

RENEWING A THERMAL BARRIER COATING SYSTEM

ABSTRACT

A thermal barrier coating (TBC) system, comprising a metallic bond coat on an article surface 14 and an outer ceramic TBC is repaired by renewing without removing the bond coat. The outer ceramic TBC is removed to expose a bond coat substrate. At least one discrete local surface area 16,18 of the article surface 14 subject to bond coat degradation is selected from a thermal pattern unique to the article surface from service operation. At least one renewal metal selected from Pt, Rh, and Pd is applied at least to the selected discrete local surface area 16,18 and heated to diffuse the renewal metal into the bond coat substrate. An environmental resistant coating selected from aluminides and alloys including aluminum is applied at least to the discrete local surface area 16,18 over the renewal metal. Thereafter, an outer ceramic TBC is applied to the article surface 14.

Figure 1