

# DOPPLER PROBES

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## GENERAL CARE

The Doppler probes are easily ruined through misunderstanding and neglect. Over 90% of the failures of the Doppler are due to failure of the probe in some way. It will pay you to read what follows and transmit this information to any person using the Doppler.

**ABOUT THE PROBE:** The active part of the probe consists of two crystals. One transmits the ultrasonic waves and the other receives them. Each crystal can serve either function so it makes no difference how you plug in the probe to the panel connectors. The crystals are held in place by a material that protects the crystals and the tiny wires soldered to them. This material is vulnerable to attack by heat, alcohol and ECG paste. We recommend an ultrasonic gel but in an emergency, use any surgical jelly. **DO NOT USE ECG PASTE OR CREAM AS A CONTACT MEDIUM BETWEEN THE SKIN AND PROBE.**

**DISCONNECTING THE PROBES** from the instrument should be minimized. Do not unless you need to, for two reasons. First the connectors wear and make erratic contact which creates "static". Second, people have a tendency to pull on the cable instead of the connectors themselves and they break the soldered connection inside the cable connector. You can tighten the outside flanges of the connector on the probe cable easily and sometimes, with a large, sharp needle, you can bend the inside of the panel connector so it wipes the center prong of the cable connector better. Otherwise your bio-med can replace the panel connector. Do not bundle the probe cable tightly as that will ultimately break the internal shielding and ruin the probe.

**BE SURE THE PROBE FREQUENCY MATCHES THE TUNING OF THE INSTRUMENT.** The frequency of the probe is marked on the connector end of the cable or engraved on the metal of a pencil probe. The tuning of the instrument is marked with a stick-on label near the probe connectors.

**PROBES ARE DATED:** There is an engraved date on the body of the probe near the cable. That is the date we shipped it to you.

**THE COUPLING GEL** which we furnish is called Aquasonic, made by Parker Laboratories. This gel is available from us or a similar ultrasonic gel (not too thin) will usually be available from one of your surgical supply dealers. Other makes of gel may work as well, though the dispenser may not be as convenient.

Coupling gel in sterile packets is also available from us. You can also use sterile jellies internally such as K-Y or ABCO. Bottled gels like Aquasonic or Ultraphonic can be autoclaved. Any sterile liquid or gel without excessive bubbles may be used. Placing the pencil probe directly on wet tissue will also work. **DO NOT** use ECG paste or cream.

In an emergency, one can put gel and a pencil probe inside a finger of a sterile glove using appropriate sterility precautions for the cable. The ultrasound will couple through the gel and the glove. Additional sterile gel or liquid must be placed on the fingertip of the glove to provide acoustic coupling. There will be some loss of sensitivity.

**REPAIRABLE?** If a crystal is cracked, a tiny wire is broken, or the probe has been overheated, repair is not possible. If probe connectors are noisy or broken due to flexing of the cable, we can replace the connectors. We want you to get many uses from each probe, but there are limits as to what we can do. We suggest you use a marker to stripe across the cable each time it goes into the sterilizer so you will know how many uses you are getting.

**A PROBE EXTENSION CABLE** may be purchased which allows you to keep the Doppler out of the sterile field when the probe is to be used intraoperatively. This cable is about four feet long and costs very little.

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## CARE AND STERILIZATION

**AFTER USE**, the probe should be gently wiped clean of the Aquasonic or other acoustical coupling gel with a soft tissue. If gel has dried on the probe, place it under warm tap water (not hot) to soften the gel and permit you to wipe it off.

**DO NOT SCRAPE** dried gel from the probe with any instrument. Should someone use a sharp instrument to scrape off dried gel, they may also succeed in scraping off the material covering the tiny wires and crystals as well. We speak from long experience. Such probes cannot be repaired, and in fact any probe with a broken or cracked crystal cannot be repaired. You must order a replacement, specifying the frequency marked on the connector (e.g. 9.2, 8.1, etc.).

### **STERILIZATION:**

Sterilizing should be done by gas (ethylene oxide) at the lowest temperature consistent with good sterilization. Limit the temperature to 140 degrees Fahrenheit (60 degrees Celsius). Excessive heat will ruin both the crystals in the probe and the cable. Possible consequences are softening of the material covering the crystals with subsequent peeling and/or excessive noise generated in the probe from deposition of chemicals inside. A sterile water rinse after chemical sterilization is recommended.

Sterilization by any method is going to shorten the life of the probe, but the cost per use is quite low.

### **LIQUID STERILIZERS DO NOT STERILIZE OUR PROBES.**

The liquid does not get into the hollows and crevices as gas does.

### **ALCOHOL DESTROYS PROBES.**

Alcohol should not be used for soaking. It softens the material covering the crystals and may cause it to come off or become loose, exposing the crystals and the tiny wires leading to them, and destroying the probe. Soaking in water is OK.

### **AUTOCLAVING DEFINITELY DESTROYS PROBES.**



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