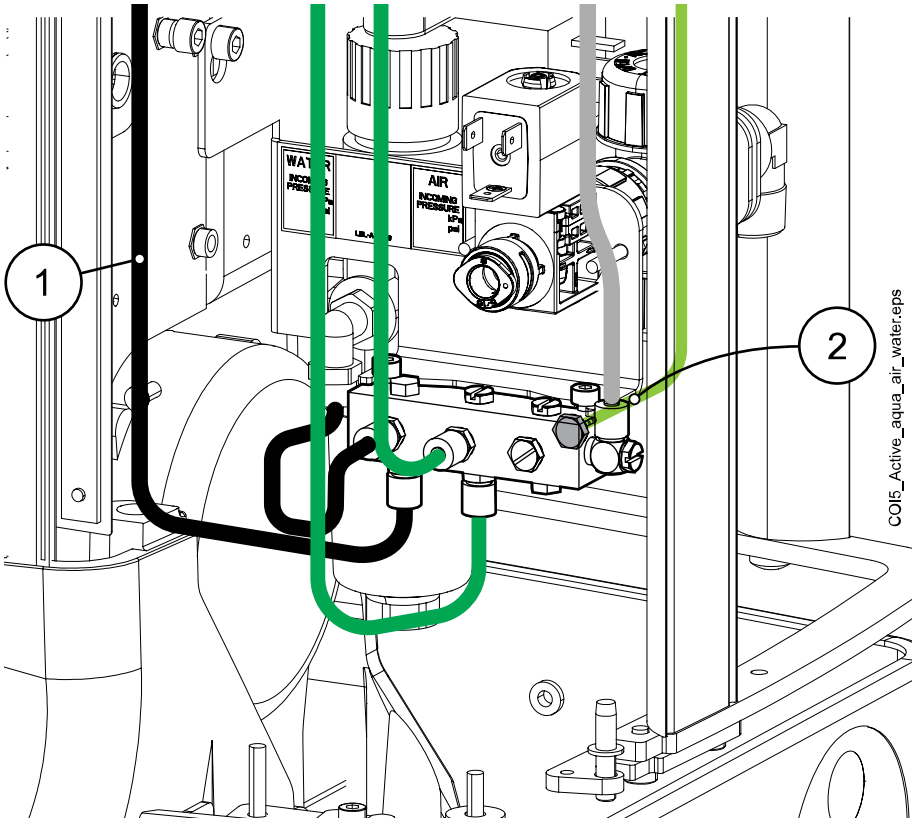


7.2.2 Connecting water and air tubes in dental units with Planmeca ActiveAqua

Steps

1. Route the tubes along the side of the lifting column down to the magnetic valve/pressure regulator assembly.

2. Connect the air (1) and water (2) tubes to the corresponding nipples at the magnetic valve/ pressure regulator assembly as shown on the figure below.



7.2.3 Replacing Planmeca ActiveAqua flow regulator

About this task

A flow regulator for an incoming water pressure of 2.5 - 7 bar is installed to the dental unit at the factory. If the incoming water pressure at the installation site is below 2.5 bar or above 7 bar, you must replace the flow regulator.

Steps

1. Detach the strainer from the main water valve.
2. Open the bottom cap of the strainer and replace the filter.

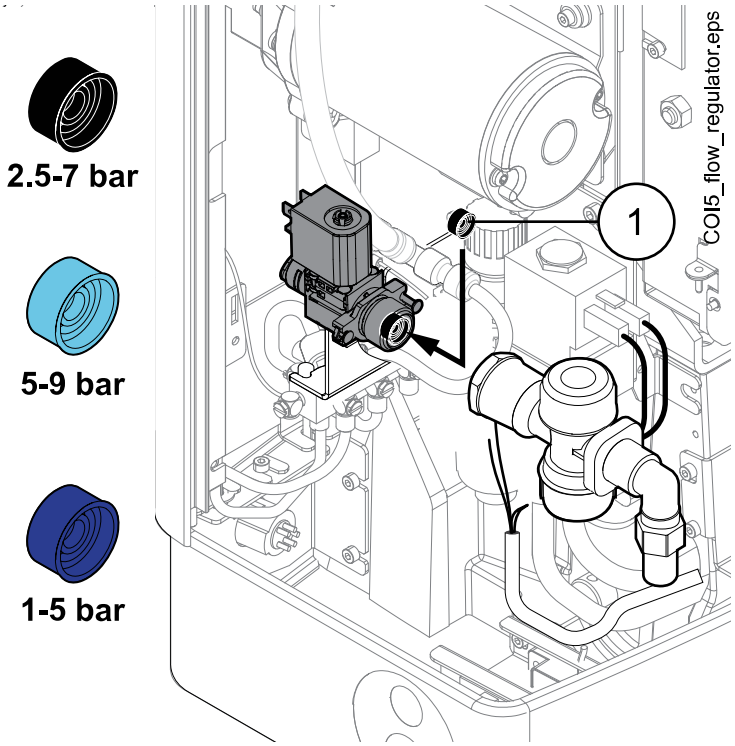
   NOTE

   Do not open the top cap of the strainer.
3. Close the bottom cap of the strainer.
4. With the strainer still detached from the main water valve, replace the flow regulator (1) in the valve and make sure that you press the new regulator firmly into the valve.

   There are 3 versions of the flow regulator:

   - Black, used when incoming water pressure is 2.5 - 7 bar
   - Light blue, used when incoming water pressure is 5 - 9 bar
   - Dark blue, used when incoming water pressure is 1 - 5 bar

   Ensure that you attach the correct version to the dental unit.



5. Attach the strainer to the main water valve.

7.2.4 Installing Planmeca ActiveAqua ultrafilter

About this task

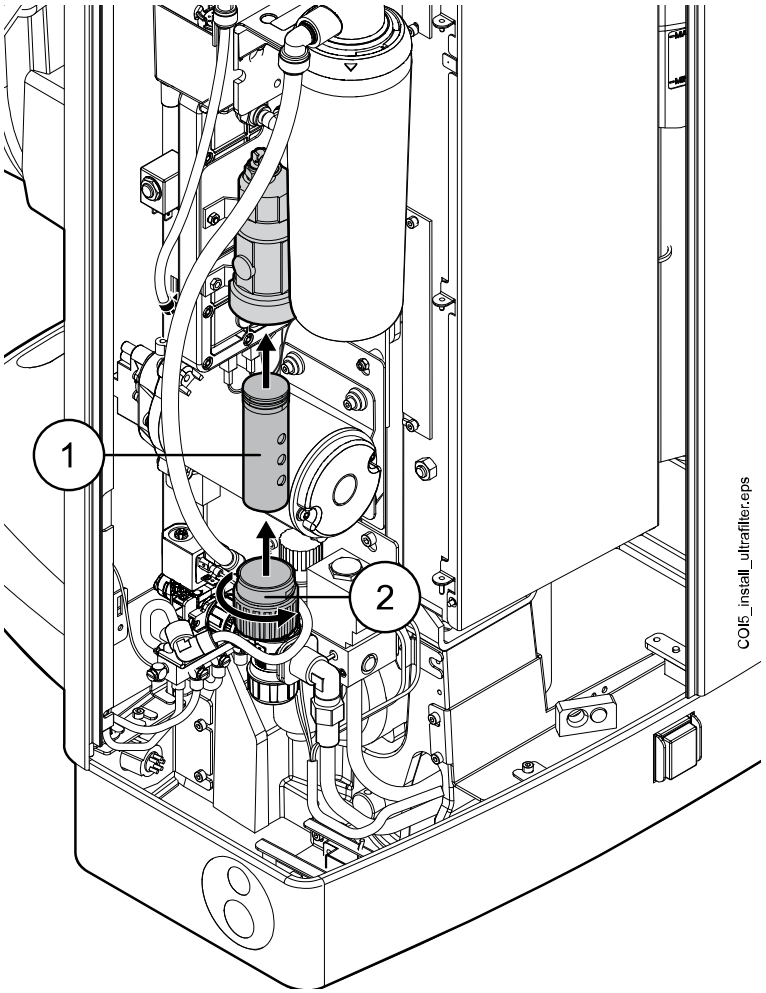
NOTE

When handling the ultrafilter, do not touch the hollow fibers inside of the housing.

Steps

1. Open the lid.
2. Place the lid (2) under the ultrafilter (1) and slide the ultrafilter into the filter housing.

3. Rotate the lid in the direction shown below to close the filter housing.

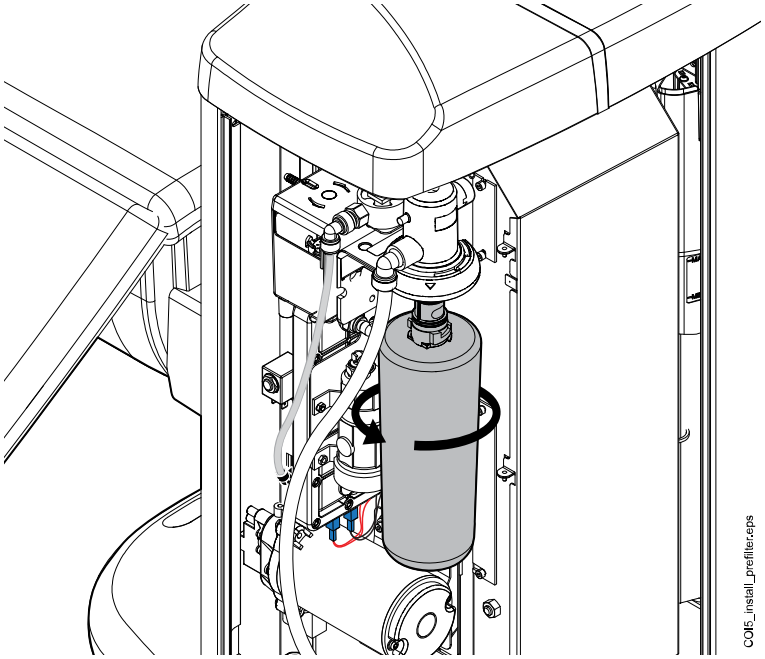


7.2.5 Installing Planmeca ActiveAqua prefilter

Steps

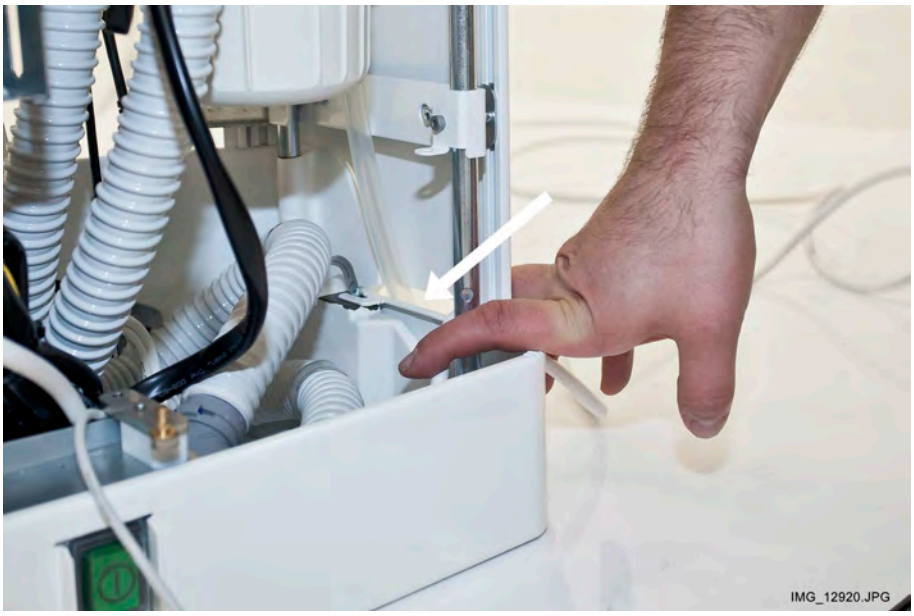
1. Place the prefilter into position.

2. Rotate the prefilter in the direction shown below until it locks into position.



7.2.6 Water overflow tube

Attach the pins at the side of the cuspidor and then the tapes at the chair adapter side of the cuspidor. Position the water overflow tube between the cuspidor cover and the rear frame cover. Cut the tube to extend approximately 25 mm (1 in.) to outside the cuspidor.

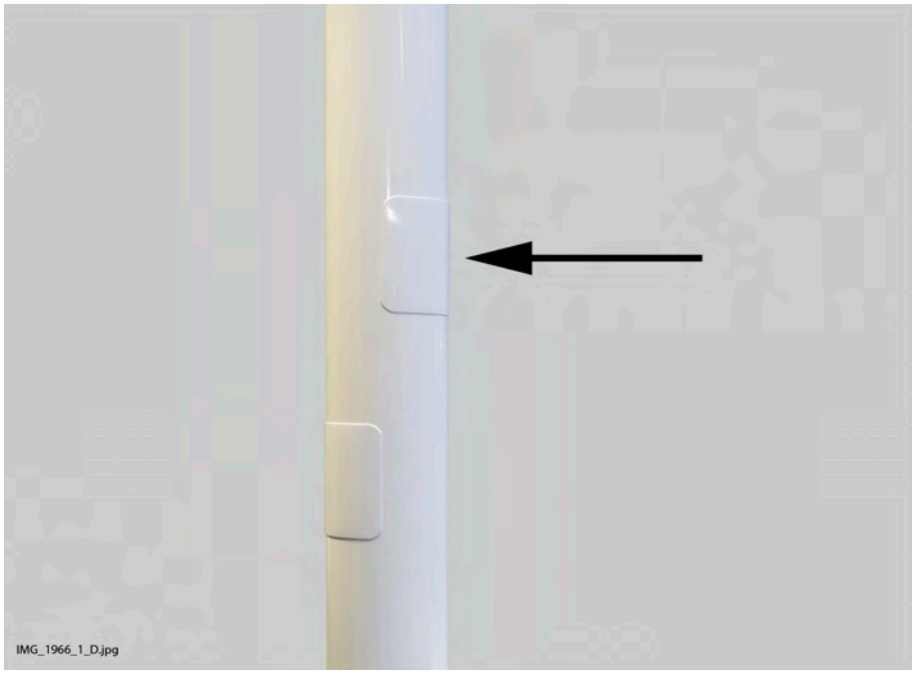


7.3 Installing vertical arm

NOTE

If Planmeca ProX is installed, install the monitor arm according to the instructions given in this section and the vertical arm and Planmeca ProX according to the instructions given in section "Installing vertical arm with Planmeca ProX X-ray unit" on page 117.

Monitor (optional): Remove the post opening cover from the monitor attachment point.

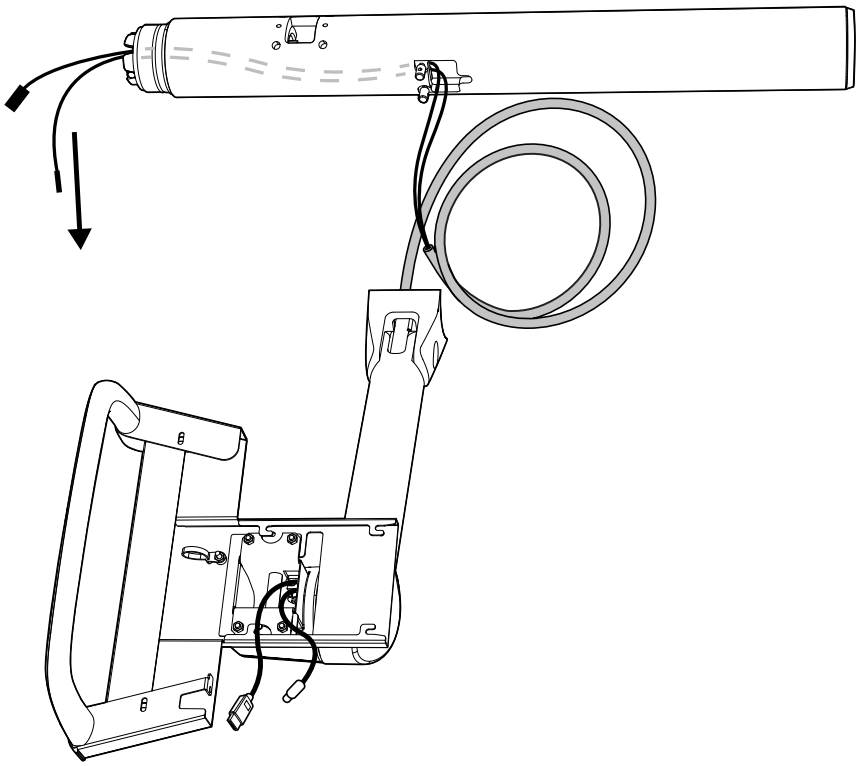


Monitor: Mount the guide pins to the vertical arm.

Monitor: The monitor cables (monitor HDMI cable and power cable) are routed through the monitor arm at the factory. Route the monitor cables through the vertical arm before attaching the arms to the unit. The cables are attached to the monitor arm with cable tie. **Do not detach the cables.**

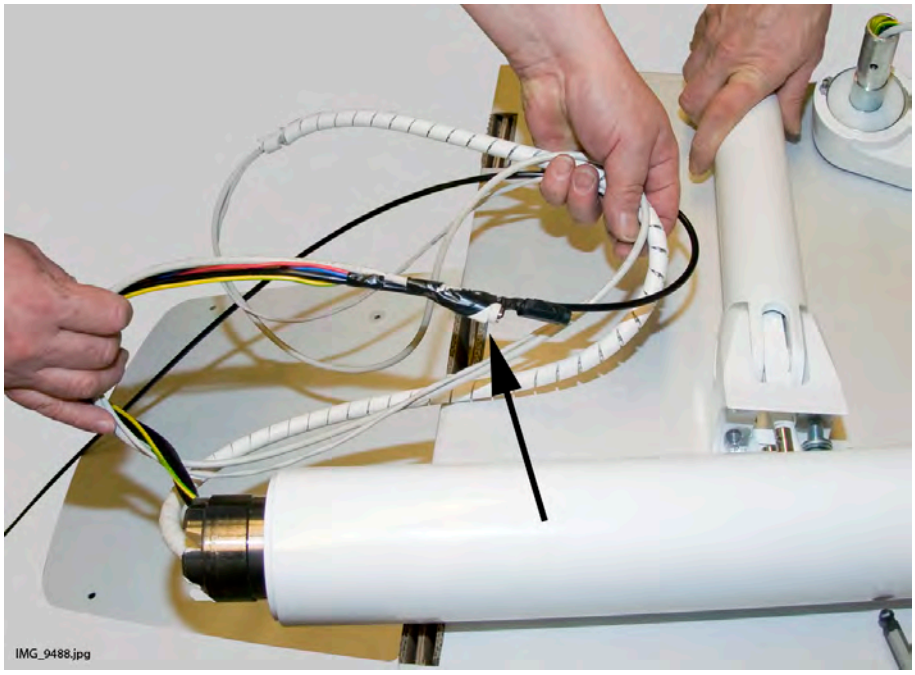
NOTE

The monitor arm is installed in the same way with or without the operating light. Only the length of the vertical arm varies in different installation options.



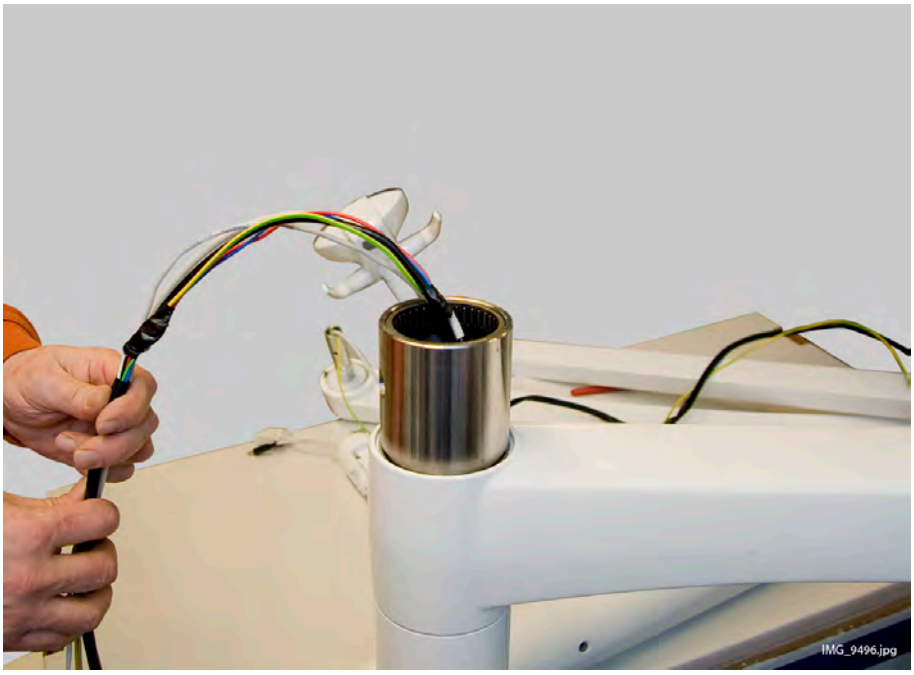
Coi5_monitor_cables_routing.eps

Operating light (optional): Attach the operating light cables to the draw cord and route the draw cord and cables through the vertical arm.

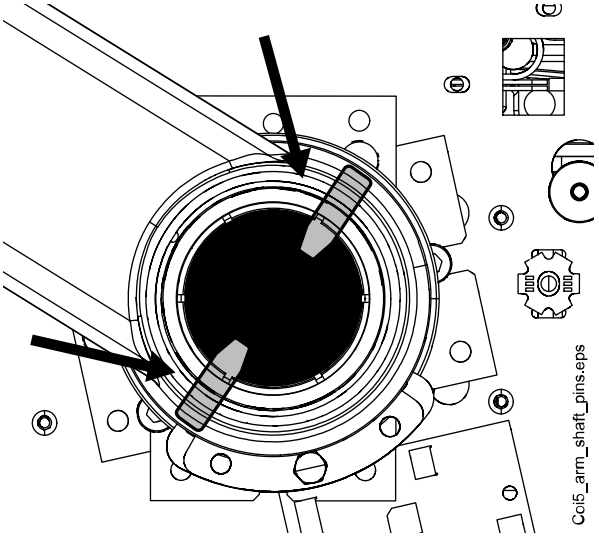


Monitor: Attach the monitor arm to the vertical arm with one attachment screw using a 8 mm Allen key.

Operating light and/or monitor: Route the monitor and/or operating light cables through the opening on the delivery arm to inside the cuspidor.

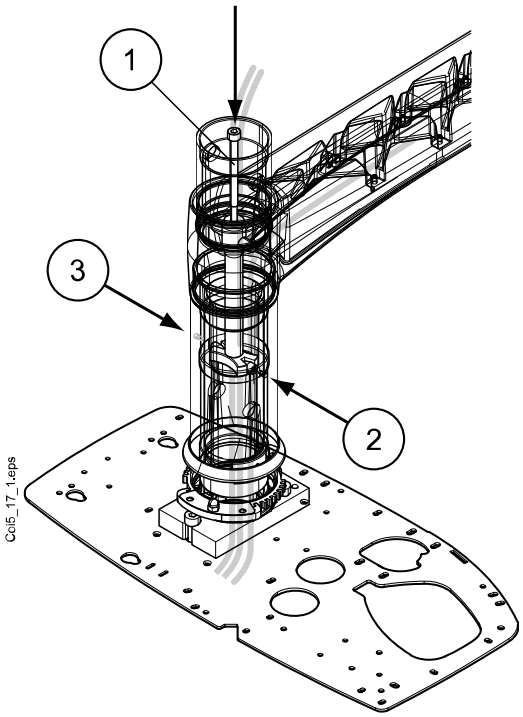


Two arm shaft attachment pins are located inside the delivery arm.



Place the arm shaft into the opening of the delivery arm (**1**) so that the attachment pins go into the arm shaft forks.

Rotate the arm until you can see an attachment screws through the small openings on the vertical arm (**2**, **3**). Tighten the screws using a 3 mm Allen key.

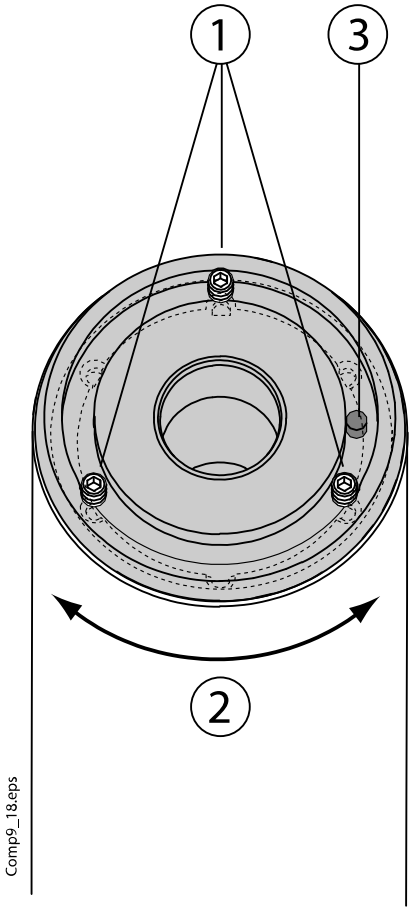


Monitor: Pull the monitor cables into the cuspidor.

Place the vertical arm to its position.

Monitor arm direction can be altered by rotating the vertical arm. The arm position can be adjusted at intervals of 60°. Lift the arm up and rotate it to the desired position.

Operating light: Note, that also the rotation limiter pin of the operating light moves when the arm is rotated. You can change the limiter pin position as follows. Loosen the adapter ring attachment screws (**1**) and rotate the ring (**2**) until the limiter pin (**3**) is in correct position. Tighten the attachment screws.



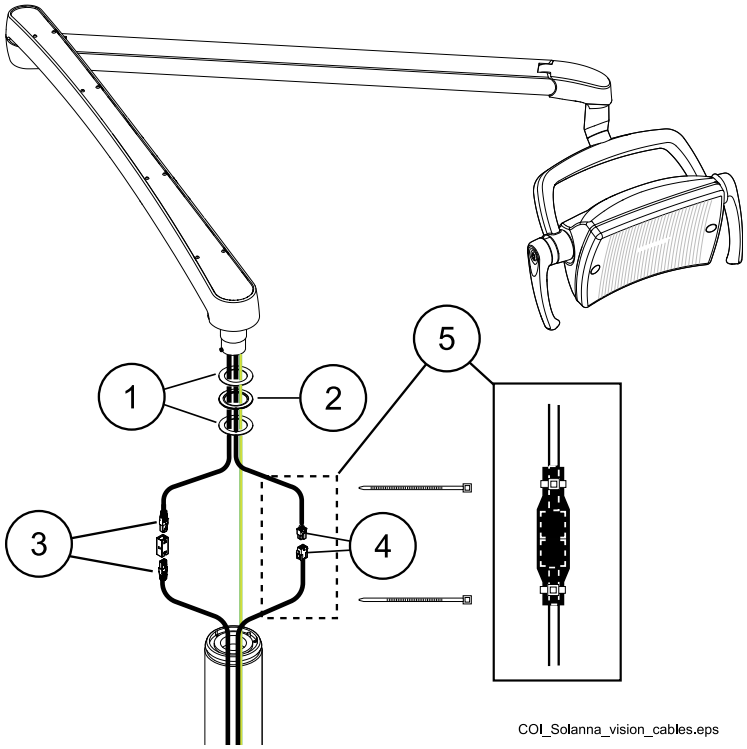
Insert two sliding rings (**1**) and the bearing frame (**2**) to the vertical arm end.

Planmeca Solanna Vision: Connect the ethernet cables from the operating light and from the PC to the RJ45 coupler (**3**).

Connect the cable from the operating light to the cable coming from the arm (**4**), slide an insulator over the connectors and tighten both ends with cable ties (**5**).

Route the cable and the grounding lead through the vertical arm and into the cuspidor.

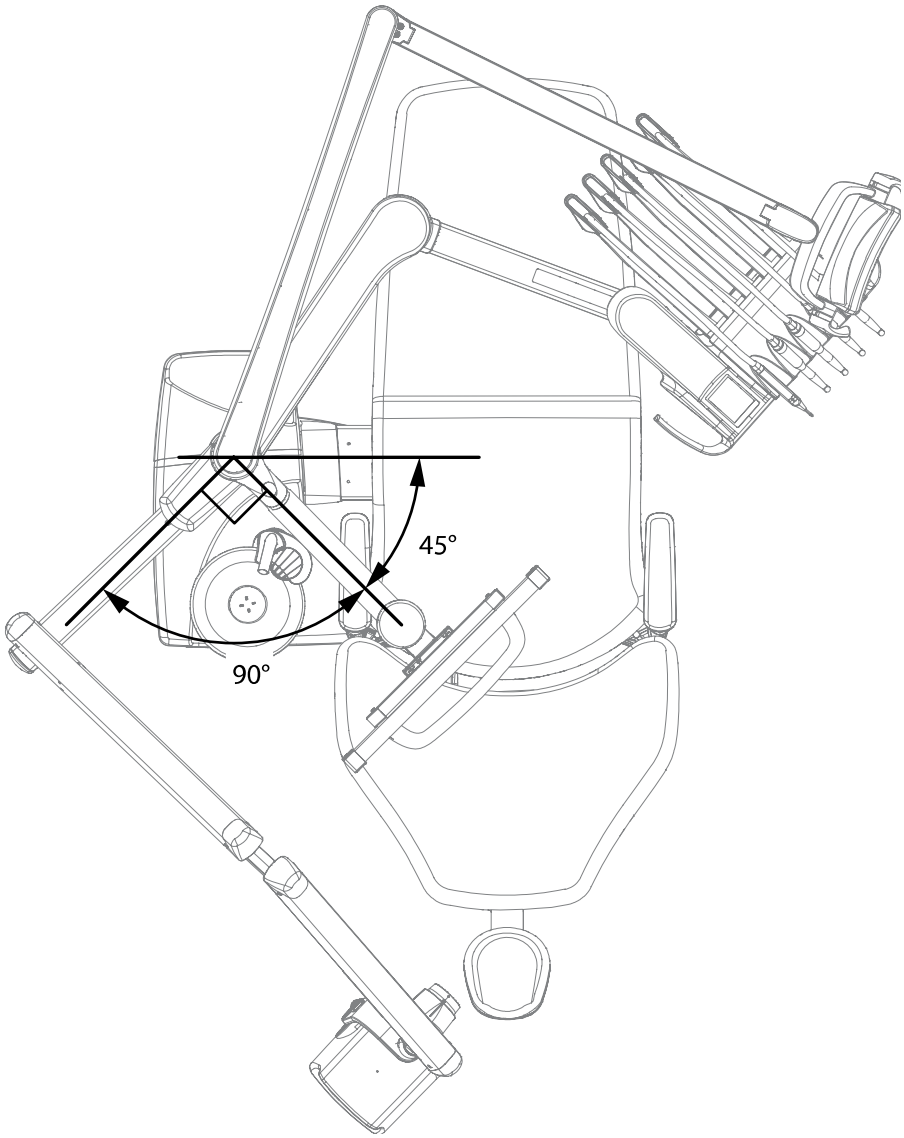
Mount the operating light to the vertical arm by pushing it into position.



NOTE

Planmeca Solanna Vision: If an optional PoE power supply is used, it must be positioned according to the local regulations. The approved PoE for Planmeca Solanna Vision is *22.5W PoE+ Injector PhiHong POE29U-1AT*.

Monitor: The monitor arm is located in the direction shown in the figure below.



Place the cover plug to the screw hole on the vertical arm.

7.4 Dental units without operating light and monitor

If you are not installing the operating light or monitor to the unit, the upper tube must be removed from the delivery arm joint.

Unscrew four arm panel attachment screws and remove the arm panel.

Loosen the upper tube fastening screw.

Rotate the upper tube away from its position.

Place the cover plug over the operating light opening on the delivery arm so that the fastening screw hits opening on the cover plug. Tighten the fastening screw.

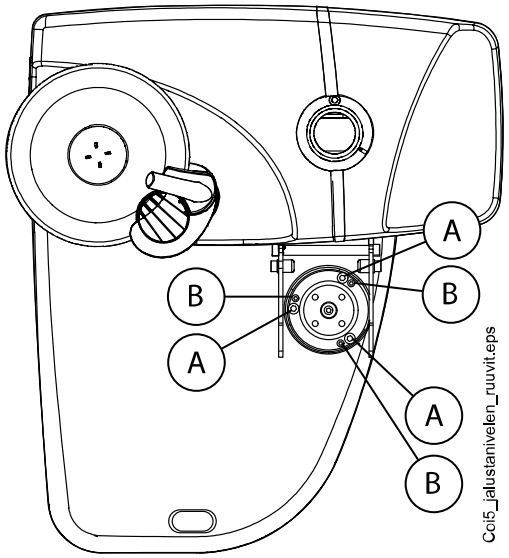
Attach the arm panel to its position.

8 Installing side delivery arm

8.1 Adjusting arm base joint

The floor below the dental unit must be straight within 1%. Make sure that the cuspidor is in vertical position.

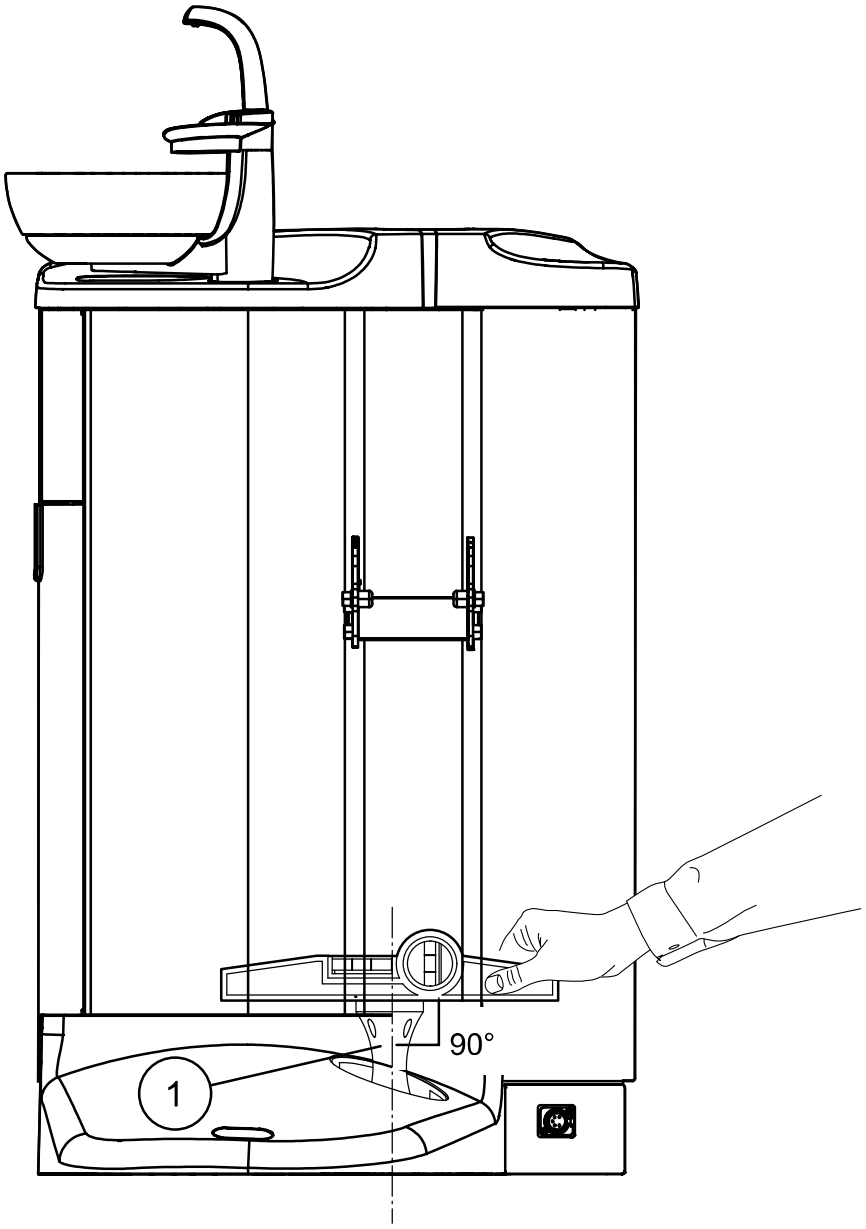
The arm base joint is attached to the cuspidor base with the three attachment screws. Beside the three attachment screws are the three adjustment screws.



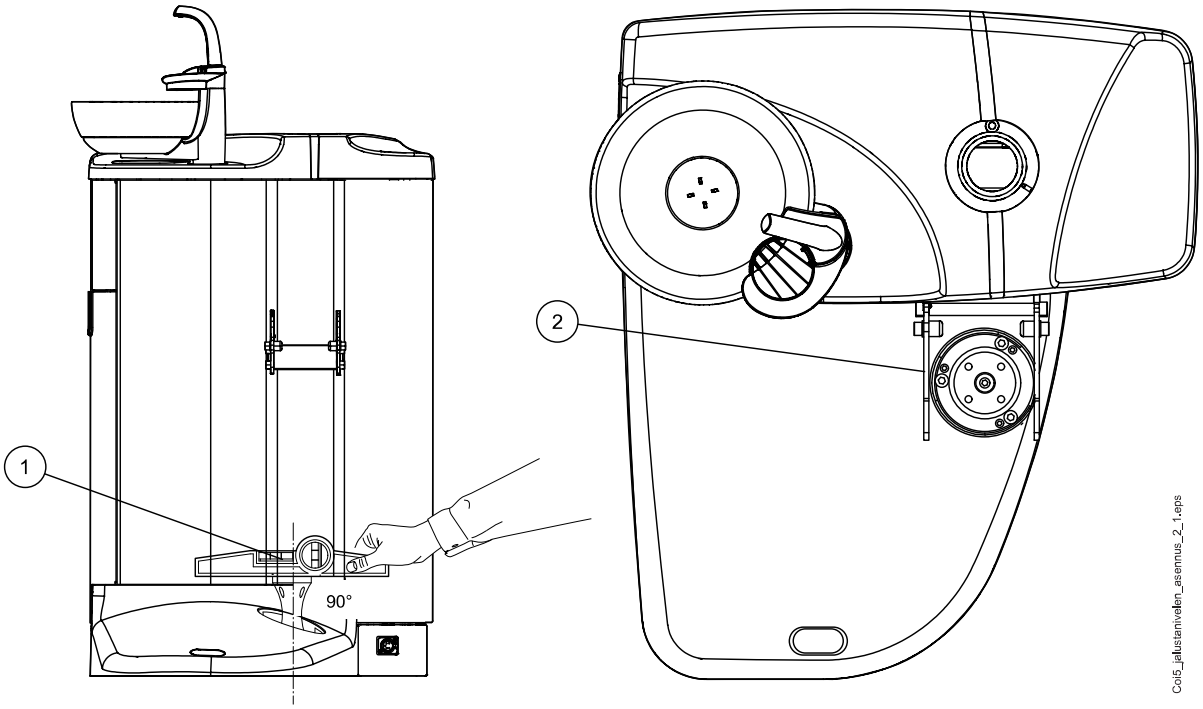
A attachment screw, 6mm Allen

B attachment screw, 6mm Allen

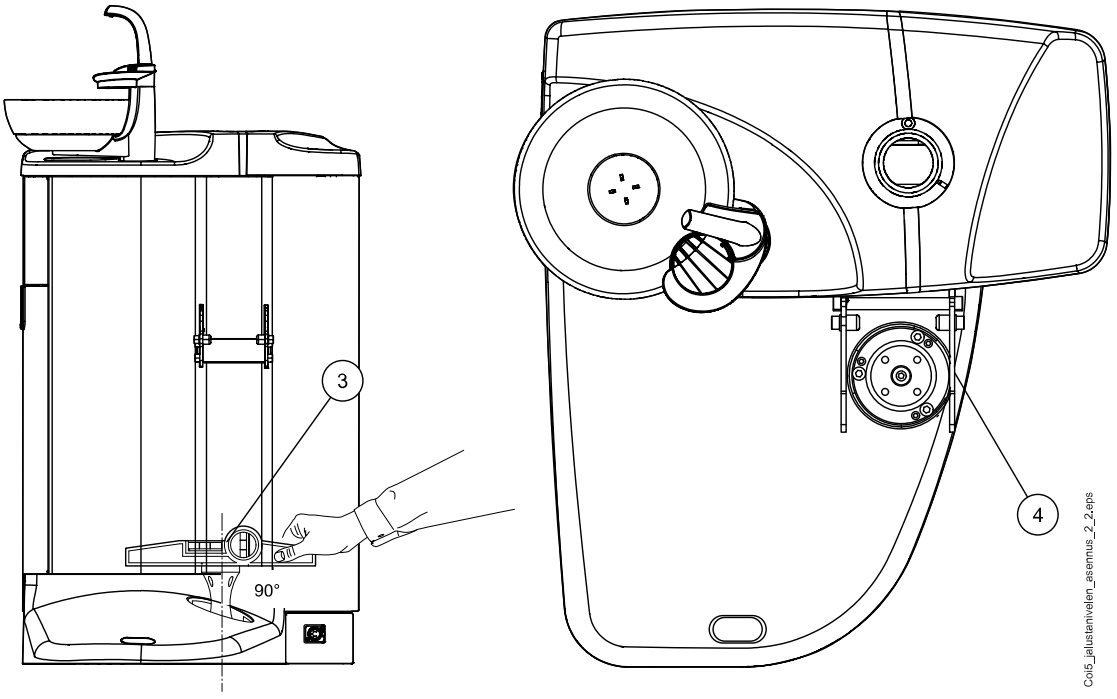
Adjust the base joint (1) to vertical position with the adjustment screws using the 4mm Allen key as follows. Adjust the base joint first in sideways direction. Check the base joint position with a spirit level as shown in the figure below.



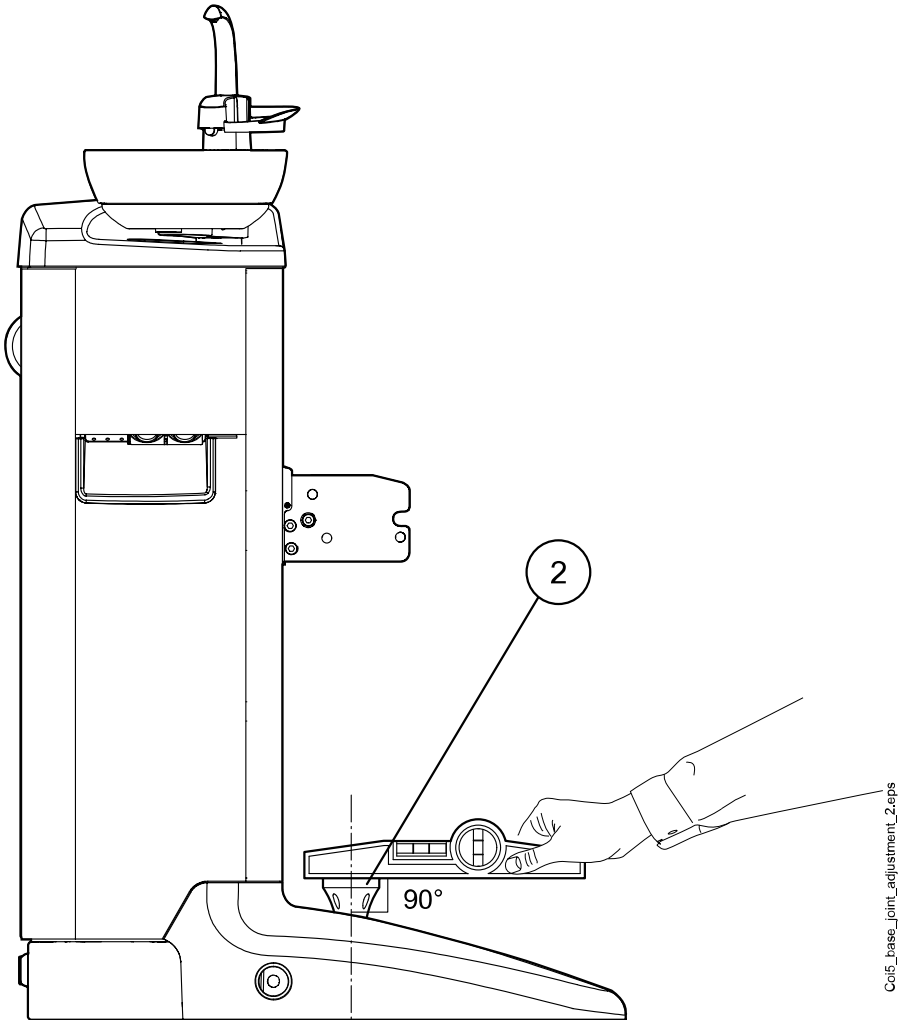
If you have to lift the left side of the base joint upwards (**1**), loosen the attachment screw from the left side of the base joint and tighten the respective adjustment screw (**2**). After adjustment tighten the attachment screw.



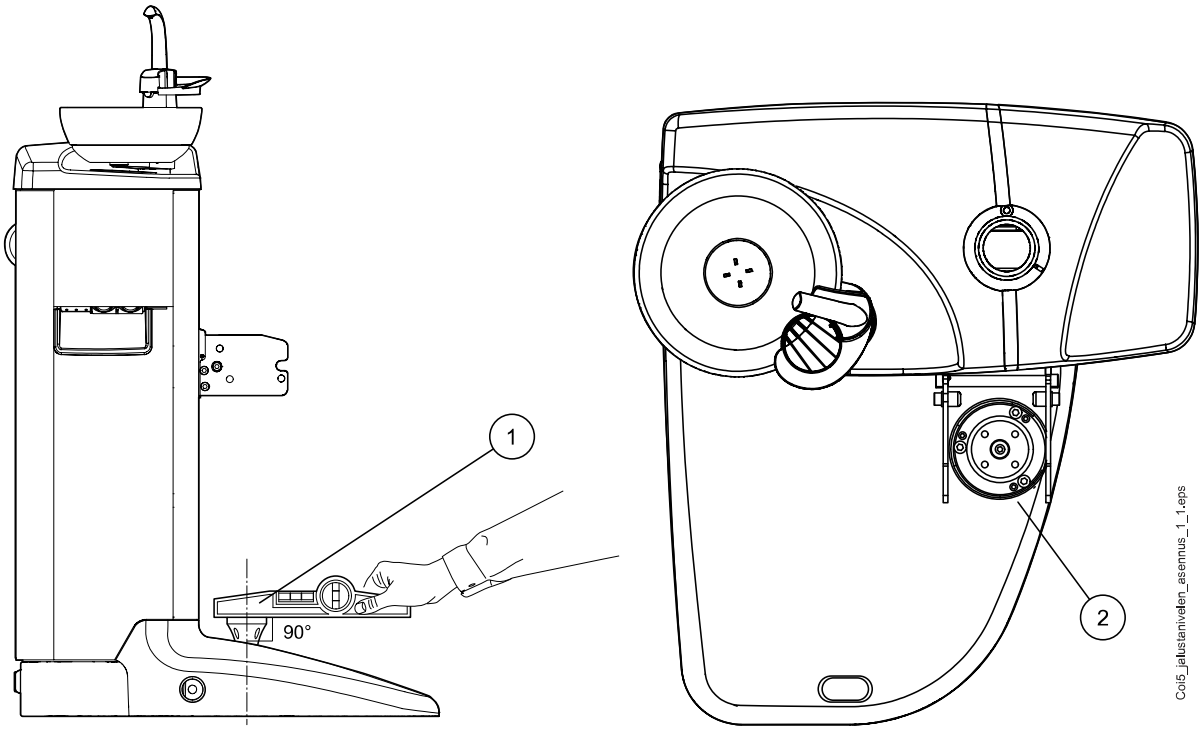
If you have to lift the right side of the base joint upwards (**3**), loosen the two attachment screws from the right side of the base joint and tighten the respective adjustment screws (**4**). After adjustment tighten the attachment screws.



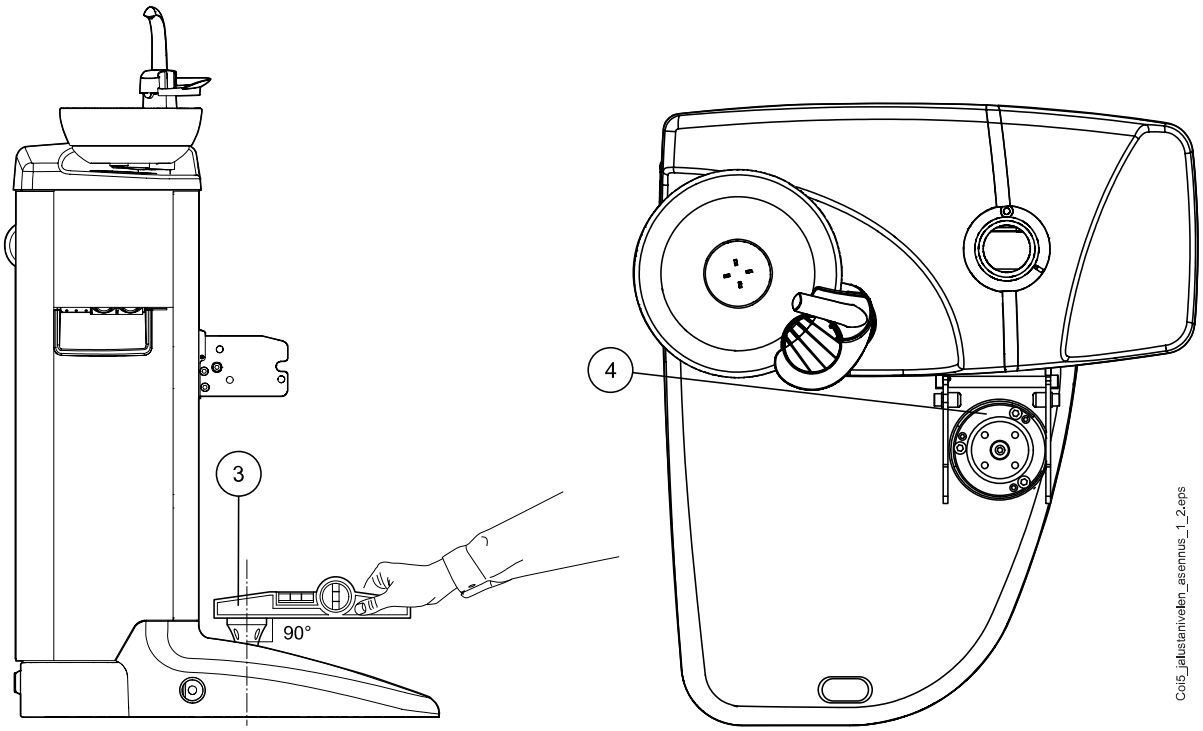
Now adjust the base joint (**2**) in depth. Check the base joint position with a spirit level as shown in the figure below.



