CLAIMS

1. A connector (209) for joining two electrical harnesses, each harness being formed from a flexible printed circuit board (201) which provides a plurality of conductive tracks (203), and each harness having a substantially planar terminating region (205) at which the conductive tracks of the harness fan out, wherein one or more receiving holes (207) are formed in each terminating region to extend to respective conductive tracks, and each receiving hole extends in a direction substantially perpendicularly to the plane of the respective terminating region, the connector including:

a connection formation which, in use, is sandwiched between respective terminating regions of the two electrical harnesses, the connection formation having one or more pins (217) which are arranged so that one end of each pin enters a receiving hole of one of the terminating regions and the other end of the pin enters a receiving hole of the other of the terminating regions to electrically connect the respective conductive tracks; and

a housing configured to hold the respective terminating regions of the two electrical harnesses in face-to-face relationship with the connection formation sandwiched therebetween, the housing having one or more apertures through which the harnesses can exit the housing as they extend away from their terminating regions.

2. A connector according to claim 1, wherein the housing is openable to allow the terminating regions to be separated from the connection formation.

3. A connector according to claim 1 or 2, wherein the housing sealingly encloses the terminating regions and the connection formation.

4. A connector according to any one of the previous claims, wherein the connection formation has a substantially planar retaining body (215) which holds the pins in fixed positions relative thereto, the ends of each pin projecting from opposing sides of the body.

5. A connector according to claim 4, wherein the retaining body has substantially the same shape as the terminating regions.

6. A connector according to any one of the previous claims, wherein the or each pin has a respective central flange (219) which extends perpendicularly to the direction of the pin.

7. A connector according to any one of the previous claims, wherein the connector further includes a fixation formation which urges the terminating regions into engagement with the connection formation.

8. A connector according to claim 7, wherein the fixation formation is provided by two resilient members (223) which sandwich the terminating regions and connection formation therebetween, each resilient member being compressed between the adjacent terminating region and the housing.

9. A connector according to any one of the previous claims, wherein substantially the whole of the inner surface of the or each receiving hole is coated with an electrically conducting layer (221).

10. An arrangement of two electrical harnesses, each harness being formed from a flexible printed circuit board (201) which provides a plurality of conductive tracks (203), and each harness having a substantially planar terminating region (205) at which the conductive tracks of the harness fan out, wherein one or more receiving holes (207) are formed in each terminating region to extend to respective conductive tracks, each receiving hole extends in a direction substantially perpendicularly to the plane of the respective terminating region, and the harnesses are joined at their terminating regions by a connector (209) according to any one of the previous claims.

11. An arrangement of two electrical harnesses according to claim 10, wherein a part of one or both of the respective flexible printed circuit boards (201) of the two electrical harnesses is embedded in a rigid material (285).

12. An electrical harness according to claim 11, wherein the rigid material is a rigid composite material.

13. A gas turbine engine having the arrangement of two electrical harnesses according to any one of claims 10 to 12.

Claims:

1. A connector for joining two electrical harnesses, each of the harnesses being formed from a flexible printed circuit board including a plurality of conductive tracks, and each of the harnesses having a substantially planar terminating region at which the conductive tracks fan out, wherein one or more receiving holes are formed in each terminating region to extend to respective conductive tracks, and each of the one or more receiving holes extends in a direction substantially perpendicularly to a plane of the respective substantially planar terminating region, the connector including:

a connection formation, wherein the connection formation, in use, is sandwiched between respective terminating regions of the two electrical harnesses, the connection formation having one or more pins arranged so that one end of each of the one or more pins enters one of the one or more receiving holes of one of the terminating regions and the other end of the pin enters one of the one or more receiving holes of the other of the terminating regions to electrically connect the respective conductive tracks;

a housing configured to hold the respective terminating regions of the two electrical harnesses in face-to-face relationship with the connection formation sandwiched therebetween, the housing having one or more apertures through which the harnesses can exit the housing as each of the harnesses extends away from the terminating region of the harness; and

a fixation formation, wherein the fixation formation urges the terminating regions into engagement with the connection formation, and the fixation formation is provided by two resilient members, each of the resilient members being compressed between the housing and an adjacent one of the terminating regions, the two resilient members sandwiching the terminating regions and the connection formation therebetween.

2. A connector according to claim 1, wherein the housing is openable to allow the terminating regions to be separated from the connection formation.

3. A connector according to claim 1, wherein the housing sealingly encloses the terminating regions and the connection formation.

4. A connector according to claim 1, wherein the connection formation has a substantially planar retaining body which holds the pins in fixed positions relative thereto, the ends of each of the one or more pins projecting from opposing sides of the body.

5. A connector according to claim 4, wherein the retaining body has substantially the same shape as the terminating regions.

6. A connector according to claim 1, wherein each of the one or more pins has a respective central flange extending perpendicularly to a longitudinal direction of the pin.

7. A connector according to claim 1, wherein substantially the whole of an inner surface of each of the one or more receiving holes is coated with an electrically conducting layer.

8. An arrangement comprising the two electrical harnesses joined at the terminating region of each of the harnesses by the connector according to claim 1.

9. An arrangement according to claim 8, wherein a part of one or both of the respective flexible printed circuit boards of the two electrical harnesses is embedded in a rigid material.

10. An arrangement according to claim 9, wherein the rigid material is a rigid composite material.

11. A gas turbine engine having the arrangement according to claim 8.

12. A connector for joining two electrical harnesses, each of the harnesses being formed from a flexible printed circuit board including a plurality of conductive tracks, and each of the harnesses having a substantially planar terminating region at which the conductive tracks fan out, wherein one or more receiving holes are formed in each terminating region to extend to respective conductive tracks, and each of the one or more receiving holes extends in a direction substantially perpendicularly to a plane of the respective substantially planar terminating region, the connector including:

a connection formation, wherein the connection formation, in use, is sandwiched between respective terminating regions of the two electrical harnesses, the connection formation having one or more pins arranged so that one end of each of the one or more pins enters one of the one or more receiving holes of one of the terminating regions and the other end of the pin enters one of the one or more receiving holes of the other of the terminating regions to electrically connect the respective conductive tracks; and

a housing configured to hold the respective terminating regions of the two electrical harnesses in face-to-face relationship with the connection formation sandwiched therebetween, the housing having one or more apertures through which the harnesses can exit the housing as each of the harnesses extends away from the terminating region of the harness, and wherein the housing sealingly encloses the terminating regions and the connection formation.