

METHOD FOR REPAIRING A HOLE IN A METALLIC WORKPIECE

ABSTRACT OF THE DISCLOSURE

A workpiece structure (40) having a hole (52) therein is repaired by preparing a stack (42) having a first confinement sheet (44), a first donor sheet (46), a workpiece structure (40) having a hole (52) therein, a plug (66) of a plug material in the hole (52), optionally a second donor sheet (64), and a second confinement sheet (47). The first confinement sheet (44), the first donor sheet (46), the second donor sheet (64), and the second confinement sheet (47) each overlie the hole (52). The first confinement sheet (44) and the second confinement sheet (47) each melt at a temperature greater than do the first donor sheet (46), the plug (66), and the second donor sheet (64). The stack (42) is locally heated at the hole (52) using an electrical current source to a temperature sufficiently high to locally melt the first donor sheet (46), the plug (66), the second donor sheet (64), and the workpiece structure (40). The stack (42) is thereafter cooled to solidify all melted material and form a weldment (84).

Fig. 1