If you have to lift the outer side of the base joint upwards (**1**), loosen the outer attachment screw from the right side of the base joint and tighten the respective adjustment screw (**2**). After adjustment tighten the attachment screw.

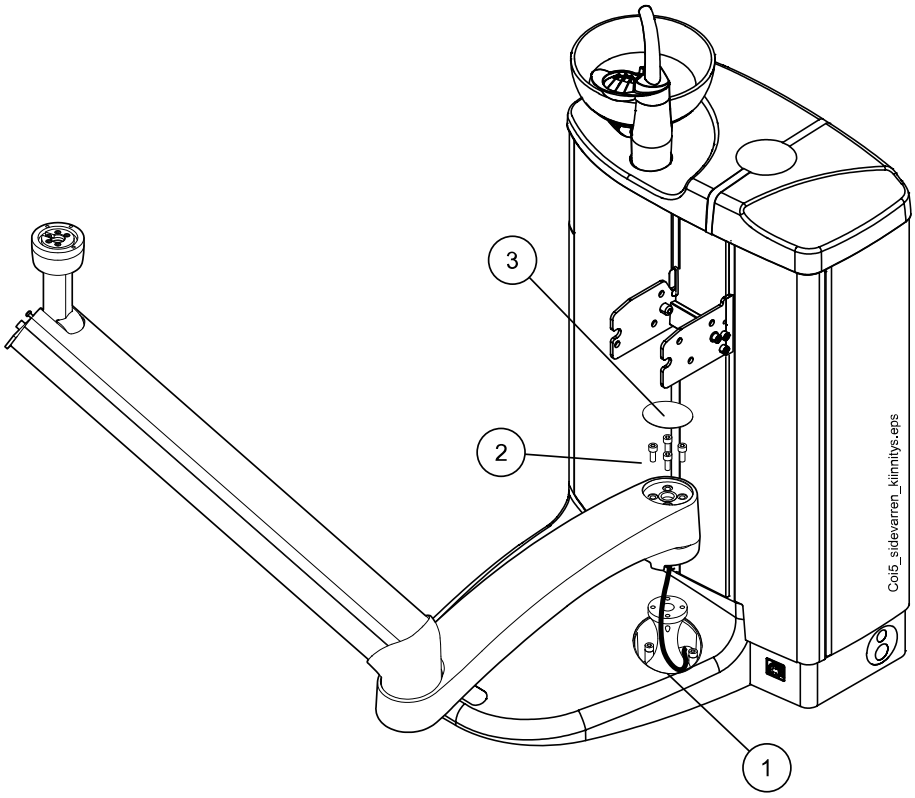


If you have to lift the inner side of the base joint upwards (figure below, 3), loosen the two inner attachment screws from the base joint and tighten the respective adjustment screws (4). After adjustment tighten the attachment screws.



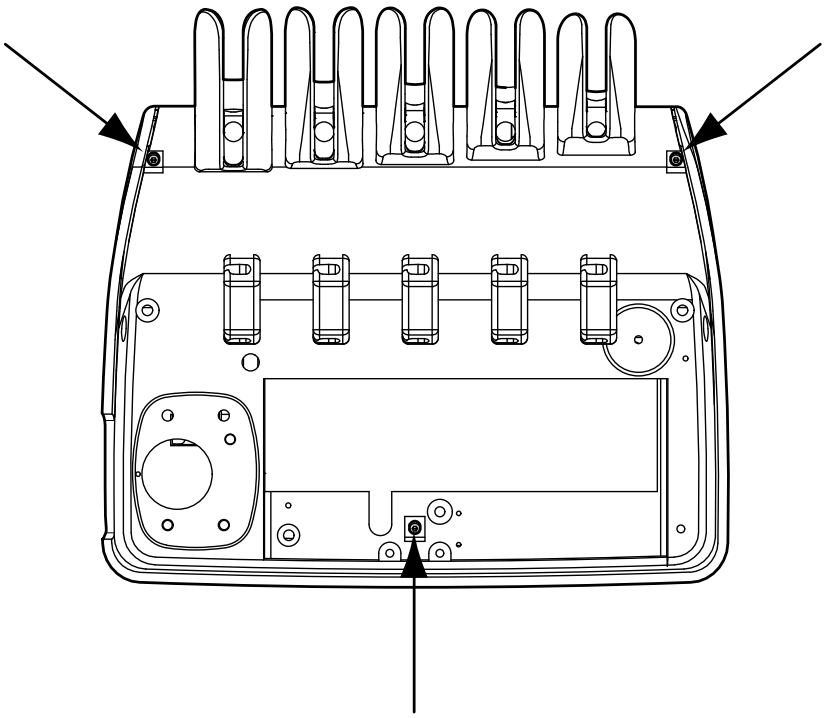
8.2 Attaching side delivery arm

Route the arm cables from the front of the base joint and through the opening on the unit base into the unit (**1**). Attach the arm to the base joint with the four attachment screws using the 6mm Allen key (**2**). Place the cover plate over the opening on the delivery arm (**3**).

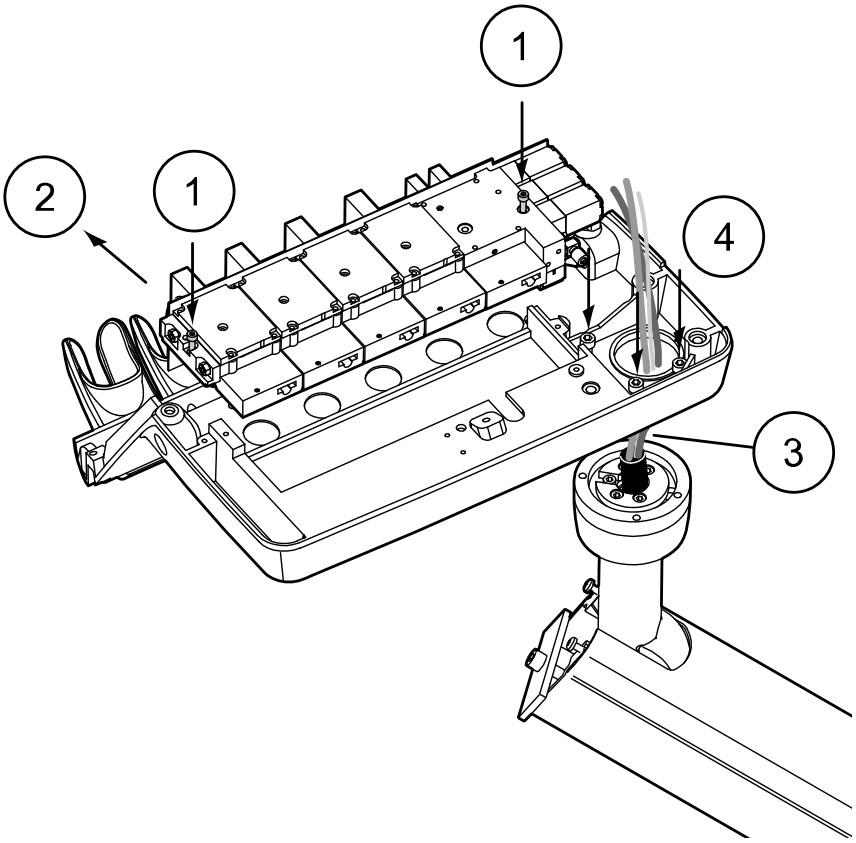


8.3 Attaching instrument console

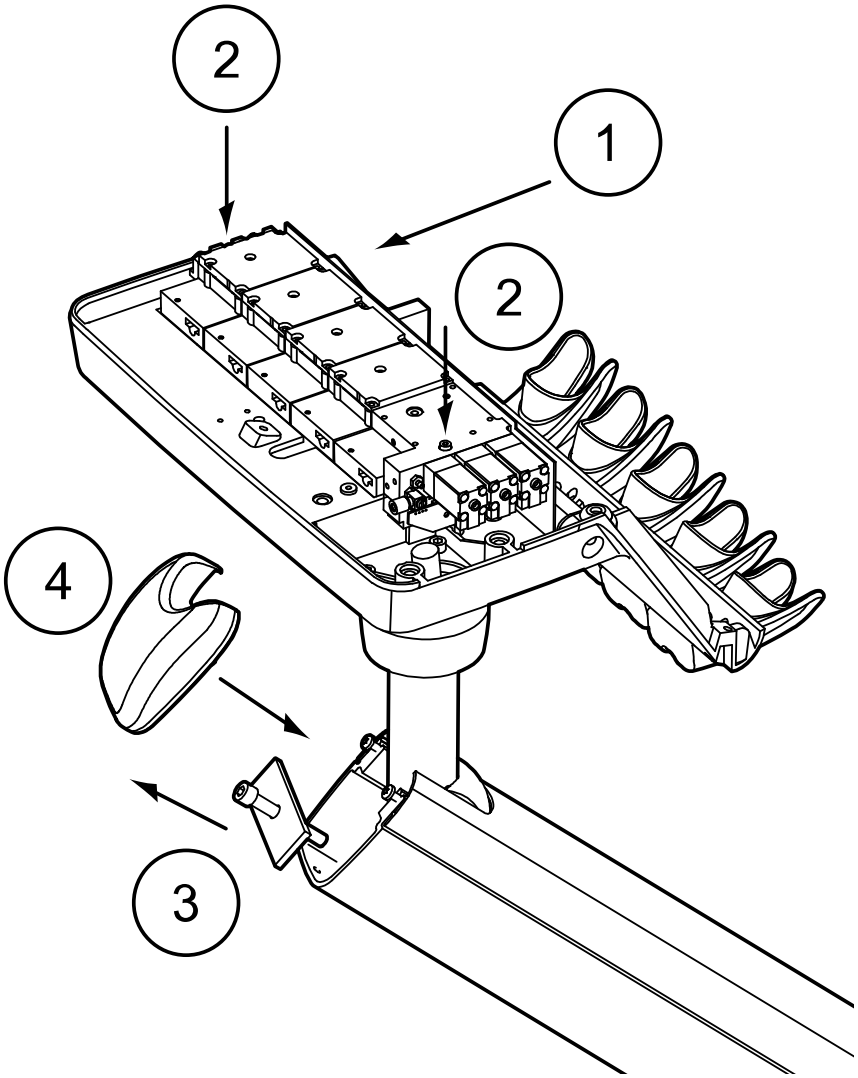
Loosen the three attachment screws of the console cover and remove the cover.



Loosen the two attachment screws of the instrument multiplexer with the 3mm Allen key (figure below, **1**) and move the multiplexer to the direction shown in the figure below (**2**). Route the arm cables and tubes through the opening on the instrument console (**3**) and attach the console to the arm with the three attachment screws using the 5mm Allen key (**4**).

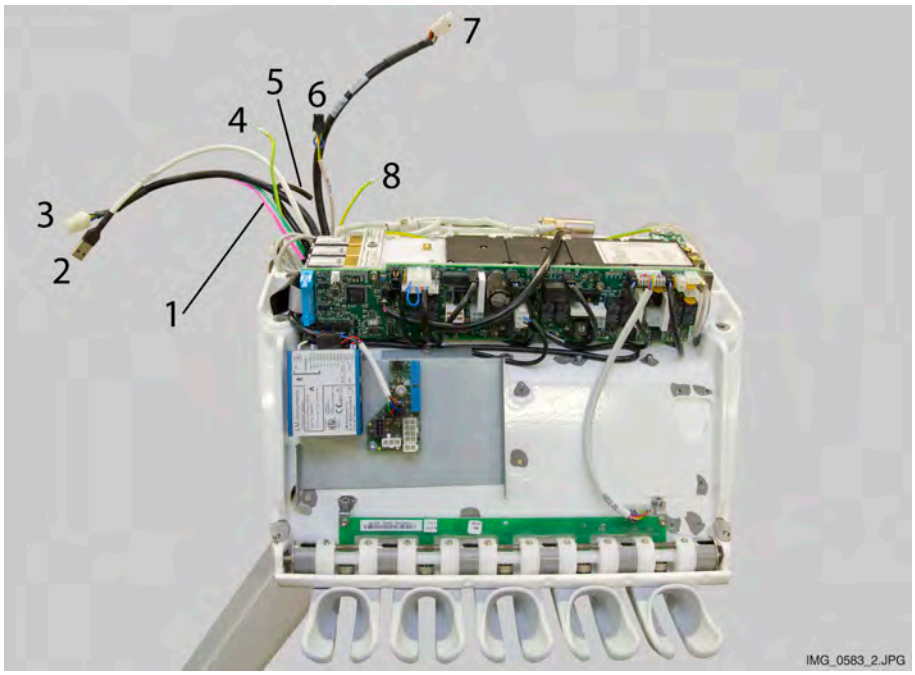


Slide the instrument multiplexer back to its position (figure below, **1**) and tighten the attachment screws (**2**). Remove the transportation support plate from inside the delivery arm (**3**) and place the cover plug to the end of the delivery arm (**4**).

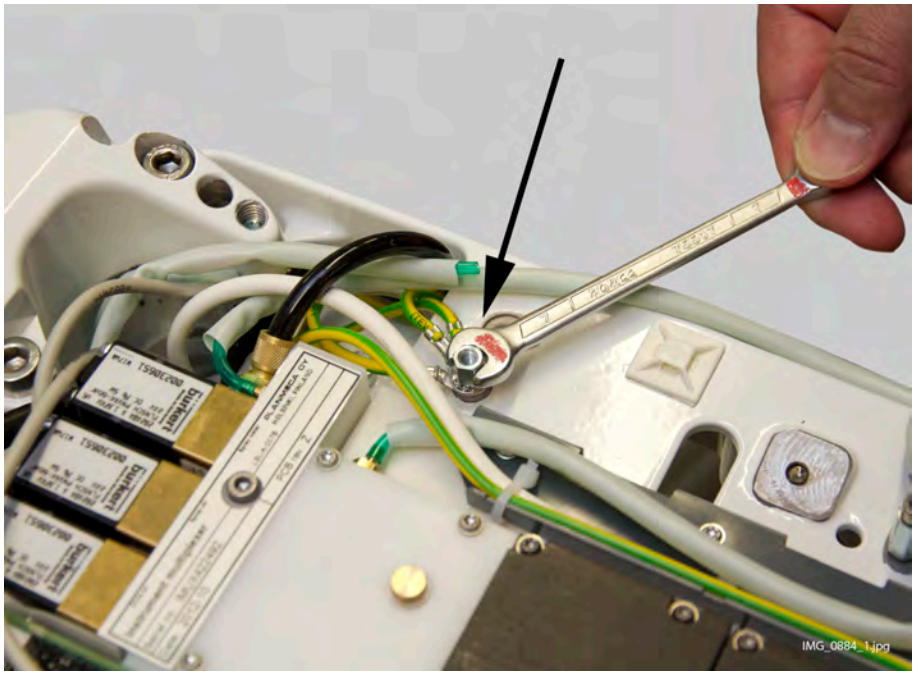


The cables and tubes routed to the instrument console are:

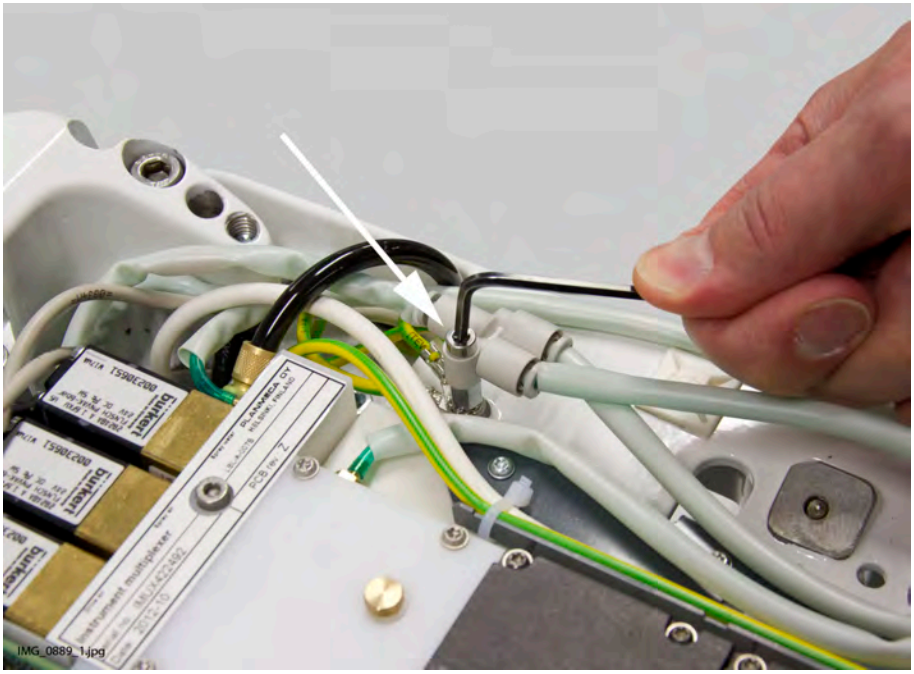
1. Incoming water line (green tube) and return water line (red tube)
2. USB cable
3. Side arm cable, 8 pin
4. Grounding lead
5. Air tube
6. Side arm safety switch cable
7. Side arm cable, 8 pin
8. Grounding lead



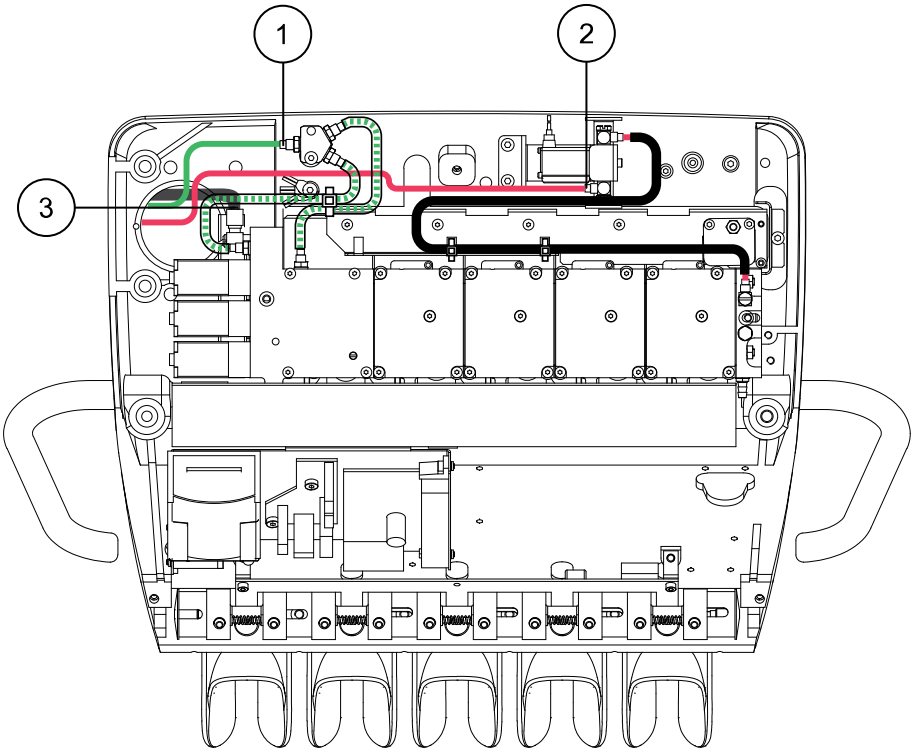
Detach the water Y-nipple from the console. Attach the arm grounding leads to the grounding point on the console casting with a standoff screw.



Attach the Y-nipple to the standoff screw.



Connect the air and water tubes as shown in the figure below.

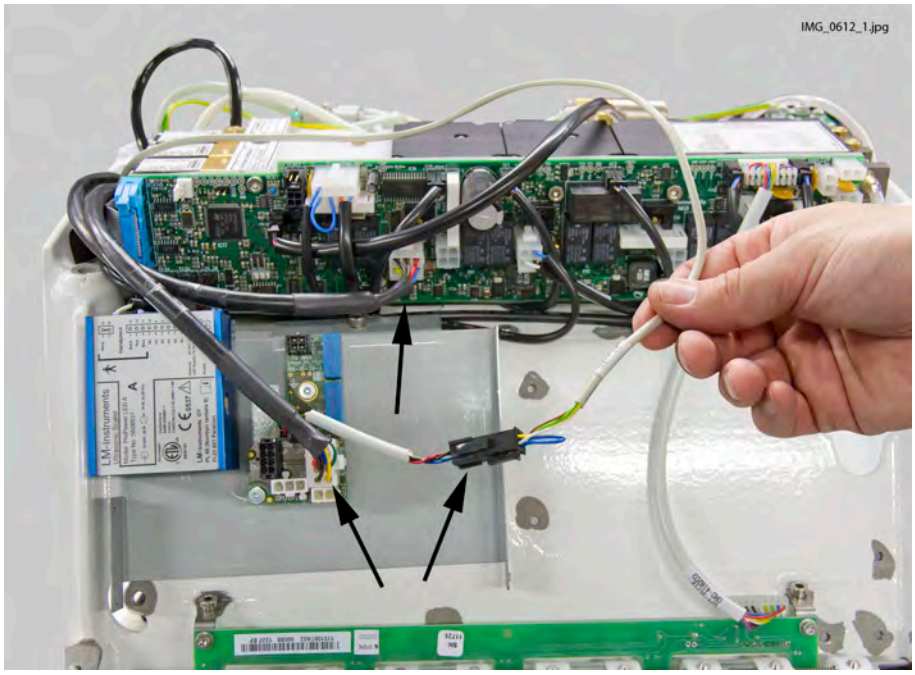


1 Incoming water tube
2 Return water tube
3 Air tube

Connect the delivery arm cable as follows.

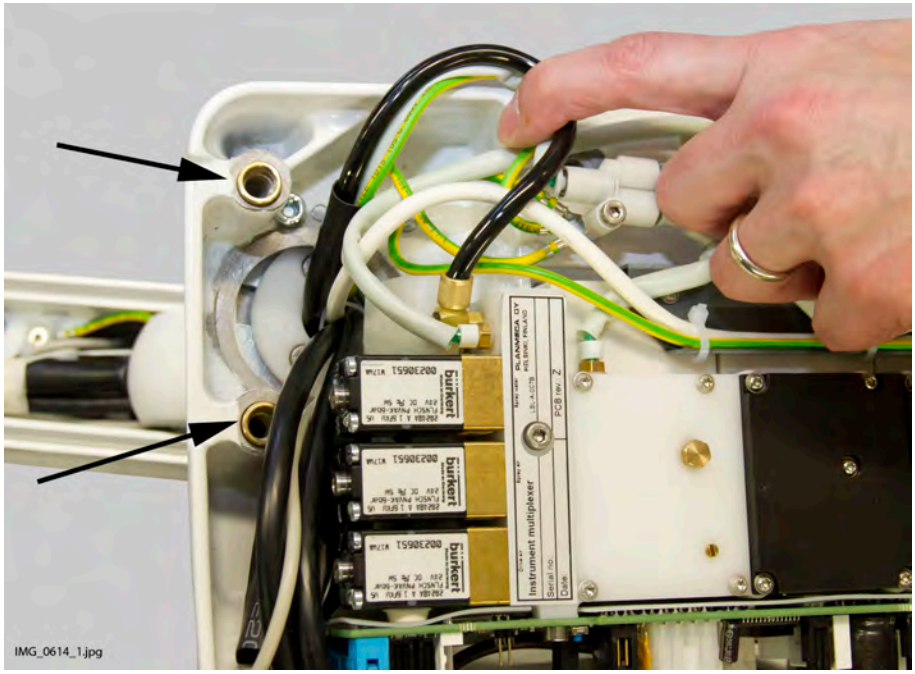
Connect the console arm cable to connector P11 on the instrument multiplexer PCB and to connector J1 on the Control connector board. Connect the safety switch cable to the cable coming from the Control connector board.

Connect the USB cable at the top right-hand edge of the multiplexer.

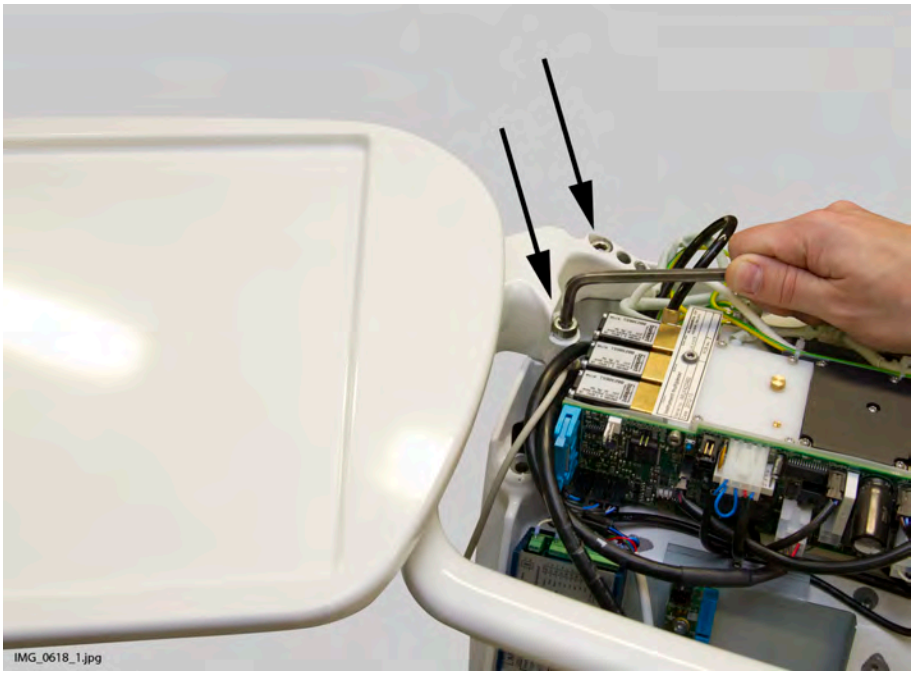


8.3.1 Installing rotating tray

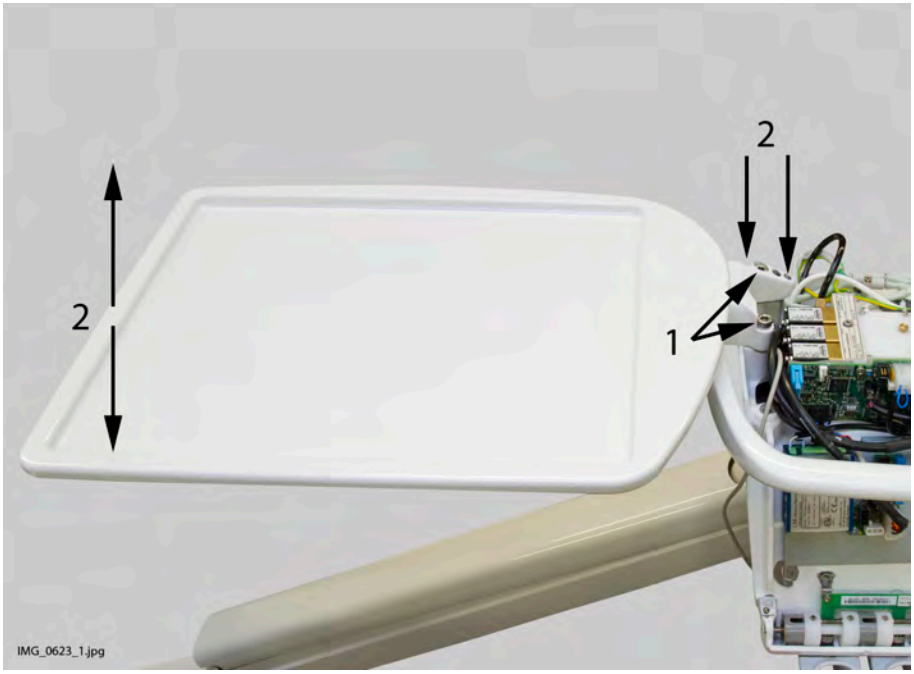
Insert the guide bushings to the handle / rotating tray assembly attachment screws between the handle and the console.



Attach the handle / rotating tray assembly to the instrument console with two attachment screws using a 6 mm Allen key.

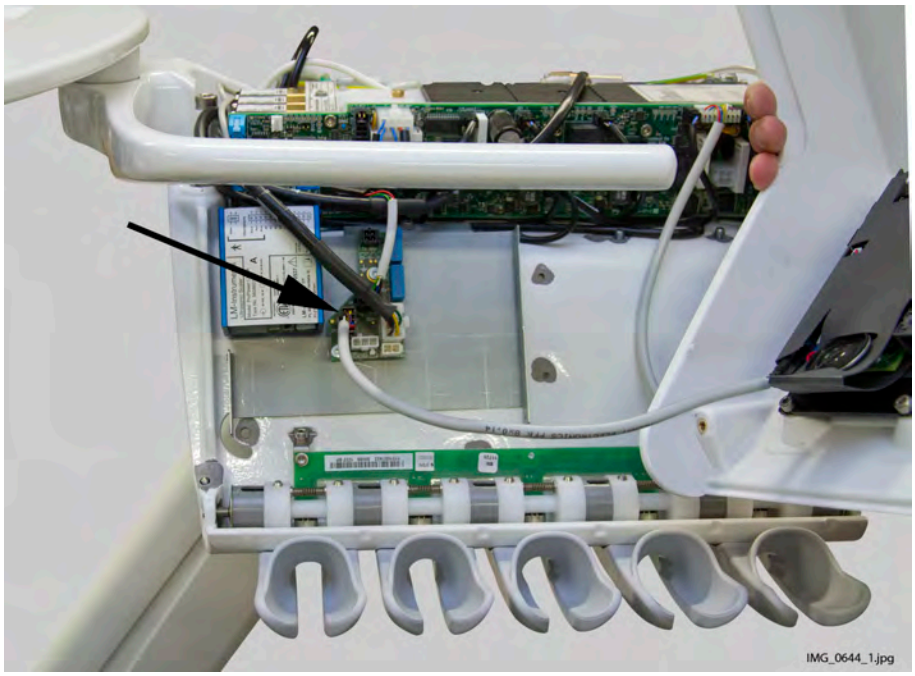


The handle / rotating tray assembly must run parallel with the instrument console cover. Adjust the handle / rotating tray assembly position with two adjustment screws as shown in the figure below using a 4 mm Allen key.

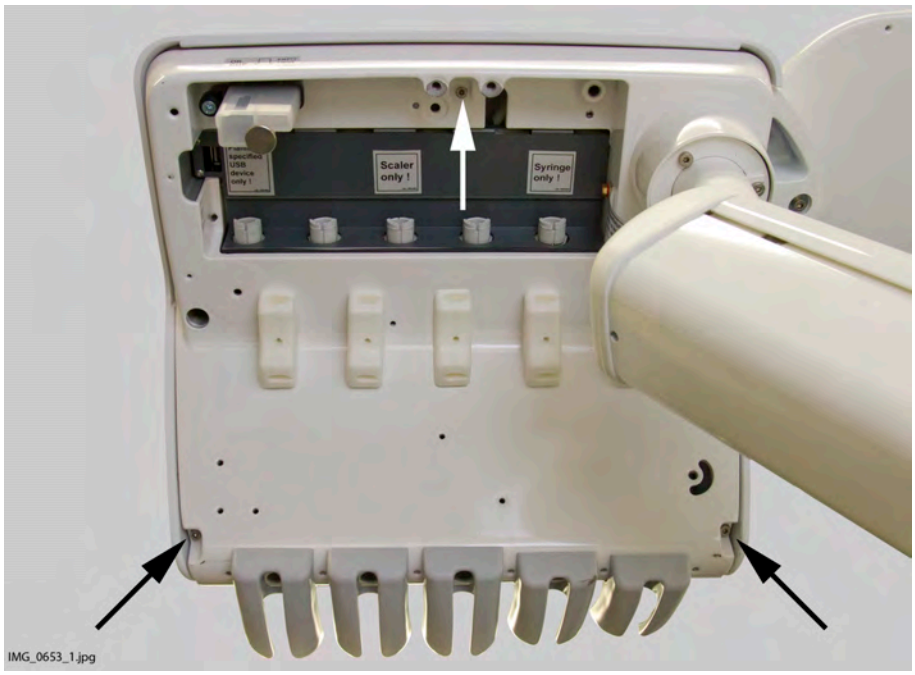


8.3.2 Attaching console cover

Connect the touch panel cable to the connector J2 on the Control connector board.



Attach the instrument console cover to its position with three attachment screws.



8.4 Connecting side delivery arm cables

Route the delivery arm cables below the electronics control box to the Main control PCB.

Connect the cables according to the instructions given in section "Connecting OP delivery arm cables and tubes" on page 76.

8.5 Connecting delivery arm tubes

Connect the arm tubes according to the instructions given in section "Connecting OP delivery arm cables and tubes" on page 76.

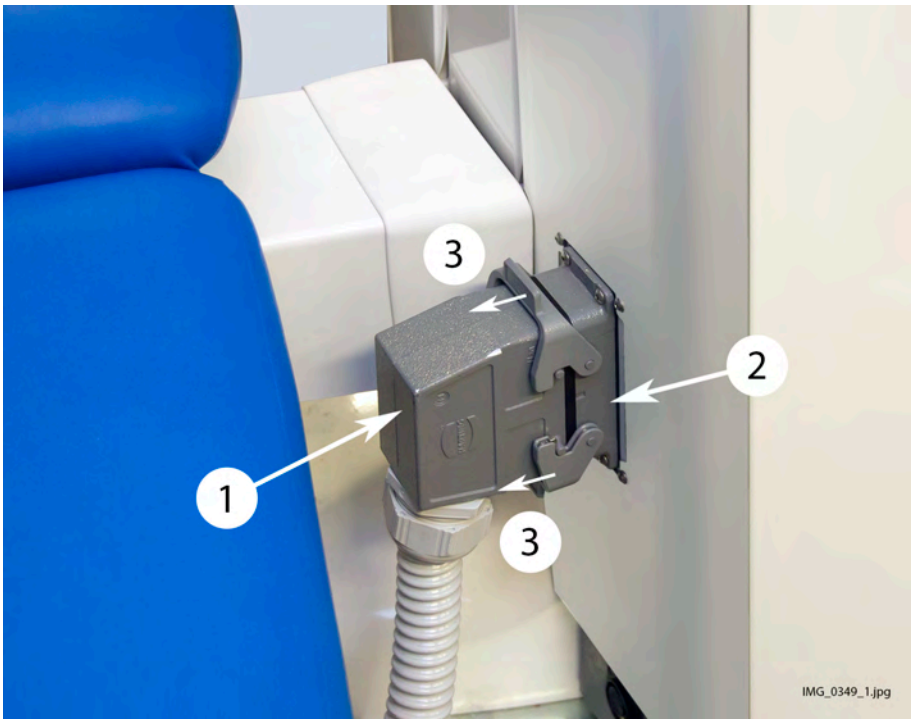
9 Installing mobile cart

About this task

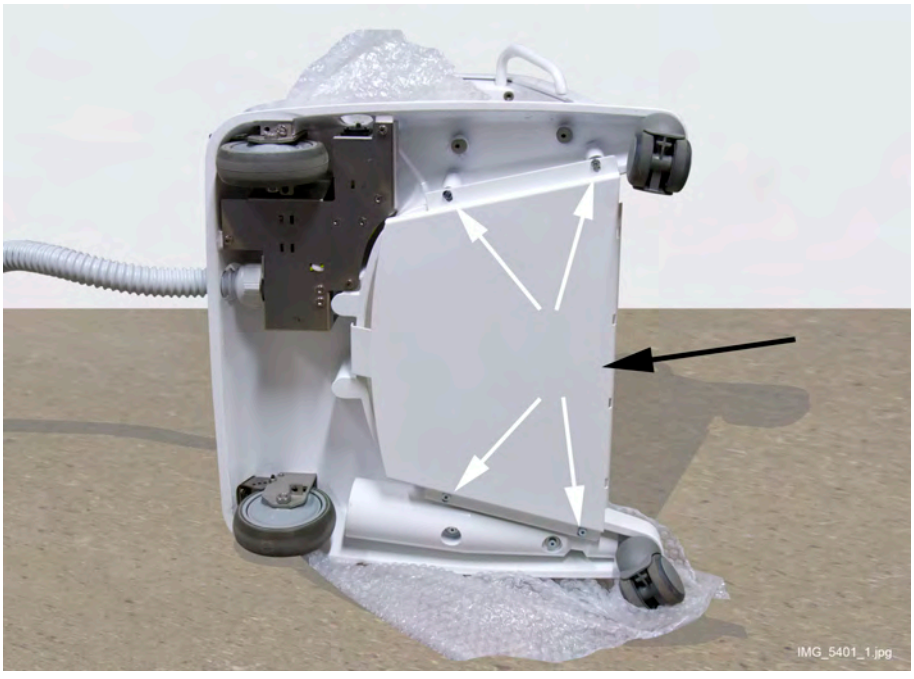
The mobile cart is connected to the cuspidor with an interconnection tube. The cuspidor and patient chair are installed in the same way as in the OP-delivery unit.

Steps

1. The interconnection tube quick connector (**1**) is located on the cuspidor frame next to the chair (**2**). Connect the quick connector and engage the locking clamps (**3**).



2. Attach the foot control plate to the cart with four attachment screws.



3. If the dental unit is not equipped with a wireless foot control, connect the foot control cable to the connector on the cuspidor or on the cart by pushing it into position.

10 Units with side delivery arm or mobile cart: Installing operating light and/or monitor arms

NOTE

If Planmeca ProX is installed, both the Planmeca ProX and the monitor arm is installed according to the instructions given in section "Installing vertical arm with Planmeca ProX X-ray unit" on page 117.

10.1 Installing arms

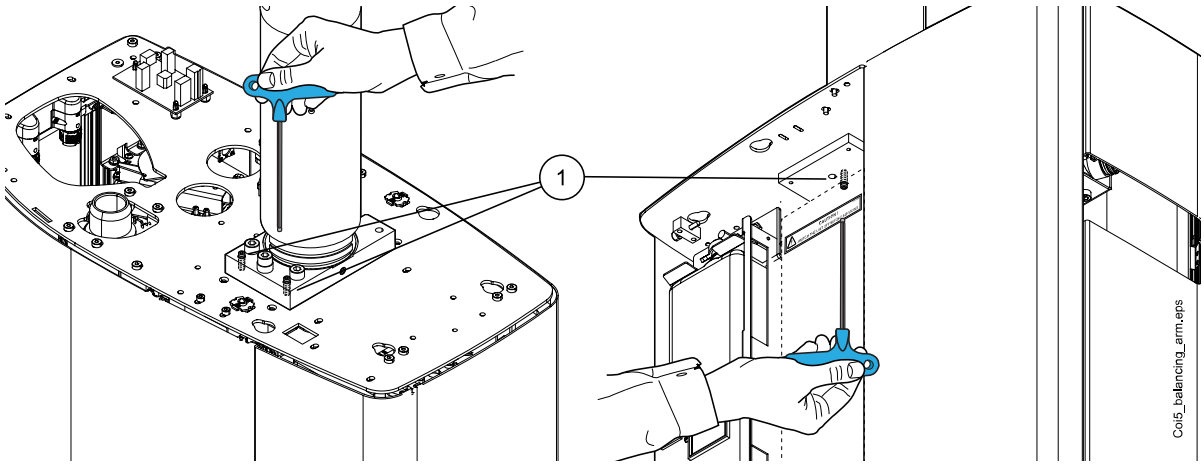
Remove the arm and monitor/operating light (optional) from packing. Protect the patient chair upholsteries and lift the operating light onto the chair.

Screw one of the M8x30 DIN 912 screws (the one farthest from the patient chair) into position in the top cover plate (use the same screws that connected the plywood board to the top cover plate). Screw it in just a couple of turns so that the adapter plate of the arm can be slipped under the head of the screw.

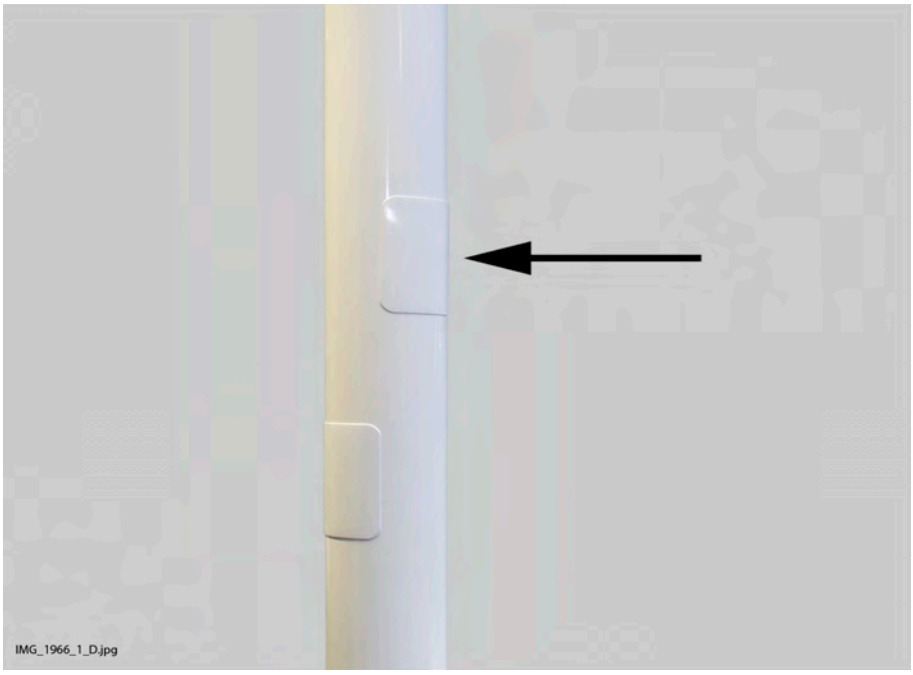
Attach the arm in the same way as described in section "Attaching OP delivery arm to cuspidor" on page 73.

NOTE

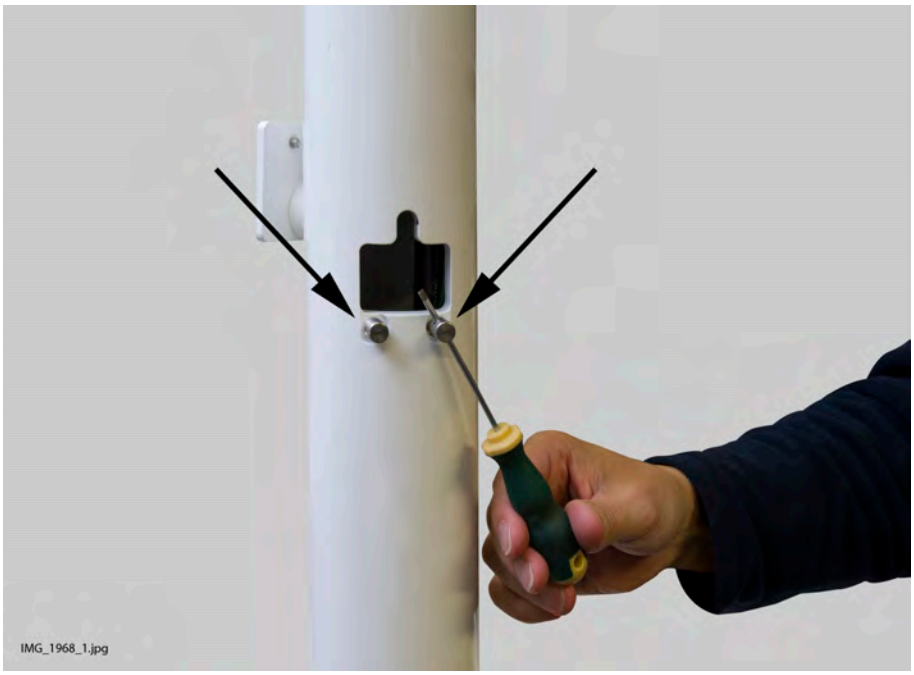
The arm must be vertical. You may have to adjust the arm position, if the floor is very inclined. Adjust the position with the three M8x12 DIN 913 screws (1).



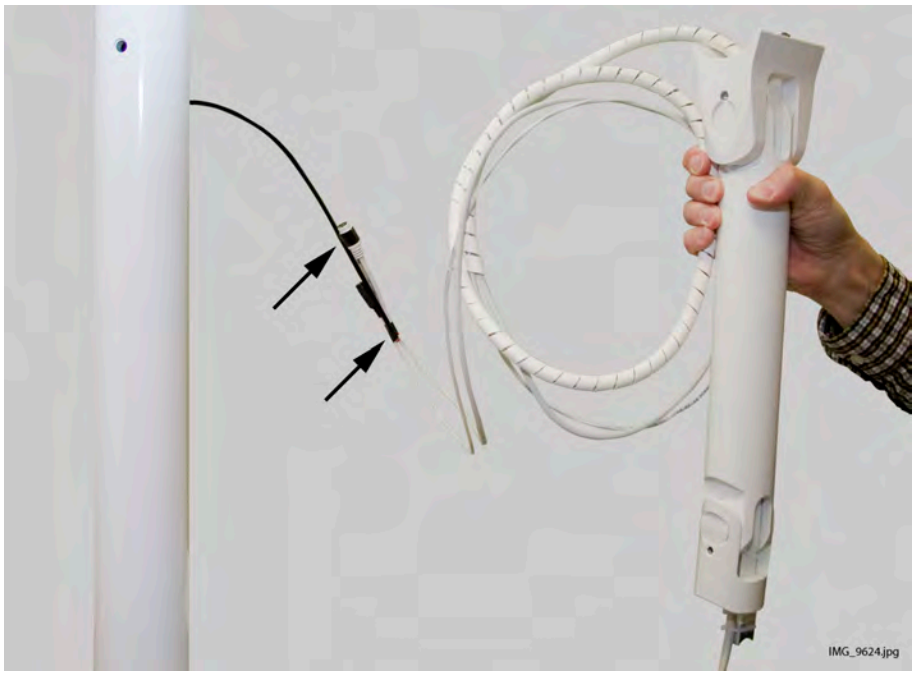
Monitor (optional): Remove the post opening cover from the monitor attachment point.



Monitor: Mount the guide pins to the vertical arm.



Monitor: The monitor cables are routed through the monitor arm at the factory. Attach the cables to the draw cord and route the cables through the vertical arm. The cables are attached to the monitor arm with cable tie. **Do not detach the cables.**



NOTE

The monitor arm is installed in the same way with or without the operating light. Only the length of the vertical arm varies in different installation options.

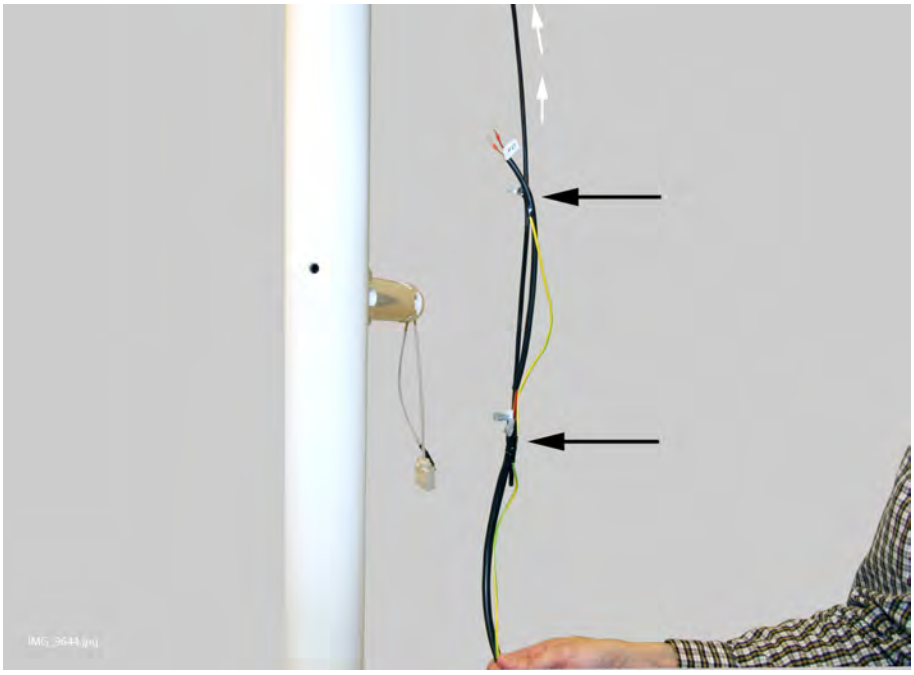
Pull the monitor cables into the cuspidor. Detach the draw cord.

Attach the monitor arm to the vertical arm with one attachment screw using a 8 mm Allen key.

Place the cover plug to the screw hole on the vertical arm.

