a·dec®

A-dec® 341pro/341flt Duo Delivery System

INSTALLATION GUIDE

Contents

A-dec 341pro Duo Delivery System

Product Models and Versions Covered in This Document*

Models	Versions	Description
341pro/341flt	n/a	Delivery System
311flt/511flt	n/a	Dental Chair
311/511	A/B	Dental Chair
411	A	Dental Chair
391/393/591/5562/5580/5662	A	Dental Furniture

Some product models, versions, and options in this document may not be available in certain regions.

Before You Begin

Before starting the installation:

- Check with local building and code authorities about installation requirements specific to your location.
- Check that the manual air shut-off valve is installed.
- For information about dimensions, range of motion, and placing the utilities, see the following:
  - *A-dec 341pro/341flt Duo Delivery System Pre-Installation Guide* (p/n 86.1067.00)
  - *A-dec Inspire® Dental Furniture Pre-Installation Guide* (p/n 86.0528.00)
  - *Preference Collection® Dental Furniture Pre-Installation Guide* (p/n 86.0142.00)

Recommended Tools

- Diagonal cutters
- Hex key set
- Torpedo level
- 3/8" combination wrench
- Anti-static wrist strap
- Phillips head screwdriver
- 3/4" socket (deep well) with 6" extension
- Drill and drill bits
- Needle-nose pliers
- Voltmeter

Install the Delivery System

Install the Delivery System Mount

To install the 341pro/341flt delivery system mount, refer to the *A-dec 341pro/341flt/541pro/545sta/541/545 Delivery System Mount Installation Guide* (p/n 86.0003.00) that ships with the mount.
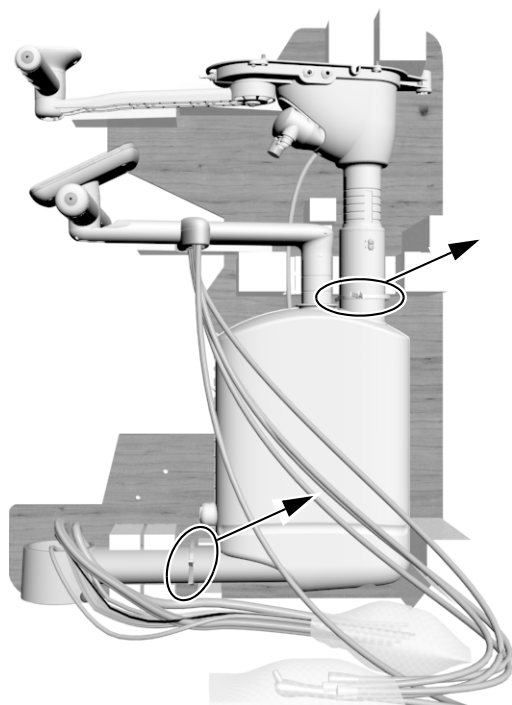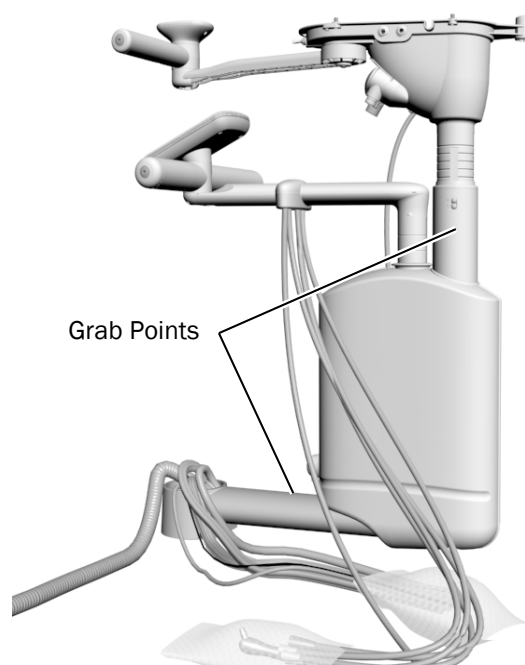
Unpack the Delivery System

Recommended Tool

• Diagonal cutters

1 If installing on a cabinet, ensure the cabinet doors are not installed to provide clear access.
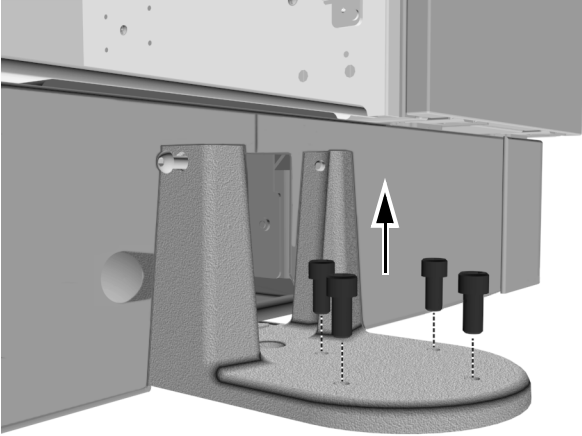
2 Cut the cable ties.

3 Using the grab points indicated below, remove the assembly from the pallet and box.
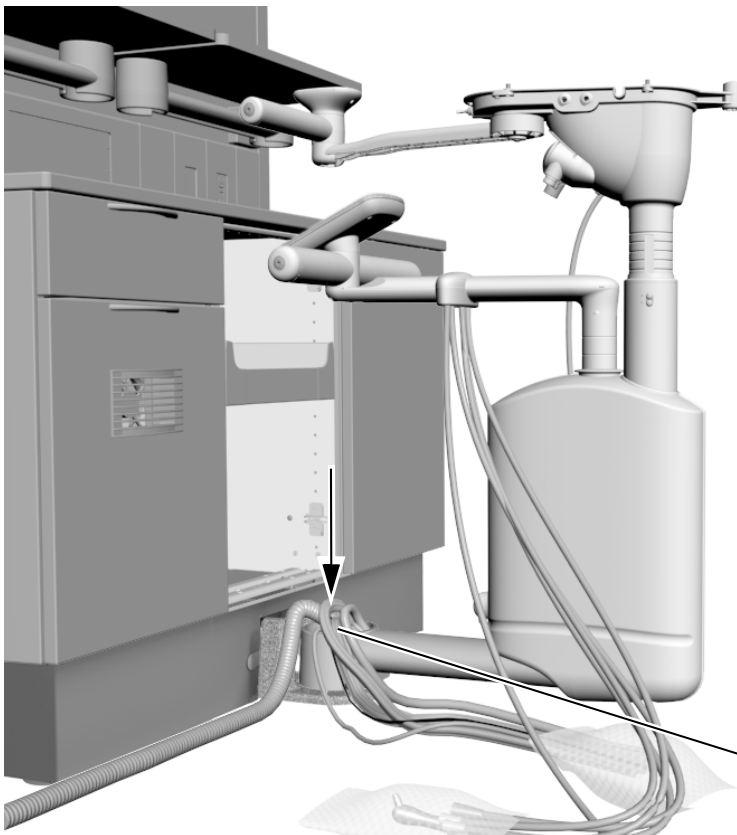
Grab Points

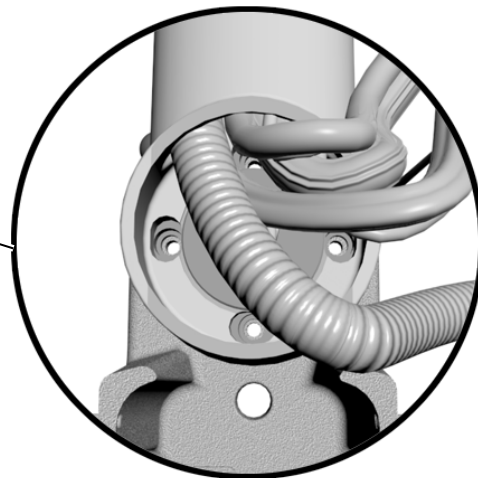## Install and Level the Arm Assembly
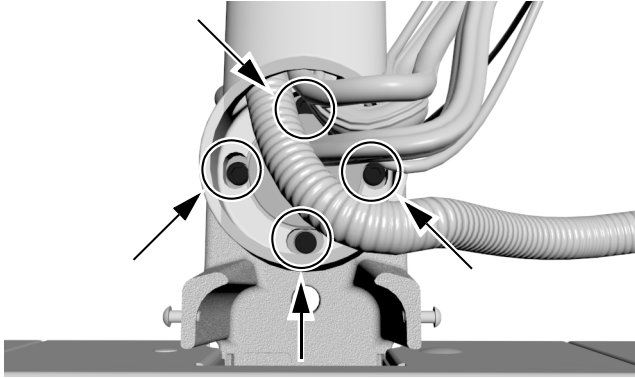
Recommended Tools

- 5/16" hex key
- Torpedo level

1 Use a 5/16" hex key to remove the four screws from the mount. Keep the screws to install the arm assembly.

2 Set the arm assembly on the mount. Make sure you can access the mount holes.

A-dec Inspire Cabinet Shown

3 Use a 5/16" hex key to loosely install the four screws that you removed from the mount holes in step 1.

> **TIP** You may need to rotate the assembly to access all of the screws.
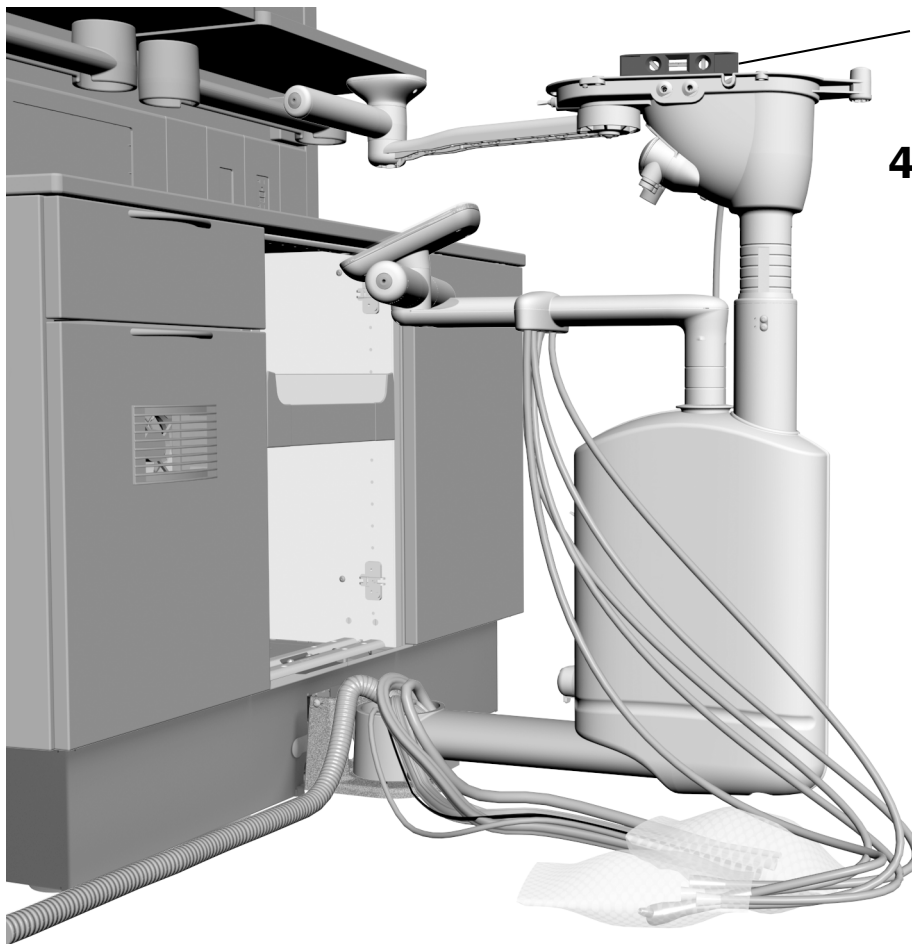
Level

4 Place a level on the work surface casting.
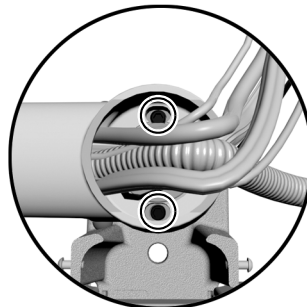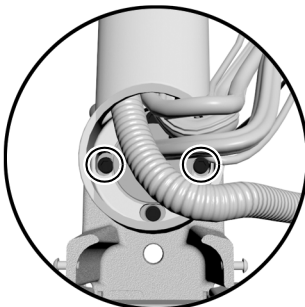
5 Level the hub by loosening and tightening the side-to-side mounting screws, as necessary.

Rotate the assembly and check the level. Loosen and tighten the front-to-back mounting screws, as necessary.

Route the Delivery System Cables and Tubing

Mount Bracket Posts
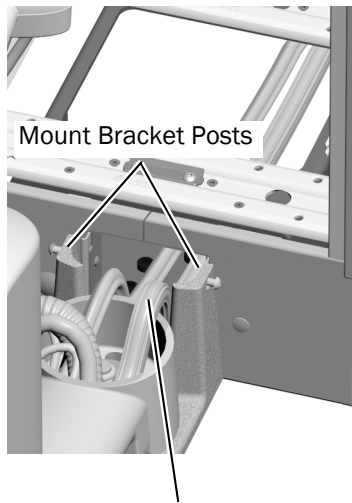
1 Route the regulator assembly cable between the mount bracket posts and into the cabinet.
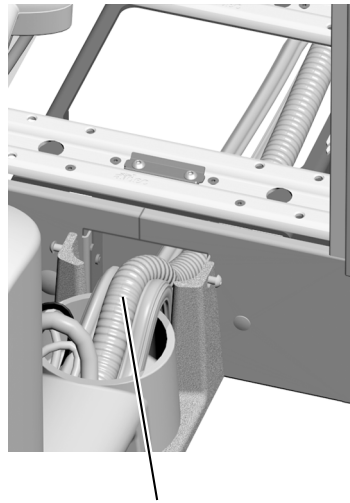
2 Route the vacuum line next.
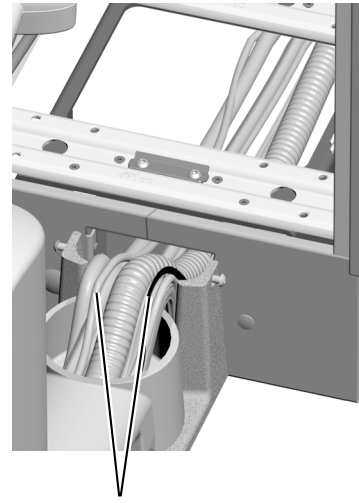
3 Route the rest of the cables. Ensure all tubing and cables are completely tucked between the posts and are straight, not crossed.

