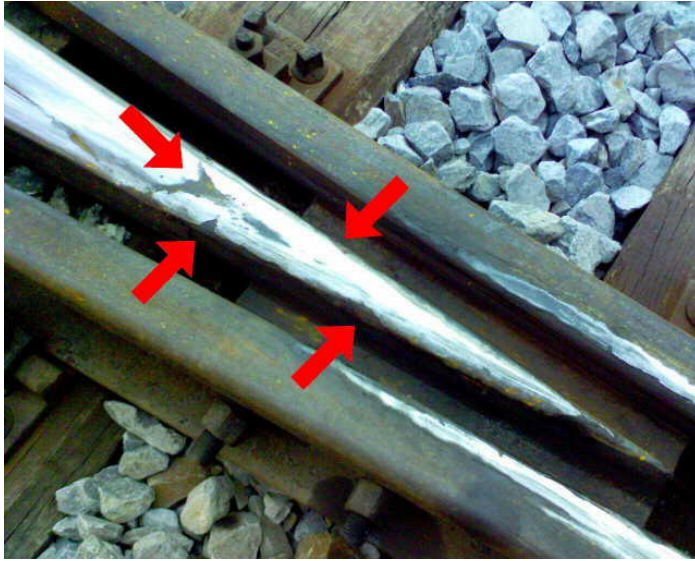


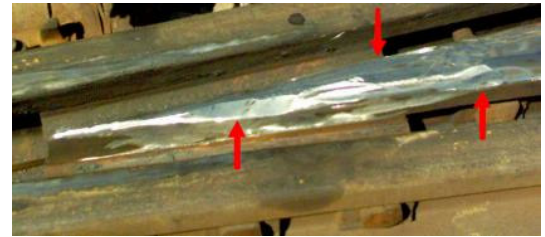
**Standard Surfacing Example**  
- Welding Time Worst Case



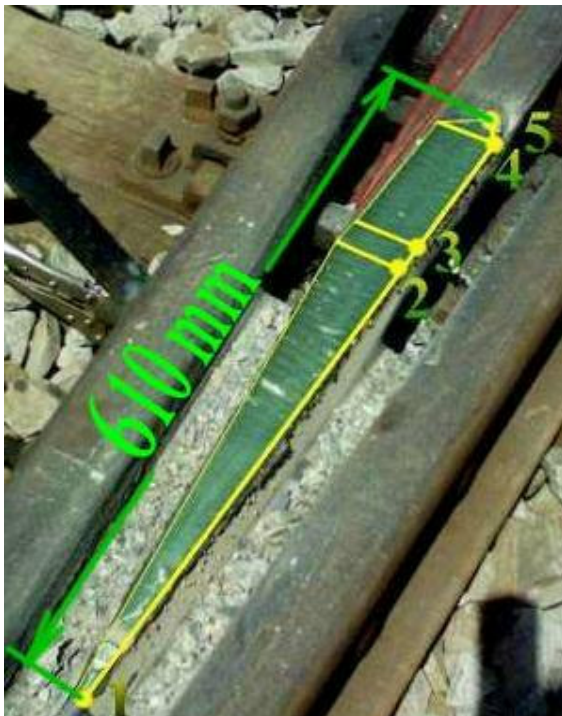
This rail has been repaired by hand and shows the typical wear down.

Because the welder wasn't able to surface the complete top of rail in a proper, flat way, there are a lot of small errors at the edges and a big valley at the center of rail.

The preparation of such rails will need about 30 minutes for grinding and cleaning.



After preparation, both sides need to be filled with small layers. This is only to get a solid base for the following complete layers. This has to be repeated as much as needed. In this case we needed about 8 Minutes, including the short cleaning after every weld.



This picture shows the completely welded surface.

If, between point 1 and point 2, more material is needed, additional layers can be welded first. In this case, we made a filling layer from point 1 to close to point 2.

The welding time depends on wire feeder and other welding parameters. For the filling layer, we needed about 3 minutes (with cleaning).

The last layer can be started directly, no additional adjustment is needed.

The welding time, with middle speeds, for this piece of 610 mm was about 7 minutes.

The thickness of every layer was 3.5 to 4 mm.

Because of the constantly flat surface, the following work of grinding and cleaning can be done very fast. Only a small grinding machine is needed.

The repaired rail after grinding (10 minutes).



**Complete time summary:**

30 minutes preparation and grinding.

20 minutes pre heating.

8 minutes filling of the edges.

3 minutes half layer filling.

7 minutes last layer

10 minutes grinding

**78 minutes for the complete work.**