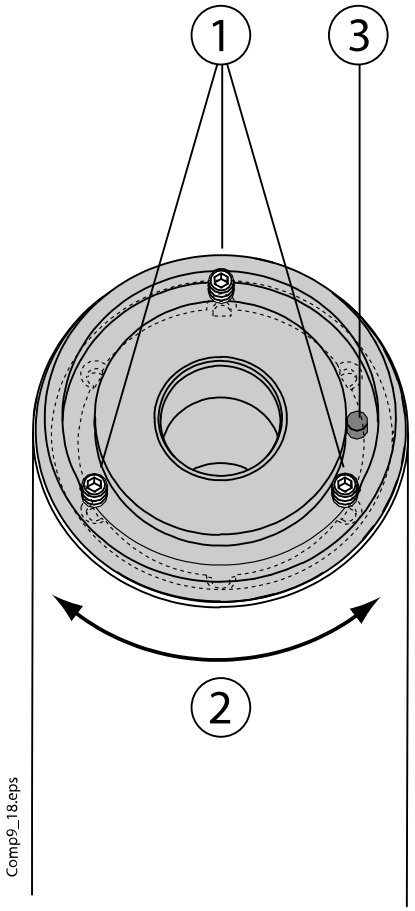
Monitor arm direction can be altered by rotating the vertical arm. Loosen the two attachment screws of the vertical arm using a 5 mm Allen key and rotate the vertical arm to the desired position.

Operating light (optional): Attach the operating light cables to the draw cord and route the draw cord and cables through the vertical arm.



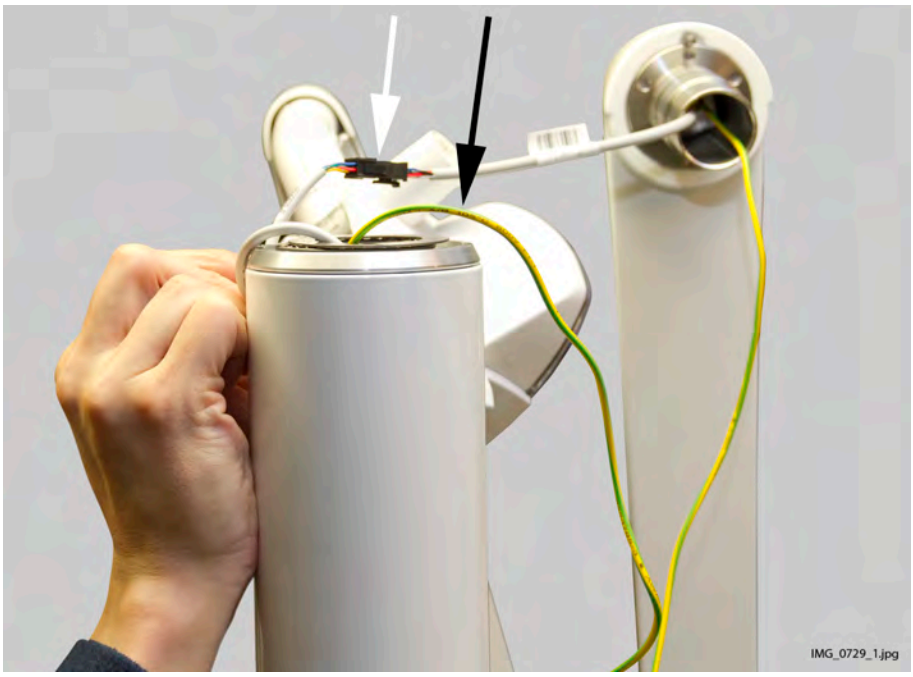
Pull the operating light cables into the cuspidor. Detach the draw cord.

Note that also the rotation limiter pin of the operating light moves when the arm is rotated. You can change the limiter pin position as follows. Loosen the adapter ring attachment screws (**1**) and rotate the ring (**2**) until the limiter pin (**3**) is in correct position. Tighten the attachment screws.

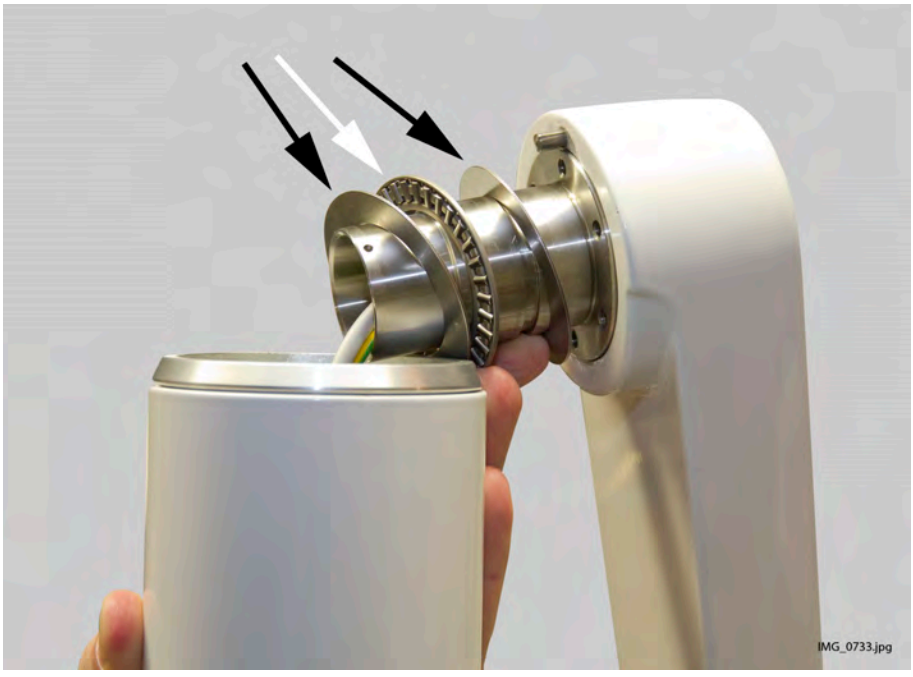


Insert two sliding rings (black arrows) and the bearing frame (white arrow) to the vertical arm end.

Connect the cable from the operating light to the cable coming from the arm (white arrow). Route the grounding lead through the vertical arm and into the cuspidor. Place an insulator over the connectors and secure it with cable ties.



Pull the operating light cables into the cuspidor. Place the **sliding rings (black arrows) and the bearing frame (white arrow) to the light arm shaft as shown in the figure below** and mount the operating light to the vertical arm by pushing it into position.



11 Installing vertical arm with Planmeca ProX X-ray unit

11.1 Installing arms and Planmeca ProX X-ray unit

Attach the OP delivery arm to the cuspidor. Refer to section "Attaching OP delivery arm to cuspidor" on page 73.

Tape the OP delivery arm cables and tubes to a draw cord and route them through the delivery arm post and into the cuspidor.

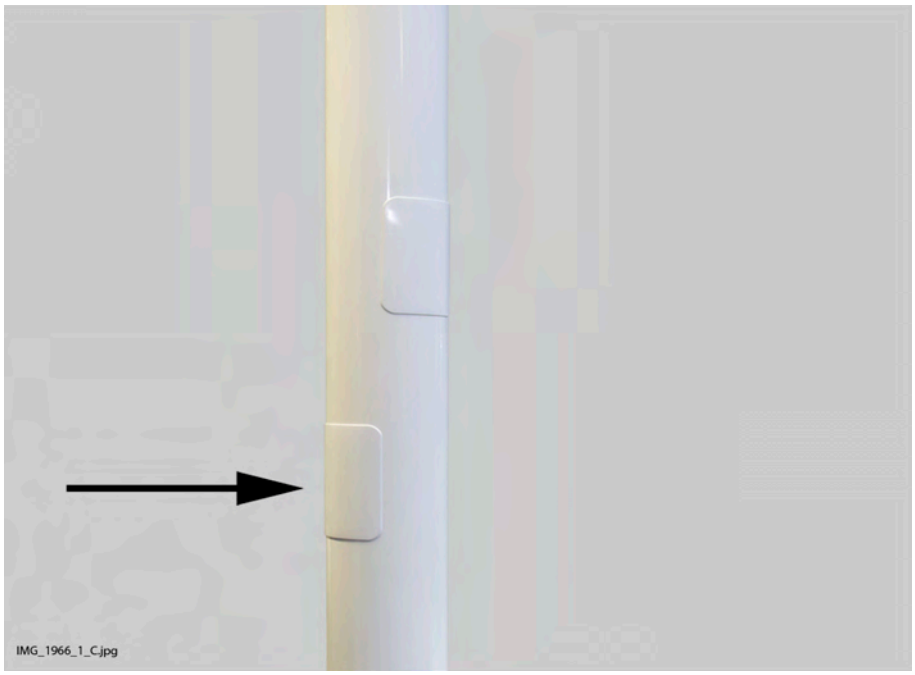
Connect the cables and tubes, see section "Connecting OP delivery arm cables and tubes" on page 76.

NOTE

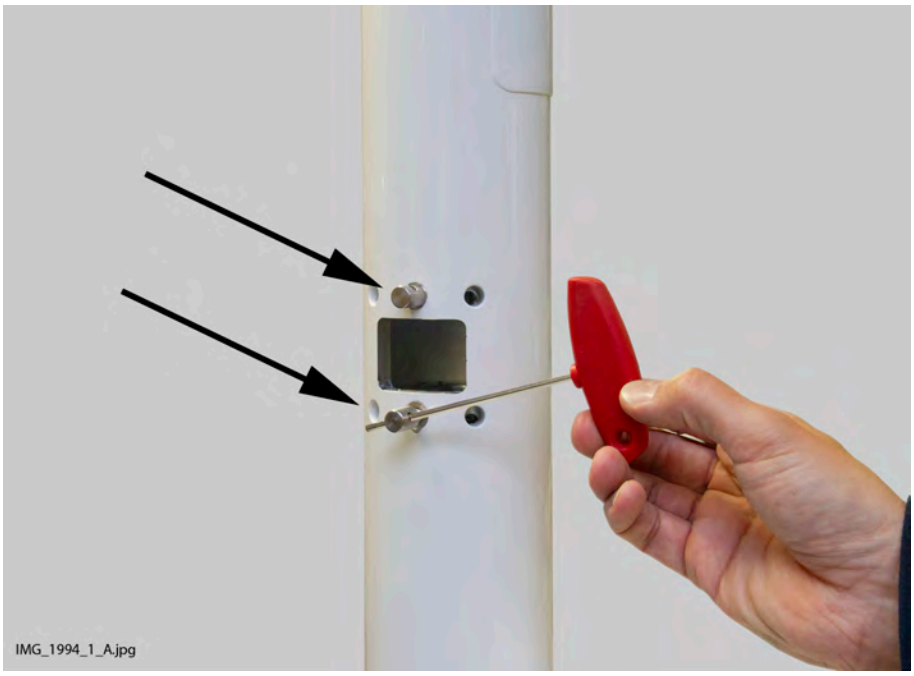
Units with side delivery arm: Attach the vertical arm according to the instructions given in section "Units with side delivery arm or mobile cart: Installing operating light and/or monitor arms" on page 111.

Attach the monitor arm to the vertical arm. Refer to section "Installing vertical arm" on page 82.

Remove the post opening cover from the X-ray unit attachment point.

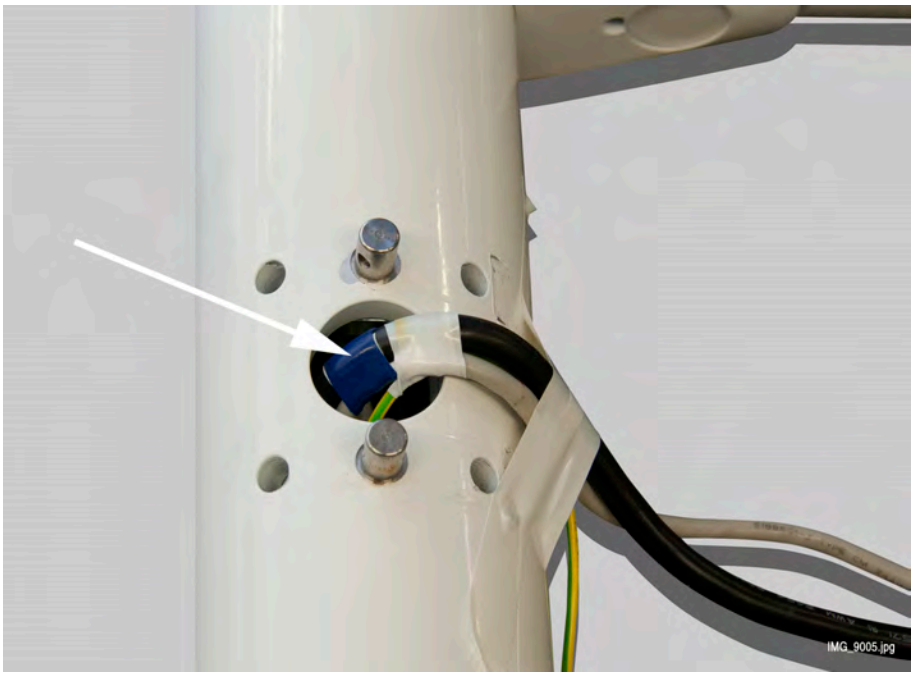


Mount the guide pins to the vertical arm.



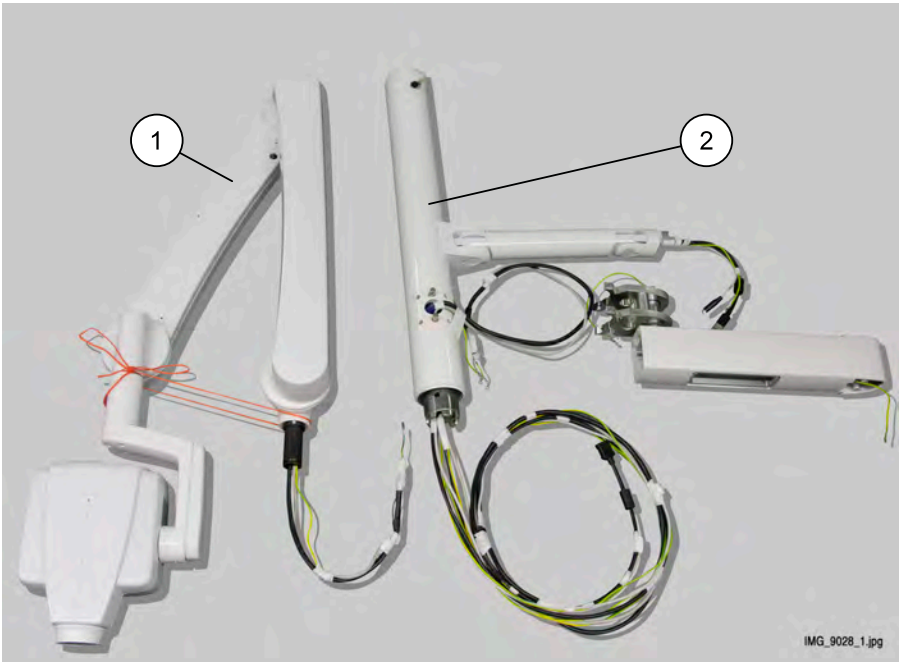
Route the Planmeca ProX X-ray unit cables through the opening on the vertical arm and through the arm.

The blue tape must be in the level with opening edge as shown in the figure below. Tape the cables to the arm.



The tape attached to the cables must be in the level with opening edge as shown in the figure below. Tape the X-ray unit, monitor and operating light cables to three bundles as shown in the figure below.

Tape the cable bundles to each other. Shield the connectors with tape.

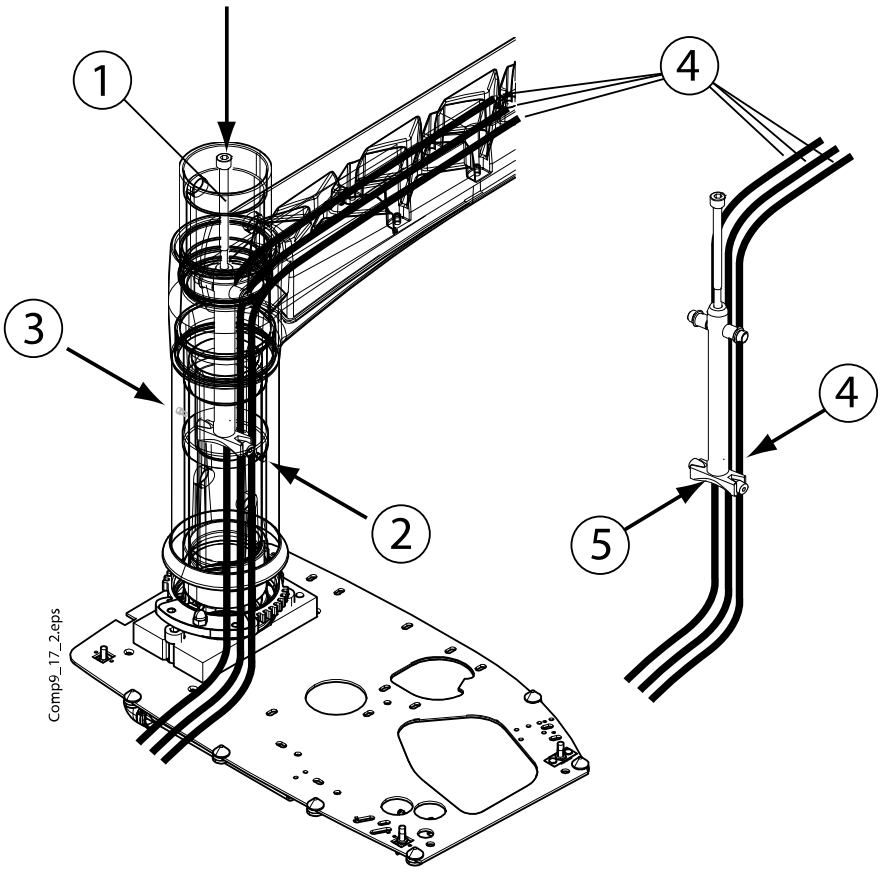


1 Planmeca ProX and bracket arm
2 Vertical arm with monitor arm

Tape cables to a draw cord.

Route the operating light, monitor and intra cables through the delivery arm post. The delivery arm cables are routed from the side indicated with number (**4**) and the other cables (Planmeca ProX, monitor and operating light) from the side indicated with number (**5**).

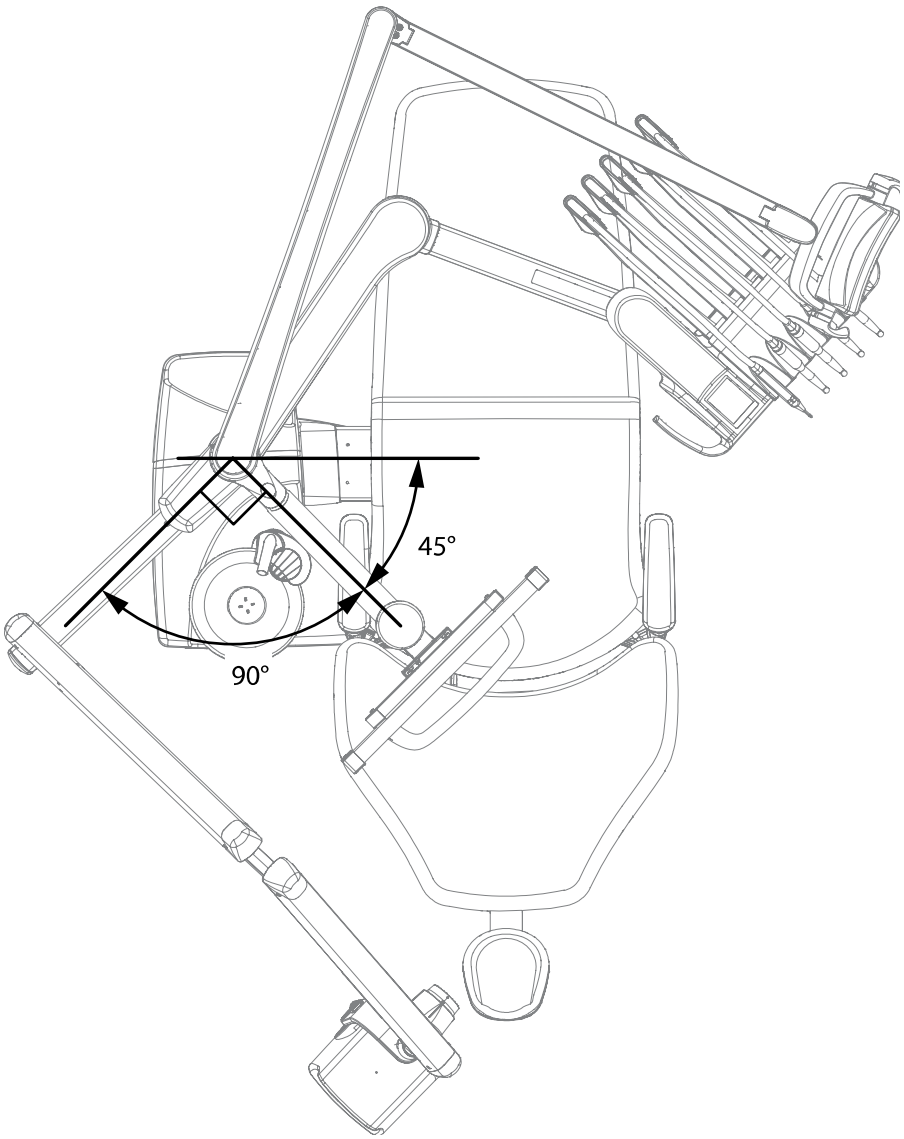
Two arm shaft (**1**) attachment pins (**2**, **3**) are located inside the delivery arm. Place the arm shaft into the opening of the delivery arm so that the attachment pins go into the arm shaft forks. Tighten the attachment screws tentatively using a 3 mm Allen key.



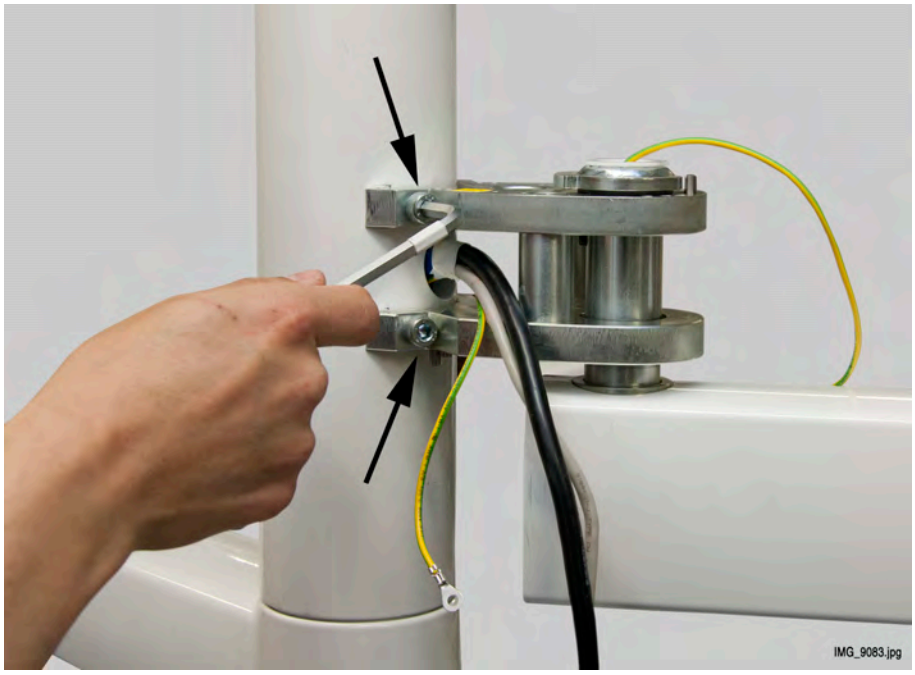
Route the cables through the opening on the cuspidor top cover plate to inside the lifting column. Route the monitor and intra cables from the opening on the upper part of the lifting column to inside the cuspidor. Route the operating light cable into electronics control box. Detach the draw cord.

Lift the vertical arm to its position and simultaneously pull the cables carefully to inside the cuspidor so that they are not jammed between the arm shaft and vertical arm.

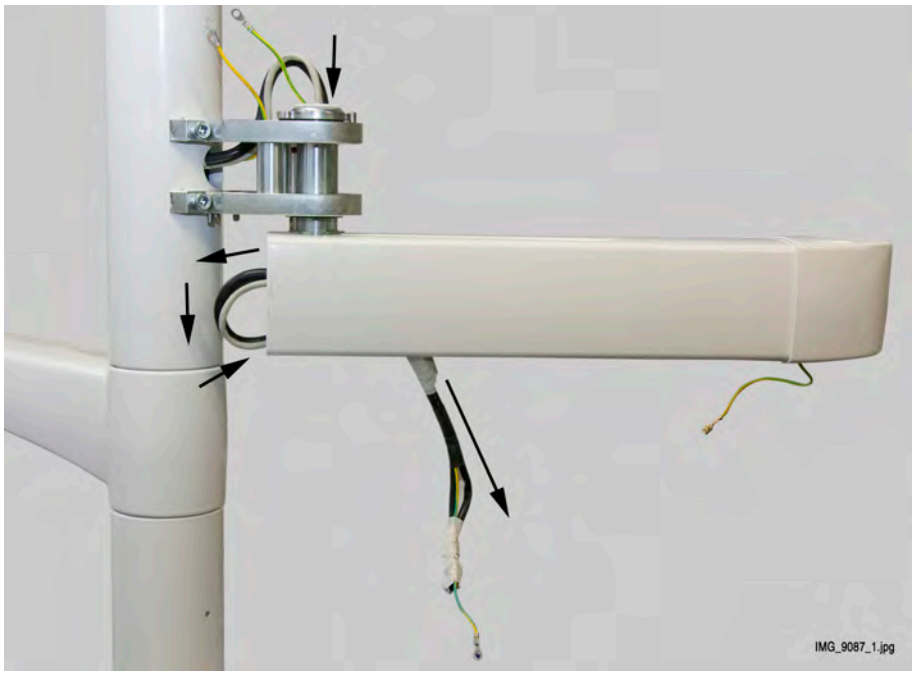
Note the direction of the ProX arm. Arm direction can be altered by rotating the vertical arm. The arm position can be adjusted at intervals of 60°. Lift the arm up and rotate it to the desired position. The recommended direction is shown in the figure below.



Attach the ProX arm to the vertical arm with four attachment screws using a 6 mm Allen key.



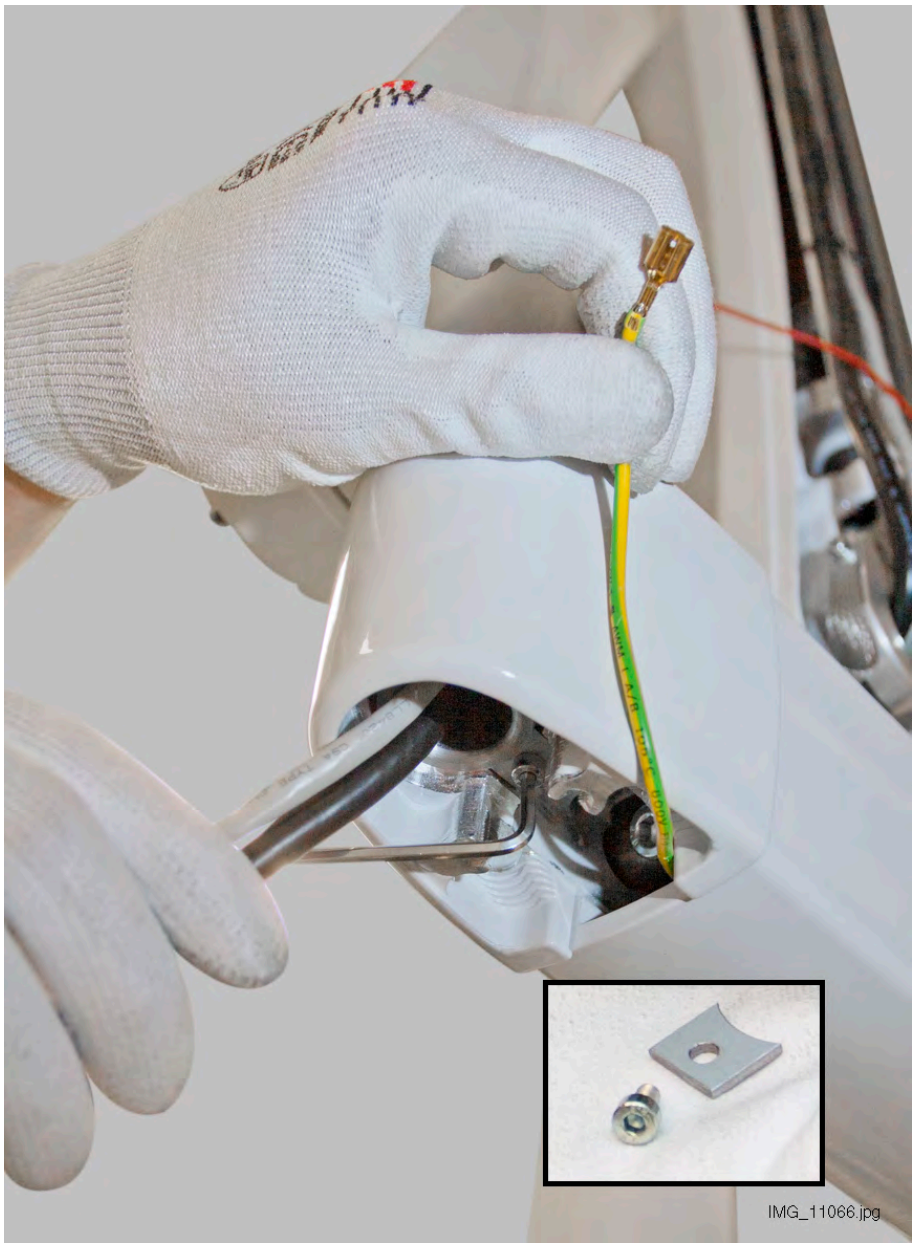
Route the Planmeca ProX X-ray unit cables through the ProX arm as shown below.



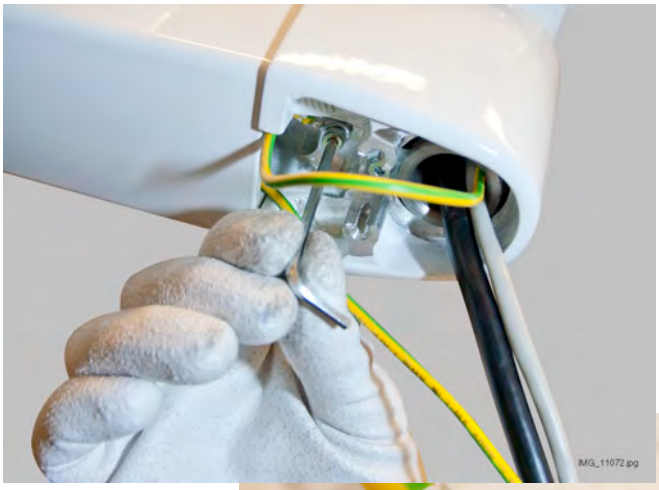
When routing the cables through the ProX arm joint leave some slack in the cables. This way the cables do not tighten too much when the Intra is moved. Pull the excess intra cables into the cuspidor.

Route the cables coming from the bracket arm through the ProX arm opening. Attach the bracket arm to the ProX arm by pushing the bracket arm shaft into the opening on the upper side of the extension arm.

Secure the bracket arm with the locking plate.



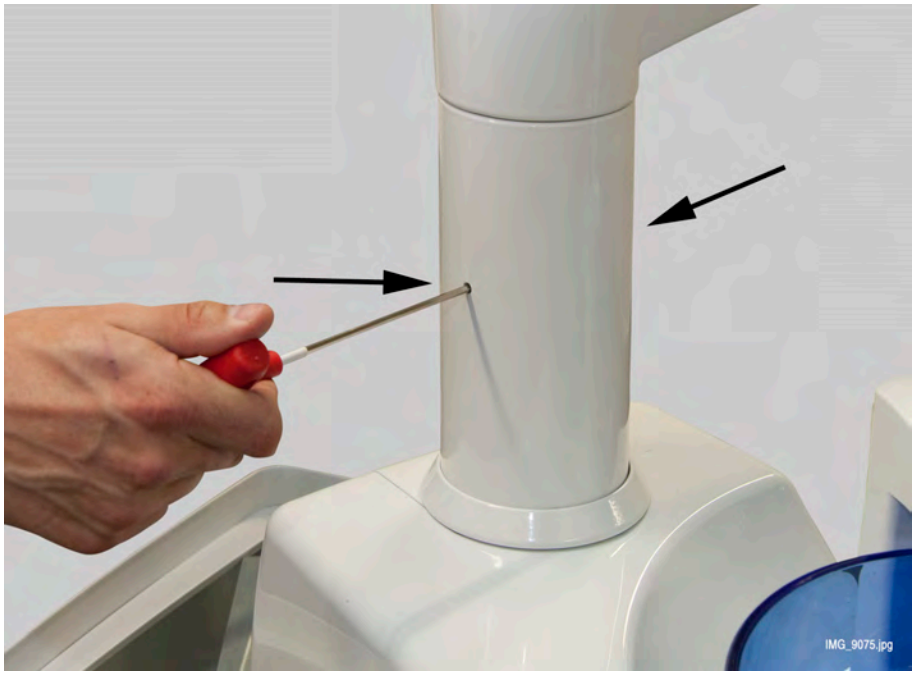
Attach the arm grounding lead to the bottom of the extension arm.



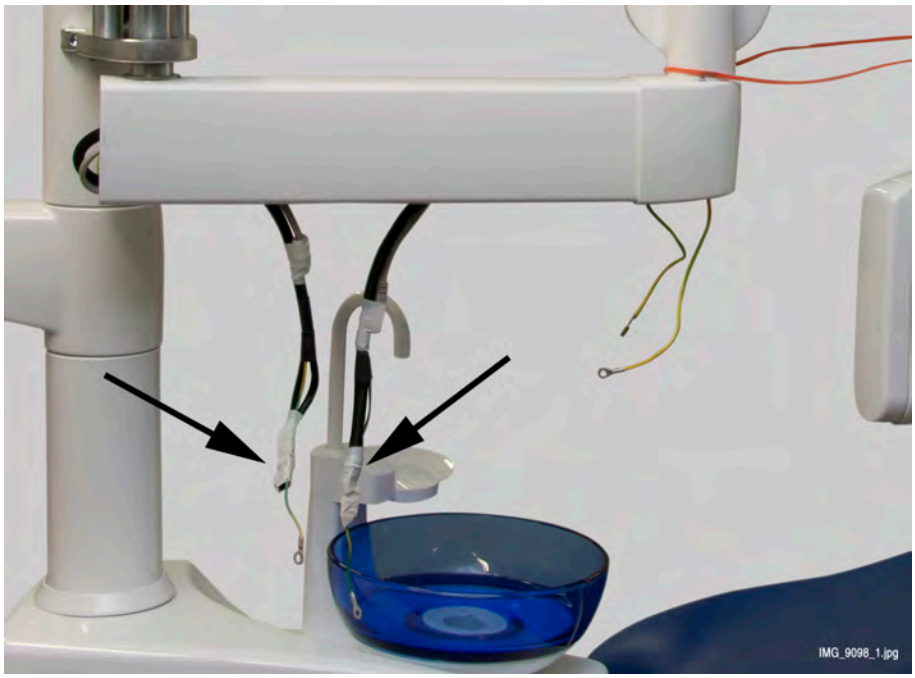
Route the cables into the extension arm.

Attach the cover plate grounding lead to the plate and attach the cover plate to the extension arm.

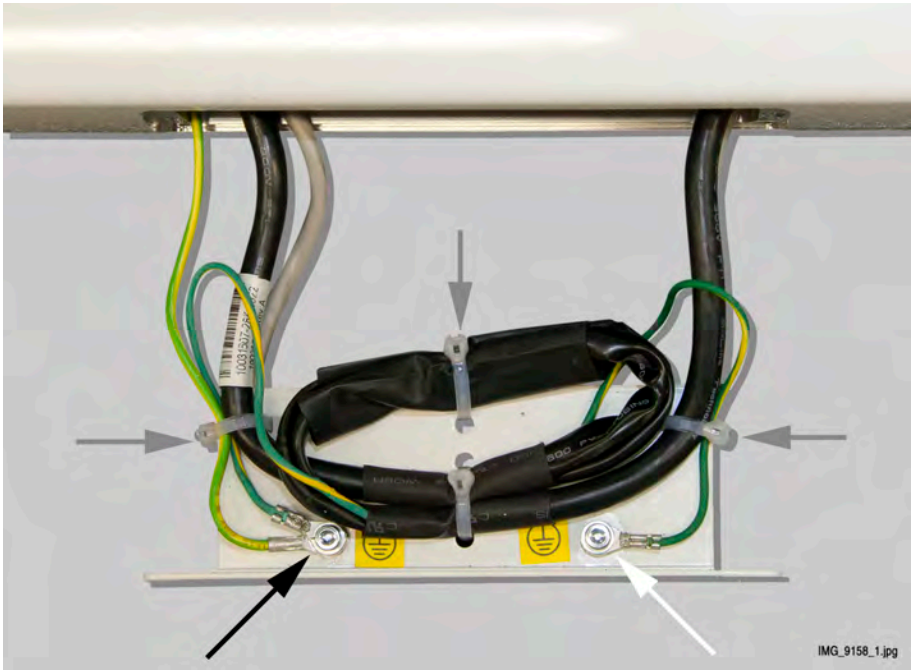
Rotate the arm until you can see an attachment screws through the small openings on the vertical arm. Loosen the arm shaft attachment screws. The vertical arm will descend to its position. Tighten the attachment screws.



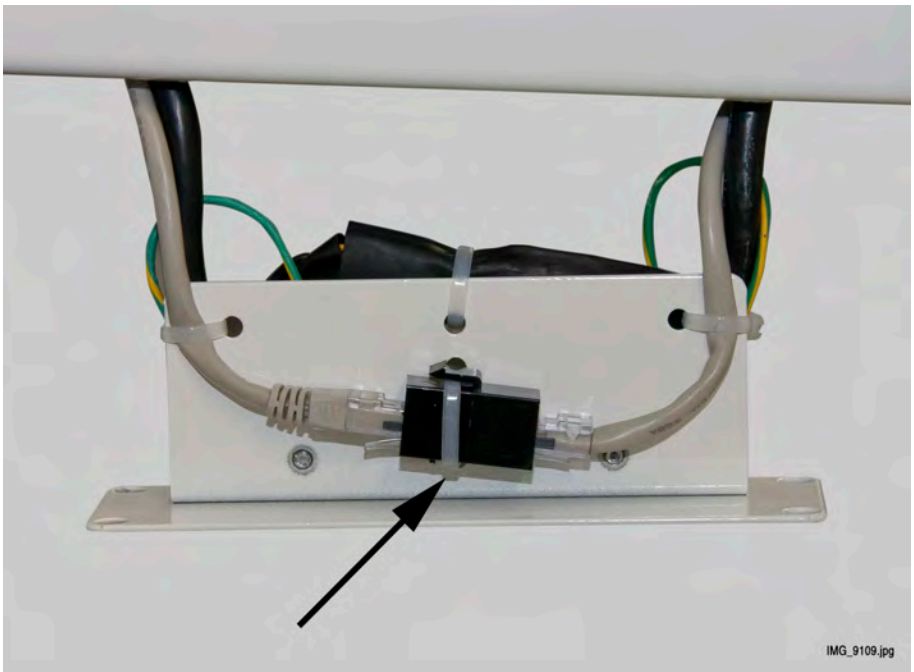
Remove the tape from the cables and slide insulators onto the cables.



Connect the cables and slide the insulators over the connectors (grey arrow in the figure below). Attach the grounding leads to the cable support plate with screws, washers and serrated washers (black arrows). Secure the cables with cable ties to the plate (white arrows).



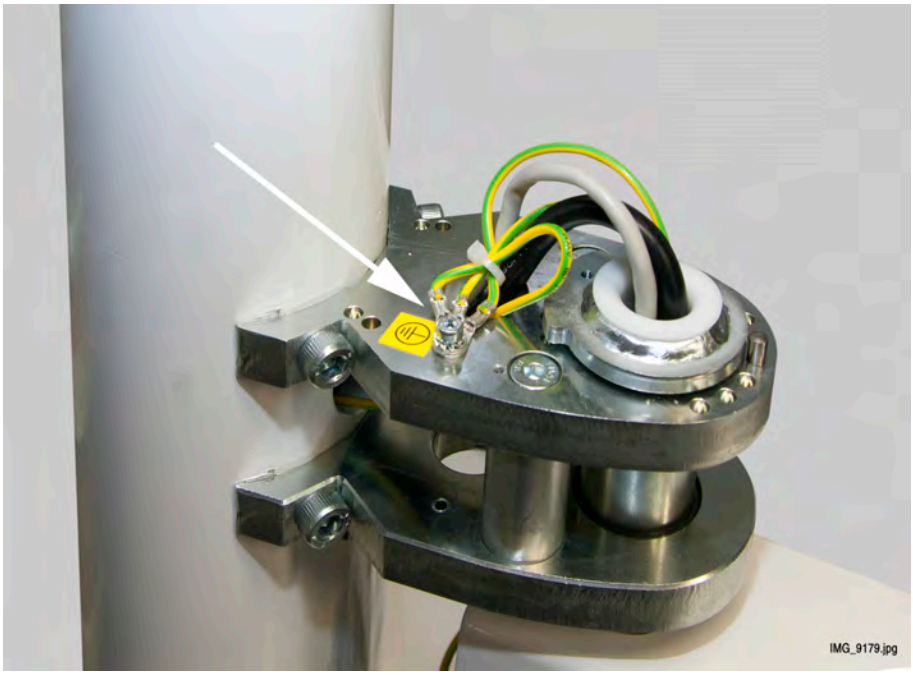
Attach the RJ45 cables to the adapter and secure the adapter to the cable support plate as shown in the figure below.



Attach the plate to the ProX arm with four attachment screws using a 2.5 mm Allen key.

Attach the other end of the grounding lead to the grounding point located on the ProX arm end.

Attach the grounding leads to the cable support plate with screw, washer and serrated washer (white arrow). Secure the cables with cable tie to the plate.



Place the ProX arm joint lower plate in position so that the joint pins go into the plate openings. Place the joint cover in position.

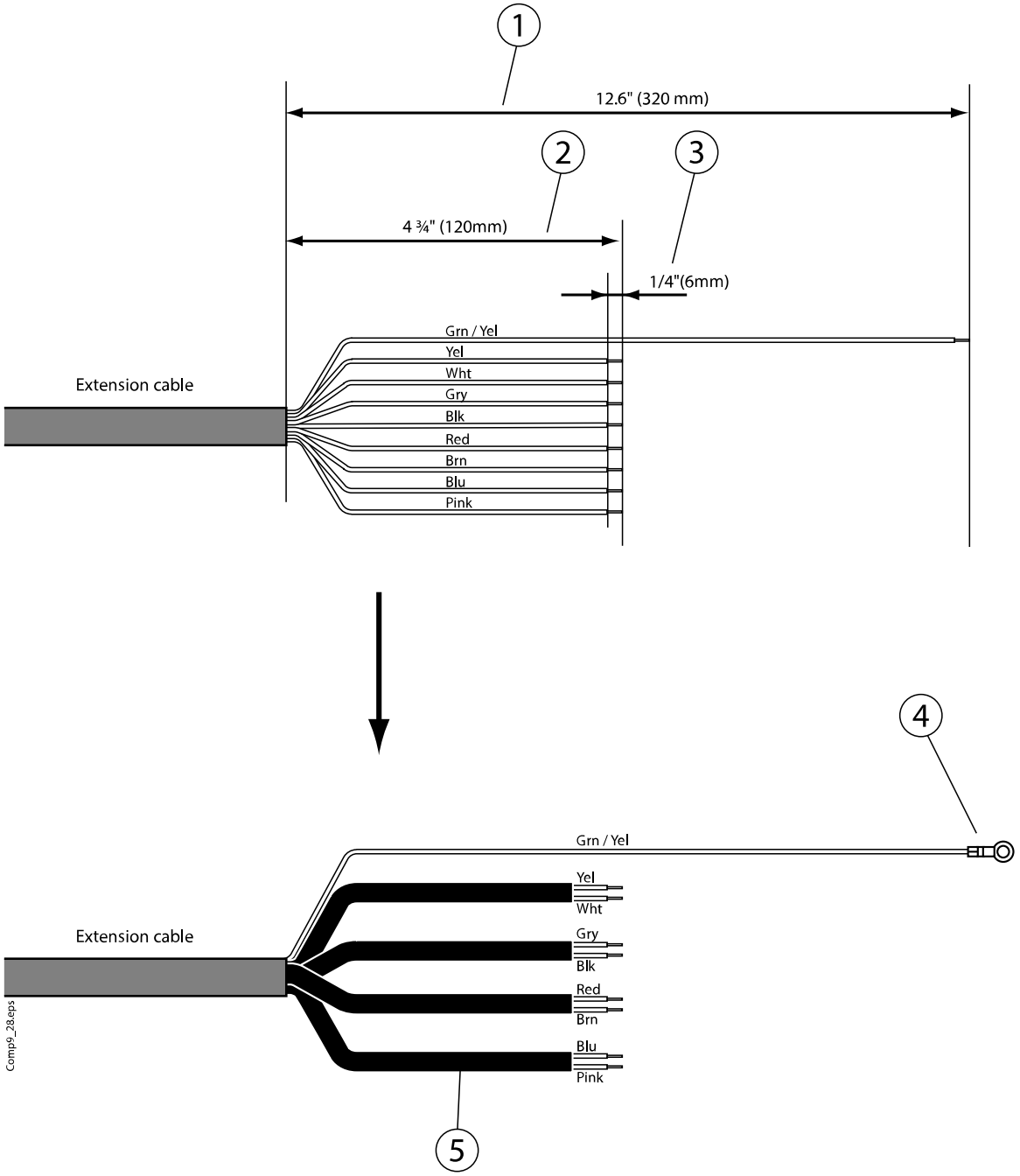
Attach the cover and lower plate to the joint with two attachment screws using a 2 mm Allen key.

Attach the end cover to its position.

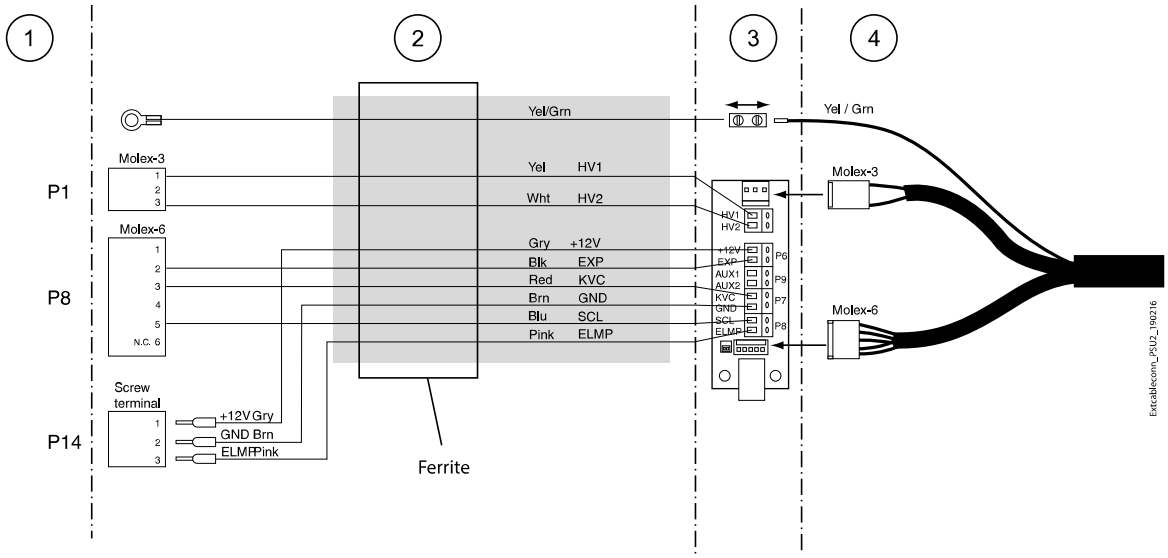
11.2 Connecting Planmeca ProX cables

Strip approx. 320 mm (12.6 in.) of the outer jacket of the extension cable (**1**). Shorten the other leads than grounding lead to measure 120 mm (4.75 in.) (**2**). Strip approx. 6 mm (0.24 in.) of the jackets of extension cable leads (**3**).

Attach the ground clamp to the grounding lead (**4**). Slide the protective sleeves onto the extension cable leads as shown in the figure below (one sleeve onto yellow and white leads, the other onto grey and black leads, the third onto red and brown and fourth onto blue and pink) (**5**).

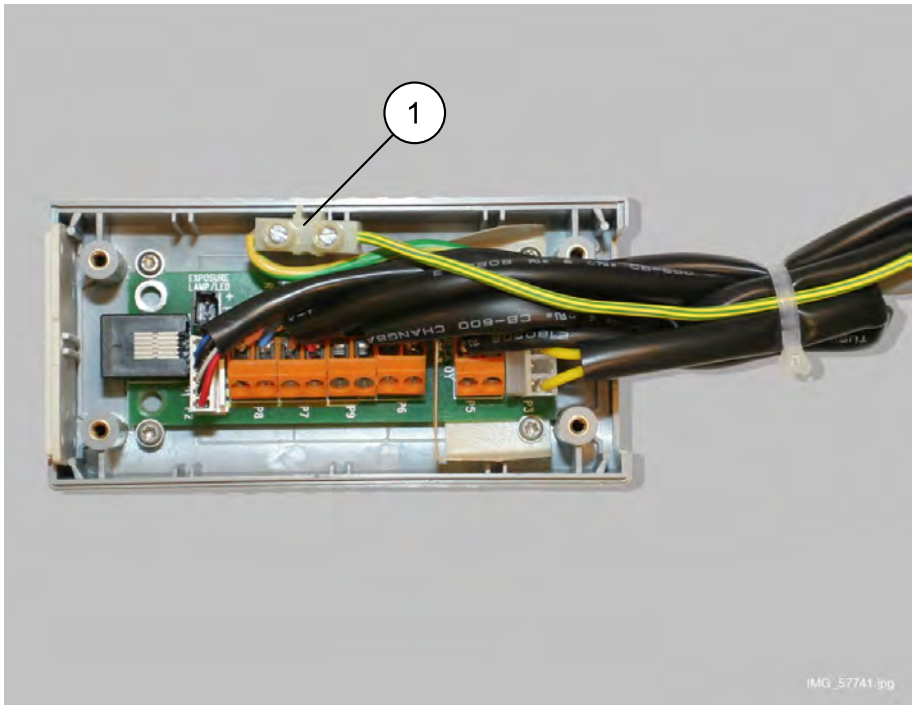


The extension cable connector PCB is positioned into the box supplied with the system and the box is attached to the cuspidor support plate. Connect the extension cable to the extension cable connector PCB according to the figure below. Note, that it does not matter which way the yellow leads (HV1 and HV2) are connected to the connectors HV1 and HV2.

