

# Instructions for Use

## **A-dec 4631 Duo Delivery System and A-dec 4635 Assistant's**

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## Regulatory Information

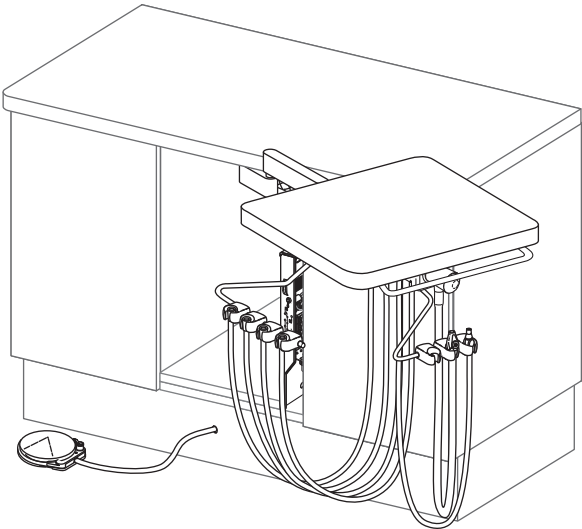
Regulatory information mandated by agency requirements is provided in the *Regulatory Information, Specifications, and Warranty* document (p/n 86.0221.00), which is available in the Document Library at [www.a-dec.com](http://www.a-dec.com).

## Product Service

Product service is available through your local authorized A-dec dealer. For service information, or to locate an authorized dealer, contact A-dec at 1.800.547.1883 in the USA and Canada or 1.503.538.7478 worldwide, or visit [www.a-dec.com](http://www.a-dec.com).

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A-dec 4631 Duo Delivery System

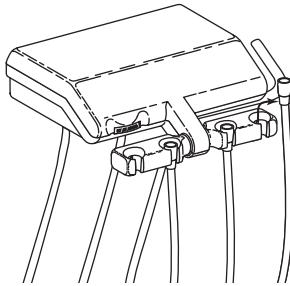
## Handpiece Delivery System

Your delivery system is built around A-dec's Century Plus® control system.

### Handpiece Actuation

Handpiece activation is automatic. When you lift a handpiece from its holder, the handpiece becomes active and will run when you press on the foot control disc or move the lever on the lever foot control (refer to page 2).

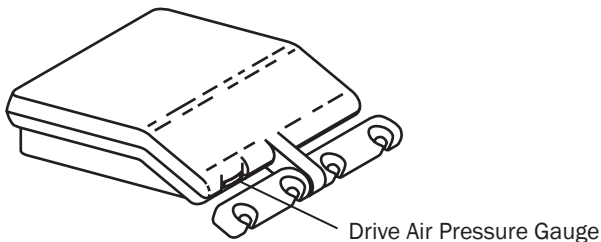
**Figure 1. Handpiece Actuation**



### Drive Air Pressure Gauge

The drive air pressure gauge indicates, in psi and kg/cm<sup>2</sup>, the drive air pressure to the active handpiece.

**Figure 2. Drive Air Pressure Gauge**

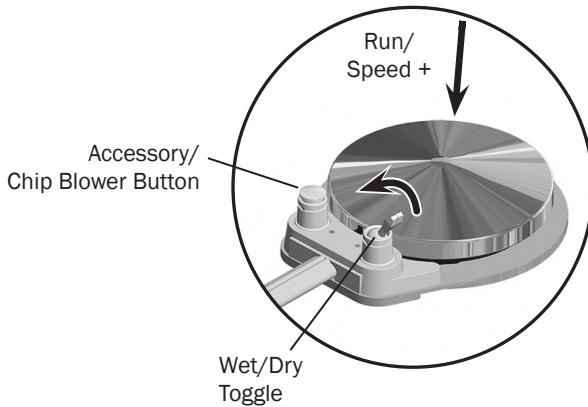


## Foot Control

The foot control modulates drive air to the active handpiece and provides an air signal that activates the coolant air and coolant water flow.

To activate a handpiece, lift it from the holder. Use the foot control to perform the desired handpiece operation.

