

# SILVER SURFER

**Swedish pin brazing initiative poised to speed up track laying projects**  
 Andy Milne looks at a new pin brazing technique being pioneered in southern Sweden

One of the last jobs on any new piece of railway line is to link the rails where they conjoin to make sure they conduct a low voltage electric current. The axle of a train will conduct the current from one rail to the other completing the track circuit and telling the signalman there is a train in his section. Getting the rails to conduct is essential to avoid track circuit failures in the years ahead.

Passing a current from one rail to the next looks simple. Yet where there is a break and the fish plate clamps the two stretches together, a barrier can form obstructing the circuit. The art of pin brazing is to braze a metal pin onto the rail and link it with the next rail by cable.

Traditionally this has been

done by hand and manual judgement. This has proved difficult, kneeling down by the track to fire the pin is OK but lining it up at right angles quite another matter. Bonds may subsequently fall off and the circuit is broken.

'We really need a system that is 100% accurate 100% of the time,' says Torsten Bavhammar, managing director of Safetrack, a Swedish company pioneering Silver Connection electronic pin brazing. Why use silver? 'It provides the best conductor of electricity,' says Torsten. 'Get silver from rail-to-cable-to-rail and you have an excellent conductor.'

Pin brazing needs to be done efficiently. Often it's the last job as the end of possession nears and the hard pressed platelayer

is running out of time. However it remains essential to the safe running of the railway.

## Electronic

The new gun that fires the pins is, at 1.1 kilos, half the weight of the old. It's lighter to hold and position. More importantly it's all electronic and there is no more use of fuse wire which could melt too soon and misapply the pin. Most important of all the gun works automatically and there is no need for lengthy adjustments in the dark and the rain. An electro magnet in the gun positions the pin exactly at right angles to the rail. The gun itself fires up the pin causing melt that releases the silver braze.

Safetrack is a father and son operation with 20 employees based in Lilla Molleberga outside Malmo. The pins, with their silver packed heads are manufactured on site too in a professional environmental operation. The braze takes two seconds and the braze material melts at 650 degrees. This is quite low and thus avoids damaging the rail.

'We use a dry Genesis battery which supplies constant power, rather than just running down,' says Torsten. 'It lasts two to three years and can be recharged without adding water. This avoids any sub standard brazing at the end of battery life.'

Perhaps the best aspect of new silver connection electronic pin brazing is the relative speed of the exercise. Torsten's son Johan

can set up in two minutes and then do a braze in just a few seconds. This adds real time and real value to projects whether mainline track laying or high value possession management.'

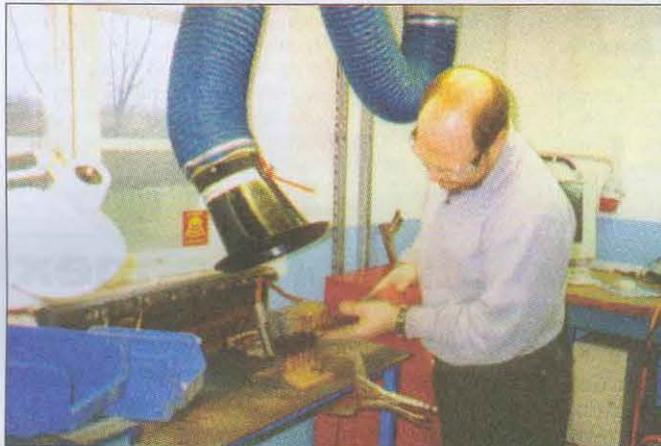
So effective is the new technique that it can also be used for earthing overhead line gantries, pylons and signals as well as Cathodic protection. Safetrack sells in the UK through Track Warning UK Ltd.

Lilla Molleberga may be a small village in southern Sweden but its effect on the global rail industry in terms of track laying productivity and efficiency looks like being far greater. Already the entire Canadian rail network has signed up.

Says Torsten, 'It may be one of the last jobs you do on a track laying project but it is one of the most essential. And because its near the end, time is doubly important.' Certainly silver pinbrazing from Safetrack is an idea whose time has come.



Left to right Torsten Bavhammar and Johan Bavhammar at Lilla Molleberga



Bo Svensson, electronic development manager at Safetrack demonstrates the new electronic pin

## Mobius Magic for Hull Trains

A sales manager who elected to use rail staff in a marketing campaign has benefited

progressed, not only did passenger numbers rise dramatically but public opinion marketing message had yet to be developed. This had fantastic