A-dec 500 Delivery Systems
Models 532, 533, and 542
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INTRODUCTION

Thank you for choosing A-dec equipment. This guide contains basic operating instructions, touchpad programming, adjustments, and maintenance for the following A-dec 500 systems:

- A-dec 532 Traditional (chair-mounted)
- A-dec 533 Continental® (chair-mounted)
- A-dec 542 Side Delivery (wall- or cabinet-mounted)

About Your A-dec 500 Delivery System

Your A-dec 500 system may include any combination of the following choices: a Continental or Traditional delivery system with or without tray holders, chair-mounted assistant’s instrumentation, cuspidor, and monitor mount. A number of integrated accessories are also available for A-dec 500 systems, including highspeed and lowspeed handpieces, electric motors, intraoral cameras, ultrasonic instruments, curing lights, and other options.

Figure 1. A-dec 500 System (shown on A-dec 511 Chair)

For an overview of component features and options covered in this guide, see Figure 2 through Figure 4.
Figure 2. A-dec 533 Continental Delivery System

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
</table>
| A    | Handpiece Tubing  
     | (whip assembly shown) |
| B    | Ancillary Devices  
     | (shown with curing light, ultrasonic instrument, and intraoral camera) |
| C    | Deluxe Touchpad |
| D    | Handle with Flexarm Brake |
| E    | Handpiece Position  
     | (electric motor shown) |
| F    | Autoclavable Syringe |
| G    | Flexarm |
| H    | Control Head |
Figure 3. A-dec 532 Traditional Delivery System

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Standard Touchpad</td>
</tr>
<tr>
<td>B</td>
<td>Handpiece Tubing <em>(shown with highspeed handpiece)</em></td>
</tr>
<tr>
<td>C</td>
<td>Adjustable Holder</td>
</tr>
<tr>
<td>D</td>
<td>Ancillary Device <em>(shown with intraoral camera and ultrasonic instrument)</em></td>
</tr>
</tbody>
</table>

* Refer to Figure 2 for similar features and options
Figure 4. A-dec 542 Side Delivery System

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Tray Holder</td>
</tr>
<tr>
<td>B</td>
<td>Utility Cabinet</td>
</tr>
<tr>
<td>C</td>
<td>Rigid Arm</td>
</tr>
<tr>
<td>D</td>
<td>Flexarm</td>
</tr>
</tbody>
</table>

* Refer to Figure 2 and 3 for similar features and options
BASIC OPERATION

This section includes basic operating instructions for your A-dec 500 delivery system. For touchpad operation, refer to “Touchpad Controls” on page 9.

Power

The delivery system has two power on/off locations: (1) the power on/off button on the chair, and (2) the master toggle on the right side of the control head.

Master Toggle

The master toggle controls the power to the delivery system as well as other modules mounted to the chair. Flip the toggle to turn the system on or off.

NOTE To prolong the life of your equipment, turn off the master toggle when the delivery system is not in use.

Alternate Master Toggle Locations

Depending upon your configuration, the master toggle may be located on the cuspidor, support center, or remote floor box.
Handpiece Activation

**CAUTION** To prevent damage to your delivery system, do not use saline solution, mouth rinses, or any chemical solutions not specified in this guide. Use a water supply system separate from your delivery system if you need to use these types of solutions. As a general rule, you can use drinking water as source water in your delivery system.

For complete instructions on water usage in your A-dec systems, refer to the *A-dec Self-Contained Water System Instructions For Use* (p/n 86.0609.00) included with your equipment.

The handpieces automatically activate when you lift a handpiece from its holder or pull the Continental whip forward. Press the foot control to operate the activated handpiece.

Foot Control

The foot control regulates drive air to the active handpiece. It provides an air signal that activates air coolant and water coolant flow. The foot control is equipped with a wet/dry toggle and a chip blower/accessory button (see Figure 6). To turn the water coolant on or off, use your foot to flip the wet/dry toggle.

**NOTE** The foot control has additional functionality when used with a deluxe touchpad or an intraoral camera. The wet/dry toggle operates as a three-way switch with the air and water coolant buttons on the touchpad.