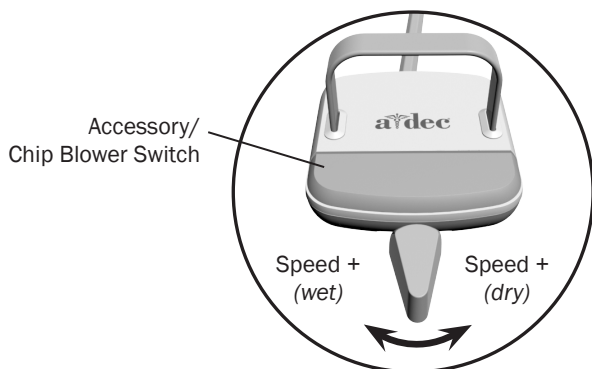
**Figure 3. Disc Foot Control**



Operation	Procedure
Run a handpiece.	Press on the disc. Push down to increase speed.
Run a handpiece with or without water coolant.	Move the wet/dry toggle toward the blue dot for wet operation or away from the blue dot for dry operation. Then press on the disc.
Run the optional accessory or chip blower.	Press the accessory/chip blower button.*
Operate the intraoral camera.	Press on the disc to capture an image.*

\* Contact your authorized A-dec dealer for questions about the operation or configuration of your integrated A-dec accessories.

**Figure 4. Lever Foot Control**



Operation	Procedure
Run a handpiece with water coolant.	Move the lever to the left. Move farther to increase speed.
Run a handpiece without water coolant.	Move the lever to the right. Move farther to increase speed.
Run the optional accessory or chip blower.	Press the accessory/chip blower switch.*
Operate the intraoral camera.	Move the lever to the left or right to capture an image.*

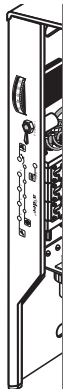
\* Contact your authorized A-dec dealer for questions about the operation or configuration of your integrated A-dec accessories.



**NOTE** The lever foot control function can be reversed by a technician (change left direction to dry, right direction to wet). For more details, contact your authorized A-dec dealer.

## Handpiece Controls

**Figure 5. Handpiece Controls**



**I MASTER** **O** Master On/Off Toggle



Drive Air Pressure Control  
(see page 5)



Coolant Air Flow Control  
(see page 7)



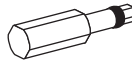
Coolant Water Flow Control  
(see page 6)



Handpiece Flush Control  
(see page 8)

Adjustment keys are provided for making adjustments to the recessed controls. You can order additional or replacement keys from your authorized A-dec dealer, or use a 1/8" hex key.

**Figure 6. Autoclavable Adjustment Key**



## Master Toggle

**I MASTER** **O** The master toggle turns air, water, and electricity on or off to the system.



**CAUTION** The master toggle should be in the off (0) position whenever the unit is not in use. This will prevent the possibility of water damage should a leak occur while the unit is unattended.

Making sure the unit is off will also prevent the possibility of self-activation and the resulting burn-out of your electrical accessories.



## Drive Air Pressure Controls



The drive air pressure controls are used to adjust the drive air pressure to each handpiece. See Figure 5 on page 4.

You will need a 3/32" hex key to complete this adjustment.

1. Install a bur in the handpiece.
2. Locate the drive air gauge on the front of the control head. See Figure 2 on page 1.
3. Turn the drive air control clockwise until the valve seats.
4. Lift the handpiece from the holder and do one of the following:
  - On a disc foot control: flip the wet/dry toggle to dry, and press the disc all the way down.
  - On a lever foot control: move the lever all the way to the right.
5. While running the handpiece, watch the drive air gauge and adjust the handpiece dynamic drive air pressure to meet the manufacturer's specifications. Counterclockwise increases the pressure.



**CAUTION** See your handpiece documentation for the drive air pressure specification. Exceeding manufacturer's recommendations increases the risk of damage and may significantly decrease the life of your handpiece components.



**NOTE** Do not turn the control counterclockwise beyond the point where the drive air pressure no longer increases. The control adjustment screw may come completely out of the unit.

## Coolant Water Flow Controls



The coolant water flow controls are used to adjust the flow of coolant water to each handpiece.

You will need an adjustment key or a 1/8" hex key to complete this adjustment. See Figure 6 on page 4.

