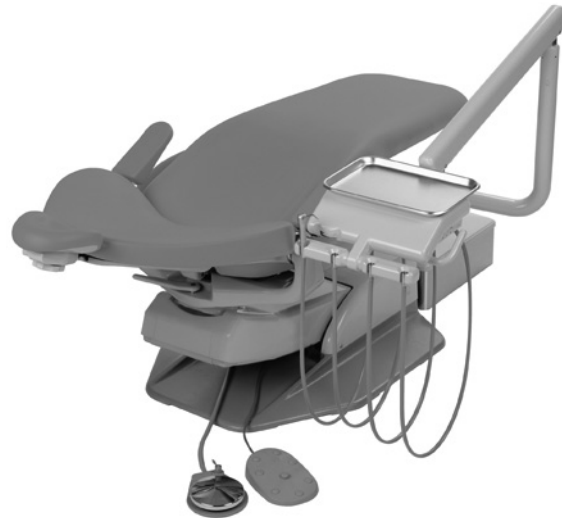




# A-dec Radius® 2122/2132 Delivery Systems INSTALLATION GUIDE

## Recommended Tools

- Magnetic leveling device
- 3/8" and 15/16" combination wrenches
- 15/16" socket and ratchet
- Phillips and large standard screwdrivers
- Hex keys: 7/64", 1/8", 5/32", and 5/16"
- Pliers
- Marker
- Hand drill
- 1/2" diameter masonry bit or 3/8" diameter pilot bit



## Before You Begin

Before starting the installation:

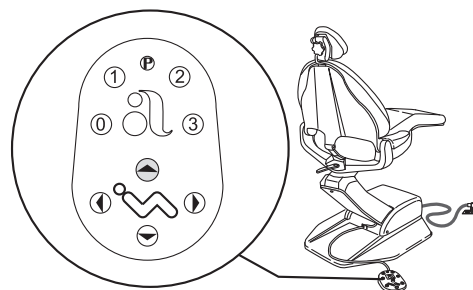
1. Check with local building and code authorities about installation requirements.



**CAUTION** Certain agencies may require the dental chair to be anchored to the floor when the Radius delivery system is installed. See "Anchor the Chair" on page 12.

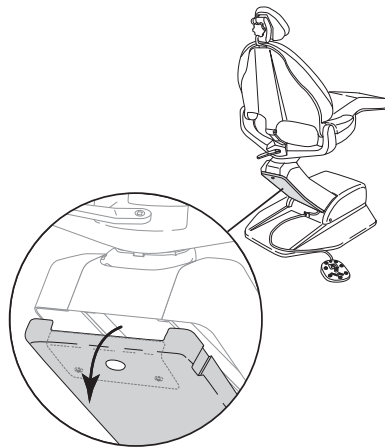
2. Check that the manual air and water shut-off valves are installed.
3. Install the chair following the installation instructions provided with the chair. Do not install the seat frame or upholstery,
4. Raise the chair base to its maximum height (see Figure 1).

**Figure 1. Raise the Chair Base Up**



5. Unplug the chair.
6. Remove the chair stop plate by holding the sides of the stop plate, then firmly pull down and away from the back of the chair (see Figure 2).

Figure 2. Remove the Chair Stop Plate



## Install the Radius Unit

### Install the Rigid Arm

1. Before you unwrap the unit, attach the rigid arm to the flexarm (see Figure 3).
2. Align the rigid arm hub with the flexarm knuckle and firmly press the arms together. It may be necessary to loosen the retaining setscrew in the rigid arm (see Figure 4).
3. Remove the tape securing the two setscrews in the rigid arm (see Figure 4).
4. Secure the flexarm to the rigid arm using the shipping strap located in the control head ship carton. Do not remove the strap until the unit installation is complete.

Figure 3. Attach the Rigid Arm to the Flexarm

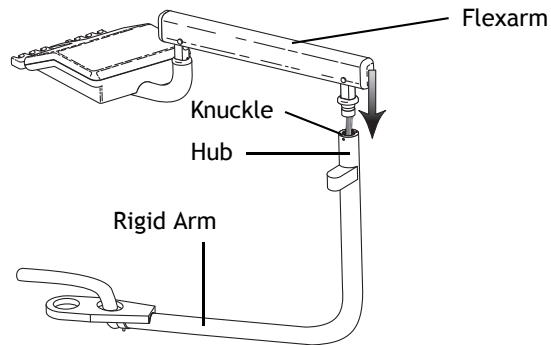
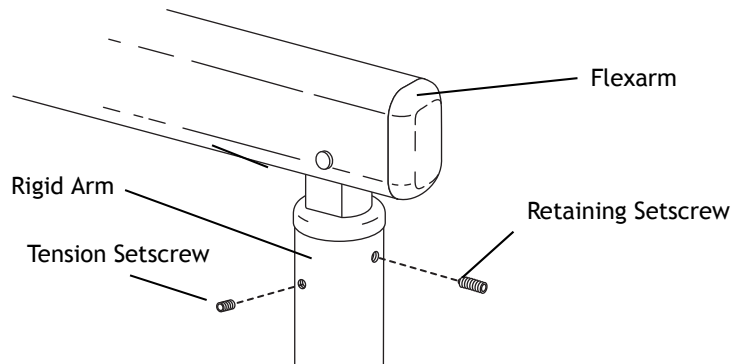


Figure 4. Secure the Arms



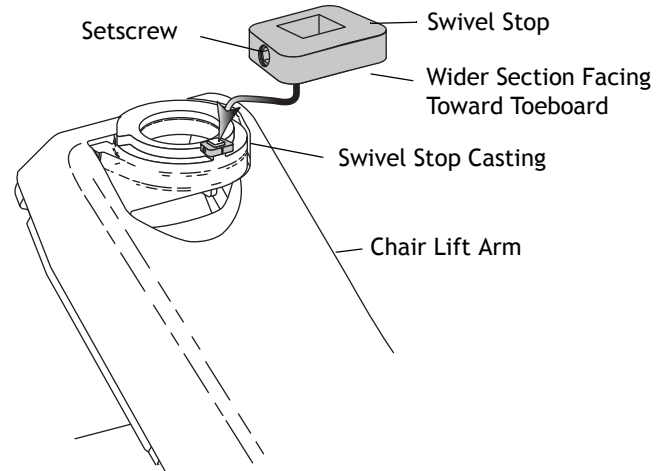
## Install the Swivel Stop



**WARNING** The chair swivel stop must be installed on the chair to meet agency stability requirements.

1. Install the swivel stop on the chair swivel stop casting (see Figure 5). The wider end of the stop points toward the toeboard.
2. Tighten the setscrew to secure the stop in place.

