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# AEU-14CF

## Emergency Field Dental Unit

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### Expedition



**SERVICE MANUAL  
& PARTS LIST**



## Table of Contents

<b>GENERAL SERVICE INFORMATION:</b> . . . . .	3
<b>INSPECTION &amp; VERIFICATION</b> . . . . .	3
<b>CLEANING AND LUBRICATION:</b> . . . . .	4
<b>ROUTINE MAINTENANCE:</b> . . . . .	4
<b>ESD PRECAUTIONS:</b> . . . . .	4
<b>BASIC DISASSEMBLY:</b> . . . . .	5
BASIC DISASSEMBLY (Fig. 1):. . . . .	5
<b>PARTS LISTS</b> . . . . .	6
SYSTEM COMPONENTS (Fig. 2): . . . . .	6
CHASSIS REAR (Fig. 3): . . . . .	7
CHASSIS FRONT (Fig. 4): . . . . .	7
CHASSIS INTERNALS (Fig. 5): . . . . .	8
CHASSIS INTERNALS (Fig. 6): . . . . .	9
CHASSIS FRONT (Fig. 7): . . . . .	10
CHASSIS INTERNALS (Fig. 8): . . . . .	10
CASE AND BATTERY PACK (Fig. 9): . . . . .	11
<b>TROUBLESHOOTING.</b> . . . .	12
<b>WARRANTY.</b> . . . .	13
<b>SYMBOL DESCRIPTIONS</b> . . . . .	13
<b>STERILIZATION &amp; MAINTENANCE</b> . . . . .	14
<b>SPECIFICATIONS.</b> . . . .	15
<b>NOTES.</b> . . . .	15



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## GENERAL SERVICE INFORMATION:

This service and parts manual offers information, parts lists and an expanded troubleshooting guide not available in the AEU-14CF Operation and Maintenance Instruction Manual. It will help you diagnose any issue that may arise while operating your unit, as well as better understand the AEU-14CF Expedition Emergency Field Dental Unit as a whole, thereby reducing service time. For a more in-depth breakdown of the AEU-14CF's interior components, refer to the Schematic Drawing Set. This drawing set includes part drawings and schematic diagrams which show components in their actual places in the unit relative to one another. A plumbing schematic is provided with water lines indicated in blue. Plumbing parts are called out by Aseptico part number in the assembly drawings. Electrical schematics are provided for the chassis and battery pack with wires color coded. Electrical parts are called out by Aseptico part number in the assembly drawings.

## INSPECTION & OPERATION VERIFICATION:

To verify that the AEU-14CF unit is functioning properly, first follow the set-up procedure in the Operation & Maintenance manual. The system is designed to run off of multiple power systems, so it is best to isolate systems during diagnostics. 120295, Sheet 8 steps E-L of the schematic drawing set are a step by step functional check. If a problem is identified, refer to the troubleshooting guide for possible causes.

## CLEANING AND LUBRICATION:

When servicing the AEU-14CF Emergency Field Dental Unit, the parts of any component disassembled should be thoroughly cleaned and inspected before reassembly. A hot detergent solution is an effective cleaner on all non-electrical parts. Flush all non-electrical parts with clear, hot water. Abrasive cleaners have the potential to damage surface finishes and should be avoided. Any wiping should be done with a soft lint-free cloth.

Electrical parts should be cleaned with an appropriate electrical parts cleaner or air.

Use a silicone base lubricating grease, such as Dow Corning No. 103 to lubricate O-rings and seals in the system. Before performing any reassembly of parts that contain O-rings or seals, apply a light coat of silicone grease. This will make installation easier and prevent the O-rings or seals from being damaged.

## ROUTINE MAINTENANCE:

**WATER LINES** - Disinfect the water lines weekly. Prepare a 1:10 bleach solution (1 part household bleach to 10 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.

## ESD PRECAUTIONS:

The following electrostatic controls must be used when working on this unit:

### ESD Training and Standards:

Employees handling electronic sub-assemblies and ESD sensitive components are expected to be trained. Training should be based on IPC-A-610 or equivalent ESD standard ANSI/ESD-S-20-20 – Protection of Electrical and Electronic Parts, Assemblies and Equipment.

### ESD Static Controlled Area:

Areas that are designated for handling and working on electronic sub-assemblies or their components should be marked off with signs indicating the area where ESD controls are to be enforced. These areas are to be kept clear from persons that are not trained to prevent ESD damage from occurring.

### ESD Environment:

The work area is to be free of all static generating materials, such as plastic containers, water bottles, plastic bags, plastic objects, such as plastic pens, heat guns (unless made for the ESD environment).

### ESD Jackets:

Clothing should be non-static generating (cotton).

Static generating clothing (e.g. wool, acrylic, nylon) must be covered with an ESD jacket that is buttoned closed.

### Optional gloves:

Nitrile gloves may be used to cover the hands when working, but are not required.

### Seating:

ESD Chairs should be used in place of static generating chairs (e.g. modern office seating use static generating materials).

### Storage and packaging:

All circuit boards and components are to be stored on or in static dissipative or static shielding material, throughout shipping and storage.

### ESD Wrist Strap and Mat Routine Checks:

The wrist strap should be checked daily using an ESD wrist strap testing station. See chart below.

ESD mats should be checked at least quarterly.

Reading from Operator Through	Maximum Tolerable Resistance	Maximum Acceptable Discharge Time
Wrist strap to ground	100 megohms	Less than 0.1 sec.
Table mat to ground	1000 megaohms	Less than 1 sec.

