

Press Information

BASCULE BRIDGE TRACKS RESTORED USING METALOCK IN-SITU MACHINING

Such is the wide variety of work undertaken by Metallock Engineering UK that the Metropolitan Borough of Wirral Engineer's Department in conjunction with High Point Rendel, engineering consultants, had no hesitation in securing the company to in-situ machine the tracks of the rolling bascule bridge that spans the main entrance to Birkenhead Docks.

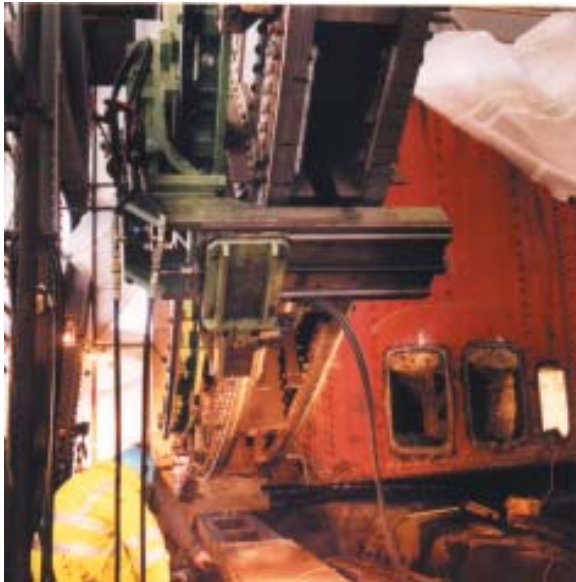
Bridge 'A' spans the dock passage between the East Float and the Alfred Dock and carries the main road between Birkenhead and Wallasey over the main shipping entrance to Birkenhead Docks. The counterbalanced bridge rolls open and closed from horizontal to perpendicular, and vice versa, on a pair of steel tracks set into the ground either side of the road with corresponding tracks mounted on a 7-metre radius quadrant at the head of the bridge. The road tracks have "teeth" which mesh with sockets in the quadrant track. Over 30 years of continuous rolling action to lift and lower the bridge had created a situation where the tracks of the 70 year-old bridge needed repair. This had only been done once before, in the sixties.

Metallock's task was to machine the base of the two 10 metre long bridge tracks by attaching support brackets for the milling machine to the outer plates of the track. The milling machine was aligned and each laminated track machined to the correct height to allow new sections of toothed track to be bolted into place.

The bridge quadrant tracks, being formed on a 7 metre radius demanded a special set up. Metallock designed a rig that would rotate about a split hub located around the gudgeon pin pivot point of the bridge rolling mechanism. This rig, in effect the machining arm, was counterbalanced and located on a radial track attached to the sides of the quadrant base plate. A slideway with an hydraulically driven roller assembly/milling head attached to the machining arm completed the set up.

This was used to perform a series of circumferential cuts to machine the quadrant track base to a predetermined close tolerance dimension to accept a new track assembly. To reduce the machining time most of the material that needed to be removed had been flame cut to within 20mm of the finished dimension. Laser alignment was used throughout to ensure that design tolerances were met.

Once the first quadrant track had been machined, the entire set-up was moved to the second track for the exercise to be repeated



As well as the base of the two 10m long bridge tracks, Metallock machined, in-situ, to bridge's two 7-metre radius quadrant tracks using a rig that rotated about the pivot point of the bridge rotating mechanism.

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