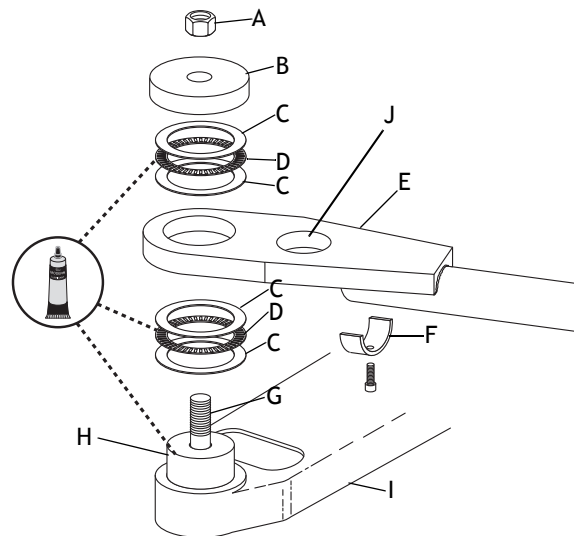
Figure 5. Install the Swivel Stop



## Install the Rigid Arm

1. Apply Lubriplate® to all bearings and the outside surface of the pivot hub.
2. Install the parts in the sequence shown (see Figure 6).
3. Use a 15/16" combination wrench to tighten the lock nut securely. The rigid arm should easily rotate but not drift.
4. Route the umbilical up through the hole (see letter J in Figure 6).
5. Install the bumper on the rigid arm (see letter F in Figure 6).

Figure 6. Install the Rigid Arm



Item	Description
A	5/8"-18 Lock Nut
B	Adapter Pivot
C	Thrust Washers
D	Thrust Bearing
E	Rigid Arm
F	Bumper
G	Pivot Stud
H	Pivot Hub
I	Chair-Mount Adapter (Cascade Radius)
J	Hole for Umbilical

## Install the Rotation Stops



**NOTE** The arm rotation stop pins must be installed to meet agency stability requirements.

Install the rotation stop pins in the rigid arm (see Figure 7) and the control arm (see Figure 8). Install the pins with the large diameter end down.



**NOTE** The two rotation stop pins are optional. If installed in the two holes near each other (see Figure 8), the Continental control head has a wider range of movement for trans-thorax positioning. This option is only available on Continental control heads.

Figure 7. Install the Rotation Stops

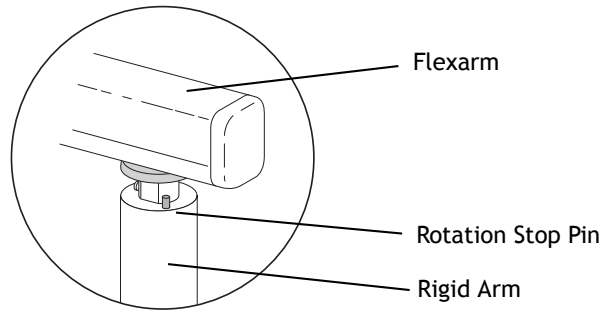
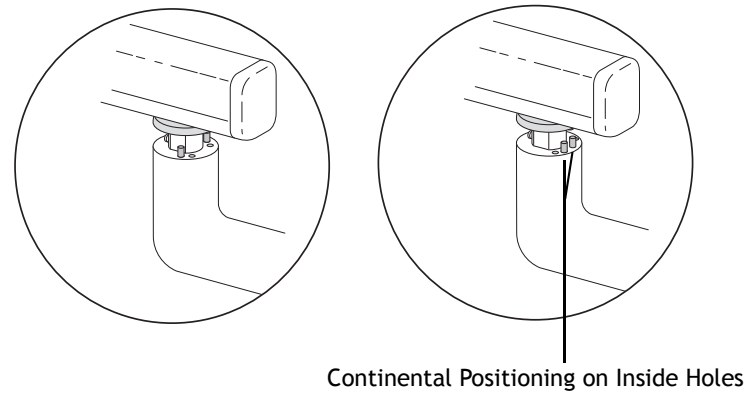


Figure 8. Install the Control Arm Stops



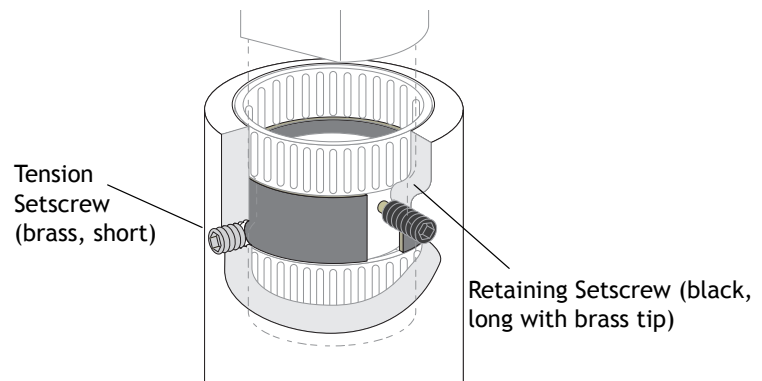
## Adjust the Rigid Arm

To eliminate horizontal drift of the control head, adjust the tension setscrew, using a 3/32" hex key (see Figure 9). Adjusting the tension setscrew causes the cup point to seat itself against the wall of the internal bushing.



