

# Del asco Electricator®

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## OPERATOR'S MANUAL



**In the event that you need assistance related to this product,  
please call Delasco at 800-831-6273 (712-323-3269).**

**Safe and effective electrosurgery is dependent not only on  
equipment design but, also, to a large extent on factors under  
the control of the operator. *It is important that the instructions  
supplied with this equipment be read, understood,  
and followed in order to enhance safety and effectiveness.***

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# I. Introduction, Inspection & Precautions

## Indications for Use

The Delasco Electricator is a non-sterile, reusable, electrosurgical generator. The Electricator is intended to be utilized for destroying small lesions and to coagulate small bleeders by applying high frequency current via an electrode.

## Inspection

The Delasco Electricator includes:

- One (1) Electrosurgical Unit
- One (1) Power Cord
- One (1) Handpiece
- One (1) Wall Mount Kit
- One (1) Starter Pack of Electrolite® Disposable Electrodes
- One (1) Starter Pack of Delasco Electrosurgical Handpiece Sheaths
- Operator's Manual

Upon receipt of your Delasco Electricator, carefully unpack the contents, and verify that all items ordered are present and undamaged. If damage has occurred during shipment, or an item is missing, contact Delasco within ten days of purchase.

## Precautions

**CAUTION:** Federal (U.S.A.) law restricts the sale of this device to or on the order of a physician or health care professional.

**CAUTION:** This device is supplied non-sterile.

**WARNING:** The risk of igniting flammable gases or other materials is inherent in the practice of electrosurgery and cannot be eliminated by device design. Precautions must be taken to avoid contact of flammable materials and substances with electrosurgical electrodes, whether they are in the form of an anesthetic or skin preparation agent, are produced by natural processes within body cavities, or originate in surgical drapes, tracheal tubes, or other materials.

**WARNING:** The Electricator delivers high frequency current to the patient. The current will normally travel through the patient, to ground, and return to the Electricator. If an alternative pathway develops, a slight shock may be felt by the patient or physician. To reduce the potential of an alternative pathway:

- Do not allow the patient to touch grounded metal objects during the procedure.