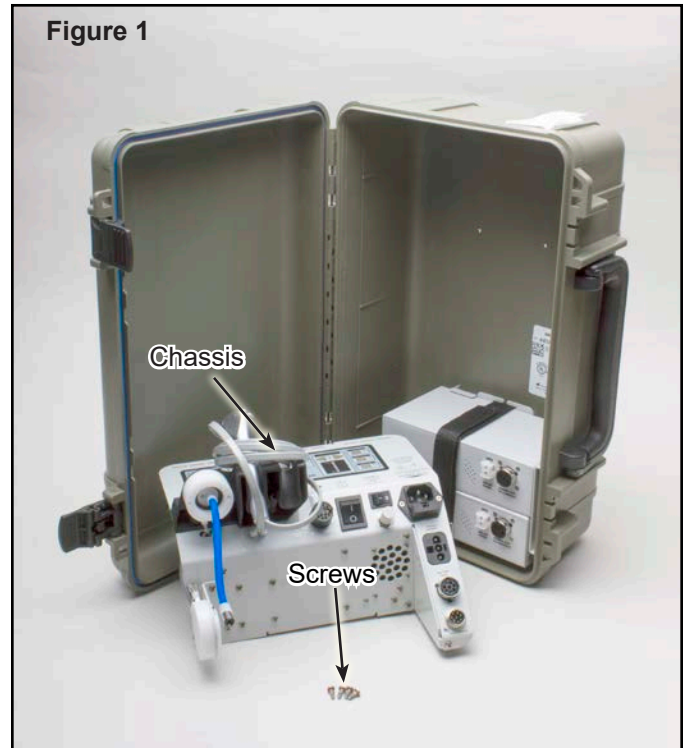
## BASIC DISASSEMBLY:

1. Make sure the unit is turned off and unplugged from all AC and DC power sources.
2. Make sure all accessories have been removed from the unit.
3. Stand the unit upright, into its operating position. Remove the water bottle. Go to the rear of the case and remove the two upper screws with a #2 Phillips head screwdriver. Go to the top of the unit and remove the two screws while supporting the chassis with your hand. Remove the chassis from the case (Fig. 1).
4. Reassemble the unit in the reverse order. Check the O-rings on the screws to ensure they are not damaged. If the O-rings are damaged, replace with new screws or RTV screws in place.

For details on subcomponent removal see the system schematic drawing set for:

- 330855 UPPER CHAMBER SUBASSEMBLY, AEU-14CF
- 330365 BATTERY PACK ASSY AEU-14

These documents show how the unit is assembled and can be followed in reverse order to dis-assemble the unit.



# AEU-14CF

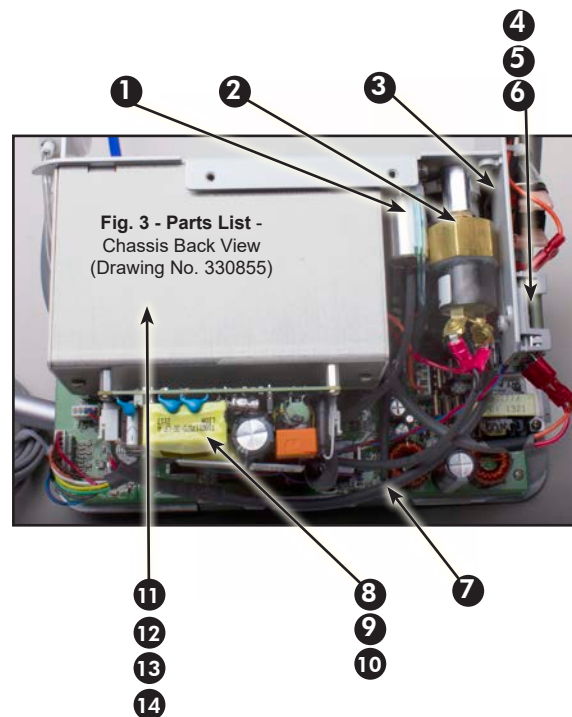
Item	Part No.	Qty
<b>1</b> Upper Chamber Subassembly	330855	1
<b>2</b> Syringe, 3-Way Air Water	TA-90D	1
<b>3</b> PANPHL, #6-32 X 3/8, Stnls, Self Sealing	510561	4
<b>4</b> Tubing, 2H Poly Strt Syringe Grey	AA-85G	1
<b>5</b> Battery Pack Assembly	330365	2
<b>6</b> Linecord Remote US 10Ft Gry	840001	1
<b>7</b> Cable Battery Assy AEU-14	875043	1
<b>8</b> Battery & Cable Pouch	461286	1
<b>9</b> Cable Assy, Battery Pack AEU-14	875209	1
<b>10</b> Footswitch, On/Off 8-Pin	AE-7P	1
<b>11</b> Motor/Cable Assy Pouch	461285	1
<b>12</b> Motor/Cable Assy w/Light & Water	AE-200-30	1
<b>13</b> Solar Panel	330863	1
<b>14</b> Label, Mylar Air	420307	1
<b>15</b> Label, Mylar Water	420299	1
<b>16</b> Bottle, 16oz. Pet	730427	2
<b>17</b> Manual, AEU-14CF Operation	420382	1
<b>18</b> Manual, AEU-14CF Service	420417	1
<b>19</b> Manual, Schematic Set	420591	1
<b>20</b> Instruction Sheet, Yellow Paper	420717	1
<b>21</b> Re-Packing Guide	420460	1
<b>22</b> Case, AEU-14 Expedition	410157-01	1



