

Knowledge Domain: Electrical simple

Unit: Connectors

Skill: Cleaning of Connectors

Tools and Parts Required:

- 1) Clean cloth
- 2) Fine sandpaper
- 3) Vinegar or Electrical Contact Cleaner
- 4) Toothbrush
- 5) Small diameter steel brush

Optional Tools and Parts:

- 1) Spray bottle for vinegar
- 2) Contact lubricant

Introduction

Electricity powers medical devices. A connector allows electricity to flow from one electrical component to another electrical component. Connectors may connect a cable to another cable. Connectors may connect a cable to an electrical terminal.

Connectors can be designated “male” or “female”. If pins are protruding out of the connector, the connector is male. If holes or pin sockets are present within the connector, the connector is female.

Examples of connectors are terminal blocks, binding posts, plugs and sockets, blade connectors, ring and spade terminals, and crimp-on connectors.

Electrical connectors can fail due to rust, broken components or corrosion. When corrosion occurs, the connectors can be cleaned to restore the connector to service.

Example

Below is an example of clean male and female connectors.



Male

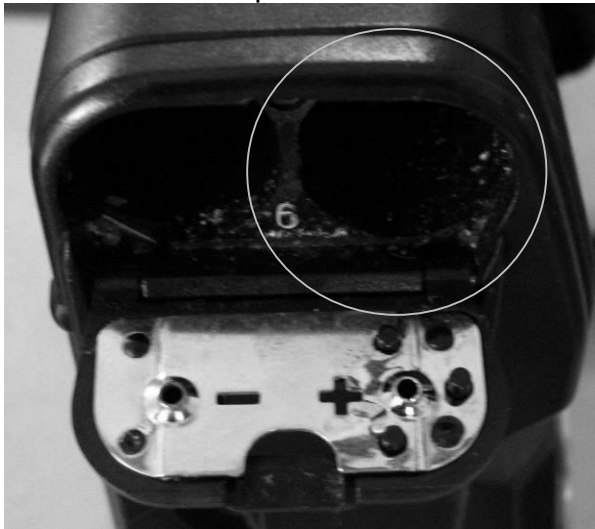
Female



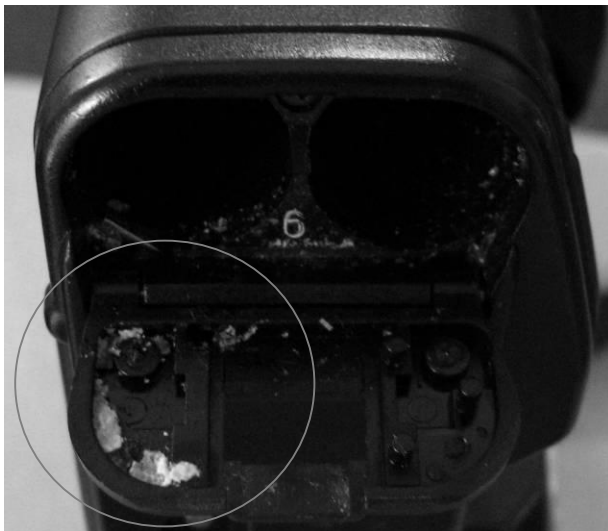
Male

Female

Below is an example of a corroded terminal connector.



Observe the powder around the battery holes indicating corrosion.



Observe the powder on the lid indicating corrosion.

Identification and Diagnosis

Visually inspect the connector and the pins or the pin sockets. If reddish brown powder is present, the connector is rusted and may require replacement. If broken metal is present, the connector may require replacement. If green or white powder is present, corrosion has occurred. A corroded connector requires cleaning. Use the following procedure to clean the connector.

Procedure

Always disconnect the power source when cleaning electrical connectors.

Visually inspect the device and electrical connections. Determine the connectors that require cleaning.

With a clean cloth, wipe excess material from the exterior of the two mated connectors. Pull apart the two connectors to expose the male connector and the female connector.

For Male Connectors:

Use fine sandpaper to remove the green or white powder from the metal pins. Insure that the metal appears clean before proceeding.

Use a toothbrush to brush the metal pins to remove any sandpaper debris. Apply vinegar to clean the pins. Brush the connector with the toothbrush. Ensure all debris is removed from the metal pins.

OPTIONAL: Spray the metal pins with contact lubricant. Contact lubricant prevents corrosion and increases electrical conductivity.

For Female Connectors:

Dip the small diameter brush into vinegar. Insert the brush into a pin socket of the female connector. Rotate the brush. Quickly pull the brush from the pin socket to remove dirt. Repeat this process with each pin socket of the female connector.

OPTIONAL: Spray the lubricant into the pin sockets of the connector for one to two seconds. Contact lubricant prevents corrosion and increases electrical conductivity.

Exercise

Your instructor will provide you with corroded electrical connectors. Follow the above procedure to clean the connectors.

Preventative Maintenance and Calibration

Always calibrate every medical device before returning it to use.