

Western Surgical®

Electrosurgical Generator SSE-TUR USER MANUAL



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INDEX

1. GENERAL INFORMATION

1.1	Introduction	1
1.2	Scope	1

2. INSTALLATION

2.1	Unpacking and Handlings	2
2.2	Electrical requirement	2
2.3	Environmental requirements	3

3. OPERATIONS

3.1	Understanding Electro Surgery	4
3.2	Salient Features	4
3.3	Operating Control	5
3.4	Operating Instructions	7
3.5	Accessories	9

4. MAINTENANCE

4.1	Safety tips	10
4.2	Preventive Maintenance	14
4.3	Troubleshooting	15
4.4	Warranty	16



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1. GENERAL INFORMATION

1.1. INTRODUCTION

- ❖ Solid State Electro Surgical Unit
- ❖ Model: *SSE-TUR*
- Operating Manual

Thank you for purchasing the *SSE-TUR* unit. To use the generator properly and to get the best from it carefully read this operation manual use. After reading the manual, we suggest you to keep it in a convenient place for quick reference.

In order to instruct the user of an **Electro Surgical Generator** of the capabilities and limitations of this Generator a Greater deal of information must be provided. The user must be given more than the facts and specifications. Ideally he should be given a complete understanding of this equipment so he can use the generator in all situations and recognize potential hazards before they occur.

Taking into consideration all the above factors we have tried to make this manual more user friendly.

1.2. SCOPE

- Congratulations

Our new *SSE-TUR* is the most versatile **Electro Surgical Generator**. It offers features and performance never before available in a single generator.

The *SSE-TUR* has coagulation which rivals the best spark gap generators and with minimum cutting effect and cut is exceptionally smooth and starts promptly even in irrigated procedures. The isolated bipolar output, which has a non-sparking characteristic, is ideal for microsurgery, Neuro Surgery, Laparoscopy and other applications.

SSE-TUR meets the surgeon's needs in the wide range of general procedures and in specialties including Gynecology, Urology, Neurology, Thoracic, Plastic and Reconstructive Surgery.

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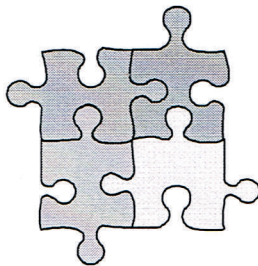
2. INSTALLATION

2.1 UNPACKING AND HANDLINGS

Carefully unpack the package and remove *SSE-TUR* from its packing material observes for the mechanical damage. Return the instrument if any mechanical defect is observed. Check the *SSE-TUR* Performa to ensure receiving of all accessories.

Accessories

1. Monopolar and Bipolar Footswitch
2. Stainless steel patient plate
3. Cord for patient plate
4. Monopolar chuck handle
5. Set of Reusable Electrode Knife, Needle, Ball
6. Bipolar Forceps with cord.
7. Disposable Monopolar hand switch pencil.



2.2. PRE-INSTALLATION REQUISITES FOR ELECTRO SURGICAL UNIT

Electrical requirements

- i. This machine has inbuilt switching mode power supply (SMPS), so there is no need of any external power supply to be connected. Use 230v single-phase $\pm 10\%$ power supply.
- ii. Operating room should have a good clean grounding (Earthing). Use of copper wire as grounding cable is recommended.
- iii. All 3-pin sockets (5 Amps or 15 Amps) on power supply board should have 3rd pin grounding connection (marked as "E" on socket and plug). Periodic checking of this earthing is essential.
- iv. Voltage between neutral and earth (ground) terminals of power supply board should be less than 1.8 volt as per specifications.
- v. If this low voltage limit is not achievable easily, then use of ultra isolation Transformer (in addition to voltage stabilizer) is recommended. Isolation transformer ensures proper electrical isolation together with a separate clean grounding.
- vi. All operation tables in the theatre should be permanently grounded. Use good quality copper wire for this purpose.
- vii. The earth terminal cable or grounding cable should not be connected to patient plate either directly or indirectly. Patient plate should not have contact with any grounded object including operation table.

