

Test Procedures

This checklist is intended to provide information for the preventive maintenance (PM) of the FINESSE+ Electrosurgical Generator and Smoke Evacuation Systems. It is intended for use by technical personnel who have experience with electrosurgical generator operation and maintenance, and who possess the test equipment and tools necessary to obtain the requested data. This document may not reference all tests necessary to demonstrate compliance to all regulations, nor should all tests listed be considered necessary for the safe use of the FINESSE+. Technical personnel should consult local regulations and industry recommendations to develop their own protocol for inspection and PM of the FINESSE+.

Required Equipment and Tools

- Electrosurgical analyzer and leads
- Electrical safety analyzer, with patient lead connections
- Two-button electrosurgical switchpen and/or two-pedal footswitch
- SSE-500 FINESSE+ Internal Smoke Evacuation Filter

Mechanical Inspection and Service

- Pass Verify front panel controls, switches, and dispersive pad receptacle/pins are not damaged.
- Pass Verify switchpen receptacles firmly hold switchpen.
- Pass Knobs and color coded knob caps are securely attached.
- Pass Verify power cord and its rear panel receptacle are not damaged.
- Pass Verify footswitch cord (if present) and its rear panel receptacle are not damaged.
- Done Replace FINESSE+ Internal Smoke Evacuation Filter


Performance Inspection

- Pass Green LED in main power switch lights when switch is toggled to the "I" position.
- Pass One and only one cut mode indicator ("C", "1", "2", or "3") is illuminated..
- Pass For all four cut/blend modes, the cut mode waveform selector knob adjusts so that light indicator for each mode illuminates when knob's index pointer corresponds to the correct indicator light.


Verify power displays can be adjusted through the full output range

- Pass Cut: 05-99
- Pass Coag: 05-75

Press cut button on switchpen (repeat with cut pedal on footswitch, if available), and verify:

- Pass Yellow cut activity indicator  lights and cut mode tone is audible
- Pass Smoke evacuation motor activates, and remains running 5 seconds after deactivation

Press coag button on switchpen (repeat with coag pedal on footswitch, if available), and verify:

- Pass Blue coag activity indicator  lights and coag mode tone is audible
- Pass Smoke evacuation motor activates, and remains running 5 seconds after deactivation

- Pass Verify smoke evacuation flow rate switch changes motor speed.
- Done Adjust volume control so that cut and coag audible tones can be clearly heard over the smoke evacuation motor set at the 'high' flow rate position.

Output Calibration

Set cut mode output to "99", mode to "C", and electrosurgical analyzer load to 500Ω. Line voltage MUST be 114.0-116.0 VAC for FIN-110 and 228.0-232.0 VAC for FIN-220. Activate FINESSE+ system and adjust R334 until output is 97W. NOTE: Output may vary several watts due to feedback activity.

- Pass _____ (95W-99W)

Check system output power at the following displayed settings. All measurements should be made through a 500Ω load. Tolerances are listed in parentheses. Do not activate system for more than 10 seconds for each reading, and allow at least 20 seconds between readings. *Individual output calibration is not adjustable.*

- Pass Cut 30: _____ (25-35W) 60: _____ (51-69W) 90: _____ (77-103W)
- Pass Blend 1 30: _____ (25-35W) 60: _____ (51-69W) 90: _____ (77-103W)
- Pass Blend 2 30: _____ (25-35W) 60: _____ (51-69W) 90: _____ (77-103W)
- Pass Blend 3 30: _____ (25-35W) 60: _____ (51-69W) 90: _____ (77-103W)
- Pass Coag 30: _____ (25-35W) 60: _____ (51-69W) 75: _____ (64-86W)

HF Leakage Currents

Set cut display to "99" and coag display to "75". Establish the HF leakage current path by connecting a non-inductive 200Ω load between the active electrode and mains ground. Leave dispersive connection open. Activate FINESSE+ system to check active HF leakage current:

Active HF Leakage

- Pass Cut _____ (<150mA)
- Pass Coag _____ (<150mA)

Connect non-inductive 200Ω load resistor between dispersive electrode and mains ground. Leave active connection open. Activate FINESSE+ system to check dispersive HF leakage current:

Dispersive HF Leakage

- Pass Cut _____ (<150mA)
- Pass Coag _____ (<150mA)

Touch Currents

Using an electrical safety analyzer, measure the following conditions. Acceptable conditions are listed in parentheses:

- Ground lead intact
- Pass Normal Polarity _____ (<100 μ A) Pass Reverse Polarity _____ (<100 μ A)
- Ground lead open
- Pass Normal Polarity _____ (<100 μ A) Pass Reverse Polarity _____ (<100 μ A)










Using the electrical safety analyzer, and following the analyzer's instructions, make the appropriate connections for the following leakage currents. Measure the leakage currents without activating the FINESSE+ system. The active electrode is the only Applied Part subject to these tests.

- Pass Patient Auxiliary Current _____ (<100 μ A)
- Pass Patient Leakage Current (PLC) _____ (<100 μ A)
- Pass PLC Caused by Ext Voltage _____ (<5000 μ A)
(aka Mains on Applied Part)



CQM Circuit Tests

Do not activate the FINESSE+ system during these tests, as most ES analyzers are not designed to withstand activation during CQM testing.

Following the instructions for the ES analyzer, perform the following measurements IN THE ORDER LISTED, without disconnecting the CQM dispersive pad lead between steps. Set CQM tester (or resistor substitution box if analyzer does not have CQM test capability) to 150 Ω . Connect pad plug to FINESSE+ system and turn on main power switch.

- Pass Verify   error is active.
- Pass CQM dispersive pad illuminates the CQM pad icon  above the pad receptacle.
- Pass Reduce resistance until   error clears. 130 Ω _____ (117 Ω -143 Ω)
- Pass Reduce to 50 Ω , then raise until   error activates. 68 Ω _____ (61 Ω -75 Ω)
- Pass Reduce resistance until   error activates. 10 Ω _____ (5 Ω -15 Ω)

Other Error Checks

- Pass Pressing both cut and coag switchpen buttons or footswitch pedals simultaneously produces  error and disables output
- Pass Activation of coag mode into open circuit conditions does not produce  error

Notes:

Performed by: _____ FINESSE+ Serial No: _____

Signature: _____ Date: _____

<i>Test Equipment</i>	<i>Make/Model</i>	<i>Serial/Reference</i>	<i>Calibration Expiry</i>
ES Analyzer			
Safety Analyzer			