---

**Figure 6. Foot Control**

Chip Blower / Accessory Button

Wet/Dry Toggle

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**Chip Blower / Accessory Button**

The chip blower/accessory button operates as either a chip blower or an accessory button (see Figure 6). The chip blower function sends a jet of air through the handpiece without activating the handpiece bur.

The accessory button function operates integrated accessory devices. For more details, see your authorized A-dec dealer.
Chair Lockout

The lockout feature inhibits the operation of the dental chair when you remove a handpiece from its holder and step on the delivery system foot control. To resume normal chair operation, lift your foot off of the foot control disk.

Flexarm Brake

The flexarm brake will hold up to 8 lb. [3.6 kg] of weight on the control head. The thumb-actuated brake restricts vertical movement but allows for side-to-side horizontal positioning of the control head (see Figure 7).

Figure 7. Flexarm Brake

Touchpads

The A-dec 500 delivery system touchpads centralize treatment room controls into one touch surface. Some touchpad buttons have indicators to alert you if the operation is functioning. For complete instructions on touchpad operation, see “Touchpad Controls” on page 9.

Accessory Holder

The optional accessory holder is a convenient location for additional accessories like a curing light or intraoral camera. The holder installs on the right or left side of the control head in the unused touchpad position (see Figure 8).

Figure 8. Optional Accessory Holder
Self-Contained Water System

The self-contained water system supplies water to handpieces, syringes, and cuspidor cupfill. The system includes a 2-liter, quick-disconnect water bottle that mounts to the delivery arm or support center and offers you an easy way to control the quality of your treatment water (see Figure 9). For complete instructions on water usage in your A-dec 500 system, refer to the A-dec Self-Contained Water System Instructions For Use (p/n 86.0609.00) included with your equipment.

Figure 9. Self-Contained Water Bottle

Doctor’s Syringe

To install the A-dec syringe tip, push the tip in until you feel two clicks. Press both buttons simultaneously for the air/water spray.

**IMPORTANT** For detailed instructions on syringe usage, flow adjustment, and maintenance, see the A-dec Syringes Instructions For Use (p/n 85.0680.00).
TOUCHPAD CONTROLS

Your A-dec 500 delivery system includes a standard or deluxe touchpad. The standard touchpad controls chair, cuspidor, and dental light functions. The deluxe touchpad adds controls for handpieces, electric motors, and several other options.

Figure 10. Standard and Deluxe Touchpads

Note: Touchpad symbols are proprietary to A-dec Inc.
Status Icon

The A-dec logo on the deluxe touchpad indicates the system status:

- Solid blue—normal operation and power is on Figure 11.
- Blinking—chair stop plate or cuspidor limit switch is active. The icon returns to solid blue once you remove any obstructions.

![Status Icon](image)

Chair Positioning

Your touchpad provides manual and programmed controls for A-dec chair positioning. The direction arrows on the touchpad allow you to manually move the chair base and back up or down (see Table 1).

**Table 1. Manual Chair Buttons**

<table>
<thead>
<tr>
<th>Icon</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Back down" /> or <img src="image" alt="Back down" /></td>
<td>Back down</td>
</tr>
<tr>
<td><img src="image" alt="Base down" /> or <img src="image" alt="Base down" /></td>
<td>Base down</td>
</tr>
<tr>
<td><img src="image" alt="Back up" /> or <img src="image" alt="Back up" /></td>
<td>Back up</td>
</tr>
<tr>
<td><img src="image" alt="Base up" /> or <img src="image" alt="Base up" /></td>
<td>Base up</td>
</tr>
</tbody>
</table>

Four programmable chair buttons, which can be easily customized, automatically move the chair into a factory preset position (see Table 2).

**Table 2. Programmable Chair Buttons / Factory Presets**

<table>
<thead>
<tr>
<th>Button</th>
<th>Position Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Entry/Exit" /> or <img src="image" alt="Entry/Exit" /></td>
<td><strong>Entry/Exit:</strong> Automatically positions chair for entry/exit and turns off dental light.</td>
</tr>
<tr>
<td><img src="image" alt="Treatment 1" /> or <img src="image" alt="Treatment 1" /></td>
<td><strong>Treatment 1:</strong> Automatically positions the chair base and back down and turns on the dental light.</td>
</tr>
<tr>
<td><img src="image" alt="Treatment 2" /> or <img src="image" alt="Treatment 2" /></td>
<td><strong>Treatment 2:</strong> Automatically positions the chair base and back and turns on the dental light.</td>
</tr>
<tr>
<td><img src="image" alt="X-ray/Rinse" /> or <img src="image" alt="X-ray/Rinse" /></td>
<td><strong>X-ray/Rinse:</strong> Automatically positions the chair for either x-ray or rinse. Toggles between the x-ray/rinse and the last manual position, and turns off the dental light.</td>
</tr>
</tbody>
</table>
Program Chair Preset Positions

