

# *Metal Framework Repairs*



# 1. Purpose

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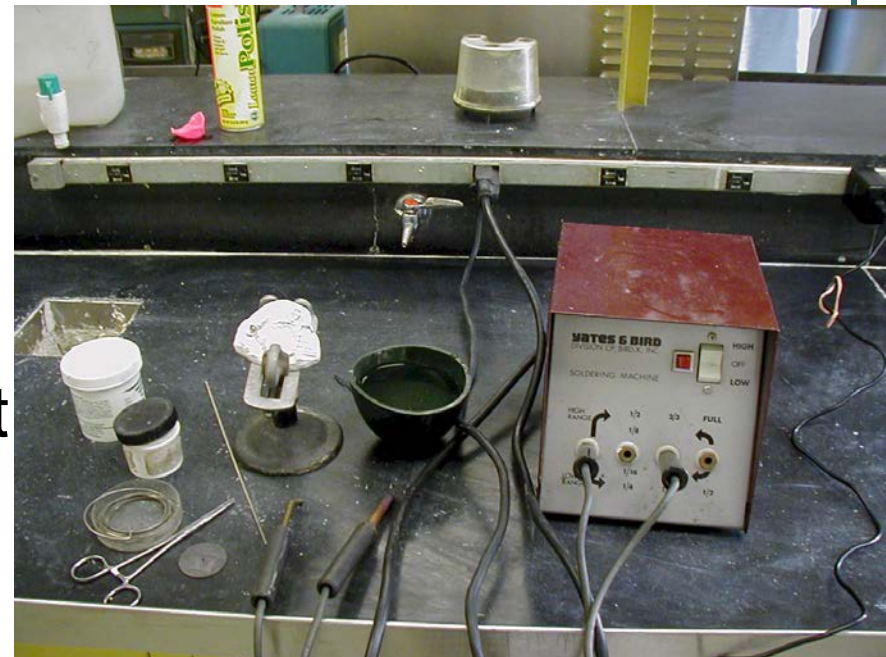
To correct fractures and distortions of the metal framework



## 2. Equipment and Material:

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- Electric soldering unit
- Carbon tip
- Copper grounding tip
- Solder
- Paste flux
- Soldering investment
- Platinum foil
- Asbestos substitute



## 2. Equipment and Material:

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- 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

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- 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

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- 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

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

Ohms Law:

$$I=V/R$$

$$\text{amps} = \text{volts/ohms}$$

- b. The heat generated is highly localized

## .5. Procedures

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- a. Prepare the framework by roughening the sections to be joined
- b. Adapt platinum foil to dental stone under fracture site





## .5. Procedures

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- 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





## .5. Procedures

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- 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

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- I. 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