1. Install a bur in the handpiece.
2. Locate the coolant water flow controls.
3. Insert an adjustment key, or a 1/8" hex key, into the coolant water flow control for the handpiece being adjusted.
4. Hold the handpiece over a receptacle. Be sure to hold the handpiece so that the water will be directed away from you and into the receptacle.
5. Do one of the following:
  - On a disc foot control: flip the wet/dry toggle to water, and press the disc all the way down.
  - On a lever foot control: move the lever all the way to the left.
6. Adjust the coolant water flow to fit your needs. Clockwise decreases the flow.
7. Adjust the coolant water for each handpiece.

## Coolant Air Flow Control



The coolant air flow control is used to adjust the coolant air flow to all handpieces.

You will need an adjustment key or a 1/8" hex key to complete this adjustment. See Figure 6 on page 4.

1. Install a bur in the handpiece.
2. Locate the coolant air control.
3. Insert an adjustment key, or a 1/8" hex key, into the coolant air flow control.
4. Lift the handpiece from the holder and do one of the following:
  - On a disc foot control: flip the wet/dry toggle to dry, and press the disc all the way down.
  - On a lever foot control: move the lever all the way to the right.
5. Adjust the coolant air flow to fit your needs. A strong flow of air is recommended. Counterclockwise increases the flow.

The coolant air has been set for all handpieces.

## Handpiece Tubing Flush

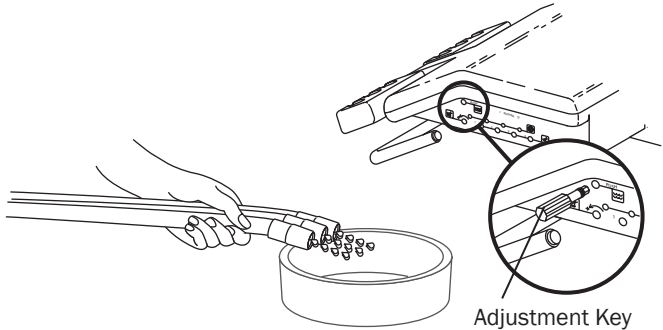


Use the flush control to move a high volume of water through the handpiece tubing.

### Flushing the Handpiece Tubing

1. Disconnect the handpieces.
2. Hold all of the handpiece tubing that uses water coolant over a sink, cuspidor bowl, or basin.

**Figure 7. Handpiece Tubing Flush**



3. Insert an adjustment key or 1/8" hex key into the handpiece tubing flush control on the side of the control head. Push in and hold the key for 20-30 seconds.



**NOTE** Discharge all tubing air and water lines for 20–30 seconds after each patient.

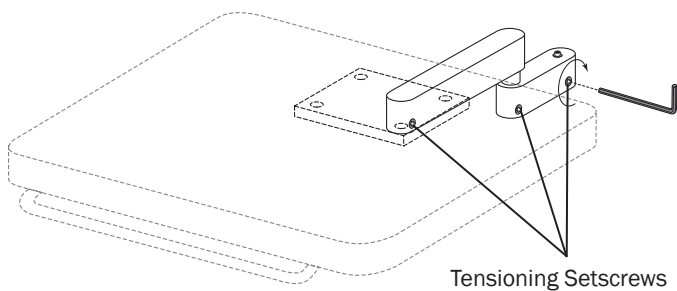
4. Remove the key and replace the tubing in their holders. Be careful to replace each in the proper holder.

## Adjustments

### Mounting Arm Tension Adjustment

Use a 1/8" hex key to tighten or loosen the three setscrews in the mounting arm.