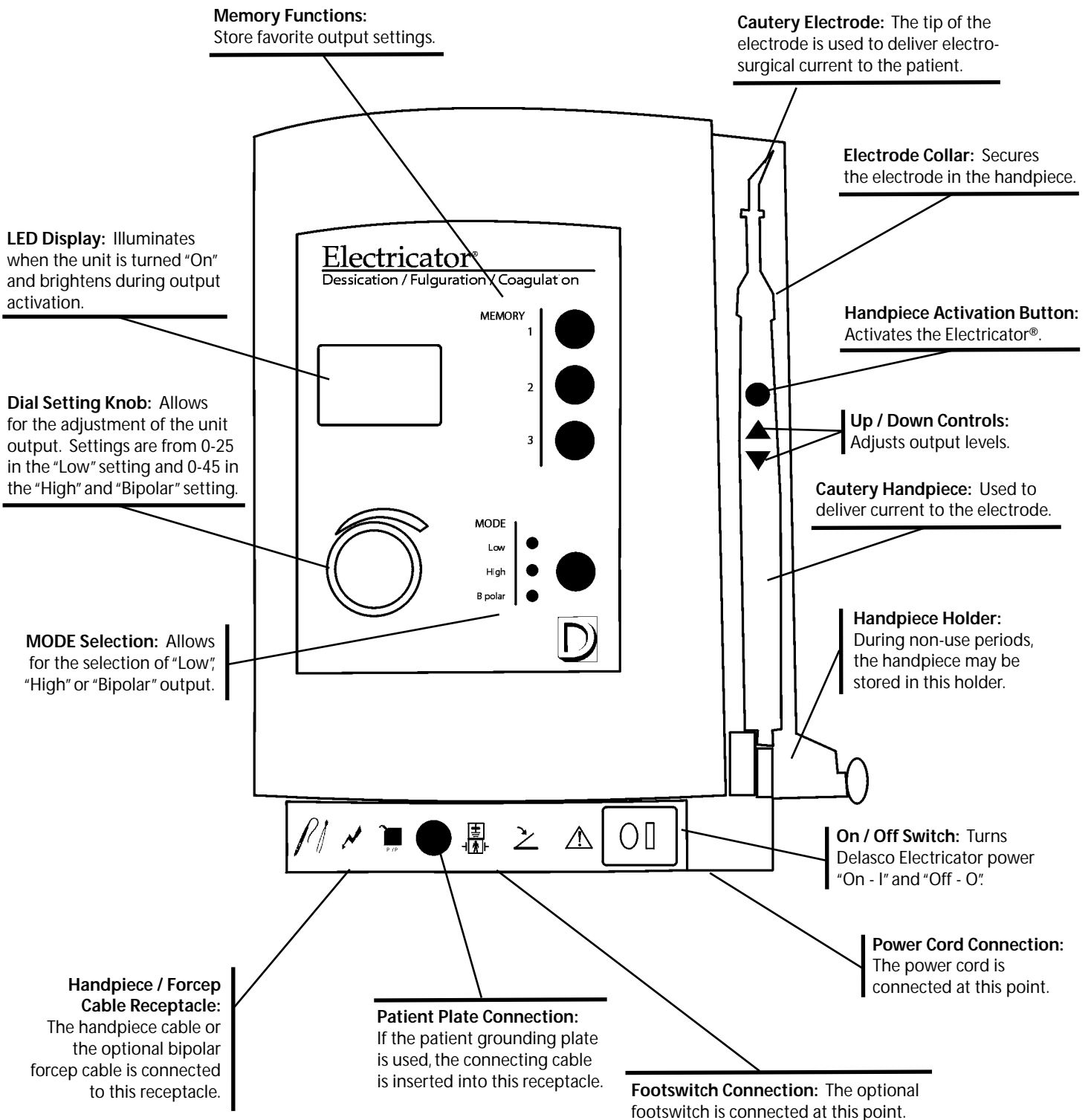
- If touching the patient during a procedure, maintain firm contact and do not remove your hand until activation is complete.
- If possible, wear exam gloves during procedures.
- If using the optional metal grounding plate, place the grounding plate on a fleshy area and insure that complete coverage of the plate is maintained during the procedure.

**WARNING:** Electrosurgery should not be used to perform circumcisions.

**CAUTION:** Use of electrosurgical devices can cause severe electromagnetic interference in other devices, particularly cardiac pacemakers; precautions should be taken to ensure that the patient's well-being is maintained in the event of such interference.

**CAUTION:** Studies have shown that smoke generated during electrosurgical procedures may be harmful to surgical personnel. These studies recommend using a surgical mask and adequate ventilation of the smoke using a smoke evacuator or other means.

# II. Device Diagram & Description



# III. Setup & Operating Instructions

**CAUTION:** *If you are unfamiliar with electrosurgery, it would be wise to practice on a large piece of lean flank steak. Hold the steak firmly in one hand (or place it on a table) and practice activating the unit in the various modes and dial settings.*

