

PART II

**Copper-Nickel-Chrome
Plating**

COPPER-NICKEL-CHROME PLATING
FOR DECORATIVE FINISH

INTRODUCTION

Our discussion of electroplating is divided into four sections which are

- SECTION I - Preparation of base metal
- SECTION II - Pretreatment prior to plating
- SECTION III - The electroplating operation
- SECTION IV - List of equipment and supplies

SECTION I

PREPARATION OF BASE METAL

It is important to remember that "the quality of the finished plate is determined by the quality of the finish on the base metal." A rough, pitted, scratched or dull finish on the base metal which is to be plated will show the same defects on the final plated surface.

This section discusses mechanical preparation such as polishing and buffing of the base metal and lists equipment involved for this operation.

There are three successive stages in the polishing-buffing operation, designated as (1) polishing, (2) buffing and (3) coloring.

1. Equipment:

- A. Buffing lathe which is sometimes called a "polishing jack." These units may be bench mounted or floor mounted and may run from 1/2 H.P. for light buffing to 7-1/2 H.P. for heavy work as auto bumpers.
- B. Cloth buffs for all three operations are available in many types. As a starter we recommend two types: sewed buffs for the polishing operation, and loose buffs for both the buffing and coloring operation.
- C. Three different compounds for the three operations are available and although they are different in character they are all designated as buffing compounds by common practice. For polishing we recommend the greaseless or Lea compounds, for buffing "Tripoli or white Diamond" grease compounds are used, and for coloring or "color buffing" chrome rouge, Acme white finish or jewelers rouge would be used.

2. Procedures:

Polishing would be done on a sewed buff wheel coated with a greaseless type compound such as Lea compound. In larger production shops a supply of polishing wheels are prepared by coating the face of the wheel with glue and rolling it in emery to produce a dry cutting surface. The purpose of the polishing operation is to remove pits, scratches or casting defects.

The second stage or "buffing" operation is done on a loose buff using a grease type buffing compound. Tripoli or White Diamond is applied to the buff face for buffing copper or brass, White Diamond is used for buffing aluminum and die castings as well as copper

and brass. In fact, the Tripoli and White Diamond compounds are interchangeable depending on personal preference and type of finish desired. In applying buffing compound the bar of compound is held against the face of the spinning buff wheel. Heat generated by friction causes the grease binder to melt and coat the buff surface. Always buff in a direction at right angles to the previous operation. All scratches resulting from the polishing operation are "buffed" out and a bright lustrous finish is produced. In many cases this finish is satisfactory for plating. Buffing compounds for use on steel or stainless steel are a special type using aluminum oxide as the abrasive and these are usually designated as steel or stainless steel compounds.

The third stage or coloring operation is done on a soft cotton loose buff or sometimes on a flannel buff wheel. The coloring compound such as rouge or Acme white finish is applied to the face of the buff the same as described under the buffing operation.

There are occasions when the three finishing operations may be shortened to one step or eliminated entirely. If the parts are newly fabricated and are being plated for corrosion resistance only, they may not require mechanical finishing prior to plating.