Robot Welding Rail Maintenance

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Key Presentation Take-Aways

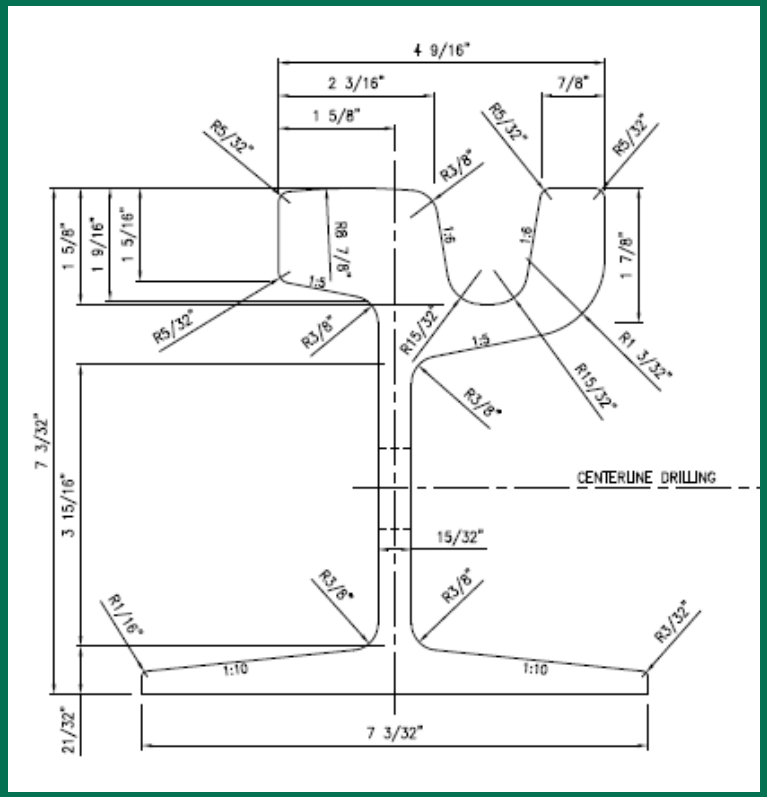
- Embedded Track Challenges
- The Brinell Hardness Number (BHN)
- “Hard facing” of Metals
- Application of the “robot” or carriage welder
- Testing and Results

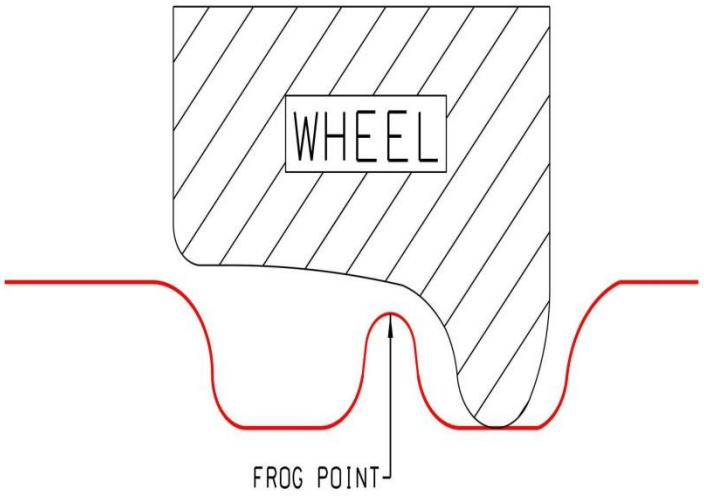
Embedded Track Challenges

- Rail wear from vertical loading
- Rail wear from lateral loading
- Combination of both

Embedded Track Challenges

Embedded Track Challenges





FLANGE BEARING FROG CROSS-SECTION

NTS

Brinnell Hardness Number

- Description of test
- Standard rail hardness
- Increased hardness makes fabrication difficult
- Range for rail examples

