

**OPERATING-MAINTENANCE  
MANUAL FOR  
ANTHONY PRODUCTS, INC.  
ES0340 DERMACATOR  
ELECTORSURGICAL UNIT**



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## CAUTIONS

Use of electrosurgery can result in the possibility of interference with other devices particularly cardiac pacemakers. Consult the pacemaker manufacturer's literature and the patient's doctor before using this instrument on a patient using a pacemaker.

The risk of ignition of flammable gases or other materials is an inherent hazard in the use of electrosurgery, which cannot be taken by the user to restrict flammable gases and liquids, whether from anesthetic or skin preparation agents or generated by natural processes within body cavities, and other materials, including surgical drapes, from the electrosurgical devices.



# OPERATING-MAINTENANCE MANUAL FOR ANTHONY PRODUCTS, INC. ES0340 DERMACATOR ELECTROSURGICAL UNIT

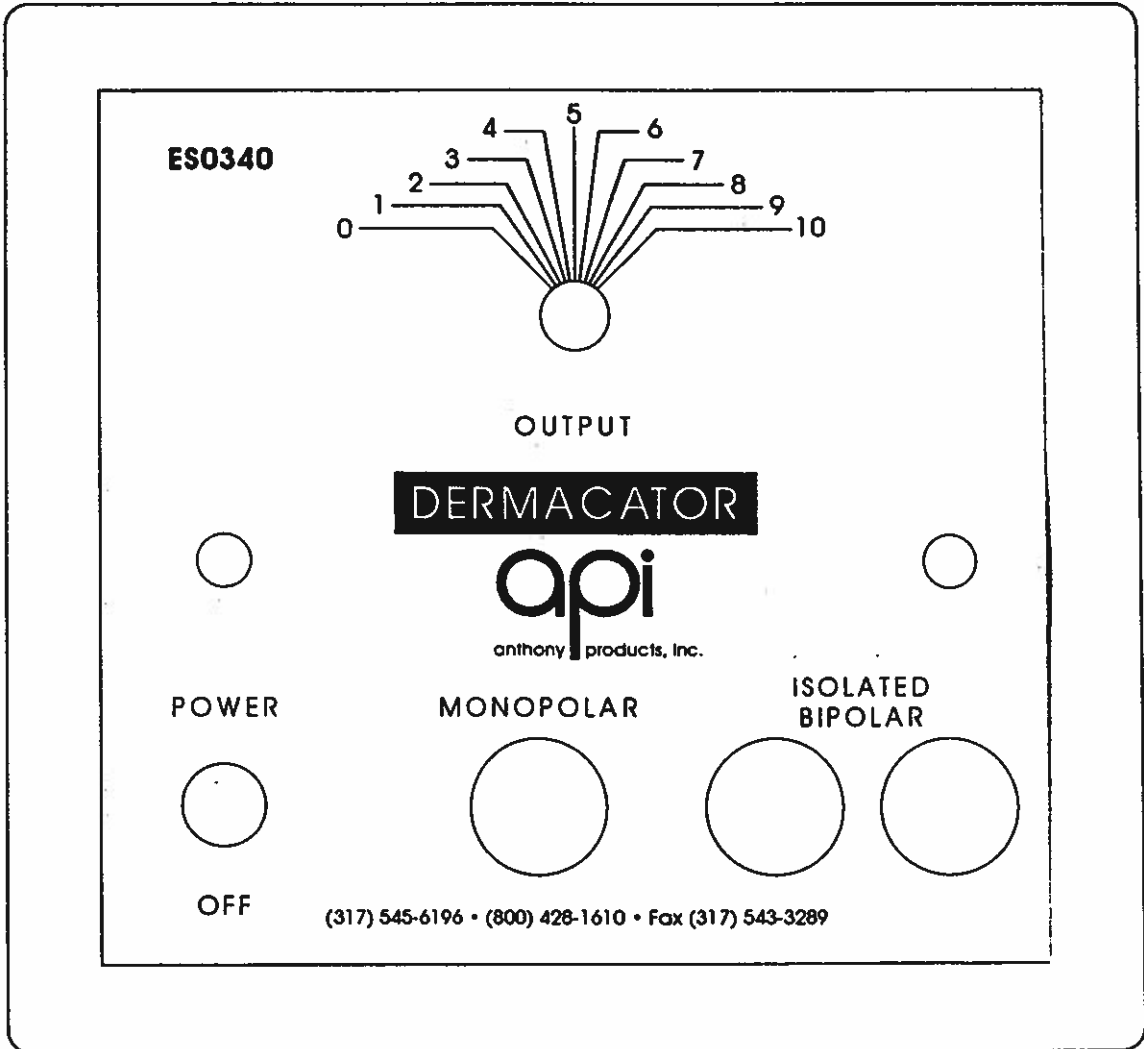
## WARRANTY

Anthony Products warrants all products to be free from defects in material and workmanship under normal use and operation. Manufacturer does not warrant any product which has been damaged as a result of accident, abuse, misuse or negligence.

This warranty is limited to the repair or replacement, at the manufacturers' option, of any product, or part thereof, which has been returned to the manufacturer within the specified warranty period, and which after examination shall disclose to manufactures' satisfaction that the product is defective. Transportation to the factory must be prepaid; the product after repair or replacement, will be returned at the expense of the manufacturer.

The warranty period for the Dermacator is twelve (12) months from the date of purchase. All accessories are warranted for thirty (30) days, provided they are used as intended.

**FRONT VIEW OF FACE PLATE**



## UNPACKING AND INSPECTION

1. Upon receipt of shipment, examine shipping carton for external damage. Open carton, remove unit and inspect carefully for visual damage. If you note any sign of damage, report it immediately to the freight carrier's agent. (Save the carton and packing so the freight company can inspect).
2. Check to see that all accessories are included as shown on invoice.
3. Try the unit. It's our experience they will work, but if not, many times it can be resolved by a phone call to the manufacture. If at that time it's determined the unit should be returned, please send to :

**Anthony Products, Inc.  
7711 Records Street  
Indianapolis, IN 46226**

4. If returning, please pack properly to protect the unit and accessories.

## APPLICATION NOTES AND WARNINGS

1. Safe and effective electrosurgery is dependent not only on equipment design, but also, to a large extent, on the 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.