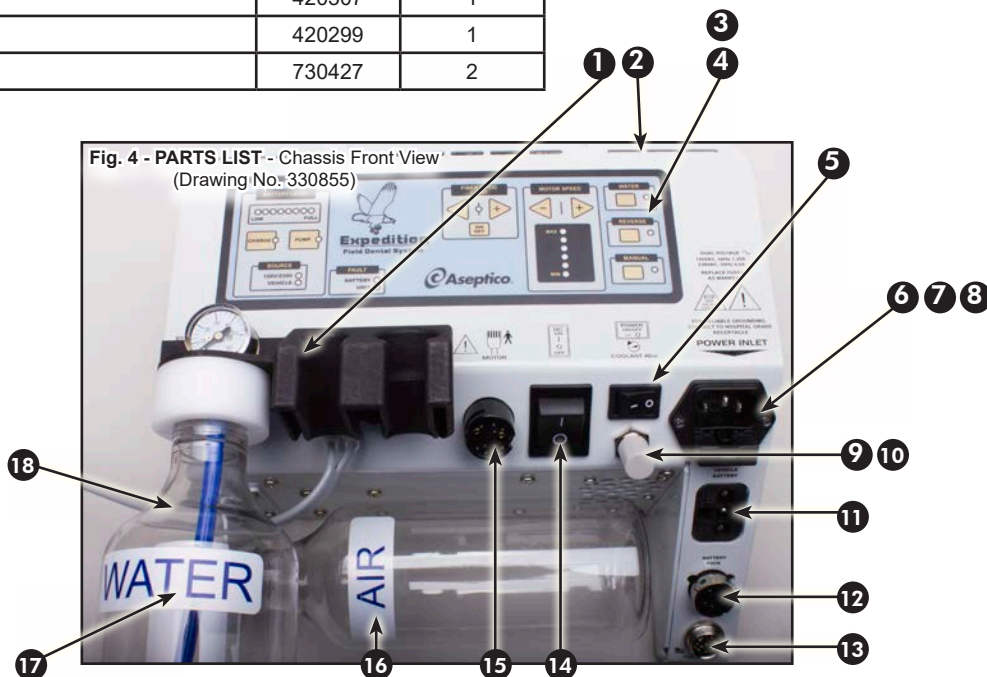


# AEU-14CF

Item	Part No.	Qty
1 Water Solenoid Assembly	875206	1
2 Pressure Sensor Assembly	875207	1
3 Shield Left Chassis Bracket	461280	1
4 Fuse Block	830064-02	1
5 Fuse 5A	830110	1
6 Fuse 12A	830084	1
7 Power Supply Cable	875203	1
8 PANPHIL #4-40 x 1/4 STNLS	510144	4
9 Aluminum Standoffs	511003	4
10 Power Supply	840151	1
11 Cover, Pump Front AEU-14CF	461177	1
12 PANPHIL #6-32 X 1/4 STNLS	510977	6
13 1/2 inch Grommet	870331	1
14 Cover, Pump Back	461181	1