**NOTE** The brass colored tip on the end of the retaining setscrew should not touch the knuckle when loosened a quarter turn. The tension setscrew is positioned lower than the retaining setscrew.

Figure 9. Adjust the Radius Setscrew



## Install the Radius Light

If you are also installing a Radius 6300 dental light with the delivery system, install the light post now. Refer to the instructions that came with the dental light. If you are not installing a Radius light, proceed to the next step.

## Connect the Utilities



**NOTE** The umbilical contains tubing and electrical cables for rear-mounted equipment. Refer to the installation instructions that came with the rear-mounted equipment for connections.

1. Remove the Radius junction box cover.
2. Insert the control head umbilical into the junction box and secure it to the junction box with a long cable tie.
3. Connect the tubing from the control head umbilical to the tubing of the same color and dash pattern in the junction box (see Figure 11 and Figure 12 on page 6).
4. Join the 6-pin connectors (black) in the junction box.
5. Connect the touchpad cable to the matching connector inside the junction box.
6. If installing a 6300 dental light, join the 6-pin connectors (red) in the junction box.
7. Reattach the junction box cover.

Figure 10. Connect the Cascade Chair Unit

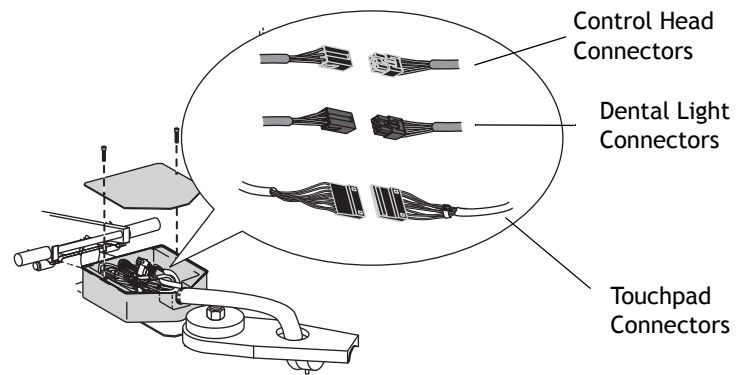
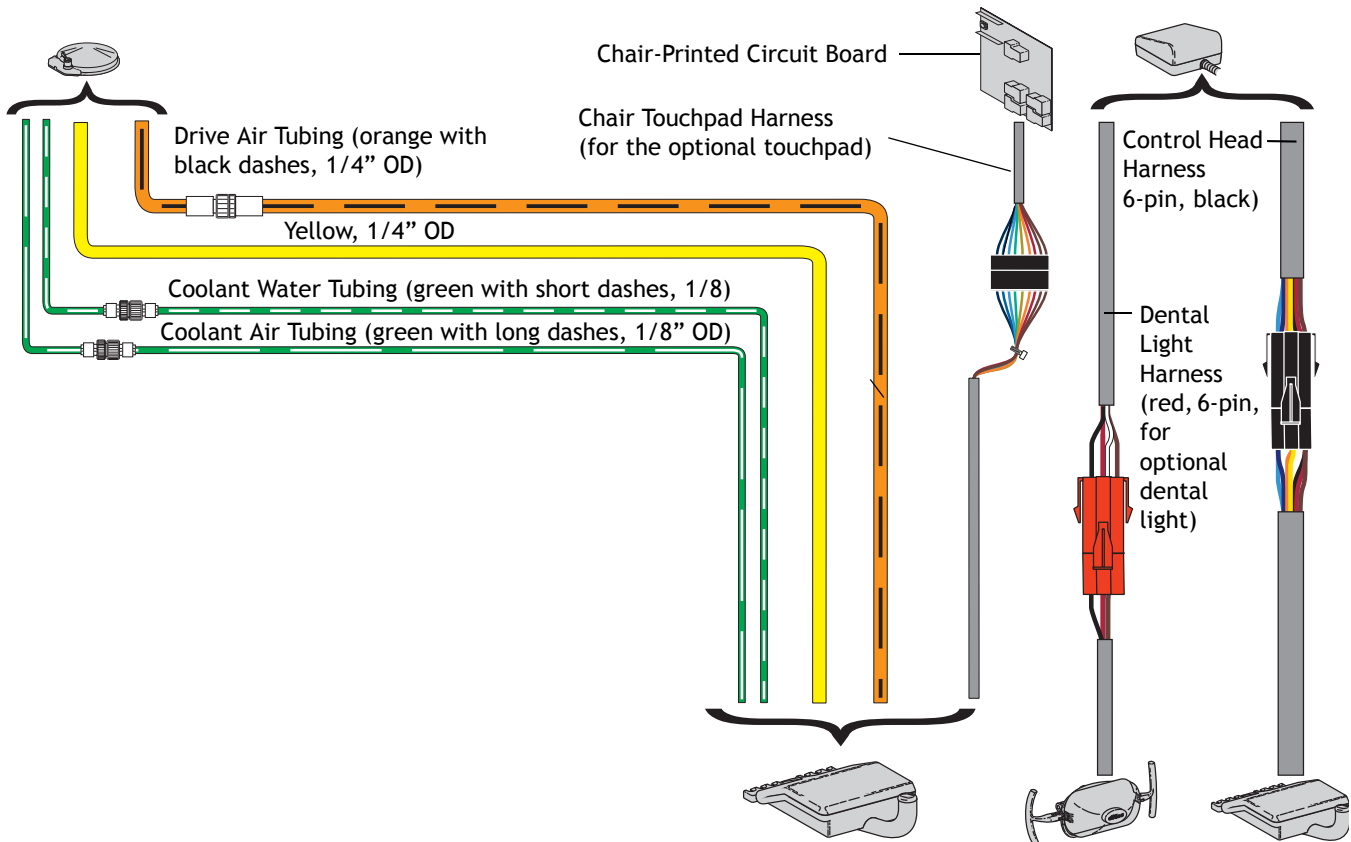