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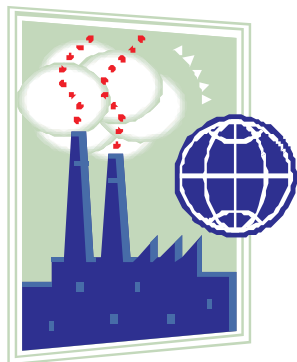


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2.3. ENVIRONMENTAL REQUIREMENTS

- i. Operating room should have adequate number of air conditioning unit to ensure proper low temperature and humidity depending upon surgical specialties.
- ii. If A/C units are not working, air-circulating fans should be directed towards surgical diathermy unit to dissipate the generating heat.
- iii. Use only electrically conductive jelly specifically recommended for radio frequency applications. (550K c/s suitable for other diagnostic applications.)
- iv. Periodic inspection and checking the working of patient protection circuit is recommended if provided. (Preferably after every 4 months interval).
- v. Use and avoid spilling of proper solution over and near by the patient plate.
- vi. Check cable connection of metal plate with Diathermy unit every day. Loose connections if any should be tightened immediately.
- vii. Refer to safety tips and preventive maintenance notes, enclosed in manual.

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3. UNDERSTANDING ELECTRO SURGERY

3.1. INTRODUCTION

Electro surgery is process of tissue cutting and coagulation in body by an electrode during surgery. It utilizes a sufficient high radio frequency electric current. High frequency surgery should not be mistaken for diathermy, electric cauterization, spark generation or similar methods.

It consists of non-traumatic method of tissue cutting and gentle coagulation. The result of this cutting method known as high frequency section are obtained without pressure or crushing of tissue cells. This effect is result from the heat that is generated through the electrical resistance of tissue when a current is produced by high frequency waves. The heat makes the intracellular water boil, thereby causing an increase in intracellular pressure and rupture of the cell membranes. This process is called cellular volatilization.

BASIC CONCEPTS IN ELECTROSURGERY AND PRINCIPLE OF RADIO FREQUENCY WAVE.

The instrument is designed to provide the correct electrical waveforms to deliver to the site of surgery in order to coagulate blood vessels and to cut tissues smoothly. Surgeons may use the electro surgery tool instead of, or in conjunction with, a conventional scalpel. When used properly, the electro surgery unit damages tissue considerably less than the scalpel, with the added ability to stem bleeding safely.

In bipolar procedures, the radio frequency was flows from an active electrode through a limited amount of tissue between the two electrodes.

3.2 Salient Features

- ❖ Body Protected and cardiac protected design.
- ❖ Three Modes of coagulation

➤ **Spray** - Mode offers massive & rapid non-contact coagulation

➤ **Fulgurate** - To provide effective non-contact coagulation from distance, mainly appreciated by Urosurgeons and cardiovascular surgeons.

➤ **Desiccate** - mode delivers better coagulation with less depth of tissue necrosis. -

>Fulguration - ->spray- To facilitate contact coagulation for precise control of individual bleeder

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- ❖ Three modes in CUT
- ❖ Pure cut with two additional **BLEND 1 & BLEND 2** modes to give a surgeon, varying degree of hemostasis while cutting.
- ❖ Separates Monopolar and Bipolar mode with individual foot-switches

Bipolar feature- When generator is switched to bipolar mode; all the monopolar activities associated with hand-switch or foot-switch, are automatically stopped to prevent uncalled burns. Bipolar provides coagulation without charring, adhesion and blanching of adjacent tissues

3.3. OPERATING CONTROLS (FRONT VIEW)



CUT MODE



→ Dial from 0 TO 10 for CUT power settings

→ Three CUT mode settings.

- ❖ **Pure Cut** - Selects pure cut with lowest level of hemostasis. Activation take place by pressing pure cut key
- ❖ **Blend1** - Selects cut with minimum hemostasis. Activation take place by pressing blend 1 key
- ❖ **Blend2** - Selects cut with average hemostasis. Activation take place by pressing blend 2 key

→ Indicators for every mode

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- **PURE CUT** - maximum setting limit is 400W @ Dial 10
- **BLEND 1** - maximum setting limit is 250W @ Dial 10
- **BLEND 2** - maximum setting limit is 200W @ Dial 10
- press cut foot switch or hand switch for desired operation. by pressing footswitch or hand switch cut indicator illuminate yellow and audio speaker will activate.

COAG MODE:



➔ Dial from 0 TO 10 for COAG power settings

➔ Three COAG mode settings.

- ❖ **Spray** - Mode offers massive & rapid non-contact coagulation. Activation take place by pressing spray key
- ❖ **Fulgurate** - for low voltage contact coagulation. Activation take place by pressing fulgurate key
- ❖ **Desiccate** - mode delivers better coagulation with less depth of tissue necrosis. Activation take place by pressing Desiccate key

➔ Indicator for every mode.

- **SPRAY** - maximum setting limit is 120W @ Dial 10
- **FULGURATE** - maximum setting limit is 150W @ Dial 10
- **DESICCATE** - maximum setting limit is 100 @ Dial 10
- press coag foot switch or hand switch for desired operation. by pressing footswitch or hand switch coag indicator illuminate blue and audio sound will activate.