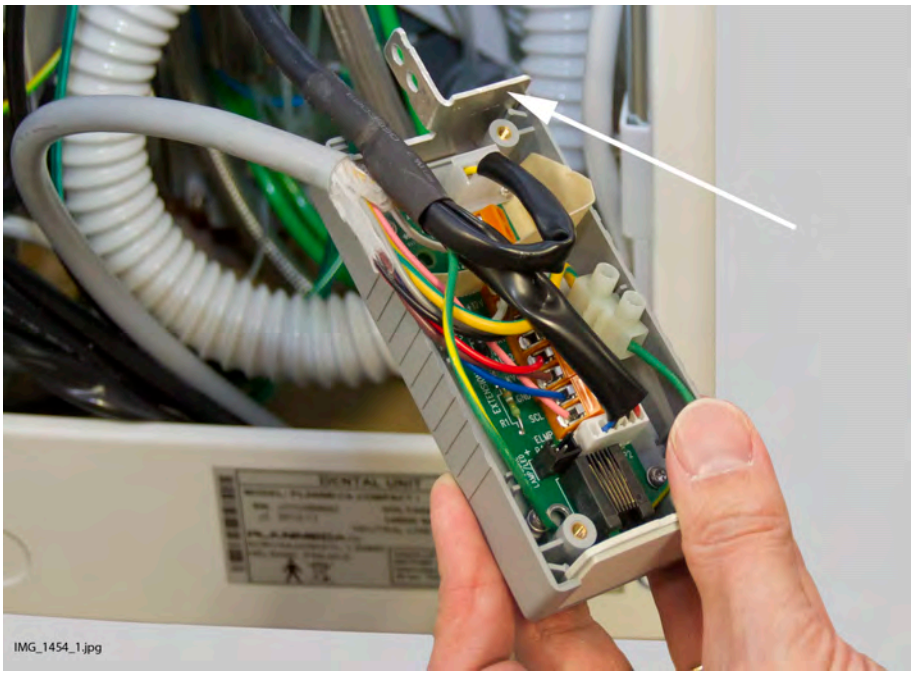


1 Generator PCB
2 Extension cable max. 12 m
3 Extension cable connectors
4 Arm cable (standard)

Connect the ProX arm cable to the extension cable connector PCB. Detach the grounding clamp from both the extension cable and the ProX arm cable grounding leads and attach the grounding leads (**1**) to the connector supplied with the system.



Slide the end plate into position (white arrow).



Close the box with the four screws.

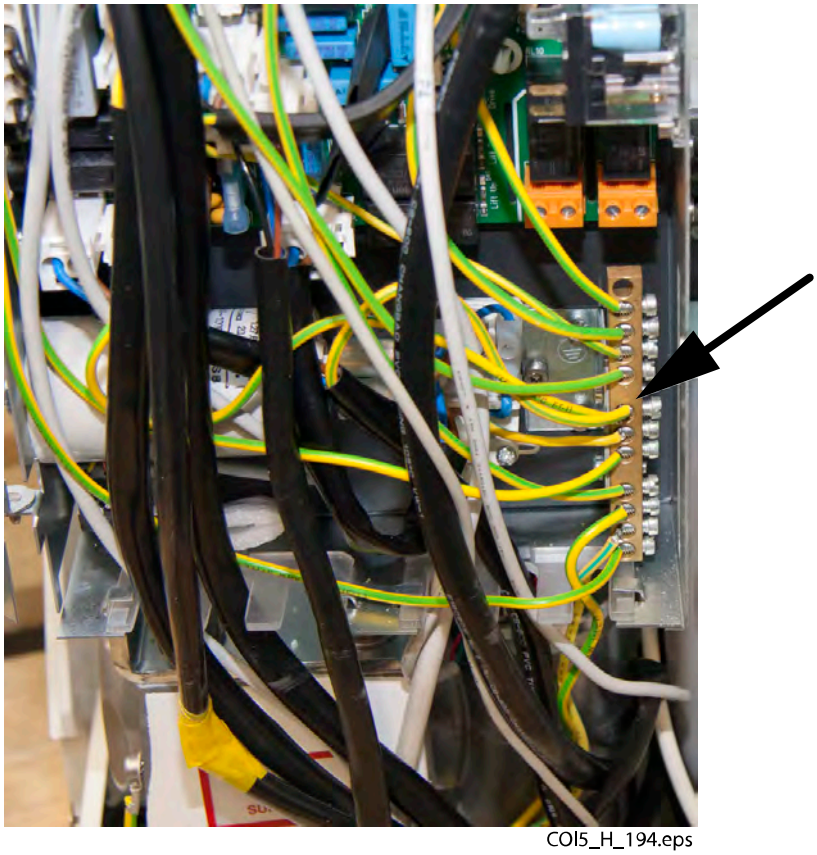
Secure the cables to the end plate with a cable ties (white arrows).

Attach the velcro tape to the box and to the right side of the cuspidor. Remove the Velcro tape cover papers and attach the box to its position so that the cables run downwards.

Connect the Planmeca ProSensor interconnection cable to the RJ45 Modular adapter. Connect the RJ45 CAT5 UTP Cable to the other side of this adapter and shield the connection. Secure the excess cable with cable ties. Route the cables out from the dental unit.

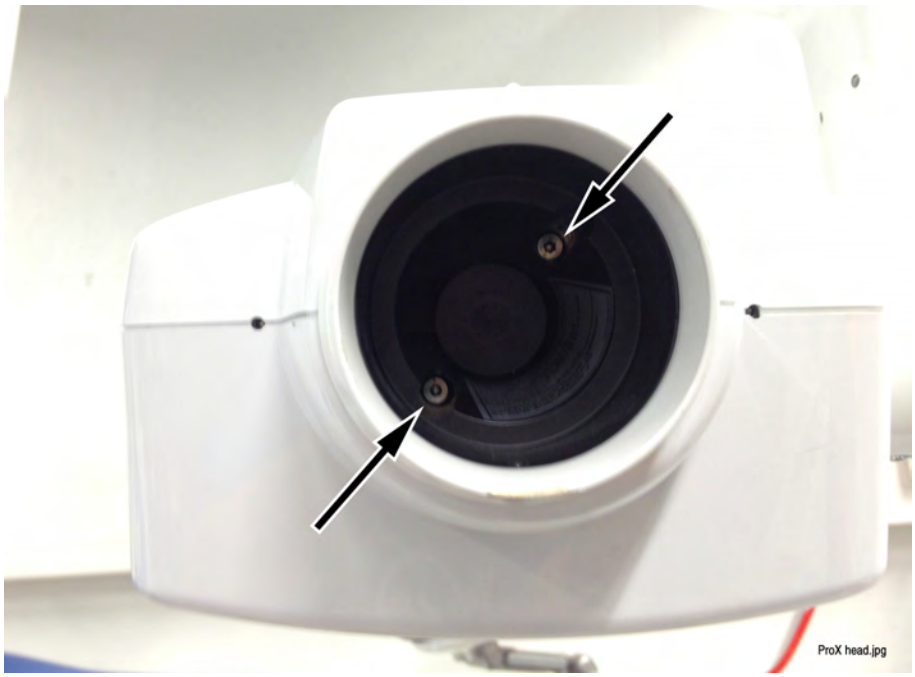
Connect the box to the inside of the cuspidor cover as shown in the figure below.

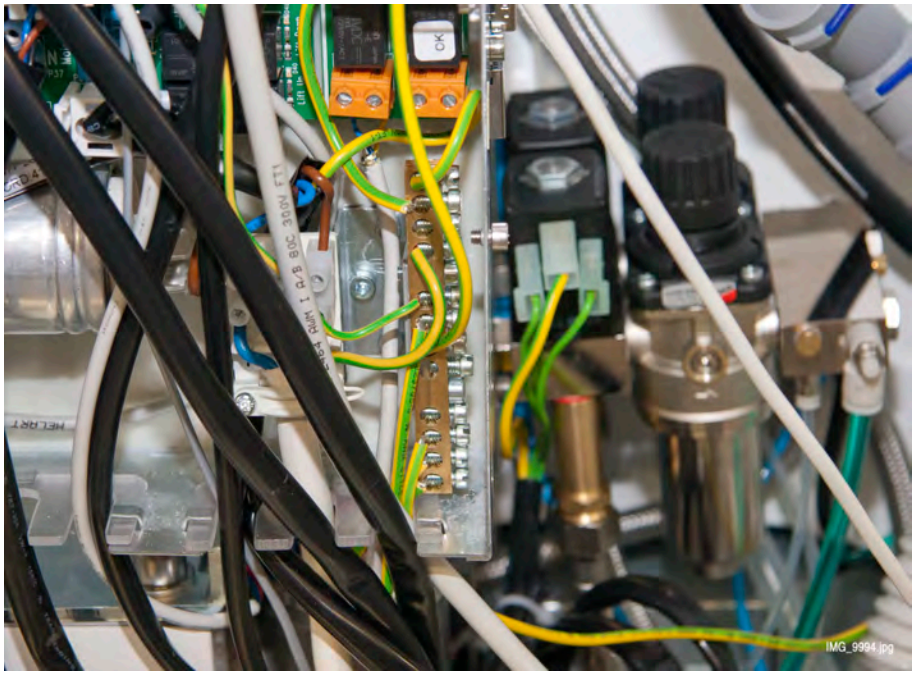
Attach the grounding lead to the ground terminal located on the electronics control box.



COI5_H_194.eps

Protective earth continuity has to be measured between Planmeca ProX head attachment screws and dental unit protective earth rail. The measurement is carried out with IEC62353 conforming measuring device according to IEC62353.





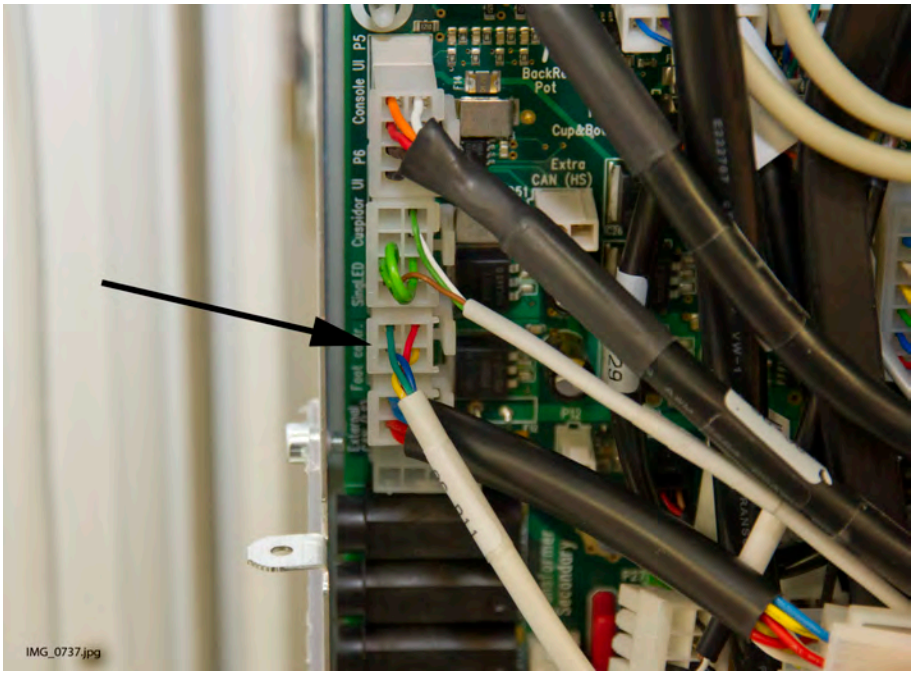
12 Connecting Planmeca Solanna operating light cables

CAUTION

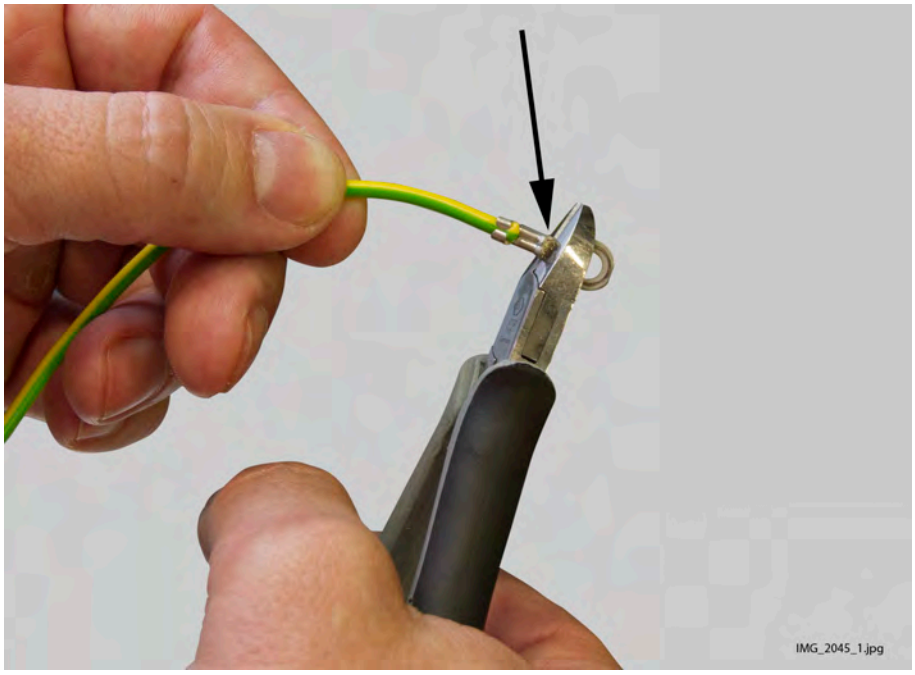
Take care when connecting the operating light cable. Connecting it incorrectly will not cause any damage because of an internal protection, but the light will not work.

Route the operating light cable and grounding lead from the opening on the upper part of the lifting column to inside the cuspidor. Route the cable along the upper cable guide at the upper side of the electronics control box to the Main control PCB.

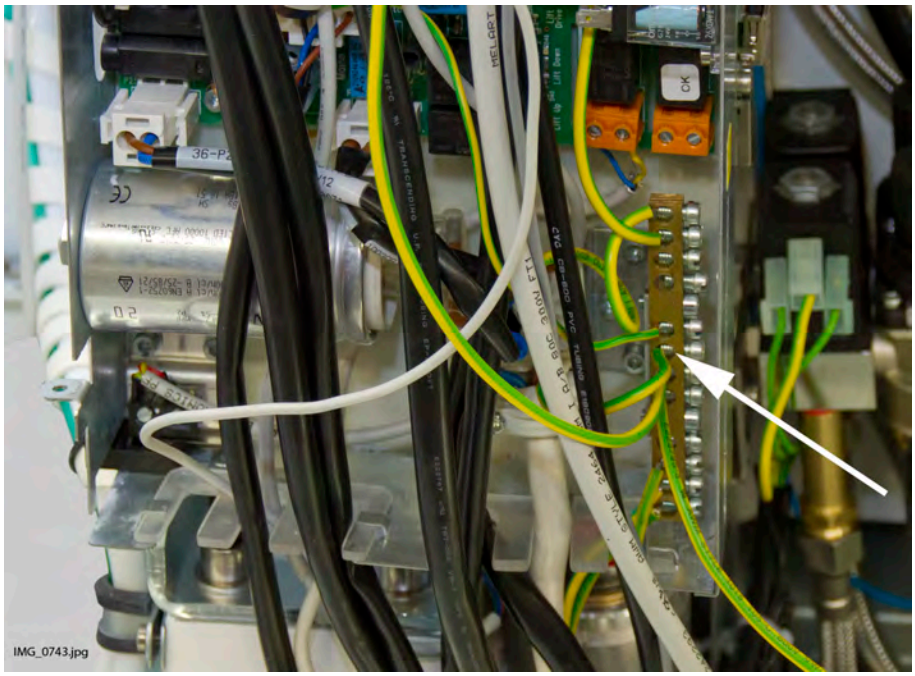
Connect the operating light control cable to the terminal P11 marked **Solanna** on the Main control PCB.



Cut the terminal ring from the grounding lead and strip the cable end if necessary.



Attach the grounding lead to the ground terminal located on the electronics control box.



13 Installing monitor

CAUTION

Do not connect items which are not specified as part of the system.

NOTE

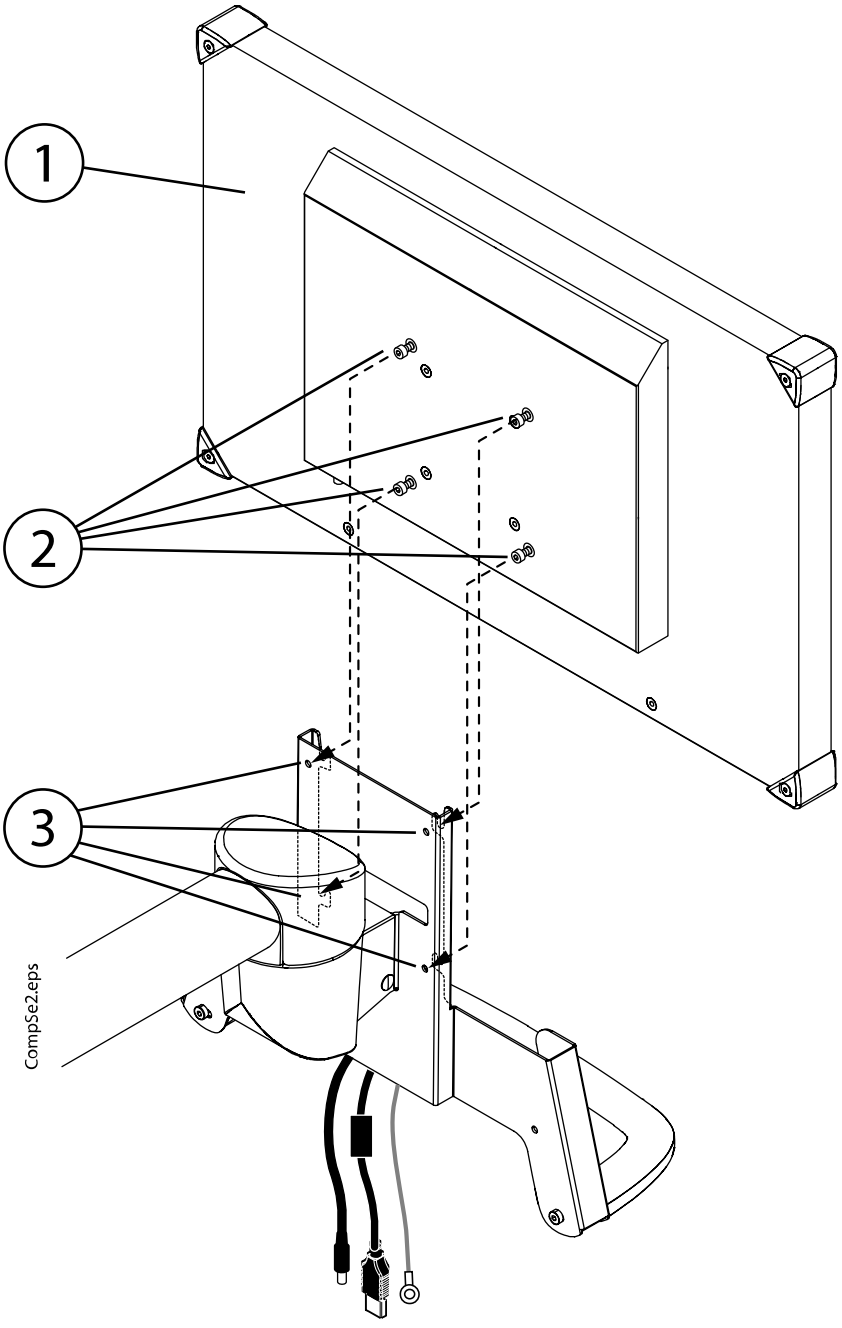
The PC connected to the monitor must be:

- IEC 60950 approved (CE marked)
- Located outside the patient area
- Protectively earthed

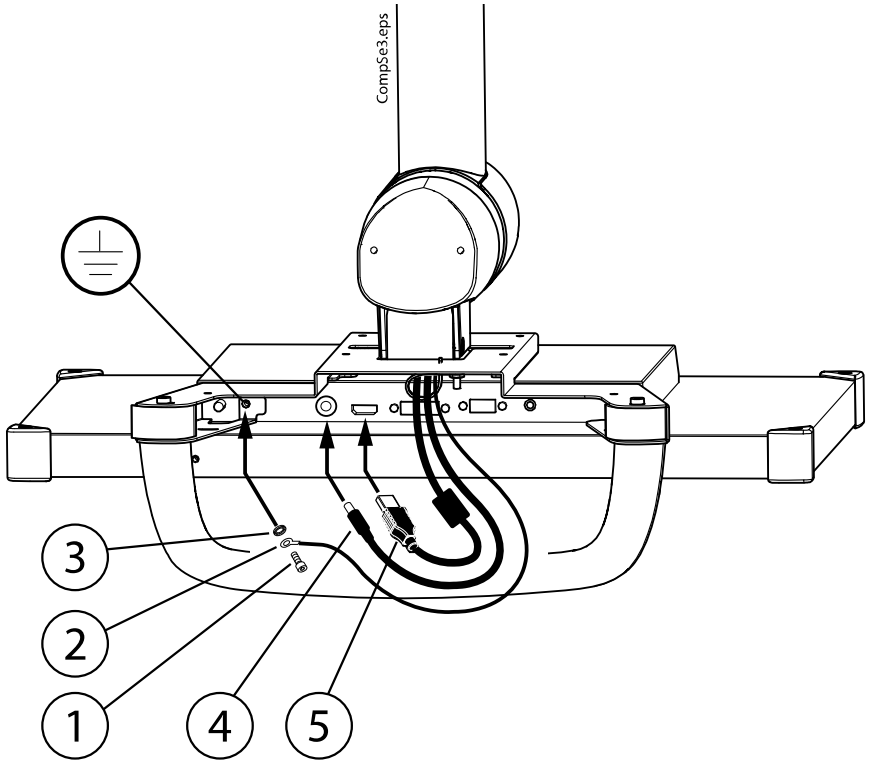
NOTE

Be careful not to scratch the screen.

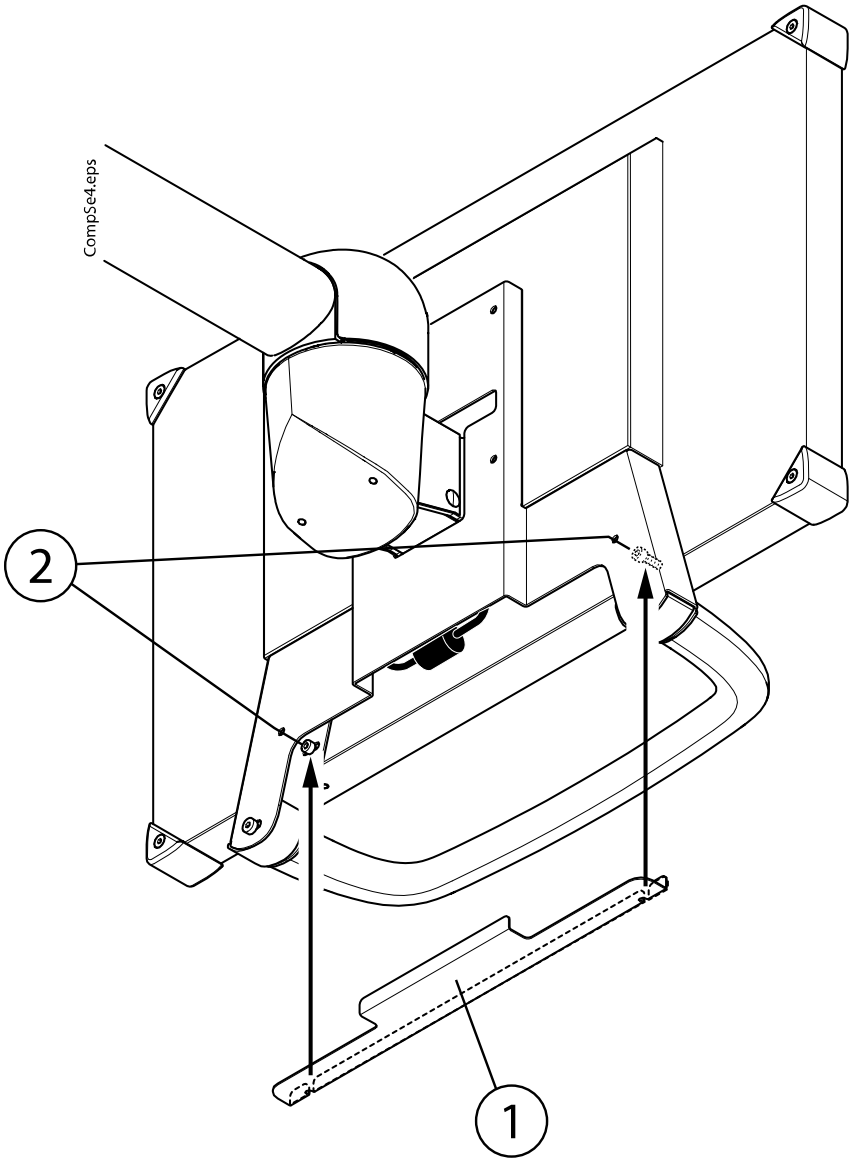
The monitor (**1**) is attached to the adapter with four attachment screws. Attach the monitor attachment screws (**2**) tentatively to the monitor using a 3 mm Allen key. Lift the monitor to its position and tighten the attachment screws (**3**).



Attach the grounding lead (**2**) to the monitor grounding point through the handle opening with a screw (**1**) and serrated washer (**3**) using a 3 mm Allen key. Connect the power cable to the monitor connector (**4**) Connect the HDMI cable to the monitor connector (**5**).



Push the cover plate (**1**) to its position and attach it with two attachment screws using a 3 mm Allen key (**2**).



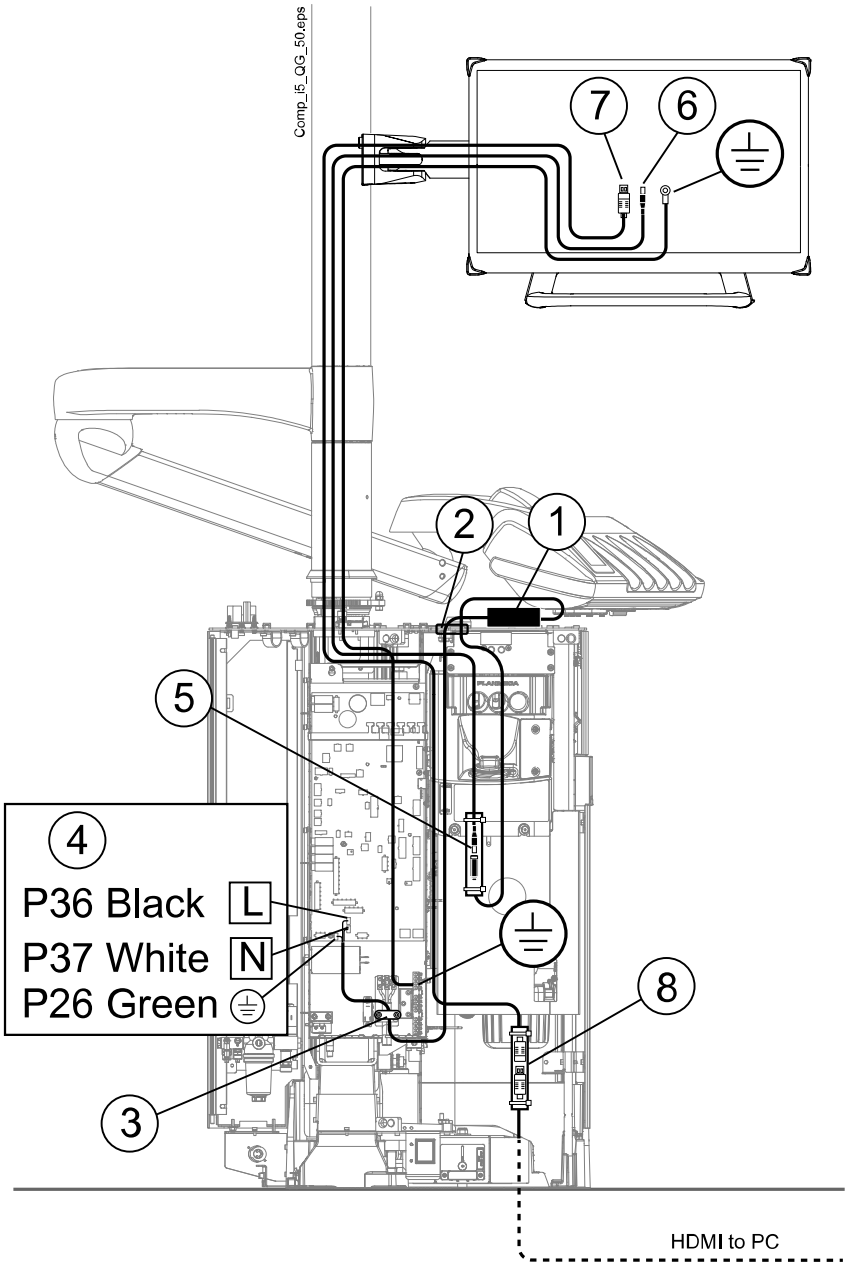
Attach the rubber sealing to the cuspidor cover plate connect the power supply and ferrite, and put the power supply in position.

The power supply is positioned below the cuspidor top cover (**1**). Route the power supply cable and the 230 VAC power cable down into the cuspidor (**2**). Secure the 230 VAC power cable with a strain relief clamp (**3**). Connect the cable to the Main PCB as shown in the figure below (**4**). Connect the power cable from the power supply to the power cable from the monitor (**5**). Shield the connection. The power cable (**6**) and HDMI cable (**7**) are connected to the monitor. Connect the HDMI cable to the HDMI extension cable (**8**).

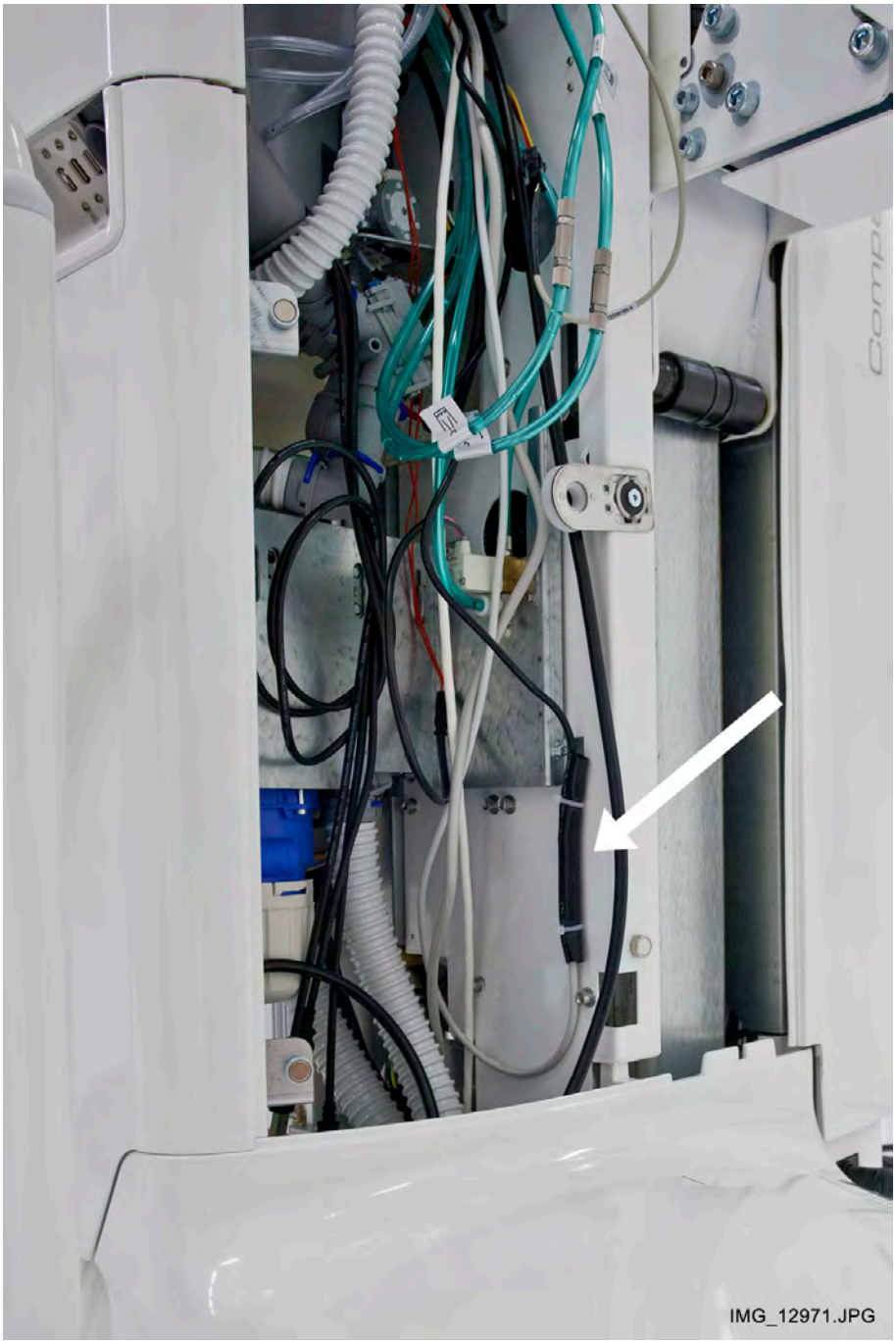
NOTE

If the dental unit is equipped with Planmeca Emerald or Planmeca ActiveAqua, use 230 VAC splitter cable.

Route the HDMI extension cable and power cable from inside the cuspidor through the opening between the cuspidor base and the support plate.



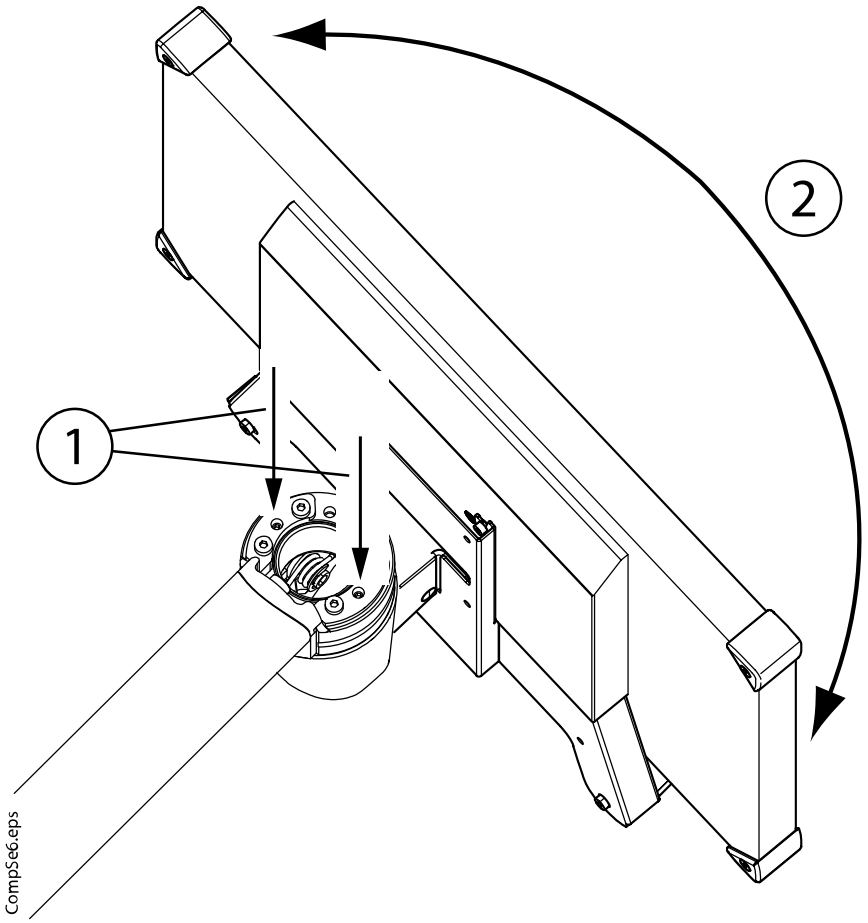
Secure the power and power extension cable connection to the side plate of the electronics control box with a cable tie as shown in the figure below.



13.1 Adjusting friction of monitor arm joint

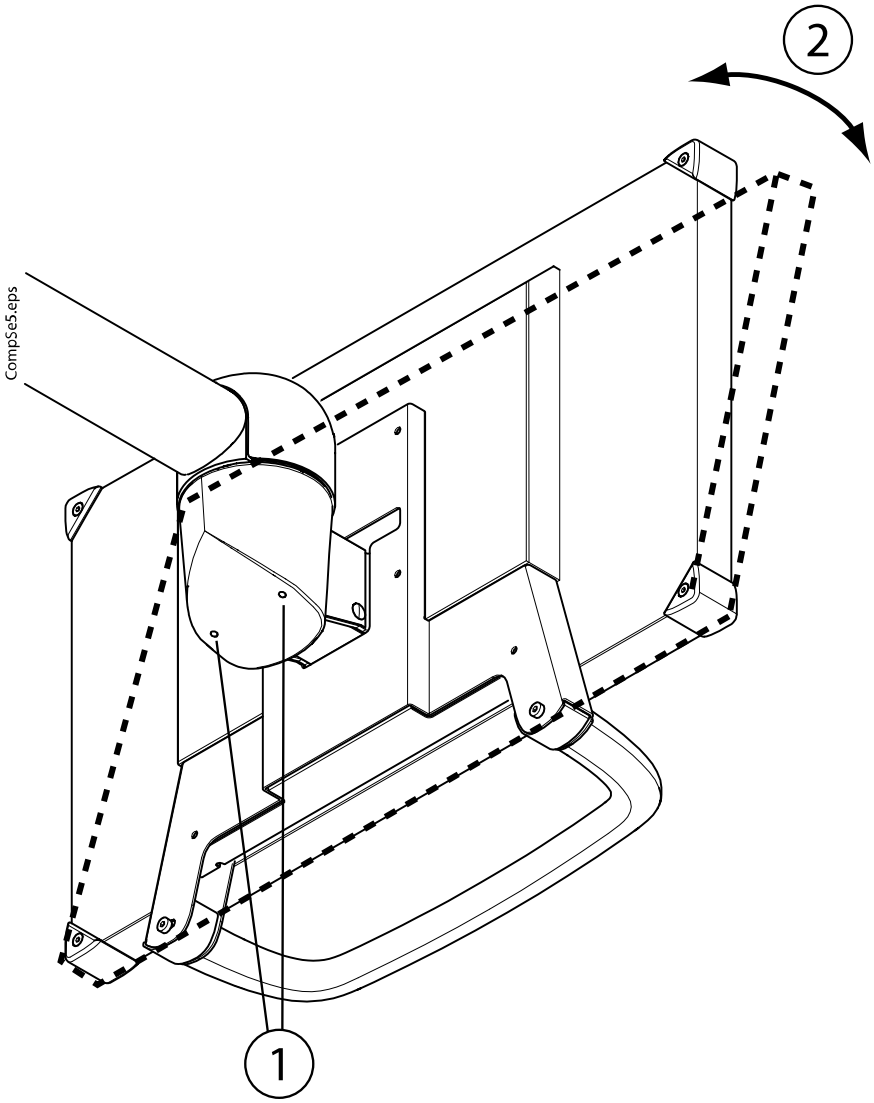
Rotational friction

If needed, you can adjust the rotational friction of the monitor arm joint as shown in the figure below. Adjust the friction of the joint with a 3 mm Allen key. Adjust the two screws equally (**1**). Loosening the screw increases the friction (**2**).



Friction of the monitor angle movement

If needed, you can adjust the friction of the monitor angle movement as shown in the figures below. Remove the upper cover of the monitor arm joint. Adjust the friction with a 2.5 mm Allen key. Adjust the two screws equally (**1**). Tightening the screw increases the friction (**2**).

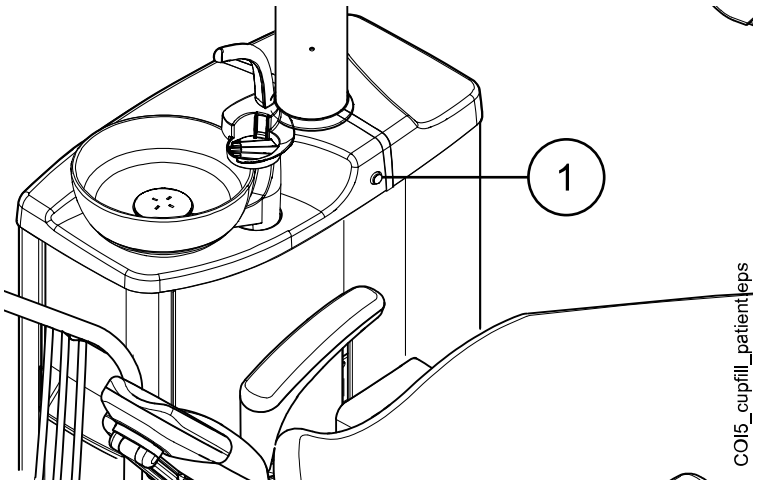


14 Attaching cuspidor top cover

Steps

1. If the dental unit includes the optional patient cup fill button system:

   The button (**1**) is integrated into the top cover (toe side), with connection cabling included inside the cover.

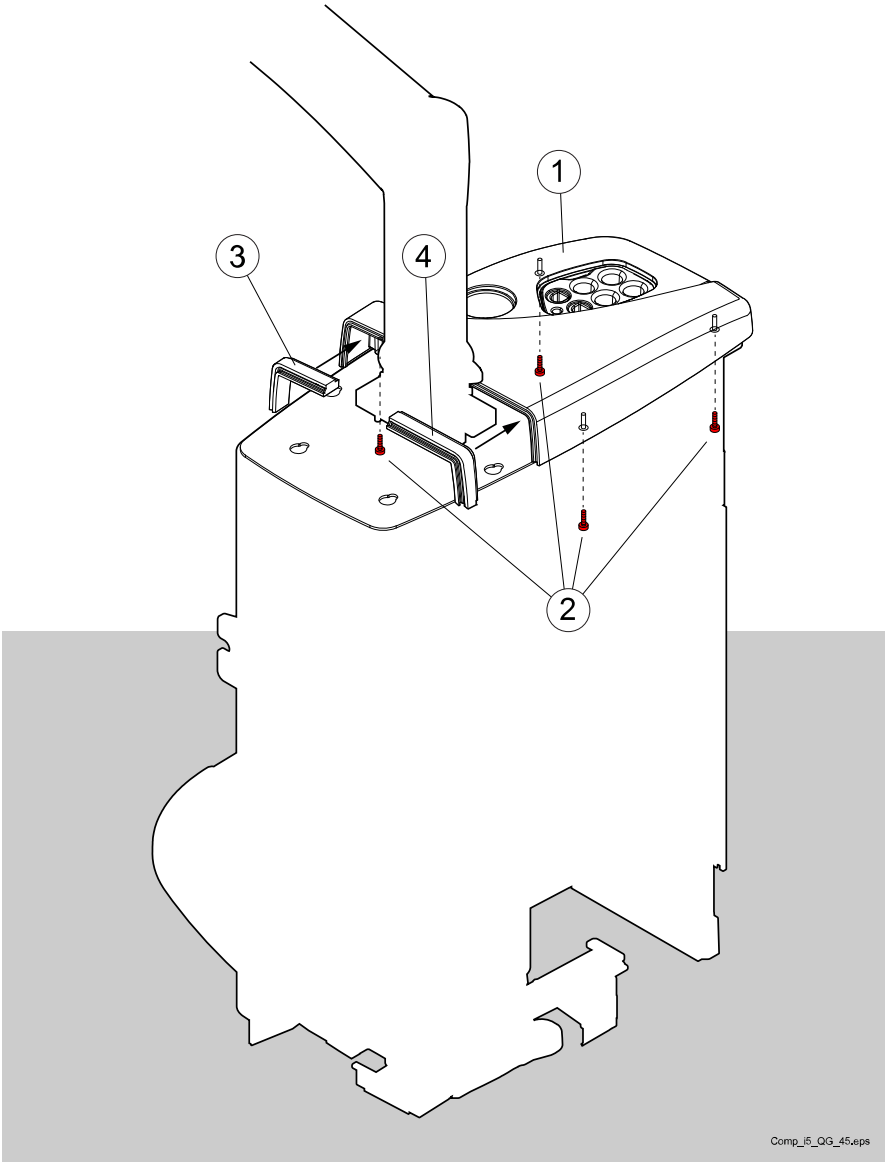


   Before attaching the cover, feed the cuspidor's cable for the patient cup fill button up through the top plate.

   Connect the cuspidor cable wires to the corresponding wires in the patient cup fill button's integrated cable as shown.

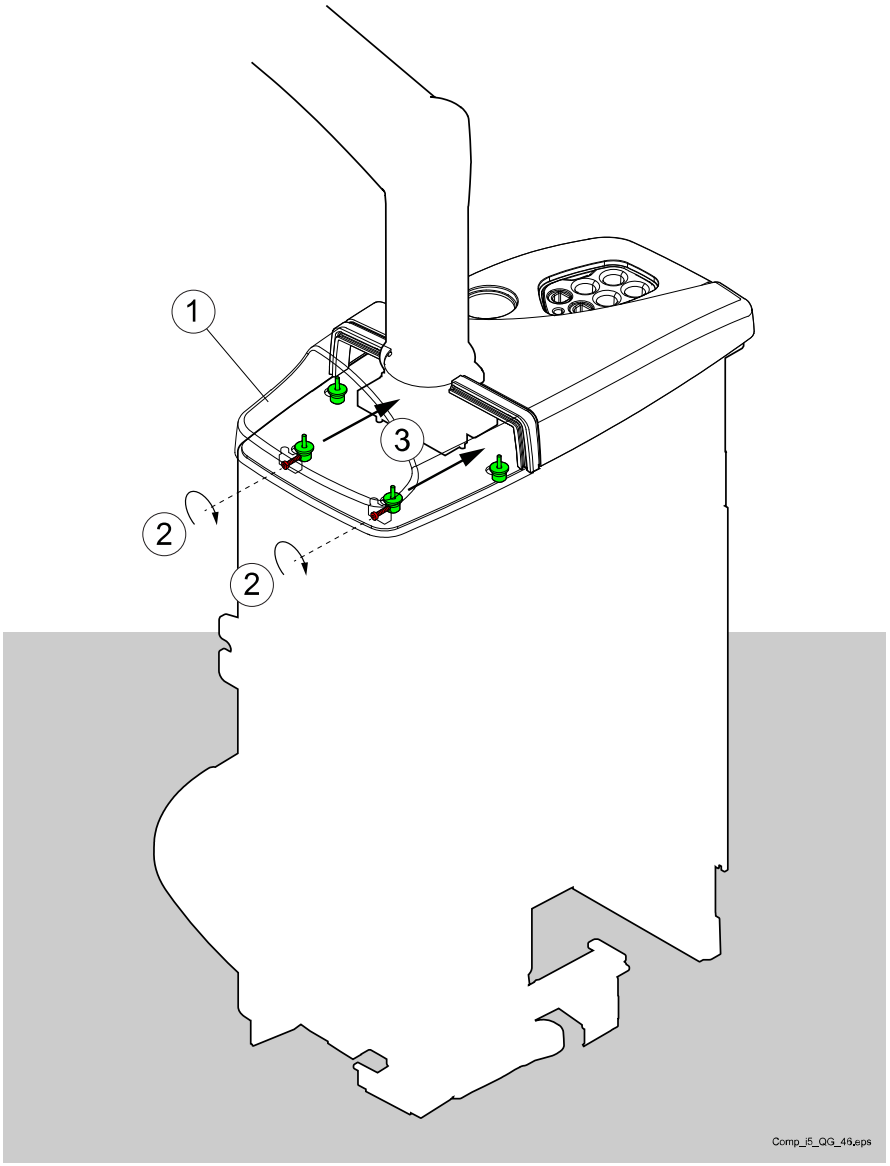
2. Place the top cover (toe side) on top of the cuspidor (**1** in the figure below).
3. Attach from the inside with four screws (**2**).

4. Slide the silicone light seal (patient side) (**3**) and silicone light seal (door side) (**4**) into place against the top cover (toe side).



5. Place the top cover (head side) on top of the cuspidor (**1** in the figure below) and position inside the four locking holes (green pegs in the figure below).

6. Attach from the inside with screws (**2**), tightening the top cover (head side) into the locking holes and light seal grooves (**3**).

