

# OPERATION and MAINTENANCE INSTRUCTION MANUAL

## ADU-17A Express Air Portable Dental System

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***A*Aseptico®**

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## INDICATIONS FOR USE:

The ADU-17A is a mobile self-contained dental system that is used for endodontic and general dentistry applications.

**RX: FEDERAL LAW RESTRICTS THIS DEVICE TO SALE BY OR ON THE ORDER OF A DENTIST**



Manufacturer



Aseptico Inc  
8333 216 St SE  
Woodinville  
WA 98072  
USA

To prevent injury to people and damage to property, please heed relevant warnings and remarks. They are marked as follows:

**WARNING:** Serious injury or death may result if ignored.

**CAUTION:** Damage to property or the environment may result if ignored.

**NOTE:** Important additional information and hints.

ETL CLASSIFIED



**Intertek**  
3176038

Conforms To:

AAMI STD ES60601-1

AAMI IEC STD 62366

IEC STD 80601-2-60

IEC STD 60601-1-6

Certified To:

CSA STD C22.2 # 60601-1

Your new Aseptico Express Air Portable Dental System is the finest portable electric dental system available. The ADU-17A features a handpiece control, 3-way air/water syringe, HVE and saliva ejector vacuum systems, a self contained water system, oilless air compressor, and vacuum pump. The dual voltage system comes in a case with wheels and a handle for maximum portability.

## *Congratulations!*

This system is engineered to provide many years of reliable service. Please read the instructions provided in this manual to receive the best and longest service from your Aseptico equipment.

Separate manuals may be provided to cover the operation and maintenance of other accessories for your unit.

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### **PACKAGE CONTENTS:**

- Portable Case with Compressor and Vacuum Pump
- TA-90D 3-Way Air/Water Syringe
- HVE and Saliva Ejector Vacuum Hoses with Valves
- Water Supply Bottle
- AA-42 Air Foot Control
- Power Cord
- Operation & Maintenance Manual
- Highspeed or Lowspeed Pneumatic Handpiece (Purchased separately)
- AWS-1C Cavitron Connector
- Two Spare 6A Fuses for 120V Operation



## **SAFETY PRECAUTIONS:**

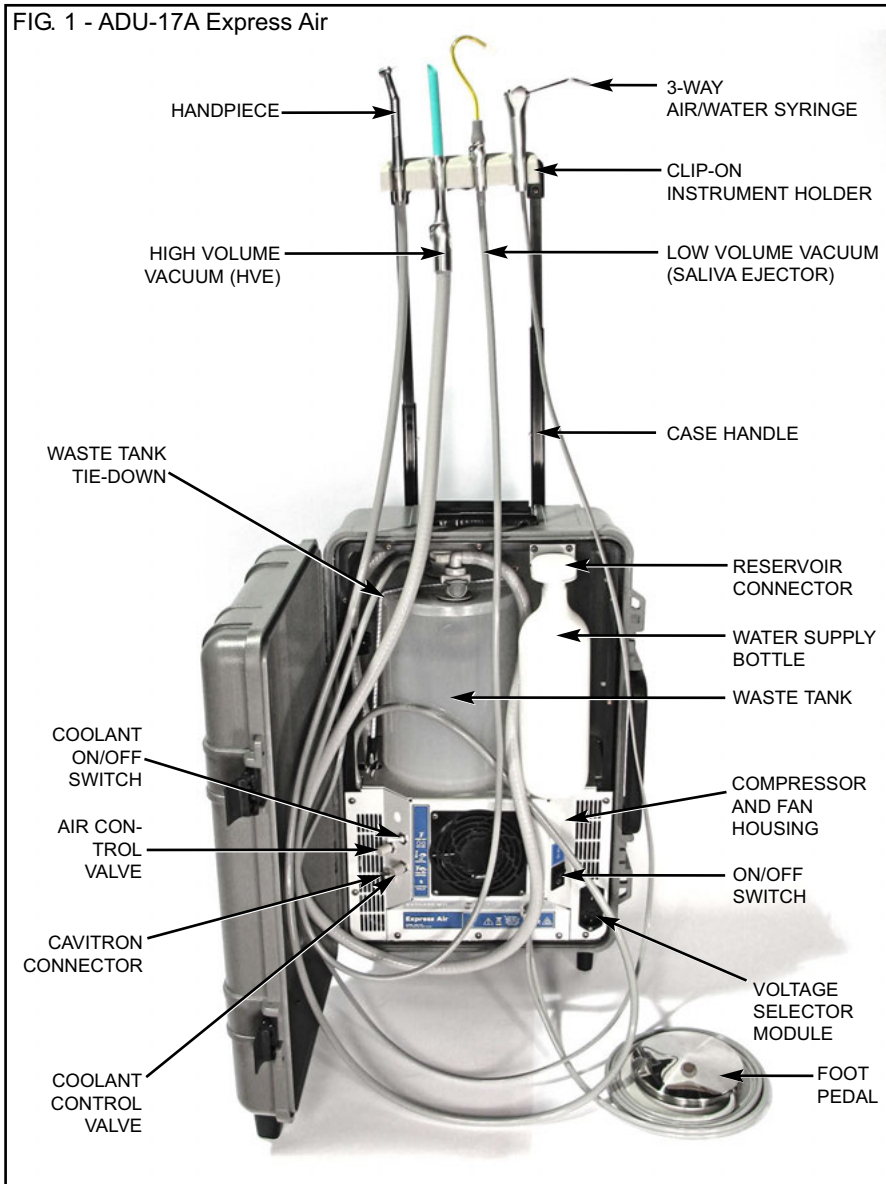
Aseptico accepts no liability for direct or consequential injury or damage resulting from improper use, arising in particular through the non-observance of the operating instructions, or improper preparation and maintenance.