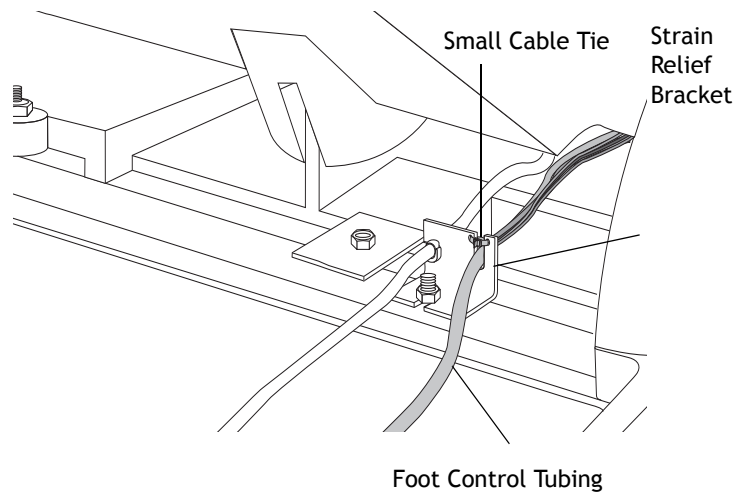
Figure 11. Connect the Tubing



### Connect the Foot Control Tubing

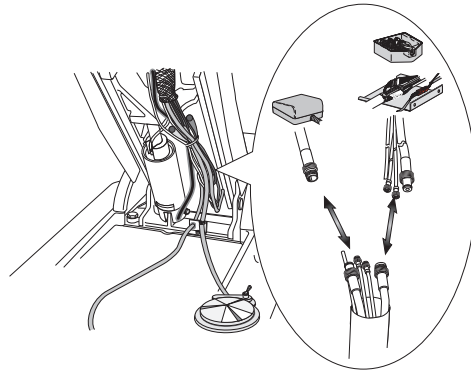
1. Locate the strain relief on the back of the chair base plate, just below the lift arm (see Figure 12).
2. Install the foot control tubing into the slot in the strain relief bracket.

Figure 12. Connect Foot Control Tubing



3. Connect the tubing from the foot control to the tubing of corresponding color and dash pattern from the chair umbilical (see Figure 13).
4. At the umbilical, gently pull the tubing to eliminate excessive slack.
5. Insert a small cable tie through the two holes at the top of the strain relief to secure the foot control.

Figure 13. Foot Control Connection



### Install the Floor Box

1. If the air and water manual shutoff valves have not been installed, install them now. Refer to the *Floor Box Template*, p/n 85.0472.00.
2. Remove the floor box cover (see Figure 14).
3. Adjust the umbilical length appropriately.
  - (1) Determine the length of the umbilical and mark the location.
  - (2) Slit the excess umbilical convolute sheathing lengthwise and remove it (see Figure 15). Do not cut the internal tubing or wiring.
  - (3) Install the umbilical in the floor box, then install the umbilical retaining clip (see Figure 16).
4. Secure the floor box to the floor. Refer to the *Floor Box Template*, p/n. 85.0472.00.

Figure 14. Remove the Floor Box Cover

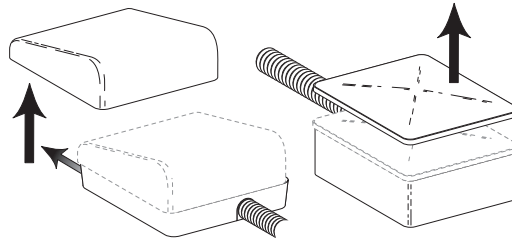


Figure 15. Shorten the Umbilical

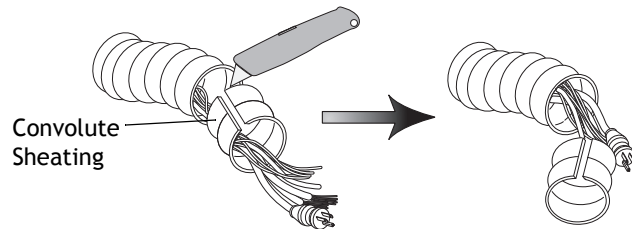
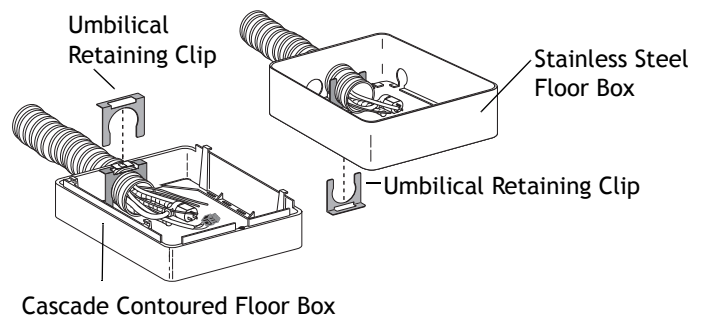


Figure 16. Install Umbilical Clip



## Install the Filter/Regulator Fitting

1. Locate the air filter/regulator assembly and the pipe fitting (see Figure 17). Place a small amount of Blue Loctite® (242 Threadlocker) on the fitting threads and use a 7/16" combination wrench to install the fitting into the air filter/regulator manifold. Tighten the fitting.
2. Connect the yellow line from the foot control to the yellow air regulator line.
3. If the unit is equipped with a cuspidor or high-volume quick disconnect (QD):
  - (1) Locate the water filter/regulator assembly and the pipe fitting (see Figure 17).
  - (2) Remove the pipe plug from the water filter/regulator manifold.
  - (3) Place a small amount of Blue Loctite (242 Threadlocker) on the fitting threads and install the fitting into the manifold.
  - (4) Tighten the fitting.
4. If the unit is not equipped with a cuspidor or high-volume QD, allow the Loctite to cure for 2 hours before turning on the air or water supplies (see Figure 18).