NOTE To stop the chair at any point, push any chair position button on the footswitch or touchpad. Please follow standard patient care precautions when using the chair preset position functions.

To program chair preset positions Entry/Exit, Treatment 1, and Treatment 2:
1. Use the manual controls to adjust the chair position as desired (see Figure 12).
2. Press and release the program button ( or ). One beep indicates programming mode.
3. Press the chair position button you wish to reset (for example, press or for Entry/Exit). Three beeps indicates the new setting is programmed into memory.

Figure 12. Touchpad Chair Position Buttons

(A) Manual Chair Buttons; (B) Program Button; (C) Programmable Chair Preset Buttons

Customize the X-Ray/Rinse Button

The X-ray/Rinse button functions either as x-ray/rinse or as another preset position (Treatment 3). To change the function of the X-ray/Rinse button:

1. Press and hold the program button and or simultaneously for three seconds.
   ○ One beep indicates the button has been configured as Treatment 3.
   ○ Three beeps indicates that X-ray/Rinse button has been configured as the x-ray/rinse function (toggles between the x-ray/rinse and the previous position).
2. Program the preset position as instructed above, under “Program Chair Preset Positions.”

TIP If the X-ray/Rinse button is changed to a preset position, it operates the same as the Treatment buttons 1 and 2.
Cuspidor Functions

The following table describes the cupfill and bowl rinse buttons:

Table 3. Cupfill and Bowl Rinse Buttons

<table>
<thead>
<tr>
<th>Button</th>
<th>Description</th>
</tr>
</thead>
</table>
| ![cupfill](image) or ![bowl rinse](image) | **Cupfill Button:** Controls water flow from the cuspidor into a cup.  
- Press the cupfill button for a timed operation.  
The factory preset is a 2.5 second fill.  
- Press and hold the cupfill button for manual operation.
| ![bowl rinse](image) or ![cupfill](image) | **Bowl Rinse Button:** Provides rinse water for the cuspidor bowl.  
- Press the bowl rinse button for a timed operation.  
The factory preset is a 30 second rinse.  
- Press and hold the bowl rinse button for manual operation.

**TIP**  Press the bowl rinse button ( ![bowl rinse](image) or ![cupfill](image) ) twice in less than two seconds to activate the continuous operation mode. Press the button once to end the continuous bowl rinse mode.

**Customize Cupfill and Bowl Rinse**

To program the cupfill and bowl rinse timing:

1. Press and release the program button or, at the cuspidor, press and hold both the cupfill and bowl rinse buttons located near the spout. One beep indicates the programming mode is ready.
2. Press and hold the cupfill or bowl rinse button for the desired amount of time.
3. Release the button. Three beeps confirm the setting.

**NOTE**  If your system includes an A-dec relay module, refer to “Auxiliary Control Buttons” on page 18 for information.
Dental Light

You can turn the dental light on or off from either the touchpad or the dental light. The dental light button on the touchpad allows you to change intensity settings.

**Halogen Dental Light**: Press to toggle between high and composite or medium and composite. When the dental light is in composite mode, the indicator light blinks (see Figure 13).

**LED Dental Light**: Press and release to choose the desired intensity mode. When the light is in cure-safe mode, the indicator light flashes (see Figure 13).

**Figure 13. Dental Light Mode**

![Dental Light Mode Diagram](image)

To turn off the dental light, press and hold down .

Dental Light Auto On/Off Feature

The dental light has an auto on/off feature. When you use a programmed chair position, the dental light turns on when the chair back reaches operating position. Press Entry/Exit ( or ) or X-ray/Rinse ( or ) and the dental light automatically turns off.

_TIP_ If X-ray/Rinse button is changed to a preset position, the dental light auto feature operates the same as the Treatment buttons 1 and 2.