Install the Water Bottle

To install the remote mount water bottle, use the instructions that ship with the water bottle.

Install the Indicator Light (300 W Power Supply only)
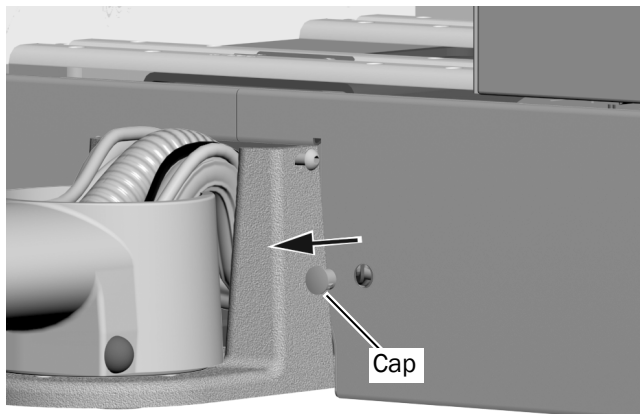
1 Remove the cap from the indicator light opening in the cabinet.
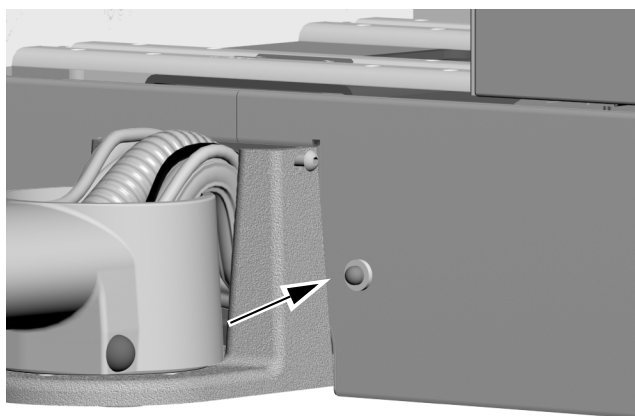
2 Insert the indicator light into the opening.

Connect the Data Line and Power Cables at the Cabinet

Connect the Data Line at the Cabinet

Complete the instructions for the system's configuration:

Connect the Data Line from an A-dec 341pro to an A-dec Inspire Distribution Box

> ⚠ **CAUTION**   A red DCS2 data line cannot be plugged into the A-dec Inspire cabinet distribution box. A coupler board must be used to connect a DCS2 data line from the cabinet to the chair board.

> 💡 **TIP**   To provide easier access for making connections, position the distribution box outside of the cabinet.

1. Peel the paper backing off the coupler board and attach it to the side of the distribution box.

2. Connect the red DCS2 data line from the delivery system to one end of the coupler board and connect the 25' red DCS2 data line to the other end of the coupler board.
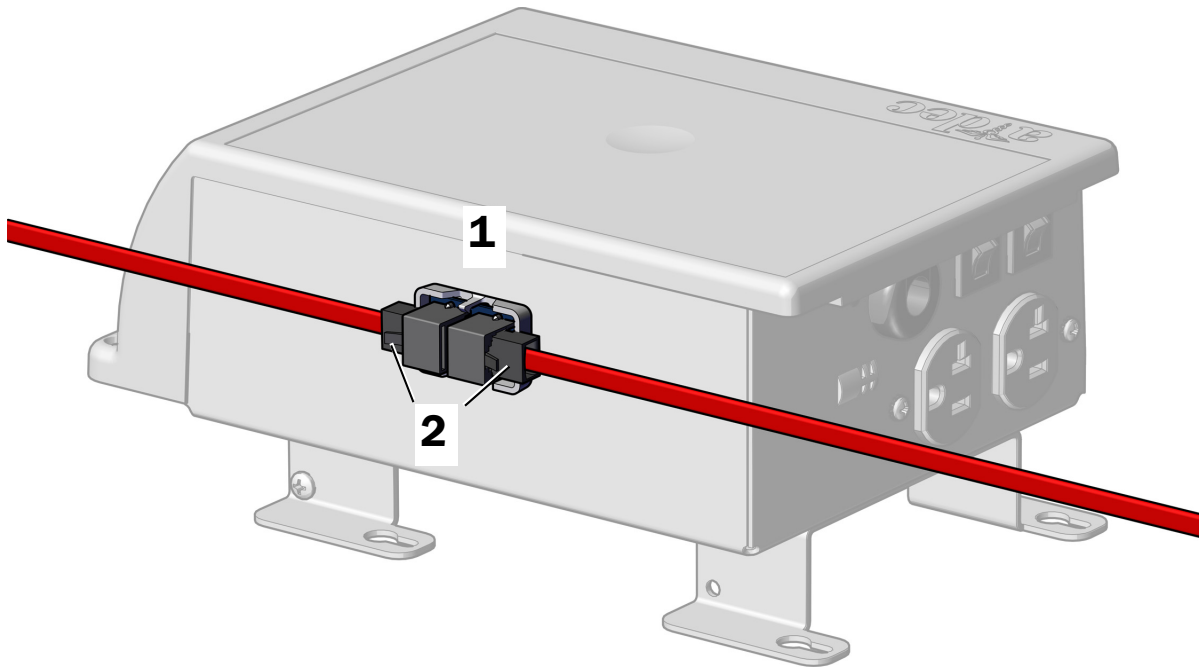
3. Route the 25' DCS2 data line to the dental chair power supply.

Next Step   "Connect the Power Cables at the Cabinet" on page 11.

Connect the Data Line from an A-dec 341flt to an A-dec Inspire Distribution Box

Recommended Tool

- Phillips head screwdriver

1. Use a Phillips head screwdriver to remove the two screws securing the lid of the distribution box.
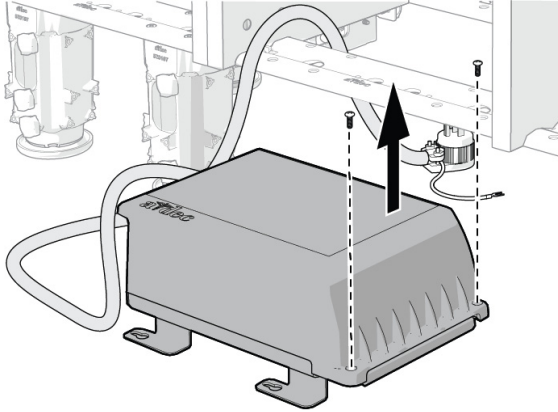
> ⚠️ **ATTENTION** Circuit boards are sensitive to static electricity. Electrostatic Discharge (ESD) precautions are required when touching a circuit board or making connections to or from the circuit board. Circuit boards should be installed only by an electrician or qualified service person.

> ⚠️ **WARNING** Shock hazard. When you remove or replace the covers, take care not to damage any wiring or tubing. Verify that the covers are secure after you replace them.

2. Remove the cover.
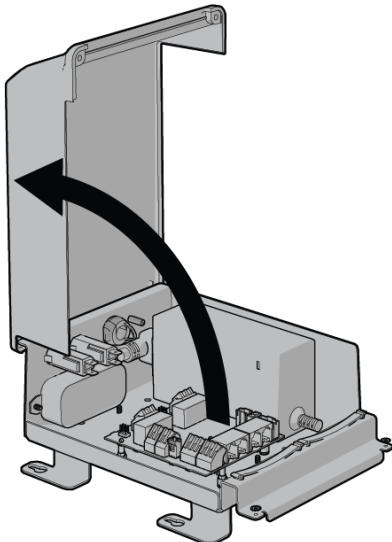
3. Plug in the DCS1 data line from the delivery system. It does not matter which date port the line is plugged into.

4. Plug in the 25' DCS1 data line. It does not matter which data port the 25' line is plugged into.

Strain Relief

DCS1 Data Line
From Delivery
System

25' DCS1 Data
Line to Dental
Chair Power
Supply

5. Secure the data lines under the strain relief.

6. Route the 25' data line to the dental chair power supply.

**Next Step** "Connect the Power Cables at the Cabinet" on page 11.

Connect the Data Line from an A-dec 341pro/341flt to a Preference® Cabinet

Complete the instructions for the system's configuration:

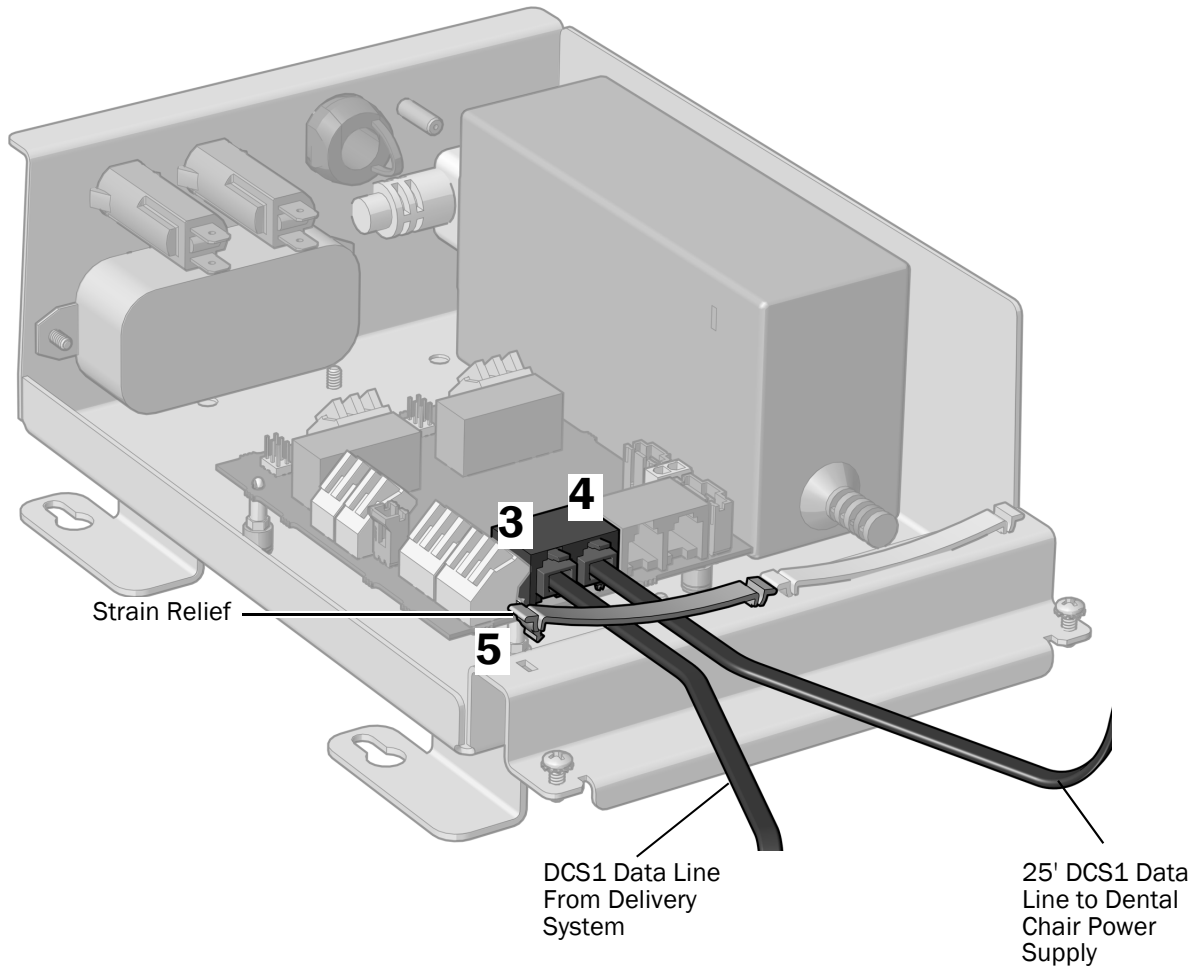• **342pro:** Use the coupler board to connect the DCS2 data line from the delivery system to the 25' DCS2 data line. At the chair, connect the 25' DCS2 data line to the gray port on the translator board, and connect a DCS1 data line from the black port on the translator board to the chair.

• **342:** Use a cable splitter to connect the DCS1 data line from the delivery system to the 25' DCS1 data line.

Connect the Power Cables at the Cabinet

> ⚠️ **WARNING**   Failure to turn off or disconnect the power before you begin this procedure can lead to product damage and result in serious injury or death.

1. Turn off power to the system.

Complete the instructions for the system's configuration:

Connect the Power Cables to an A-dec 300 W Stand-Alone Power Supply

1. Connect the four-position connector from the delivery system to the power supply.

2. Connect the six-position connector from the assistant's instrumentation to the power supply.

3. Connect the indicator light connector to the power supply.

Next Step   See "Connect the Remote Power Cables and Data Line at the Dental Chair" on page 13.

Connect the Power Cables to Remote Power Cables

To the
Delivery System

1

Delivery System Remote Power
Cable to the Dental Chair

4-position

4-position

To the
Assistant's
Instrumentation

2

Assistant's Instrumentation
Remote Power Cable to the
Dental Chair

6-position
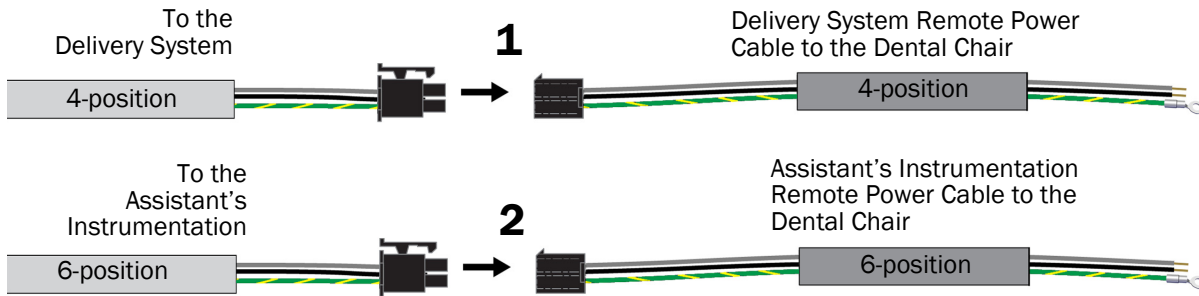
6-position

1. Connect the four-position connector from the delivery system to the connector on the delivery system remote power cable.