2. The use and proper placement of a dispersive electrode is a key element in the safe and effective use of monopolar electrosurgery, particularly in the prevention of burns. Follow directions and recommended practices for the preparation, placement, surveillance, removal and use of any dispersive electrode used with this electrosurgical device.
3. During electrosurgery, the patient should not be allowed to come into contact with metal parts that are grounded. It is recognized that this recommendation may not be practical during certain procedures (e.g. those in which unshielded head frames are used); however, to maximize patient safety during the use of electrosurgical devices, such practices should be minimized.
4. Unshield electrosurgical leads (active, bipolar or return) should be positioned so that they cannot come into contact with the patient or other leads connected to the patient and so that they do not run parallel to nearby leads.
5. Electrodes and probes of monitoring, stimulating and imaging devices can provide paths for high frequency currents even if they are battery powered, insulated or isolated at 60Hz. The risk of burns can be reduced but not eliminated by placing the electrodes or probes as far away as possible from the electrosurgical site and from the dispersive electrode. Protective impedances incorporated into the monitoring leads may further reduce the risk of these burns. Needles should not be used as monitoring electrodes during such procedures.
6. Reusable accessory cables should be periodically function and safety tested in accordance with the original manufacture's instruction.
7. Apparent low power output or failure of the electrosurgical equipment to function correctly at normal settings may indicate faulty application of the dispersive electrode or failure of an electrical lead. Do not increase power output before checking for obvious defects or misapplication. Effective contact between the patient and the dispersive electrode must be verified whenever the patient is repositioned after the initial application of the dispersive electrode.
8. Use of electrosurgical devices can cause electrical 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.
9. The risk of igniting flammable gases or other materials is inherent in electrosurgery and cannot be eliminated by design. Precautions must be taken to restrict flammable materials and substances from the electrosurgical site, whether they are present in the form of an anesthetic or skin preparation agent, are produced by natural processes within body cavities or originate in surgical drapes or other materials.
10. Potentially hazardous conditions may exist when accessories of similar connector type are intermixed. Be certain that accessories are appropriate for the type of generator output used.