- WARNING:** Sterilize before first and all uses. Clean, disinfect, and sterilize new or repaired instruments before first use. Only use sterilized handpieces and instruments during treatment. Non-sterile handpieces and instruments may cause bacterial or viral infections. Always sterilize instruments after operation.
- CAUTION:** Always examine unit components for damage before commencing treatment. Damaged components must not be used and must be replaced.
- CAUTION:** For device transport, always keep the pull handle in hand during transport and ensure stable platform before releasing.
- WARNING:** Use for intended purposes only. Failure to observe the operating instructions may result in the patient or user suffering serious injury or the product being damaged, possibly beyond repair. Before using this product, make sure that you have studied and understood the operating instructions.
- WARNING:** For use by qualified and trained personnel only.
- WARNING:** Do not install where there is a risk of an explosion. The Express Air is not intended for operation in the presence of flammable anesthetics or gases.
- WARNING:** Always operate a high-speed handpiece with water coolant. Operating a high-speed handpiece without water coolant can cause thermal injury to the patient and damage the handpiece.
- WARNING:** Only connect device to AC outlet with Protective Earth (Safety Ground) connection.
- WARNING:** The power supply cord is the mains appliance disconnect means. Before use, position the equipment so it is readily accessible.

## **Expected Service Life**

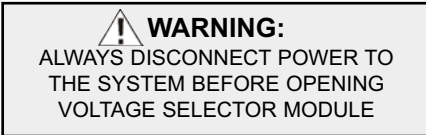
The expected service life is seven years from the date of first use.

## SETTING UP THE UNIT:



## SETTING UP THE UNIT *Cont'd:*

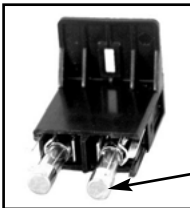
1. Unpack the ADU-17A Case.
2. Verify that the Voltage Selector Insert is configured properly by checking the voltage indicator on the Voltage Selector Module (*Figure 2a*). The Voltage Module is located on the lower left of the Motor Cover. The Voltage Selector Insert must be installed in the "120" position for 120V 60Hz operation or in the "240" position for 230V 50Hz operation.