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❖ BIPOLAR MODE



❖ Dial from 0 TO 10 for bipolar power settings.

BIPOLAR – Bipolar output is designed for a wide range of surgical applications. Bipolar mode utilizes low voltage to minimize sticking and charring of tissue.

- **BIPOLAR** – maximum setting limit 80W @ Dial 10
- Press bipolar foot switch for desired operation. by pressing Bipolar footswitch indicator illuminate Blue and audio sound will activate.

OPERATING CONTROLS (RARE VIEW)



3.4. OPERATING INSTRUCTIONS

1. Plug the power cable into 230 V ac., 50Hz outlet. Make sure outlet is
2. Switched OFF before inserting the power cable.
3. Insert the active accessories into the front panel receptacle
4. Connect the footswitch cable to the front panel connector.
5. Switch the mains outlet ON.
6. Select CUT & COAG mode as per requirement
7. Set CUT , COAG & Bipolar dial as per required output

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HOW TO USE MONOPOLAR DURING OPEN SURGERY:

1. CUTTING :

A high-frequency alternating current yields smooth, rapid cuts that evoke little to no hemostasis. The current stimulates cells to swell and explode. Cutting setting should be between 50 to 165 and press cut footswitch or hand switch. During cutting it is essential to press CUT foot switch before touching the tissue and maintain the spark at the tissue.

2. BLEND 1:

Preset blended cut modes give the surgeon varying degrees of hemostasis in cut mode. Adjust cut setting at 50 to 150. Press CUT foot switch to desiccate at 50 to 150. Press CUT foot switch to desiccate the tissue. It is recommended to touch the electrode to the tissue (ARTERY FORCEP) and then press CUT footswitch to avoid the sparking at the tissue.

3. BLEND 2 :

The mode is used for the vaporization of prostatic tissue or any fat tissue. The higher output wattage give fast cutting effect of the tissue.

4. SPRAY : Press (activate the coagulation) COAG Footswitch

Spray output is made for direct coagulation at the tissue with spark. Above spark does not give any cutting effect as its CREST FACTOR is as high as 84. (Crest Factor means ability to coagulate the tissue without cutting effect). During Spray it is essential to press (activate the Coagulation) COAG footswitch before touching the tissue and maintain the spark at the tissue.

5. FULGURATE : Press (activate the coagulation) COAG Footswitch

Sparking the tissue to lead to coagulation. There is no tissue-electrode Contact; rather, voltage is raised in order to incite a spark between Electrodes in order to coagulate the tissue in between.

6. DESICCATION (FORCED) : Press COAG footswitch

The drying out of cells leading to coagulation. Stems from direct contact with the active electrode and leaves a soft brown eschar, or scab. It ensures pinpoint desiccation with less destruction of peripheral tissue. This operating mode covers all the demands of standard coagulation. The surgeon can work quickly effectively either directly with the coagulation electrode or indirectly e.g. with a surgical clamp.

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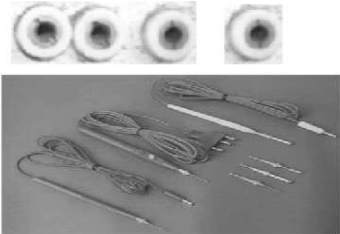

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3.5. ACCESSORIES

PHOTOGRAPHS	DESCRIPTION
	<p>MONOPOLAR & BIPOLAR FOOT SWITCH</p> <p>The 3-pin connector is use to attach Monopolar footswitch In Monopolar foot switch there are two functional switch</p> <ol style="list-style-type: none"> 1) CUT 2) COAG <p>The 2-pin connector is use to attach bipolar footswitch.</p>
	<p>PATIENT PLATE</p> <p>This 2-pin receptable accepts the patient return electrode connector used in Monopolar procedures.</p> <p>Plate 3½" x 6" (8.9cm x 15.2cm) with 8' (2.4m) cord</p>
	<p>ELECTROSURGICAL HAND SWITCH PENCIL & MONOPOLAR ACTIVE ELECTRODE</p> <p>Monopolar Active Receptable (Hand Switch) – This receptable will accept the 3 – pin hand switching active accessories. Monopolar Active Receptable (Accessory) - This receptable has single output jack.</p>
	<p>AUTOCLAVABLE BIPOLAR FORCEPS</p> <p>Bipolar Active Receptable – This receptable will accept 2 – pin bipolar accessories.</p>

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4.1 ELECTROSURGICAL SAFETY TIPS

Prior to use:

