WHAT IS CLAIMED IS:

1. A method of remotely stopping a crack ~~106~~ in an internal component ~~104~~ of a gas turbine engine ~~10~~with an integrated repair interface, the crack comprising an open space formed along an exterior surface of the internal component and having a corresponding base at a bottom of the open space, the method comprising:

inserting ~~an integrated repair interface~~ a working head attached to a cable delivery system ~~100~~through an excess port of ~~within a~~the gas turbine engine ~~10~~, the working head comprising a drill component;

positioning the ~~tip 134~~ working head adjacent to ~~a defect 106~~the crack ~~within a surface 105 of the component 104~~;

facilitating a precision operation by temporarily attaching ~~the tip 134~~ the working head to the internal component adjacent to the ~~defect 106~~crack with an attachment mechanism ~~within the surface 105 on the component 104~~; and

forming a flexible joint at the base of the crack by drilling with the drill component a hole ~~109~~ into a deepest point of the ~~base 107~~crack relative to the exterior surface of the internal component so as to stop propagation of the crack ~~of the defect 106~~, wherein the hole has an average diameter in a plane perpendicular to or tangent to the exterior surface at the crack that is within a range of 0.1 mm to 3.25 mm.

2. The method as in claim 1, wherein the drill component comprises ~~hole 109 is drilled using~~ a fiber optic laser drill.

3. The method as in claim 1, wherein the drill component comprises~~, a water jet, a bead blast,~~ a mechanical twist drill~~, or a grinding ball~~.

~~3~~4. The method as in claim 1, wherein the flexible joint ~~hole 109~~ is formed to be about 10% to about 50% of the size of the base of the ~~defect~~crack.

~~4~~5. The method as in claim 1, wherein the hole ~~109~~ is defined by a curved inner surface.

~~5~~6. The method as in claim 1, wherein the hole ~~109~~ is drilled in a desired location with precision accuracy within about 0.5 mm or less.

~~6. The method as in claim 1, wherein the hole 109 has a hole size of about 0.1 mm to 3.25 mm in diameter.~~

~~7. The method as in claim 1, wherein the tip 134 is attached using a tripod grip, a glue, or a vacuum sucker.~~

~~8. An integrated repair interface, comprising:~~

~~a cable delivery system 100 having a controllable tip 134;~~

~~an attachment mechanism 135 located on the cable delivery system for temporarily positioning the controllable tip onto a component within a gas turbine engine 10; and~~

~~a drilling means for forming a hole 109 within the component 104.~~

~~9. The integrated repair interface of claim 12, wherein the drilling means comprises a fiber optic laser drill.~~

~~10. The integrated repair interface of claim 12, wherein the drilling means comprises a water jet, a bead blast, a mechanical twist drill, or a grinding ball, and wherein the attachment mechanism 135 comprises a tripod grip, a glue, or a vacuum sucker.~~

7. The method as in claim 1, wherein the attachment mechanism further comprises a suction cup, and wherein temporarily attaching the working head to the internal component further comprises applying a vacuum within the suction cup so as to hold the working head onto the external surface of the internal component.

8. The method as in claim 1, wherein temporarily attaching the working head to the internal component further comprises:

applying a hot melt adhesive to the external surface of the internal component; and

adhering the working head to the internal component with the hot melt adhesive.

9. The method as in claim 8, wherein the method further comprises:

following the formation of the flexible joint, applying heat to the hot melt adhesive so as to melt the hot melt adhesive; and

removing the working head from within the gas turbine engine.

10. The method as in claim 1, wherein the internal component has a known shape and size, wherein the attachment mechanism comprises three grip arms, and wherein temporarily attaching the working head to the internal component further comprises bringing the grip arms together onto an edge of the internal component until the working head is secured.

11. The method as in claim 1, wherein the internal component is a turbine blade of the gas turbine engine.