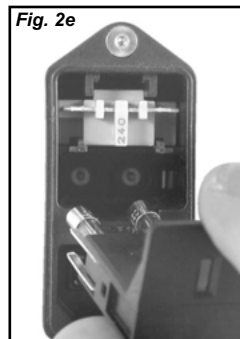
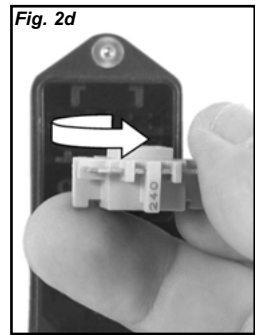
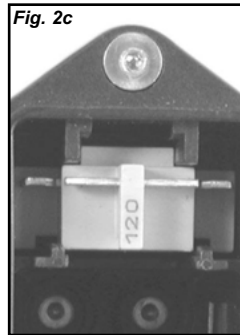
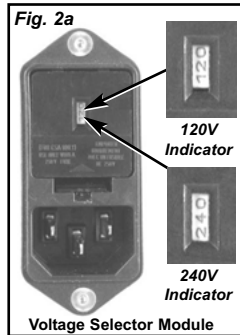
To switch the voltage configuration, disconnect power cord and insert a small flat screwdriver under the locking tab in the front of Selector Module. Gently depress tab until the fuse housing releases (*Figure 2b*). Carefully remove fuse housing to reveal Voltage Selector Insert (*Figure 2c*). Pull insert out of housing, turn it around and reinsert into housing with proper voltage indicator facing out (*Figure 2d*).

**IMPORTANT:** For 120V use, check that the Fuse in use is a 6A medium time delay; for 230V use, check that the Fuse is a 4A Slo-Blo type. User may have to change fuses before use.

For 230V use, confirm that the power cord is correct for the country of usage and carries the proper certifications.

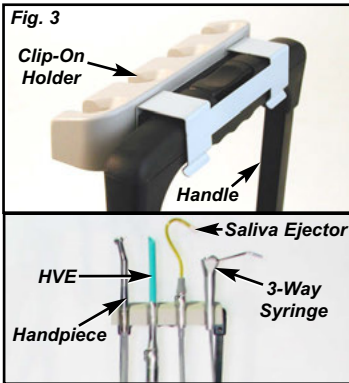


FUSES LOCATED IN VOLTAGE SELECTOR MODULE

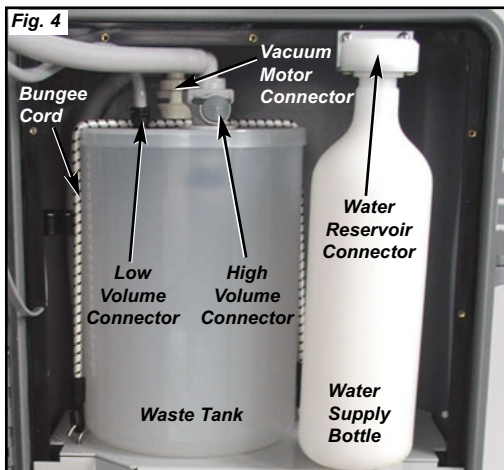


Carefully reinstall fuses into Fuse Holder and slide Holder back into Selector Module (*Figure 1e*). Apply pressure until locking tab snaps back into position, producing a distinct clicking sound.

3. Mount the clip-on Holder to the extended handle of the Case, as shown in Figure 3.



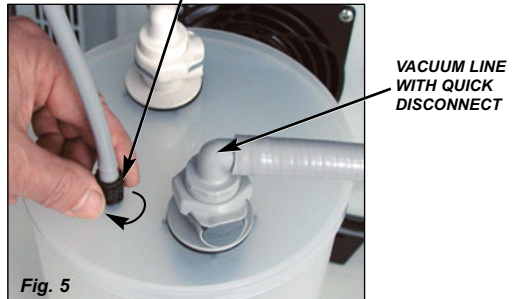
4. Attach a sterile handpiece to the ISO Type B (4-Line) handpiece connector and place the handpiece in Holder (Fig. 3).
5. Remove the 3-way air/water Syringe from its travel clip inside the Case and place it in the Holder.
6. Position the Waste Tank in the Case with the large white connection to the rear left of the instrument as shown in Figure 4. Attach the hose connector coming from the Vacuum Motor to this large white connection. Connect the High Volume Vacuum (HVE) hose to the large gray connector located on



the front of the Waste Tank. Connect the Low Volume Vacuum (Saliva Ejector) hose to the black connector located on the front of the Tank.

**Note:** When attaching the Saliva Ejector hose to the top of the Waste Tank, push in and rotate 1/4 turn (see Figure 5).

TO INSTALL SALIVA EJECTOR HOSE,  
TURN CONNECTOR 1/4 TURN CLOCKWISE



7. Secure Waste Tank by running Bungee Cord from hooks on bottom panel overtop Tank lid. Verify that the Waste Tank and vacuum lines are properly installed. Hang the High Vacuum and Saliva Ejector instruments on the Clip-On Holder.
8. Fill the Water Supply Bottle with clean water and connect to the Water Reservoir Connector.
9. Attach the foot pedal and place on the floor.