2. Connect the six-position connector from the assistant's instrumentation to the connector on the assistant's instrumentation remote power cable.

3. Route the remote power cables to the dental chair power supply.

Connect the Remote Power Cables and Data Line at the Dental Chair

ATTENTION   Circuit boards are sensitive to static electricity. Electrostatic Discharge (ESD) precautions are required when touching a circuit board or making connections to or from the circuit board. Circuit boards should be installed only by an electrician or qualified service person.
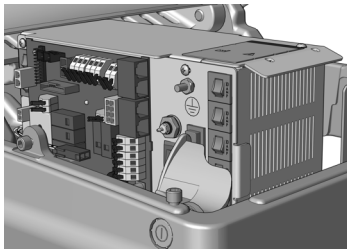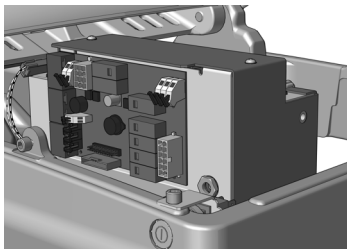
WARNING   Failure to turn off or disconnect the power before you begin this procedure can lead to product damage and result in serious injury or death.

1. Turn off the power to the chair.

Complete the instructions for your system's configuration:

Connect the Remote Power Cables and Data Line to an A-dec Universal Power Supply Manufactured After June 2023

Recommended Tool

- 3/8" combination wrench

Complete the instructions for the product you are installing:

Connect A-dec 341pro Remote Power Cables and Data Line to an A-dec Universal Power Supply

1. Attach the green/yellow ground wires from the remote power cables to the ground terminal.

2. Connect the black wires from the remote power cables to 0 VAC.

3. Connect the gray wires from the remote power cables to 24 VAC.

4. Plug the red DCS2 data line from the delivery system into any DCS2 data port.

5. Once all of the electrical connections have been made for the system's modules, secure the wires and data line under the lip on the power supply.
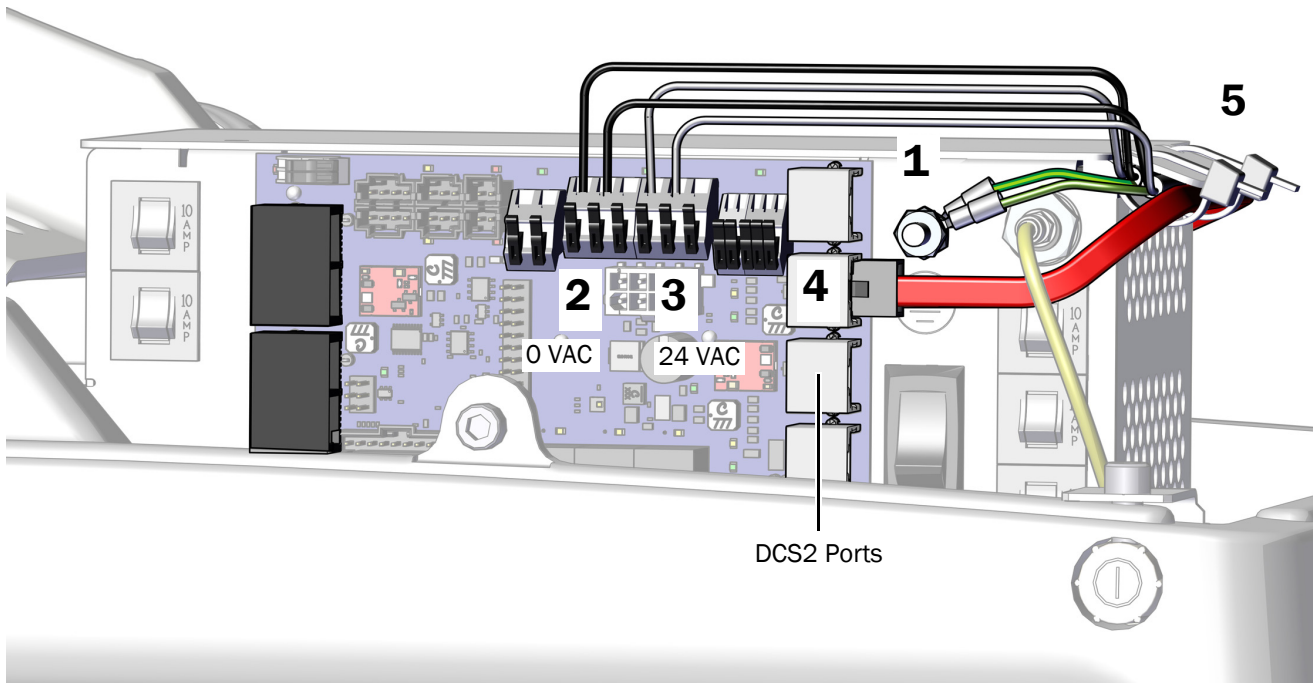
DCS2 Ports

Next Step See "Connect the Tubing" on page 25.

Connect A-dec 341flt Remote Power Cables and Data Line to an A-dec Universal Power Supply

1. Attach the green/yellow ground wires from the remote power cables to the ground terminal.

2. Connect the black wires from the remote power cables to 0 VAC.

3. Connect the gray wires from the remote power cables to 24 VAC.

⚠️ **CAUTION** Plugging the black DCS1 data line into a DCS2 port toward the toe of the chair can damage the product.

4. Plug the black data line from the delivery system into any DCS1 data port.

5. Once all of the electrical connections have been made for the system's modules, secure the wires under the lip on the power supply.

DCS1 Ports

Next Step See "Connect the Tubing" on page 25.

Connect the Remote Power Cables and Date Line to an A-dec 511 Power Supply Manufactured Before June 2023
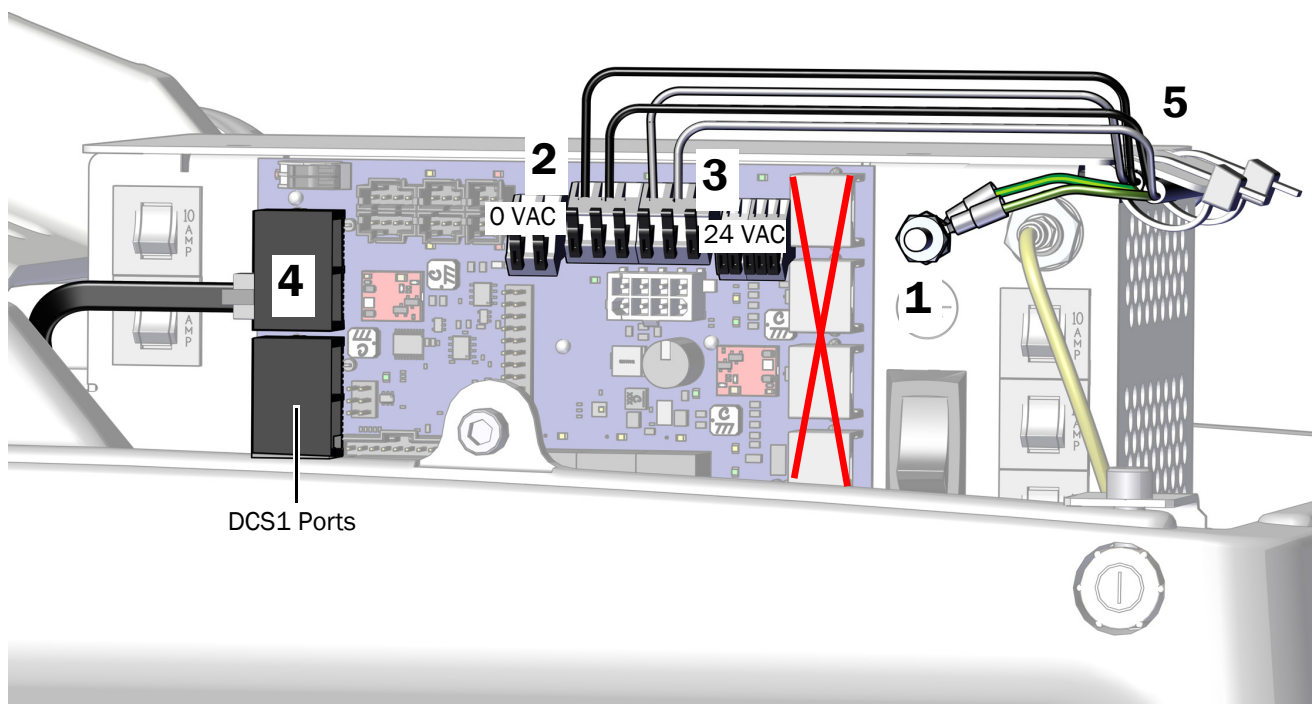
Complete the instructions for the product you are installing:

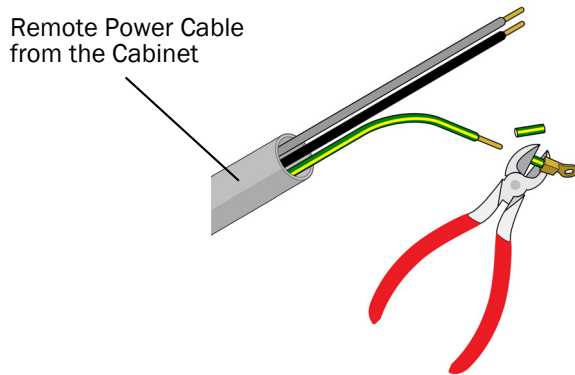### Connect A-dec 341pro Remote Power Cables and Data Line to an A-dec 511 Power Supply
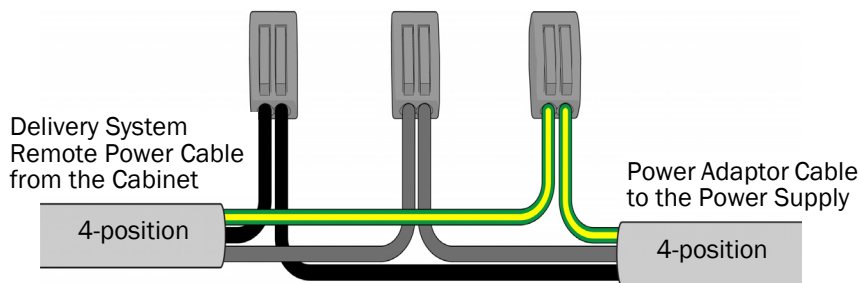Task 1.

Recommended Tools

- Diagonal cutters
- Wire strippers

1. Cut the eyelet off of the green/yellow ground wire of the delivery system and assistant's instrumentation remote power cables and strip back the wires 3/8" (10 mm).

Remote Power Cable from the Cabinet

2. Use wire connectors to connect the delivery system remote power cable black wires, gray wires, and ground wires to a 4-position power adaptor cable, matching wire colors.

Delivery System Remote Power Cable from the Cabinet

4-position

Power Adaptor Cable to the Power Supply

4-position

3. Use wire connectors to connect the assistant's instrumentation remote power cable black wires, gray wires, and ground wires to a 6-position power adaptor cable, matching wire colors.

Assistant's Instrumentation Remote Power Cable from the Cabinet

6-position

Power Adaptor Cable to the Power Supply

6-position

86.1064.00 Rev C

Task 2.

1. Plug in the four-position power adaptor cable.

2. Plug in the six-position power adaptor cable.

3. Position the translator board with the gray DCS2 port toward the toe of the chair and connect the red DCS2 data line to the gray port.

4. Connect the black DCS1 data line from the black port on the translator board to any data port on the power supply.
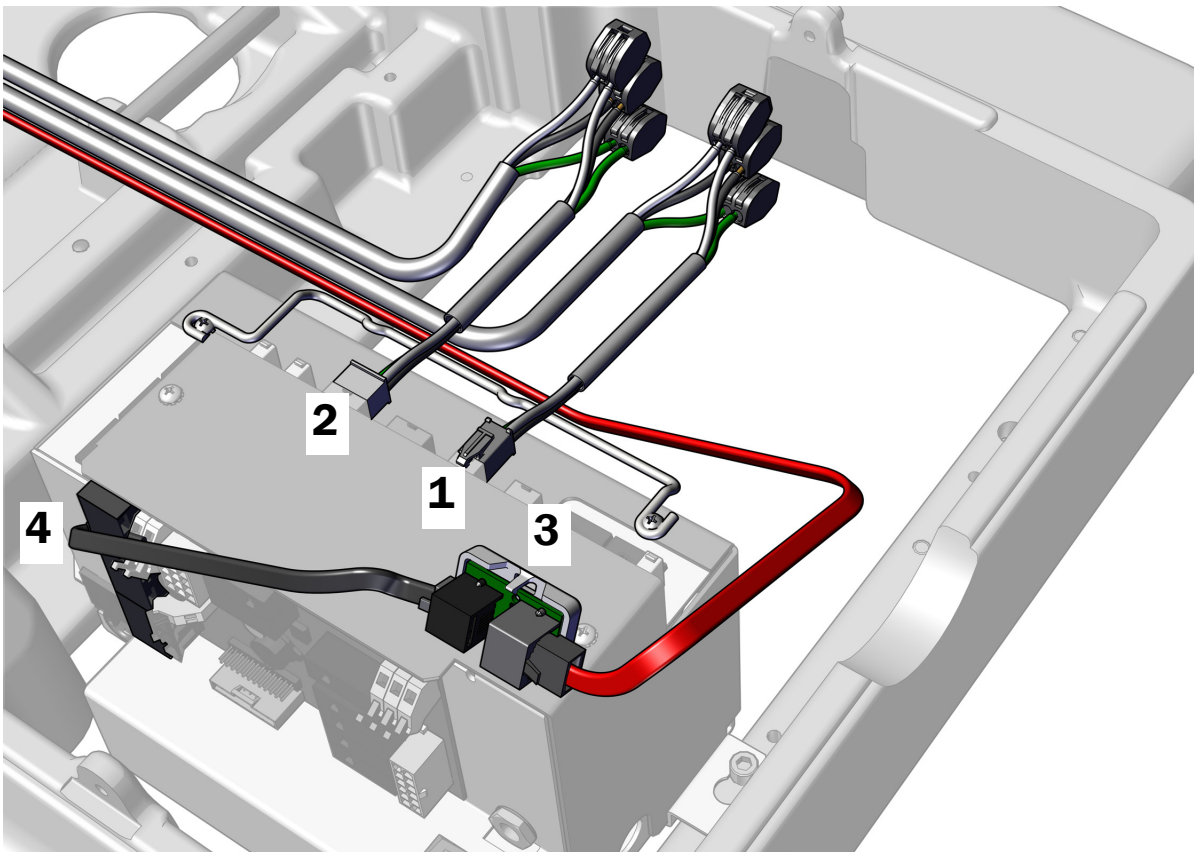
Task 3.

