WHAT IS CLAIMED IS:

1. A method (300) for repairing a turbine engine (10) comprising a rotating stage of airfoils and an outer band (80) surrounding the rotating stage of airfoils, the rotating stage of airfoils including a plurality of airfoils (60) defining an outer end (76), the method comprising:

determining (302) a measure of a gap (86) between the outer ends (76) of the plurality of airfoils (60) and the outer band (80) is greater than a predetermined amount; and

depositing (310) an abradable material on the outer band (80) in situ to reduce the measure of the gap (86) between the outer ends (76) of the plurality of airfoils (60) and the outer band (80).

2. The method (300) of claim 1, wherein depositing (310) the abradable material on the outer band (80) in situ comprises depositing (312) the abradable material using a spray module (104) attached to at least one airfoil (60) of the plurality of airfoils (60).

3. The method (300) of claim 2, wherein depositing (310) the abradable material on the outer band (80) in situ further comprises rotating (314) the plurality of airfoils (60) while depositing the abradable material on the outer band (80) in situ.

4. The method (300) of claim 1, wherein the turbine engine (10) defines a radial direction and a circumferential direction, and wherein determining (302) the measure of the gap (86) between the outer ends (76) of the plurality of airfoils (60) and the outer band (80) comprises determining (304) a two-dimensional measure of the gap (86) along the radial direction and the circumferential direction.

5. The method (300) of claim 1, wherein the turbine engine (10) defines an axial direction, a radial direction, and a circumferential direction, and wherein determining (302) the measure of the gap (86) between the outer ends (76) of the plurality of airfoils (60) and the outer band (80) comprises determining (306) a three-dimensional

measure of the gap (86) along the axial direction, the radial direction, and the circumferential direction.

6. The method (300) of claim 1, wherein the turbine engine (10) defines a circumferential direction, and wherein depositing (310) the abradable material on the outer band (80) in situ comprises depositing (316) the abradable material in a nonuniform manner along the circumferential direction on the outer band (80).

7. The method (300) of claim 6, wherein depositing (316) the abradable material in a nonuniform manner along the circumferential direction comprises depositing (318) the abradable material in a nonuniform manner along the circumferential direction to result in a nonuniform measure of the gap (86) along the circumferential direction.

8. The method (300) of claim 1, further comprising:

removing (308) in situ at least a portion of the existing abradable material.

9. A repair tool (100) for repairing an abradable layer (82) of an outer band (80) surrounding a rotating stage of airfoils of a turbine engine (10), the repair tool (100) comprising:

a sensing module (102) comprising a sensor (110) configured to sense data indicative of a measure of a gap (86) between the first airfoil (60A) and the abradable layer (82) of the outer band (80); and

a spray module (104) configured for removable attachment to an airfoil (60) of the rotating stage of airfoils, the spray module (104) comprising a nozzle (116) for spraying an abradable material onto the abradable layer (82).

10. The repair tool (100) of claim 9, wherein the spray module (104) is configured for removable attachment to a second airfoil (60B) of the rotating stage of airfoils, and wherein the sensing module (102) is configured for removable attachment to a first airfoil (60A) of the rotating stage of airfoils.

~~11. The repair tool (100) of claim 9, further comprising:~~

~~a contour module (106) configured to recontour the abradable material sprayed onto the abradable layer (82).~~

~~12. The repair tool (100) of claim 11, wherein the contour module (106) is configured for removable attachment to a third airfoil (60C) of the rotating stage of airfoils.~~

~~13. The repair tool (100) of claim 9, further comprising:~~

~~a controller (138), wherein the sensing module (102) and the spray module (104) are each operably coupled to the controller (138).~~

~~14. The repair tool (100) of claim 13, wherein the controller (138) comprises one or more processors (109) and memory (111), wherein the memory (111) stores data (113) with the data (113) including instructions that when executed by the one or more processors (109) cause the repair tool (100) to perform functions, the functions including determining a two-dimensional measure of the gap (86) along a radial direction of the turbine engine (10) and along a circumferential direction of the turbine engine (10).~~

~~15. The repair tool (100) of claim 14, wherein the functions further include determining a three-dimensional measure of the gap (86) along the radial direction, along the circumferential direction, and along an axial direction of the turbine engine (10).~~

1. A method for repairing a turbine engine comprising a rotating stage of airfoils and an outer band surrounding the rotating stage of airfoils,

the rotating stage of airfoils including a plurality of airfoils defining an outer end, the method comprising:

determining a measure of a gap between the outer ends of the plurality of airfoils and the outer band is greater than a predetermined amount; and

depositing an abradable material on the outer band in situ to reduce the measure of the gap between the outer ends of the plurality of airfoils and the outer band,

wherein depositing the abradable material on the outer band in situ comprises depositing the abradable material using a spray module attached to at least one airfoil of the plurality of airfoils, and depositing the abradable material on the outer band in situ further comprises rotating the plurality of airfoils while depositing the abradable material on the outer band in situ.

2. The method of claim 1, wherein depositing the abradable material on the outer band in situ comprises depositing the abradable material using a spray module attached to at least one airfoil of the plurality of airfoils.

3. The method of claim 2, wherein depositing the abradable material on the outer band in situ further comprises rotating the plurality of airfoils while depositing the abradable material on the outer band in situ.

4. The method of claim 1, wherein the turbine engine defines a radial direction and a circumferential direction, and wherein determining the measure of the gap between the outer ends of the plurality of airfoils and the outer band comprises determining a two-dimensional measure of the gap along the radial direction and the circumferential direction.

5. The method of claim 1, wherein the turbine engine defines an axial direction, a radial direction, and a circumferential direction, and wherein determining the measure of the gap between the outer ends of the plurality of airfoils and the outer band comprises determining a three-dimensional measure of the gap along the axial direction, the radial direction, and the circumferential direction.

6. The method of claim 1, further comprising:

removing in situ at least a portion of the existing abradable material.

7. The method of claim 1, further comprising:

recontouring in situ the abradable material deposited on the outer band.

8. The method of claim 7, wherein recontouring in situ the abradable material deposited on the outer band comprises recontouring in situ the abradable material deposited on the outer band utilizing a recontouring tool attached to at least one airfoil of the plurality of airfoils.

9. The method of claim 8, wherein recontouring in situ the abradable material deposited on the outer band further comprises rotating the plurality of airfoils while recontouring in situ the abradable material deposited on the outer band.

10. The method of claim 1, wherein the plurality of airfoils of the rotating stage of airfoils is a plurality of rotor blades.

11. The method of claim 1, wherein depositing the abradable material on the outer band in situ comprises depositing the abradable material in situ using a snake arm tool extending through an opening of the turbine engine.

12. A method for repairing a turbine engine comprising a rotating stage of airfoils and an outer band surrounding the rotating stage of airfoils, the rotating stage of airfoils including a plurality of airfoils defining an outer end, the method comprising:

determining a measure of a qap between the outer ends of the plurality of airfoils and the outer band is greater than a predetermined amount; and

depositing an abradable material on the outer band in situ to reduce the measure of the gap between the outer ends of the plurality of airfoils and the outer band,

wherein the turbine engine defines a circumferential direction, and wherein depositing the abradable material on the outer band in situ comprises depositing the abradable material in a nonuniform manner along the circumferential direction on the outer band.

13. The method of claim 12, wherein depositing the abradable material in a nonuniform manner along the circumferential direction comprises depositing the abradable material in a nonuniform manner along the circumferential direction to result in a nonuniform measure of the gap along the circumferential direction.