1. Mount the unit on a wall or optional mobile stand using the Wall Mount Kit. To reduce the potential of fluids entering the unit, do not use or store the unit in a horizontal position.
2. Insert the female end of the power cord into the unit and plug the male end into a grounded electrical outlet.
3. Align the Handpiece Connector with the Handpiece Receptacle on the bottom of the unit. Insert the Connector until a secure fit is obtained.
4. Insert an Electrolite® electrode into the handpiece and secure by rotating the collar. To prevent cross contamination, an electrosurgical handpiece sheath may be applied to the handpiece prior to insertion of the electrode.\*
5. If an optional footswitch is used, insert the male end of the footswitch into the receptacle at the bottom of the unit.
6. If an optional patient plate is used, insert the female end of the cord into the insertion hole along the lower panel of the unit (for plate placement instructions, follow the instructions supplied with the patient plate).
7. Turn the power to the unit on by pressing the on/off switch to the on position.
8. When the power is first turned on, a self diagnostic test of the unit is performed. If a fault is discovered, an error code will appear in the display window. An explanation of the error codes is found in section VI.
9. Select Low, High, or Bipolar modes using the Mode button. If Bipolar is selected, a bipolar forcep and cord must be attached to the handpiece/forcep cable receptacle.
10. Adjust the power output to the desired setting using the Dial Setting Knob or the Up/Down Handpiece controls.
11. To activate the unit, press the round activation button on the handpiece (or optional footswitch). Upon activation, an audible will be heard & the LED Display brightens.
12. When switched on, the previously used settings in all three modes are maintained in memory. In addition, three extra memory settings are available. To enter the extra memory settings, set the Dial Setting Knob and Mode selection to the desired output and press and hold the desired memory button until an audible is heard. The remaining two memory buttons may be used for two additional favorite settings.
13. When the procedure is complete, turn the unit off by switching the On/Off switch to the off position.
14. For Bipolar procedures, the Forceps are connected to the Electricator Forcep Cord, which is then attached to the unit using the same connection receptacle as the Handpiece. The forceps are then activated with a footswitch. Please note that due to the special high voltage connector, only the Delasco Electricator Forcep Cord will fit the Delasco Electricator unit.

*\* To insert an electrode using a sheath: In order to prevent binding of the sheath, twist the collar to the near-closed position, apply the sheath, then insert the electrode and twist the collar to lock.*



**CAUTION:** When unsure of the output level to use during a procedure, begin at a low setting and increase the output gradually to prevent unnecessary damage to the patient.

## Audible Volume Adjustment

To adjust the volume of the Electricator audible, turn the unit power on while simultaneously holding down the Memory 1 button. Adjust the audible to the desired volume using the Dial Setting Knob. Turn the unit off and then back on to return the unit to normal operation.

# IV. Common Electricator Techniques

**Desiccation:** A monopolar (Low or High) technique whereby the electrode is placed in contact with or inserted into the tissue and activated, causing tissue destruction.

**Fulguration:** A monopolar technique (Low or High) whereby the electrode is held slightly above the tissue and the current arcs to the tissue. Fulguration results in less tissue damage as it is more superficial. In reality, many procedures combine both desiccation and fulguration.

**Coagulation:** There are three ways to coagulate small bleeders using the Electricator:

1. Touch the monopolar electrode to the bleeder and activate (Low or High).
2. Utilize the optional patient plate (follow directions supplied with plate) and touch the electrode (Low or High) to the bleeder and activate (the addition of the patient plate produces more effective coagulation).
3. Bipolar forceps may also be used (requires use of footswitch) to coagulate small bleeders (Bipolar Mode). Forceps produce less tissue damage than other methods, as the current flows only from one tip of the forceps to the other.

# V. Cleaning, Storage & Sterilization

## Unit Cleaning

**CAUTION:** To reduce the risk of an electric shock, do not remove the rear cover of the instrument. Refer all servicing to qualified personnel.

**CAUTION:** Disconnect the unit power cord from the power receptacle prior to performing cleaning operations.

Periodic external cleaning of the Delasco Electricator is required. Clean all external surfaces with a mild soap and water solution using a moist, soft, lint-free cloth. Dry all surfaces with a clean, lint-free cloth.

**CAUTION:** Care must be exercised to ensure that the electrical connections and control knob do not come in contact with water.

## Unit Storage

Store the Delasco Electricator in a cool, dry place.

## Sterilization of Handpiece

The Handpiece may be autoclaved according to the instructions below.