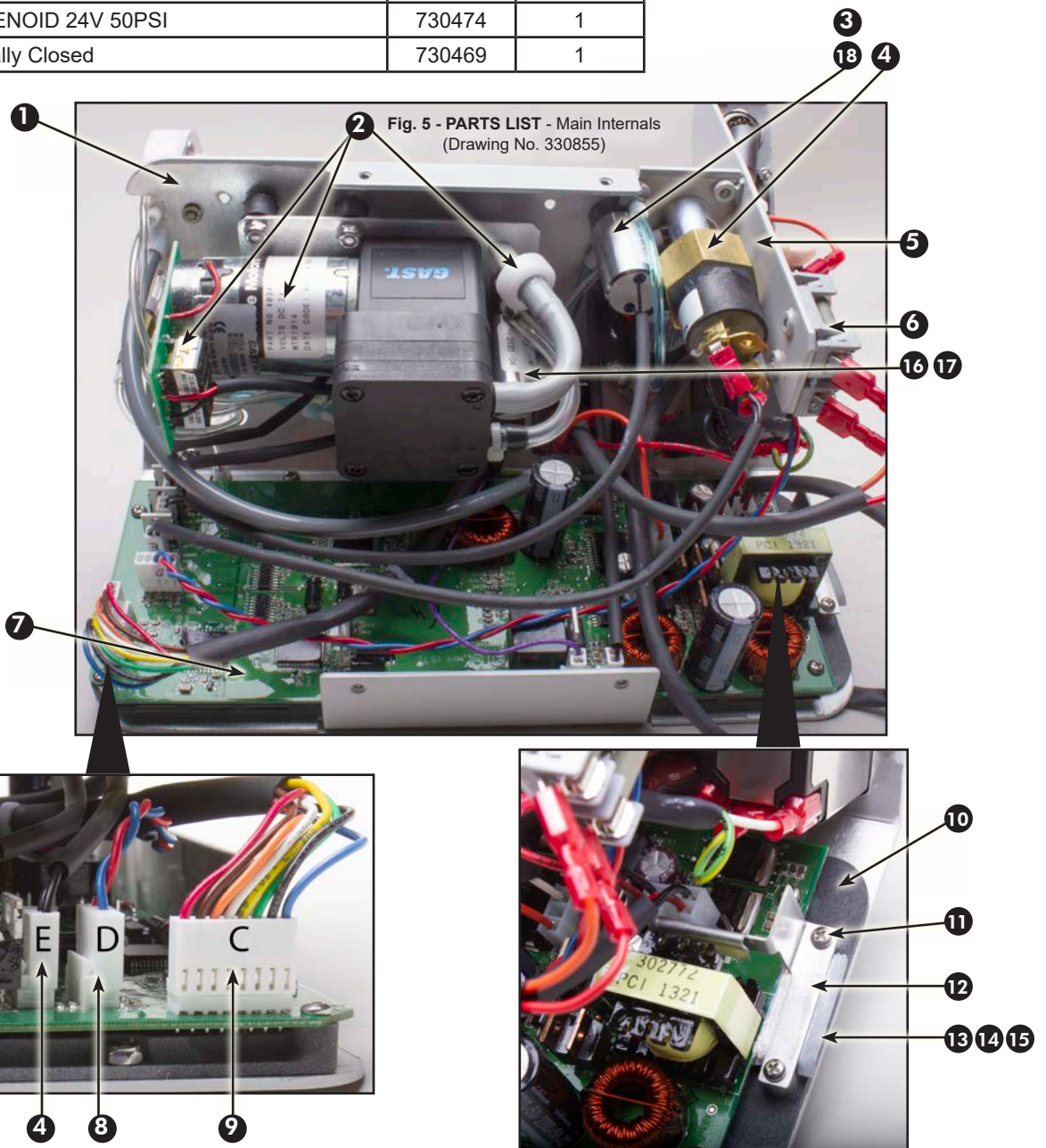


Item	Part No.	Qty
1 HOLDER HPCE ASSY, AEU-14	330860	1
2 Chassis Frame	461176-08	1
3 Overlay, AEU-14	420370	1
4 Display Board Insulator	461284	1
5 CABLE ASSY AC MAINS, AEU-14CF	875202	1
6 Power Inlet w/Fuse Holder 2Amp	840081	1
7 Fuse, 5x20mm Slo-Blo 1.25A	830126	2
8 M/S Stnls FlaPhl 4-40x3/8	510112	2
9 Knob Gry Plastic 1/4D Style II	850012	1
10 Valve, Needle Control w/o Knob	730066	1
11 CABLE ASSY BATTERY VEHICLE INPUT, AEU-14CF	875200	1
12 Battery Pack Input	875199	1
13 Wire Set AEU-14 Foot Pedal Con	875042	1
14 CABLE ASSY BATTERY SWITCH, AEU-14CF	875201	1
15 Motor Harness	875060	1
16 Label, Mylar Air	420307	1
17 Label, Mylar Water	420299	1
18 Bottle, 16oz. Pet	730427	2



# AEU-14CF

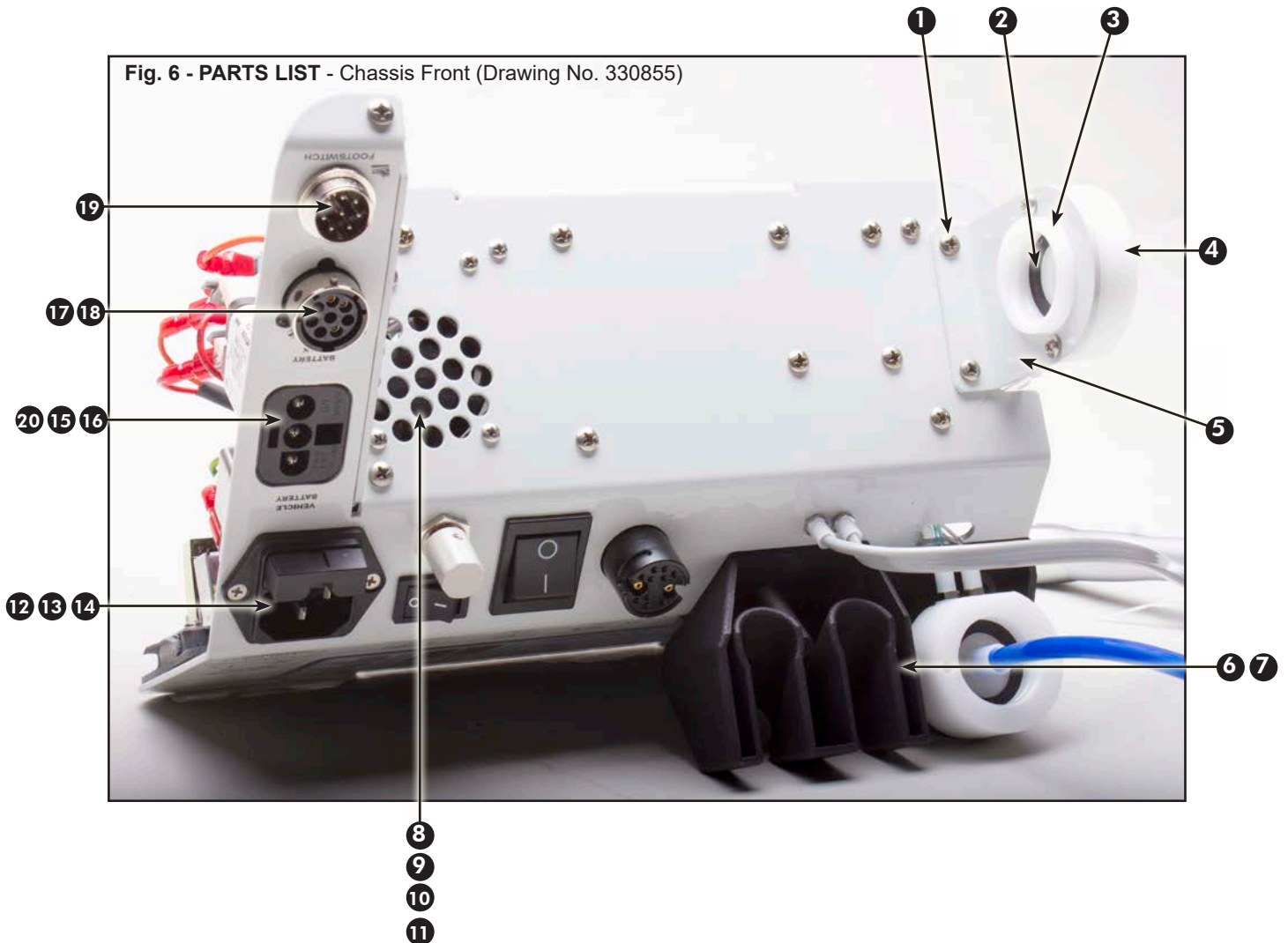
Item	Part No.	Qty
1 Chassis Base	461176-08	1
2 COMPRESSOR SUBASSEMBLY, AEU-14CF	330858	1
3 CABLE ASSY WATER SOLENOID TO PCB, AEU-14CF	875206	1
4 CABLE ASSY PRESSURE SENSOR TO PCB, AEU-14CF	875207	1
5 Shield Left Chassis Bracket	461280	1
6 Fuse Block	830064-02	1
7 Main Board	330364	1
8 Foot Pedal	875042	1
9 Wire Assy, Motor Conn	875060	1
10 Display Board Clamp	461283	1
11 PANPHL, #4-PLASTITE X 1/4, STNLS	510819	2
12 Brkt AEU-14CF Heat Sink Diode	461359	1
13 Thermal Pad	461649	1
14 AEU-14 Heatsink	461335	1
15 Thermo Heatsink Compound	490007	1
16 CABLE ASSY AIR OFF-LOAD SOLENOID TO PCB, AEU-14CF	875205	1
17 VALVE 3 WAY SOLENOID 24V 50PSI	730474	1
18 Valve, 2 Way Normally Closed	730469	1