To activate/deactivate:

- Press and hold and the program button ( or ) simultaneously for three seconds. One beep confirms the dental light auto feature is off. Three beeps confirm that the dental light auto feature is on.

A/B Button

Deluxe touchpads include an A/B button ( ) that offers you two separate sets of programmable settings. The currently active set is indicated by the A or B in the touchpad display (see Figure 14).

**Figure 14. A/B Selection**

![A/B Selection Diagram](image)
Handpiece Settings *(Deluxe Touchpad Only)*

**Standard Mode Programming**

Activate the electric motor by lifting the handpiece from the holder. The settings on the display are the ones last used for that handpiece position. The electric motor allows you to choose a precise preset speed. Table 4 lists the factory presets for electric motors:

Table 4. Electric Motor Speed / Air and Water Coolant Presets (Standard Mode)

<table>
<thead>
<tr>
<th>Memory Setting</th>
<th>Preset Speed</th>
<th>Air Coolant</th>
<th>Water Coolant</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>2,000 RPM</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>M2</td>
<td>10,000 RPM</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>M3</td>
<td>20,000 RPM</td>
<td>On</td>
<td>On</td>
</tr>
<tr>
<td>M4</td>
<td>36,000 RPM</td>
<td>On</td>
<td>On</td>
</tr>
</tbody>
</table>

The deluxe touchpad allows you to program four memory buttons with your specific RPM setting. With the A/B button, you can program two settings for each memory button, for a total of 8 customized settings per handpiece (the endodontic mode offers an additional 8 memory settings).

**NOTE** If two operators use the delivery system, be sure to select the correct operator set (A or B) before changing any memory settings. The currently active set is indicated by the A or B in the touchpad display (see Figure 14 on page 13).

To program the handpiece setting:

1. Press the plus (+) and minus (-) buttons to adjust the RPM. The RPM values are displayed in the display screen (see Figure 15).

2. If desired, press 📊 or ⚪️ to change air and water coolant settings.

3. To place the setting into memory, press 📊 or ⚪️. One beep sounds.

4. Choose the desired memory setting by pressing m1, m2, m3, or m4. Three beeps confirm the setting.
Figure 15. Standard Mode Buttons and Settings

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Memory Setting Indicator</td>
<td>G</td>
<td>Water Coolant Button</td>
</tr>
<tr>
<td>B</td>
<td>Water Coolant Indicator</td>
<td>H</td>
<td>Air Coolant Button</td>
</tr>
<tr>
<td>C</td>
<td>Air Coolant Indicator</td>
<td>J</td>
<td>Speed Limit Setting</td>
</tr>
<tr>
<td>D</td>
<td>A/B Operator Indicator</td>
<td>K</td>
<td>Forward/Reverse Indicator</td>
</tr>
<tr>
<td>E</td>
<td>Memory Buttons (m1 - m4)</td>
<td>L</td>
<td>Forward/Reverse Toggle Button</td>
</tr>
<tr>
<td>F</td>
<td>Program Button</td>
<td>M</td>
<td>Adjustment Buttons</td>
</tr>
</tbody>
</table>

**Forward/Reverse Button**

The forward/reverse button (see Figure 15) changes the electric motor’s direction. The system defaults to the forward position when you return the motor to the holder or turn off the system. In reverse mode, the screen icon flashes continuously.

**NOTE** You can also use the foot control to easily switch between forward and reverse. When the motor has stopped, tap the accessory (chip/air) button to change the direction.
Endodontics Mode Programming

In addition to handpiece speed adjustments, the Endodontics mode allows you to change a number of settings based on the specific file and desired handpiece behavior. Icons in the touchpad window reflect the settings (see Figure 16).

NOTE For more information regarding speed limit and torque limit for a specific file, consult the file manufacturer.