“Hardfacing” of Metal

- Concept used in heavy industry
- i.e. Providing a harder bearing surface to surface of a metal
- Different methodologies
- Application to rail

Application of the Robot Welder (Carriage) – Shop Environment

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Results and Conclusions - Shop

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Application of the Robot Welder (Carriage) – Field Environment

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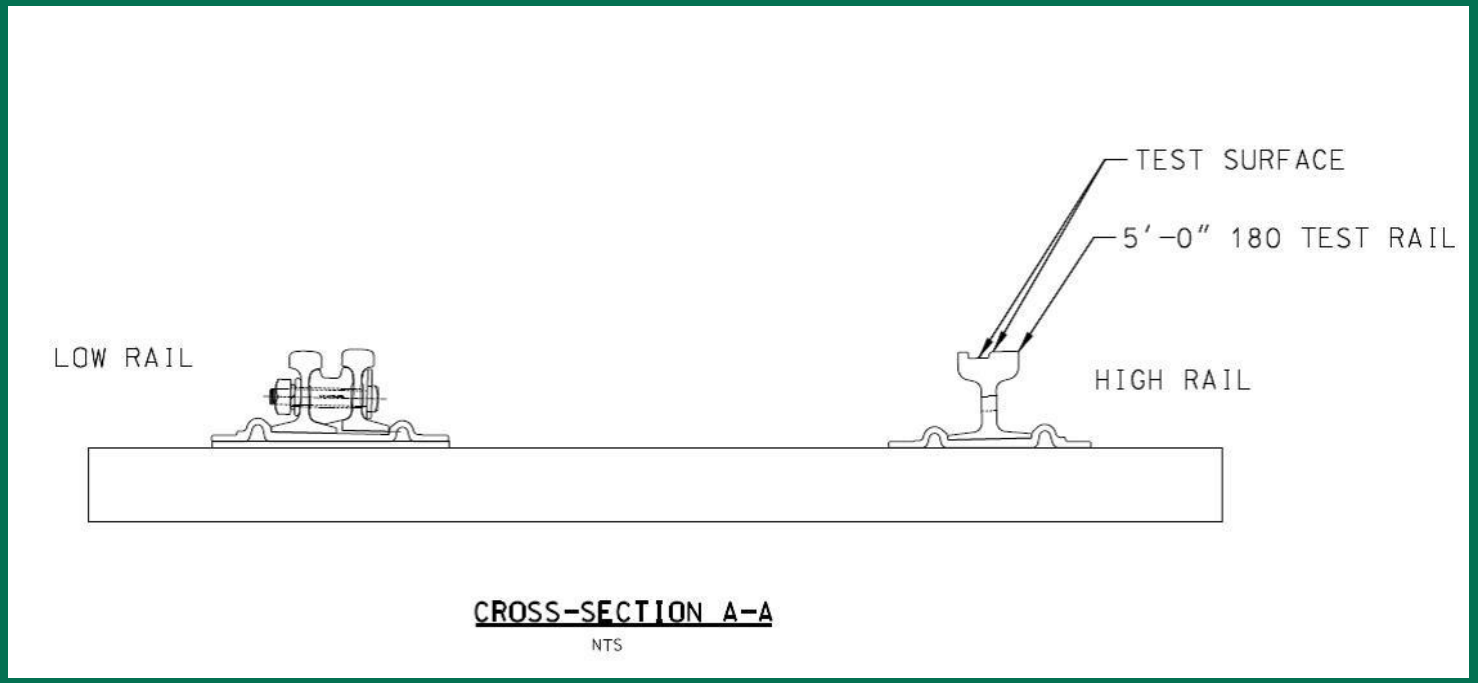

Application of the Robot Welder (Carriage) – Field

Results and Conclusions - Field

Results and Conclusions - Field

Results and Conclusions

- X-Ray testing results
- BHN testing results
  - -BHN of 311 for 150F
  - -BHN of 321 for 200F
- Strong possibilities and easy shop application

Questions and Comments