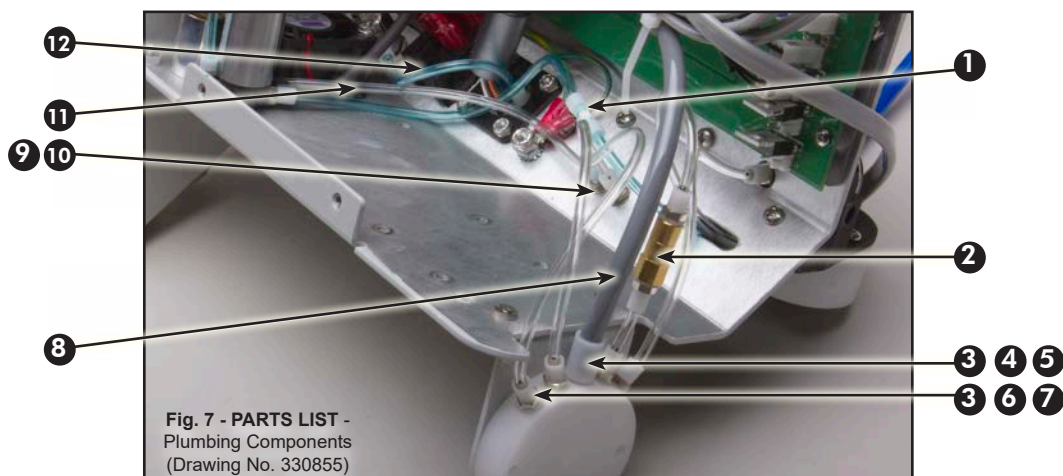
# AEU-14CF

Item	Part No.	Qty
1 PANPHILS #6-32, 1/4	510977	2
2 Gasket For NWS-8 Bottle Lid	730473	1
3 #6 Plastite 3/8	510792	2
4 Cap, Air Bottle AEU-14	461458	1
5 Brkt AEU-14CF Cap Cmpl	461179	1
6 Handpiece Holder Assembly	330860	1
7 #6 x 3/8 Plastite Screws	510792	3
8 FAN CABLE ASSEMBLY	875204	1
9 FAN MOUNT GASKET, 40MM	540015	1
10 NUT HEX NYLOC, #4-40, STNLS	510394	3
11 PANPHILS, #4-40, 1-1/8 STNLS	510999	3
12 Power Inlet w/Fuse Holder 2Amp 2 Pole Line Filtered	840081	1
13 Fuse 5x20mm Slo-Blo 1.25A	830126	2
14 M/S Stnls FlaPhl 4-40 x 3/8	510112	2
15 CABLE ASSY BATTERY VEHICLE INPUT, AEU-14CF	875200	1
16 #4-40 Nyloc Nuts	510394	4
17 Battery Pack Input	875199	1
18 #4-40 Nyloc Nuts	510394	4
19 Foot Pedal Cable Assembly	875042	1
20 Conn DC Filtr 1-20 Amps 80 VDC with DC Inlet Conn	860156	1