Figure 17. Connect Filter/Regulator

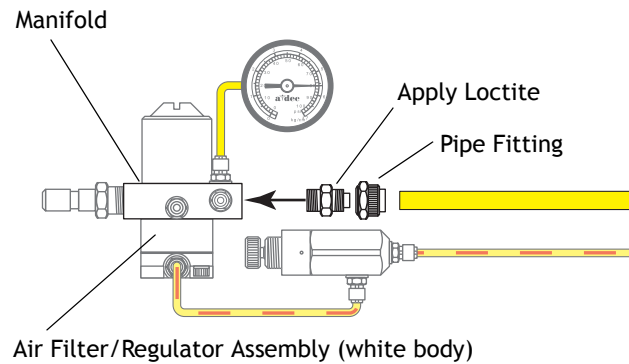
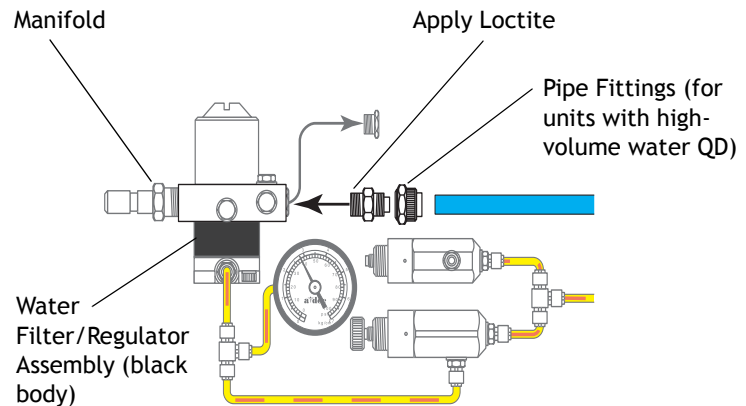


