



Rivet hammer and snap

THE VALUE AND COST OF RIVETING

Hot riveting of historic bridges or the replication of historic metal truss bridge components using hot riveting preserves a historic manufacturing process. This paper will give engineers and bridge preservationists information about and examples of the successful use of hot riveting for historic metal trusses where they can confidently recommend riveting as a viable method for the restoration of historic metal bridges.

When significant features of a historic metal truss bridge are listed for preservation, the riveted connections or the riveting process are rarely included. In many restoration or rehabilitation projects, original rivets are replaced with high strength bolts, button head tension control bolts, or fake rivets. There has been much written and discussed on the issue of replacing rivets with rivets or with alternatives. The cost of riveting is often used as a primary reason for not replacing rivets with rivets. Another argument is that hot riveting is a “lost art” and that it is difficult to locate sources of steel rivets, riveting equipment, and experienced craftsmen. In fact, for some

projects, riveting can be done at reasonable cost with readily available materials and with proper training. Those historic metal bridges that are not subject to vehicular traffic are prime candidates for “in-kind” restoration where as much as possible of the original material is restored and those historic parts that cannot be restored are replicated to as close to the original as possible.

While hot riveting may cost more than replacing rivets with bolts, the additional cost of riveting may not be as great as is often implied. For example, the cost in replacing rivets with button head tension control bolts is often overlooked. Special equipment is required for tension control bolts, including a specialized wrench required for installation. Tension control bolts are more expensive than regular structural bolts. Before tension control bolts are used in the field the fabricators must test for thread deterioration. The procedure for installing the tension control bolts begins with aligning the holes with drift pins; those holes that do not align must be reamed to size. Bolts are then inserted, the nuts tightened up with a hand wrench, and then followed up with the specialized impact wrench. For larger bolts, heavier impact wrenches are required.



Button head tension control bolt with specialized wrench