**Figure 8. Mounting Arm Tension Adjustment**

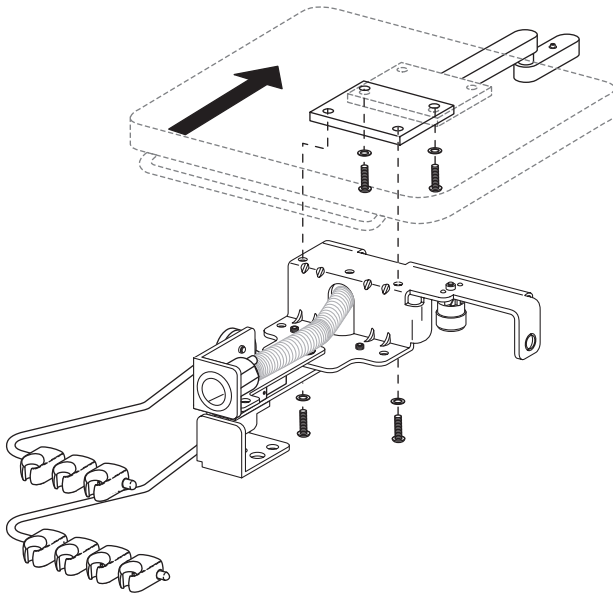


## Work Surface Repositioning

The work surface can be repositioned to maximize space in the operatory.

1. Using a 1/8" hex key, remove the delivery system assembly by removing the two front screws and washers.
2. Remove the work surface from the mounting arm by removing the two back screws and washers.
3. Reposition the work surface to align with the appropriate mounting holes.
4. Install the work surface to the mounting arm using the two back screws and washers.
5. Install the delivery system assembly using the two front screws and washers.

**Figure 9. Work Surface Repositioning**

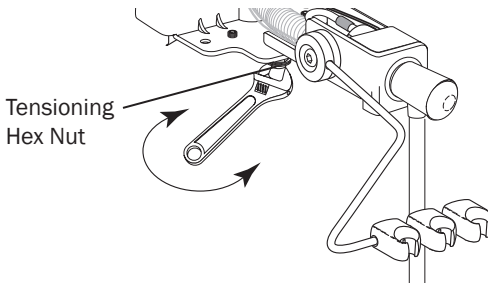


## Doctor's/Assistant's Arm Tension Adjustment

The doctor's or assistant's instrumentation arms can be adjusted to the desired resistance.

Use a wrench to tighten or loosen the tensioning hex nut on the underside of the doctor's or assistant's instrumentation housing.

**Figure 10. Arm Tension Adjustment**

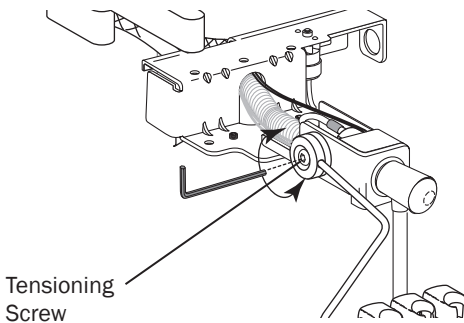


## Holder Bar Adjustment

The doctor's or assistant's instrumentation holder bar can be adjusted to the desired resistance.

Use a 5/32" hex key to tighten or loosen the tensioning screw on the side of the doctor's or assistant's instrumentation holder bar.

**Figure 11. Holder Bar Adjustment**



## Handpiece Holder Tension Adjustment

The holder tension was set at the factory. However, if a holder is difficult to reposition or repositions too easily, the holder tension can be adjusted.

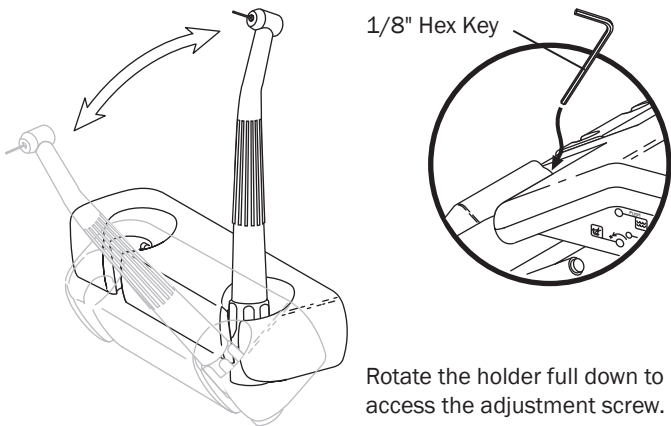
To adjust the holder tension:

- Loosen or tighten the tension adjustment screw.