## OPERATION FUNCTIONS:

### 1. ON/OFF SWITCH:

Turns the ADU-17A system On or Off.

### 2. AIR FOOT CONTROL:

The handpiece only operates when the foot pedal is depressed. When the foot pedal is not being used, the vacuum and syringe remain operational

### 3. HANDPIECE CONTROLS:

- a.) Off/On Coolant Toggle Switch - Turns Handpiece water coolant On/Off.
- b.) Air Control Switch - Allows adjustment of air pressure to the Handpiece.
- c.) Coolant Control Switch - Allows adjustment of water coolant to the Handpiece.

### 4. THREE-WAY AIR/WATER SYRINGE:

- Pressing the left button dispenses water.
- Pressing the right button dispenses air.
- Pressing both buttons simultaneously dispenses an air/water mist.

### 5. WATER SUPPLY BOTTLE:

The Express Air incorporates a self contained pressurized water system. This system consists of a 1-liter white bottle, which dispenses water through the handpiece and 3-Way Air/Water Syringe. The Water Supply Bottle threads into the Reservoir Connector, located in the upper right corner of the case.

#### **To refill the Water Supply Bottle:**

- a.) Before removing the Bottle for refilling, unplug the power cord from the Express Air unit.



#### **WARNING:**

THE WATER SUPPLY BOTTLE IS PRESSURIZED DURING OPERATION. DEPRESSURIZE BOTTLE BEFORE REMOVAL BY SLIGHTLY LOOSENING BOTTLE FROM RESERVOIR CONNECTOR.

- b.) Release pressure from Bottle by slightly loosening bottle from reservoir connector approximately 1/8-turn, or by depressing the air button on the 3-Way Syringe.

- c.) Unscrew and remove Bottle from cap.
- d.) Fill Bottle with clean water.

- e.) Screw Bottle into the Water Reservoir Connector.

- f.) Plug in the power cord.

### 6. HVE and SALIVA EJECTOR VACUUMS:

The Express Air is equipped with a 5-liter Waste Tank, a High Volume (HVE) hose, and a Low Volume (Saliva Ejector) hose. Both High and Low Volume systems operate simultaneously from the same vacuum source. To gain vacuum on the HVE, open the HVE valve to full open and close the Saliva Ejector Valve. To gain vacuum on the Saliva Ejector, close the HVE and open the Saliva Ejector to full open.

The vacuum Waste Tank contains a ball float shutoff to prevent accidental overflow. The Tank should be emptied when it is  $\frac{3}{4}$  full.

The High Volume (HVE) vacuum system contains a screen inside the Waste Tank container. The screen is used for collecting large debris upon vacuum intake. Clean screen when necessary.

#### **To empty the Waste Container:**

- a.) Unplug the power cord.
- b.) Disconnect the hoses.
- c.) Empty container.
- d.) Reconnect hoses.
- e.) Plug in power cord.

#### **NOTE:**

The waste container has a ball float shutoff to prevent accidental overflow. If the waste container becomes full and the ball float activates, the vacuum motor may not restart, and could potentially blow the fuse. Immediately empty waste container to continue operation.

### 7. CAVITRON WATER OUTLET:

Provides water via standard 1/4" quick disconnect to independent Cavitron or scaler units requiring a water supply.



## OPERATION:

After the unit has been set up and you have made yourself familiar with the system functions, there are two operating modes to select from:

- **On/Off Switch Operation** - Switch 'ON' activates the vacuum and 3-way air/water syringe.
- **Foot Pedal Operation** - Depressing the Foot Pedal activates the handpiece.

1. Connect the power cord to the Express Air Unit and plug into appropriate power source.

**IMPORTANT:** Ensure that the Voltage Selector Insert is properly configured for the power source - Refer to Page 4.

### 2. FOOT PEDAL OPERATION:

- a. Turn the On/Off Switch on the front of the Fan Housing to the 'ON' (I) position. The vacuum and syringe will become operational.
- b. Depress the Foot Pedal: The handpiece will activate. The Syringe, HVE, and Saliva Ejector will remain operational.