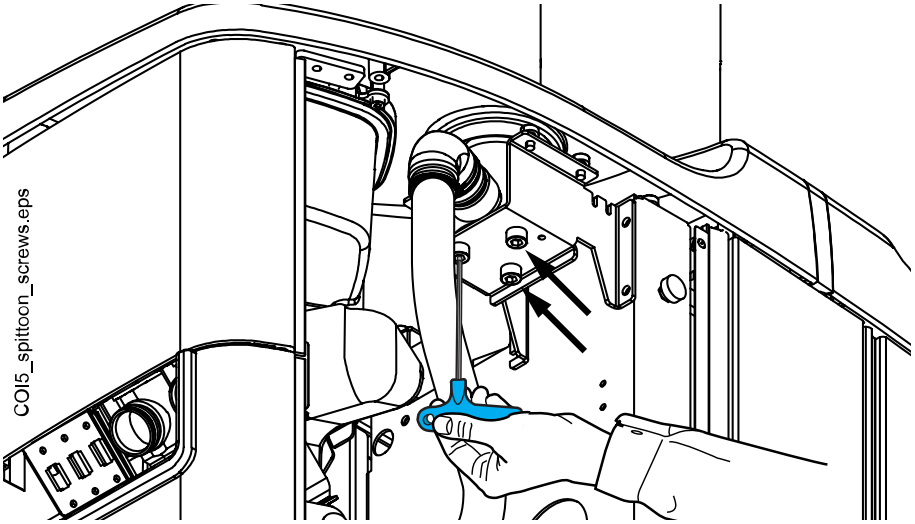


The sealing ring attachment tape is located on the delivery/vertical arm. Remove the cover paper of the sealing ring attachment tape. After putting the cuspidor top cover parts in their positions, slide the sealing ring onto the cuspidor cover opening.

15 Attaching bowl

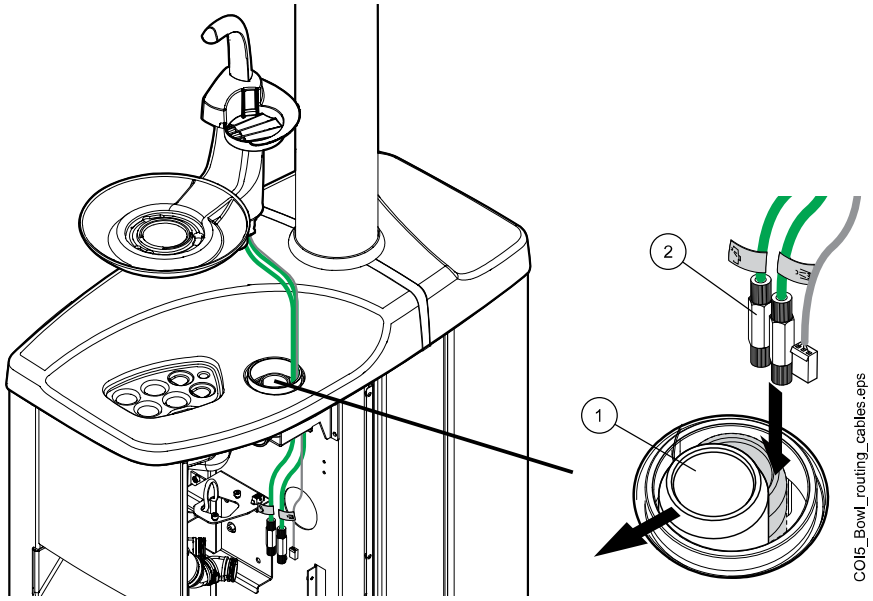
Loosen the three screws as shown in the figure below.

The bowl adapter assembly needs to move a little to allow the bowl assembly cable and tubes to fit through the top cover plate.



Attach the cup fill tube to the bowl assembly.

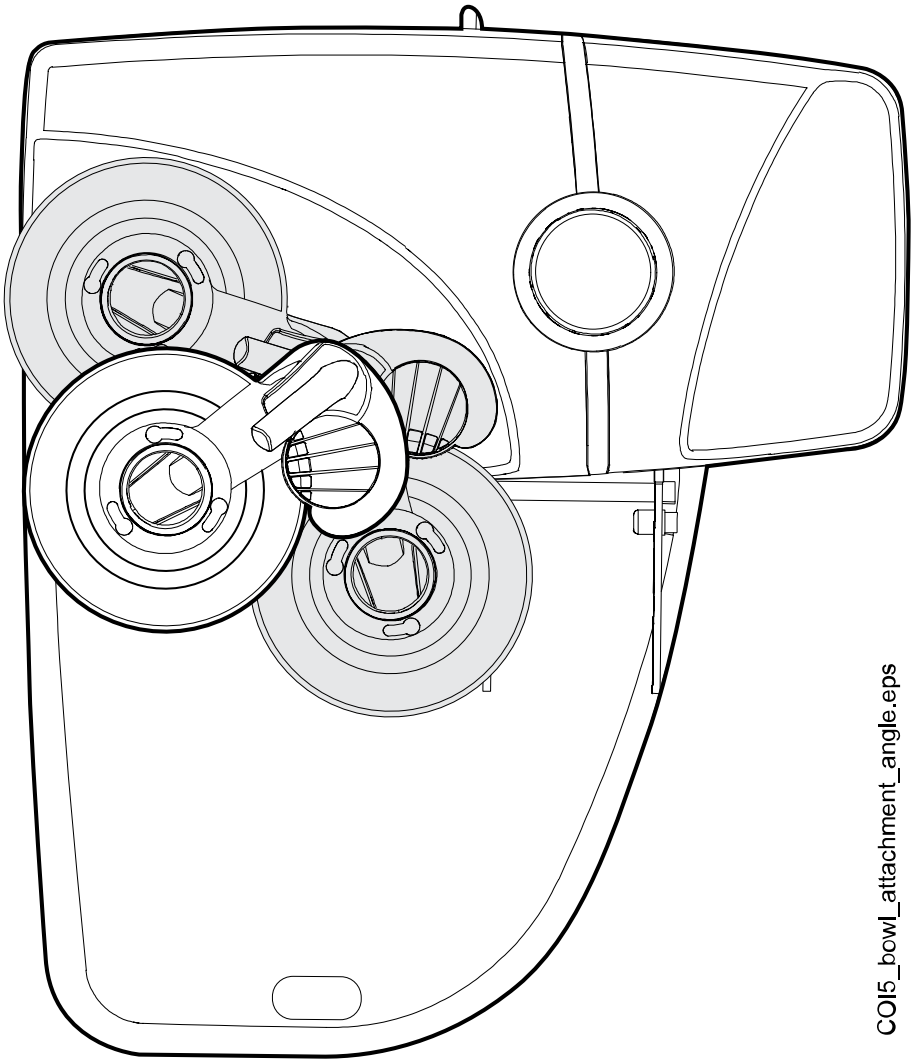
Shift the bowl adapter aside (**1**) and route the bowl assembly cable and tubes through the opening on the cuspidor top cover and cuspidor top cover plate (**2**).



Position the bowl assembly so that the limitation pins are in the correct alignment and do not damage the microswitch located below the cover plate.

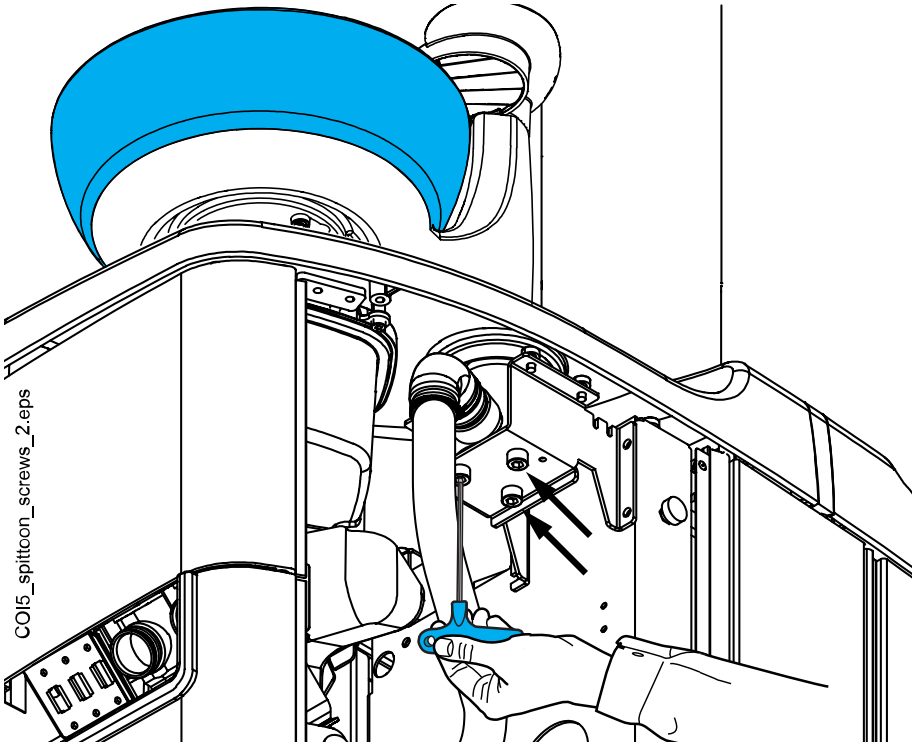
Turn the bowl assembly into place. You will know that it is in place when you hear the clicking sound of the microswitch.

The following figure shows the correct movement limits and placement of the bowl assembly.



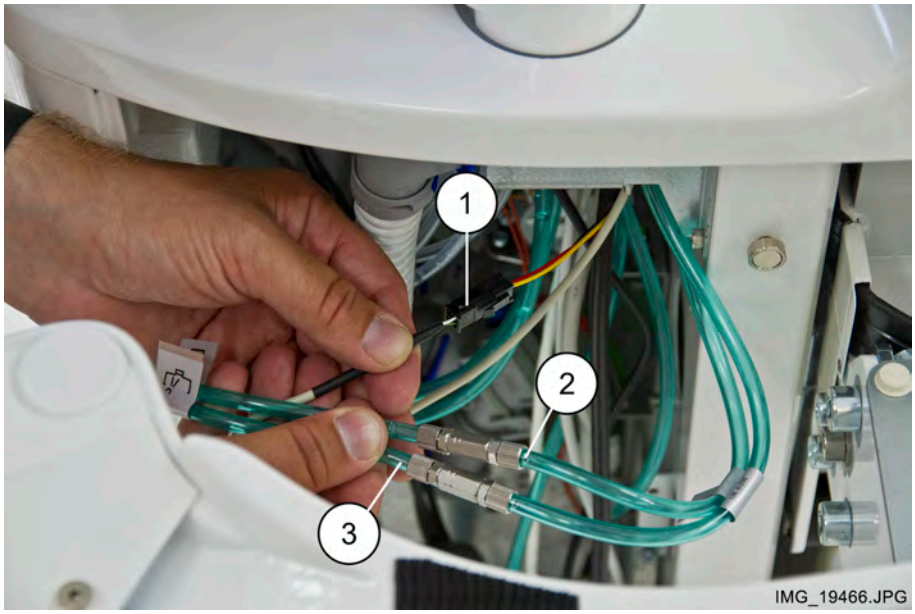
COI5_bowl_attachment_angle.eps

Once the bowl assembly is in place, retighten the three screws to secure the assembly, hoses and tubes.

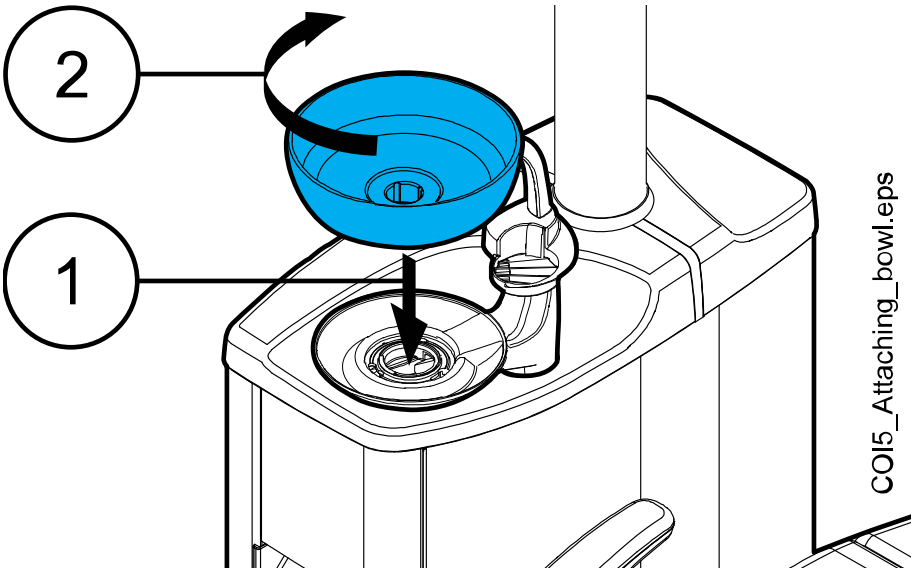


Connect the cup PCB cable to the cup/bowl cable (**1**).

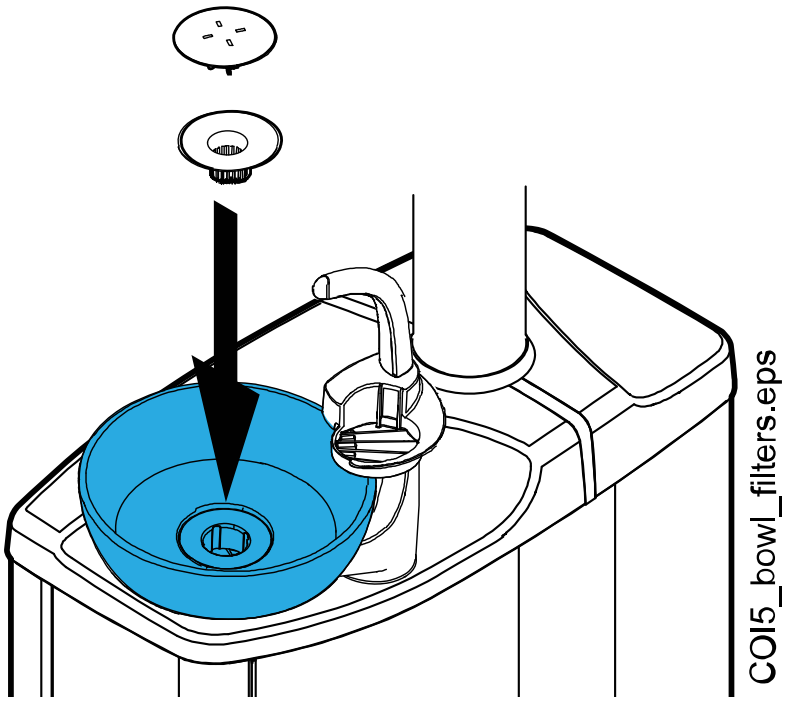
Connect the cup fill (**2**) and the bowl rinse (**3**) tubes to the fill/rinse assembly. The tubes are marked, and the bowl rinse tube is connected to the lower connector, and the cup fill tube to the upper connector.



Lower the bowl into place (**1**) and attach by tightening clockwise (**2**).

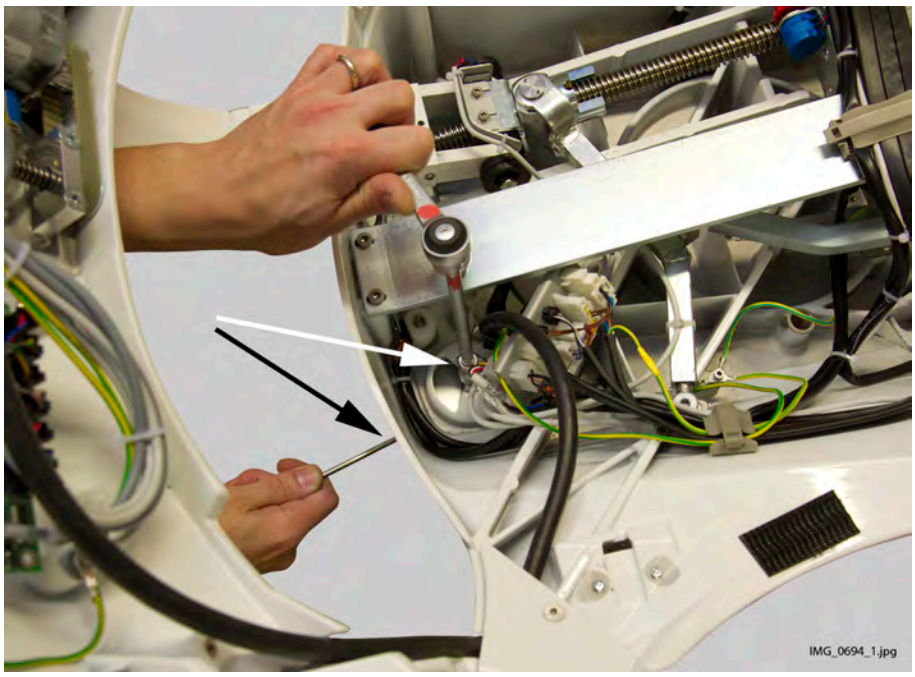


Insert the bowl filter parts to the bowl.

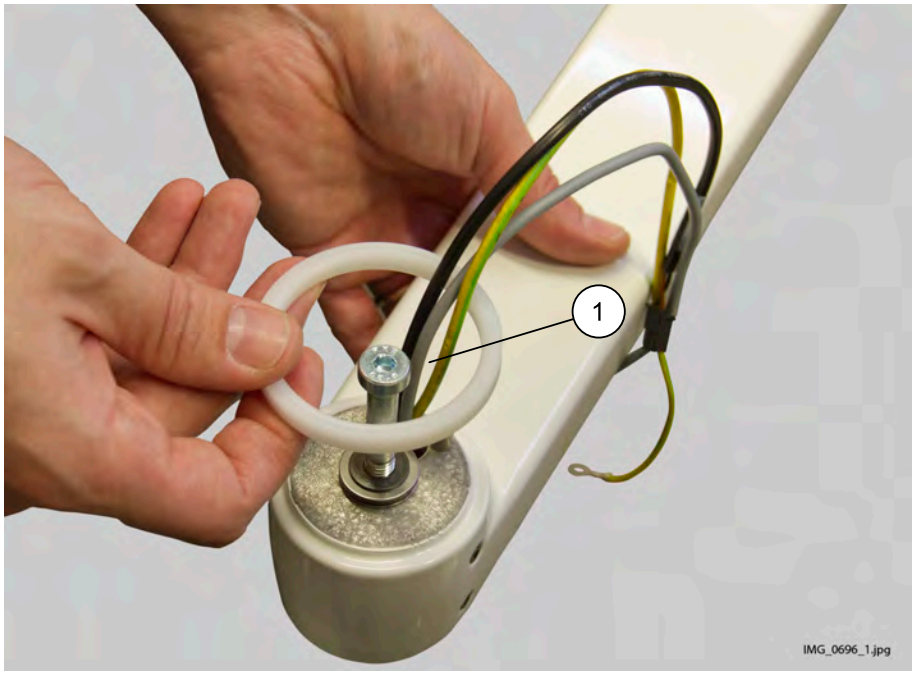


16 Installing chair-mounted left/right suction arm

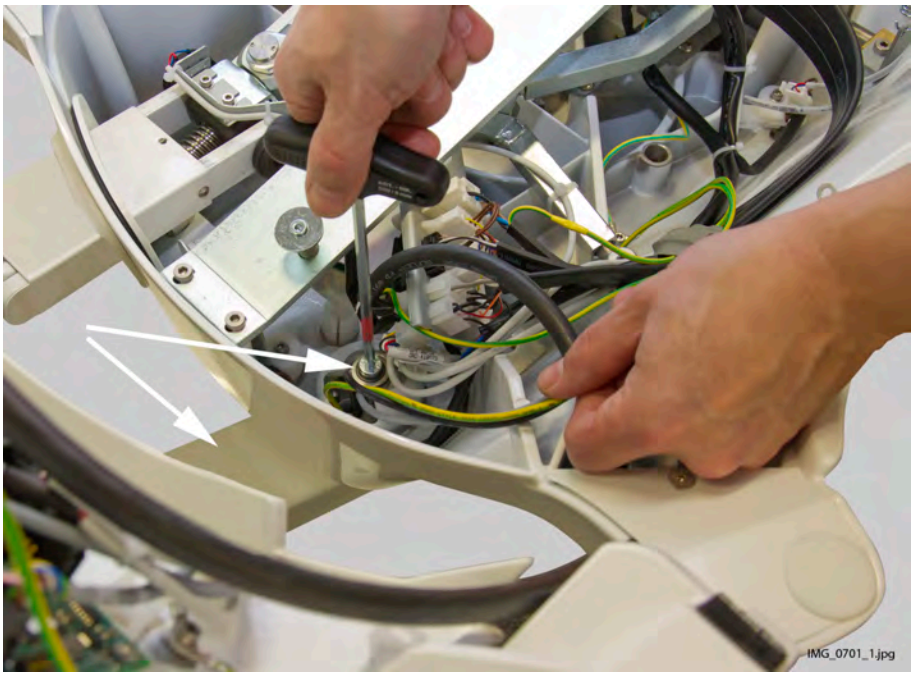
Detach the arm opening cover plate using a 10 mm spanner (white arrow) and 4 mm Allen key (black arrow).



Place the slide bearing (**1**) to the level arm as shown in the figure below.

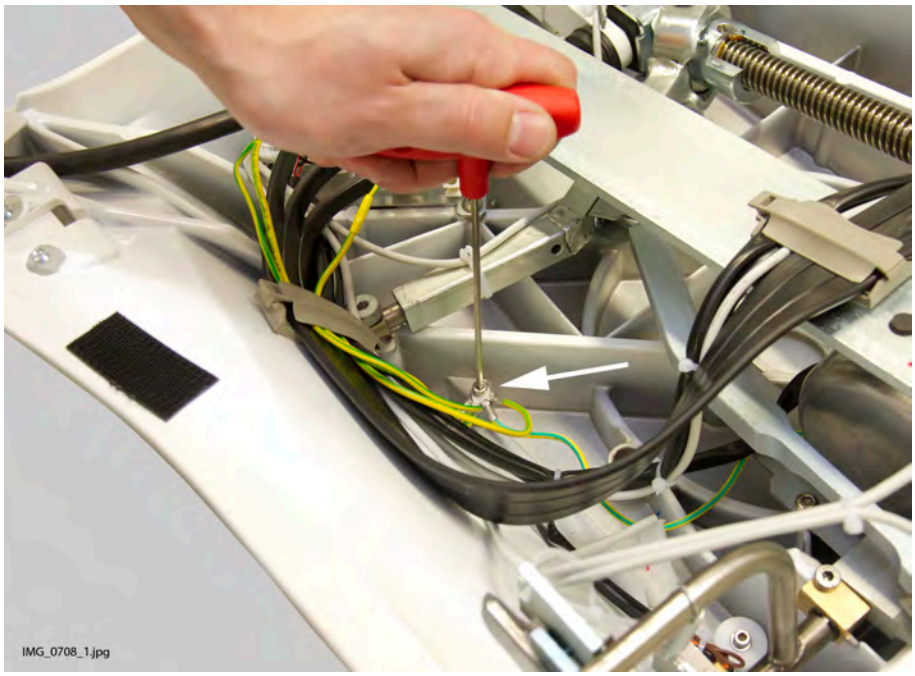


Route the suction arm cables into the seat. Place two spring washers ø8/16x0.9 DIN 2093 and one bearing plate AS 0821 to the M8x55 DIN 7984 attachment screw. Attach the suction arm to the seat casting using the 5mm Allen key. The rotational friction of the suction arm is adjusted with this screw.

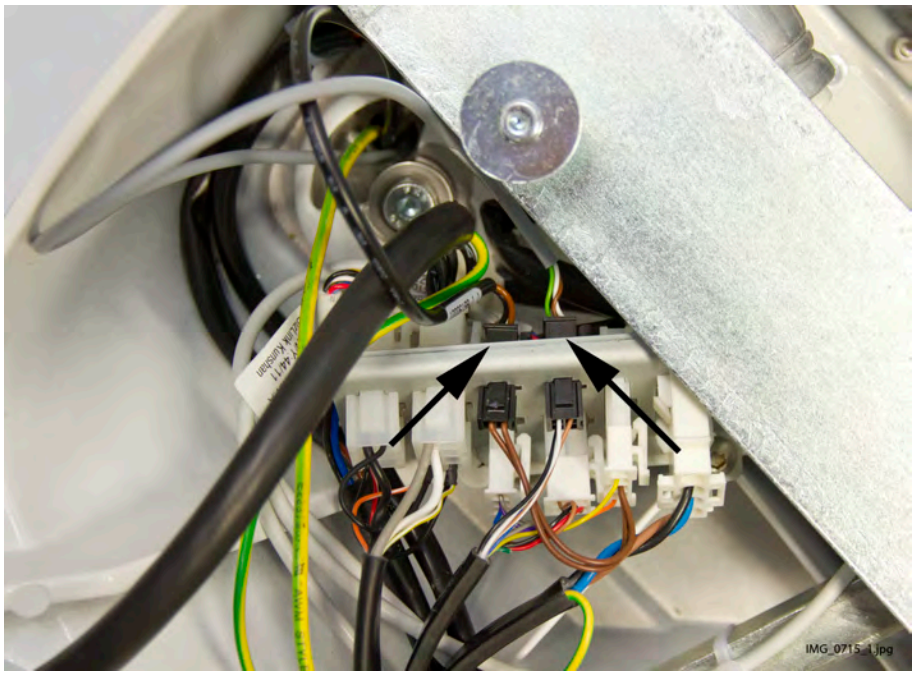


Lock the attachment screw into position with the holding screw (upper screw) using the 3mm Allen key.

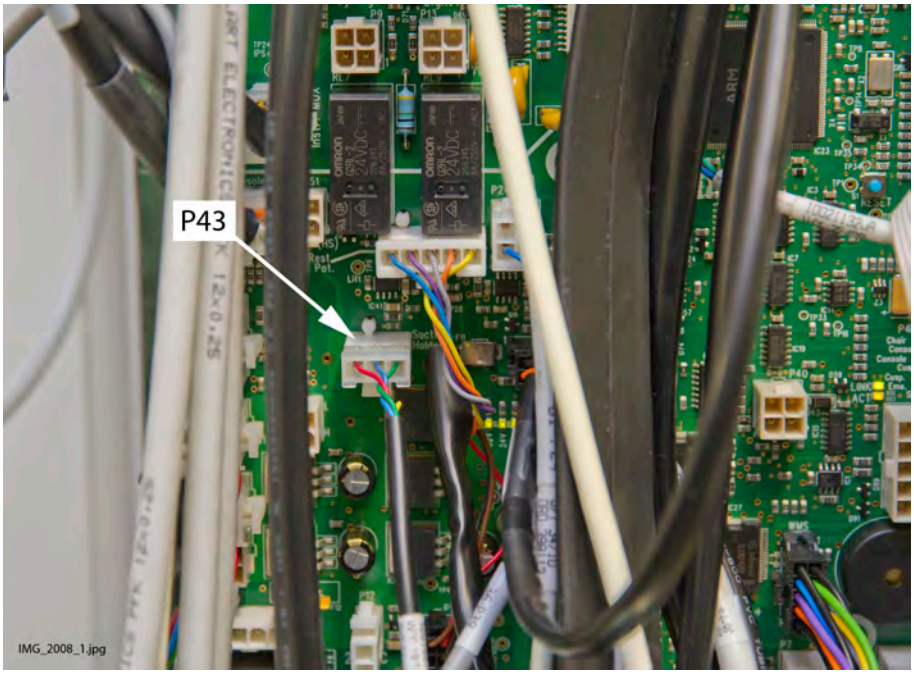
Attach the arm grounding lead to the seat casting.



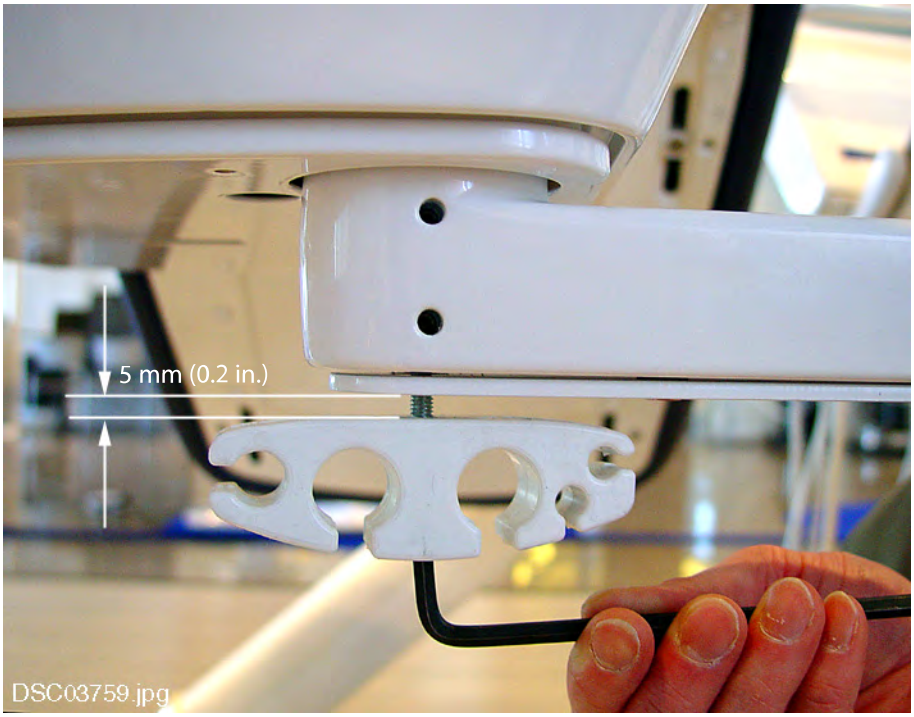
The safety switch jumper has to be replaced with the safety switch cable. Remove the safety switch jumper from the connector located on the metal plate on the seat casting. Connect the safety switch cable to the connector. Connect the suction holder cable to the connector beside the safety switch cable connector. (Black arrows in the figure below).



Make sure that the chair-mounted suction holder cable is attached to the connector P43 on the Main Control PCB.



If you are installing the long, 2300 mm suction tubes, the tube holder must be installed. Attach the tube holder to the suction arm with one M6x45 DIN 912 screw using the 5mm Allen key. Leave a 5mm (0.2 in.) gap between the tube holder and suction arm.



Lock the attachment screw into position with the holding screw (lower screw) using the 3mm Allen key.

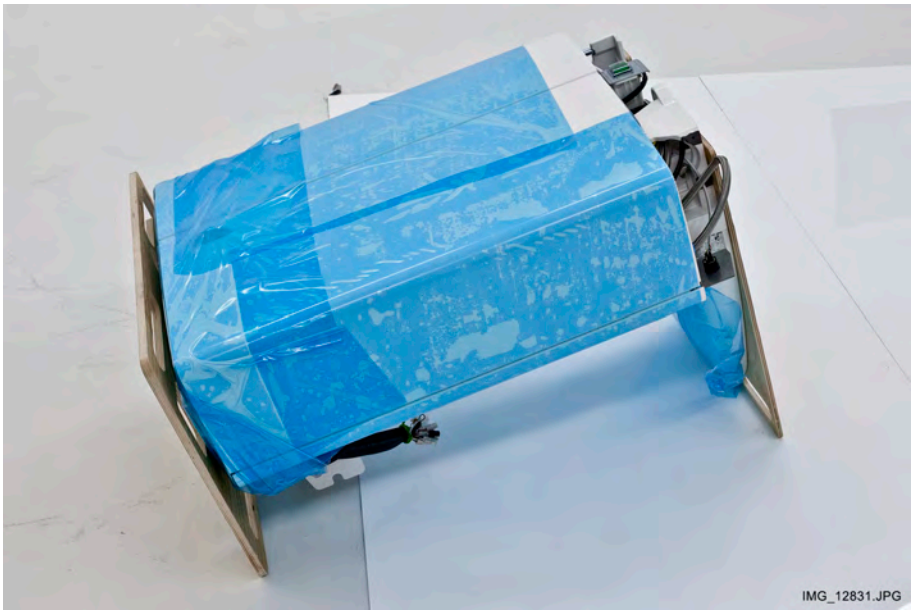
Attach the chair upholsteries according to the instruction given in section "Attaching upholstery support plate" on page 71.

17 Installing adjustable suction arm

17.1 Attaching adjustable suction arm

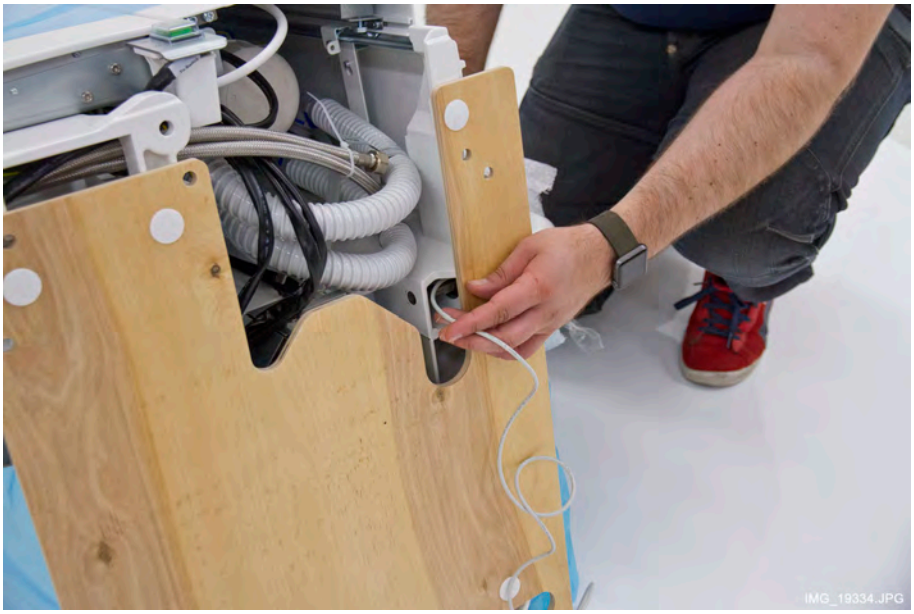
The adjustable suction arm is installed at the lower head end of the cuspidor.

Lie the cuspidor down on the edges of its wooden installation plates.

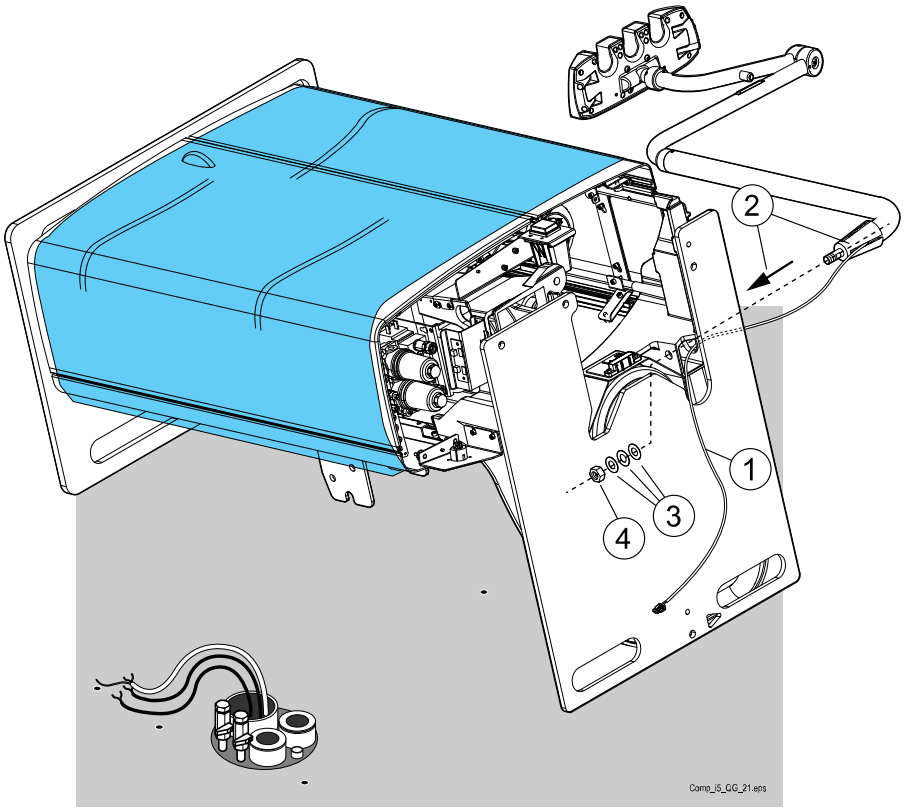


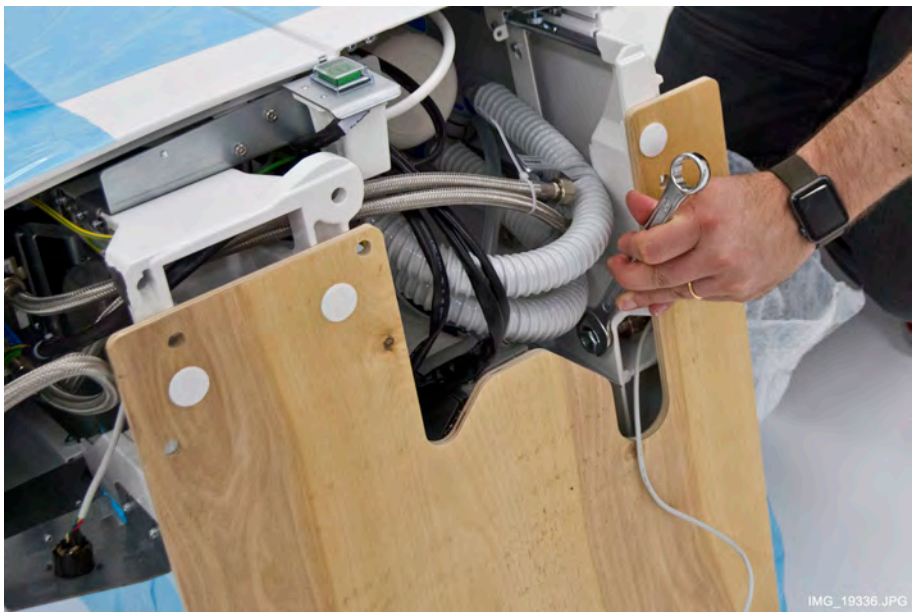
Remove the adjustable suction arm from its packing. Route the suction arm cable and the grounding lead through the opening on the side of the unit base. Bend the cable downwards inside the opening and route it between the floor and the cuspidor base to inside the cuspidor.

Make sure that the cables are led through one of the grooves of the adapter.



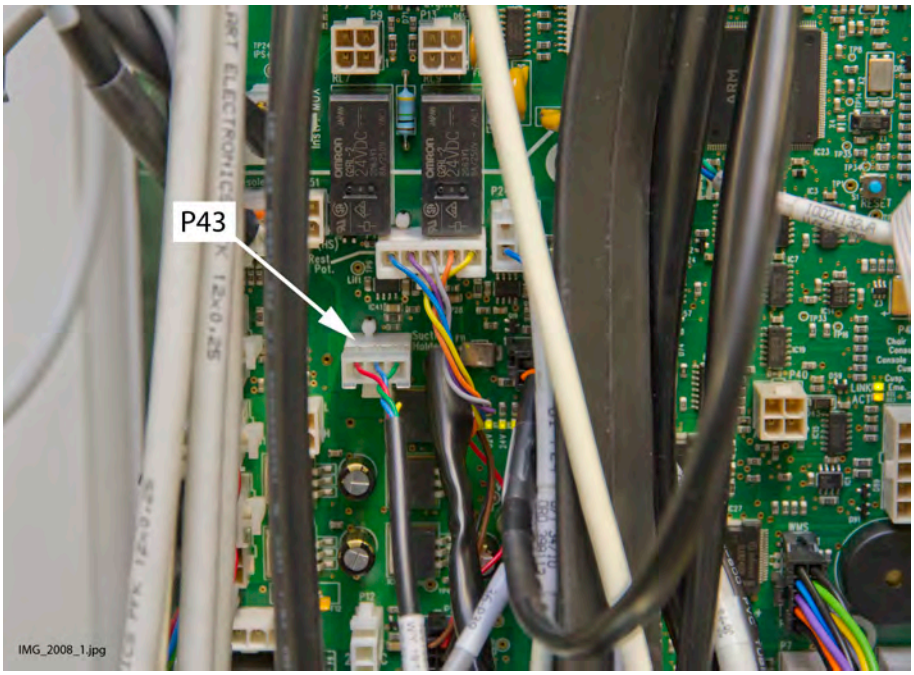
Once the cable is in place (**1** in the figure below), attach the suction arm to the opening (**2**) and secure it with the nut (**4**) and three washers (**3**) supplied with the arm from inside the cuspidor base. Remember to level the suction arm before fully tightening the screw.





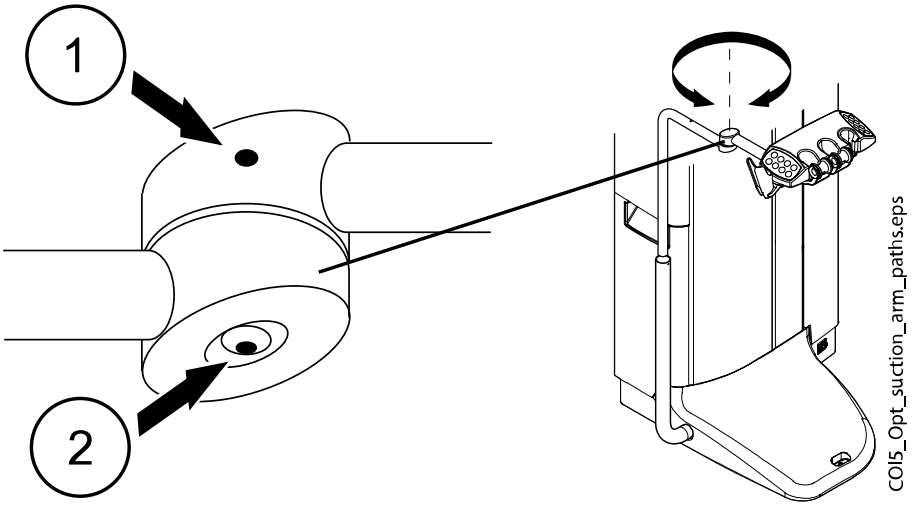
Remove the cover plug from the opening of the adjustable suction arm (if the plug is installed at the factory).

Route the suction holders arm cable along the lower cable guide at the lower side of the electronics control box to the Main control PCB. Connect the cable to the connector P43. Secure the cable to the cable guide with cable ties.



17.2 Adjusting friction of adjustable suction arm

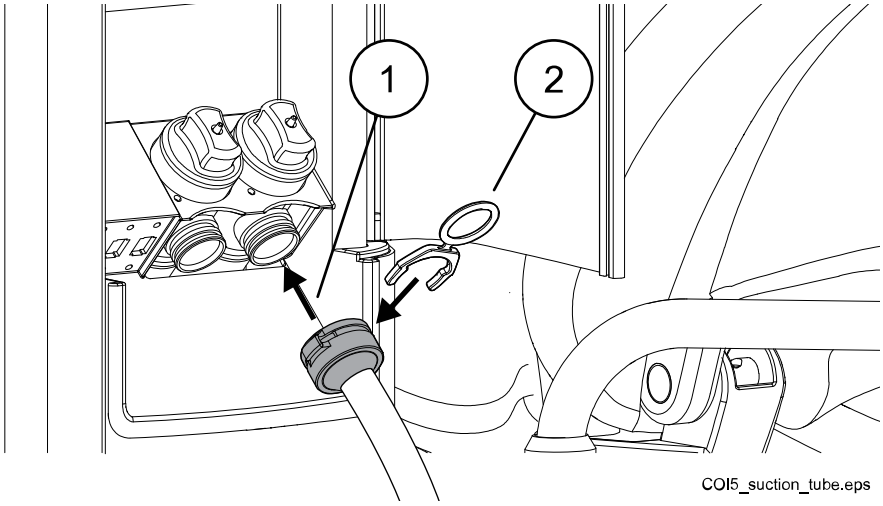
Loosen the holding screw at the side of the optional suction arm joint with the 2 mm Allen key (**1**). Adjust the rotational friction of the joint with the 4 mm Allen key (**2**). Tightening the screw increases the friction. Lock the screw into position with the holding screw.



18 Attaching suction tubes

Attach the suction tubes to the suction tube connectors in the side of the cuspidor (**1**). Secure them in position with the securing rings (**2**). It is of no importance in which order you connect the suction tubes.

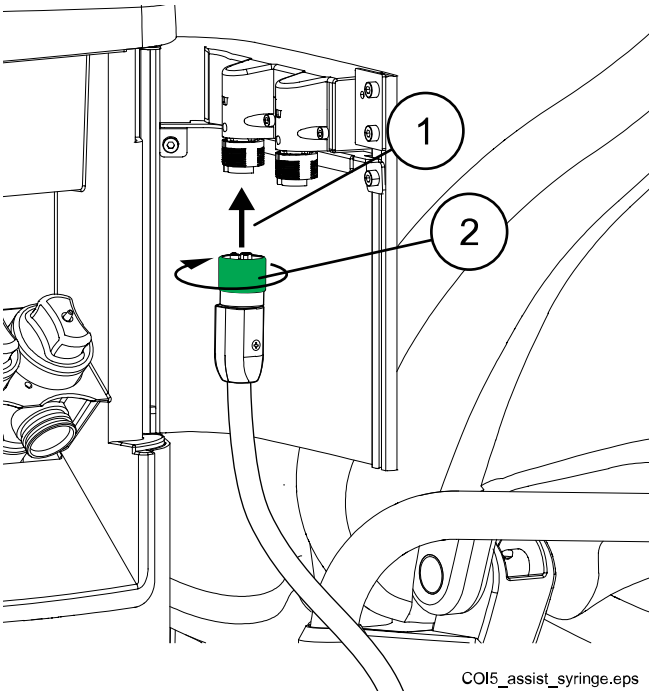
Route the suction tubes along the side of the cuspidor to the suction arm.



19 Attaching assistant syringe

The optional assistant syringe hose is equipped with a quick connector. Connect the hose to its counterpart inside the door as shown in the figure below.

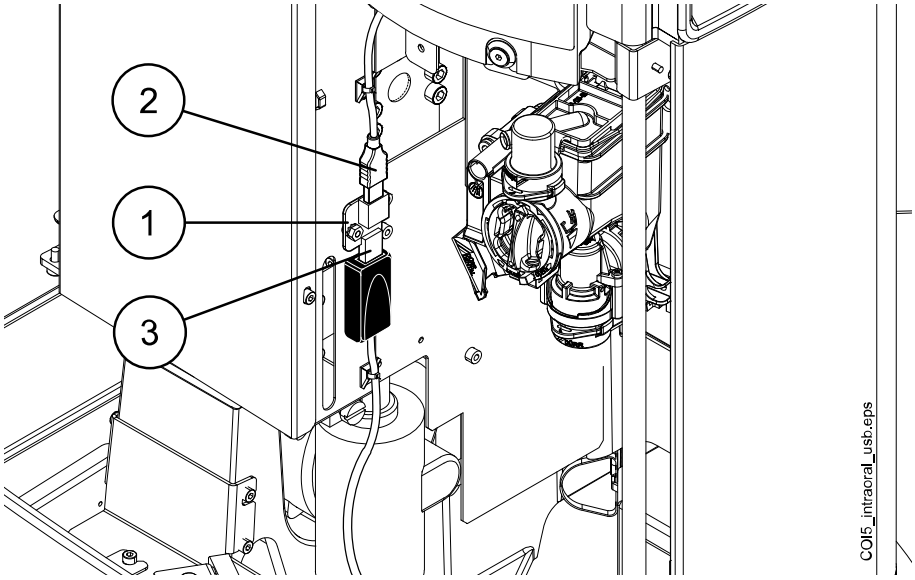
Attach the syringe bush to the connector on the door by pushing it firmly into position (**1**) and then rotating it clockwise (**2**).



Route the assistant syringe hose along the side of the cuspidor to the suction arm. Place the assistant syringe into the suction tube holder.

20 Installing USB intraoral camera

Make sure that the repeater cable is routed from the dental unit to the PC. If not, route it from the dental unit to the PC. If the distance is over 5 m, add another repeater cable.



1. Earthing adapter PCB	2. USB cable to intraoral camera	3. Repeater cable to PC

20.1 Camera installed to balanced arm instrument console

Connect the intraoral camera’s USB to the USB port on the underside of the instrument console.

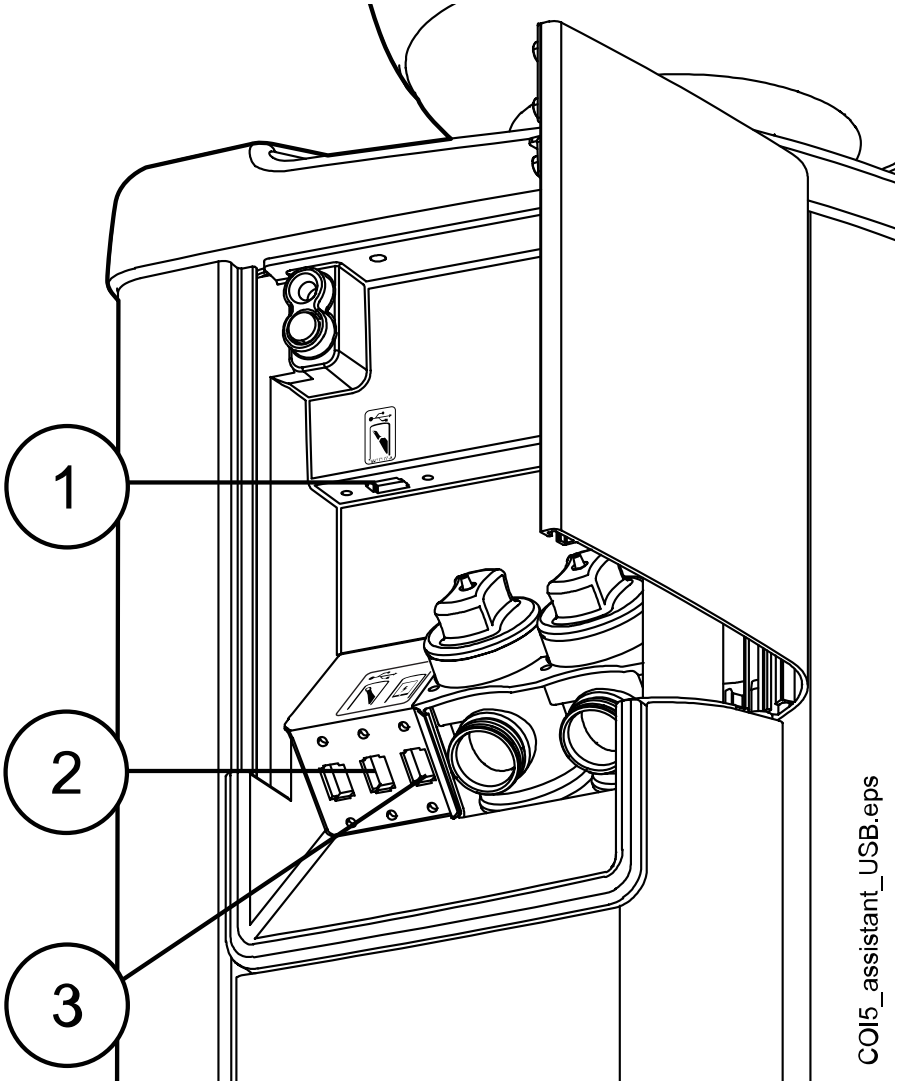
Connect the intraoral camera’s cable to one of the quick connectors reserved for an instrument (the four leftmost connectors in the picture below) on the underside of the instrument console.