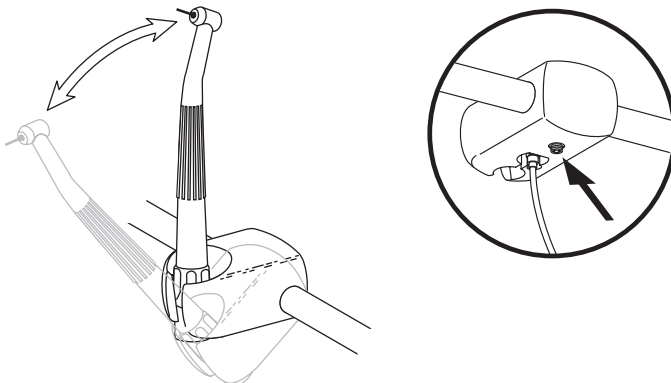
To reposition a holder:

- Rotate the holder to the desired angle.

**Figure 12. Unitized Handpiece Holder**



**Figure 13. Individual Handpiece Holder**

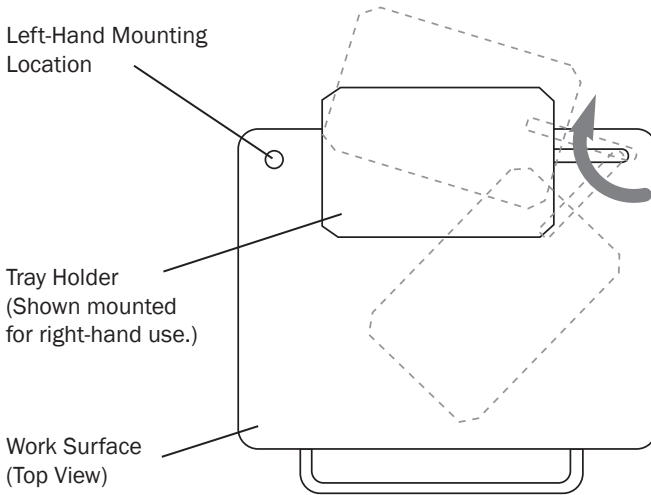




## Tray Holder Left/Right Conversion

The optional tray holder can be mounted on either side of the unit's work surface.

**Figure 14. Tray Holder Right/Left Conversion**



1. Remove the plug from the work surface corner opposite the current tray holder location.
2. Remove the tray holder from the unit's work surface and set it aside.
3. Remove the brass tray holder bushing from the work surface by removing the 3/4" hex nut (located on the underside of the unit's work surface) that secures the bushing to the work surface.
4. Lift the brass bushing from its seat and move it to the opposite side of the unit work surface.
5. Install the 3/4" hex nut to the new position and tighten the hex nut.
6. Install the tray holder into the brass bushing.
7. Place the plug into the open tray holder hole.

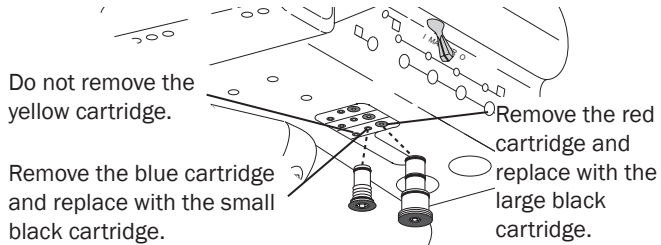
## Handpiece Dry Block Conversion

Your handpiece delivery system has one to four handpiece control blocks with coolant water to the handpiece. If a control block does not have coolant water, a dry block is required, and a conversion kit is included with your system.

### Install the Dry Block Conversion Kit

1. Move the master toggle to the off position. Bleed the system water by operating the syringe and flushing the handpiece tubing.
2. Locate the handpiece control block position that will be the dry block. Access the control blocks underneath the control head.
3. Use a 3/32" hex key to remove the large red cartridge from the control block. Install the large black cartridge from the dry block conversion kit into the control block.