- Separate the Electrode from the Handpiece prior to autoclaving and use aseptic procedures when handling and sterilizing the Handpiece.
- Wipe and remove all debris present on the Handpiece.
- Place the Handpiece in an autoclavable pouch or wrapped cloth.
- Steam sterilize for a period of 20 minutes at 250°F(121°C) (Do not flash autoclave or exceed 250°F). Consult manufacturers' recommendations, or the AAMI recommended practice for Steam Sterilization Using The Wrapped Method.
- Allow the Handpiece to cool for 30 minutes prior to use.
- Inspect the Handpiece after sterilization for damage. If the Handpiece has deteriorated or cracked, or severe discoloration or damage has occurred, discard and replace if autoclaved more than 40 times. If less than 40, contact Delasco for warranty information.

**CAUTION:** Do not use liquid sterilizing solutions with the Delasco Electricator or accessories, as the potential for material damage exists.

**NOTE:** The disposable Electrolite electrosurgical electrode and disposable handpiece sheath are designed to be discarded after use to prevent cross contamination and are not to be reused.



# VI. Troubleshooting

## Error Codes

|    | MAIN PROCESSOR        | SECONDARY PROCESSOR  |
|----|-----------------------|----------------------|
| E1 | EPROM failure         | N/A                  |
| E2 | EEPROM failure        | N/A                  |
| E3 | CPU COM failure       | CPU COM failure      |
| E4 | Critical RAM failure  | Critical RAM failure |
| E5 | ADC Voltage failure   | N/A                  |
| E6 | V_SNS Voltage failure | N/A                  |
| E7 | Stuck FS or HC        | N/A                  |
| E8 | Stuck FP Key          | N/A                  |
| E9 | Cal EEPROM failure    | N/A                  |

During start up, the Electricator will perform self-diagnostics. If an error is discovered, the unit will become inoperable and an error code will appear in the display window. Contact Delasco immediately if an error code is displayed. The following is a list of possible error codes:

## Warranty & Repair

Delasco has exercised care in the manufacturing of the Electricator. The warranty period for the unit is two years from the date of purchase and covers parts and labor. The warranty for the Handpiece is one year from date of purchase. Designed for a minimum of 40 autoclave cycles.

The warranty is limited to the repair or replacement of the unit at the discretion of Delasco and may not apply if the unit has been subject to abuse on the part of the user.

Items for repair (warranty and non-warranty) should be sent with all original packaging and instructions included. Please use proper packaging to prevent damage during shipment. We recommend that you insure the return with your chosen carrier for loss or damage. Call Delasco for a Return Goods Authorization code and include this code on the outer shipping container. Include a copy of the original invoice with the return and state the reason for the return. Freight charges for warranty and non-warranty repairs are the responsibility of the customer.

Please contact Delasco at 800-831-6273 or 712-323-3269 to advise that you are returning a Delasco product and to obtain an RGA number.