## OPERATING INSTRUCTIONS

1. **ON/OFF SWITCH:** Amber light will illuminate when unit is turned on.
2. **FOOTSWITCH:** Red light will illuminate when footswitch is depressed.
3. **CURRENT DIAL:** Adjust output from 1 to 10 as current density is required.
4. **MONOPOLAR JACKS:** Used for most procedures.
5. **BIPOLAR JACKS:** Used with bipolar or bi-terminal accessories.
6. **MOUNTING:** Unit can be hung on wall or set on table or desk.

The power cord is 3 wire grounded type for safe operation and can be used in most wall outlets where 120v is available.

Plug the unit into a wall outlet.

Move the power switch to the "ON" position.

Set the current density control to the desired setting for each technique.

Depress the footswitch to activate the output.

The output power may be adjusted during the procedure as required.

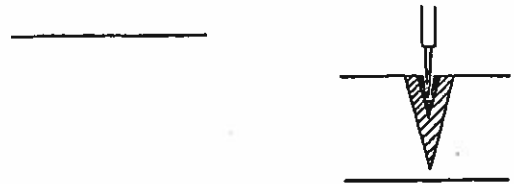
Spark Gap generated current is a half frequency current which produces molecular heat in cells. This current is designed to be a coagulating type current and is ideal for desiccation and fulguration. It is often used to destroy warts or small skin lesions. Spark Gap coagulation current is also useful for coagulating wet fields with many bleeders which are difficult to pinpoint.

A patient return device is not necessary with this unit.

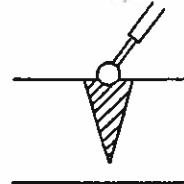
1. **FULGURATION:** Technique used for superficial dehydration or coagulation of the tissue. The electrode is held a short distance away and sparks jump to the tissue.



2. **DESICCATION:** Technique used for dehydration and deliberate destruction of tissue. The electrode is placed in contact with tissue and left in place to dehydrate the tissue.



3. **COAGULATION:** This is the sealing of small blood vessels. The electrode is left in contact with the tissue for a period of time until a deep white coagulum is formed.



4. **CUTTING:** This unit will not cut.

Testing of these various outputs can be achieved by using a piece of lean beef. Either hold it in your hand or place on a table while touching the beef with one hand. A piece of beef has limited electrical capacity, but when held or touched it gains the capacity of your body which simulates actual body tissue.

## ANESTHESIA

Adequate anesthesia is indicated for any and all procedures. It's advisable to anesthetize tissue adjacent to the intended operative site in the event it becomes necessary to extend the operative area. Small lesions are frequently removed without anesthesia when not in sensitive areas. Explosive or flammable types of anesthetics should not be used due to open spark.

## GENERAL WARNINGS

During electrosurgery the patient should not be allowed to come into contact with metal parts that are grounded or large conductive surfaces in order to minimize the possibility of localized burns resulting from stray electrosurgical currents to ground.

All monitoring electrodes must be placed as far away as possible from the electrosurgical site and the dispersive electrode.

Skin-to-skin contact (e.g. between the arms and the body of the patient) should be avoided.