Do not connect the intraoral camera’s cable to the quick connector reserved for the syringe. This quick connector is marked with the label “Syringe only”.

20.2 Camera installed to adjustable suction arm

Push the camera holder to the rightmost place on the suction holder. Place the camera in the holder.

Connect the camera cable to the USB port in the cuspidor as shown in the figure below.



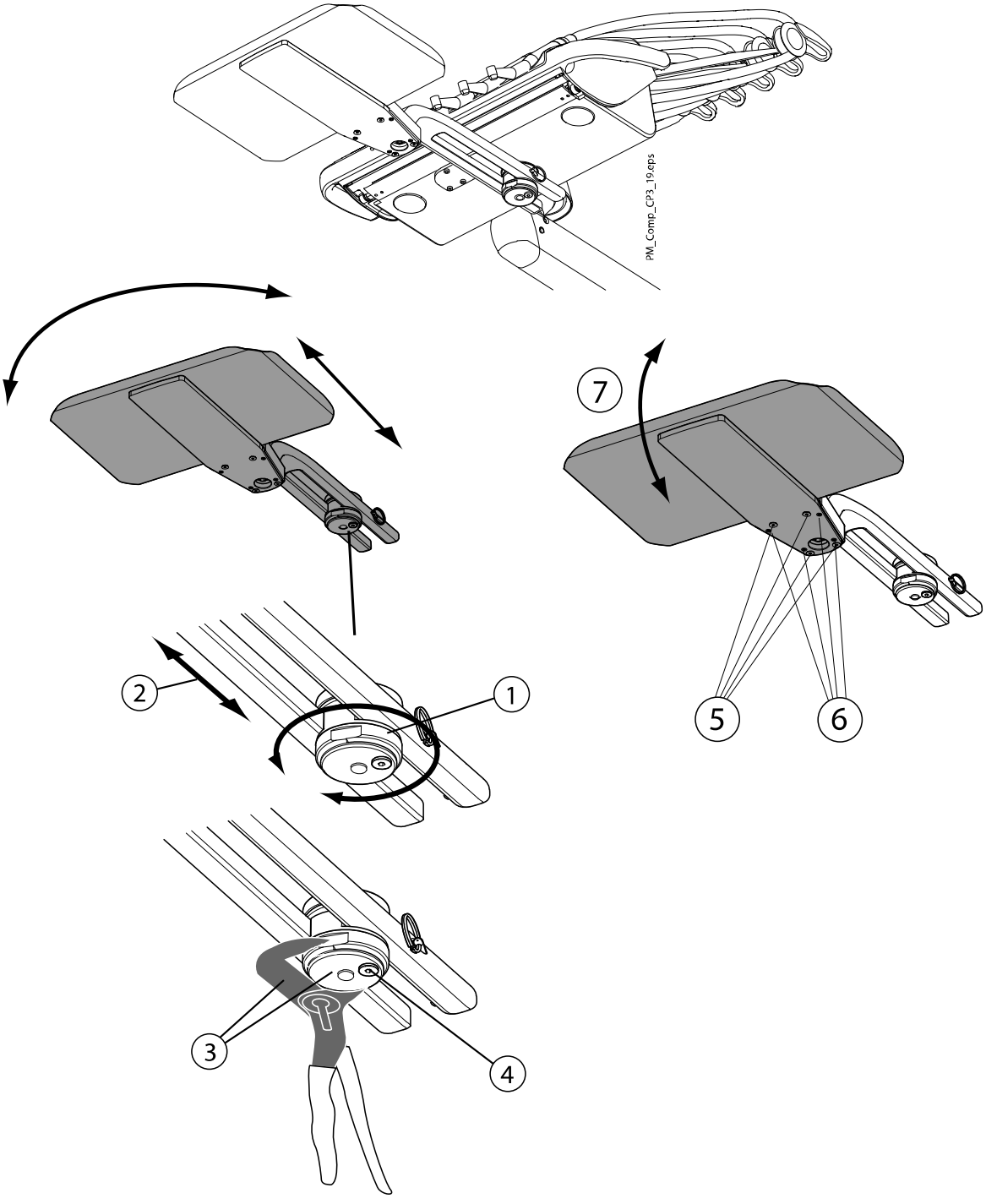
1 USB intraoral scanner port
2 **USB intraoral camera port**
3 USB charger port

21 Attaching tray assembly to OP delivery arm balanced arm instrument console

The mounting arm is attached to the instrument console by pushing it to its position.

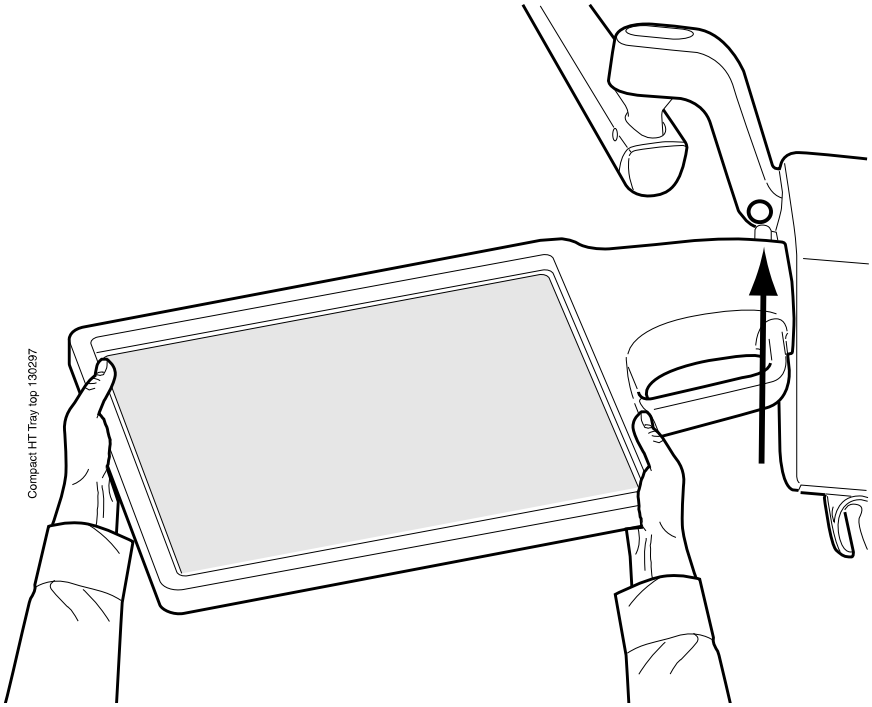
The friction of the tray arm movements can be adjusted. Loosen the joint attachment screw using a 3 mm Allen key (**1**). Rotate the plate manually and move the tray arm (**2**). Hold the plate in position with pliers (**3**) and tighten the attachment screw (**4**).

The angle of the tray can be adjusted as follows. Loosen the securing screws (**5**) and adjust the angle (**7**) with four adjustment screws (**6**). Tighten the securing screws.

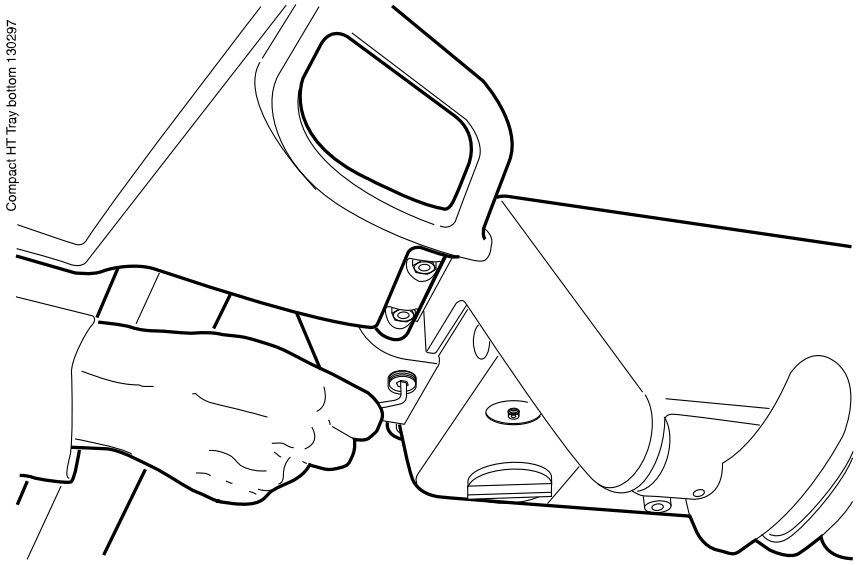


22 Installing integrated tray to OP delivery arm hanging tube instrument console

Push the tray into the opening on the console arm.

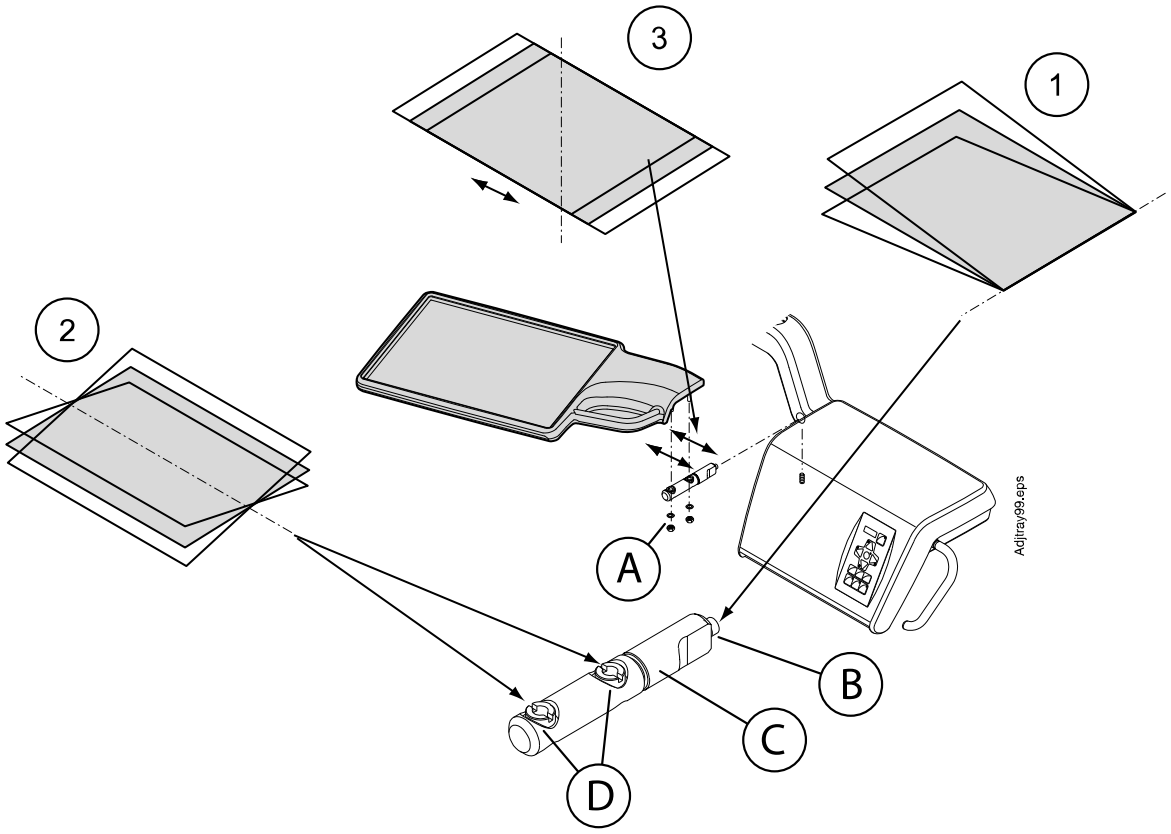


Lock the tray into its position with the screw underside of the console arm.



The position of the tray can be adjusted as follows:

1. Remove the tray adapter from the instrument console. Adjust the angle in regard to the attachment point of the tray by loosening the screw at the end of the tray adapter slightly and then rotating the other end of the adapter. Tighten the screw and attach the tray adapter to its position and check that the angle is correct. Readjust if necessary.
2. Remove the tray from the tray adapter. Adjust the angle in regard to tray longitudinal axle by rotating the bushings on the adapter. Attach the tray to its position and check that the angle is correct. Readjust if necessary.
3. Adjust the tray position in transversal direction so that the tray is in its position by loosening the tray fastening screws. Make sure that there is no gap between the tray and instrument console. Tighten the fastening screws.

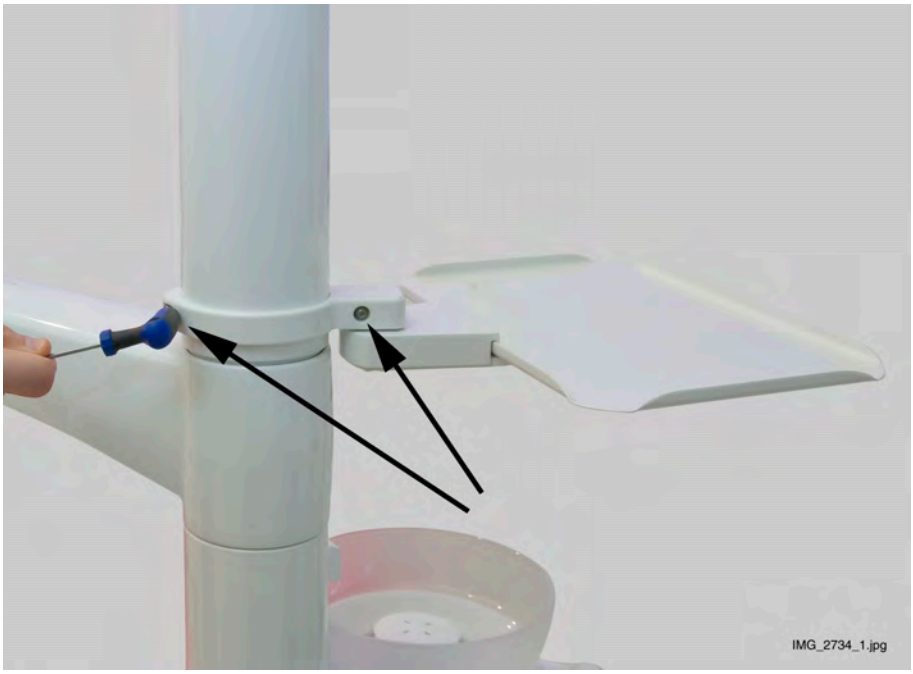


A Fastening screws
B Screw
C Tray adapter
D Bushings

23 Installing column tray

The column tray is attached to the vertical arm **above** the OP delivery arm.

Attach the tray to the vertical arm with two attachment screws using a 2.5 mm Allen key.



24 Connecting foot control

NOTE

After dental unit installation calibrate the foot control according to the instructions given in dental unit's technical manual.

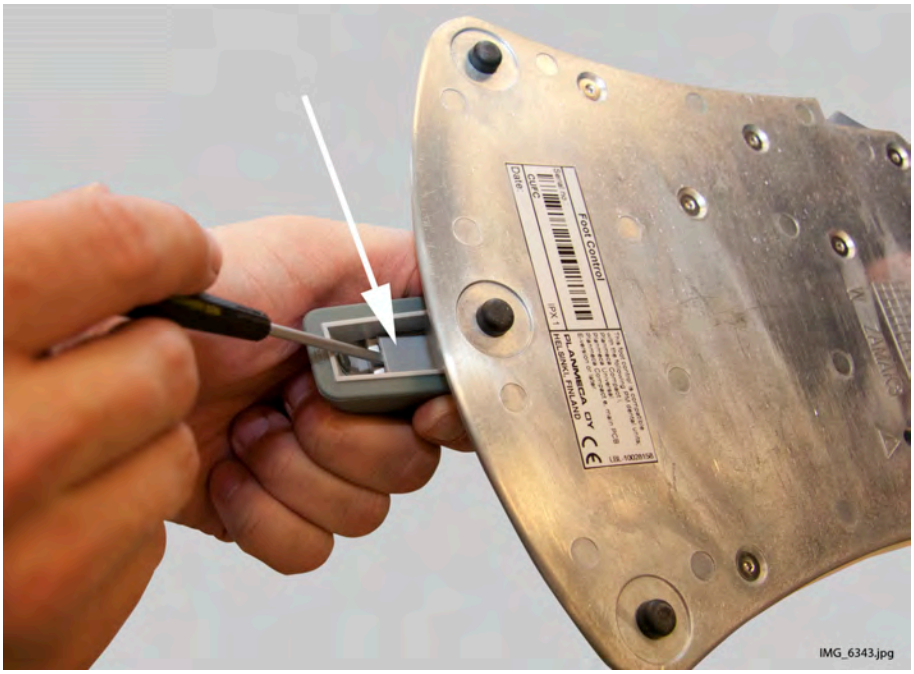
24.1 Units with OP and side delivery arms

Remove the foot control from the packing. Connect the foot control cable to the connector at the lower leg end of the cuspidor by pushing it into position.

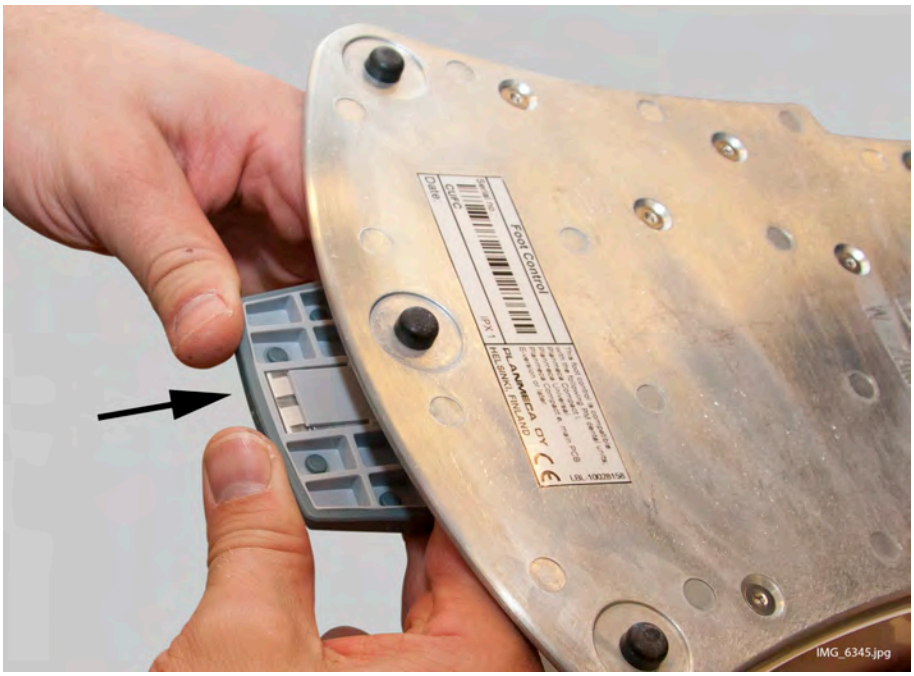
24.2 Selecting the foot control pedal vertical operation

If the foot control is used in mode where the instruments are controlled with vertical movement of the pedal the service mode 66 must be set to 1. Also the pedal knob for vertical operation must be installed.

Detach the normal knob from the pedal.



Push the pedal knob for vertical operation to the pedal.



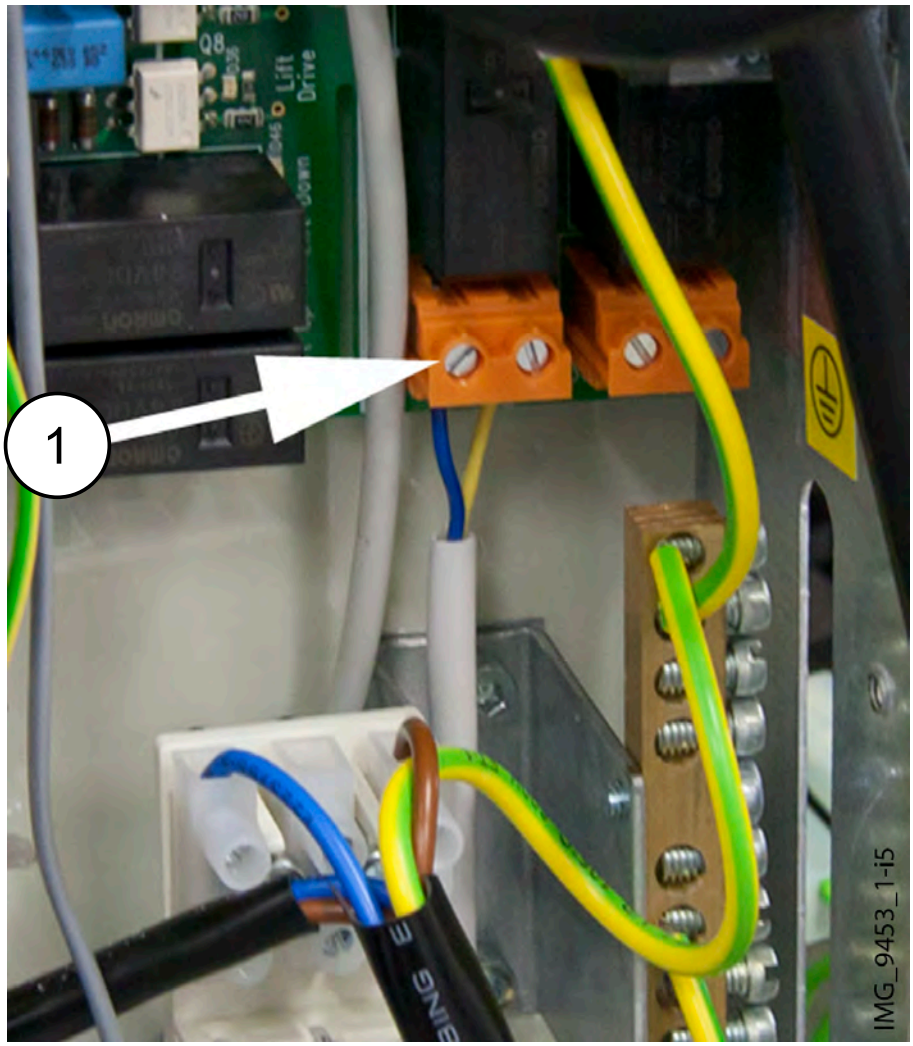
25 Connecting cables

WARNING

Ensure that the mains power is switched off and disconnected before continuing installation.

Route all the cables that come from the floor into the electronics control box to the Main control PCB.

Connect the leads of the suction motor control cable to the terminal marked **suction** on the lower right corner of the Main control PCB. Shorten the cable if necessary. If the suction motor control cable (**1** in the figure below) is connected, the suction motor will start when the suction tube is lifted from its holder. This connection is not needed, if the suction motor is on continuously.



If required connect the assistant call or door open cable to the terminal marked **door/alarm** to the right of to the terminal marked suction on the lower right corner of the Main control PCB. Shorten the cable if necessary.

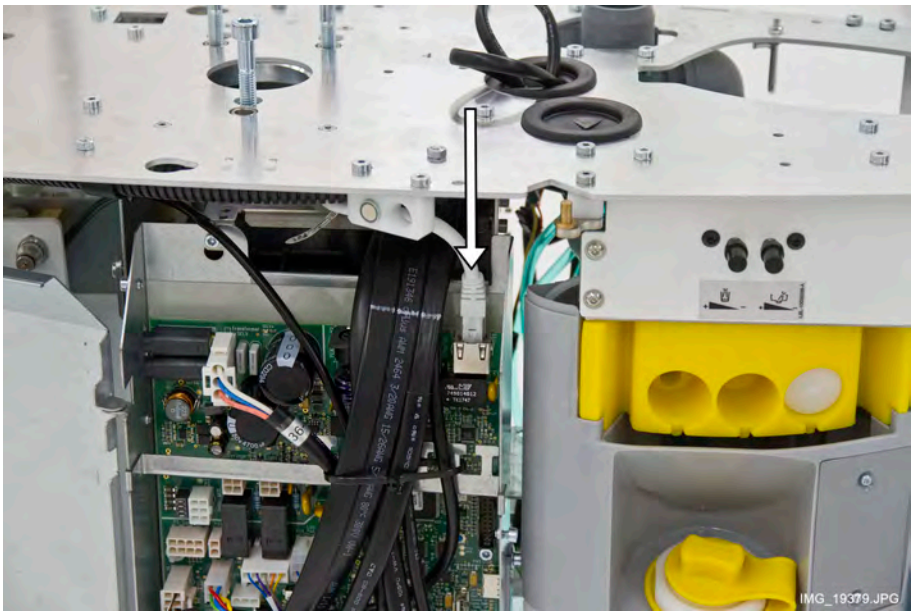
NOTE

These leads must not operate the suction motor, assistant call or door opening equipment. They serve as control leads with a relay on the Mains supply PCB acting as an on/off switch.

The maximum rating of the relay is 240V~/10A. The equipment to be controlled must be supplied with operating power from another source.

For connecting the ceiling or wall mounted operating light cables refer to section "Connecting Planmeca Solanna operating light cables" on page 138.

Connect the Ethernet cable to the connector located on the right upper corner of the Main PCB.



The instructions for configuring the Planmeca Romexis Clinic Management are provided in Planmeca Romexis technical manual.

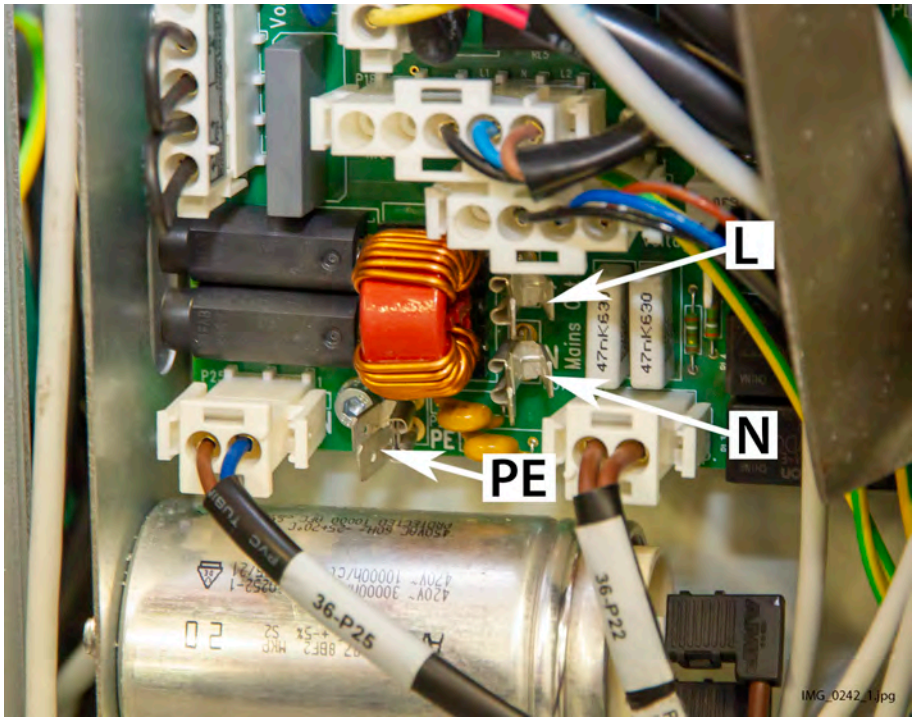
USB intraoral camera: Route the repeater cable from the dental unit to the PC. If the distance is over 5 m, add another repeater cable. Refer also to section "Installing chair-mounted left/right suction arm" on page 157.

Multiple socket outlet cables (optional)

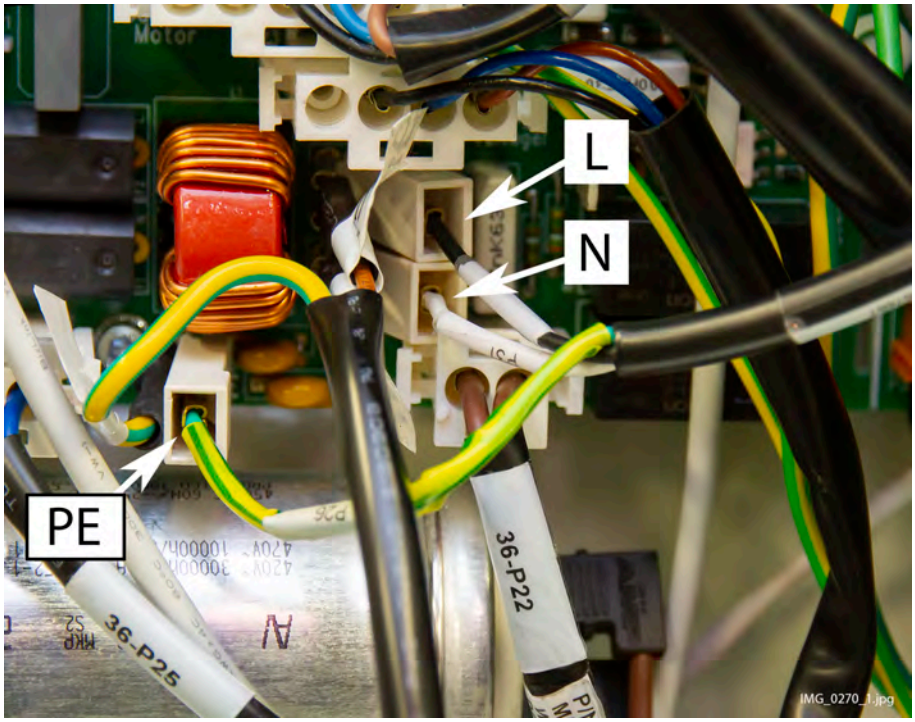
NOTE

The following installation step is for the optional rear frame assembly with air and water quick-connectors and multiple socket outlet. For more information, see section "Attaching cuspidor to floor and connecting service tubes" on page 29.

Place Y-flat connectors in the following sockets.



Connect the **L**, **N** and **PE** cables as shown in the figure below.



25.1 Mains cable

WARNING

Ensure that the mains leads are not connected to any power source before connecting them to the unit.

CAUTION

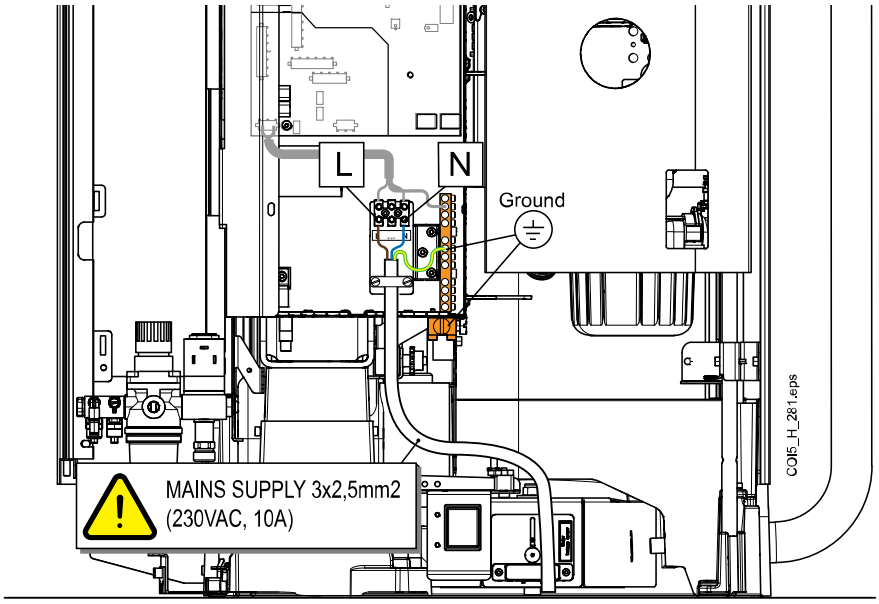
Check that the voltage selector at the connector P21 on the Main control PCB corresponds with the local mains voltage.

NOTE

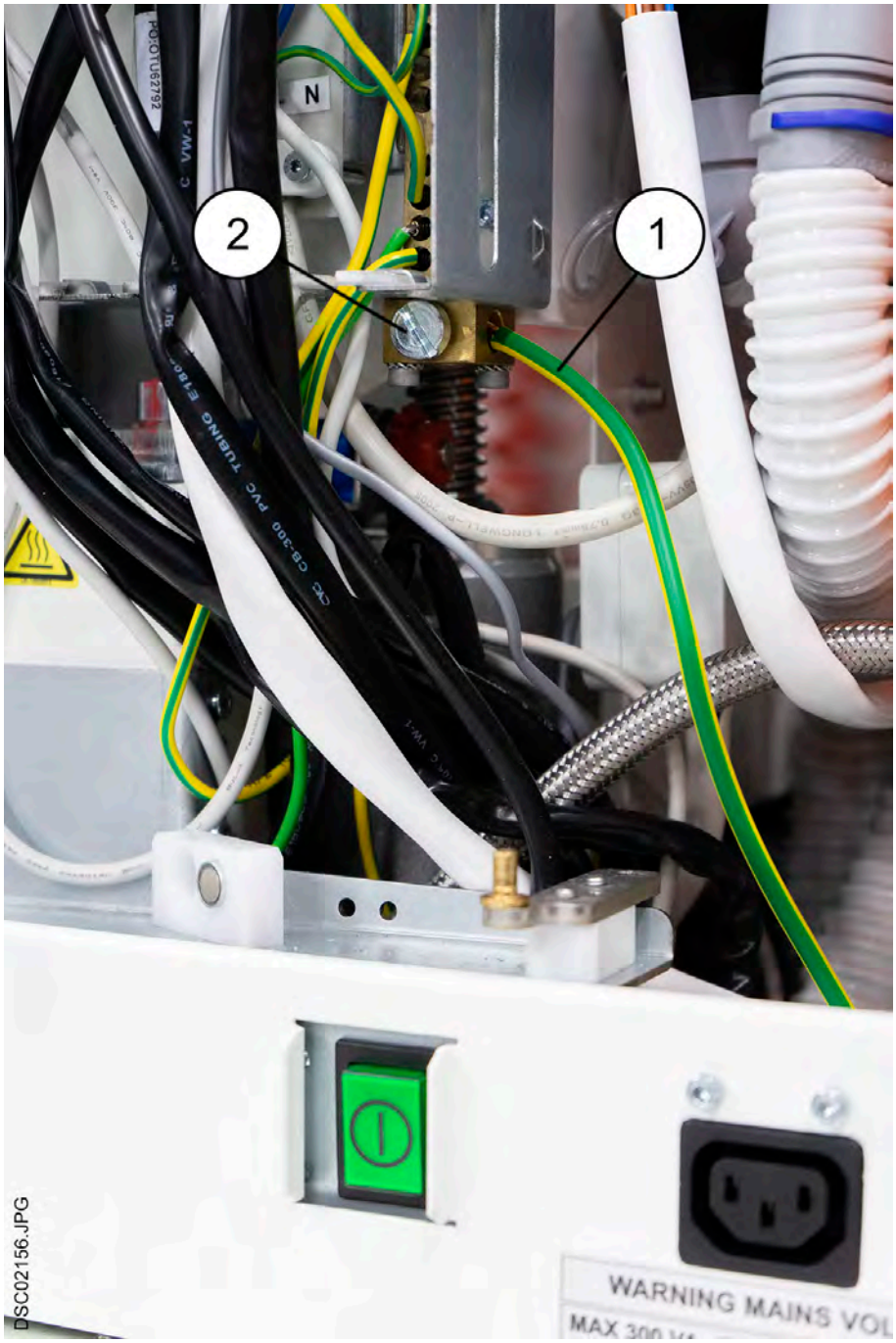
Do not peel the protective sleeve of the mains power cable more than necessary to keep the leads of the cable as short as possible. The maximum length of the peeled line and neutral leads is 30 mm.

Attach the grounding lead to the ground terminal as shown in the figure below.

Connect the neutral lead of the power supply cable to the terminal marked **N** on the terminal block beside the big motor capacitor. Connect the line lead of the cable to the terminal marked **L**.



Connect the optional potential equaliser wire coming from the mains (**1**) and attach in place (**2**) as shown in the figure below.



IT system: Refer to section "Mains power cable installation, IT system (e.g. Norway)" on page 181.

Secure all the cables that come from the floor to the lower cable guide with cable ties.

WARNING

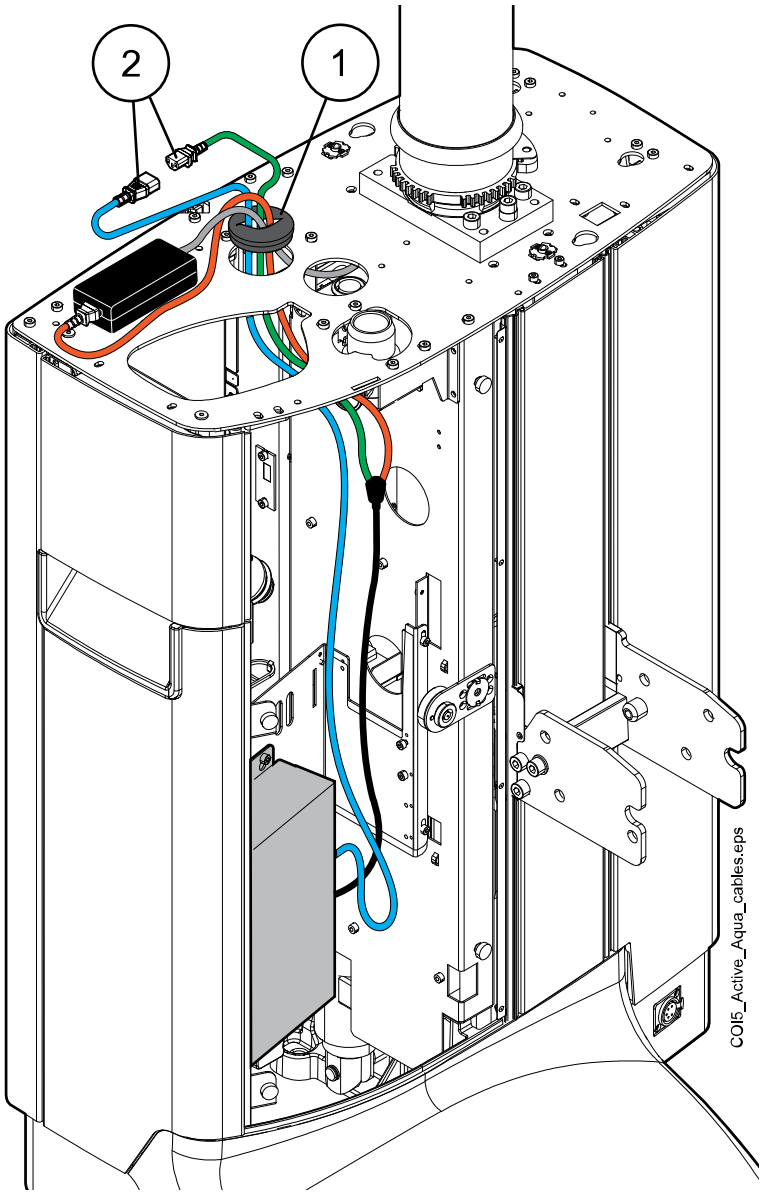
The mains voltage is always present at the mains terminal, even if the unit is switched off from its own mains switch.

Close the electronics control box cover and secure it with two attachment screws.

25.2 Connecting Planmeca ActiveAqua cables

Steps

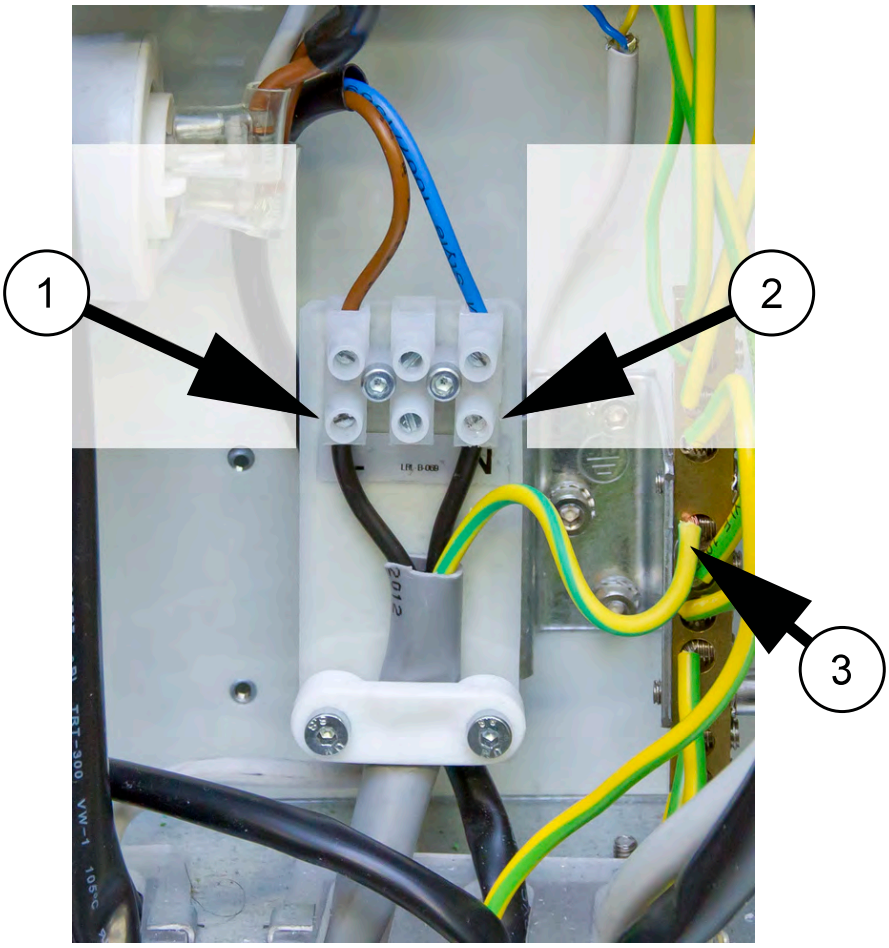
1. Route the 230 VAC splitter power cable from the electronics control box through the cuspidor and the rubber sealing (1) onto the cuspidor cover plate. Connect the 230 VAC splitter cable to the power cable coming from the ActiveAqua control box (2). Connect the other end of the 230 VAC splitter power cable to the monitor/Emerald power supply. If there is no monitor or Planmeca Emerald, plug the cable.



25.3 Mains power cable installation, IT system (e.g. Norway)

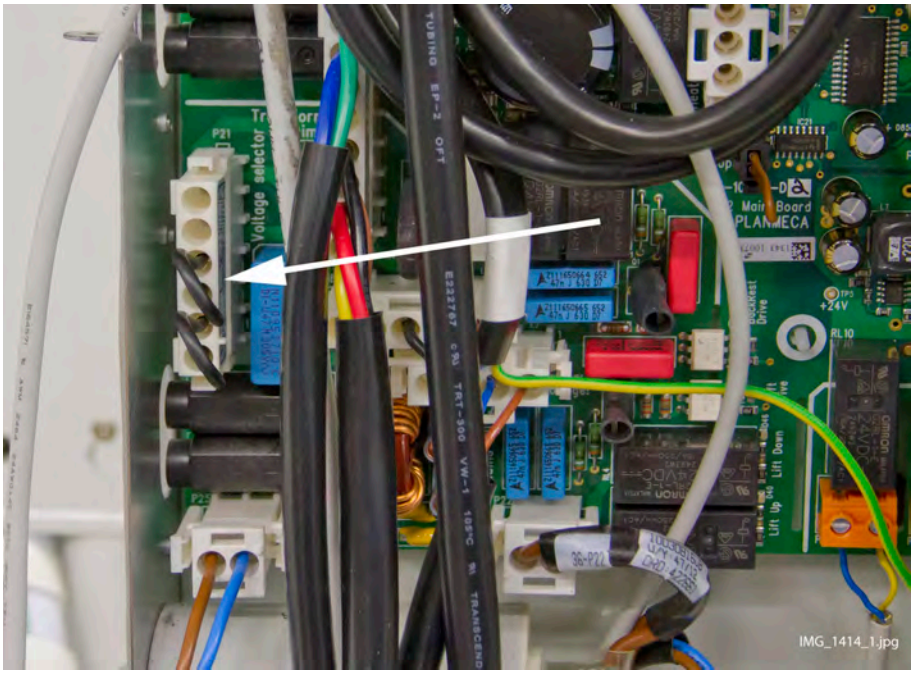
In some countries, e.g. Norway, there can be an IT system (an electrical distribution system that has no connection to earth). This IT system has two line outputs (L1 and L2) instead of line and neutral (L and N). You can ensure the input voltage type by measuring.

L1 to ground: 130-140 V and L2 to ground:130-140 V (Instead L to ground: 240V ±10% and N to ground: <1V).



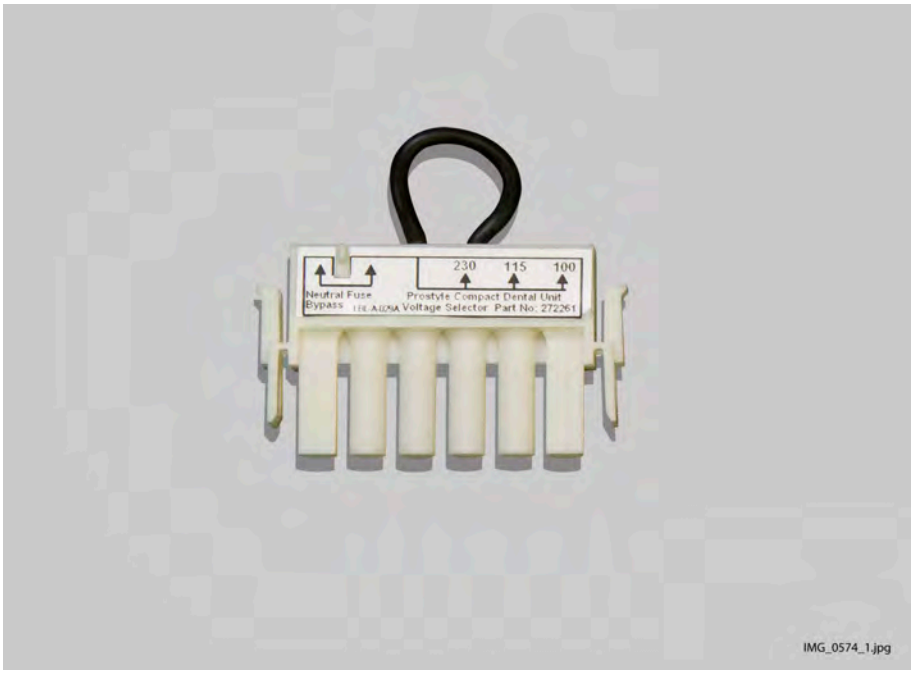
1 Line 1
2 Line 2
3 Ground

The mains voltage selector jumper (connector P21 on the Main control PCB) is used to pass the neutral line fuse.



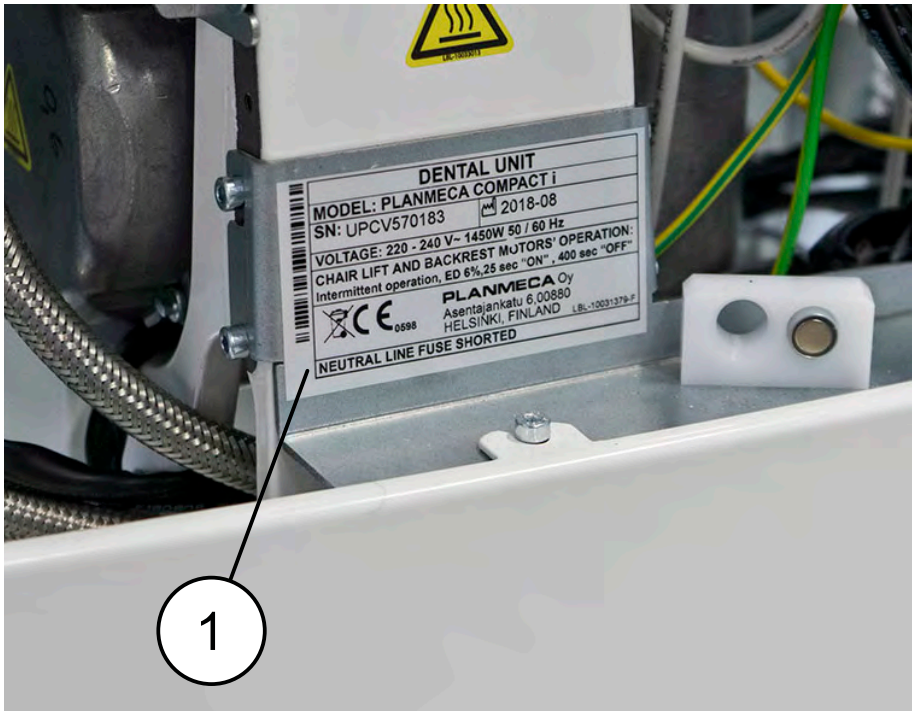
CAUTION

When installing the dental unit to the IT system, the neutral line fuse must not be bypassed. Either replace the voltage selector jumper with Voltage selector 230VAC Norway (part number 10007259, shown in the figure below) or remove the wire that connects the pins 1 and 2 together.