1. Know which E.S.U. will be used and how to use it. Consult the instruction
2. Manual.
3. Have all equipment and accessories available and use only accessories designed and approved for the unit.
4. Check the operation of the alarm systems. If applicable, check the operation of the return cable sentry prior to placement of the return electrodes.
5. Replace all broken, bent, excessively scratched or otherwise damaged return electrodes.
6. Do not cut, crease or sharply bend a disposable return electrode.
7. Avoid the use of flammable anesthetics. (A warning to this effect should be evident on the E.S.U. cover).
8. Always place E.C.G. electrodes as far away from the site of surgery as possible.
9. Do not use needle E.C.G. electrodes.
10. Replace non-insulated instruments with updated equipment.
11. Check the line cord and plug on the E.S.U. extension cords should not be used.
12. Do not use any power or accessory cord that is broken, cracked, frayed or taped.
13. Use a conductive gel specifically designed for electro surgery.
14. Have backup equipment available.
15. Always place the return electrode on the patient as close to the electro surgical site as possible. Avoid fatty, bony, hairy, heavily areas and bony protuberances.
16. Avoid placing the return electrode where fluids may pool.
17. Do not slide the return electrode under the patient. The patient should be lifted and placed on the return electrode.
18. If the patient has a pacemaker, the return electrode should be as far from it as possible.

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The use of fully working accessories



- **Before use:**

Before use, all accessories should be carefully checked for visible signs of damage and defects. All accessories must be subjected to regular technical checks, just as for main equipment. Defective and damaged accessories must, without fail, be taken out of service. The safety aspects of combining electro-surgical equipment and accessories from different manufacturers must be

checked before use by someone competent to do so (e.g. manufacturer, test department). A certificate must be issued. Suitable and tested accessories for an electro-surgical instrument are usually listed in the operating instructions for the equipment or in an accessory data specification applicable to the system.

- **During Use:**

1. Use the lowest possible power setting to achieve the desired surgical effect. The need for abnormally high settings indicates something is wrong.
2. Position cords so that they present no tripping hazard. Do not wheel equipment over electrical cords.
3. If the patient is moved or repositioned, check that the return electrode is still in good contact with the patient. (If using an adhesive electrode, make sure the gelled area is in good contact, not just the adhesive border.)
4. When active accessory is not in use, remove it from the surgical field and contact with the patient. (With most of today's generators, all outputs are "hot" when one is activated.)
5. Do not coil up active or patient cables – this will increase R.F leakage current and present a potential danger to the patient.

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6. Do not spark the active electrode to ground to confirm operation of the unit. This may damage the unit or introduce a patient hazard.
7. Do not active the electro surgical unit for long lengths of time.
8. Avoid “buzzing” forceps and creating a metal-to-metal arc. Touch the forceps with the electrodes and then activate the generator. (This will eliminate the majority of “jolts” to the surgeon.
9. Only use endoscopes with insulated eyepieces.
10. Keep active electrodes clean. Escher build-up will increase resistance, reduce performance and require higher power settings.
11. Do not submerge the active accessory in liquids. This may cause the accessory to activate.

- **After use:**

1. Turn the unit off.
2. Turn all dials to 0.
3. Disconnect all cords by grasping the plug, not the cord, disconnect the power supply cord first.
4. Coil electrical cord when sorting; don't bend or kink them.
5. Do not reuse disposable accessory.
6. Routinely replace all “permanent” cable at appropriate intervals - every three four months, depending upon usage rate.
7. Wash all reusable accessories with the damp cloth. Do not immerse or soak.
8. E.T.O. sterilized accessories if possible this will prolong their life.

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INSTRUCTION REGARDING THE APPLICATION OF THE PATIENT PLATE

1. The patient plate including cable and plug must always be in perfect condition. Above all, care should be taken to ensure that the surface of any reusable patient plate is clean and metallically bright.
2. Careful consideration should be given to the positioning of the electrodes and their connections. The high – frequency current path through the patient must be as short as possible. Therefore the patient plate should be positioned with its entire area covering the patient as close as possible to the operating area. The diagram shows the most suitable points of application on the upper arms or thighs for the appropriate operating areas.