### Figure 15. Handpiece Dry Block Conversion



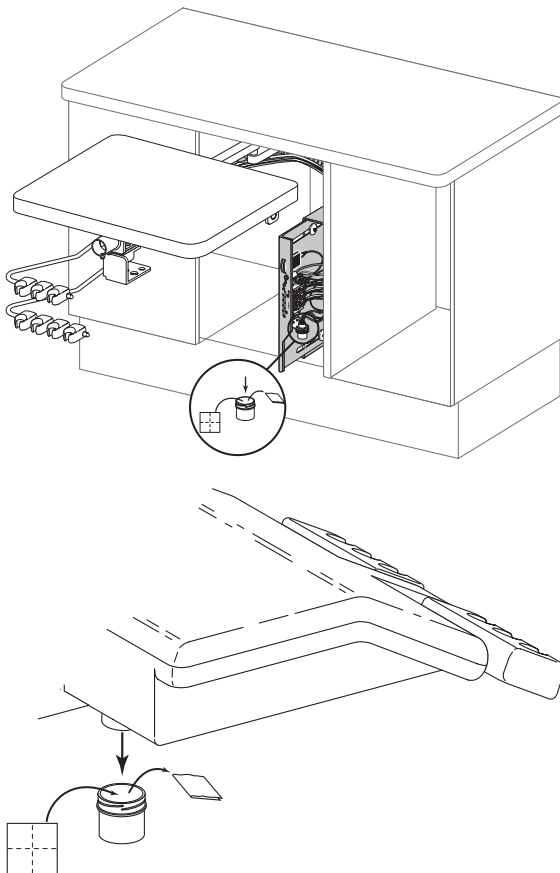
4. Use a 3/32" hex key to remove the small blue cartridge from the same control block. Install the small black cartridge from the dry block conversion kit into the control block.
5. Turn your handpiece control system on, and then check the function of the dry block handpiece conversion. A small amount of residual water may be discharged from the handpiece tubing but should dry after a few seconds.

## Oil Collector

The oil collector gauze on your unit needs to be changed once a week for normal usage. Change it more often for heavier use.

1. Remove the oil collector jar from the unit and discard the old gauze.
2. Fold a new two-inch square gauze pad into quarters and place it against the spring inside the jar.
3. Screw the oil collector jar onto the unit. Do not overtighten.

**Figure 16. Oil Collector**

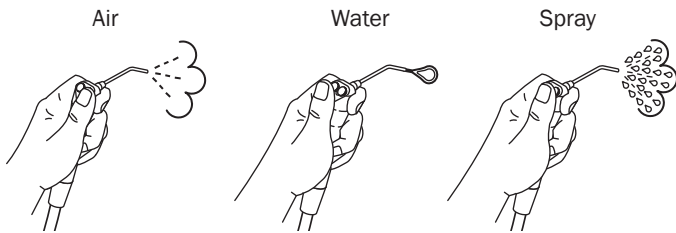


## Syringe

To operate the syringe:

- Move the master on/off toggle to the on position.
- Air – Press the right button down.
- Water – Press the left button down.
- Spray – Press both buttons down.

**Figure 17. Autoclavable Syringe**



Refer to the *A-dec Syringes Instructions for Use* (p/n 85.0680.00) for complete syringe operation and maintenance instructions.

## Care Instructions

For recommended asepsis instructions, see the *A-dec Equipment Asepsis Guide* (p/n 85.0696.00).

For recommended self-contained water system care, see the *A-dec Self-Contained Water System Instructions for Use* (p/n 86.0609.00).

## Assistant's Instrumentation

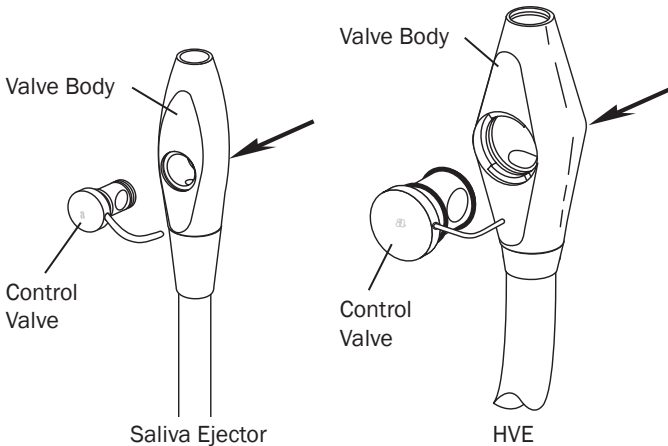
To operate the HVE and saliva ejector, turn the control valve.

