



Case Study – Railroad Rail Testing

Test Type: Flaw Testing

Customer Problem

A manufacturer of steel railroad rails had a requirement to test 100% of a rail product using visual and magnetic flux inspection. This was very time consuming and required a lot of personnel to complete. A system was needed which could test multiple locations around the rail while moving at a production line speed of up to 200 feet/minute. The primary purpose of the system was to detect cracking that ran longitudinally on the rail base, in addition to other types of surface conditions of concern.

Challenges

Testing challenges included working in a very dirty environment, dealing with an extremely heavy part which experienced movement in multiple directions, all the while trying to maintain contact with multiple arrays of sensors surrounding a semi-smooth product that was moving at better than 3-feet per second.

The Solution

Criterion NDT personnel worked closely with the customer, who ultimately purchased multiple eddy current test instruments and custom multi-coil probes that were integrated with an unique material handling system. (Figure 2 is an example of the upper head testing array). Narrow surface cracks around 0.020” in depth were detected in the rail base, in addition to other defect conditions of interest that had been missed previously during visual inspections.

The eddy current system was able to reduce the need for inspectors and increase the plant throughput. The eddy current test increased the accuracy of the inspection by replacing a subjective inspection with a repeatable non-subjective automated test. An added plus for this manufacturer was they no longer had to deal with the purchase and disposal of magnetic flux chemicals.

For more information visit our website at www.criterionndt.com or call Criterion NDT at 253-929-8800.

Equipment: [InSite CT](#), Custom Eddy Current Array Probe



Figure 1 - Rail Section



Figure 2 –Multi-Coil Eddy Current Probe



Figure 3—Display Results

