SUPERHEATER TUBE SUPPORT HOOKS

Experience has shown that a considerable number of breakages of superheater support hooks occur when superheaters are retubed. Some break with a brittle fracture on withdrawal and this is probably unavoidable, but others break either while being repaired or during replacement.

Metallurgical investigation has shown that such fractures are attributable to embrittlement of the material by service operating temperatures probably aggravated by heat treatment which is sometimes used to facilitate the removal of the securing bolts. Fine cracks present in any weld metal reinforcement will also contribute to such failures.

In order to minimize the liability to such failures in future, superheater support hooks removed from boilers during retubing operations should be pickled in a solution consisting of 50% conc. hydrochloric acid, 5% conc. nitric acid and 45% water for removal of scale and then examined for cracks and other major defects. Heat treatment at 1050°C. for $1\frac{1}{2}$ hours, followed by a fast air cool, should then be carried out. If any repairs are carried out to the hooks by welding or other means, this heat treatment should be applied after welding and before straightening operations.

Any welding reinforcement should be conducted using Nicrox H.R. electrodes. No special precautions are necessary during welding.—*Dockyard Engineering Technical Memorandum No.* 14.