Figure 18. Connect High Volume Water Filter/Regulator

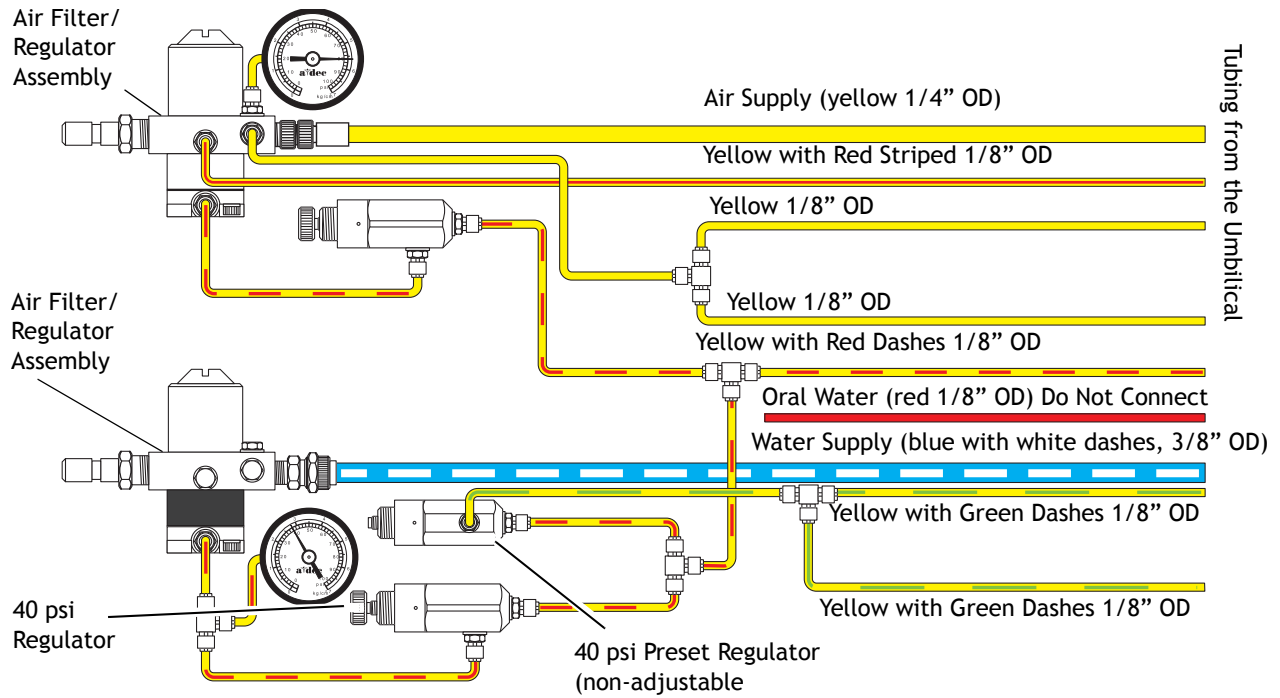


## Connect the Junction Box Utilities

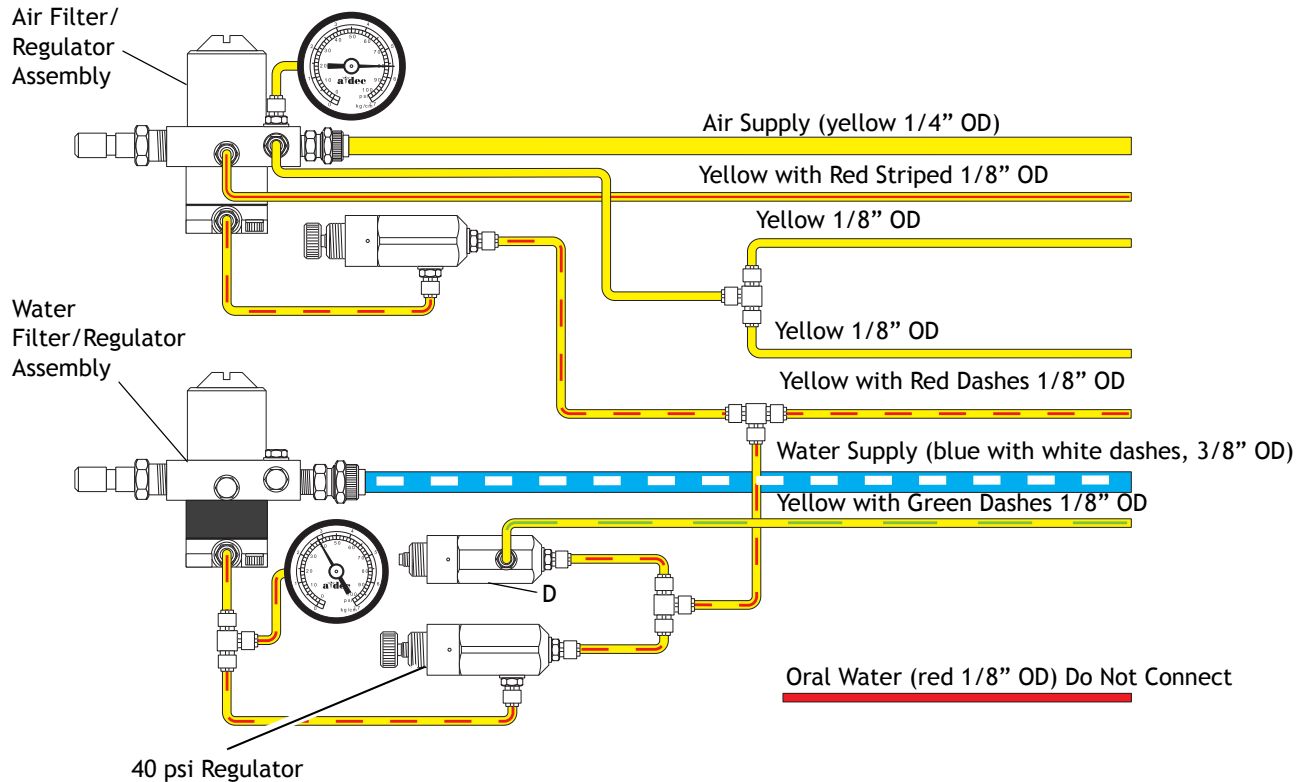
1. Connect the filter/regulator to the umbilical (see Figure 19 and Figure 20 on page 9)
2. Purge the manual shutoff valve(s) of debris.
3. Loosen the hex nut on the air and water shutoff valves.
4. Connect the filter/regulators to the manual shutoff valves (see Figure 18). Do not overtighten the fittings. The filter/regulator should be positioned at an angle to provide easy access to the filter element on the filter/regulator manifold.
5. Check the system air pressure gauges in the utility center. Air pressure should be 80 psi (551 kPa) and water pressure should be 40 psi (276 kPa).



**Figure 19. Radius Cuspidor Utility Plumbing Diagram**



**Figure 20. Radius Assistant's Instrumentation Plumbing Diagram**



## Install Optional Packages

1. If you are installing a Radius Assistant's Instrumentation or Cuspidor, do so now. Refer to the installation instructions supplied with the assistant's instrumentation or cuspidor.
2. If the system includes a power supply, refer to the power supply installation instructions to install.



**CAUTION** As long as the Master On/Off toggle is in the Off position, the power supply is Off. Do not turn the unit On until all the electrical components are installed.

## Replace the Chair Stop Plate and the Covers

### 1040 Cascade Chair

1. Replace the chair stop plate.
2. Secure the junction box cover using the two 6-32 socket-head screws previously removed (see Figure 21).



**CAUTION** Do not pinch or kink the tubing or wiring.

3. Replace the floor box cover (see Figure 23).

### 1021/1221 Decade Chair

1. Replace the chair stop plate.
2. Replace the bracket cover (see Figure 22).
3. Replace the floor box cover (see Figure 23).

Figure 21. Secure the Radius Junction Box Cover - Cascade 1040

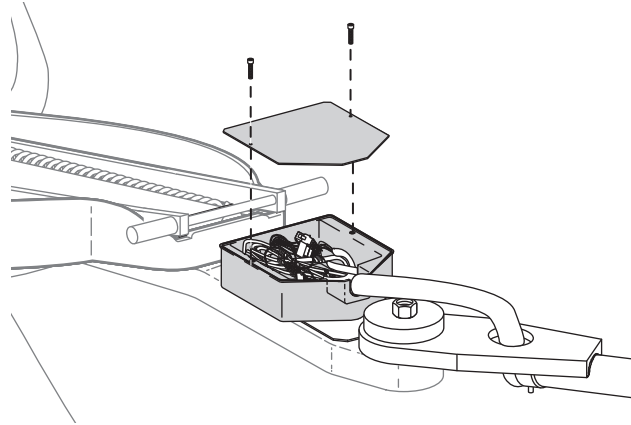


Figure 22. Radius Bracket Cover - Decade

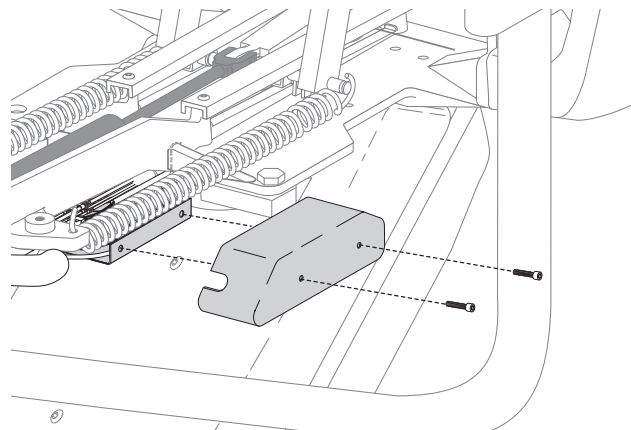
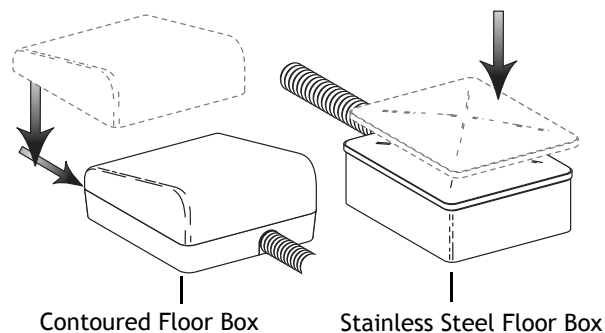


Figure 23. Replace the Floor Box Cover



## Test the Unit

1. Fill a self-contained water bottle with the water specified by the doctor.



**NOTE** The doctor may object to putting office water through the unit. Check with the doctor, as to water usage, before filling the water bottle.