To change a setting:

1. Lift the handpiece from the holder.
2. If the touchpad window is not in Endodontics mode, press or . The endodontics screen is displayed.
3. Press the plus (+) or minus (-) button to activate the Endodontics change mode. A white reverse video box appears.
4. Use the chair positioning buttons to move from setting to setting on the display.
5. Use the + and - buttons to change the setting as desired.
6. To place the speed limit, torque limit, and ratio into memory, press or , then the memory button you want to set. Three beeps confirm the setting.
The following table defines the touchpad display icons for the Endodontics mode:

**Table 5. Endodontics Mode Settings**

<table>
<thead>
<tr>
<th>Icon</th>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Icon]</td>
<td>Speed</td>
<td>Setpoint for file speed limit. For more information, consult your file manufacturer.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Torque</td>
<td>Setpoint for file torque limit. For more information, consult your file manufacturer.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Torque Units</td>
<td>Toggles between Ncm (Newton centimeters) and gcm (Gram centimeters). Adjusting this setting for one handpiece changes it for all handpiece settings. <strong>Note:</strong> 1 Ncm=102 gcm</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Ratio</td>
<td>Sets the handpiece ratio. For more information, consult your handpiece manufacturer.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Air Coolant</td>
<td>On/Off—when active, supplies air coolant to the handpiece.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Water Coolant</td>
<td>On/Off—when active, supplies water coolant to the handpiece.</td>
</tr>
<tr>
<td>![Icon]</td>
<td>Light Source</td>
<td>Enables/Disables endodontics handpiece light source.</td>
</tr>
</tbody>
</table>
| ![Icon] | Torque Mode   | Adjusting this setting for one handpiece changes it for all handpiece settings. This icon appears with the forward/reverse indicator.  
• Auto-off—the motor shuts off when the file speed reaches the torque limit.  
• Auto-reverse—the motor stops and reverses direction when the file reaches the torque limit.  
• Auto-forward—when the file reaches the torque limit, the motor stops, reverses 3 turns, then changes back to forward again. **Note:** If the file is stuck, this cycle repeats three times before the motor stops. |
| ![Icon] | Beeper        | On/Off—when active, warning beep sounds when you approach torque limit and double beeps when the file auto-reverses. Adjusting this setting for one handpiece changes it for all handpiece positions. |

**NOTE**  A-dec | W&H endodontic attachments have a special feature due to their ball-bearing design. Their life-long efficiency factor is stable and known, therefore the A-dec endodontics system is able to control and display file torque very accurately. All other handpieces have unknown life-long efficiency factors and therefore stated torque values are approximate.
Other Handpiece Setting Choices

Additional system choices are available. Consult your dealer to globally change any of these setting options:

- **Auto-Off Delay** — The amount of time the handpiece remains lit when idle. The default is 5 seconds. Stepping on the foot control refreshes the delay and the lamp relights. The light stays on as long as you depress the foot control.

- **Light Source Auto On/Off** — When active, the handpiece light automatically turns on when you lift the handpiece from the holder. Default in standard mode is On; in endodontics mode is Off.

- **Voltage** — Depending on your brightness preference and the bulb manufacturer’s usage guidelines, the voltage setting adjustment for each handpiece light source.

Auxiliary Control Buttons

If your system includes an A-dec relay module, you can use the touchpad to activate two auxiliary devices. On deluxe touchpads, use the a1 and a2 buttons to activate these devices (see Figure 17). For systems with a standard touchpad, the bowl rinse and cupfill buttons serve as the auxiliary controls (not available on systems with a cuspidor).

![Figure 17. A1 / A2 Buttons](image)

Touchpad Help Messages

Help messages are displayed on the deluxe touchpad screen to provide information about why an operation is disabled. For information on help messages, refer to the *Regulatory Information, Specifications, and Warranty* document (p/n 86.0221.00) located in the Document Library at [www.a-dec.com](http://www.a-dec.com).
Your A-dec 500 system includes a number of built-in features that allow you to easily make adjustments. The following adjustment areas are covered in this section:

- Handpiece controls
- Handpiece and control head positioning
- Tray holder and flexarm tension

### Handpiece Controls

A-dec 500 delivery systems supply and regulate air and water to operate dental handpieces, syringes, and ancillary devices. You can adjust the delivery system water coolant flow, air flow, and drive air pressure.

![Handpiece Adjustment Keys](image)

#### Water Coolant Flow

The system provides water coolant flow control for each handpiece. Use the adjustment key to complete the adjustments (see Figure 18):

1. Turn the drive air, air coolant, and water coolant all the way down (clockwise). For instructions on accessing drive air pressure controls, “Drive Air Pressure” on page 20.

