

PHOTO ETCHING BRASS

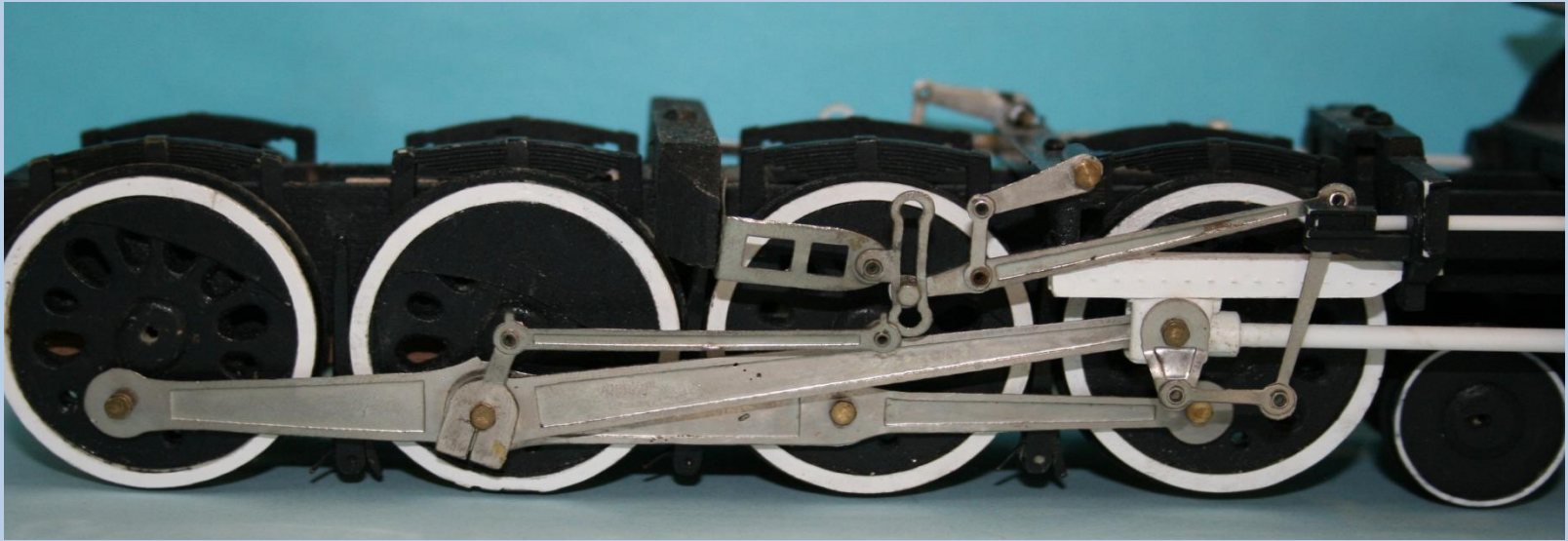
By Jerry Gilland

***Boulder Model Railroad Club
June 2012***

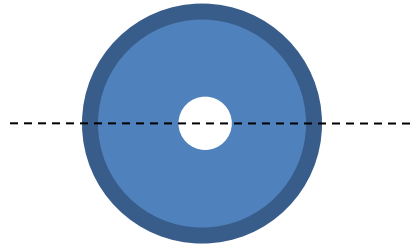


PHOTO ETCHING BRASS

**Big Boy Running Gear
All Brass Etched
Nickel Plated**



• Photo Etching Process



A hypothetical part

Step 1



Brass Sheet
Ultra Clean!

Step 2



Thickness Exaggerated



Photo-resist
sheet

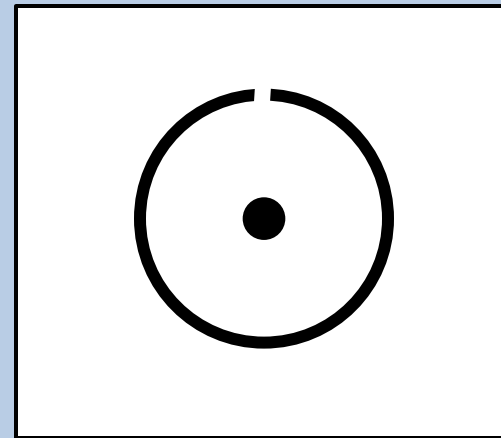
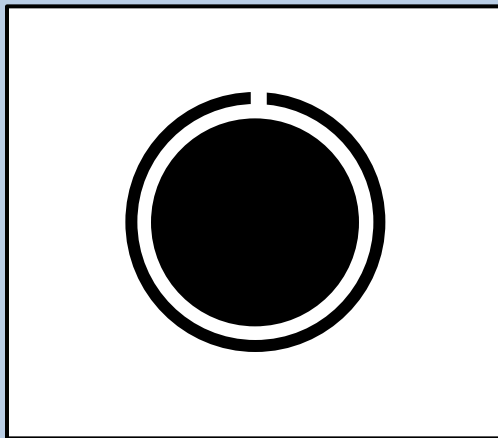
Laminate Photo-resist sheet on both sides