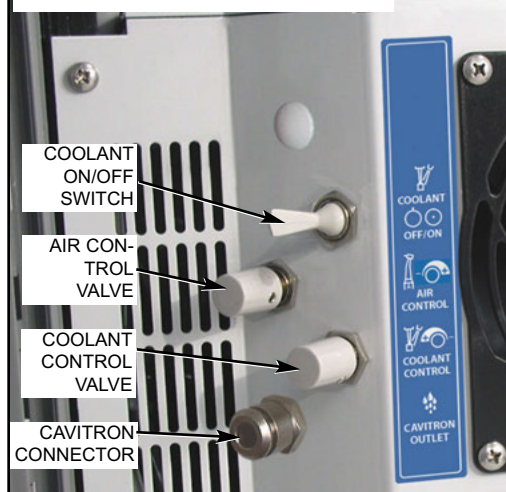
### CAUTION:

Some new ADU-17A compressor motors might require a 2-week "break-in" when first used. As a precaution against stalling the compressor or possibly blowing the fuses during this break-in period, it is recommended that the foot pedal be removed from the System for approximately 5 minutes before each initial daily startup, during the first 2 weeks of use.

### **WARNING:**

Always operate a high-speed handpiece with water coolant. Operating a high-speed handpiece without water coolant can cause thermal injury to the patient and damage the handpiece. Consult the handpiece manufacturer's instructions for additional information.

FIG. 6 - HANDPIECE CONTROLS



3. Depress the foot pedal to operate the handpiece. Adjust the air pressure and water coolant flow to the desired settings (See Fig. 6). (Turn the water coolant control knob clockwise to decrease flow, or counterclockwise to increase flow.)
4. Use the 3-Way Air/Water Syringe as necessary for irrigation or drying.
5. Adjust the vacuum pressure by moving the valves on both the HVE and saliva ejector vacuum heads.
6. Empty the Vacuum Waste Tank when it is 3/4 full.

## STERILIZATION AND MAINTENANCE:

Because of its simple design, the Aseptico ADU-17A Express Air requires very little maintenance. Any maintenance that is needed can be performed in minutes.

### BLEEDING THE SYSTEM

If the unit will not be used for an extended period of time, or the unit might be subjected to freezing conditions, you should bleed the system. Simply empty the contents of the water supply tank and install the tank back into the cap. Operate the air/water syringe and handpiece with water coolant 'ON' until just air comes through the water line. Pack unit and store as normal.

### HANDPIECE FLUSH

Flush the handpiece for about 5 seconds after every patient, and about 20 seconds at the beginning of each day.

### GENERAL CLEANING

The external surfaces of the case should be cleaned using a soft cloth moistened with a mild detergent solution. Any external surfaces of the unit that are contacted during use should be wiped down with a soft cloth moistened with a disinfectant at the beginning of each day and between each patient use.

### WATER LINES

Disinfect the water lines weekly. Prepare a 1:10 bleach solution (1 part household bleach to 9 parts water). Remove water reservoir and discard residual water. Replace empty water supply tank and air purge all waterlines. Fill water supply tank with bleach solution. Run bleach solution through all lines. Allow bleach solution to stand in lines for 10 minutes. Remove water supply tank and discard bleach. **Flush water supply tank and all lines thoroughly with clean water.** Air purge and leave lines dry until next clinical use.

### VACUUM SYSTEM

The HVE and Saliva Ejector Valves are fully autoclavable. Remove the valves from the hoses before autoclaving. The vacuum hoses should not be autoclaved. Clean hoses with a disinfectant solution. **CAUTION:** Use only NON-foaming cleansers in the vacuum lines.

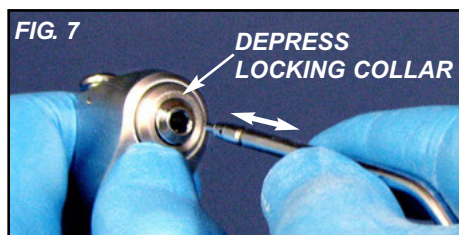
### SYRINGE TIPS

The ADU-17A unit features a three-way air/water syringe with quick-change autoclavable tips. To remove a tip, press on the locking collar surrounding the tip socket and pull the used tip straight out of the socket (see Fig. 7). To insert a new tip, press locking collar and push tip into socket as far as it will go. Release collar and gently tug on tip before using to ensure that tip is securely locked into socket.