Do not apply the neutral electrode to bony or hairy areas. Hairy areas should be shaved off before application.
3. The electrical conductivity of the skin in the area of the patient plate should be improved by cleaning away oil grease, massaging or brushing to improve the circulation and by carefully rubbing in saline solution.
4. Do not attach the patient plate directly over large blood vessels close to the skin. Attach the patient plate securely, so that even when the patient moves the whole fixture area is secure. Make sure that there is no excessive contusion, which could lead to necrosis resulting from lack of circulation.
5. Areas subject to considerable secretion of sweat, body extremities lying against the trunk or skin-to-skin contacts should be separated by the application of dry cloth. Drain of urine with a catheter.
6. During electro surgery, the patient must not come into contact with electrically conductive objects, such as the operating table supports, damps cloth etc. A thick, dry, electrically – insulating sheet must be placed between the patient, the operating table and the supports. During electro surgery, these sheets must not become damp.
7. If the patient is connected to a monitoring device during electro-surgery, the ECG electrodes should not be applied too close to the operating area. The distance should be at least 15cm. Instrument leads, which can conduct the RF current away from the patient, must not be applied to the patient during electro surgery.
8. **Warning!** In the floating mode the neutral ECG electrode must not be connected to the neutral surgical electrode, but should be placed as far as possible away from it.
9. The cable between the patient plate and the surgical unit must be as short as possible.

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4.2. PREVENTIVE MAINTENANCE

• Generators

1. Do not use the top of the generator as a table. Fluids can enter the generator.
2. Keep the generator and foot switch clean. Use a damp cloth and mild detergent. Do not use solvents.
3. Coil the power cord when not in use.
4. Unplugged the power cord by grasping the plug, not the cord.
5. Have a qualified Biomedical Engineer inspect the unit at least every six month.
6. If an E.S.U. is dropped, it should not be used until inspected by Biomedical Engineer.

• Accessories

1. Establish procedures for cleaning and sterilization per manufactures recommendation.
2. Replace adopters that do not provide write connections.
3. Inspect "Permanent" cords and cables for clerks in insulations.
4. Rotate your stock of pre-gelled return electrodes according to lot numbers.

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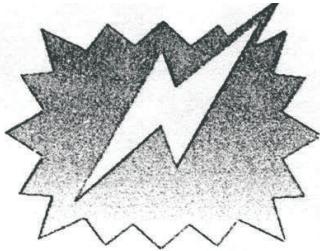
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4.3. TROUBLESHOOTING

- Introduction:



DANGER: UNDER NO CIRCUMSTANCES SHOULD THE CASE OF THE SSE-TUR OPENED EXCEPT BY QUALIFIED SERVICE PERSONEL. THERE IS POTENTIALLY HARMFUL VOLTAGE INSIDE THE CASE.

NO USER SERVICEBLE PARTS INSIDE THE CASE.

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WARRANTY CERTIFICATE

WESTERN SURGICAL product is warranted to be free from electrical and mechanical defects in material and workmanship, under normal use. The **WESTERN SURGICAL** product must not have been moved from the site of original installation. A new or remanufactured part to replace the defective part will be provided without charge for the part itself, through an authorized **WESTERN SURGICAL** service dealer. The replacement part assumes the unused portion of the warranty.

WESTERN SURGICAL WILL NOT BE RESPONSIBLE FOR:

1. Damage or repairs required as a consequence of faulty installation or application by others.
2. Damage or repairs needed as a consequence of any misapplication, negligent handling, improper servicing, unauthorized alteration, or improper operations.
3. Failure to start due to voltage conditions, blown fuses, open circuit breakers or other damages due to the inadequacy or interruption of electrical service.
4. Damage as a result of floods, winds, fires, lightning, accidents, corrosive atmosphere, or other conditions beyond the control of **WESTERN SURGICAL**.
5. Parts not supplied or designated by **WESTERN SURGICAL**.

Date of Installation	Installed By
Model No.	Serial No.
Warranty Period	
Name of Doctor & Address :	

Customer Sign. With Stamps

**Marketed By: Western Surgical
Sign. With Stamps**

No Claim Warranty :

- 1) **Any Defect Throughout Power Supply**
- 2) **Any Physical Damage**

3) Under Warranty Standby Unit Not Provide

4) Under Warranty When Company Send Parts or Machine we Imidiat send to Buyer.

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ELECTRO SURGICAL GENERATOR, ULTRASONIC SCALPEL & VESSAL SEALER ALL PRODUCT'S

LOTUS ULTRASONIC SCALPEL



VESSEL SEALER



DIGITAL ELECTRO SUR. GENER.



SSE-TUR



VESSEL SEALING SYSTEMS MONOSEAL



VESSEL SEALING SYSTEMS BISEAL



VESSEL SEALING SYSTEM



SSE-250



R F SURGICAL SYSTEM



BI - ECO



BI - PRO



BIPOLAR 150



SKIN & CERVICAL CAUTRY ANALOG



400W



250W / 300W



LAP-BI CLAMP



THERMAL CAUTERY/ELECTRICAL CAUTERY



RF CAUTERY



CERVICAL CAUTERY ANALOG



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