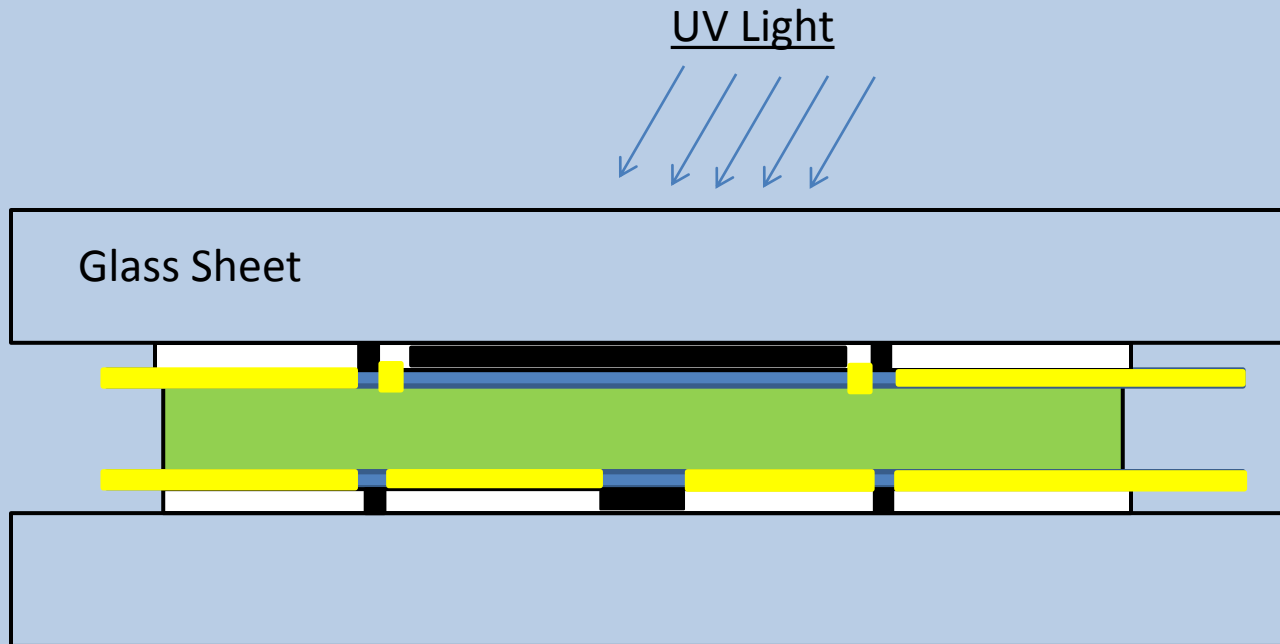
Preparing the Artwork

White is the material that remains

Black is the material that is etched away



Exposing the photo-resist



-  Exposed (hardened)
-  Unexposed (soft)



Developing Photo-resist

Exposed Plate. Exposed is hardened



Developed Plate. Un-exposed is washed away



Etching Process

Partially Etched



Fully Etched

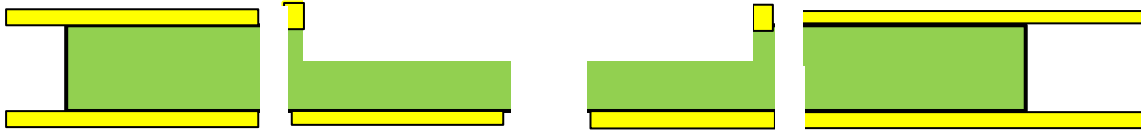


Photo-resist Removed



Finished Part



Photo Etching Procedure

Materials/Equipment Needed

Etching Acid

Developing Solution

Etching Tank

Photoresist Sheet

Inkjet Transparency Film

Laminating Machine, or Capability

Misc. Developing and Rinsing Containers

Ventilated Work Area (You are working with toxic materials!)

Recommendation

Purchase Micro-Mark Kit

Page 20 of Summer Catalog

\$105



Etchant Options

Ferric Chloride

- Comes with Micro-Mark Kit
- Fast – 10 to 15 minutes
- Messy – Stains everything it touches.
- Hard to Find
- Opaque – Can't see etching progress

Home Made

2 Parts Medical Grade Hydrogen Peroxide (3%)

1 Part Muriatic Acid (30%)

- Slower – 30 to 45 minutes
- Cleaner – But still an acid!
- Locally Available
- Transparent – Can see progress
- Inexpensive



Etching Techniques

Use **NO** metal containers or tools!

Use **ONLY** glass or plastic (test first) containers and tools.

Micro-Mark Kit

- Vertical Tank with Aquarium Bubbler and Ferric Chloride
- Trouble with non-uniform etching
- Have to remove part and rinse to see progress

Kitchen Raid

- Glass Cake Pan with home made etchant
- Periodically rock pan to clear bubbles
- Turn over every 3 – 4 minutes
- Can see progress without removing/rinsing



Remember!

You are working with powerful, toxic materials

Ventilation is required – Fumes are toxic

Wear rubber/latex gloves – Acids will cause skin irritations or burns

Wear safety goggles – Modeling can be severely limited when blind!

