CLAIMS

1. A boroscope comprising a working head, the working head having a first end and a second end, a first optical fibre extending through the boroscope to a position between the first end and the second end of the working head, a second optical fibre extending through the boroscope to the second end of the working head, a laser optical fibre extending through the boroscope, a mirror adjustably mounted on the working head, the laser optical fibre being arranged to direct laser light transmitted through the laser optical fibre onto the mirror on the working head, a first light source arranged at a position between the first end and the second end of the working head, a second light source arranged at the second end of the working head, and an actuator device to adjust the position of the mirror, wherein the mirror is adjustably mounted on the second end of the working head by a gimballed mounting and the actuator device comprises a galvanometer mechanism or the mirror is adjustably mounted on the second end of the working head by a micro-electro-mechanical system and the actuator device comprises the micro-electro-mechanical system.

2. A boroscope as claimed in claim 1 wherein at least one lens being arranged between the first end and the second end of the working head, the laser optical fibre being arranged to direct laser light transmitted through the laser optical fibre onto the at least one lens within the working head and then onto the mirror on the working head.

3. A boroscope as claimed in claim 1 or claim 2 wherein the mirror being adjustably mounted to the second end of the working head.

4. A boroscope as claimed in claim 1, claim 2 or claim 3 wherein the boroscope comprising a flexible hollow member having a first end and a second end, the working head being arranged at the second end of the hollow member, the working head having the first end adjacent the second end of the hollow member and the second end remote from the hollow member.

5. A boroscope as claimed in claim 1, claim 2, claim 3 or claim 4 wherein the first light source is arranged to direct light with a component of direction transverse to the axis of the boroscope, the end of the first optical fibre is arranged to receive light travelling with a component of direction transverse to the axis of the boroscope, the second light source is arranged to direct light with a component of direction parallel to the axis of the boroscope and the end of the second optical fibre is arranged to receive light travelling with a component of direction parallel to the axis of the boroscope.

6. A boroscope as claimed in any of claims 1 to 5 wherein the first light source and/or the second light source comprises a light emitting diode.

7. A boroscope as claimed in any of claims 1 to 6 wherein a pipe extends through the boroscope to a position between the first and second ends of the working head and a device is arranged to supply powder material through the pipe.

8. A boroscope as claimed in any of claims 1 to 7 wherein the first optical fibre surrounds the laser optical fibre and provides a cladding for the laser optical fibre.

9. A boroscope as claimed in any of claims 1 to 8 wherein the working head comprises a first cylindrical portion at the first end of the working head, a second part cylindrical portion at the second end of the working head and a third portion interconnecting the first cylindrical portion and the second part cylindrical portion.

10. A boroscope as claimed in claim 9 wherein the first light source and the at least one lens are arranged in the first cylindrical portion, the second light source and the mirror are arranged on the second part cylindrical portion.

11. A method of laser processing a component within an assembled apparatus, the apparatus comprising a casing enclosing the component, the casing having at least one aperture extending there-through, the method comprising:-

a) inserting a boroscope through the aperture, the boroscope comprising a working head, the working head having a first end and a second end, a first optical fibre extending through the boroscope to a position between the first end and the second end of the working head, a second optical fibre extending through the boroscope to the second end of the working head, a laser optical fibre extending through the boroscope, a mirror adjustably mounted on the working head, the laser optical fibre being arranged to direct laser light transmitted through the laser optical fibre onto the mirror on the working head, a first light source arranged at a position between the first end and the second end of the working head, a second light source arranged at the second end of the working head and an actuator device to adjust the position of the mirror, wherein the mirror is adjustably mounted on the second end of the working head by a gimballed mounting and the actuator device comprises a galvanometer mechanism or the mirror is adjustably mounted on the second end of the working head by a micro-electro-mechanical system and the actuator device comprises the micro-electro-mechanical system,

b) viewing the assembled apparatus within the casing using the second optical fibre,

c) viewing the assembled apparatus within the casing using the second optical fibre while moving the working head of the boroscope to the component,

d) transmitting a laser beam through the laser optical fibre to the mirror,

e) reflecting the laser beam off the mirror onto a surface of the component to process the surface of the component, and

f) viewing the surface of the component and the laser beam with the first optical fibre to monitor the processing of the surface of the component.

12. A method as claimed in claim 11 wherein step e) comprises adjusting the position of the mirror to move the laser beam over the surface of the component.

13. A method as claimed in claim 11 or claim 12 wherein step e) comprises cleaning the surface of the component.

14. A method as claimed in claim 11 or claim 12 wherein the boroscope comprises a pipe extending through the boroscope to a position between the first and second ends of the working head and a device is arranged to supply powder material through the pipe, and step e) comprises supplying a powder material through the pipe onto the surface of the component and melting the powder material with the laser beam.

15. A method as claimed in claim 14 wherein step e) comprises supplying a welding material to weld the component, to repair a crack in the component, to weld the component to another component or to build up a worn portion of the component.

16. A method as claimed in claim 14 wherein step e) comprises supplying a coating material to provide a coating on the component or to repair a coating on the component.

17. A method as claimed in any of claims 11 to 16 wherein the assembled apparatus comprises a gas turbine engine.

18. A method as claimed in claim 17 wherein the component comprises a compressor blade, a compressor vane, a turbine blade or a turbine vane.