#### Syringe Tip Sterilization:

- 1) Remove contaminated syringe tip.
- 2) Remove all visible signs of contamination before autoclaving.
- 3) Autoclave tip at 132° C (270° F) for ten minutes.
- 4) Sterilize between each patient use.

**NOTE:** Since only the tips can be autoclaved, it is recommended that the Air/Water Syringe be bagged with a disposable, single-use plastic sleeve between each patient use.



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This device requires periodic maintenance to remove dust in and around the compressor every 12 months or if accumulations are seen. The fan on the unit vents air from inside the device to the outside. With the unit operating, use compressed air to spray into the intake vents and blow dust out of the unit.

## TROUBLESHOOTING:

Problem:	Correction:
Unit will not start	<p>Check system's power connection.                      Turn On/Off switch ON for operation.                      Check that voltage selector module is set for source voltage.                      Check fuse. If blown, replace with 6A/125V medium time delay fuse for 120V operation, or a 4A/250V slo-blo fuse for 230V operation.</p>
Unit starts but blows fuse	<p>Check that voltage selector module is set for source voltage.                      Check vacuum waste container. If full, immediately empty to continue operation.                      Check vacuum hose assembly for blockage.                      Check that fuse is correct for source voltage.</p>
No water coming out	<p>Check water supply tank for water level and verify that cap is tight.                      Depress foot switch for 5+ sec. to pressurize supply tank.                      Ensure the handpiece air control knob is not open (turned clockwise) all the way.</p>
Insufficient vacuum	<p>Check vacuum waste container. If full, immediately empty to continue operation.                      Check vacuum hose assembly for blockage.                      Check that waste container lid is properly seated and tightly secured.</p>
Insufficient handpiece operation	<p>Check that handpiece coolant ON/OFF toggle is "ON".                      Check that air control valve is turned up adequately                      Check that handpiece tubing is untangled and not crimped.                      Check handpiece connection for missing gasket.</p>
Compressor makes a chugging sound and does not start up properly	<p>Check for sufficient power source and avoid long light-grade extension cords (Refer to Figure 8 Extension Cord Recommendations - below)</p>

## EXTENSION CORD RECOMMENDATIONS:

Use only a 3-wire extension cord that has a 3-blade grounding plug. Connect extension cord plug to a matching 3-slot receptacle. Ensure that the extension cord is in good condition and that its gage wire is the correct size wire to carry the current this product will draw. An undersized cord is a potential fire hazard and will cause a drop in line voltage, resulting in loss of power and causing the product to over-heat. Figure 8 indicates the correct size cord for the length required and the ampere rating listed on the product name-plate. **If in doubt, use the next heavier gage cord. The smaller the gage number, the heavier the wire gage.**

FIG. 8

Recommended Wire Gage for Extension Cords										
Amps	Minimum Gage									
0-2	18	18	18	16	16	14	14	12	12	10
2-3	18	18	16	14	14	12	12	10	10	10
3-4	18	18	16	14	12	12	10	10	8	8
4-5	18	18	14	12	12	10	10	8	8	8
5-6	18	16	14	12	10	10	8	8	8	8
6-8	18	16	12	10	10	8	6	6	6	6
8-10	18	14	12	10	8	8	6	6	4	4
10-12	16	14	10	8	8	6	6	4	4	4
12-14	16	12	10	8	6	6	6	4	2	2
14-16	16	12	10	8	6	6	4	4	2	2
16-18	14	12	8	8	6	4	4	2	2	2
18-20	14	12	8	6	6	4	4	2	2	2
Volts	120V	25	50	100	150	200	250	300	400	500
	240V	50	100	200	300	400	500	600	800	1000
Length of Cord in Feet										










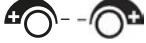




## REPACKING INSTRUCTIONS:

1. Remove all accessories from the unit.
2. Remove water bottle and place in travel pouch provided.
3. Position syringe in its holder on left side of case (Fig. 10). Lay tube behind syringe, next to waste tank.
4. Leave waste tank in place, with tie-downs connected. Remove suction hoses from waste tank, coil hoses, and place in bottom of case behind the tank.
5. Place travel pouch with water bottle to the left of the tank as shown.
6. Coil motor drive air line and place in pouch. Place power cord and fuses in pouch.
7. Tuck the blue water bottle tube between the pouch and pouch flap as shown (Fig. 10). Close pouch flap.
8. Remove instrument clip-on holder from extended handle and place in space located above waste tank. Retract handle.
9. Detach foot pedal cable from connector, coil cable around pedal, and place on top of pouch as shown (Fig. 10).
10. Carefully close case lid, taking care not to pinch any internal components.