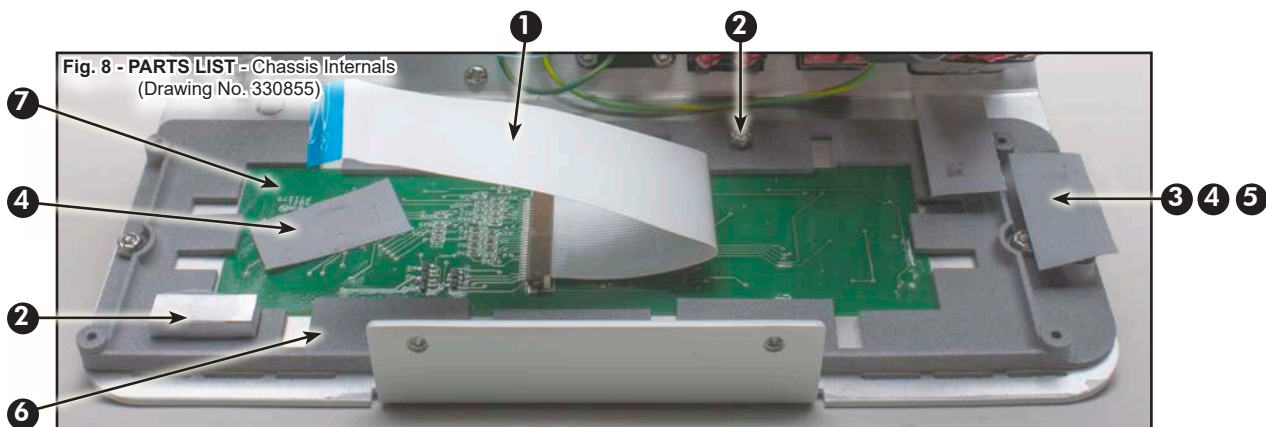


# AEU-14CF

Item	Part No.	Qty
① T Fitting 1/16 Barbs	730152	1
② Check Valve	730428	1
③ Gasket, Nylon #10	730074	1
④ Ftn Barb 10-32 x 1/8 Plated	730073	1
⑤ Sleeve Clamp 1/4	730095	1
⑥ Ftn Barb 10-32 x 1/16 Plated	730062	1
⑦ Sleeve Clamp Ftn 1/8ID Clear	730015	1
⑧ Grey Tubing	AA-95G	1
⑨ FTN STRAIGHT, 1/16 BARBS PANEL MOUNT, ALU	730798	1
⑩ 1/8 Uni-clamp	730096	1
⑪ TUBING, POLY 1/8 OD Cear	AA-94C	1
⑫ TUBING, POLY 1/8 OD BLU	AA-94B	1

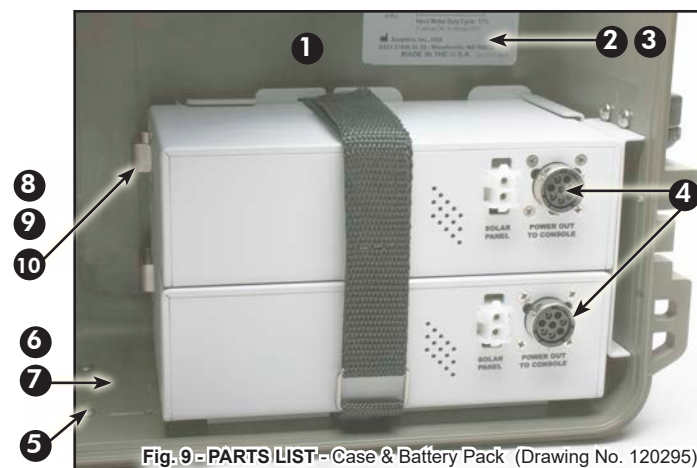


Item	Part No.	Qty
① Ribbon Cable	870271	1
② NUT HEX NYLOC, #4-40, STNLS	510394	1
③ AEU-14 Heatsink	461335	3
④ Thermal Pad	461649	3
⑤ Thermo Heatsink Compound	490007	3
⑥ Clamp, AEU-14 Display	461283	1
⑦ Display Board	330391	1



# AEU-14CF

Item	Part No.	Qty
① Case AEU-14 Expedition	410157-01	1
② Chassis Label	420432-37	1
③ UDI/BT1 3x1 Prodyct UD SN Label	420457-00	1
④ Battery Pack Assy AEU-14	330365	2
⑤ PANPHL, #6-32 X 1/4, Stnls, Self Sealing Screws	510605	2
⑥ (Not Shown) Foot, Case AEU-14	461290	2
⑦ PANPHL, #6-32 X 3/8, Stnls, Self Sealing Screws	510561	2
⑧ Battery Cage	330859	1
⑨ PANPHILS #6-32, 3/8 Stnls, Self Sealing	510561	4
⑩ PANPHILS #6-32, 3/4 Stnls, Self Sealing	510589	2



## TROUBLESHOOTING

### Chassis does not light when turned on:

- Check chassis to power connection.
- Check that voltage is proper voltage.
- Check fuse. If blown, replace with 1.25A/250V slo-blo fuse for 120V operation, & 0.6A/250V slo-blo fuse for 230V operation.
- Check internal wiring harness connections.\*
- Check the two internal DC current fuses. If either fuse is open, it is likely that the AC/DC power supply or main board has a short that caused excessive current draw.\*
- Check ribbon cable connection between main PCB and display PCB.\*

### Chassis lights when turned on, but handpiece does not turn:

- Check motor plug connection.
- Check foot switch connection.
- Depress foot switch.
- Increase RPM.
- Check that an instrument is properly seated in the handpiece and the collet is closed.

### Chassis does not light when 12V/24V power is applied (\* requires further disassembly, refer to schematic drawing set):

- Check connections at DC source, chassis, and cable.
- Check voltage of DC source.
- Check internal wiring harness connections.\*
- Check the internal 12A fuse on the red DC power line. If the fuse is open it is likely that the main board has a short that caused excessive current draw.\*

### Chassis does not light when battery pack is applied:

- Check connections at the battery pack, chassis, and cable.
- Check voltage of the battery pack.
- Check internal wiring harness connections.\*
- Check the internal 5A fuse on the orange DC power line. If the fuse is open it is likely that the main board has a short that caused excessive current draw.\*

### Motor slowing down or sluggish:

- Check for dirty, under-lubricated handpiece.
- Check if handpiece lubricant is running into motor.
- After lubricating, set handpiece with head down to let excess lubricant drain out.

