

ENHANCED WELDABILITY FOR HIGH STRENGTH CAST AND WROUGHT NICKEL SUPERALLOYS

ABSTRACT OF THE DISCLOSURE

A method for repairing a turbine engine component comprises the steps of providing a turbine engine component formed from a nickel-based superalloy, removing any defects from the turbine engine component, the removing step comprising subjecting the turbine engine component to a solutioning heat treatment using a heating rate in the range of from 29 degrees Fahrenheit/minute to approximately 40 degrees Fahrenheit/minute as the component passes through a temperature in the range of from 1100 degrees Fahrenheit to 1600 degrees Fahrenheit, and welding the turbine engine component to effect the repair. A deliberately slow post-solution treatment cooling rate is used to substantially prevent weld cracks.

FIGURE 3B