

## Technical Stuff

### Refinishing a Brass Clock Case or Mechanism *by Mark Edgar*

Clock cases and movement plates made of brass can become oxidized over time and require polishing. A French carriage clock is an example of a clock that could require polishing. These clock cases are often made of brass and have glass enclosures that expose the mechanism. The following procedure for cleaning and polishing these clocks was taken from J. V. Darnall, "Restoration of Old American Brass Clocks", NAWCC MC 700 Dar 1972; Tony Montefusco, NAWCC Video #583 "Refinishing Brass Clock Cases"; Gordon Sooy, NAWCC Video #531 "Refinishing of Brass".

The first step in the refinishing process is to determine the type of finish that is on the clock. Ormolu cannot be buffed without wearing through the Ormolu to the base metal. If the brass finish is plated care must be taken not to polish through the plating. One way to determine if the piece is plate is to make a small scratch in an inconspicuous place. If the scratch is white then the piece is plated.

The piece must be completely disassembled. Joints left intact can turn green and pit. The pieces should be cleaned in an ultrasonic cleaner with the appropriate solution. Lacquer must be removed from the piece, which can be done with concentrate clock cleaning solution (lacquer peals). Other lacquer removal techniques include paint stripper or lacquer thinner.

Sometimes the piece can be pitted from corrosion. Pitting can be removed by sanding successively with different sandpaper grits (220, 320, 400, 600, and finer grits). Be sure to use care not to round sharp edges or cause uneven surfaces by finger sanding. Scratches can sometimes be removed by burnishing where a burnisher is used to push brass into the "valley" created by the scratch. Burnishers can be made from metal or agate.

Once the brass parts have been prepared, buffing is carried out by starting with a harder buff using black ebony rouge. This coarse buffing will remove light scratches. Upon completion of buffing with the ebony rouge, the piece should be cleaned with lacquer thinner and a fine brush. Gloves, buffing wheel, and anything else

containing the ebony rouge must be changed before buffing the piece with fine rouge. Also, Never Dull can be used to polish hard to reach places and helps remove buffing rouge. After buffing, the piece is cleaned again with lacquer thinner and a fine brush. A final ultrasonic cleaning in clean solution should only last about 90 sec. Longer times can cause the piece to become dull. Rinse the piece in the hottest possible water and dry thoroughly. Be sure to touch the piece with gloved (cotton) hands only. Problems during buffing can include red spots from cheap brass (no cure) and an orange residue from the presence of oil during buffing (re-clean and buff).

Lacquering the cleaned piece will prevent tarnishing. A high quality automotive lacquer and thinner of the same brand should be used. Dipping rather than spraying works best. The piece does not need to be fully submerged – a brush can be used to flood the piece with lacquer. Care should be taken not to cause bubbles in the lacquer. Thinning the lacquer 4:1 for the mechanism and 3:1 for the case helps eliminate runs and bubbles. The holes in a movement plate should be plugged with wooden plugs. To prevent tearing the lacquer coat, the plugs should be removed from the dried piece by gently twisting the plug. Once the piece is coated with lacquer, it can be best dried by placing one edge on a newspaper and propping the piece against a vertical surface protected with a newspaper. The piece should be moved to a fresh place two or three times during the first few minutes after lacquering. The newspaper wicks up the excess lacquer without causing imperfections in the finish. The piece can be dried by hang from a wire, but care must be taken to remove drips before the lacquer dries.

A milky appearance in the lacquer finish is due to humidity and temperature. The piece can become very cool during lacquering because of evaporation of the solvent. In a humid environment, water can condense in the finish. Warming the piece slightly (not too warm!) prior to lacquering helps prevent this problem. Sometimes the lacquered piece can appear colored (rainbow-like). This appearance seems to be a result of dirty or cheap lacquer. Be sure to use high quality lacquer and lacquer thinner.

Gears or other moving parts should not be lacquered. Barrels can be lacquer if care is taken not to get lacquer in the gear teeth. Gears can be polished with Never Dull and arbors can be polished with a Dremel tool.