⚠️ **CAUTION** Do not attach the translator board to the top of the power supply chassis. The pump cover will not fit.

1. Peel off the protective paper from the translator board. Attach the translator board to the front of the power supply in the upper right corner.

🛈 **NOTE** If there is already an adaptor board for an LED light attached to the power supply, stack the translator board below it.

2. Once all the electrical connections have been made for the system's modules, use cable ties to secure the wires and data line to the bail.

Next Step See "Connect the Tubing" on page 25.

Connect A-dec 341flt Remote Power Cables and Data Line to an A-dec 511 Power Supply

Task 1.

Recommended Tools

- Diagonal cutters
- Wire strippers

1. Cut the eyelet off of the green/yellow ground wire of the delivery system and assistant's instrumentation remote power cables and strip back the wires 3/8" (10 mm).
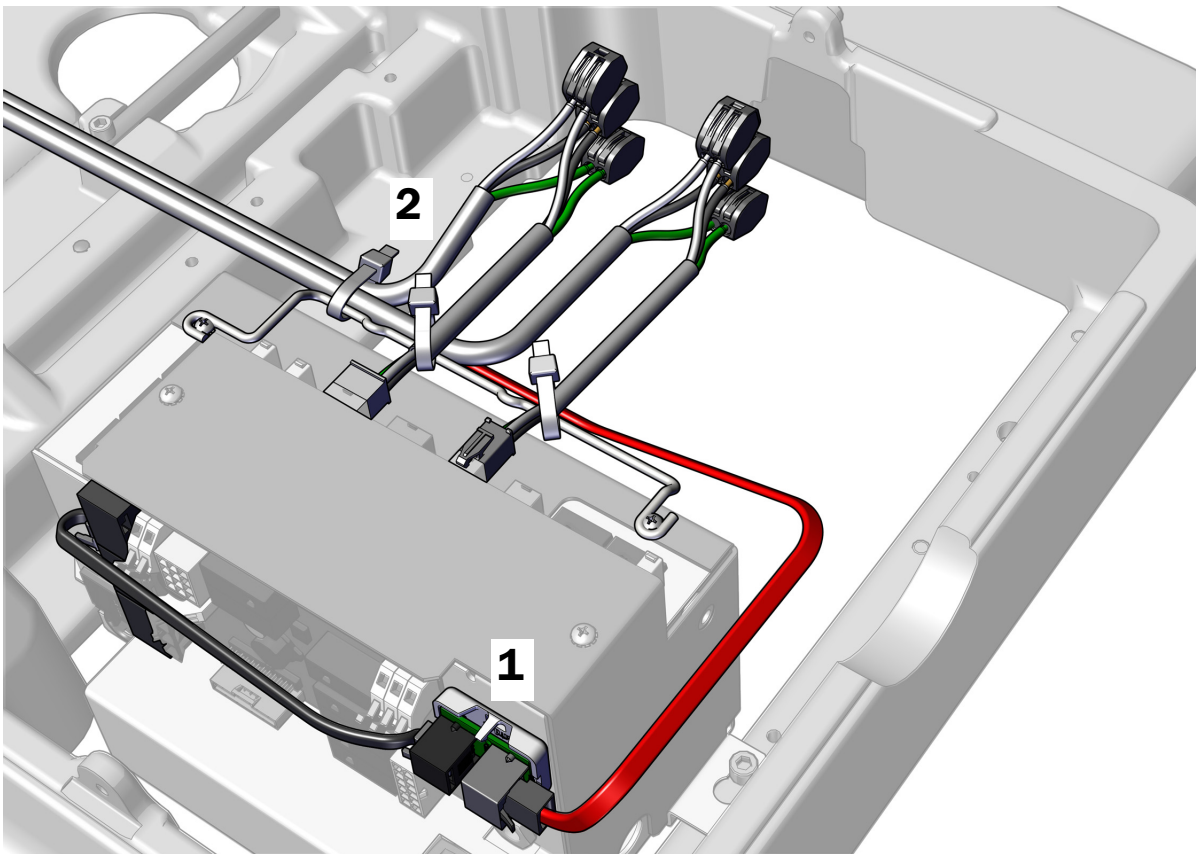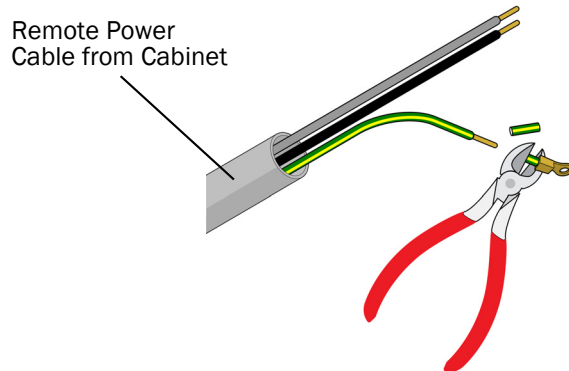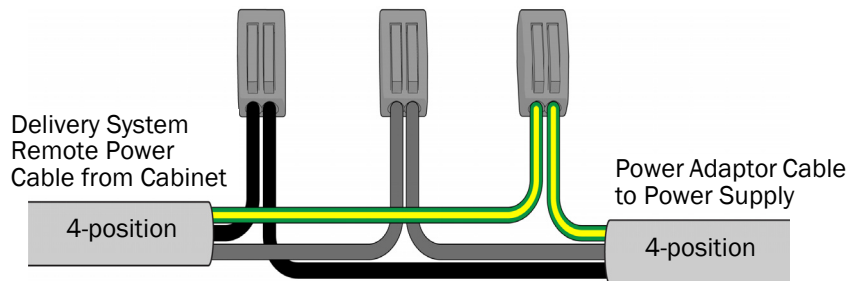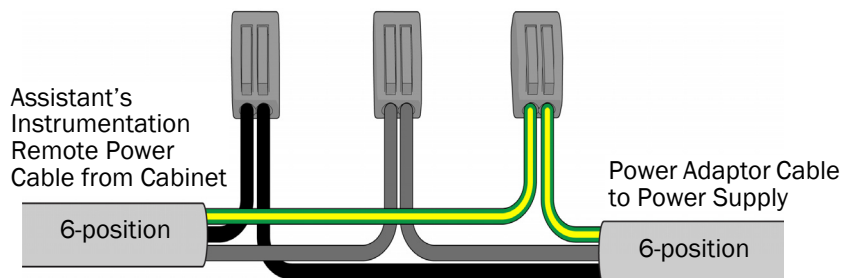

Remote Power
Cable from Cabinet

2. Use wire connectors to connect the delivery system remote power cable black wires, gray wires, and ground wires to a 4-position power adaptor cable, matching wire colors.

Delivery System
Remote Power
Cable from Cabinet

Power Adaptor Cable
to Power Supply

4-position

4-position

3. Use wire connectors to connect the assistant's instrumentation remote power cable black wires, gray wires, and ground wires to a 6-position power adaptor cable, matching wire colors.

Assistant's
Instrumentation
Remote Power
Cable from Cabinet

Power Adaptor Cable
to Power Supply

6-position

6-position

Task 2.

1. Plug in the four-position power adaptor cable.

2. Plug in the six-position power adaptor cable.

3. Plug in the data line to any data port on the power supply.
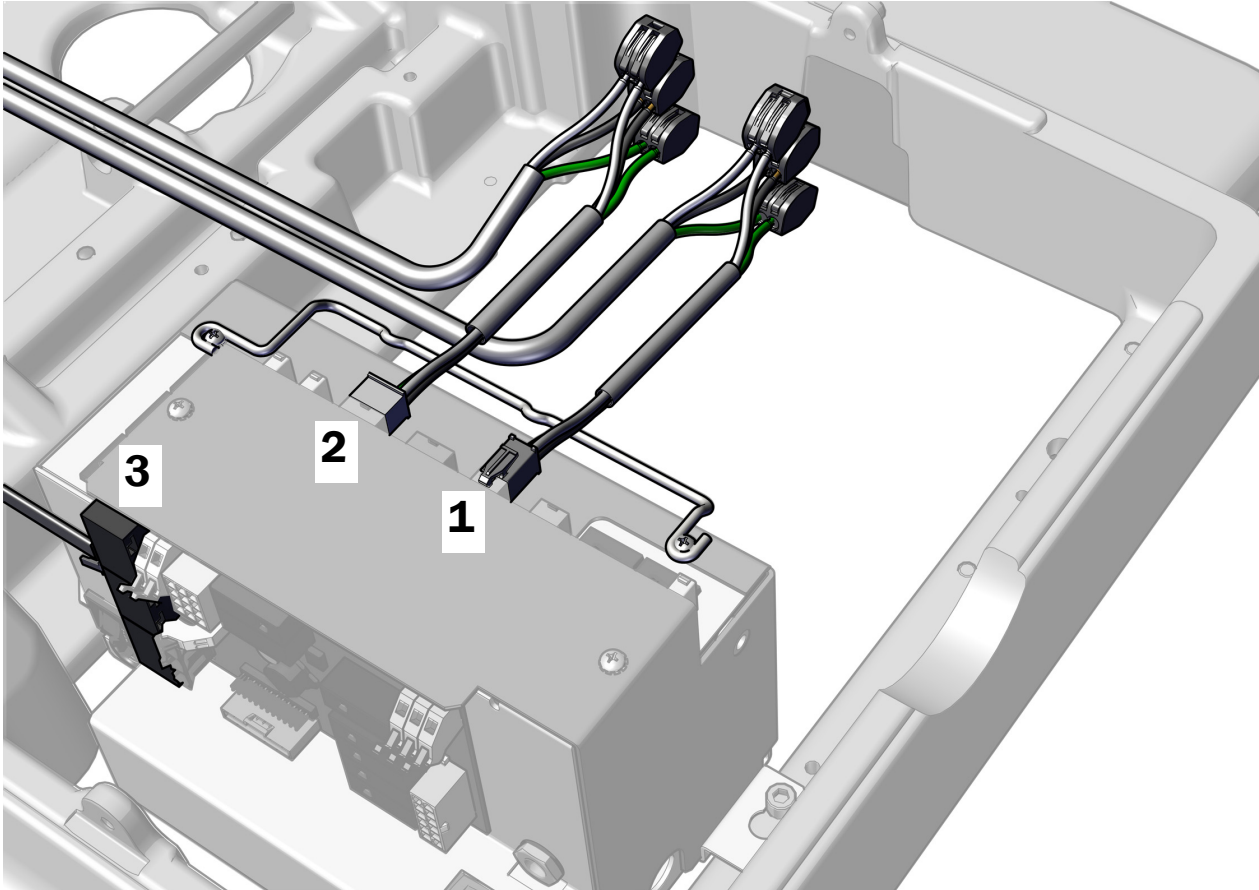
Next Step See "Connect the Tubing" on page 25.

Connect the Remote Power Cables and Date Line to an A-dec 311/411 Power Supply Manufactured Before June 2023

Recommended Tool

- 3/8" combination wrench

Complete the instructions for the product you are installing:

Connect A-dec 341pro Remote Power Cables and Data Line to an A-dec 311/411 Power Supply

Task 1.

1. Attach the green/yellow ground wires from the remote power cables to the ground terminal.

2. Connect the black wires from the remote power cables to 0 VAC.

3. Connect the gray wires from the remote power cables to 24 VAC.

4. Position the translator board with the gray DCS2 port towards the back of the power supply. Plug the red DCS2 data line from the delivery system into the gray DCS2 port on the translator board.

5. Plug one end of the black DCS1 data line into the translator board and the other end into any of the DCS1 data ports on the chair circuit board.
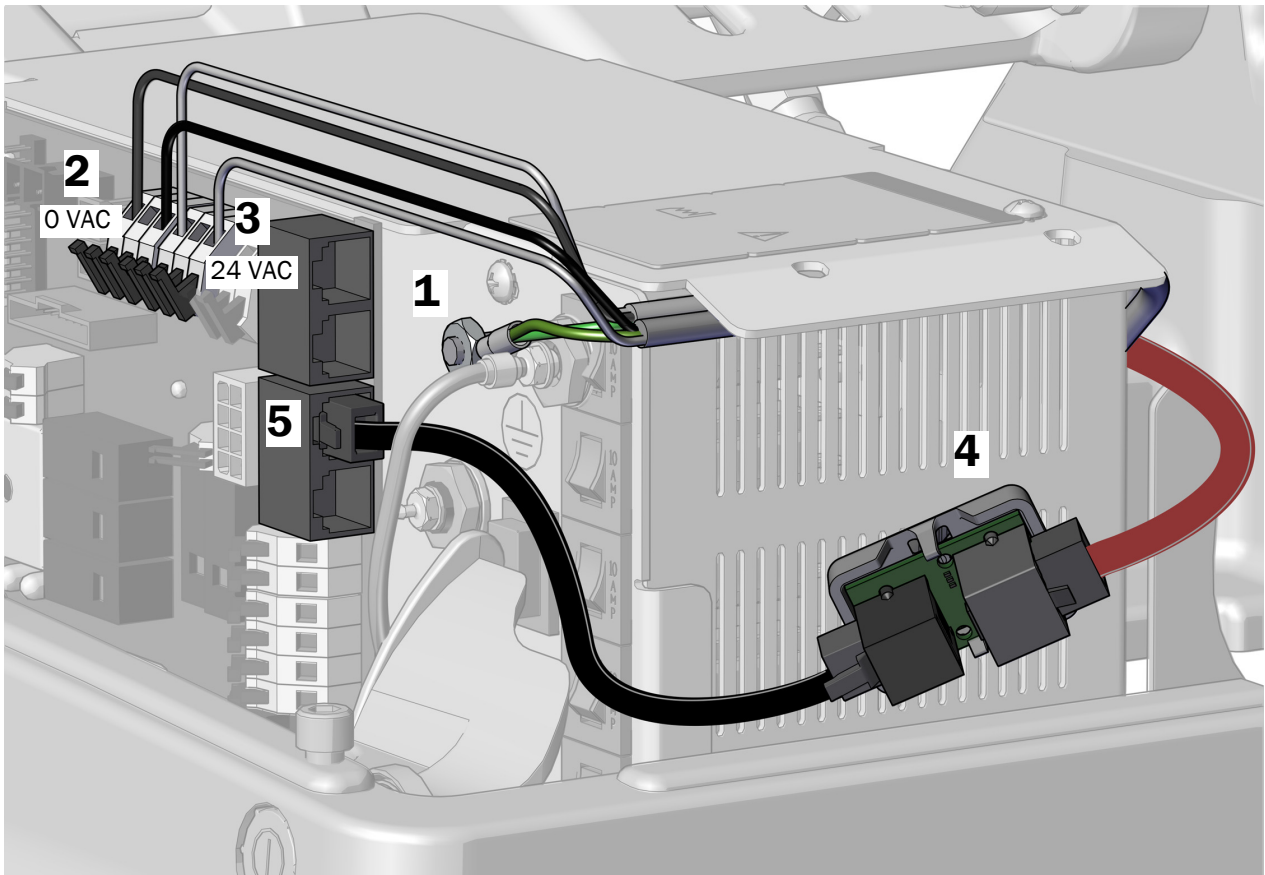
Task 2.