2. Lift a handpiece from the holder.
3. Turn the water coolant on using the footswitch wet/dry toggle or touchpad.
4. Press the foot control to activate the handpiece.
5. Use the adjustment keys on the side of the control head to adjust the water coolant flow (normally about 1 - 2 drops per second). Turn the key clockwise to decrease flow and counterclockwise to increase flow.

**NOTE** Air and water coolant adjustment keys are not intended to completely shut off flow.
Air Coolant Flow

The air coolant flow control adjusts the air coolant flow to all handpieces. Use the adjustment key to complete the adjustment.

To adjust the air coolant:
1. Lift the handpiece from the holder.
2. If your system has a deluxe touchpad, use it to verify air coolant is on.
3. Insert an adjustment key into the air coolant flow control.
4. Press the foot control to activate the handpiece.
5. Adjust the air coolant flow to fit your needs. Turn the key clockwise to decrease flow and counterclockwise to increase flow.

CAUTION Do not turn the drive air or air coolant adjustment keys left beyond where the air coolant no longer increases. The stem may come completely out.

Drive Air Pressure

The digital drive air pressure gauge is located inside the control head. The gauge indicates, in psi, the drive air pressure as it leaves the control block to the active handpiece. The drive air pressure controls adjust the drive air pressure for each handpiece (see Figure 19).

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

Figure 19. Drive Air Adjustment

To adjust the drive air pressure, complete these steps for each handpiece (see Figure 19).
1. Lift handpiece tubing.
2. Locate the drive air pressure gauge and controls inside the control head.
3. Press the foot control.
4. With the handpiece running, watch the gauge and adjust the handpiece drive air pressure to meet manufacturer’s specifications. Turn the control clockwise to decrease flow and counterclockwise to increase flow.

NOTE Refer to your handpiece documentation for the manufacturer’s drive air pressure specifications.
Handpiece Holders

On Traditional delivery systems, you can adjust the outer holders independently from the three interior holders. To adjust, grasp the brake handle while pushing down or pulling up the holders until you achieve the desired angle (see Figure 20).

Figure 20. Adjustable Handpiece Holders
Tray Holder

Tray holders for A-dec 500 delivery systems are adjustable front-to-back (see Figure 21) and side-to-side:

1. Position the tray holder directly in front of the delivery system.
2. Loosen one of the tray adjustment screws under the delivery system.
3. Tighten the opposite screw until the satisfactory position is reached.
4. Tighten both screws.

Figure 21. Tray Adjustment

Tray Holder Tension

To tighten the rotational tension of the tray holder, turn the hex bolt under the tray clockwise. To loosen the rotational tension, turn it counterclockwise. To adjust the rotational tension of the tray arm, tighten or loosen the hex bolt at the delivery system end of the arm.

NOTE Use a level on the tray holder when making adjustments. Adjust side-to-side and front-to-back independently.
Control Head Rotation

Adjust the control head rotation if the control head drifts to the left or right. Tighten or loosen the screw in the center of the control head platform to reach the desired tension (see Figure 22).

Figure 22. Control Head Rotation Adjustment

Flexarm Rotation

If the control head drifts right or left on the mounting arm, adjust the flexarm rotation tension adjustment. To adjust the rotation tension:

- Turn the setscrew clockwise to tighten.
- Turn the setscrew counterclockwise to loosen.

Figure 23. Flexarm Rotation
Front-Mount Tension

If the front-mount arm drifts on the A-dec 532/533 front-mount delivery systems, adjust the front-mount tension adjustment. To adjust the front-mount tension, tighten or loosen the bolt and nut located at the base of the front-mount arm (see Figure 24).

Figure 24. Front-Mount Tension

Flexarm Counterbalance - A-dec 532/533

For A-dec 532/533 front-mount delivery systems, adjust the flexarm counterbalance if the control head drifts up or down.

1. Load the control head for normal use attaching handpieces and placing a tray on the tray holder.
2. Remove the side covers and post cover on the post end.
3. Lower the control head to the lowest position, and slide the flexarm cover off of the flexarm away from the control head.
4. Raise the control head to the highest point for adjusting.
5. Adjust the counterbalance flexarm spring with an open end wrench, until the control head maintains position.
   ○ Turn counterclockwise to loosen, if the control head drifts up.
   ○ Turn clockwise to tighten, if the control head drifts down.

