

## **Technical Brief on the MEGA 2000® Family of Products and the ERBE Endo Cut and High Cut Modes**

The MEGA 2000® and the MEGA 2000® Soft Patient Return Electrodes are innovative, cost effective products that provide many benefits to both clinicians and patients. Both the MEGA 2000 and the MEGA 2000 Soft are approved for use with a wide variety of generators currently used in the marketplace today. As with almost any product, there are a few exceptions. One of those exceptions is the use with the ERBE Endo Cut and High Cut Modes. The MEGA 2000 and MEGA 2000 Soft are not to be used with either of these modes. The purpose of this bulletin is to explain the reason for this contraindication.

The ERBE Endo Cut and High Cut modes have some very specific applications. The Endo Cut Mode is used for endoscopic procedures and is recommended as “optimal” for endoscopic polypectomy and papillotomy. It is featured on the ICC 350 generator and optional on the ICC 200 generator. The High Cut Mode is used in surgeries where heavy power demands are placed on the generator during surgery under a non-conductive fluid. This mode is used in procedures such as TURP’S and arthroscopies. The High Cut Mode is standard in the ERBOTOM ICC 350 generator and the ICC 300H generator.

High Cut and Endo Cut provide their effectiveness by regulating the amount of sparking that occurs during the procedure. We believe that this is achieved using a feedback circuit which may work as follows. When sparking occurs, a demodulation of the current (lowering of the frequency) takes place. This lower frequency current provides feedback to the High Cut and Endo Cut modes to either increase or decrease the peak to peak voltage to adjust the level of sparking. The low frequency current is sensed by the generator via the return electrode. Low frequency current does not couple (complete the circuit) between the patient and MEGA 2000 as well as standard radio frequency current. Therefore the generator may not sense as much low frequency current and may increase the peak to peak voltage to increase the amount of sparking unnecessarily. This may result in a larger spark than the surgeon is accustomed to seeing, although it is not apparent whether this would result in a greater electrosurgical effect or cause unintended tissue damage.

Currently both Megadyne and ERBE do not recommend using the MEGA 2000 or MEGA 2000 Soft with these modes, until more information and testing can be done to learn how to compensate for this feedback circuit.