CLAIMS

What is claimed is:

1. A fan case for a gas turbine engine comprising:

a composite fan containment case including an outer surface, a front and a rear;

an attachment flange and a mounting ring respectively provided on the front and the rear;

a bolt attachment supported on the outer surface; and

wherein the composite fan containment case has a containment shell providing an outer case in a containment area configured to be aligned with a fan blade, and a ballistic liner arranged in the containment area inward of the outer case.

2. The fan case according to claim 1, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, an attachment flange extending radially outward from the cylindrical case at the front, the attachment flange comprising a portion of the composite layers, and a metallic backing ring secured to the attachment flange.3. The fan case according to claim 1, wherein the mounting ring is metallic and is secured to the outer surface at the rear.

4. The fan case according to claim 1, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, and the mounting ring is integral with the composite layers.

5. The fan case according to claim 1, wherein the bolt attachment includes an internal composite boss having at least one metallic insert, the boss attached to the outer surface with at least one fiber reinforce ply and an adhesive.

6. The fan case according to claim 1, wherein the ballistic liner is manufactured from one of a resin impregnated KEVLAR, a ceramic material and a metallic material.

7. A fan case for a gas turbine engine comprising:

a composite fan containment case including an outer surface, a front and a rear;

an attachment flange and a mounting ring respectively provided on the front and the rear; and

a bolt attachment supported on the outer surface.

8. The fan case according to claim 7, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, an attachment flange extending radially outward from the cylindrical case at the front, the attachment flange comprising a portion of the composite layers, and a metallic backing ring secured to the attachment flange.

9. The fan case according to claim 7, wherein the mounting ring is metallic and is secured to the outer surface at the rear.

10. The fan case according to claim 7, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, and the mounting ring is integral with the composite layers.

11. The fan case according to claim 7, wherein the bolt attachment includes an internal composite boss having at least one metallic insert, the boss attached to the outer surface with at least one fiber reinforce ply and an adhesive.

CLAIMS

1. A fan case for a gas turbine engine comprising:

a composite fan containment case including an outer surface, a front and a rear;

an attachment flange and a mounting ring respectively provided on the front and the rear;

a bolt attachment supported on the outer surface; and

wherein the composite fan containment case has a containment shell providing an outer case in a containment area configured to be aligned with a fan blade, and a ballistic liner arranged in the containment area inward of the outer case; and

wherein the bolt attachment includes an internal composite boss having at least one metallic insert, the boss attached to the outer surface with at least one fiber reinforce ply and an adhesive; and

wherein the insert includes a threaded hole, wherein the insert is metallic and includes a flat end that prevents rotation of the insert within the composite boss.

2. The fan case according to claim 1, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, an attachment flange extending radially outward from the cylindrical case at the front, the attachment flange comprising a portion of the composite layers, and a metallic backing ring secured to the attachment flange.3. The fan case according to claim 1, wherein the mounting ring is metallic and is secured to the outer surface at the rear.

3. The fan case according to claim 1, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, and the mounting ring is integral with the composite layers.

4. The fan case according to claim 1, wherein the ballistic liner is manufactured from one of a resin impregnated KEVLAR, a ceramic material and a metallic material.

5. A fan case for a gas turbine engine comprising:

a composite fan containment case including an outer surface, a front and a rear;

an attachment flange and a mounting ring respectively provided on the front and the rear; and

a bolt attachment supported on the outer surface; and

wherein the bolt attachment includes an internal composite boss having at least one metallic insert, the boss attached to the outer surface with at least one fiber reinforce ply and an adhesive; and

wherein the insert includes a threaded hole, wherein the insert is metallic and includes a flat end that prevents rotation of the insert within the composite boss.

6. The fan case according to claim 5, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, an attachment flange extending radially outward from the cylindrical case at the front, the attachment flange comprising a portion of the composite layers, and a metallic backing ring secured to the attachment flange.

7. The fan case according to claim 5, wherein the mounting ring is metallic and is secured to the outer surface at the rear.

8. The fan case according to claim 5, wherein the composite fan containment case includes multiple composite layers defining a generally cylindrical case, and the mounting ring is integral with the composite layers.

9. The fan case according to claim 5, wherein the bolt attachment includes an internal composite boss having at least one metallic insert, the boss attached to the outer surface with at least one fiber reinforce ply and an adhesive.