**1.** Peel off the protective paper from the translator board.

⚠ **CAUTION** The translator board must be attached in this position to prevent damage or interference with other equipment.

2. Attach the translator board to the side of the power supply toward the toe of the chair. Align it with the stub and the bottom of the middle vents.

🛈 **NOTE** If there is already an adaptor board for an LED light attached to the power supply, stack the translator board below it.

3. Once all of the electrical connections have been made for the system's modules, use cable ties to secure the wires and data line under the lip.
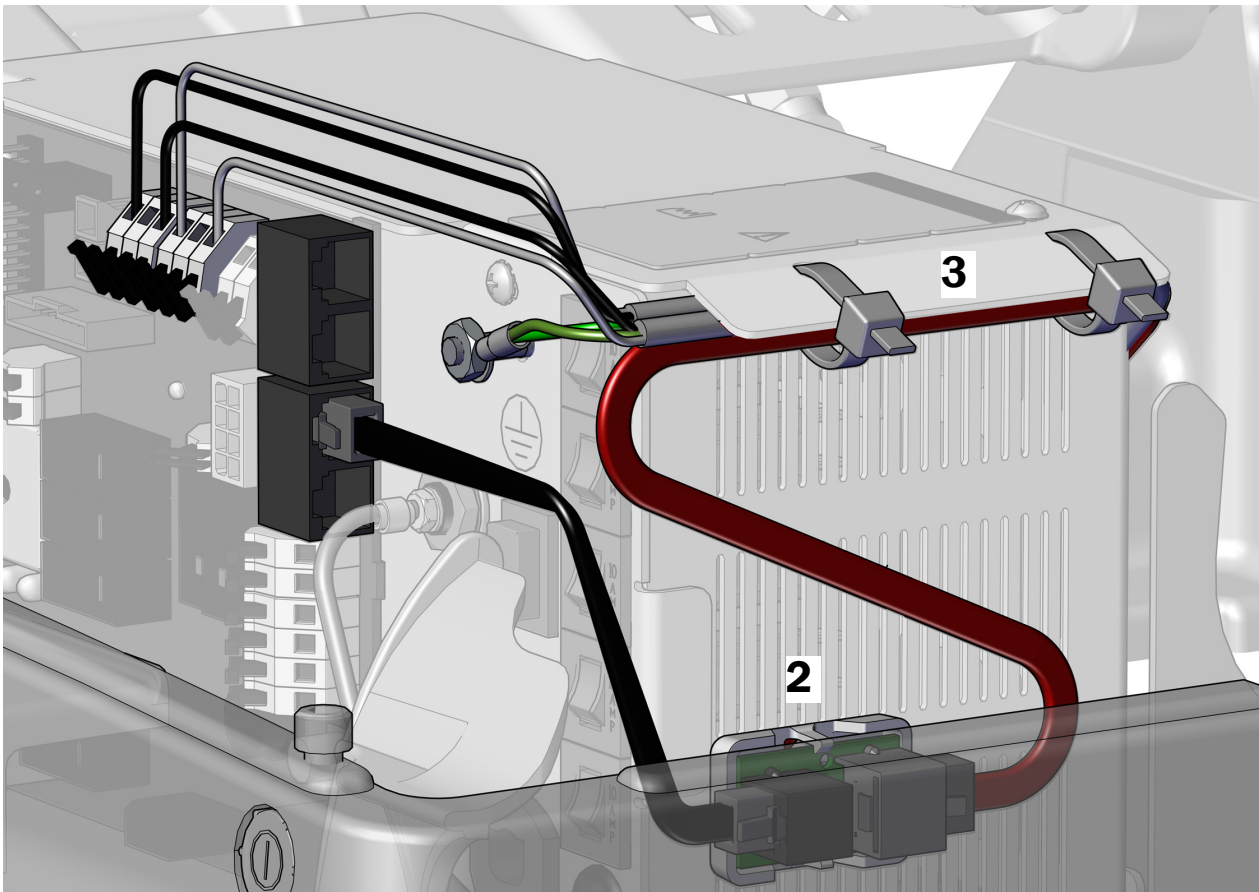
Next Step See "Connect the Tubing" on page 25.

Connect A-dec 341flt Remote Power Cables and Data Line to an A-dec 311/411 Power Supply

1. Attach the green/yellow ground wires from the remote power cables to the ground terminal.

2. Connect the black wires from the remote power cables to 0 VAC.

3. Connect the gray wires from the remote power cables to 24 VAC.

4. Plug the black DCS1 data line from the delivery system into one of the DCS1 data ports on the chair circuit board. It does not matter which port the data line plugs into.

5. Once all of the electrical connections have been made for the system's modules, use cable ties to secure the wires and data line under the lip.
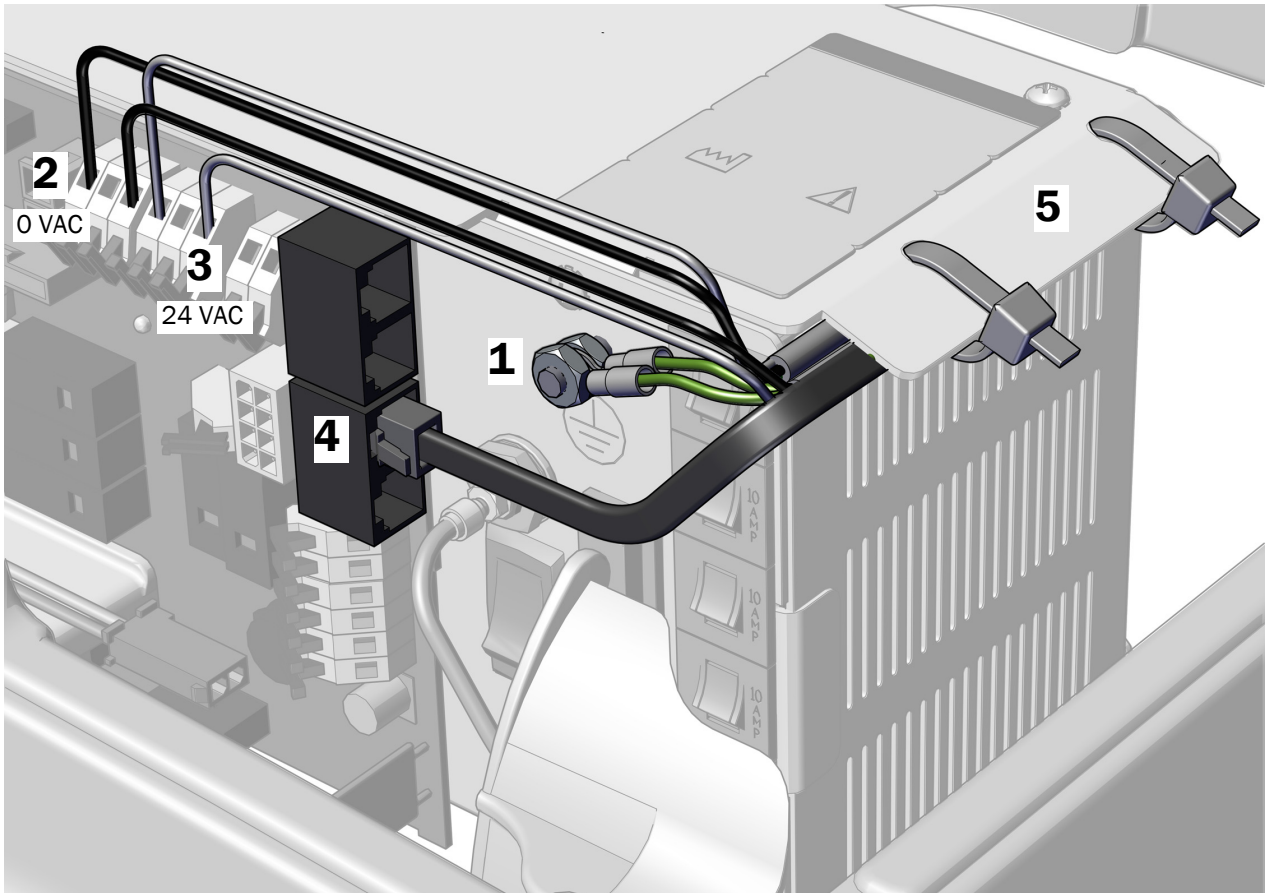
Connect the Power Cables and Data Line Used with an A-dec 300 W Stand-Alone Power Supply

Connect the Power Cables Used With an A-dec 300 W Stand-Alone Power Supply

See "Connect the Power Cables to an A-dec 300 W Stand-Alone Power Supply" on page 11.

Connect the Data Line Used With an A-dec 300 W Stand-Alone Power Supply

For instructions on plugging in the 25' data line from the cabinet, see the section for the system configuration.
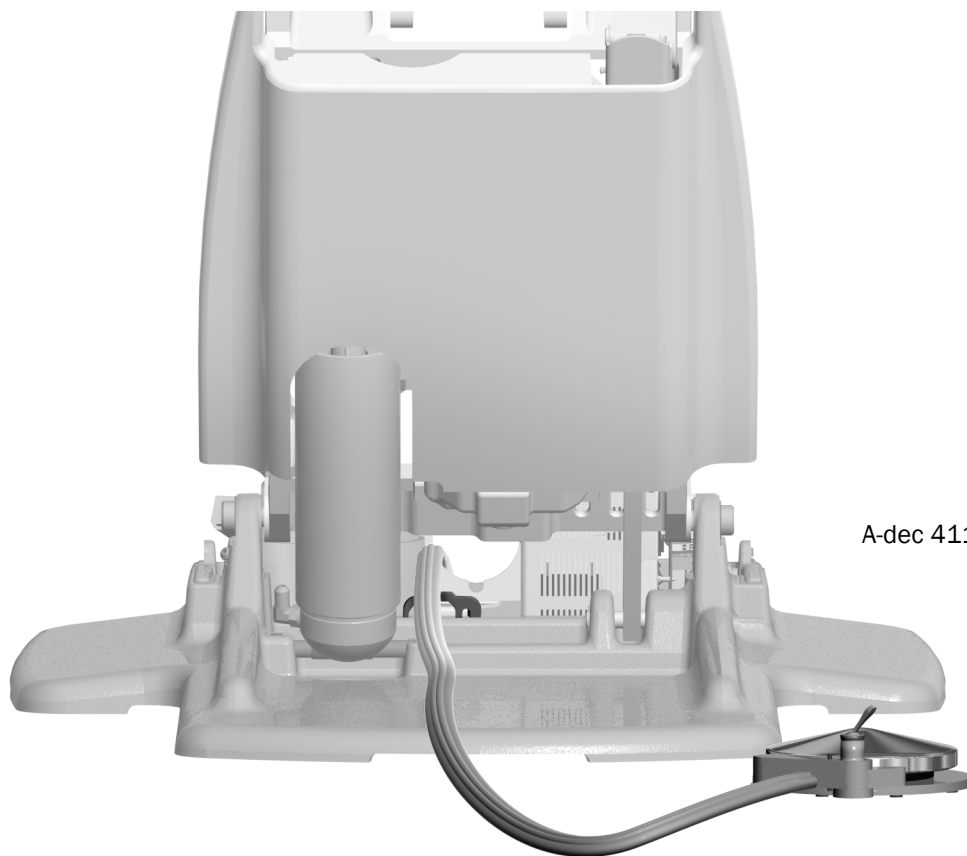
Connect the Tubing

Install the Foot Control

> **NOTE** The installation procedure for a disk foot control and lever foot control is the same.