2. Align the full bottle with the self-contained water cap on the unit-mount post. Ensure the clear tubing from the cap extends straight down into the water bottle. Screw the bottle onto the cap.
3. Fully open both the air and water manual shutoff valves. Check plumbing connections for leakage.
4. Move the master On/Off toggle to the On position (see Figure 24).
5. Operate the syringe while checking all plumbing connections for leakage (see Figure 25).
6. Plug in the power supply, if applicable.
7. Test all instrumentation. Refer to the appropriate equipment Owner's Guide for testing and adjustment procedures.

## Install the Tray Holder

1. For a Traditional control head, remove the two setscrews from the top of the control head arm. For Continental control head, skip to step 2 (see Figure 26).
2. Install the tray arm and holder. Refer to:
  - Figure Figure 27 for a Traditional control head.
  - Figure Figure 28 for a Continental control head.
3. Place the tray pad and tray on the tray holder.

Figure 24. Ensure the Unit is Off

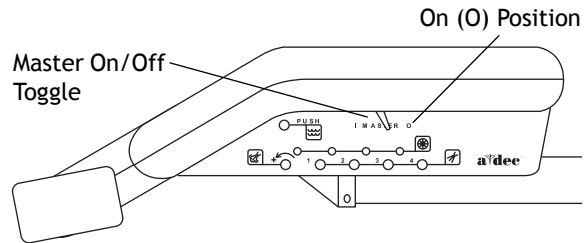


Figure 25. Operate the Syringe

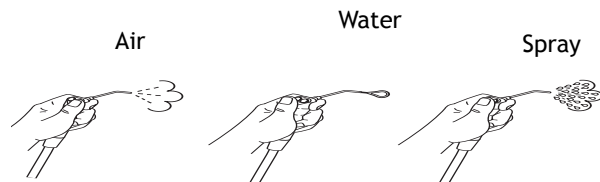


Figure 26. Remove the Setscrews

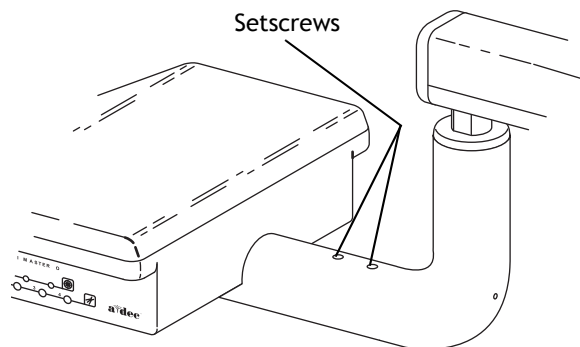


Figure 27. Traditional Tray Holder

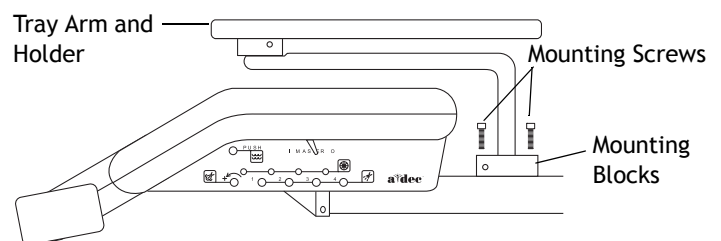
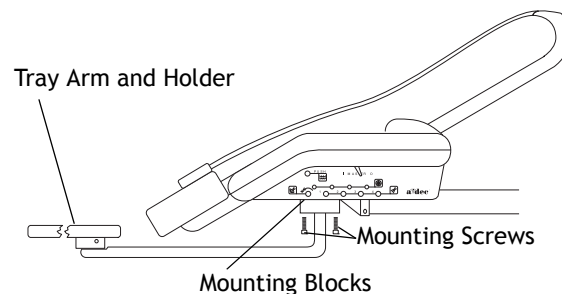


Figure 28. Continental Tray Holder



4. Adjust the tray arm tension.

- (1) Insert the 9/64" hex key supplied with the tray holder through the hole in the mounting block (see Figure 27 on page 11 and Figure 28 on page 11).
- (2) Turn the tray holder and tray arm right to increase the tension or left to loosen the tension.

## Level the Control Head

1. Place a leveling device on the top of the control head and check for level.
2. To level the control head, loosen the locking screws on the underside of the control head (see Figure 29), then level the control head using the two leveling screws. After leveling, retighten the locking screws.

## Anchor the Chair

### Position the Chair on the Floor

1. Place the chair in the desired location.
2. Turn on the power and raise the chair.
3. Turn off the power.



**ELECTRICAL WARNING** Failure to turn off the power before you begin this procedure can lead to electrical shock.



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

4. Remove the chair stop plate.
5. Position the anchor bracket between the foot control tubing bracket and the lift cylinder (see Figure 30).
6. Mark the hole location.
7. Reposition the chair so you have access for drilling.

