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Rivets and tacks

In the days before hot melt lasting adhesives became common place, rivets and tacks were used in vast quantities for lasting in almost every type of footwear construction. They nevertheless still play an important part in lasting Goodyear welted footwear and, for the methods described in *Top Quality Lasting* in this issue, an absolutely essential one. The items used fall into three basic categories: rivets, machine tacks and hand tacks, each with its own particular characteristics and applications.

RIVETS

These can be used for insole attaching and, in the lasting method previously described, pulling over. They vary in length from 12mm to 18mm, have a round shank and either a flat or slightly domed head. In both instances they form a temporary means of attachment and having a long shank makes them easier to pull out when no longer required. It also enables them to be bent over to hold the insole flat or the lasted margin down when hand draughting, or stretching, the waist before side lasting. One drawback is the damage caused to the last bottom by the repeated penetration of these rivets. In the days of wooden lasts, it was the main cause of premature last replacement—good for the last maker but less so for the shoe manufacturer due to the expense involved.

MACHINE TACKS

These will be more familiar as tack seat lasting is still widely used as it provides a more solid seat. They vary in length from 6mm to 11mm depending on upper and insole substances and have a round shank with a flat head. Using the correct length is critical as only the point of the tack needs to be turned by the last's metal seat plate. Ideally, it should only turn by about one millimetre, leaving the shank of the tack straight and forming a tiny hook that bites into the surface of the insole. Too long a tack results in a bent shank which has far less holding power and results in a weak seat. Needless to say, more goes into producing them than one might at first think. For instance, they have to be dimensionally accurate and consistent, with a good cosmetic and slip finish to ensure they run smoothly through the complex feed systems of lasting machines.

Machine tacks are made from high quality round-section wire with a diameter tolerance of $\pm 0.03\text{mm}$ and a tensile suited to the particular application. Composition and chemical analysis has to be tightly controlled to ensure consistent manufacturing and repeatable quality. For example, the point of a lasting tack must penetrate both upper and insole, and then bend to clench them together. Tensile strength therefore needs to be at the lower end, but not so low that the tack does not penetrate properly. This is not easy to achieve as it relies on a combination of

factors including wire diameter, corrosion protection and the materials the nail must penetrate.

In addition to raw materials, tooling has to be to exacting standards, too, in order to provide consistent dimensional quality and optimum tool life. Head and shank diameters, head thickness, lengths and point configuration are all crucially important. To guarantee this consistency, the machines used must be of high initial quality and be regularly maintained because of the high outputs involved. Both rivets and tacks are normally packed in 1kg, 2.5kg and 25kg boxes and sold by weight due to the sheer numbers involved.

HAND TACKS

Hand tacks are something of a rarity these days but very useful for hand operations such as back tacking. Unlike machine tacks, which are smooth and highly polished, hand tacks are rough cut which leaves an extremely sharp 'tingle' at the point which needs only a very light touch for the tack to hold itself in place ready to be hammered in. Machine tacks, on the other hand, need to have firm pressure applied which is not only painful to the fingers but is much slower. In years gone by, many operators actually stored a few hand tacks in their mouths as they said this enabled them to work faster. Claims that some of them were able to spit a single tack at a time into the shoe bottom are, while a good story, definitely not true! 