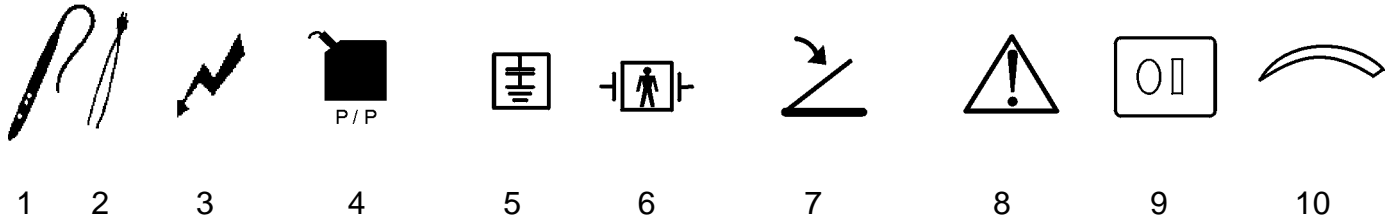


# VII. Unit Specifications

| <b>FEATURE</b>                    | <b>DESCRIPTION</b>  |
|-----------------------------------|---|
| Primary Power Requirements        | 100-240V, 50/60 Hz  |
| Maximum Supply Current            | 1.7 Amps  |
| Fundamental Output Frequency      | 350-490 KHz +/- 50 KHz  |
| Output Wave Shape                 | Clipped, Damped, Sinusoidal   |
| Maximum Output Power / Rated Load | Low - 25 watts / 500 ohms<br>High - 45 watts / 1000 ohms<br>Bipolar - 45 watts / 100 ohms   |
| Maximum Voltage Open Circuit      | Low - 3800 Vpp<br>High - 8500 Vpp<br>Bipolar - 1600 Vpp   |
| Duty Cycle                        | 30 sec ON / 30 sec OFF  |
| Display Reading Low               | 0.1-10 range: 0.1 watt increments<br>10-25 range: 1 watt increments   |
| Display Reading High & Bipolar    | 0-45 range, 1 watt increments   |
| Audio                             | Tone Frequency: 1 KHz<br>Volume Control: 8 settings<br>Sound Level: Min 45 db   |
| Operating Temperature Range       | +10° to +40° C  |
| Relative Humidity                 | 10% to 95% non-condensing   |
| Storage Restrictions              | -40° to +70° C, 95% humidity  |
| Protection                        | BF Defibrillator, Class 1   |
| Dimensions                        | 8.75" H x 6.5" W x 3.0" D   |
| Weight                            | 6 lbs.  |
| High Frequency Leakage Currents   | Monopolar Patient Leakage<br>(as per IEC 60601-2-2, Section 19.3.101.a.1): 150mAmps Max<br><br>Bipolar Patient Leakage<br>(as per IEC 60601-2-2, Section 19.3.101.a.3): 45mAmps Max   |
| Low Frequency Leakage Currents    | Enclosure (as per IEC60601-1, Section 19.3, Type BF): 50 microAmps Max<br><br>Monopolar Patient Leakage<br>(as per IEC 60601-1, Section 19.3, Type BF): 50 microAmps Max<br><br>Bipolar Patient Leakage<br>(as per IEC 60601-1, Section 19.3, Type CF): 7.5 microAmps Max |