Apparent low power output or failure of the electrosurgical equipment to function correctly at otherwise normal settings may not indicate faulty application of the dispersive electrode. **DO NOT INCREASE POWER OUTPUT BEFORE CHECKING FOR OBVIOUS DEFECTS OR MISAPPLICATIONS.**

## MAINTENANCE

**CABINET:** While the finish of the instrument cabinet will resist scuffing and the chemical attack of most acids and alkalis, any liquids spilled on the cabinet should be wiped off immediately.

Occasional cleaning and protection with any good wax or equipment polish, will keep your Anthony Products system looking new indefinitely.

## CORDS

**& HANDLES:** All Anthony Products cords and handles can be sterilized by any conventional method. Handles must be separated from cords when sterilizing.

All handle and cord connections must be thoroughly dry before using.

To insure complete safety and trouble-free operation, a periodic inspection should be made of all cords, wires, plugs and connections. Loose wires or worn insulation should be corrected immediately.

Apparent low power output or failure of the electrosurgical equipment to function correctly at other wise normal settings may indicate a failure of an electrical lead.

Electrical leads should be positioned so they cannot contact the patient or other leads connected to the patient, nor should they run parallel to nearby leads.

**ELECTRODES:** Electrodes should be kept free of dried tissue, coagulum and carbon. Such materials interfere with proper cutting and coagulation, and should be wiped off frequently while in use.

Electrodes and other accessories can be sterilized by any conventional method. They should be thoroughly dry before using.

## STERILIZATION

All accessories can be sterilized by any conventional method with temperature not to exceed 121 degrees C.

## APPLICATIONS

Electrosurgery has many applications in your practice. It is excellent for initial skin incisions because it is neat and virtually "bloodless". Electrosurgery is effective at any level and for any body tissue except bone (and tooth), although it is slightly more difficult for it to cut through fat than through other tissues. Coagulating blood vessels is another application where electrosurgery is most helpful. Hemostasis also may be achieved during procedures by using a hemostat and coagulating current. In addition to these applications which can aid you in many procedures, electrosurgery is a valuable instrument for many specific procedures. As you become more and more accustomed to your system, you can perform more difficult and varied procedures with it. You probably will continue to discover new uses for your electrosurgery system to make your practice safer, easier and more effective.

## PRINCIPLES OF ELECTROSURGERY

Some familiarity with the basic principles of electrosurgery and how it works will help you to get maximum usefulness and benefits from your system.

### THE ADVANTAGES OF USING ELECTROSURGERY

When used properly, electrosurgery has many unique advantages that make it invaluable in your practice. It reduces operating time and produces better operative results. It reduces postoperative pain and produces virtually scar-free healing.

## OTHER ADVANTAGES

- Smooth, even cutting without pressure.
- A clear operating field, with little or no bleeding.
- Precise control of the incision.
- No tissue destruction or sloughing.
- No cicatricial scar tissue.
- Healing by first intention is rapid and uncomplicated.
- No significant tissue loss after healing.

## WHAT ELECTROSURGERY IS

Electrosurgery is the use of energy created by a high frequency alternating current. The resistance of the tissue to the passage of this current creates heat internally in the tissue, as in diathermy or the radar range oven. In diathermy, for example, two plates (electrodes) of approximately equal size are used, creating low current density and an even distribution of energy throughout the tissue. In electrosurgery, however, we use to electrodes (an electrode and a patient return device) of greatly different sizes, resulting in greatly increased current density at the point of the smaller electrode. While the electrode itself remains cold, the highly concentrated high frequency energy creates molecular heat inside each cell. By the choice of electrodes and selection and adjustment of the current, the operator controls the effect of this energy on the tissues to achieve the desired results.

## CUTTING

Cutting is done, not by the electrode, but by the high frequency energy concentrated at the electrode. This high frequency energy generates molecular heat in each cell to the point where the fluids in the cell volatilize and the cell explodes. By applying this energy to individual cells in sequence, this is, by moving the electrode continuously through the tissue, the line of destruction is limited and the cutting effect is realized. At the same time the capillaries are sealed, resulting in almost bloodless cutting.

