Metal Framework Repairs
1. Purpose

To correct fractures and distortions of the metal framework
2. Equipment and Material:

- Electric soldering unit
  - Carbon tip
  - Copper grounding tip
- Solder
- Paste flux
- Soldering investment
- Platinum foil
- Asbestos substitute
2. Equipment and Material:

- Flux - a substance used to prevent or remove oxide film from the surface of a heated metal. Paste flux is used for electro-soldering. Borax cannot be used because it produces non-conductive oxides.

- Cobalt-chromium alloy can be repaired with gold.
3. Common electric solder repairs

- Fractures of minor connectors leading to a clasp or auxiliary rest
- Wrought wire attachments
- Acrylic retention grid fractures
- Warped palatal strap or lingual bar
- Holes in major connectors, minor connectors, or plating
3. Common electric solder repairs

- Although it is possible to construct a rest out of solder or to solder a clasp at its shoulder, these types of repairs have high failure rates.
4. Principles of electric soldering

a. Conductors of electricity offer resistance to current flow. This resistance generates heat.

Ohms Law:

\[ I = \frac{V}{R} \]

amps = volts/ohms

b. The heat generated is highly localized
5. Procedures

a. Prepare the framework by roughening the sections to be joined

b. Adapt platinum foil to dental stone under fracture site
5. Procedures

c. Seat broken sections on the cast in proper relationship to each other and secure in place. (leave as much metal exposed as possible)
d. Place wet asbestos substitute on acrylic components
e. Place cast on soldering stand
f. Ensure soldering tips are clean

g. Cut piece of solder large enough to completely fill joint on first attempt

h. Generously apply flux to joint area (flux should have a watery consistency)

i. Place solder on joint

j. Dip solder tips in water to improve current conduction

k. Position soldering tips
5. Procedures

l. Press foot pedal, allowing time for solder to flow freely. (*Never remove the carbon electrode from the solder while the foot pedal is depressed and current is running through the framework*)

m. Remove the soldered framework from the cast and finish it