Install the Foot Control on a Chair

Recommended Tool

- 3/16" hex key

A-dec 411 Dental Chair Shown

1 From the back of the chair, route the foot control tubing over the strain relief and behind the power supply.
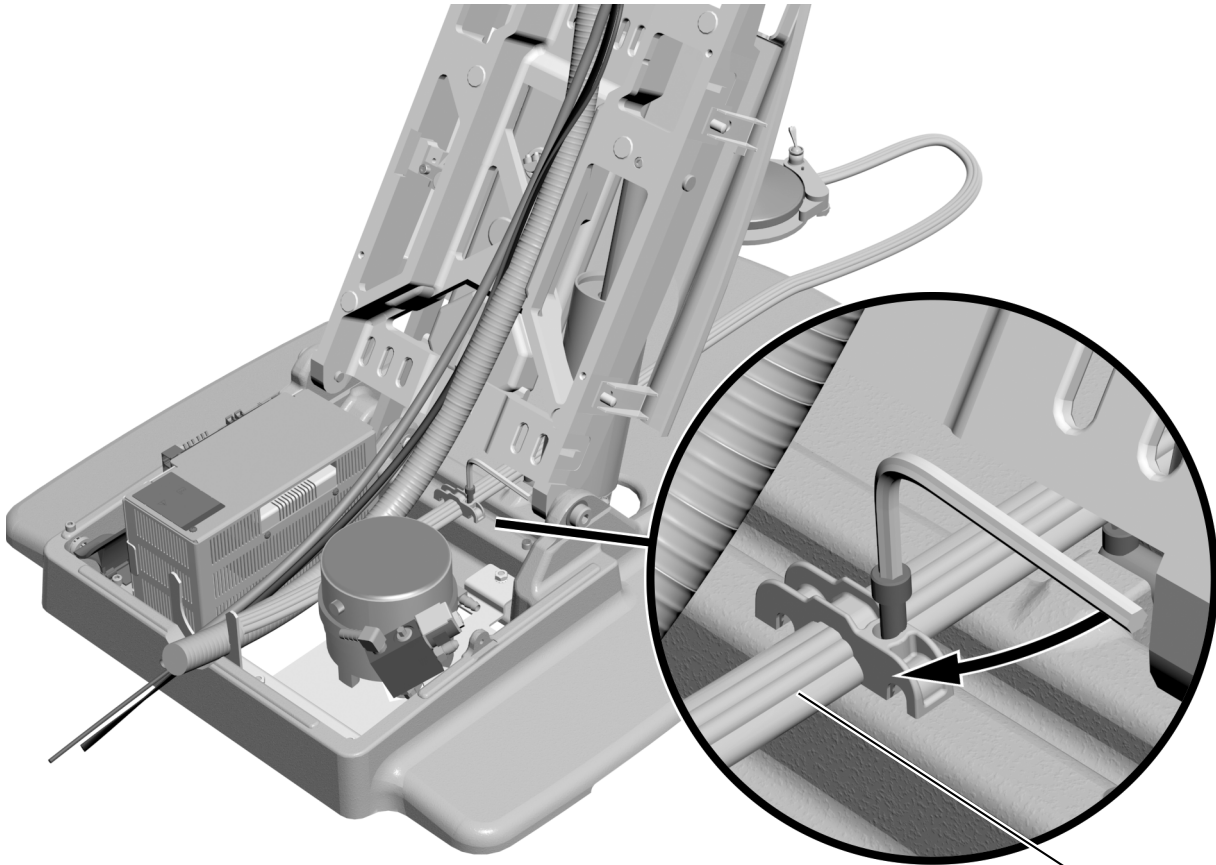
2 Use a 3/16" hex key to secure the foot control tubing to the chair base in the strain relief.

NOTE For proper positioning, the ridges on the foot control tubing face up to match the grooves in the strain relief.

Install the Foot Control on a Cabinet

1 Remove the cap from the foot control opening in the cabinet.
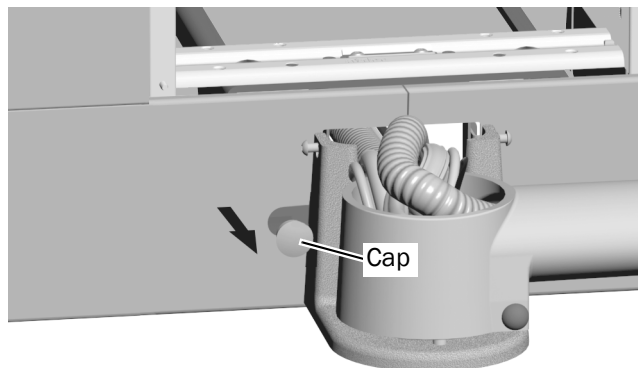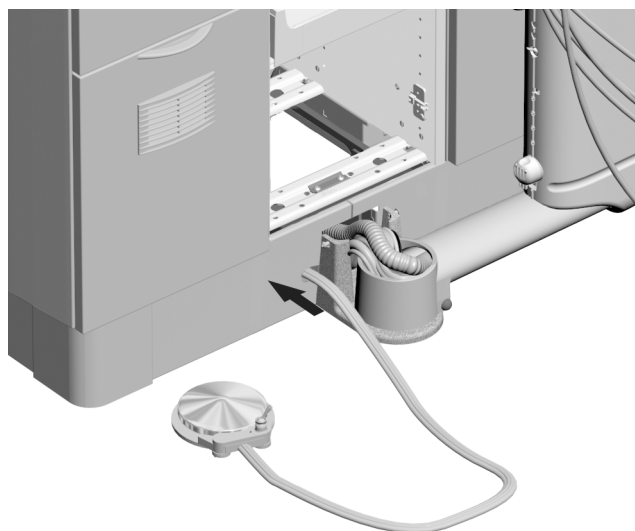
2 Route the foot control tubing through the subbase.

> **NOTE**   A-dec provides sufficient tubing length for a remote mount foot control, but an extension may be needed.

Install the Foot Control on a Wall

Recommended Tools

- Drill and drill bits
- Phillips head screwdriver

Use the foot control wall plate template, available in the *341pro/341flt Duo Delivery System Stand-Alone Applications Template* (p/n 86.1066.00).

1 Drill a 2-1/8" (54 mm) hole and two 1/4" (7 mm) holes as shown in the foot control wall plate template.

2 Install the tubing through the grommet. Push the grommet and tubing through the wall plate.

Wall Plate

Grommet

Foot Control Tubing
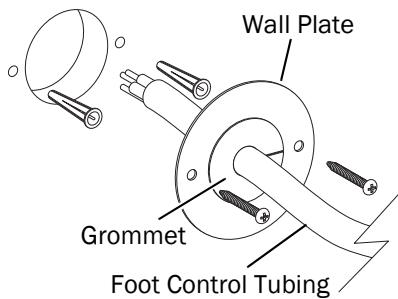
3 Use a Phillips head screwdriver and the screws provided in the wall plate kit to attach the cover plate to the wall.
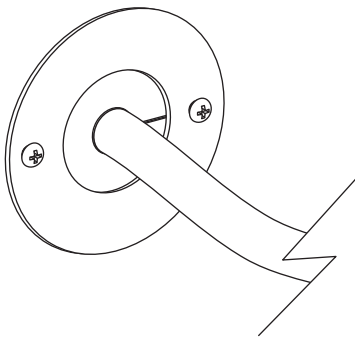
Connect the Tubing

Connect the tubing according to the following flow diagram.

NOTE To connect to an A-dec 511 power supply, use the quick disconnects from the kit.

NOTE To connect the pilot air tubing to an A-dec 311flt/311/411 dental chair, see *Connect Pilot Air Tubing from an A-dec 341pro/341flt/342pro/342/541pro/541 Delivery System or A-dec 545sta/545 Assistant's Instrumentation to an A-dec 311flt/311/411 Dental Chair Installation Guide* (p/n 86.0160.00).

NOTE If the system includes a CP5i control pad, the green tubing with a long dash is trimmed at the end of the sheath and does not get connected.

To Foot Control

To Delivery System

To Assistant's Instrumentation

To Water Bottle

Power Supply
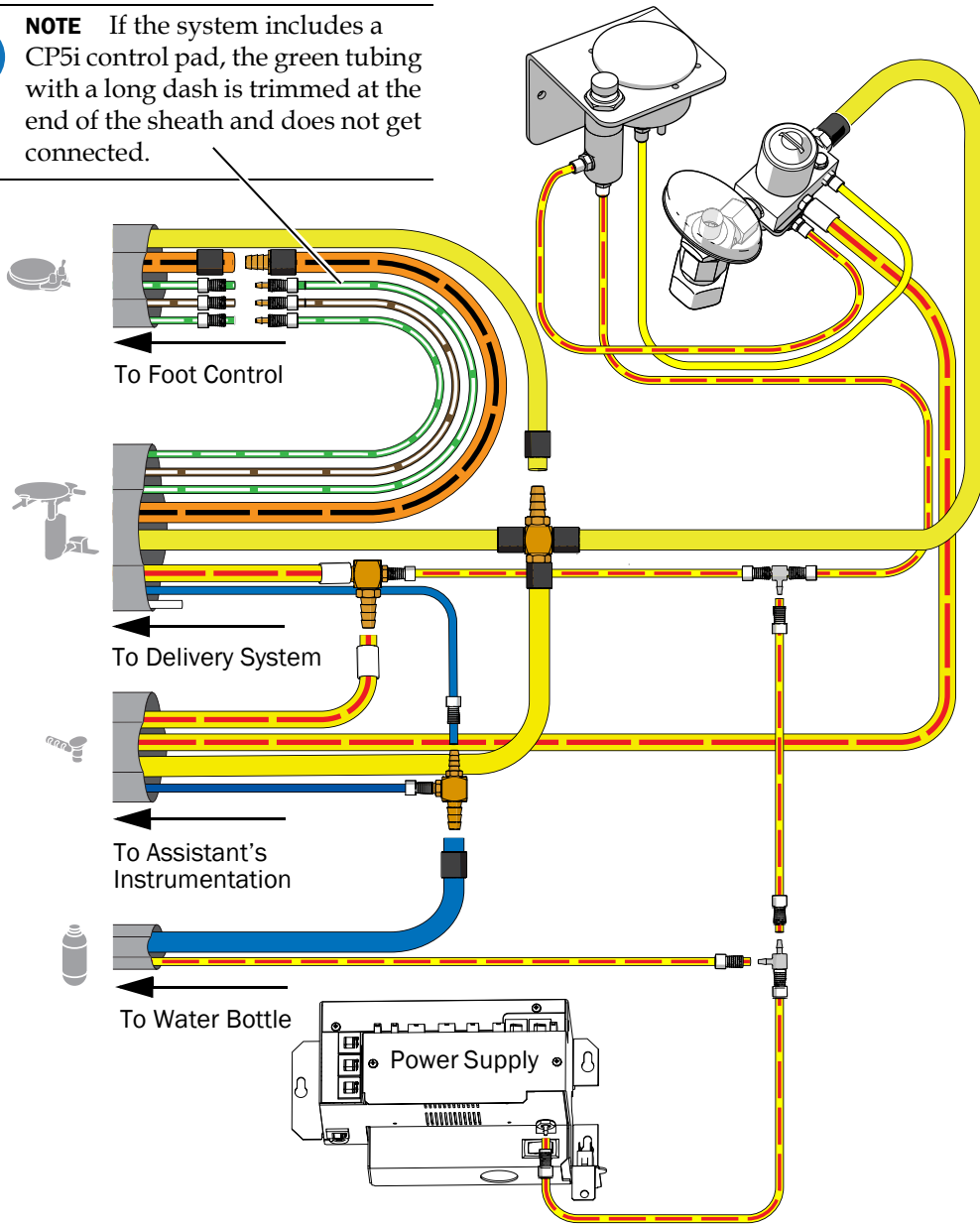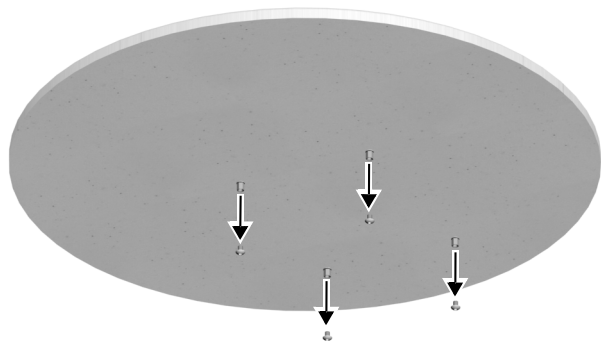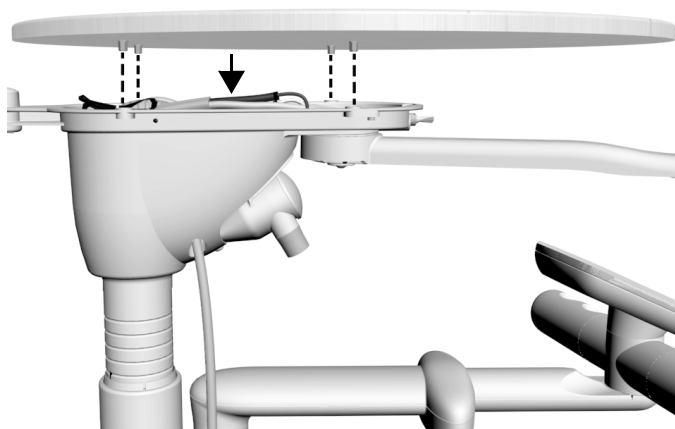
Attach and Level the Round Worksurface

Recommended Tool

• 1/8" hex key

1 Remove the screws from the threaded standoffs underneath the worksurface.

2 Position the worksurface on the worksurface support housing. Align the holes in the support housing with the threaded standoffs on the bottom of the worksurface.

> ⊘ **NOTE**   Keep the tubing out of the way so it is not pinched.
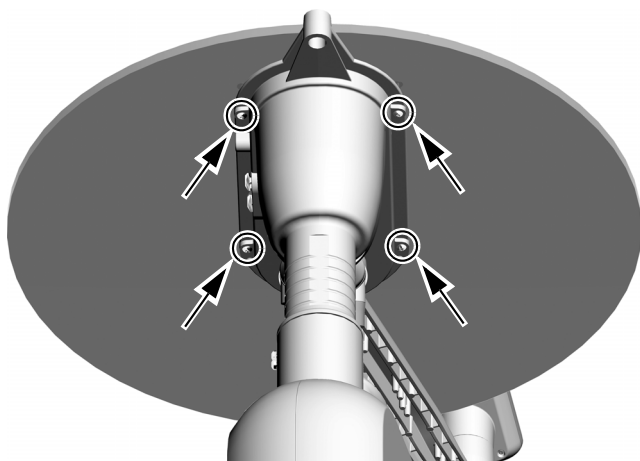
3 Insert the four worksurface screws that you removed in step 1. Use a 1/8" hex key to loosely install, but do not tighten, the worksurface screws.

> **NOTE** Keeping the screws loose allows for proper leveling and prevents damage in the following steps.
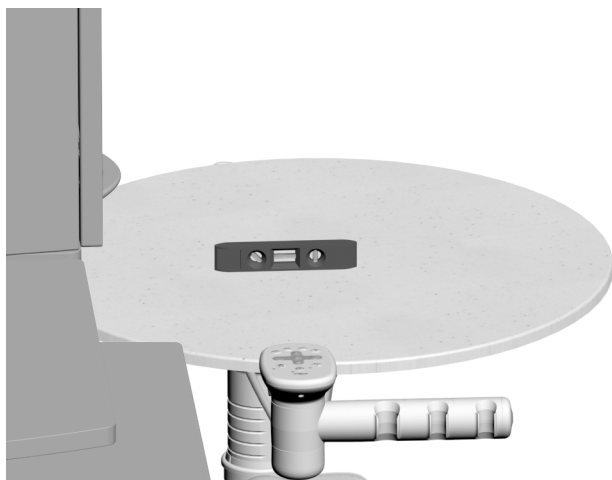
4 Position the worksurface arm in a typical working position and center a level on the round worksurface over the support housing.