## COAGULATION

Coagulation takes place when the high frequency current is applied to the tissues with a current density sufficiently concentrated to dehydrate the cells and coagulate their organic contents, but without penetrating deeply into the tissue. This procedure is almost self-limiting, since the surface coagulation first created protects the underlying tissues against excessive depth of coagulation.

## THE ACTIVE ELECTRODES

Be sure the electrodes are securely seated and firmly held in the handle so that the entire electrode shank is covered. In general, straight wire electrodes are used for incisions and for removing fine tissues. Loops are used for removing heavier tissue, planeing and contouring. Ball electrodes are used for coagulation.

Keep the electrode clean while operating. Tissue shreds, debris and carbon on the electrode cut down the effectiveness of the current and, by impeding the passage of the electrode through the tissues, slow down the stroke. This creates unnecessary heavy coagulation, which can cause sloughing, and delay healing.

### Anesthesia

Adequate anesthesia is indicated for all electrosurgical procedures. It is usually advisable to anesthetize tissue adjacent to the intended operative site, in the event it becomes necessary to extend the operative area.

Electrosurgery should not be used in the presence of flammable or explosive gases.

When using a flammable preparatory solution such as alcohol, be certain that the solution has completely evaporated before using electrosurgery.

### The Tissues

It is preferable, whenever possible, to work on healthy tissue. With diseased tissue, it is impossible to predict the extent of the tissue loss. In these cases, it is advisable to take all possible measures to restore the tissue to health before performing any electrosurgical procedure.

The high frequency electrosurgical current will not cut hard tissues, such as bone. However, prolonged exposure to high frequency current can cause damage. It is, therefore, important to develop good techniques which eliminate the danger of damage to bone. Momentary contact with bone will not cause damage.



## The Power Setting

The ideal power setting is the minimum setting where cutting and coagulating can be accomplished.

If the power is too high, the tissue will be discolored and there will be considerable sparking when the electrode contacts the surface.

If the power is too low, the electrode will drag through the tissue tearing and "cooking", instead of cutting cleanly, and will pick up shredded and torn tissue.

Authorities agree that it is better to err on the side of too much power rather than too little. While excessive current may slightly dehydrate the surface, it permits the electrode to move through the tissue unimpeded.

Power requirements will vary with the type and size of the electrode, the area of electrode surface in contact with the tissue, the nature of the tissue, whether cutting or coagulating, and the depth of the incision desired. Larger electrodes, deeper incisions and tough fibrotic tissue are some indications for higher power setting.

## The Criteria of Good Cutting Technique

There are three criteria of good cutting technique:

1. The electrode should "float" through the tissue without dragging or resistance.
2. There should be only very slight, if any, change in the tissue color due to dehydration or charring.
3. No tissue shreds should adhere to the electrode.

## Cutting Techniques

When cutting, always activate the generator before contacting the tissue.

Plan the stroke. Before activating the electrode, take one or two practice strokes to be sure you can complete the planned stroke comfortably and correctly. At this time you can evaluate the size and shape of the electrode and the speed and depth of the stroke.

### Make the Cut

When the practice stroke is comfortable, activate the generator and make the planned cut.

Use smooth brushing motion without pressure. The electrode should pass through the tissue without dragging at a deliberate but not slow speed.

Keep the electrode moving. Prolonged contact with any one part of the tissues can create excessive coagulation.

## Coagulating

In contrast to cutting, when coagulating, the electrode should contact the tissue before activating the output.

### Coagulating Procedure

Set the power intensity control to the desired setting.

If using Foot Control Instrumentation:

1. Set the Mode Selector Switch to footswitch.
2. Contact the tissue with the instrument before depressing the footswitch.
3. Depress the footswitch pedal until the coagulation procedure is complete.