CAUTION

The device label must be modified to correspond the unit configuration. Scratch the text “NEUTRAL LINE FUSE SHORTED” (1) from the device label.



26 Installing instruments

The positions of the instruments are completely user dependent. The only instrument, which has fixed position is the syringe. The syringe must be positioned next to the control panel i.e. to the leftmost position.

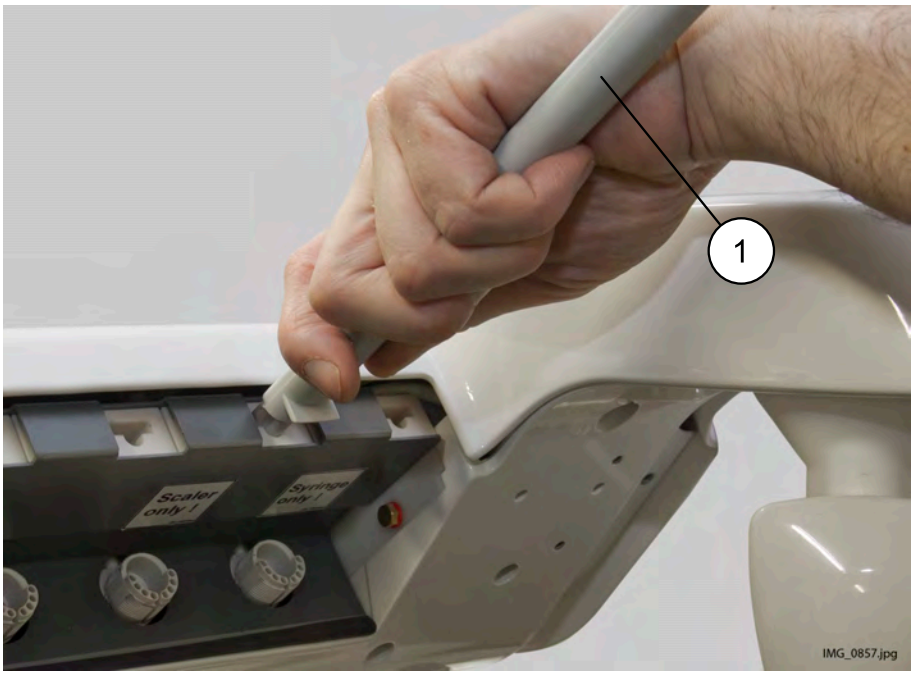
The microprocessor control logic automatically identifies the instrument hose in each position. This enables the instrument positions to be rearranged afterwards without any reprogramming.

NOTE

Please note that you don't have to attach instrument hoses (or instrument arms/holders) to all positions.

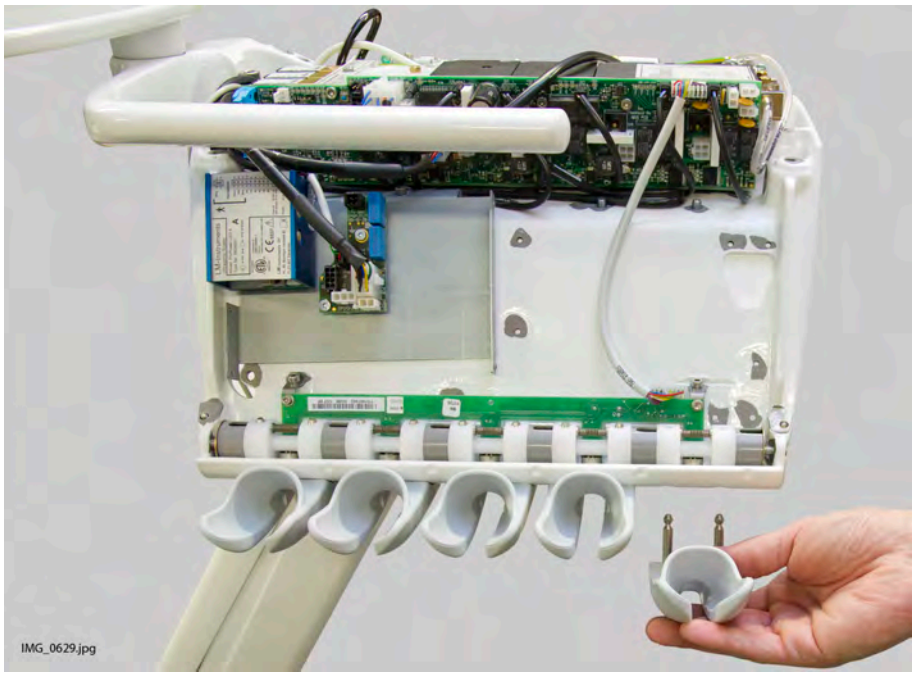
26.1 Attaching balanced instrument arms

Attach the instrument arms (**1**) to the back side of the instrument console by pushing them firmly into position.

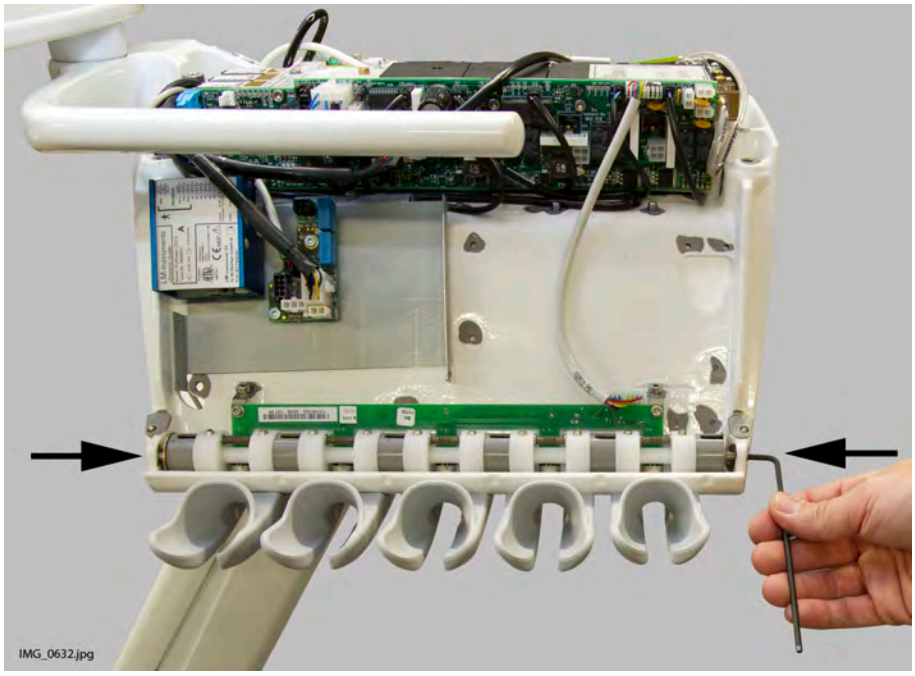


26.2 Attaching hanging tube instrument holders

Attach the instrument holders to the underside of the instrument console by pushing them firmly into position.



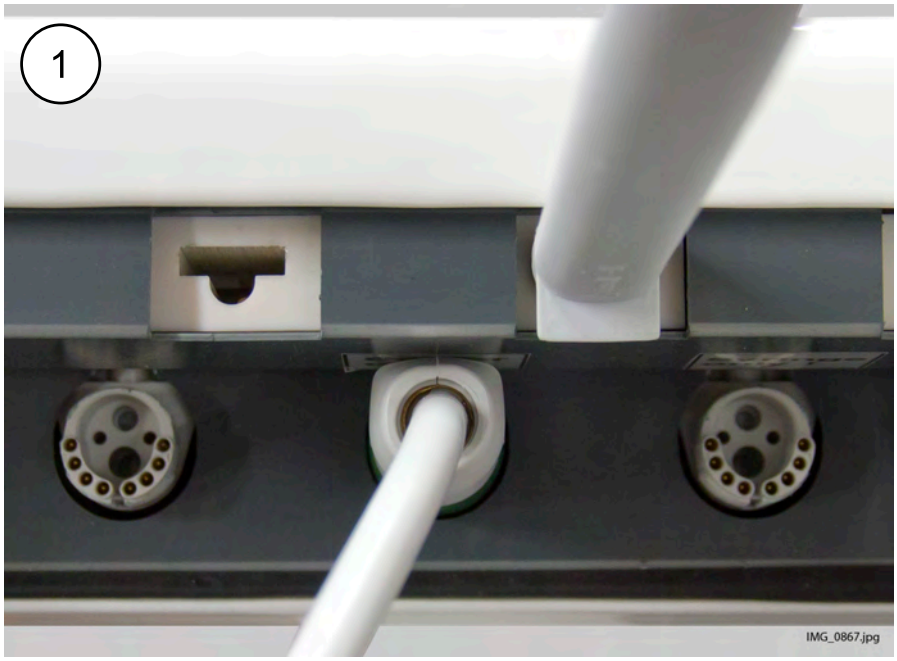
The friction of the holders can be adjusted as follows. Remove the console cover and turn the screws on both sides of the console evenly.

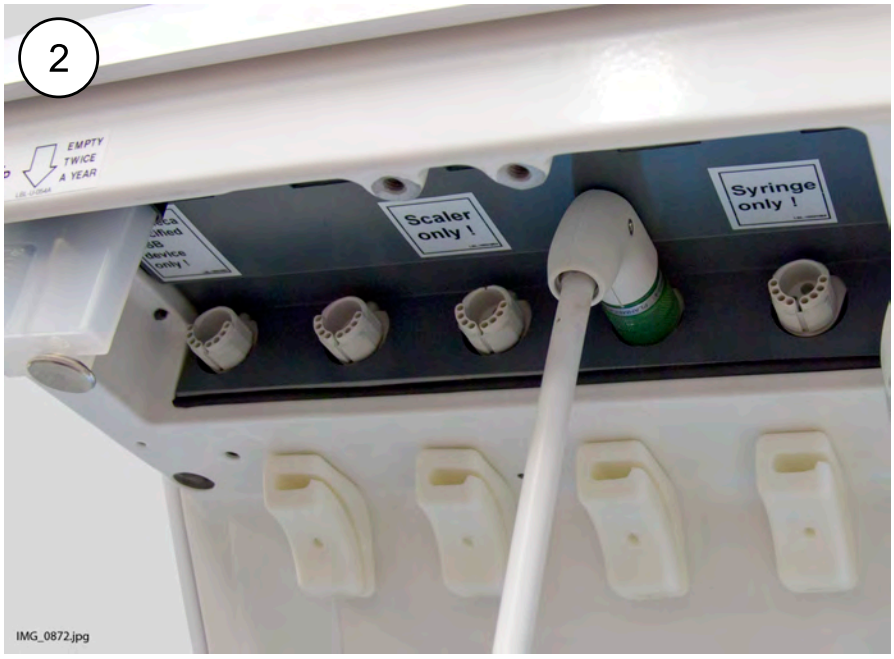


26.3 Attaching instrument hoses

NOTE

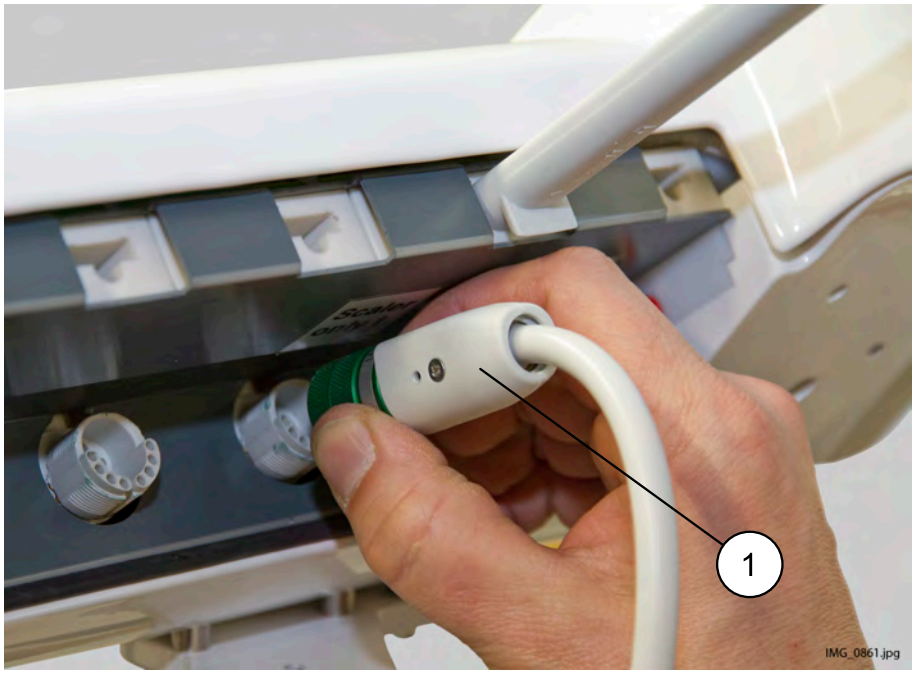
Please note that the quick connectors are polarised (not symmetrical) and should be attached with the flat side upwards.





1 Instrument console with balanced instrument arms
2 Instrument console with hanging-tube instruments

Attach the quick connector instrument hoses (**1**) to the instrument console by pushing them firmly into position and turning the locking ring clockwise.



Attach the syringe instrument into position next to the control panel i.e. to the leftmost position.

CAUTION

Remember to verify that all the instrument hoses are properly connected and the locking rings properly tightened to avoid any leakage.

Instrument console with balanced instrument arms: Route the instrument hoses through the hose guide by carefully bending the hose guide hook and passing the hose over the roller. Connect the instruments to the corresponding hoses and place them into their positions over the instrument console.

Instrument console with hanging-tube instruments: Connect the instruments to the corresponding hoses and place them into their instrument holders. Adjust the holders to the desired angles.

26.4 Installing apex locator assembly

NOTE

The apex locator is not available for Planmeca Compact i Classic.

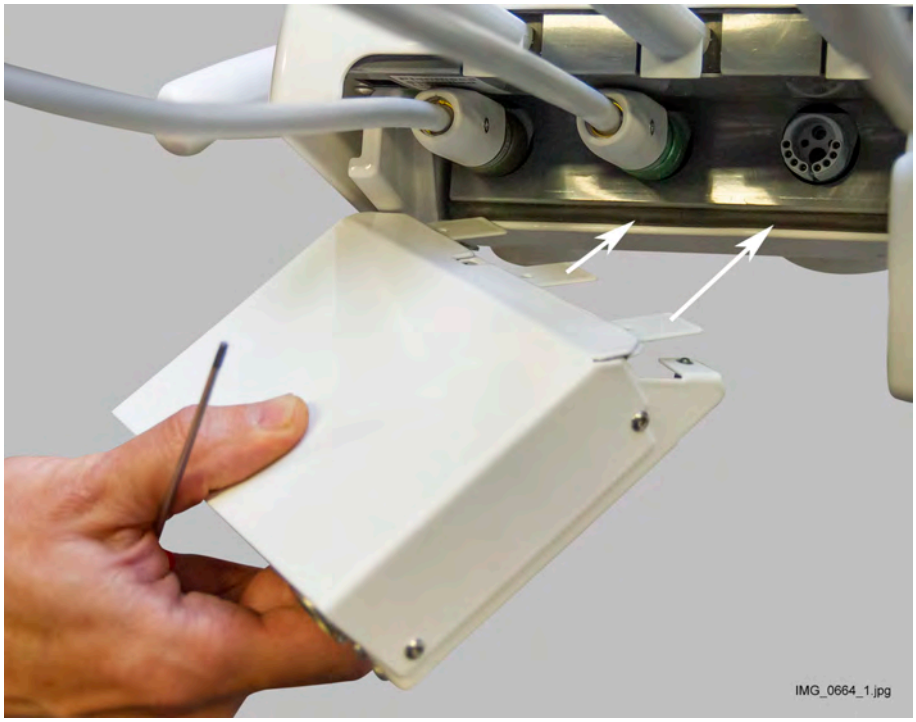
26.4.1 Instrument console with balanced instrument arms

Steps

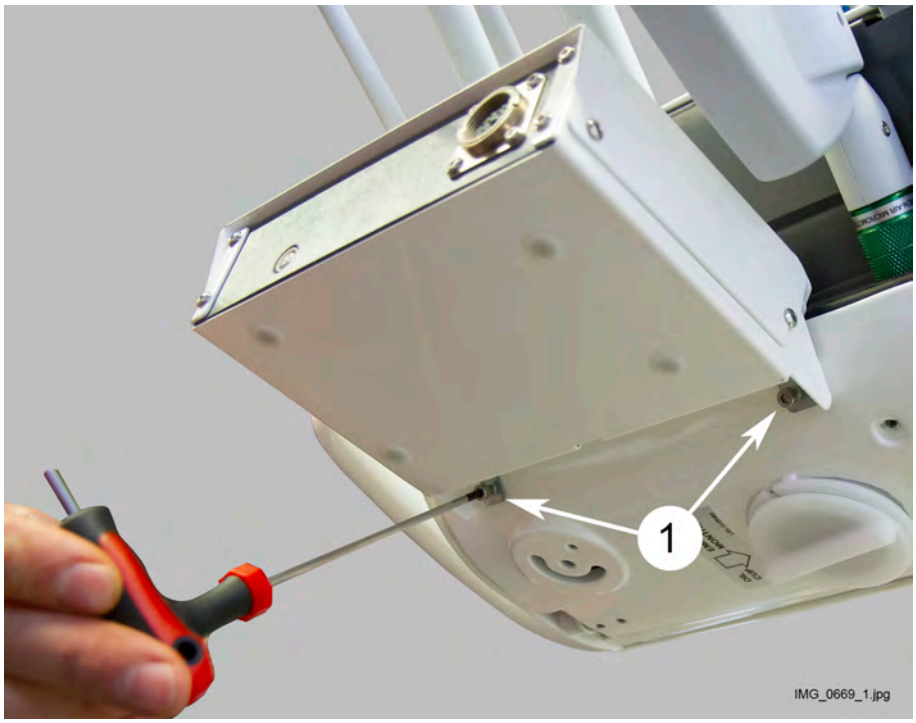
1. Check that the two DIN912 M3x4 screws on the apex locator housing assembly are loosened before installing.

   The screws are tightened in step 3.

2. Slide the apex locator housing assembly into the back of the instrument console.



3. Attach the apex locator housing assembly to the instrument console with two attachment screws DIN912 M3x4 (1) using a 2.5 mm Allen key.

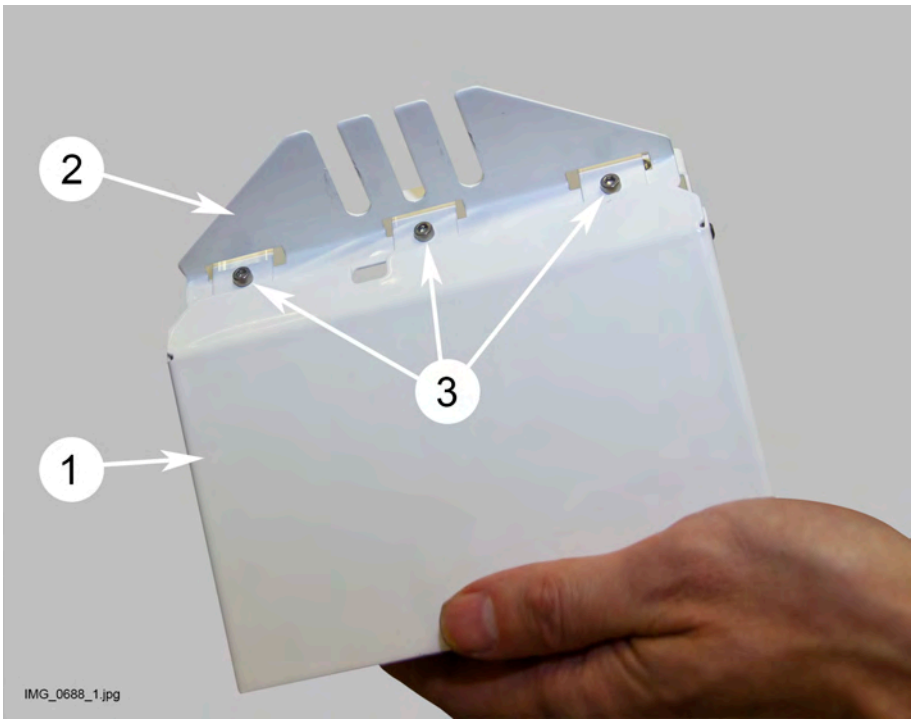


4. Connect the Morita micromotor hose to the apex locator housing assembly and the instrument console, and then connect the micromotor.
5. Test the apex locator function as described in section "Testing apex locator function" on page 190.

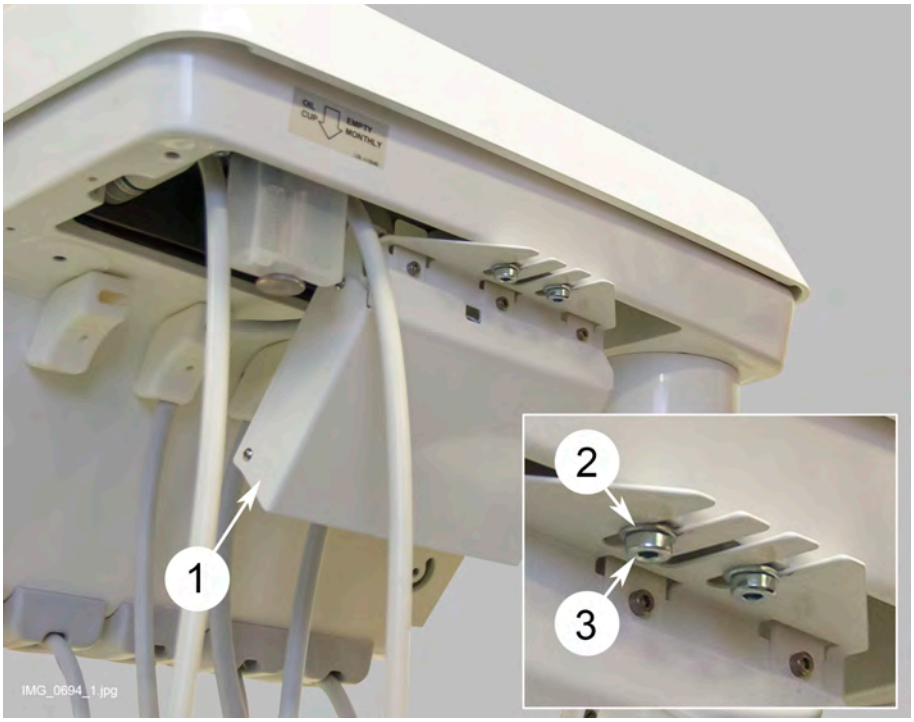
26.4.2 Instrument console with hanging-tube instruments

Steps

1. If not already attached, attach the apex locator housing assembly (1) to the adapter plate (2) with three screws DIN912 M3x4 (3).



2. Loosely attach two washers (2) and screws DIN7984 M6x12 (3) to the instrument console. Hang the apex locator housing assembly (1) on these screws before tightening the screws.



3. Connect the Morita micromotor hose to the apex locator housing assembly (1) and the instrument console, and then connect the micromotor.

4. Test the apex locator function as described in section "Testing apex locator function" on page 190.

26.4.3 Testing apex locator function

About this task

The apex locator function must be tested weekly.

NOTE

While the test is going on, the dental unit's control panel is locked.

Steps

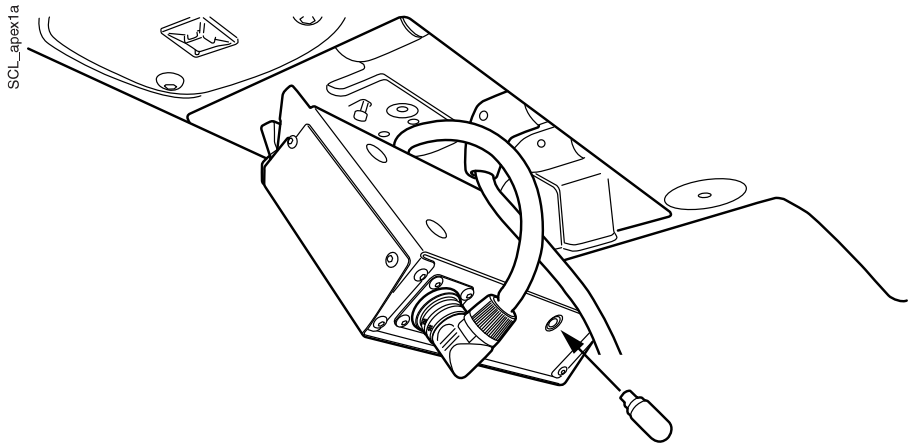
1. Open the *Apex locator* window on the control panel either by pressing the **Apex locator** button or by activating the Morita micromotor and selecting one of the apex presets (a1 - a3).

NOTE

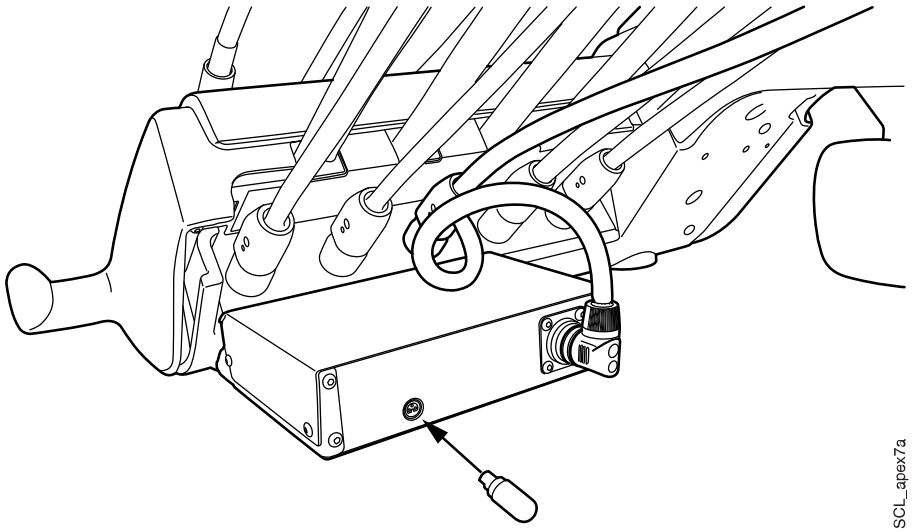
If the Apex locator button is not visible in your control panel's swipe menu, you must add it. For instructions, see your Planmeca dental unit's user's manual, section *Organising items on control panel*.

2. Insert the tester into the jack on the back of the instrument console.

   Compact i dental unit with hanging-tube instruments



   Compact i dental unit with balanced instrument arms



3. Check that the meter indicates within 3 bars above or below 1.

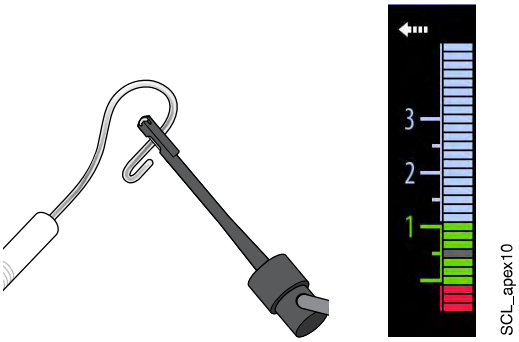
   The meter may jump when the tester is inserted. If it does, wait for about one second until the meter stabilises and then check the reading.

   If the reading is 4 or more bars away from 1, the unit will not make an accurate measurement. Contact Planmeca After Sales.

1 3 bars above 1

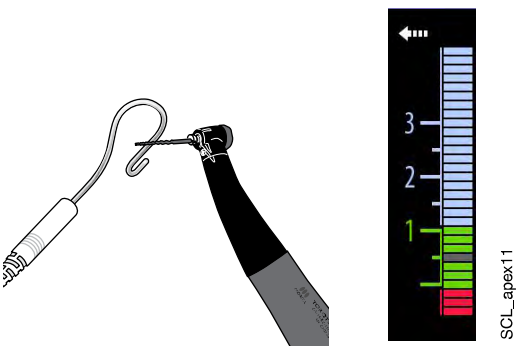
2 3 bars below 1

4. Check that the file holder and contrary electrode are properly connected to the probe cord.
5. If you are using a hand file with the apex locator, touch the metal part of the file holder with the contrary electrode. Check that all the meter indicator bars in the *Apex locator* window light up.



If the indicator bars do not appear normally, stop using the device and contact Planmeca After Sales.

6. If you are using the Morita TORX micromotor and the CA-10RC-ENDO 10:1 handpiece with the apex locator, touch the file with the contrary electrode. Check that all the meter indicator bars in the *Apex locator* window light up.



If the indicator bars do not appear normally, stop using the device and contact Planmeca After Sales.

26.5 Bleeding spray water system

About this task

NOTE

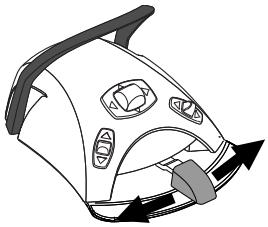
This procedure only applies to the mobile and independent cart.

After unit installation air must be removed from the spray water system.

Steps

1. Open the instrument console cover.
2. Activate the turbine or micromotor by picking it up from the instrument console.
3. Press the instrument spray button to turn on the spray water.

4. Operate the activated instrument with the foot control.



5. While operating the instrument, loosen the bleeding screw until the water flows out.

NOTE

If the water is not bleeding out properly, loosen the two flange nuts a little. When the bleeding is done, tighten the nuts again.

6. Tighten the screw so that the water flow stops.

7. Release the foot control pedal and return the instrument to its place in the instrument console.
8. Remove the label attached to the console and attach the console cover.

27 Attaching chair upholsteries

NOTE

If you are installing the Chair-mounted left/right suction arm with keyboard, perform the suction arm installation before attaching the chair upholsteries. Refer to section "Installing chair-mounted left/right suction arm" on page 157.

The upholsteries are equipped with the velcro tapes, which will attach them to the chair castings. In addition to the tapes some screws are used to secure the upholsteries into position.

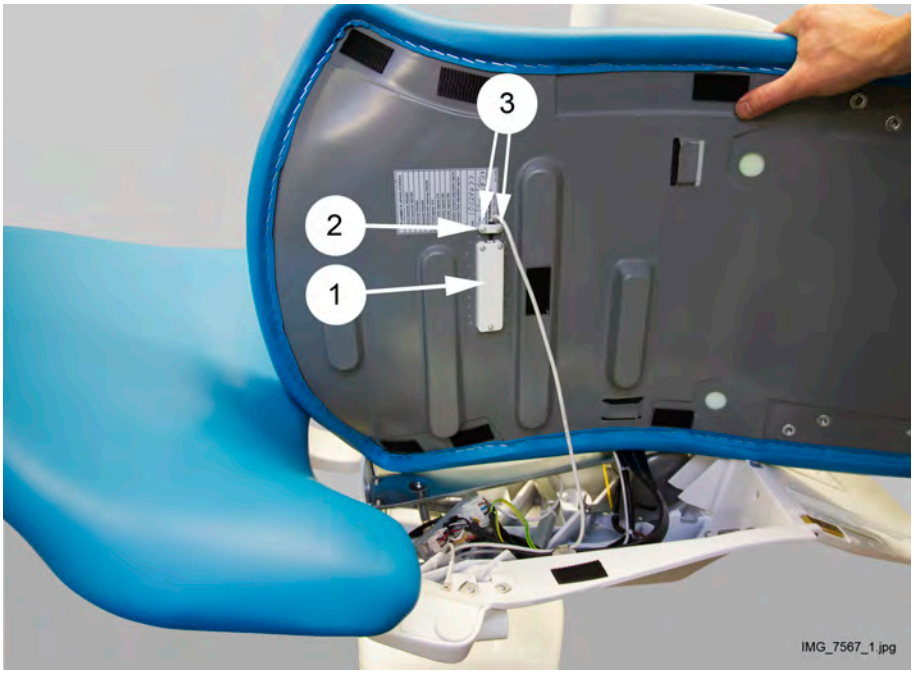
27.1 Attaching seat upholstery

NOTE

Screws must be used to secure the seat upholstery.

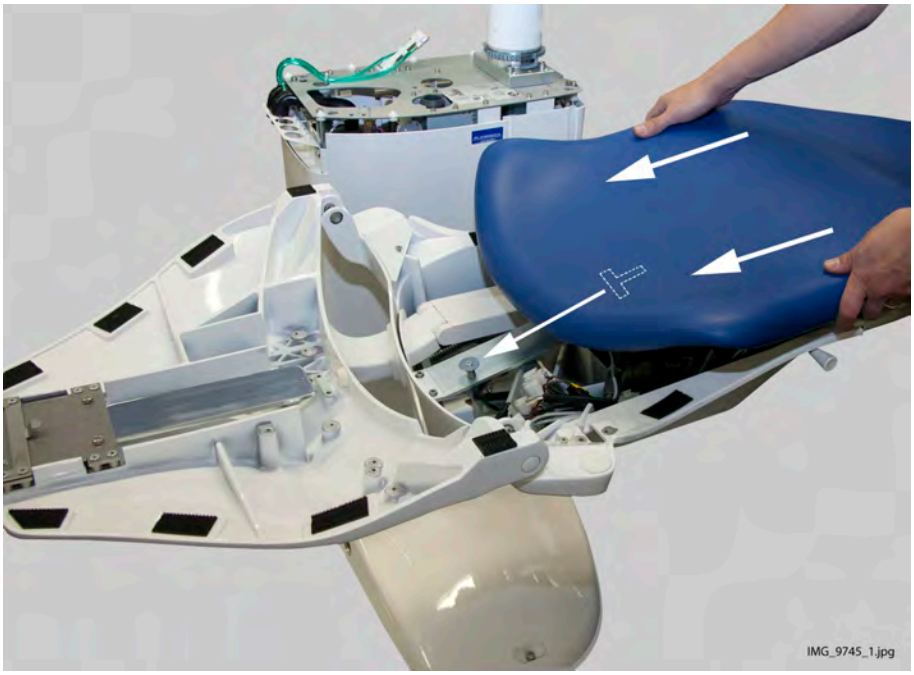
Slide the attachment plates to their positions at the seat upholstery backplate, **short end first**.

Connect the patient detection sensor cable coming from the seat to the sensor (1) and secure it with a cable clamp. Attach the cable clamp (2) to the upholstery plate with two screws (3).



Slide the seat upholstery towards the backrest casting in a way that the attachment screw goes into the groove of the upholstery's backplate. Make sure that the patient detection sensor cable is not squeezed.

You can bend the seat upholstery carefully from its sides to make the attachment easier. If the attachment screw does not go into the groove, the screw can be slightly opened by turning it clockwise. Make sure that you have slid the upholstery as far as it goes.

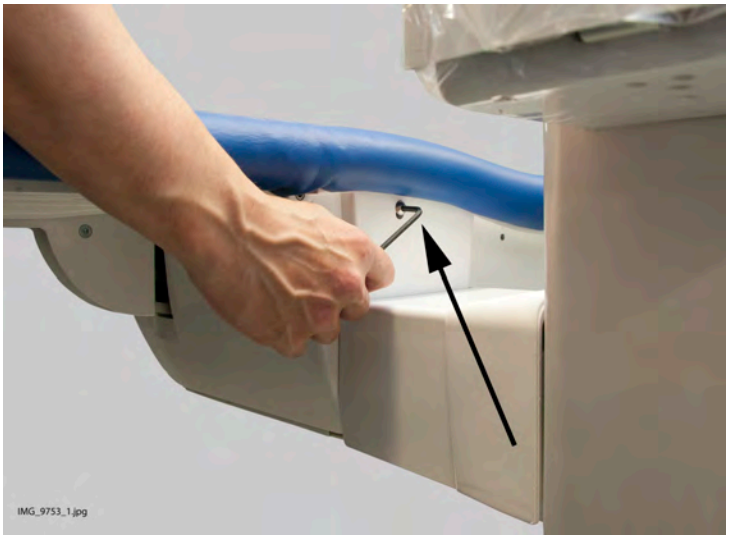


Tighten the attachment screw by turning it counterclockwise.

Place the installation plate (white arrow) and the upholstery screw hole cover plate (black arrow) to the seat hole as shown in the figure below.

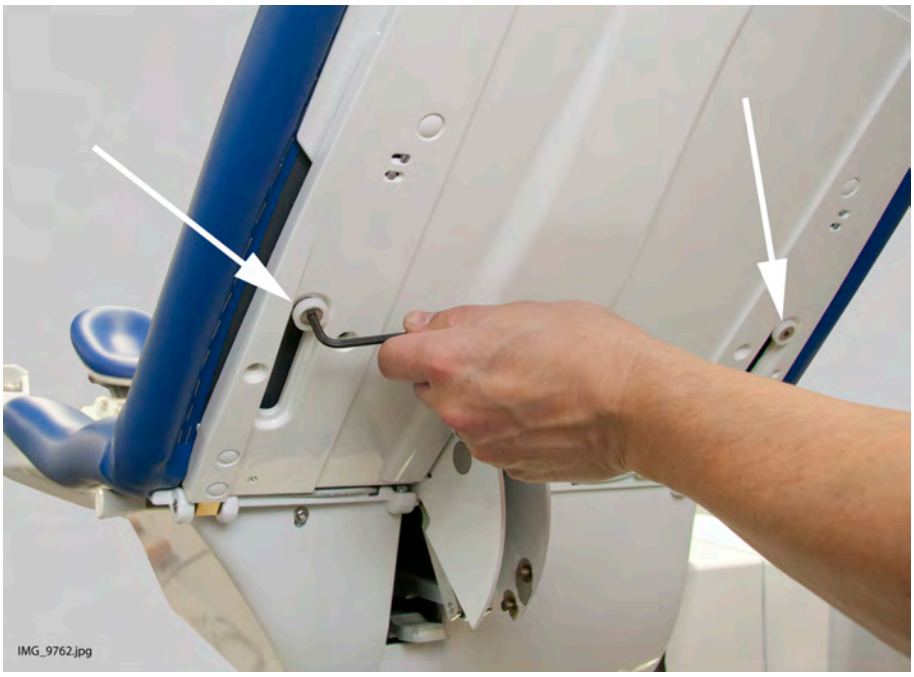
Attach the cover plate to its position with an attachment screw using a 2 mm Allen key.

Secure the seat upholstery attachment plates in position with two screws.



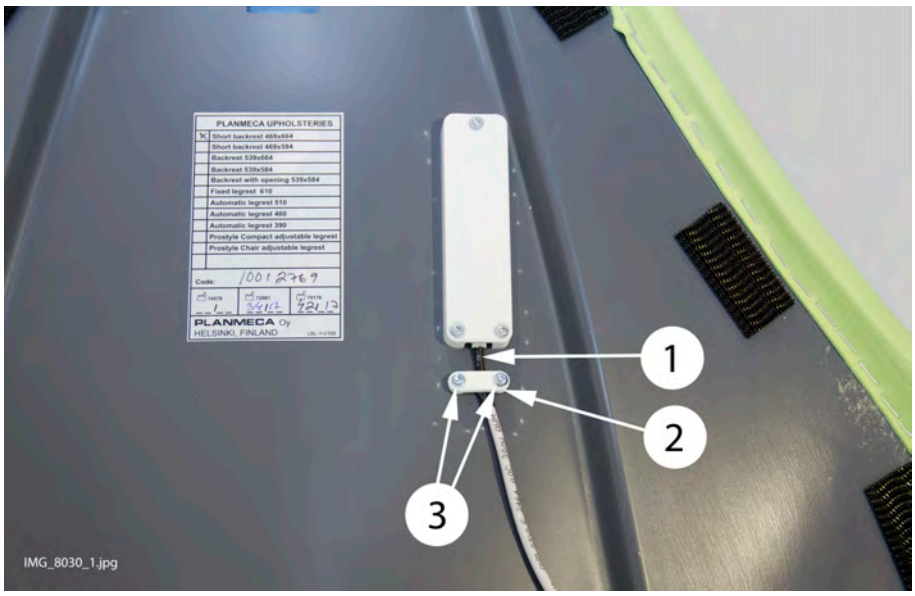
Attach the upholstery to the upholstery support plate. Cover the screw-heads with the cover caps.

Attach the upholstery to the legrest with two sliding parts and screws.

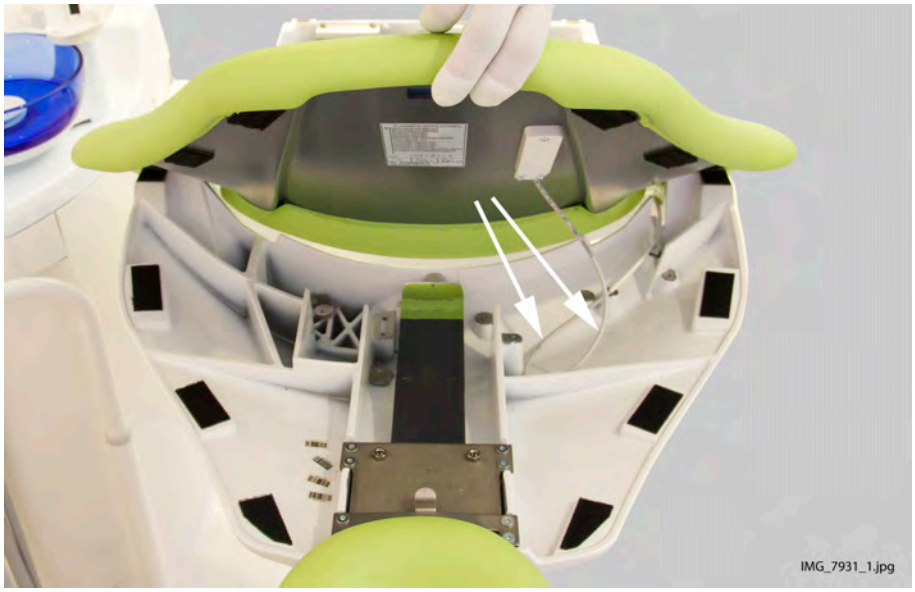


27.2 Attaching backrest upholstery

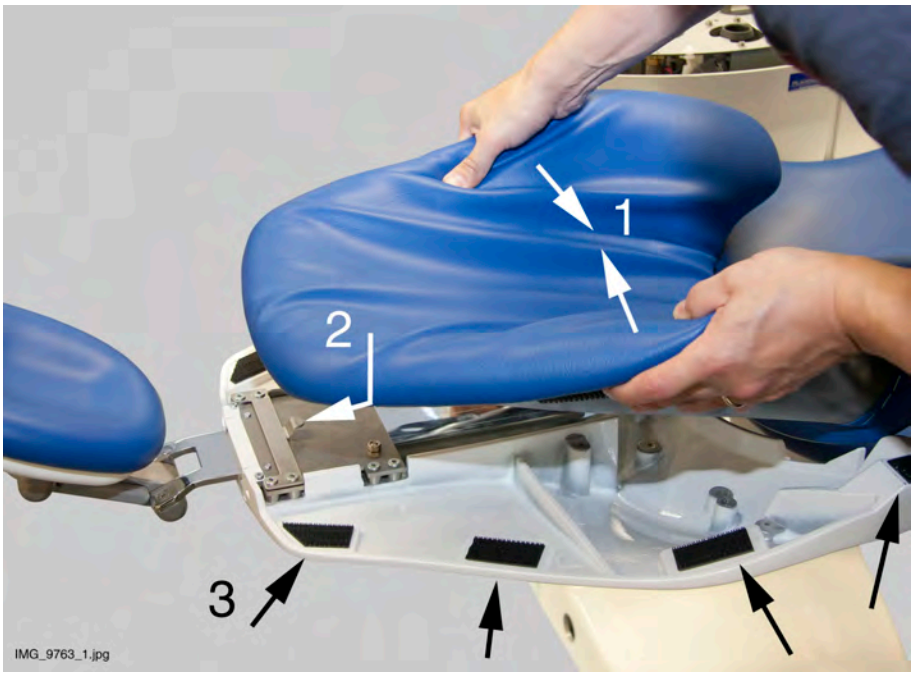
If the patient chair is equipped with the patient detection sensor, connect the sensor cable to the sensor (**1**) and secure it with a cable clamp. Attach the cable clamp (**2**) to the upholstery plate with two screws (**3**).



Make sure that the patient detection sensor cable is not squeezed but is located as shown on figure below.



Bend the upper part of the backrest upholstery firmly from its sides (**1**) and slide the backrest upholstery upwards so the attachment hook goes into the groove of the upholstery's backplate (**2**). Press the upholstery against the velcro tape counterparts (**3**)



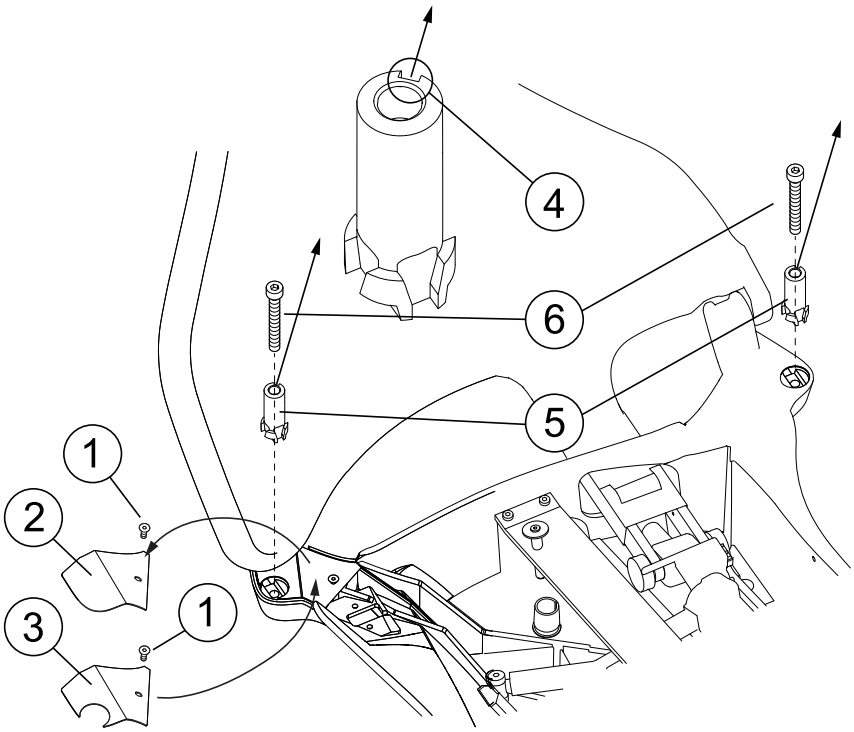
Firmly press the upholstery outer edges.

27.3 Attaching armrests

Steps

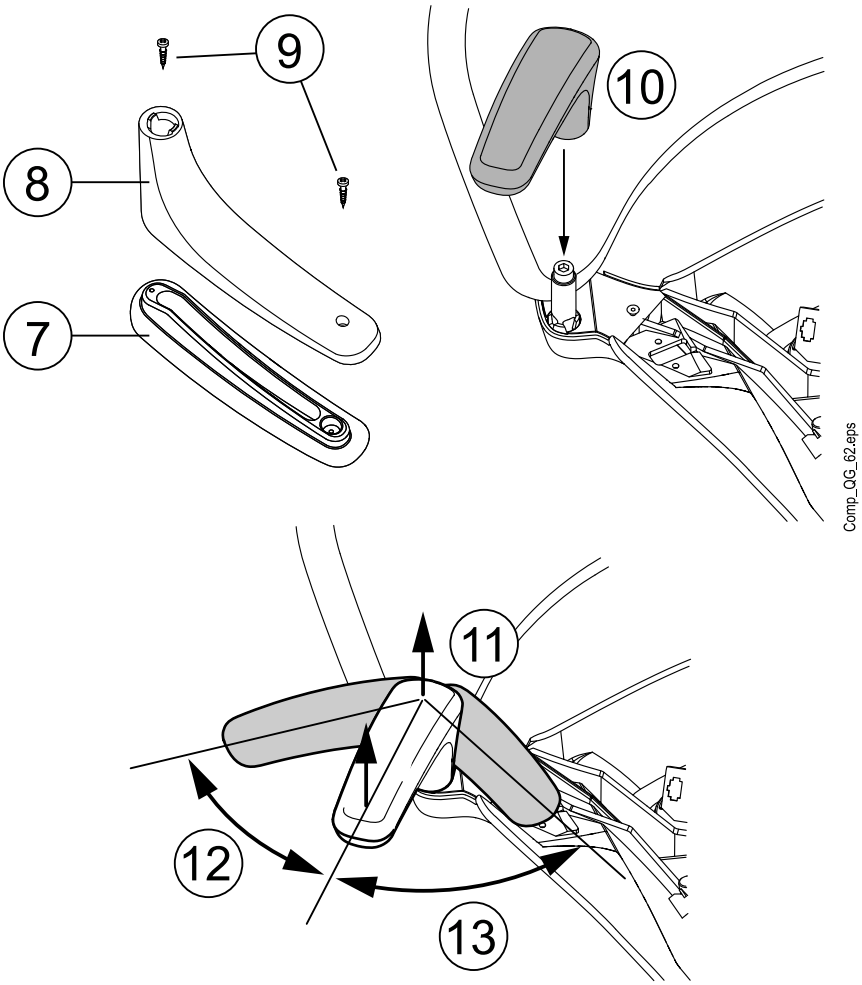
1. Unscrew the armrest plate attachment screw (1) and remove the plate (2). Attach the armrest plate with an opening (3) to the seat. Place the armrest attachment pin to the opening on the seat in a position shown in

the figure below (4). Attach the pin (5) to the seat with an attachment screw (6). Tighten the attachment screw with 45 Nm force.