The HVE and saliva ejector can be easily converted for right- or left-hand operation. To convert, press the control valve out of the valve body. Rotate the control valve 180°, and then press it back into the valve body.



**NOTE** Be sure to reinstall the valve on the same side of the valve body. Otherwise, the HVE or saliva ejector will not operate properly.

**Figure 18. Right- to Left-Hand Conversion**

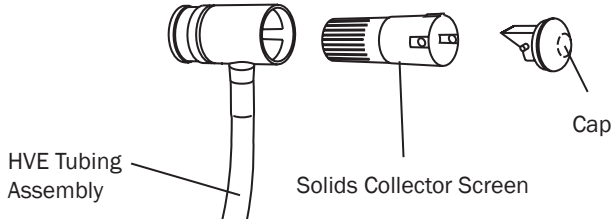


Refer to the *A-dec Assistant's Instrumentation Instructions for Use* (p/n 85.2610.00) for complete instructions on cleaning your HVE and saliva ejector.

## Solids Collector

The solids collector prevents solids from entering the central vacuum system.

**Figure 19. Solids Collector**

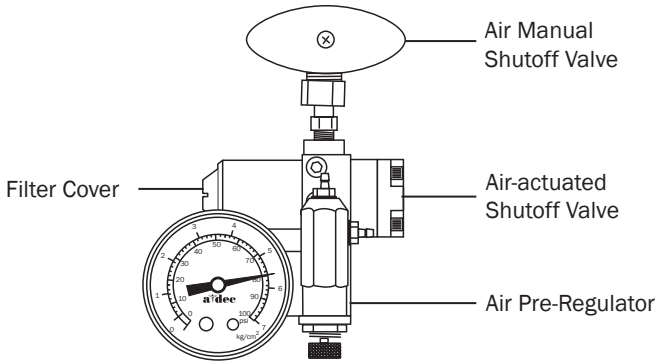


See the *A-dec Assistant's Instrumentation Instructions for Use* (p/n 85.2610.00) for complete solids collector maintenance instructions.

## Utility Area Controls and Functions

To access the utility area, lift out the angled lower cover located under the control head.

**Figure 20. Air Controls**



### Air Manual Shutoff Valve

The air manual shutoff valve controls the air supply to the unit. To prevent leaks, these valves should remain fully open (turned counterclockwise) except while your unit is being serviced.

### Air-actuated Shutoff Valve

The air-actuated shutoff valve automatically shuts off air to the system when the master on/off toggle is in the off position.

## Air Filter

The air filter prevents solids from entering the unit. The procedures for checking and replacing the filters are on page 23.

## Air Pressure Pre-Regulator

The air pressure pre-regulator controls the air pressure in the unit. The procedure for adjusting system pressure is on page 21.

## Vacuum Outlet

The office central vacuum system outlet is located in the utility center. A flexible tube connects your vacuum instruments to the outlet.

For information about your assistant's vacuum instruments, refer to the *A-dec Assistant's Instrumentation Instructions for Use* (p/n 85.2610.00)

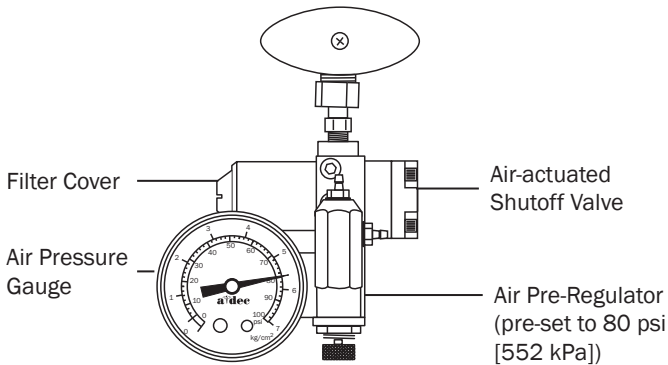


## System Air Pressure Adjustments

The air pre-regulator is located in the utility area inside the cabinet base. Before making any adjustments, verify that the air compressor is turned on and that it maintains 80–100 psi (552–690 kPa) pressure in the tank. If it doesn't, refer to the compressor instructions.