Figure 25. Flexarm Counterbalance Adjustment
Adjust the flexarm counterbalance if the control head on the A-dec 542 side delivery system, drifts up against the cabinet when the master switch is turned off.

**NOTE** If the delivery system is not mounted under a cabinet, adjust the counterbalance to the midpoint of the operating position.

1. Load the control head for normal use attaching handpieces and placing a tray on the tray holder.
2. Move the control head to the lowest position.
3. Turn the master toggle off. If the control head drifts up against the cabinet, the counterbalance needs adjustment.
4. Insert a hex key into the adjustment screw.
   - Turn the hex key clockwise to increase the upward drift.
   - Turn the hex key counterclockwise to reduce the upward drift.

**Figure 26. Flexarm Adjustment**
MAINTENANCE AND ASEPISIS

Handpiece Tubing Cleaning and Care

Use the handpiece tubing flush system to move more water through the tubings in less time than using the foot control. After each patient:

1. Disconnect the handpieces before flushing the tubings.
2. Gather handpiece tubings that use water coolant and hold them over a sink, cuspidor bowl or basin.
3. Hold the tubings so that the water is directed away from you and into the receptacle (see Figure 27).

Figure 27. Flush Tubings

4. Locate the flush toggle on the back of the control head.
5. Hold the toggle down for 20–30 seconds.

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

Heat Sterilization / Syringe

Air/water syringes should be steam autoclaved after each use. The following protocol should be followed:

- Air/water syringe – Steam autoclave at 134° C (273°F), 4 minutes holding time, minimum

For more information, refer to the A-dec Syringes Instructions For Use (p/n 85.0680.00).
Replace Bulb for Fiber-Optic Tubing

Follow these steps to replace the bulb in fiber-optic 5-hole silicone or vinyl tubing.

1. Disconnect the handpiece and swivel quick-connector from the tubing.
2. Pull back the metal handpiece nut. See Figure 9.
3. Silicone tubing only: Slide back the metal portion of the handpiece terminal.
4. Replace the bulb. Silicone tubing only: To avoid the possibility of breaking the bulb, insert the bulb into the socket. Then, insert the bulb tip into the recess before lowering the socket and sliding the bulb fully into the recess.
5. Silicone tubing only: Reinsert the metal portion of the terminal into the plastic portion.
6. Carefully slide the handpiece nut back over the terminal and reconnect the tubing to the swivel quick-connector and handpiece.

Figure 28. Bulb Replacement

(A) Plastic Handpiece Terminal; (B) Bulb; (C) Metal Portion of Handpiece Terminal; (D) Silicone Tubing; (E) Metal Handpiece Nut; (F) Vinyl Tubing; (G) Metal Handpiece Terminal
**Oil Collector**

Service the oil collector on the delivery system once a week for normal usage and more often for heavier use. To service:

1. Unsnap the oil collector cover on the back of the unit.
2. Discard the old gauze.
3. Fold a new square gauze pad (2" x 2", 51mm x 51mm) into quarters and place inside the cover.
4. Snap the oil collector cover closed.

*Figure 29. Remove Oil Collector*

**Utilities**

A-dec 500 utilities are located in the contoured floor box for chair-mounted systems (A-dec 532/533) or in the cabinet for side delivery systems (A-dec 542). To access the utilities, lift up the floor box cover or removable cabinet panel. The utilities include the air/water shutoff valves, filters, pressure pre-regulators, vacuum and gravity drains, as well as electrical outlets (see Figure 30).

*Figure 30. System Utilities (shown in floor box)*
Air and Water Manual Shutoff Valves

Shutoff valves control the air and water to the unit. To prevent leaks, these valves should remain fully open (turned counterclockwise) except while your unit is being serviced.

Air-Actuated Air and Water Shutoff Valves

The air-actuated air and water shutoff valves automatically shut off air and water to the system when the master toggle is in the Off position. This safety feature prevents water damage in the event of a water leak while the unit is unattended.

System Air and Water Pressure Adjustments

The air and water pre-regulators are located in the floor box. Before making any adjustments, verify that the air compressor is turned on, and that it maintains 80–100 psi pressure in the tank. If it doesn't, refer to the compressor instructions.