2. Attach the armrest upholstery (7) to the armrest casting (8) with two 2x50 torx screws (9) using TX 25 key. Grease the armrest inner surfaces with non-toxic vaseline before attaching it to the adapter. Push the armrest to

the adapter at a 45° angle (12, 13) to the seat and then rotate it to the correct direction.



27.4 Installing foot control hook

Insert the attachment screws to the seat casting as shown below.

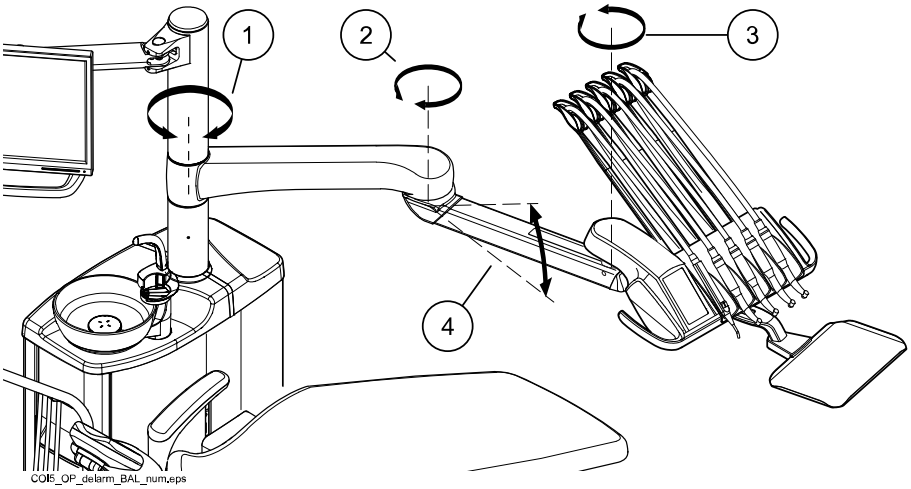
Slide the hook plate below the screw heads and tighten the screws.

28 Final adjustments

28.1 Adjusting friction of OP delivery arm joints

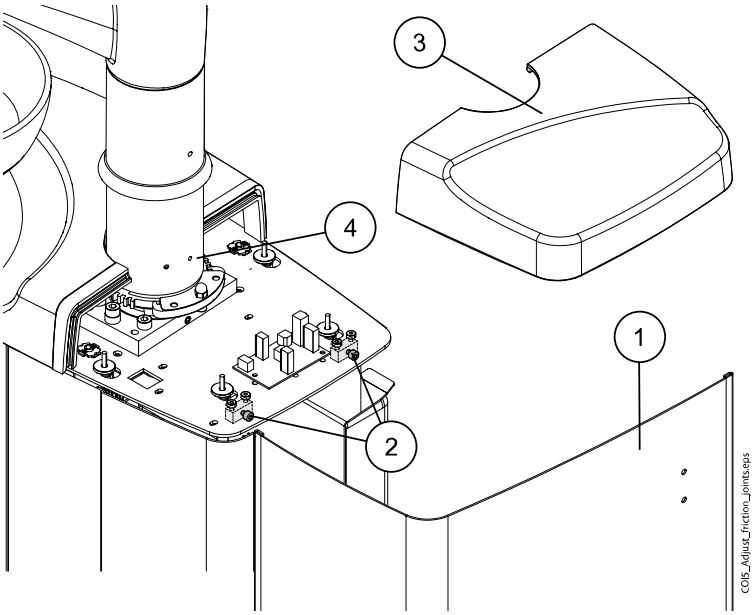
The following frictions can be adjusted:

1. Rotational friction of console arm column
2. Rotational friction of console arm
3. Rotational friction of instrument console
4. Lifting friction of console arm

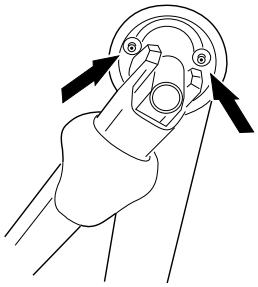


To adjust the rotational friction of the console arm column:

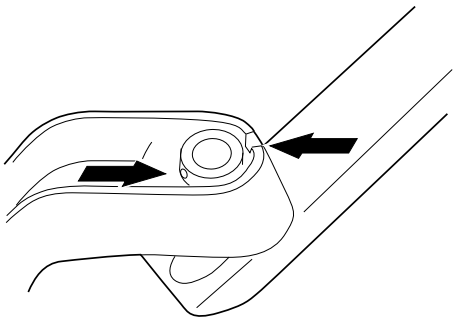
1. Open the door.
2. Unscrew the two M5x10 screws.
3. Remove the cover.
4. Adjust the friction with the adjustment screw located on the console arm column.
5. Reassemble in reverse order.



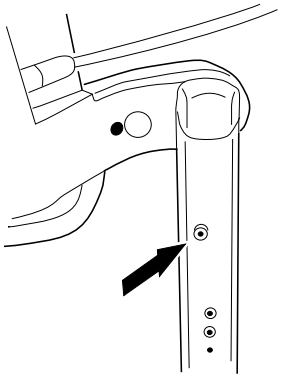
Adjust the rotational friction of the console arm with the 4 mm Allen key. Adjust the two screws equally to avoid wearing. Tightening the screws increases the friction.



Adjust the rotational friction of the instrument console with the 4 mm Allen key. Adjust the two screws equally to avoid wearing. Tightening the screws increases the friction.



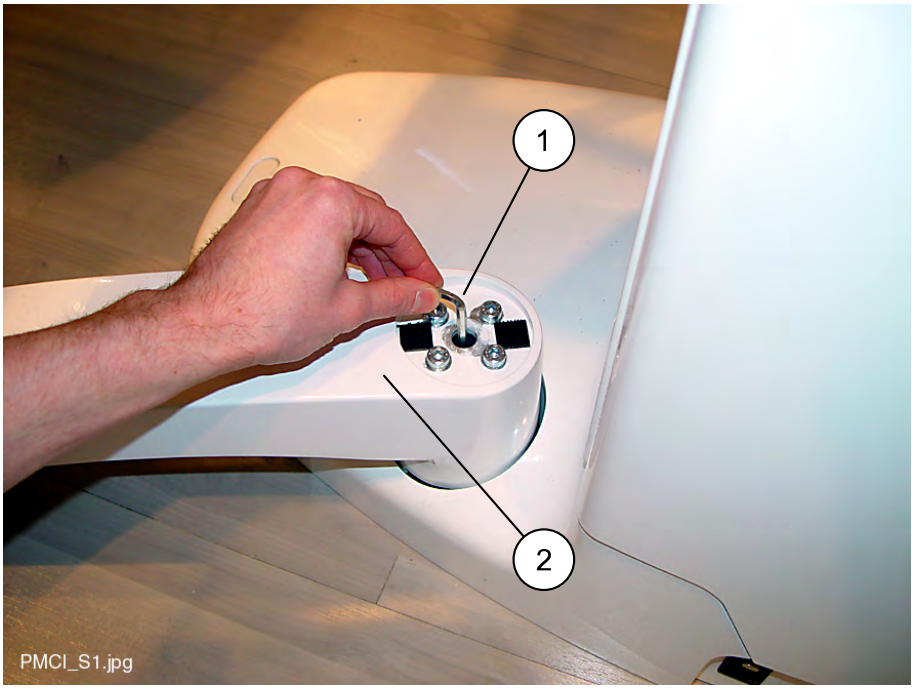
Adjust the lifting friction of the console arm with the 4 mm Allen key. Tightening the screw increases the friction.



28.2 Adjusting side delivery arm

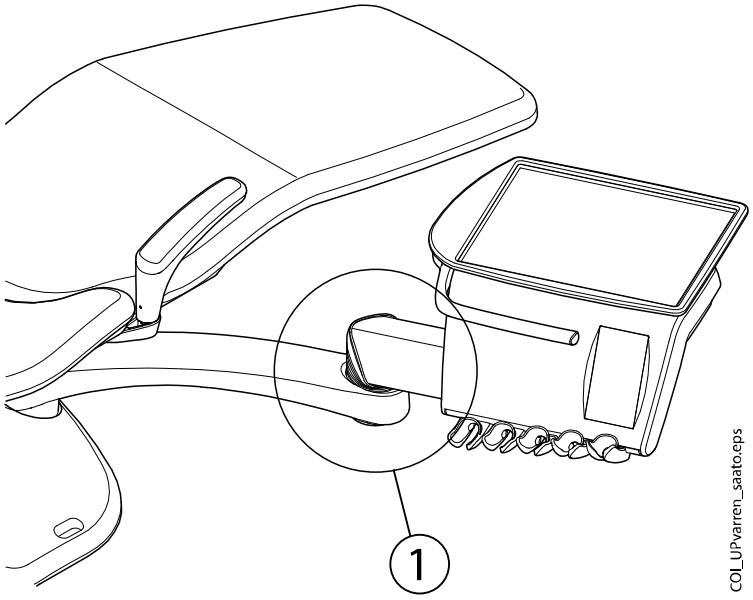
28.2.1 Adjusting friction of side delivery arm base joint

Remove the base joint cover plate. Using the 5 mm Allen key (**1**), adjust the rotational friction of the horizontal arm (**2**). Tightening the screw increases the friction.



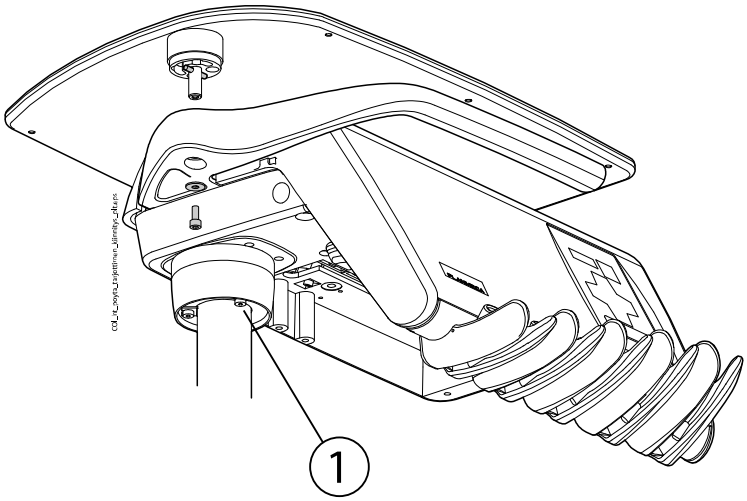
28.2.2 Adjusting friction of side delivery arm joint

Adjust the rotational friction of the lower joint (**1**) by turning the adjustment bolt with 10 mm fork spanner.



28.2.3 Adjusting friction of side delivery arm instrument console

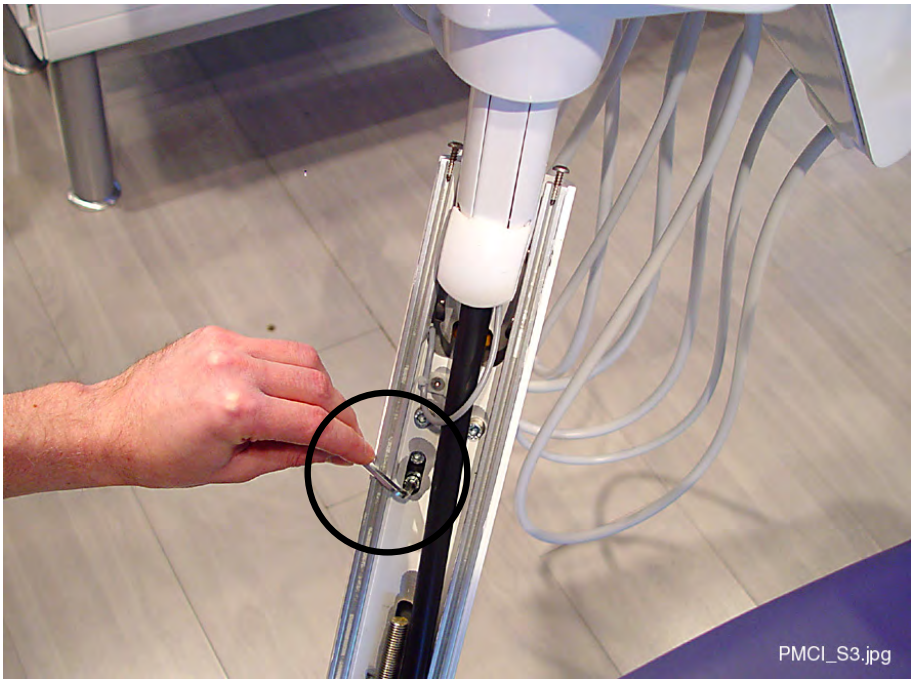
Adjust the rotational friction of the instrument console with the adjustment screw (1) located below the instrument console. There is a black washer below the adjustment screw (attachment screws do not have washers).



28.2.4 Adjusting lifting friction of side delivery arm

Remove the level arm cover by first pulling it from its upper end with both hands as shown in the figure below. After detaching the upper end the cover can be lifted away from its position.

Adjust the lifting friction of the delivery arm with the 5 mm Allen key. Adjust the two screws of the level arm friction block equally. Tightening the screws increases the friction.



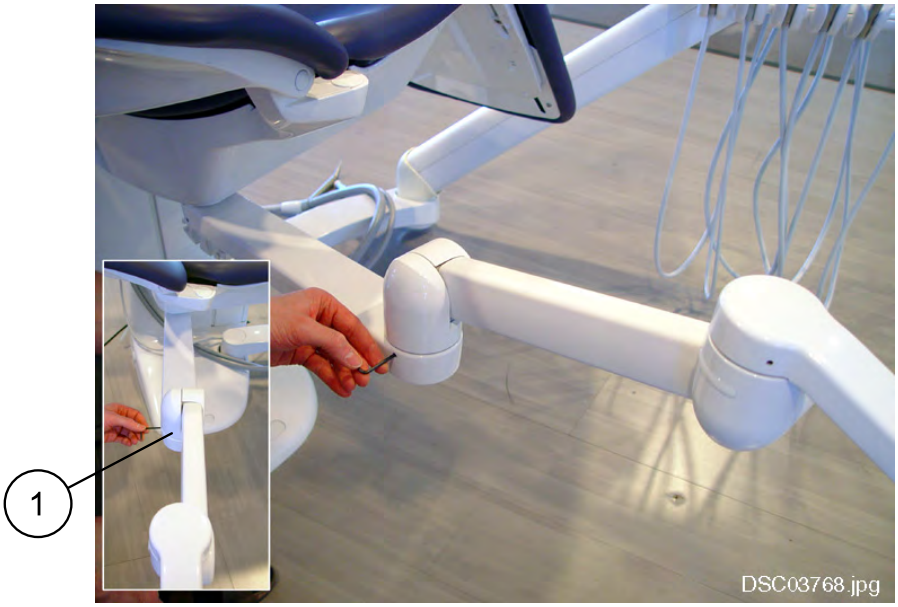
28.3 Adjusting chair-mounted left/right suction arm

NOTE

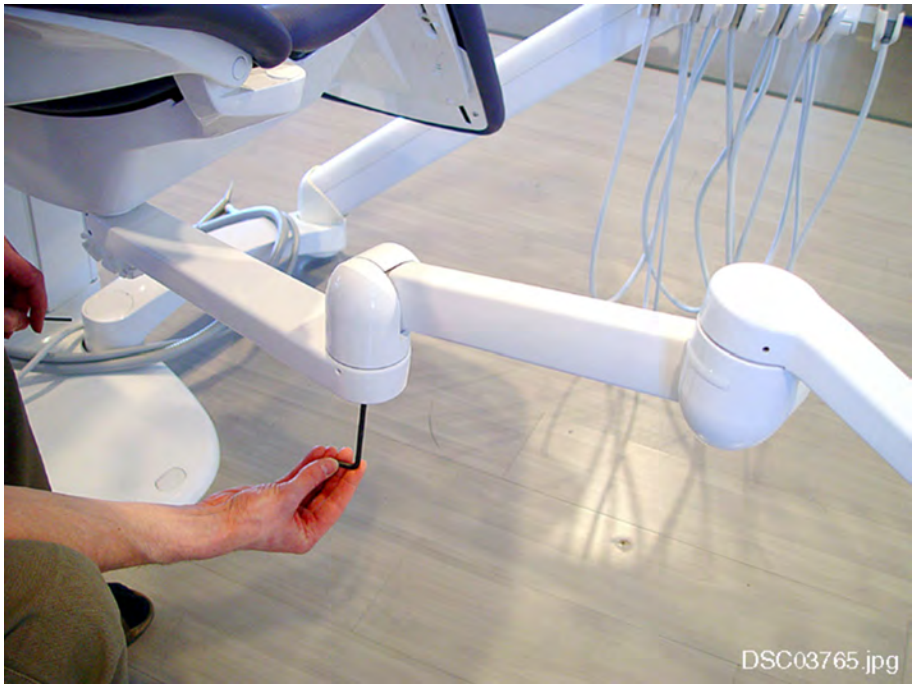
The rotational friction of the attachment joint is described in section "Installing chair-mounted left/right suction arm" on page 157.

28.3.1 Adjusting friction of balanced arm lower joint

Position the level arm and the balanced arm to the same line as shown on the small figure below (**1**). Loosen the holding screw using the 3mm Allen key.

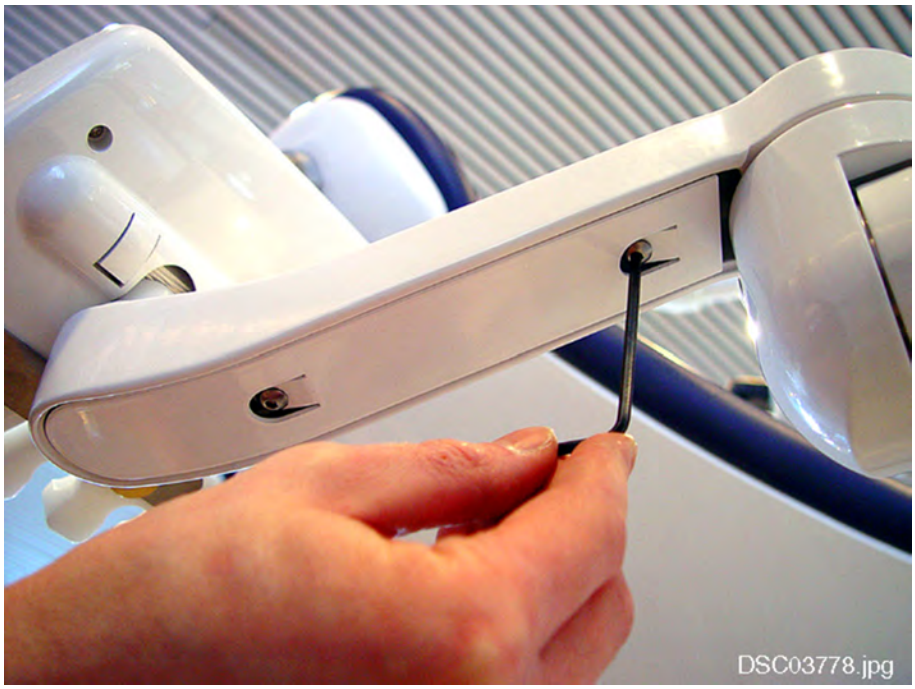


Adjust the rotational friction of the joint with the 5mm Allen key. Tightening the screw increases the friction. Lock the screw into position with the holding screw.

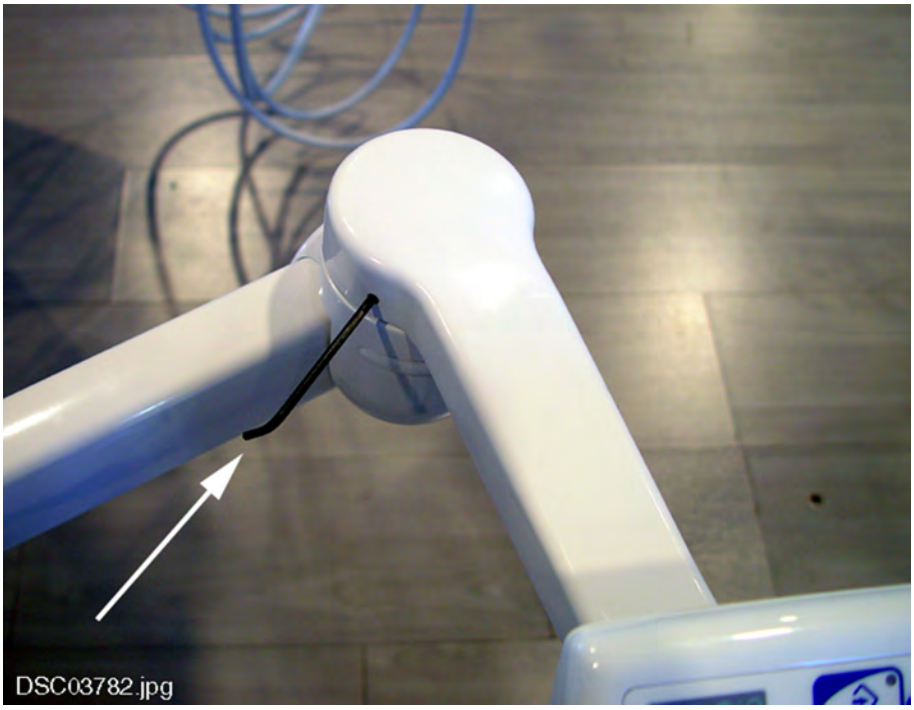


28.3.2 Adjusting friction of balanced arm upper joint

Unscrew the two attachment screws of the upper arm bottom plate using the 3mm Allen key and remove the cover.

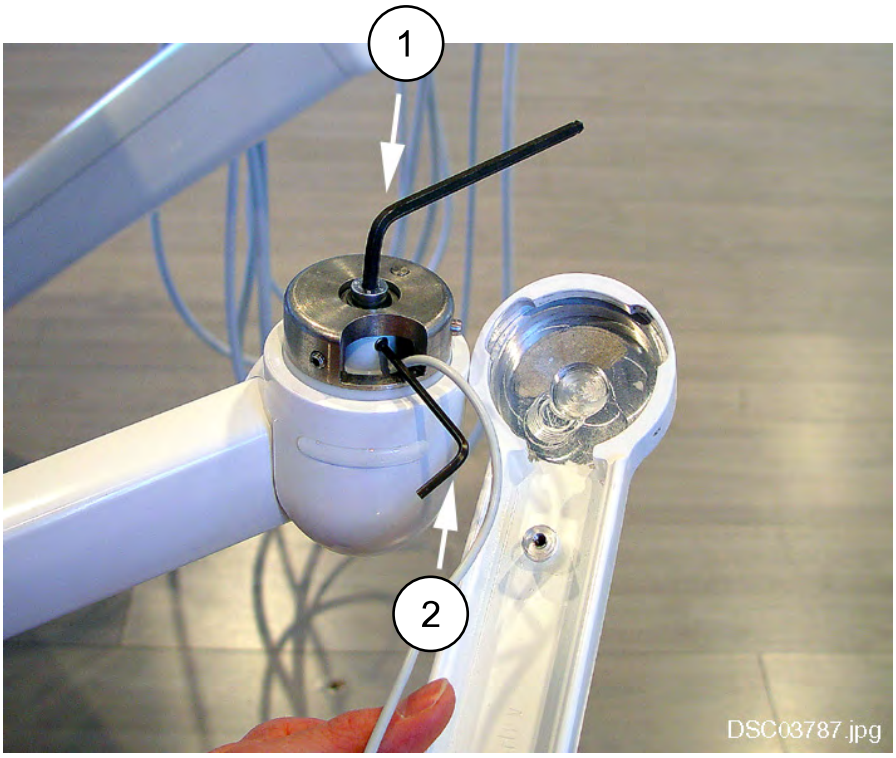


Place the upper arm perpendicular to the balanced arm and loosen the upper arm holding screw rotating two turns clockwise using the 3mm Allen key.

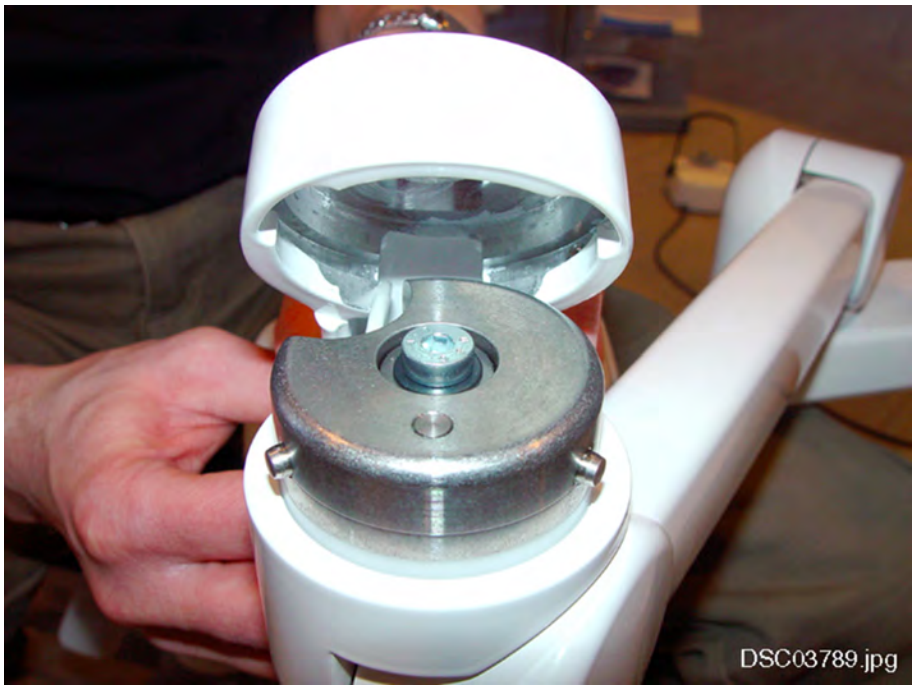


Turn the upper arm approx. 30 degrees clockwise and lift the upper arm away from the balanced arm.

Loosen the holding screw at the side of the balanced arm upper joint with the 3mm Allen key (**2**). Adjust the rotational friction of the joint with the 5 mm Allen key (**1**). Tightening the screw increases the friction. Lock the screw into position with the holding screw.



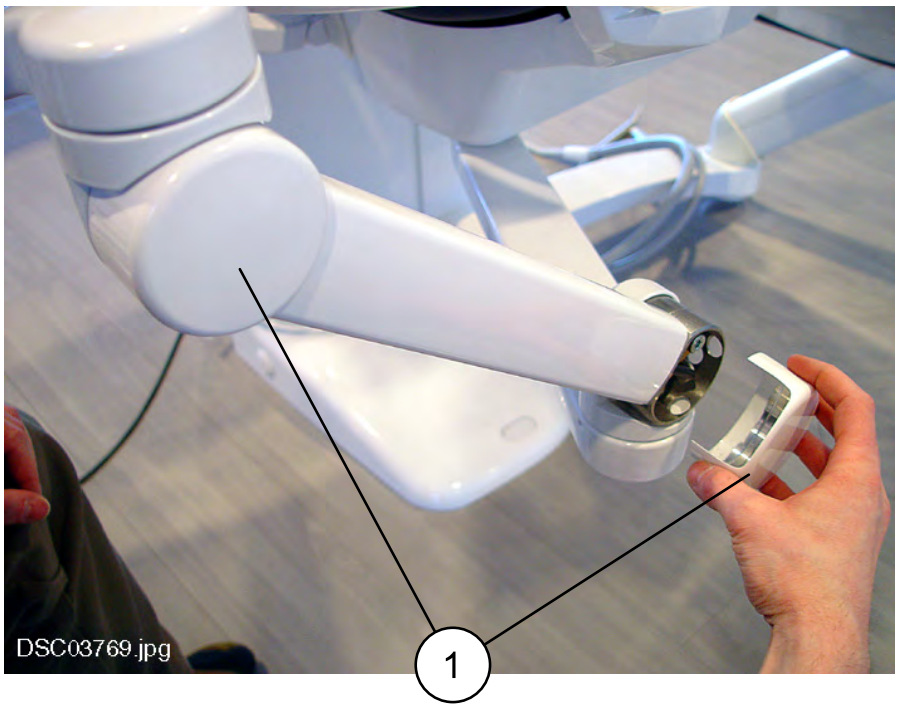
Place the upper arm back to the balanced arm so that the upper arm holding screw and the suction holder cable hit the arm opening. Rotate the upper arm approx. 30 degrees counterclockwise and tighten the arm holding screw rotating it two turns counterclockwise.



Attach the upper arm bottom plate to its position.

28.3.3 Adjusting lifting friction of balanced arm

Detach the joint covers (1) from the upper and lower joints of the balanced arm.



Adjust the lifting friction of the balanced arm with the 5 mm Allen key. Adjust the screws of the level arm joints equally. Tightening the screws increases the friction.

Attach the joint covers back to the arm.

29 Switching on dental unit

First, press the on/off switch located at the rear of the unit base to turn the unit on. Then, sign in to the dental unit either with a PlanID card or by selecting a user from the control panel.

For instructions, see the Planmeca dental unit's user's manual.

30 Checking date and time

About this task

The date and time must be correct when you reset counters related to annual maintenance and Planmeca ActiveAqua in order for these counters to work correctly. Check the date and time on the dental unit's control panel. If they are not correct, set the correct time and date as described below.

Steps

1. Press **Program**.

2. Press **Clock**.

   A pop-up window opens.

3. Select the date programming view by pressing **Date** at the bottom of the programming window.

   When the date is not visible on the control panel, the items in the programming window are grey. This means that they are disabled.

   To show the date on the control panel and to enable programming, press the **Date** button at the top of the programming window.

   The button will turn blue and all items in the window will turn black (which means that programming is enabled).

4. Select the date format.

   Press the arrow to scroll through the different format options:

   - dd.mm.yyyy (day, month, year)
   - mm.dd.yyyy (month, day, year)
   - yyyy.mm.dd (year, month, day)

5. Adjust the day, month and year.

6. Select the clock programming view by pressing **Clock** at the bottom of the programming window.

7. Press **12/24** to change the mode (12-hour / 24-hour clock).
8. Adjust the time.
9. Press **OK**.

The pop-up window closes and the new date is displayed on the control panel.

31 Planmeca ActiveAqua related adjustments

31.1 Adjusting Planmeca ActiveAqua settings

Before you begin

Before adjusting the Planmeca ActiveAqua settings, contact your local water supplier or local authority to find out the water hardness of your inlet water.

If you do not obtain the water hardness value from your local water supplier or local authority, measure the value according to the instructions in section "Measuring water hardness value" on page 221.

About this task

After the Planmeca ActiveAqua ultrafilter and prefilter have been installed, you must adjust the settings to ensure proper operation of the Planmeca ActiveAqua water treatment system.

NOTE

It is very important that the water hardness value is correct to prevent calcification of the Planmeca ActiveAqua electrolysis chamber.

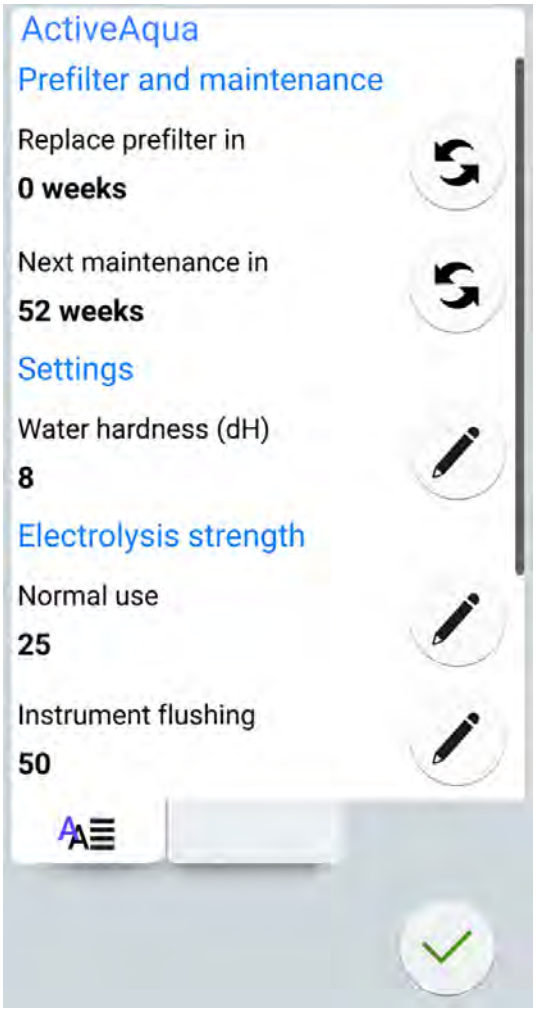
Steps

1. Press **Program**.

2. Press **About this unit**.

3. Select **Service** > **Peripherals** > **ActiveAqua**.

   The *ActiveAqua maintenance* window opens.



4. Press **Edit** next to *Water hardness (dH)* to adjust the water hardness value.

   The *Program - Water hardness* window opens.

5. Set the water hardness level according to the information received from your local water supplier or local authority (or based on measurement).

   To adjust the value, drag the handle to the desired position.

   The value range is 0 - 40 °dH.

6. Press **Edit** next to *Electrolysis strength, Normal use* to adjust the electrolysis strength in situations when instuments are used.

   The *Program - Water chlorine level* window opens.

7. Drag the handle to set the water chlorine level to 50.

   This setting will be automatically modified later according to the user's weekly free chlorine level measurements.

   The value range is 0 - 100%.

NOTE

Adjusting this setting resets the free chlorine 7-day counter.

8. Press **Edit** next to *Electrolysis strength, Instrument flushing* to adjust the electrolysis strength when instruments are flushed.

   The *Program - Chlorine level* window opens.

9. If needed, adjust the chlorine level by dragging the handle to a suitable position.

   The value of *Electrolysis strength, Instrument flushing* must be at least that of *Electrolysis strength, Normal use*. Thus, if the electrolysis strength for *Normal use* = 50, the electrolysis strength for *Instrument flushing* must be 50 or higher.

   The value range is 0 - 100%.

10. Reset the prefilter counter by pressing **Reset** next to *Replace prefilter in*.

    A confirmation message is displayed.

11. Confirm the reset by pressing **OK**.

12. Wait for 90 seconds while Planmeca ActiveAqua circulates water to bleed the prefilter.

13. Reset the Planmeca ActiveAqua annual maintenance counter by pressing **Reset** next to *Next maintenance in*.

14. Press **OK** to close the window and save the settings.

15. Perform long instrument flushing twice to bleed the system.

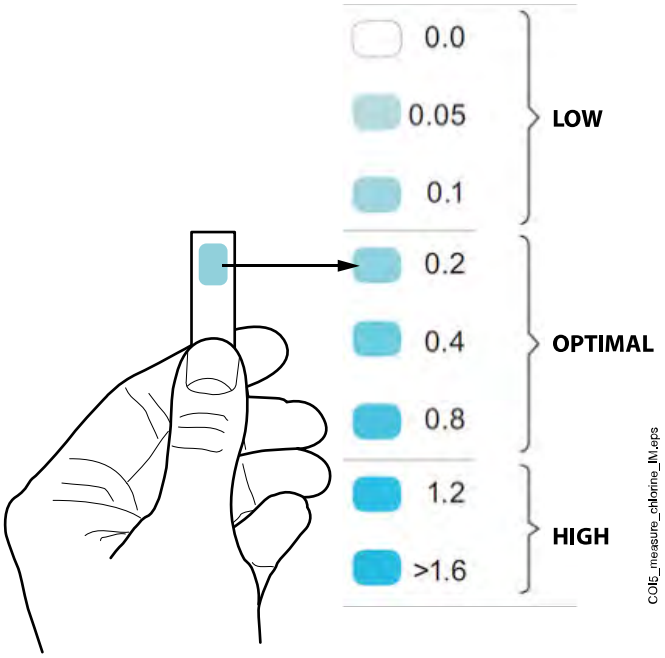
    For instructions, see your Planmeca dental unit's *user's guide*, section *Long instrument flushing*.

16. Measure the free chlorine level of the outcoming water and, if needed, adjust the electrolysis setting accordingly.

    16.a. Use the syringe to fill a cup with water.

    16.b. Place a test strip for measuring the free chlorine in the water and carefully swirl the test strip around for 30 seconds.

16.c. Take out the test strip and compare its colour with the colour chart on the bottle.



16.d. If the level of free chlorine is not on an optimal level, adjust the electrolysis setting for normal use. Then, perform long instrument flushing and measure the free chlorine again. Repeat this procedure until an optimal level is reached.

The measurement result determines if you need to adjust the electrolysis setting for normal use.

- If the chlorine level is < 0.2, increase the value of the electrolysis setting.
- If the chlorine level is 0.2 - 0.8, the value of the electrolysis setting is optimal.
- If the chlorine level is >0.8, decrease the value of the electrolysis setting.

Remember that the electrolysis setting value for instrument flushing needs to be at least that for normal use.

16.e. Fill in the final free chlorine level results and the final electrolysis setting value for normal use in the "Post-installation checklist" on page 227.

31.2 Measuring water hardness value

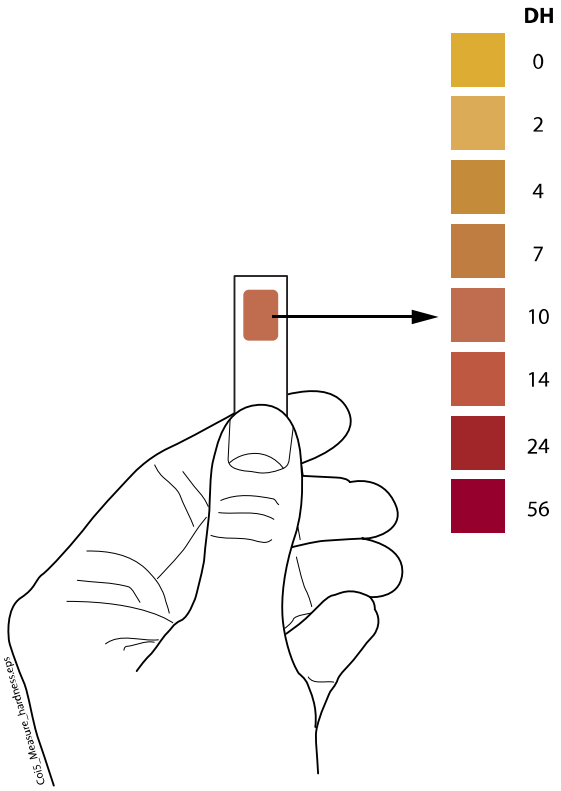
About this task

The test strips for measuring the overall water hardness are included in the ActiveAqua water measurement kit (30024144).

Steps

1. Use the syringe to fill a cup with water.
2. Immerse a test strip for measuring the overall water hardness in the water for 3 seconds.

3. Take out the test strip and compare its colour with the colour chart on the bottle.



4. Fill in the results in the post-installation checklist.

32 Adding service contact details

About this task

Before handing over the dental unit to the customer, you can add service contact details to the dental unit so that the customer knows whom to contact when they need technical assistance.

Steps

1. Press **Program**.

2. 

   Press **About this unit**.

3. Press **Service**.
4. Press **Service contact details**.
5. Fill in the service contact details.

   The following details must be filled in:

   - First name
   - Last name
   - Phone
   - E-mail

   Edit the contact details by pressing the **Edit** button next to each item. Enter the PIN-code 1701 when prompted.

   A new window with an alphanumeric keyboard opens where you can edit the contact detail.

   Use the arrows in the top row to move to the left and right in the text.

   The symbols below the arrows in the top row can be used as they are, or as a shortcut to letters containing that symbol. For example, when you press **^** for about one second, letters with the symbol ^ are displayed. You will automatically return to the normal view when you enter one of the letters. To return to the normal view without entering a letter, press the symbol again.

   To display special characters, press **Alt**. Press **Alt** again to return to the normal view.

   To save the edited contact detail, press **OK**. To exit the window without changing the name, press **Close**.

6. Press **OK** to close the *Service contact details* window.

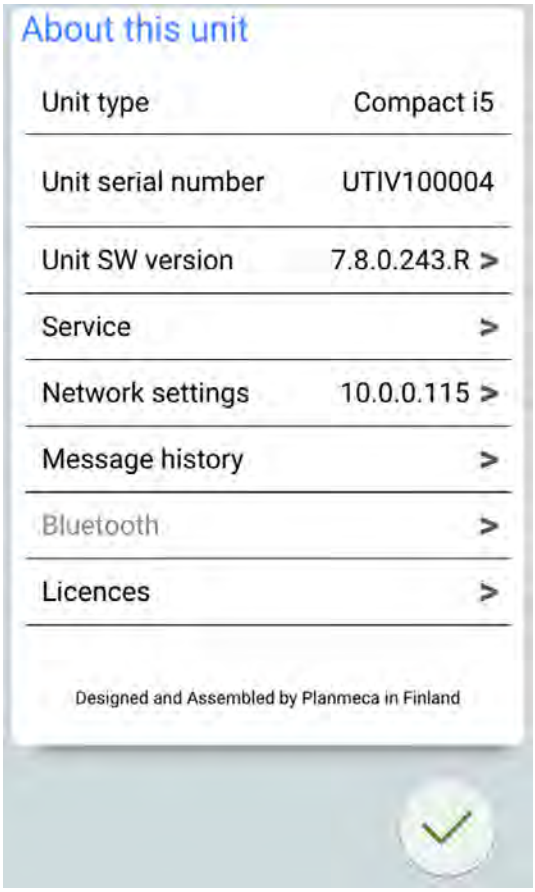
33 Resetting annual maintenance counter

You must reset the annual maintenance counter after dental unit installation.

A help message will remind the user about the annual maintenance in advance. The factory default is 30 days but you can change the number of days in service mode 400.

Press the **Program** button and the **About this unit** button.

The *About this unit* window appears.



Press **>** next to *Service* to open the *Service* window with information for service situations. In the *Service* window, press **>** next to *Yearly Maintenance* to access the following information:

- When the annual maintenance was last performed
- How many days are left until the next annual maintenance

The last item, *Confirm yearly maintenance*, is for confirming that you have successfully completed the annual maintenance. Press **>** to display the *Confirm yearly maintenance* window and enter the PIN-code 1701 when prompted. Press **OK** to reset the annual maintenance counter.

34 PlanID reader settings

If the dental unit is equipped with PlanID reader, the reader must be enabled after installation.

Enter the service mode **600**. In this service mode you can select the area of operation:

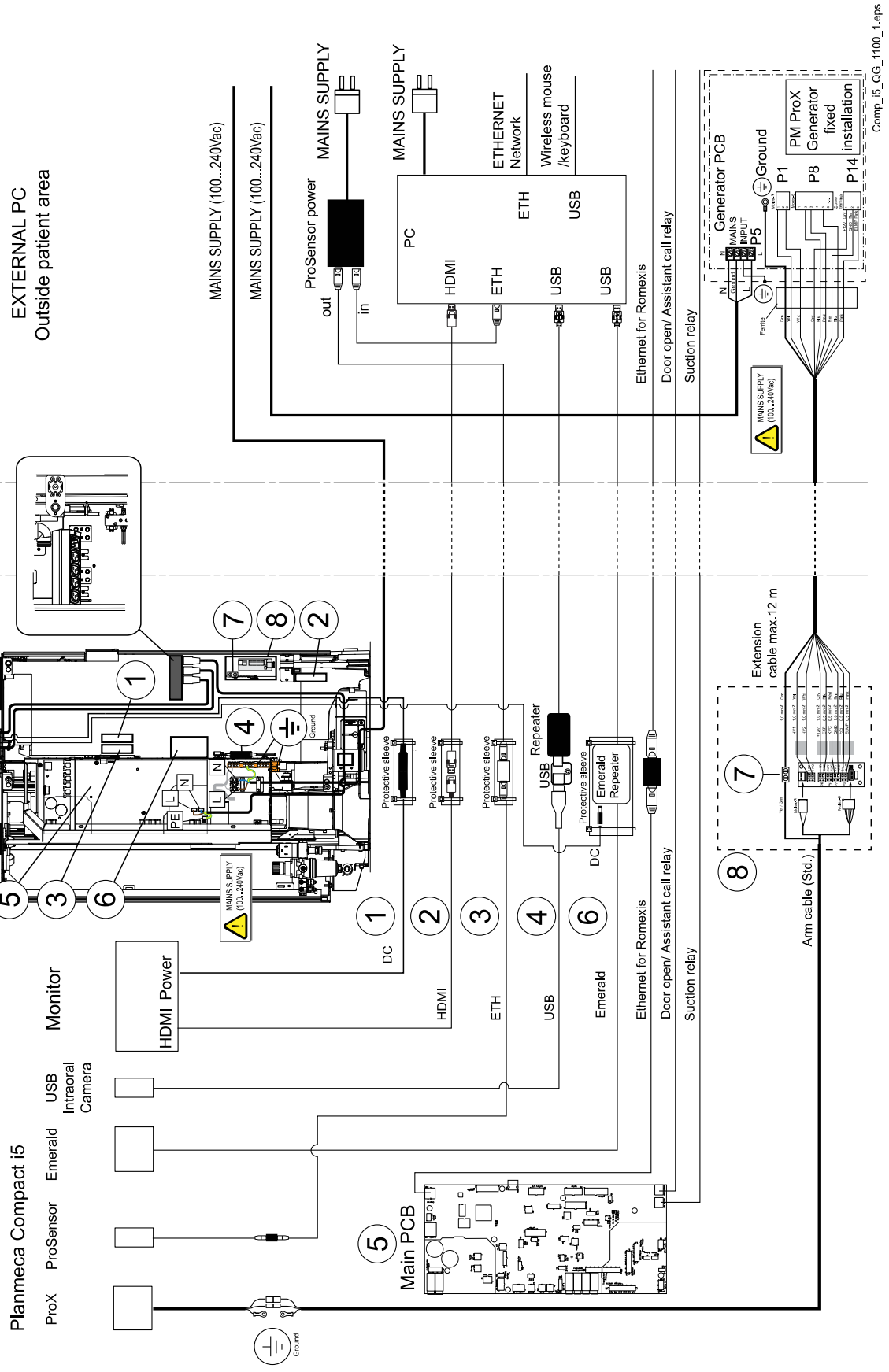
- OFF = NFC and UHF radio disabled (default)
- EU = European union 3
- US = North America 3
- CA = Canada
- Cn = China
- In = India
- Kr = Korea
- AU = Australia
- nZ = New Zealand

NOTE

Do not use PlanID reader outside supported regions.

Enter the service mode **602**. In this service mode you can enable the PlanID reader.

35 Connections



36 Post-installation checklist

After installing the unit, carry out all relevant checking and calibration tasks defined in the following checklist.

NOTE

The relevant checking and calibration tasks vary depending on the optional equipment and features included in the delivery.

For information on how to carry out the checking and calibration tasks, see the technical manual.

Customer	
Installation location	
Software version	
Serial number	
Installation date	

Cuspidor

☐ Check the main air and water connections

☐ Check the drain and suction line connections

☐ Check the mains voltage cable and grounding connections

Voltage jumper setting (connector P21): _____VAC.

☐ Check the additional electrical connections

Suction motor control, assistant call etc.

☐ Check the connections for optional features

Ethernet, USB cable, etc.

Perform the needed settings. Refer to dental unit and Planmeca Romexis technical manuals.

IP address: _____

Subnet mask: _____

☐ Adjust the internal air and water pressures

In the service mode 38 (air 5,0...5,5 bar, water 2,5…2,8 bar).

☐ Adjust the bowl rinse & cup fill water flow rates

☐ Check the operation of the suction system

Suction system type: _____

☐ Check the operation of the foot control

Calibrate, if needed.

☐ Check the operation of the suction arm

☐ Check the operation of the safety switches

Delivery arm

☐ Check the friction of the delivery arm joints

Adjust, if needed.

☐ Check the balance of the delivery arm

Adjust, if needed.

☐ Check the instrument hoses and quick connectors

☐ Check the function of the control panel

☐ Check the operation of the syringe

Adjust air/water flow from the syringe multiplexer block, if needed.

☐ Check the operation of the turbine

Pressure: _____bar.

☐ Check the operation of the micromotor

☐ Check the operation of the polymerisation light

☐ Check the operation of the ultrasonic scaler

If with LED, check that service mode 39 is set to maximum.

Patient chair

☐ Visually check the condition of the chair and upholsteries

☐ Check the calibration of motors in service modes 79 & 80

Recalibrate, if necessary.

☐ Check the programming function and general operation

☐ Check the operation of the emergency switches

Backrest, seat and lifting adapter.

☐ Check the operation of the headrest locking mechanism

Solanna operating light

☐ Check the mechanical installation

☐ Check the electrical installation

☐ Check the operation of the on/off switch

☐ Check the operation of infrared light sensor (dimming)

For more information, refer to the Solanna operating light installation manual.

WCS

☐ Check the operation

☐ Check feeding pressure

Adjust, if needed.

Planmeca ActiveAqua

☐ Set water hardness

Water hardness: _____°dH.

☐ Measure free chlorine level of outcoming water. If needed, adjust electrolysis setting accordingly

Free chlorine level: _____.

Electrolysis setting for normal use: _____.

Note! If electrolysis setting was adjusted, enter the values for free chlorine level and electrolysis setting *after* adjustment.

Suction tube cleaning

☐ Check the calibration

☐ Perform a functional test

☐ Check that there are no leakages

Mechanical stability

☐ Floor attachment screws

☐ Chair adapter attachment screws (at joint of lifting adapter)

☐ Arm assembly attachment screws (top of cuspidor)

Electrical safety

☐ Check the mains voltage cable and grounding connections

☐ Perform the electrical safety measurement according to the local requirements

Refer to instructions *Planmeca Compact i Electrical safety measurements according to IEC 62353*.

Technician's signature		Date	
Customer's signature		Date	

PLANMECA

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