If using Hand Control Instrumentation:

1. Set the Mode Selector Switch to the Hand Control position.
2. Contact the tissue with the instrument before activating the hand control instrument.
3. Activate the hand control instrument until the coagulation procedure is complete.

## SERVED VESSELS

Clamp the bleeder in the beaks of a hemostat.

Touch a ball electrode to any part of the hemostat.

If using foot activated instrumentation, depress the footswitch pedal to activate the current for several seconds. Then release the pedal and remove the electrode.

If using hand activated instrumentation, depress the coagulation switch on the handle for several seconds to activate

the current. Then release your hold on the switch and remove the electrode.

In both instances, be sure the current is set high enough to achieve coagulation.

After the application of coagulating current, remove the hemostat. Bleeding should have stopped. If not, repeat the procedure.

When using electronically generated current, it is quite safe to hold the hemostat in one hand while holding the electrode handle in the other during this procedure.

## BIOPSY

The use of electrosurgery for biopsy has two particular advantages. First, since electrosurgery seals the capillaries and lymphatics as it cuts, the danger of metastasis through those channels is minimized. Second, since electrosurgery does not destroy any depth of cells on the line of incision, the specimens are highly acceptable to the pathologist.

The specimen should, whenever possible, include two or three millimeters of attached normal tissue.

Small (up to one half inch) masses should be removed in one piece. Using cutting current at a relatively high setting and a needle electrode (number 26-1225 or 26-1893), incise all around the mass in an elliptical pattern, including two to three millimeters of attached normal tissue.

## TROUBLESHOOTING

**TROUBLE:** On/Off switch does not work.

**PROBABLE CAUSE:**

1. Unit is not plugged in.
2. Switch is not in ON position.

**CORRECTIVE ACTION:**

1. Plug into wall outlet.
2. Switch to ON position

**TROUBLE:** Output mode is not working.

**PROBABLE CAUSE:**

1. Mode selector switch is wrong position.
2. Footswitch not plugged in.

**CORRECTIVE ACTION:**

1. Mode selector switch must correspond with instrumentation being used.
2. Plug in footswitch.

**TROUBLE:** Intermittent power output or apparent low output power.

**PROBABLE CAUSE:**

1. Faulty application or poor contact in handle and/or cord connections.
2. Improper placement of patient return device.
3. Worn insulation in electrical leads.

**CORRECTIVE ACTION:**

1. Replacement of cords or spread pins to effect tighter connections.
2. Place in complete contact with patient's body.
3. Replace leads.

**TROUBLE:** Audio tone malfunction.

**PROBABLE CAUSE:**

1. Control not adjusted properly.
2. Failure of output mode.

**CORRECTIVE ACTION:**

1. Turn control clockwise to desired audio level.
2. Selector switch must correspond with instrumentation being used.

**TROUBLE:** Cut lamp (YELLOW) does not illuminate.

**PROBABLE CAUSE:**

1. Mode selector switch in wrong position.
2. Lamp is burned out.

**CORRECTIVE ACTION:**

1. Adjust selector switch to footswitch and depress footswitch on cut.
2. Replace lamp.

**TROUBLE:** Patient return (RED) illuminates and alarm sounds.

**PROBABLE CAUSE:**

1. Patient return cord not plugged into patient jack.
2. Patient return device not fully plugged into female end of patient cord.
3. Lack of continuity in patient return cord.

**CORRECTIVE ACTION:**

1. Plug cord in jack (RED) making sure it's secure.
2. Replace patient return cord.

**TROUBLE:** Patient return lamp does not illuminate when patient alarm is activated.

**PROBABLE CAUSE:**

1. Lamp is burned out.

**CORRECTIVE ACTION:**

1. Replace lamp.

If any of the above corrective actions have been performed and the problem still exists, contact your local Anthony Products representative or Customer Service Department: **Anthony Products, Inc. 7711 Records Street, Indianapolis, Indiana 46226, (317) 545-6196 or (800) 428-1610.** All repairs to units and accessories are completed at this location.



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