Leveling Setscrews
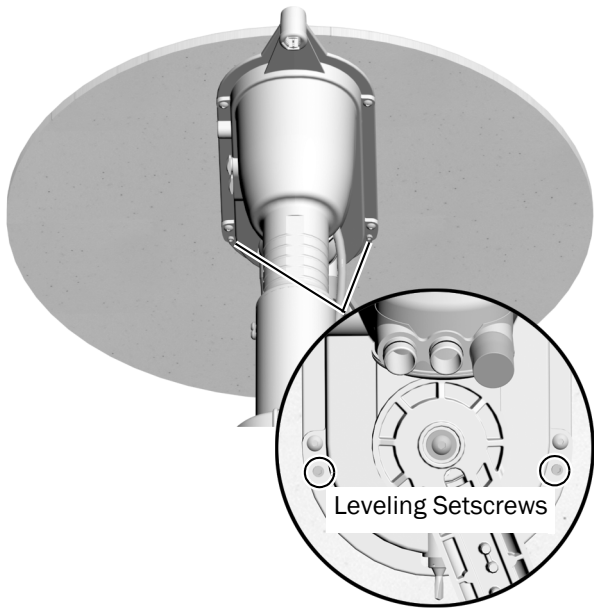
5 Use a 1/8" hex key to adjust the two leveling setscrews in the worksurface support housing until the surface is level.
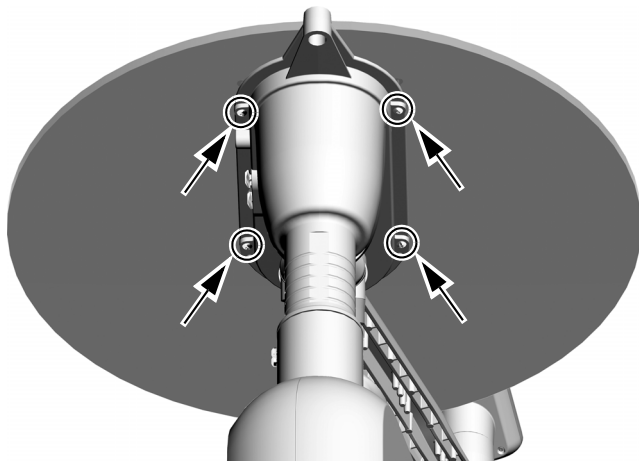
6 Use a 1/8" hex key to tighten the four worksurface screws.

Install the Tray Holder Mount (optional)

Recommended Tools

- 3/16" hex key
- Needle-nose pliers
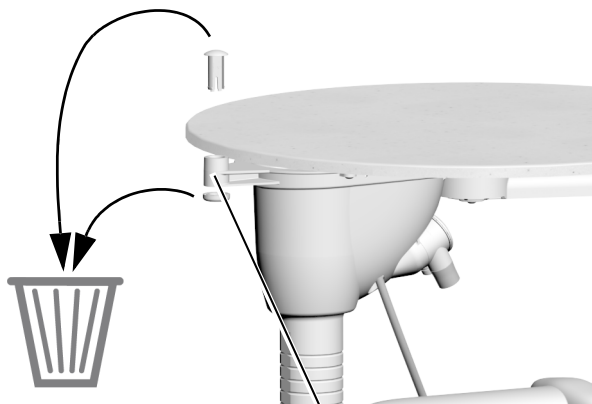
1 Remove the tape from the tray holder mount, and then remove and discard the plug and collar.

TIP You may need to use needle-nose pliers to squeeze the bottom of the plug to help remove it.
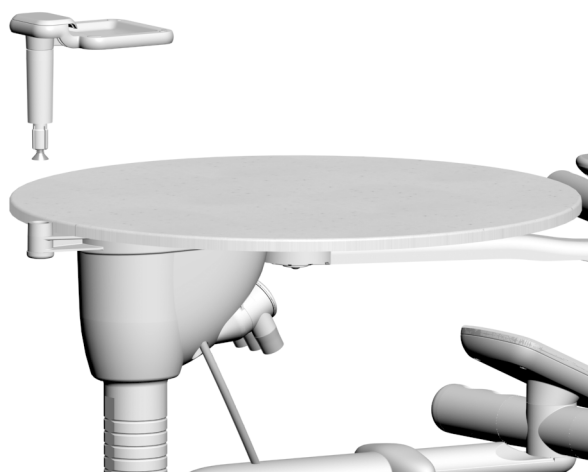
2 Insert the tray holder mount into the work surface support.

NOTE Leave the screw in the bottom of the tray holder mount as you insert it.

Hold the post while tightening.
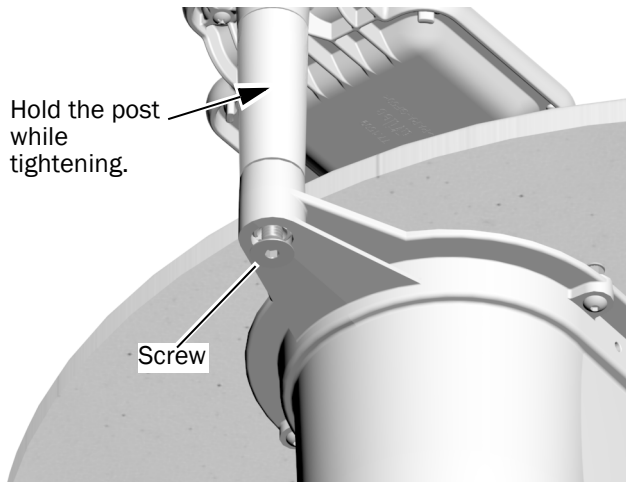
Screw

3 Use a 3/16" hex key to tighten the screw on the bottom of the tray holder mount. Tighten the screw until the tray holder mount cannot rotate (the tray holder should be able to).

NOTE   When fully tightened, the screw is not fully flush against the tray holder mount.

4 Install the tray holder on the tray holder mount.
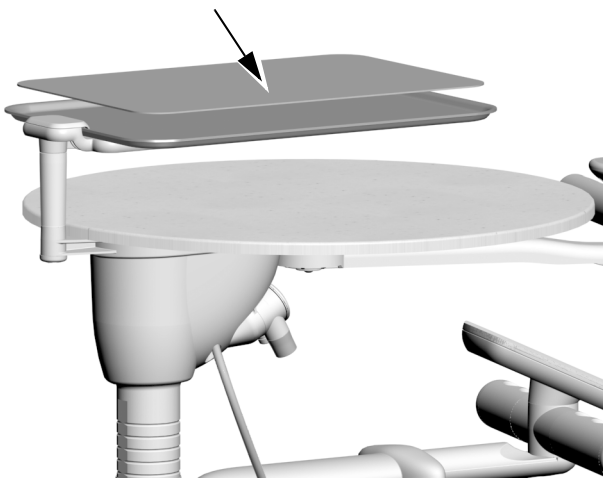
5 Place the pad on the tray holder.

Complete the Installation
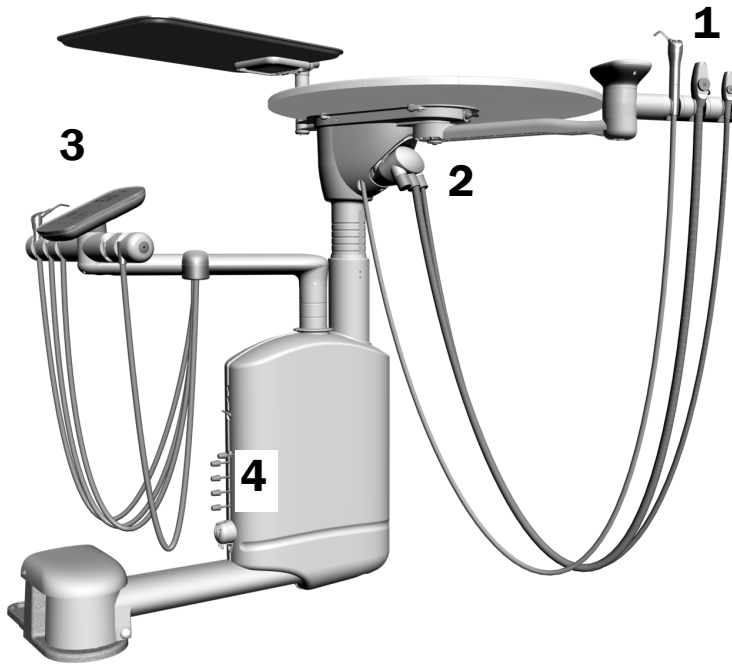
1 Place the assistant's instrumentation in the assistant's holder.

2 Attach the assistant's instrumentation tubing to the vacuum canister.

3 Place the syringe and handpiece tubing in the doctor's holder.

4 Install the adjustment knobs.

Adjust the System

Adjust the Rotation Tension

Recommended Tool

- 3/4" socket (deep well) with 6" extension
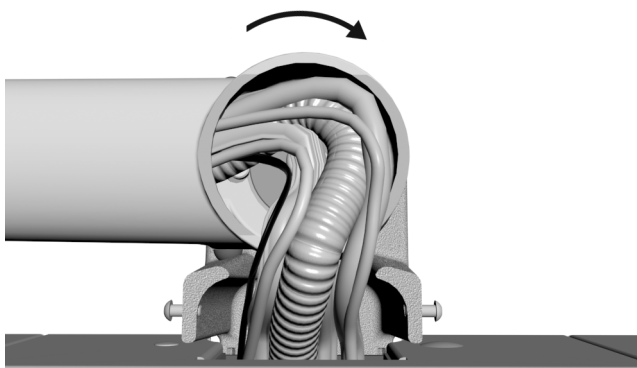
1 Ensure there is enough slack in the tubing to rotate the assembly.
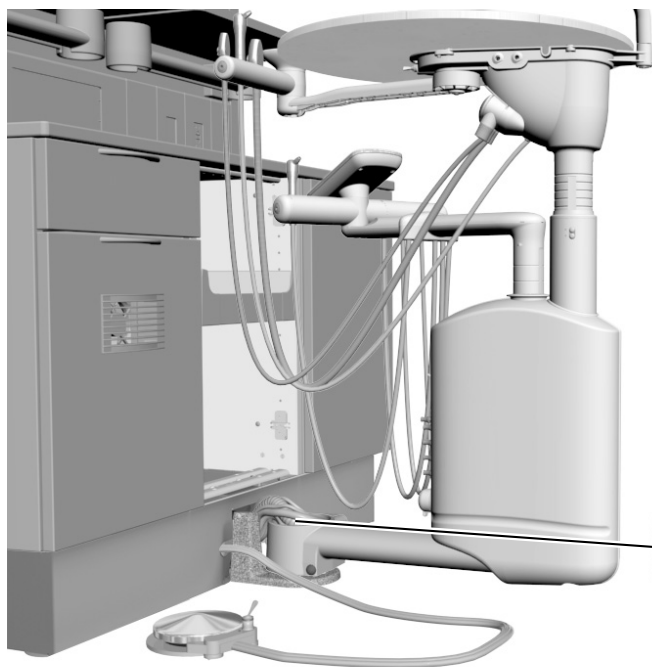
2 When you rotate the arm, there should be slight resistance, and the arm should not drift. If the arm drifts, tighten the hub locknut with a 3/4" socket and ratchet.

Hub Locknut

Adjust the Tray Holder Mount Rotation Tension

Recommended Tools

- Phillips head screwdriver
- 7/32" hex key

1 Use a Phillips head screwdriver to remove the cap screws. Remove the cap.

2 Insert a 7/32" hex key into the tension bolt and turn clockwise to increase the tension.

3 Replace the cap and secure with the screws.

Adjust the Worksurface and Instrumentation Arm Height

Height Adjustment Ring
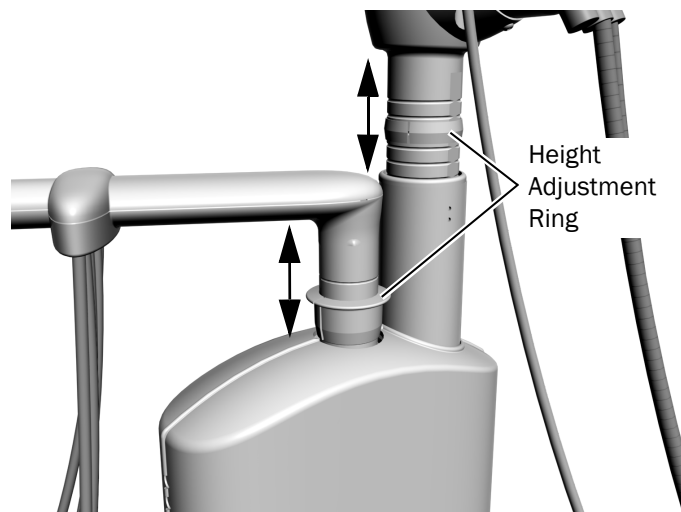
1 Lift the upper part of the vertical post.

2 Slide the height adjustment ring to the desired position.

3 Lower the vertical post onto the ring.

Adjust the Handpiece Drive Air Pressure
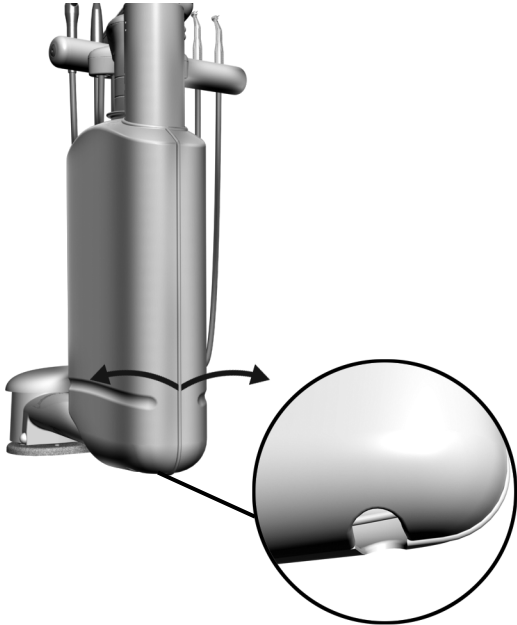
> ⚠️ **WARNING** Shock hazard. When you remove or replace the covers, take care not to damage any wiring or tubing. Verify that the covers are secure after you replace them.