# VIII. Symbology



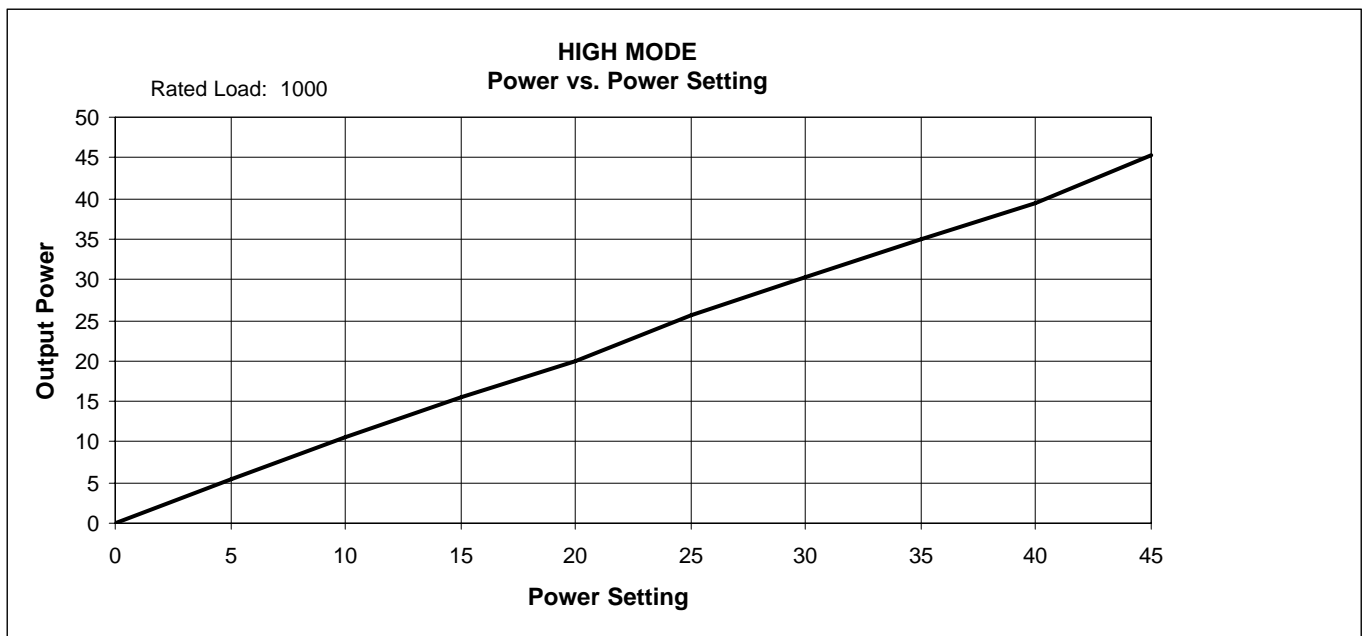
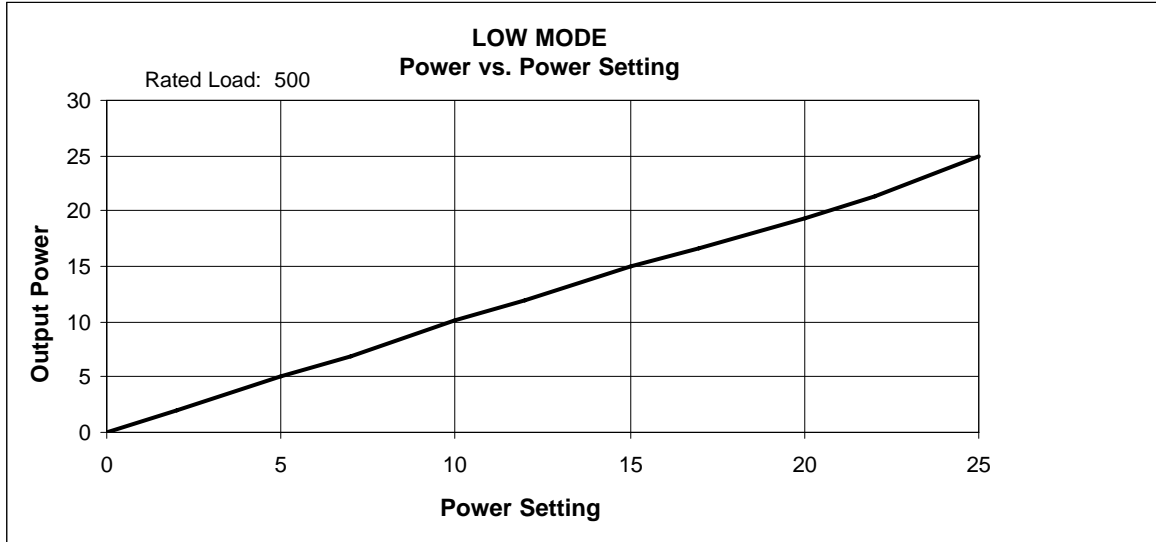
1. Handpiece Connection
2. Forcep Connection
3. Caution: Site is source of high voltage
4. Patient Plate Connection
5. Neutral Electrode Referenced to Earth
6. BF Equipment Classification
7. Footswitch Connection
8. Read Operator's Manual prior to using the device
9. Power On/Off
10. RF Power Adjustment

