CLAIMS

What is claimed is:

1. A gas turbine engine comprising:

high and low pressure turbines;

a mid turbine frame arranged axially between the high and low pressure turbines;

a bearing operatively supported by a support structure;

an inner case secured to the support structure and including a first conical member; and

a bearing support to which the bearing is mounted, the bearing support including a second conical member that is secured to the first conical member at a joint, the first and second conical members arranged radially inward of the joint.

2. The gas turbine engine according to claim 1, wherein mid turbine frame includes a circumferential array of airfoils that provide a cavity there through, and the support structure includes a rod extending through the airfoil and fastened to the inner case.

3. The gas turbine engine according to claim 2, wherein the rod is secured to the inner case by a nut, and the nut is arranged radially inward from the joint.

4. The gas turbine engine according to claim 1, wherein the first and second conical members are discrete from and adjoin one another and are secured to one another by fasteners.

5. The gas turbine engine according to claim 1, wherein the first and second conical members are arranged on a same axial side of the joint.

6. The gas turbine engine according to claim 1, wherein the first and second conical members are arranged on opposing axial sides of the joint.

7. The gas turbine engine according to claim 1, wherein the bearing is arranged in a bearing compartment, and a cooling compartment is provided between sealing assemblies supported by the inner case.

8. The gas turbine engine according to claim 1, wherein the first conical member is integral with the inner case.

9. The gas turbine engine according to claim 1, wherein the second conical member is integral with the bearing support.

10. The gas turbine engine according to claim 1, wherein the bearing support is provided by an intermediate member, and the second conical member is secured to the intermediate member at an intermediate joint.

11. The gas turbine engine according to claim 1, comprising:

a fan;

a compressor section fluidly connected to the fan, the compressor comprising a high pressure compressor and a low pressure compressor;

a combustor fluidly connected to the compressor section;

a turbine section fluidly connected to the combustor, the turbine section comprising:

the high pressure turbine coupled to the high pressure compressor via a first shaft;

the low pressure turbine coupled to the low pressure compressor via a second shaft; and

a geared architecture interconnects between the second shaft and the fan.

12. The gas turbine engine according to claim 11, wherein the gas turbine engine is a high bypass geared aircraft engine having a bypass ratio of greater than about six (6).

13. The gas turbine engine according to claim 11, wherein the gas turbine engine includes a low Fan Pressure Ratio of less than about 1.45.

14. The gas turbine engine according to claim 11, wherein the low pressure turbine has a pressure ratio that is greater than about 5.

15. The gas turbine engine according to claim 11, wherein the geared architecture includes a gear reduction ratio of greater than about 2.5:1.

16. The gas turbine engine according to claim 15, wherein the fan includes a low corrected fan tip speed of less than about 1150 ft/s.

17. A gas turbine engine comprising:

a first cone connecting a bearing compartment to a mid-turbine frame;

a second cone connecting the bearing compartment to the mid-turbine frame; and

wherein the first cone is at least partially surrounding the second cone.

18. The gas turbine engine of claim 17, wherein the first cone is integral to the mid-turbine frame.

19. The gas turbine engine of claim 17, wherein the first cone is fastened to the mid-turbine frame.

20. A gas turbine engine comprising:

a first cone connecting a bearing compartment to a mid-turbine frame;

a second cone connecting the bearing compartment to the mid-turbine frame; and

wherein the first cone is fastened and nested radially to the second cone.

CLAIMS:

1. A gas turbine engine comprising:

high and low pressure turbines;

a mid turbine frame arranged axially between the high and low pressure turbines;

a bearing operatively supported by a support structure;

an inner case secured to the support structure and including a first conical member; and

a bearing support to which the bearing is mounted, the bearing support including a second conical member that is secured to the first conical member at a joint, the first and second conical members arranged radially inward of the joint, the joint provided at a plane perpendicular to a rotational axis of the high and low pressure turbines, a first axial side on one side of the plane, and a second axial side on another side of the plane opposite the one side, the first and second conical members are arranged on the first axial side.

2. A gas turbine engine comprising:

high and low pressure turbines;

a mid turbine frame arranged axially between the high and low pressure turbines, wherein mid turbine frame includes a circumferential array of airfoils that provide a cavity there through;

a bearing operatively supported by a support structure;

an inner case secured to the support structure and including a first conical member, and the support structure includes a rod extending through the airfoil and fastened to the inner case, wherein the rod is secured to the inner case by a nut; and

a bearing support to which the bearing is mounted, the bearing support including a second conical member that is secured to the first conical member at a joint, the first and second conical members arranged radially inward of the joint, and the nut is arranged radially inward from the joint.

3. The gas turbine engine according to claim 1, wherein the first and second conical members are discrete from and adjoin one another and are secured to one another by fasteners.

4. The gas turbine engine according to claim 2, the joint provided at a plane perpendicular to a rotational axis of the high and low pressure turbines, a first axial side on one side of the plane, and a second axial side on another side of the plane opposite the one side,

wherein the first and second conical members are arranged on the one side and the other side, respectively.

5. The gas turbine engine according to claim 1, wherein the bearing is arranged in a bearing compartment, and a cooling compartment is provided between sealing assemblies supported by the inner case.

6. The gas turbine engine according to claim 1, wherein the first conical member is integral with the inner case.

7. The gas turbine engine according to claim 1, wherein the second conical member is integral with the bearing support.

8. The gas turbine engine according to claim 2, wherein the bearing support is provided by an intermediate member, and the second conical member is secured to the intermediate member at an intermediate joint.

9. The gas turbine engine according to claim 1, comprising:

a fan;

a compressor section fluidly connected to the fan, the compressor comprising a high pressure compressor and a low pressure compressor;

a combustor fluidly connected to the compressor section;

a turbine section fluidly connected to the combustor, the turbine section comprising:

the high pressure turbine coupled to the high pressure compressor via a first shaft;

the low pressure turbine coupled to the low pressure compressor via a second shaft; and

a geared architecture interconnects between the second shaft and the fan.

10. The gas turbine engine according to claim 9, wherein the gas turbine engine is a high bypass geared aircraft engine having a bypass ratio of greater than six (6).

11. The gas turbine engine according to claim 9, wherein the gas turbine engine includes a low Fan Pressure Ratio of less than 1.45.

12. The gas turbine engine according to claim 9, wherein the low pressure turbine has a pressure ratio that is greater than 5.

13. The gas turbine engine according to claim 9, wherein the geared architecture includes a gear reduction ratio of greater than 2.5:1.

14. The gas turbine engine according to claim 13, wherein the fan includes a low corrected fan tip speed of less than 1150 ft/s.

15. The gas turbine engine according to claim 1, wherein the first conical member is at least partially surrounding the second conical member.

16. The gas turbine engine of claim 15, wherein the first conical member is integral to the mid-turbine frame.

17. The gas turbine engine of claim 1, wherein the first conical member is fastened to the mid-turbine frame.

18. The gas turbine engine according to claim 1,

wherein the first conical member is fastened and nested radially to the second conical member.