### Unit fails to build pressure:

- Check that bottles are tight.
- Check for air leaks.

### Battery fault light on:

- Check if battery is too cold (<0°C). Disconnect battery and allow it to warm to room temperature.
- Check if battery is too hot (>55°C). Disconnect battery and allow it to cool to room temperature.

- Check if battery voltage is too low (<23V). Disconnect battery and confirm voltage is low (pins A to D). An under-voltage battery may be able to be brought above 23V by trickle charging the battery with the console or the solar panel.

- Check if battery voltage is too high (>34V). Disconnect battery and confirm voltage is high (pins A to D). An over-voltage battery should be replaced.

- Charging timeout at 4 hours. Reset the charger. If two consecutive charging attempts fail, replace the battery pack.

### Unit fault light on:

- Unit operational error observed. Remove all power from unit for 30 minutes before attempting to use the system again. If unit fault light is on during two consecutive attempts to operate the system, return system for repair. allow it to warm to room temperature.

- Check if there is overheating or faulty temperature monitoring of voltage booster transistors Q1 and Q2 by temperature sensor RT2 on the main PCB. Repair or replace PCB.\*

- Check if there is overheating or faulty temperature monitoring of voltage booster diodes D2, D5, D6, and D14 by temperature sensor RT1 on the main PCB. Repair or replace PCB.\*

- Check for faulty regulation of boost voltage VPP to 36V on the main PCB. Repair or replace PCB.\*

- Check for faulty regulation of compressor drive voltage VPMP to 24V on the main PCB. Repair or replace PCB.\*

- Check for faulty regulation of battery charge current CHG\_I\_MON on the main PCB. Repair or replace PCB.\*

\*requires further disassembly, refer to schematic drawing set.



## WARRANTY

Aseptico Inc. warrants its new products against defects in material and workmanship under normal and proper use, care, and maintenance for a period of two (2) years from date of original invoice. This two (2) year warranty does NOT apply nor is it extended to products that are not manufactured by Aseptico. These products may be covered by a separate limited warranty provided by the particular manufacturer, and all claims and questions regarding the same are to be directed to the particular manufacturer.

Expendable components, such as batteries, fuses, light bulbs, and tubing sets installed on Aseptico products are specifically excluded and have no warranty. Consumable goods are warranted for the stated expiration date of such goods.







Repair or replacement of any product(s) or part(s) under this warranty does not extend the term of this warranty, and such product(s) or part(s) shall remain covered by the unexpired portion of the warranty period, or for ninety (90) days from the date of return to Aseptico, whichever is later. This limited warranty applies only to the initial or first installation of the product or part.

During the specific warranty periods set forth above, Aseptico will, at its option, repair or replace the product(s) or particular part(s) that are found to be defective in either material or workmanship 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 Return Material Authorization (RMA) instructions, usually directing that the product be returned for service, shipping prepaid by the buyer or end user, to Aseptico or its designated and authorized warranty service center.

This warranty shall not apply to products (1) that have been subjected to neglect, abuse, misuse, improper installation, inadequate maintenance, or damage due to improper use of cleaning materials or chemicals, or non-compliance with Aseptico's storage, installation, operation, maintenance or environmental requirements; (2) that have undergone any modification or repair not previously authorized by Aseptico in writing, or service, repair or modification by or from any facility other than an authorized Aseptico service center or technician, or that use non-authorized software or spare or replacement parts; or (3) that fail due to reasonable and normal use or wear and tear, or materials made, furnished or specified by the buyer or end user.

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. Under no circumstances will Aseptico be liable or responsible for special, compensatory, incidental, consequential or punitive damages, lost profits, lost sales, or loss of use or loss of business opportunity by or through the use of the product. Aseptico's sole and maximum liability with respect to the product, other than its obligations set forth above, shall be the total purchase price paid for the product.

## SYMBOL DESCRIPTIONS

	Type B Equipment
	Attention – Consult Accompanying Documents
	Alternating Current
	Dangerous Voltage
	Dispose Of Properly
<b>IPX1</b>	Ingress of Water
	Protective Earth (Ground)

## STERILIZATION & MAINTENANCE

- CHASSIS** - The exterior of the chassis, including air/water syringes and tubing, may be cleaned by wiping with a soft cloth moistened with mild detergent or disinfecting solution.
- HANDPIECES** - Thorough cleaning and lubrication of handpieces after each use and before sterilization is very important to ensure proper operation and service life of the handpiece. Follow the instructions provided with the handpiece for complete maintenance and sterilization procedures.
- MOTORS** - The AE-200-30 motor is fully autoclavable. Detach the motor from motor cord by unscrewing the metal motor to cable connector by turning counterclockwise (see photo below). Steam autoclave the motor at 132° C (275° F) for ten minutes. Wipe down the motor cable with disinfecting solution. We recommend also sleeving the cable between each patient.

WHEN THE MOTOR CORD MUST BE AUTOCLAVED, AUTOCLAVE CORD AND MOTOR JOINED - DO NOT SEPARATE THE CORD FROM MOTOR.

Note: Extensive autoclaving will shorten the life of the motor cord.