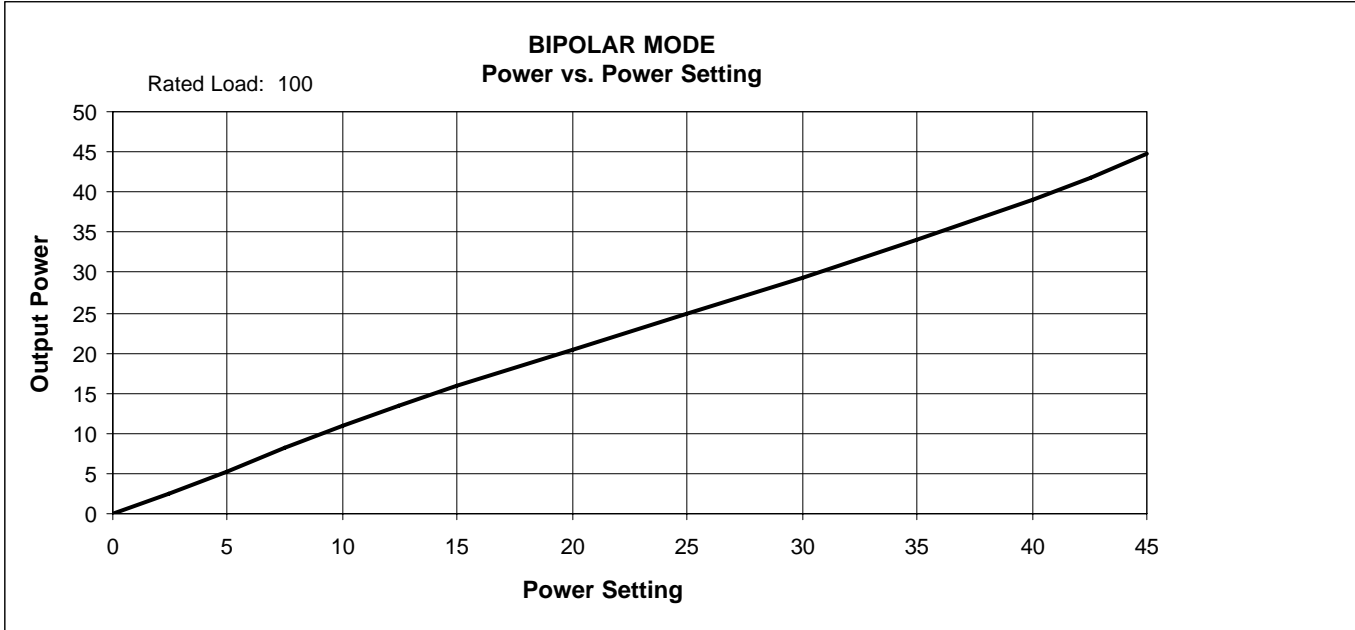
## IX. Available Accessories

| <b>ACCESSORY</b>   | <b>CATALOG NUMBER</b> |
|--|-----------------------|
| Autoclavable Power-Switching Handpiece (replacement)   | 26300                 |
| Electrolite® electrode, box of 100 (additional)  | 26200                 |
| Protective Sheaths, non-sterile, box of 100 (additional)   | 26100                 |
| Footswitch (optional)  | 26500                 |
| Wall Mount Kit (replacement)   | 26600                 |
| Bipolar Forceps (optional, require cord)   |                       |
| McPherson, 3 ½" straight, 0.5mm tip  | 26401                 |
| Adson, 4 ¾" straight, 1.0mm tip  | 26402                 |
| Semkin, 5 ½" straight, 0.5mm tip   | 26403                 |
| Cushing, 6 ½" straight, 1.0mm tip  | 26404                 |
| Cushing, 7" straight, 1.0mm tip  | 26405                 |
| Cushing, 7" straight, 2.0mm tip  | 26406                 |
| Gerald, 7" straight, 1.0mmtip  | 26407                 |
| Gerald, 7 ½" bayonet, 1.0mm tip  | 26408                 |
| Bipolar Forcep Cord, Electricator Only<br><i>(required for any bipolar forcep use with the Electricator)</i> | 26409                 |
| Reusable Patient Plate and Cord (optional)   | 26900                 |
| Mobile Stand, Universal  | 26800                 |



# X. Power vs. Dial Setting





# XI. Load Regulation Curves