1. Be sure that the manual shutoff valve is fully open (counterclockwise). Turn the system on, and check the pressure gauge in the utility area (see Figure 21). Air pressure should be 70–80 psi (483–552 kPa).
2. While watching the gauge, operate the syringe. If the system air pressure drops by any more than 15 psi (103 kPa), check for clogged filters.
3. If adjustment of the air pressure is required, turn the pre-regulator knob clockwise to increase pressure, or counterclockwise to decrease.

**Figure 21. Air Manual Shutoff Valve**





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**NOTE** When decreasing system air pressure, you will not see the air gauge in the utility center change until you relieve pressure from the system. Activate the syringe for a few seconds, and then check the gauge. Repeat this process each time you make an adjustment to decrease pressure.

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4. Test the unit by operating the syringe and handpieces for several seconds. Make sure the air pressure is maintained.

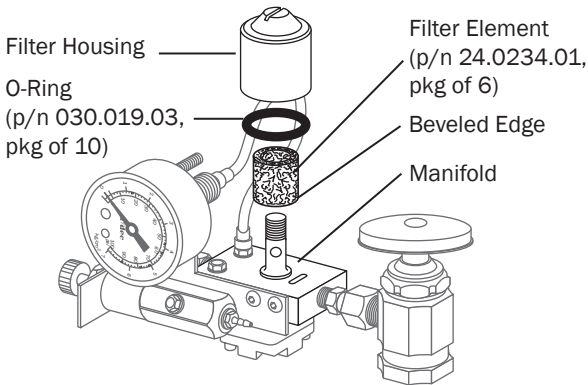
## Filter Maintenance

Air passes through a filter before entering the regulator. A clogged filter can restrict flow to the regulator and should be replaced immediately.

### Checking for a Clogged Air Filter

To check for a clogged air filter, move the master on/off toggle to the on position, and then remove the utility area cover under the control head. While watching the air pressure gauge in the utility area (see Figure 22), press the syringe air button. If the air pressure indicated by the gauge drops by more than 15 psi (103 kPa), the filter element is clogged and must be replaced.

**Figure 22. Air Filter Replacement**



### **Inspecting the Filter**

To inspect or replace a filter element, move the master on/off toggle to the off position, and then close the manual shutoff valve. Bleed the system of air pressure by operating the syringe buttons. Using a standard screwdriver, remove the filter housing from the air pre-regulator assembly (see Figure 22 on page 23) and remove the filter.

If the filter is visibly clogged or discolored, replace it. Order A-dec p/n 24.0234.01 for a package of six.

When installing a new filter, notice that one end of the filter has a beveled edge. Install the filter with the beveled edge facing the manifold (see Figure 22). The system will not work properly if the filter is installed incorrectly.

Refer to the following A-dec documentation for more maintenance information:

Assistant's Instrumentation

<i>A-dec Assistant's Instrumentation Instructions for Use</i> .....	85.2610.00
<i>A-dec Syringes Instructions for Use</i> .....	85.0680.00

Care Instructions

<i>A-dec Equipment Asepsis Guide</i> .....	85.0696.00
<i>A-dec Self-Contained Water System Instructions for Use</i> .....	86.0609.00

Power Supplies

<i>A-dec Floor Boxes Instructions for Use</i> .....	85.2611.00
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## Specifications



**NOTE** Specifications are subject to change without notice. Requirements may vary depending on your location. For more information, contact your authorized A-dec dealer.

### Service Requirements for Unit Operation

Minimum Air:

2.50 cfm (70.80 L/min) at 80 psi (551 kPa)

Minimum Water:

1.50 gpm (5.68 L/min) at 40 psi (276 kPa)

Minimum Vacuum:

12 cfm (339.84 L/min) at 8 inHg (27 kPa)

### Weights of optional cart attachments

Tooth Dryer: 1 lb (.45 kg)

Intra-Oral Light Sources: 1 lb (.45 kg)

Curing Light: 3 lb (1.36 kg)



**IMPORTANT** For electrical specifications, identification of symbols, and other regulatory requirements, see the *Regulatory Information, Specifications, and Warranty* document (p/n 86.0221.00), which is available in the Document Library at [www.a-dec.com](http://www.a-dec.com).

## Warranty

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