Tips On Soldering Upper Extremity Control Cables

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About two years ago, the idea of solder type fittings for upper extremity control cables was introduced to the American Prosthetic Profession. Since that time, they have been used with ever increasing popularity because of the convenience and saving in time and money they bring to both the amputee and the Prosthetist. The ease of replacing broken cable in the field has been a great help to the amputee located many miles from service centers.

In order for all to gain the utmost from the basic advantages of solder fittings, it is important that both the prosthetist and the amputee fully understand all phases of soldering control cables.

Two things to remember for long life are the importance of not overheating the cable and the necessity of washing the parts with baking soda after soldering to counteract the acid.

First, at no time should a torch be used. Although there are those who can handle a torch with sufficient skill to avoid overheating, this is a dangerous practice and should be avoided. On the other hand, it is impossible to overheat cable with an electric soldering iron and it is highly recommended that this tool always be used. Fifty-fifty solder melts at about 400° and cable is not damaged until reaching approximately 550°.

The best results are gained by the use of a small diameter solder. A 50/50 acid core 1/16" diameter solder is very satisfactory. One source of supply for this rather hard to find size is the Federated Metals Division of the American Smelting & Refining Company with offices in principal cities. A supply of stainless steel soldering acid, purchased in any hardware store, is quite helpful. A 215 watt iron, about equal in size to a 2½ lb. old style copper iron, has been found to be a practical size for this work.

Be sure iron is clean. Paint a small amount of acid around hole allowing a small amount to enter hole. Apply heated iron to fitting. In a moment the fitting will be hot and cable should be inserted. Apply solder to cable at hole entrance and allow to run well down into hole around cable. Remove iron, at the same time plunging cable in and out of hole to remove any air and thoroughly coat cable. About three or four strokes are sufficient and cable should then be held steady until solder cools. Be sure that cable is held against bottom of hole during cooling period. Wash cable well with a solution of water and baking soda to prevent any acid damage. Wipe cable clean, using a lightly oiled clean rag. If any form of liquid wax is available, this is even better: just dip and allow to dry.

Cable is now ready for use. Correctly soldered, the cable will give long service and the fittings can be used again and again. It is neat in appearance, is quick to make up. It is a flexible method. Cables are quickly made up for each patient's need. Where length has been determined incorrectly, soldering permits quick change in length. When cable becomes frayed, simply sweat the fittings from each end, replace cable with a new piece of the same length and repeat above soldering instructions. Remember, do not overheat, wash with baking soda when finished.