**CAUTION:**  
WHEN TRANSPORTING UNIT, DO NOT  
PLACE OBJECTS ON TOP OF CASE.

## SYMBOL DEFINITIONS:

	Type B Equipment		Protective earth (ground)
	Warning—Potential danger to patient or user (consult accompanying documents)	<b>IPX1</b>	Protect Against Dripping Water
	Dangerous Voltage	<b>SN</b>	Serial Number
	Alternating current		Foot Switch
	Handpiece - Air		On/Off Switch
	Coolant		Adjustment Switches
	This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately.		Cavitron Connector
	Follow instructions for use.		Fuses

## Disposing of your old product

Each Member State in the European Union (EU) requires that the waste from electrical and electronic products be disposed of separately from normal household waste. This includes electronics, metals and electrical accessories, such as signal cables or power cords. Products in this category carry the symbol below.



Contact your local disposal authority and comply with the correct disposal method and follow national guidelines for unit disposal.

## SPECIFICATIONS:

Size:	10.5" x 14.5" x 24" (27 cm x 36 cm x 61 cm)
Volume:	1.81 cu. ft. (0.05 m <sup>3</sup> )
Weight:	43.5 lbs (19.7 kg)
Power Source:	AC Dual Voltage Manual-Switching 120V / 230V at 50Hz / 60Hz
Current Rating:	6A at 120 VAC, or 4A at 230 VAC
Power Rating:	800 W
Operating Pressure:	45 - 50 PSI (344 kPa)
Average Air Flow Pressure:	30 PSI, 0.33 SCFM (275 kPa, 9.35 liters/min)
High Volume Vacuum:	3.0 SCFM @ -4" Hg (84.9 liters/min)
Low Volume Vacuum:	1.4 SCFM @ -1.5" Hg (39.6 liters/min)
Water Reservoir Capacity:	33.9 fl. oz. (1.0 liter)
Water Flow:	5.07 fl. oz./min (0.15 liter/min)
Waste Tank Capacity:	1.08 gal. (4.08 liters)
Noise Level:	72 dBA @ 3'4" (1 meter)
Environmental Conditions:	Operating Temperature: 10° to 40° C (50° to 104° F) Transport/Storage Temperature: -20° to 60° C (-4° to 140° F) Relative Humidity: 10 to 90% non-condensing Altitude: 0 to 3048 meters (0 to 10,000 feet)
Unit Duty Cycle:	Continuous

**Note:** For reliable grounding, connect to receptacle marked "Hospital Grade".

### IMPORTANT NOTE:

When running the ADU-17A unit at 230VAC 50Hz, expect approximately 17% less vacuum and pressure volume due to the slower turning of the compressor.

This device has been tested and found to comply with the emissions requirements of IEC 60601-1-2:2001-09. These requirements provide reasonable protection against harmful electromagnetic interference in a typical medical installation. However, high levels of radio-frequency (RF) emissions from electrical devices, such as cellular phones, may disrupt the performance of this device. To mitigate disruptive electromagnetic interference, position this device away from RF transmitters and other sources of electromagnetic energy.

## **WARRANTY**

Aseptico warrants its products against defects in material or workmanship for a period of two (2) years, from date of original invoice. Some handpieces are warranted for one year under the same conditions. Other handpieces and expendable components, such as air turbines and light bulbs, are covered by shorter warranty periods, or have no warranty. Aseptico's sole obligation under product warranty is (at its sole option and discretion) to repair or replace any defective component or product in part or whole. Aseptico shall be the sole arbiter of such action.

In the event of alleged defect under warranty, the purchaser is to notify Aseptico's Customer Service Department promptly. Customer Service will provide instructions, usually directing that the product be returned for service. Shipment to Aseptico and the cost thereof is always the responsibility of the purchaser.

Accidental misuse, inappropriate installation, or failure to perform directed maintenance voids the warranty. Deliberately defacing, modifying, or removing the serial number voids the warranty.

Aseptico does not assume, under this warranty, any risks or liabilities arising from the clinical use of its products, whether or not such use involves coincidental utilization of products manufactured by others.



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