1 Locate the hole directly under the control head and pull the covers away from each other to remove them.

2 Locate the drive air pressure controls.

Drive Air Pressure Adjustments
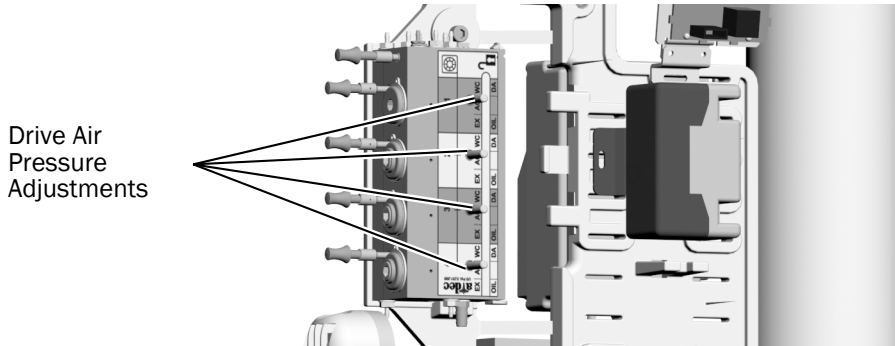
Complete the instructions for the system's configuration.

Adjust the Handpiece Drive Air Pressure On a System With a CP5i/CP5 Touch Control

Task 1.
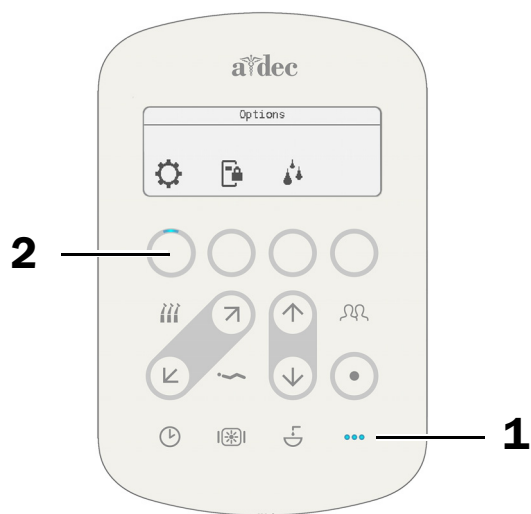
1. On the control pad, press ●●● to access the **Options** menu.
2. Press the soft key under the ✿ icon.
3. Select **Diagnostics**.
4. Scroll down and select **Drive Air Pressure**.

Task 2.

> **NOTE** Drive air pressure may be lower at the handpiece than what is shown on the touch control. Pressure can also be measured with a handpiece pressure gauge.

1. Withdraw a handpiece.

2. Turn off the water coolant and press the foot control or move the lever until the handpiece is running at full speed.
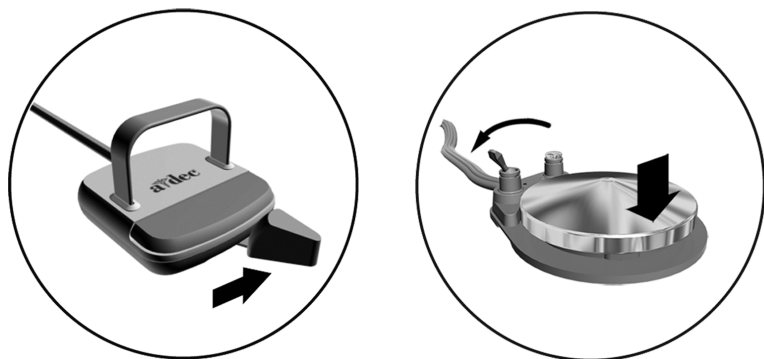
3. Check the control pad to see the pressure reading.

> ⚠ **CAUTION**   Exceeding the manufacturer's recommended drive air pressure increases the risk of damage and may significantly decrease the life of your handpiece components.
> For the proper drive air pressure, see the handpiece manufacturer's Instructions for Use.

4. Adjust the drive air pressure to meet the manufacturer's specifications. Turn the stem clockwise to decrease pressure.

Adjust the Handpiece Drive Air Pressure on a System With No Touch Control or a Standard Touchpad

Recommended Tool

- Handpiece pressure gauge

> ❗ **NOTE**   Use a handpiece pressure gauge attached to the handpiece tubing for exact drive air measurement. One bar equals 14.5 psi.

1. Withdraw a handpiece and install the handpiece pressure gauge.
2. Do one of the following:
   - On a disc foot control: flip the toggle to dry and step on the disc.
   - On a lever foot control: move the lever all the way to dry.

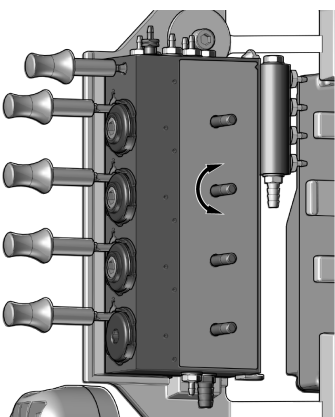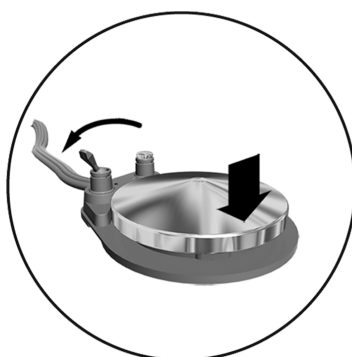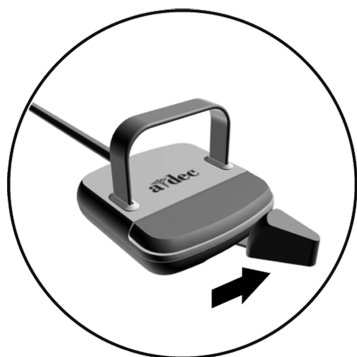**3.** With the handpiece running, check the handpiece pressure gauge.

> ⚠️ **CAUTION** Exceeding the manufacturer's recommended drive air pressure increases the risk of damage and may significantly decrease the life of your handpiece components.
> For the proper drive air pressure, see the handpiece manufacturer's Instructions for Use.

4. Adjust the drive air pressure to meet the manufacturer's specifications. Turn the stem clockwise to decrease pressure.

Adjust the Intraoral Light Source

Recommended Tool

- Voltmeter

> ⚠️ **ATTENTION**   Circuit boards are sensitive to static electricity. Electrostatic Discharge (ESD) precautions are required when touching a circuit board or making connections to or from the circuit board. Circuit boards should be installed only by an electrician or qualified service person.

> ⚠️ **WARNING**   Shock hazard. When you remove or replace the covers, take care not to damage any wiring or tubing. Verify that the covers are secure after you replace them.
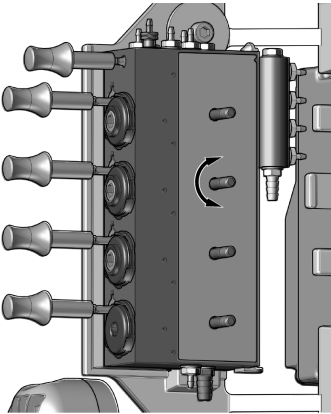
1. Remove the covers. For details, refer to step 1 of "Adjust the Handpiece Drive Air Pressure" on page 38.

2. Set the voltmeter to DC voltage and place its probes on the IOLS output terminals for the handpiece you're adjusting.

Use these buttons to adjust the voltage.

IOLS Output Terminals
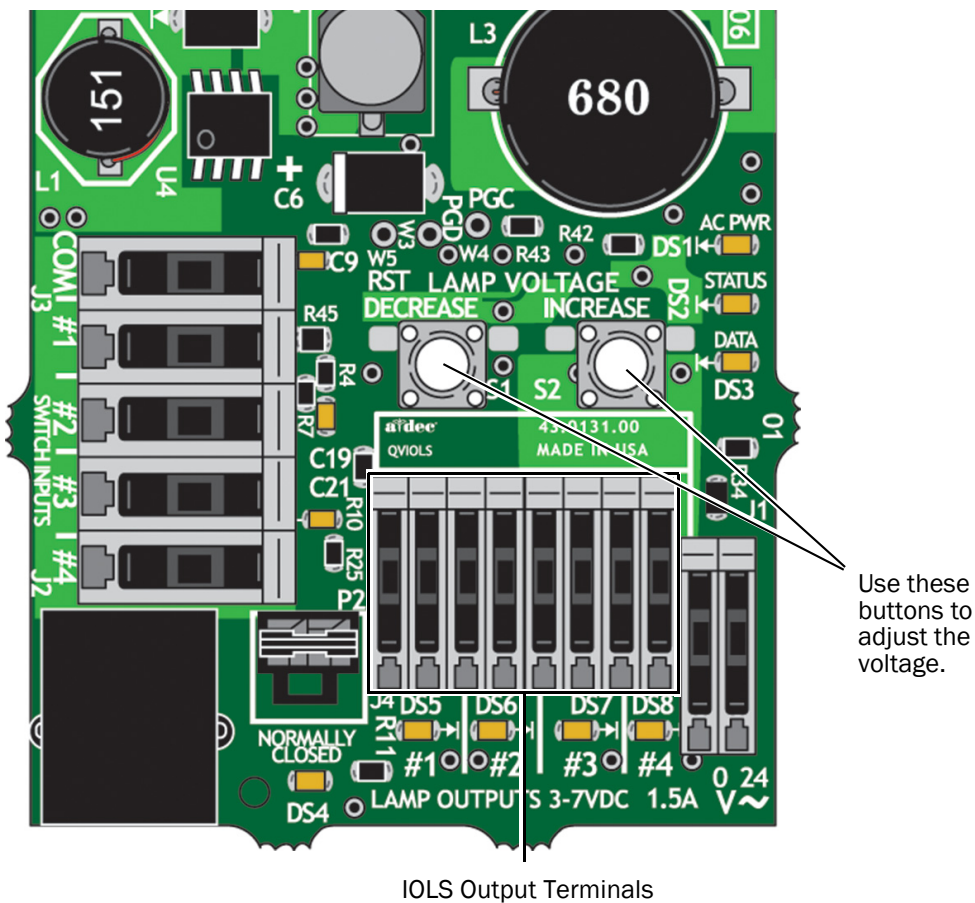
3. Lift the handpiece from its holder and turn the light on.

4. Use the buttons behind the terminal to adjust the voltage according to the table on page 44.

⚠️ **CAUTION** The values in the following table are valid only for fiber optics with 26 AWG wires. For fiber optics powered with 30 AWG wires and other ratings, use the equation T = (Z x 0.006 x Y) + X where:

T = Terminal strip voltage (VDC)

X = Desired voltage at bulb (VDC)

Y = Rated lamp/load current (Amps)

Z = Length of 30 AWG wire (inches) from terminal strip to bulb

For devices with a wire gauge other than 26 AWG, please contact A-dec Customer Service.

Length and Voltage Table for Bulbs Rated at 3.20 VDC				
A-dec Tubing Length		Voltage at terminal strip resulting in recommended 3.20 VDC +/- 0.03 bulb voltage (measure with IOLS on)		
(in)	(cm)	0.200 A	0.380 A	0.750 A
50	127	3.37	3.52	3.84
64	163	3.42	3.61	4.02
85	216	3.49	3.75	4.28

Customize Touch Control Settings

> **NOTE** Touch control symbols and icons are proprietary to A-dec, Inc.

CP5i/CP5 Control Pads

For touchscreen and control pad use, see the *A-dec DS7/CP5i/CP5 Touch Controls Instructions for Use* (p/n 86.0857.00) at a-dec.com/touchscreen-manual.

For configuring connectivity features, see the *A-dec+™ Software Platform Instructions for Use* (p/n 86.1030.00) at a-dec.com/connectivity-manual.

Standard Touchpad

There are no delivery system controls to set up or customize with a standard touchpad.

Test the System

After you have completed the installation, use the following checklist to test the delivery system; then follow up with the customer.

Delivery System

- The handpieces function properly and are set to the doctor's preferences:
    - Water coolant, air coolant, and spray.
    - Handpiece tubing flush.
    - Handpiece holder valves and switches.
    - Handpiece drive air pressure.
- Foot control operates properly.

Utilities

- Regulated air pressure to the delivery system is at 80 psi (552 kPa).
- If the system includes a floor box, it is free of air and water leaks.
- Tubing and connections are not kinked and are free of air and water leaks.
- Excess tubing and wires are coiled and stored away from moving parts.

Attach the Hub Mount Cover and Cabinet Doors

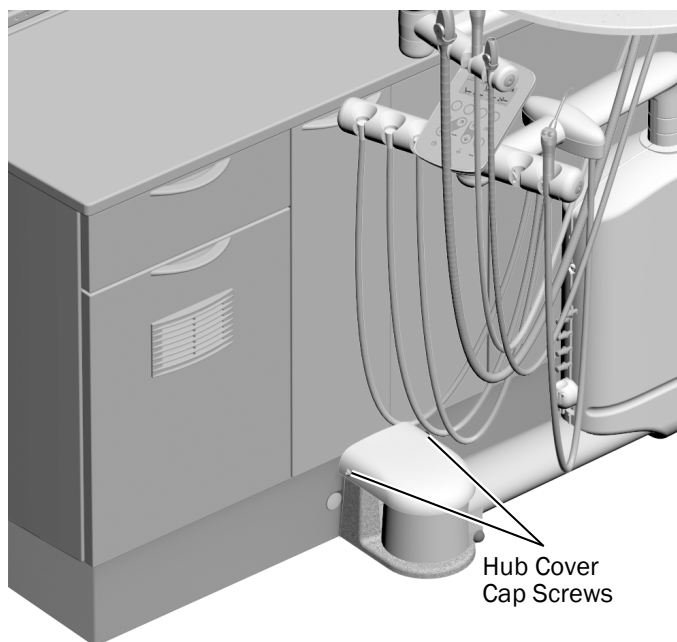## Recommended Tool

- 5/32" hex key

⚠️ **WARNING**   Shock hazard. When you remove or replace the covers, take care not to damage any wiring or tubing. Verify that the covers are secure after you replace them.

1 Remove the cap screws from the sides of the hub.

2 Use the cap screws and a 5/32" hex key to secure the cover on the hub mount.

3 Reinstall the cabinet doors.

Hub Cover
Cap Screws

Regulatory Information and Warranty

For required regulatory information and the A-dec warranty, see the *Regulatory Information, Specifications, and Warranty* document (p/n 86.0221.00) available in the Resource Center at www.a-dec.com.

For quick access to this document online, scan, tap, or click this QR code, which points to a-dec.com/regulatory-guide.

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