To adjust air or water pressure:

1. Fully open manual shutoff valves (counterclockwise).
2. Turn the system on and check the pressure gauge in the floor box (see Figure 30 on page 29). Air pressure should be 70-80 psi.
3. While watching the gauge, operate the syringe. If the system air pressure drops by more than 15 psi, check for clogged filters (see Figure 31).
4. If adjustment of the air or water pressure is required, turn the appropriate pre-regulator knob clockwise to increase pressure, or counterclockwise to decrease.

Air and Water Filter Replacement

Air and water pass through separate filters before entering the regulators. Replace a filter when it becomes clogged and causes restricted flow (see Figure 31).

Figure 31. Air and Water Filter Replacement
Check for a Clogged Air or Water Filter

1. Flip the master On/Off toggle to On.
2. Remove the floor box cover.
3. While watching the air pressure gauge in the floor box, press the syringe air button (see Figure 30 on page 29). If the system air pressure drops by any more than 15 psi, replace the filter.
4. While watching the cuspidor, press the bowl rinse button. If the bowl rinse water pressure fades or if the water flow stops, replace the filter.

Inspect and Replace the Filter

1. Flip the master toggle to Off.
2. Close the manual shutoff valves (turn right) (see Figure 31).
3. Bleed the system of air and water pressure by operating the syringe buttons until air and water no longer flow.
4. Using a flathead screwdriver, remove the filter housing from the air or water pre-regulator assembly and remove the filter.
5. Replace the filter if it is clogged or discolored; install the filter with the beveled edge facing the manifold.

**NOTE** To ensure proper delivery system operation, make sure to install the filter with the beveled edge facing the manifold (see Figure 31).
**Water Screen Replacement**

The manual water shutoff valve in your floor box comes with a screen to prevent debris from entering the delivery system (see Figure 32). Periodically check and replace this screen to ensure unrestricted water flow to your delivery system.

To remove or replace a screen:

1. Flip the master On/Off toggle to Off.
2. Close the manual water shutoff valve (turn right) in the floor box (see Figure 32).
3. Using a 5/8” or adjustable wrench, loosen the compression nut on the manual water shutoff valve and pull the water regulator out of the shutoff valve (see Figure 32).
4. Remove the screen and install the replacement screen.
5. Reposition the water regulator in the manual shutoff valve outlet and tighten the compression nut.
6. Open the manual water shutoff valve (turn left).
7. Flip the master On/Off toggle to On.
8. Check the fittings for leaks.

**Figure 32. Water Screen Replacement**

![Water Screen Replacement Diagram]
Care & Asepsis Instructions

Barrier Protection

A-dec recommends barrier protection for all applicable touch and transfer surfaces. Touch surfaces are areas that come into contact with hands and become potential cross-contamination points during dental procedures. Transfer surfaces are areas that come into contact with instruments and other inanimate objects.

In the USA, barriers must be produced under the Current Good Manufacturing Practice (CGMP) as specified by the U.S. Food and Drug Administration (USFDA). For regions outside the USA, refer to the medical device regulations specific to your location.

CAUTION  If you use barriers, always replace the barrier film after each patient.

IMPORTANT  For recommendations on cleaning and chemical disinfection of touch and transfer surfaces (where barrier protection is not applicable or when barriers are compromised), please see the A-dec Equipment Asepsis Guide (p/n 85.0696.00) included with your equipment. This document is also available at www.a-dec.com in the Document Library.

Waterline Treatment

For recommended treatment of your dental unit waterlines, refer to the A-dec Self-Contained Water System Instructions For Use (p/n 86.0609.00).
Specifications

Minimum Air, Water, and Vacuum Service Requirements

Air: 2.50 scfm (70.80 l/min) at 80 psi (551 kPa)
Water: 1.50 gpm (5.68 l/min) at 40 psi (276 kPa)
Vacuum: 12 cfm (339.84 l/min) at 8 inches of mercury (27 kPa)

Other Specifications

For electrical specifications, identification of symbols, and other regulatory requirements, refer to the Regulatory Information, Specifications and Warranty document (p/n 86.0221.00) included with your equipment.

NOTE Specifications are subject to change without notice. Some requirements may vary from country to country. For more information, contact your authorized A-dec dealer.

Warranty

Warranty information 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.