Figure 29. New Control Leveling Cascade

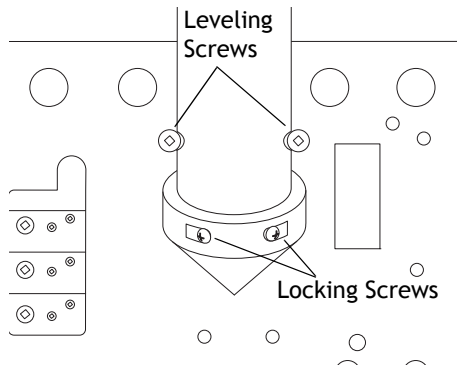
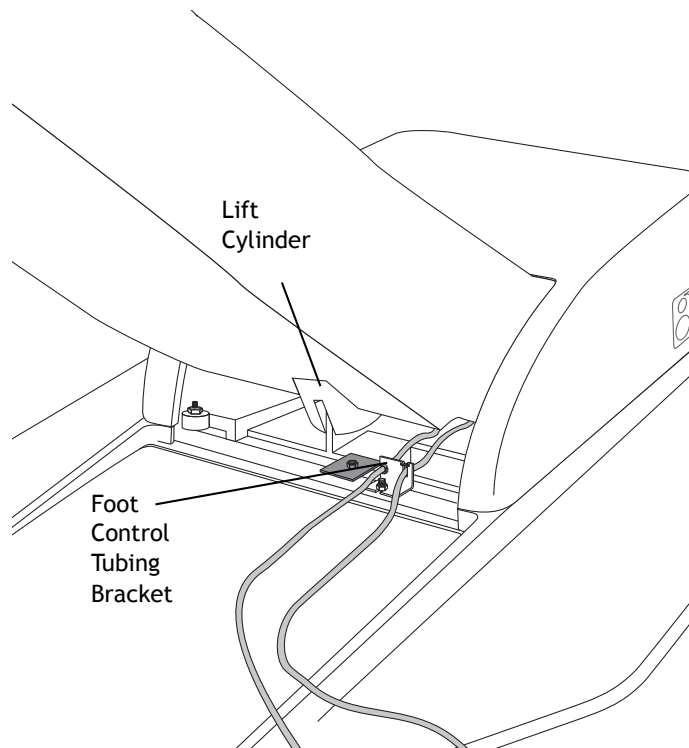


Figure 30. Position the Anchor Bracket



## Anchor to a Concrete Floor

1. Using a hand drill and a 1/2" (12.7 mm) diameter masonry bit, drill a 4" (101 mm) deep hole for the floor anchor (see Figure 31).
2. Use a hammer to drive the anchor into the hole until the washer is flush with the floor, tighten the bolt so the collar spreads, and then remove the anchor bolt and washer.
3. Reposition the chair.



**NOTE** Make sure the tubing and wires are positioned properly to ensure they are not cut or pinched.

4. Place the anchor bracket on the chair's base and align with the expandable concrete anchor.
5. Insert the anchor bolt and washer through the anchor bracket and into the expandable concrete anchor. Tighten the bolt until it is snug against the anchor bracket (see Figure 31).

## Anchor to a Wood Floor

1. Using a hand drill and a 3/8" (9.5 mm) pilot bit, drill a 2" (51 mm) deep hole for the floor lag screw (see Figure 32).
2. Reposition the chair.



**NOTE** Make sure the tubing and wires are positioned properly to ensure they are not cut or pinched.

3. Place the anchor bracket on the chair's base and align the anchor with the hole.
4. Insert the floor lag screw from the kit through the anchor bracket and into the hole. Tighten the lag screw until it is snug against the anchor bracket.
5. Position the chair in the desired location and anchor it to the floor using the bracket.

Figure 31. Anchor to Concrete

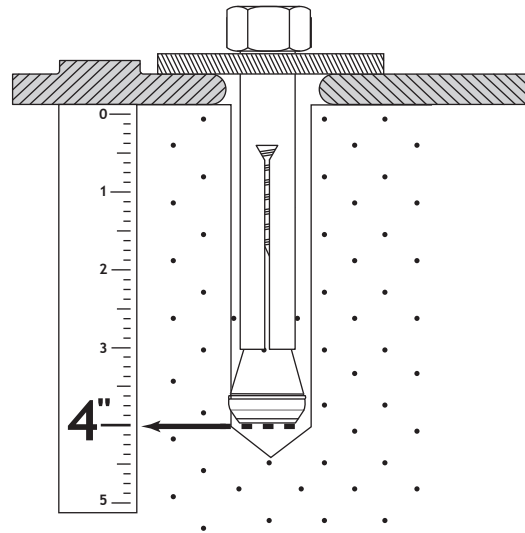
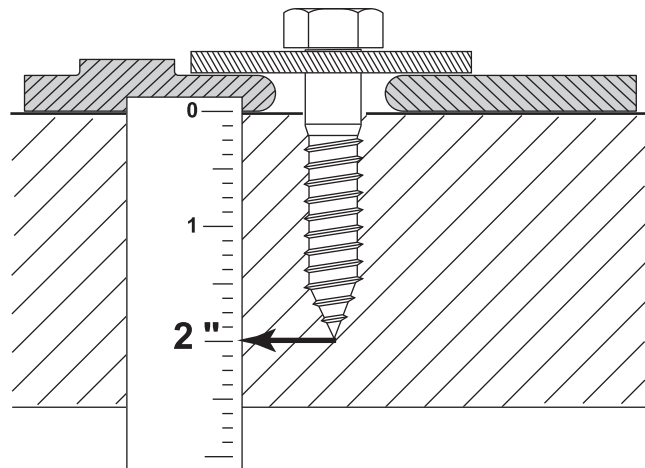


Figure 32. Anchor to Wood







## Regulatory Information

Regulatory information is provided with A-dec equipment as mandated by agency requirements. This information is delivered in the equipment's *Instructions for Use* or the separate *Regulatory Information and Specifications* document. If you need this information, please go to the Document Library at [www.a-dec.com](http://www.a-dec.com).



### A-dec® Headquarters

2601 Crestview Drive  
Newberg, OR 97132 USA  
Tel: 1.800.547.1883 Within USA/Canada  
Tel: 1.503.538.7478 Outside USA/Canada  
Fax: 1.503.538.0276  
[www.a-dec.com](http://www.a-dec.com) / [www.a-dec.biz](http://www.a-dec.biz)

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