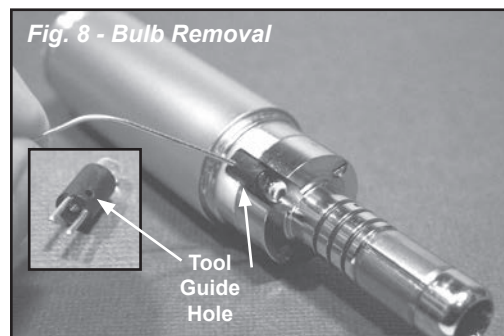
### AUTOCLAVABLE MOTOR CORD



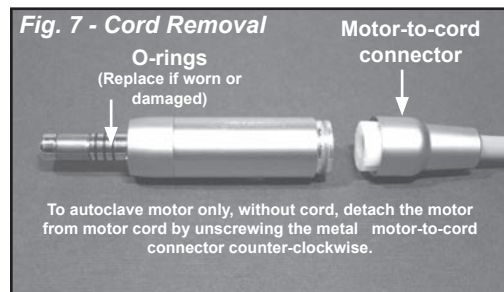
- When autoclaving, loosely coil the motor cord.
- Avoid sharply bending the cord when autoclaving.

- MOTOR BULB** - The motor light bulb may become dirty in the autoclave and require cleaning or replacement. NOTE: Do not handle bulb with bare fingers. To remove

bulb, unscrew bulb cover from end of motor housing. Insert dental pick or other small pointed instrument into guide hole at base of bulb (Fig. 8). Slide bulb forward until disconnected from socket in motor housing. Wipe bulb with clean soft cloth. Reinstall bulb with guide hole facing outward. Carefully guide the bulb's contact pins back into their respective socket holes.



5. **MOTOR O-RINGS** - Replace motor O-rings when worn or damaged (Fig. 7). Gently peel old O-ring out of groove and replace with new ring (PN 520069). Occasionally apply rubber compatible lubricant to O-rings to maintain flexibility.



6. **WATER LINES** - Disinfect the water lines weekly. Prepare a 1:10 bleach solution (1 part household bleach to 10 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.
7. **SYRINGE TIPS** - The Three-Way Air/Water Syringe features 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. 9). 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.



#### WARNING

Failure to comply with any of the following instructions may void your warranty

- Do not attempt to disassemble the motor.
- Do not oil or lubricate the motor.
- Do not attach a handpiece to the motor while the motor is running.
- Do not bend motor cord sharply.
- Do not submerge in any solutions.
- Do not use ultrasonic cleaners.

8. **Foldable Solar Panel** - Foldable Solar Panels are lightweight, durable, and extremely portable. The solar modules are mounted to weather-resistant fabric that quickly folds for storage and unfolds for use. Use a damp cloth and a mild soap solution wiping each of the panel's modules. Wait a few minutes for the panel to dry before folding and storing it.

**Note:** Foldable Solar Panels are designed for regular outdoor use, but not for permanent outdoor installations. The panels are not weatherproof and should not be left wet, if at all possible. If rained on, wipe panels dry and allow the fabric to air dry before folding.

**Note:** If the panel is wet, allow it to thoroughly dry before folding and storing it to avoid damage. Always store the Foldable Solar Panel in a cool, dry environment (temperature range -30 to 60° C).

**Note:** Solar Panels are not user serviceable.

## SPECIFICATIONS

## NOTES

**SIZE:** 17.5" W x 11.6" D x 7.0" H (44.5 cm W x 29.5 cm D x 17.8 cm H)

**VOLUME:** 0.82 ft<sup>3</sup> (0.23 m<sup>3</sup>)

**WEIGHT:** 27 lbs (12.25 kg)

**POWER SOURCE:** AC Dual Voltage  
120V/230V @ 50Hz/60Hz  
12V/24V vehicle battery  
27.6V battery pack (x2)  
36V solar panel to charge battery packs

**WATER RESEVOIR CAPACITY:** 16 fl. oz. (0.473 liter)

**AIR RESERVE CAPACITY, STANDARD:** 28.8 in<sup>3</sup> (473 cc)

**NOISE LEVELS:** 66 dBa @ 1 meter (3'4")

**FUSES:** 120V: 1.25A, 250V slo-blo fuse  
(Installed at factory)  
230V: 0.6A, 250V slo-blo fuse

**FUSE SIZE:** 5 x 20mm

**CURRENT RATING:** 20V: 1.25A, 230V: 0.6A

**NOTE:** The appliance inlet is the mains disconnect means.

**DUTY CYCLE:** Intermittent use:  
1 minute On /  
5 minutes Off

### ENVIRONMENTAL CONDITIONS:

Operating Temperature: 5° to 40° C (41° to 104° F)  
Transport/Storage Temperature: -20° to 55° C (-4° to 131° F)  
Relative Humidity: 5 to 95% non-condensing  
Altitude: 0 to 2591 meters (0 to 8,500 feet)

**NOTE:** Air pressure instruments are set to 2591 meters (8,500 ft) elevation.

**WARNING:** Equipment not suitable for use in the presence of a flammable anaesthetic mixture with air, or with oxygen or nitrous oxide.

**CAUTION:** If the integrity of the protective earth ground is in doubt, only use battery pack or vehicle battery power for operation.

- *Type of Protection Against Electric Shock:*
  - *Class I when system is powered by mains power source.*
  - *Class II when system is powered by Vehicle Battery power source.*
  - *Internally Powered Equipment for Battery Pack power source.*
- *Degree of Protection Against Electric Shock: Type B Applied Part*
- *Degree of Protection Against Ingress of Water: Ordinary Equipment*
- *Mode of Operation: Continuous*

This device has been tested and found to comply with the emissions requirements of IEC 60601-1-2:2014. 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.



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