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## **Résumé :**

Adhesively bonded composite patch repair technique has been successfully applied in military aircraft repair and has recently been expanded to commercial aircraft industry. This technique is applied to extend the service life of cracked aluminium components. In this paper, the finite element method is applied to analyse the central crack's behaviour repaired by a boron/epoxy composite patch. The effects of the mechanical and geometrical properties of the patch on the variation of the stress intensity factor at the crack tip were highlighted. The obtained results show that the stress intensity factor at the crack tip, repaired by an octagonal patch of height  $2c/3$ , is reduced by 5% with regard to the one repaired by an octagonal patch of size ' $c$ '. For a height patch of  $c/3$  the reduction is about 7%. The maximum reduction of composite patch of fibres in  $y$ -direction is about 30% compared to the aluminium patch. This reduction