We claim:

1. A hose assembly comprising:

a hose including an end portion defining an inner bore and an outer surface;

a connector body having an outer end portion defining a fluid connector, an inner end defining a nose portion received in the inner bore of the hose end portion, and an intermediate portion including first and second annular flanges spaced apart to define a dog lock groove; and

a collar including an outer end portion defining an inner radial dog lock received in the dog lock groove, an annular step portion extending radially outward of and axially inward of the dog lock in axial alignment with the first annular flange, and an inner end portion extending radially outward of and axially inward from the step portion, the inner end portion being in radial compression against the outer surface of the hose end portion;

wherein the outer surface of the hose end portion has an outer diameter that is larger than an inner diameter of the step portion, such that the outer surface of the hose end portion is secured axially inward of the first annular flange.

2. The hose assembly of claim 1, wherein the hose includes a plastic core tube defining the inner bore of the hose end portion.

3. The hose assembly of claim 2, wherein the plastic core tube comprises PTFE.

4. The hose assembly of any of claims 1-3, wherein the hose includes an outer sheath defining the outer surface of the hose end portion.

5. The hose assembly of claim 4, wherein the outer sheath comprises a braided metal sheath.

6. The hose assembly of any of claims 1-5, wherein the dog lock is crimped into the dog lock groove.

7. The hose assembly of any of claims 1-6, wherein the inner end portion of the collar is crimped against the hose end portion.

~~8. The hose assembly of any of claims 1-7, wherein at least one of the first and second annular flanges defined a tapered side surface of the dog lock groove, with the dog lock contacting the tapered side surface of the dog lock groove.~~

~~9. The hose assembly of claim 8, wherein the second annular flange defines the tapered side surface of the dog lock groove.~~

~~10. The hose assembly of any of claims 1-9, wherein an outer surface of the first annular flange and an inner surface of the step portion define an annular radial gap.~~

~~11. The hose assembly of any of claims 1-10, wherein an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.~~

~~12. The hose assembly of any of claims 1-11, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove.~~

~~13. The hose assembly of any of claims 1-12, wherein the connector body and the collar each comprise metal.~~

~~14. A hose assembly comprising:~~

~~a hose including an end portion defining an inner bore and an outer surface;~~

~~a connector body having an outer end portion defining a fluid connector, an inner end defining a nose portion received in the inner bore of the hose end portion, and an intermediate portion including first and second annular flanges spaced apart to define a dog lock groove; and~~

~~a collar including an outer end portion defining an inner radial dog lock received in the dog lock groove and an inner end portion extending radially outward of and axially inward of the dog lock, the inner end portion being in radial compression against the outer surface of the hose end portion;~~

wherein at least one of the first and second annular flanges defined a tapered side surface of the dog lock groove, with the dog lock contacting the tapered side surface of the dog lock groove to provide an electrically conductive connection between the collar end the connector body.

15. The hose assembly of claim 14, wherein the hose includes a plastic core tube defining the inner bore of the hose end portion.

16. The hose assembly of claim 15, wherein the plastic core tube comprises PTFE.

17. The hose assembly of any of claims 14-16, wherein the hose includes an outer sheath defining the outer surface of the hose end portion.

18. The hose assembly of claim 17, wherein the outer sheath comprises a braided metal sheath.

19. The hose assembly of any of claims 14-18, wherein the dog lock is crimped into the dog lock groove.

20. The hose assembly of any of claims 14-19, wherein the inner end portion of the collar is crimped against the hose end portion.

21. The hose assembly of any of claims 14-20, wherein the second annular flange defines the tapered side surface of the dog lock groove.

22. The hose assembly of any of claims 14-21, wherein an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

23. The hose assembly of any of claims 14-22, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove.

~~24. The hose assembly of any of claims 14-23, wherein the connector body and the collar each comprise metal.~~

~~25. A method of making a hose assembly, the method comprising:~~

~~providing a collar including an outer end portion defining an inner radial dog lock, an annular step portion extending radially outward of and axially inward of the dog lock, and an inner end portion extending radially outward of and axially inward from the step portion;~~

~~inserting a hose end into the inner end portion of the collar such that an axially outer edge of an outer surface of the hose end abuts an axially inner end of the annular step portion;~~

~~inserting a nose portion of a connector body through the outer end portion of the collar and into an inner bore in the hose end portion, such that the dog lock is axially aligned with an annular dog lock groove in an intermediate portion of the connector body; and~~

~~crimping the collar radially inward, such that the dog lock is received in the dog lock groove, and the hose end portion is radially compressed between the inner end portion of the collar and the nose portion of the connector body.~~

~~26. The method of claim 25, wherein the hose includes a plastic core tube defining the inner bore of the hose end portion.~~

~~27. The method of claim 26, wherein the plastic core tube comprises PTFE.~~

~~28. The method of any of claims 25-27, wherein the hose includes an outer sheath defining the outer surface of the hose end portion.~~

~~29. The method of claim 28, wherein the outer sheath comprises a braided metal sheath.~~

~~30. The method of any of claims 25-29, wherein the intermediate portion of the connector body includes first and second annular flanges spaced apart to define the dog lock groove.~~

~~31. The method of claim 30, wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises axially~~

aligning the first annular flange with the annular step portion, such that when the collar is crimped radially inward, the outer surface of the hose end portion is secured axially inward of the first annular flange.

32. The method of any of claims 30 and 31, wherein the at least one of the first and second annular flanges defined a tapered side surface of the dog lock groove, wherein crimping the collar radially inward comprises crimping the dog lock into contact with the tapered side surface of the dog lock groove.

33. The method of claim 32, wherein the second annular flange defines the tapered side surface of the dog lock groove.

34. The method of any of claims 25-33, wherein an outer surface of the first annular flange and an inner surface of the step portion define an annular radial gap.

35. The method of any of claims 25-34, wherein an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

36. The method of any of claims 25-35, wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises abutting the outer end portion of the collar against a surface of a gauge tool assembled with the connector body.

37. The method of claim 36, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove, the method further comprising positioning the gage tool in the tool engagement groove for abutment with the outer end portion of the collar.

We claim:

1. A hose assembly comprising:

a hose including an end portion defining an inner bore and an outer surface;

a connector body having an outer end portion defining a fluid connector, an inner end defining a nose portion received in the inner bore of the hose end portion, and an intermediate portion including first and second annular flanges spaced apart to define a dog lock groove; and

a collar including an outer end portion defining an inner radial dog lock received in the dog lock groove, an annular step portion extending radially outward of and axially inward of the dog lock in axial alignment with the first annular flange, and an inner end portion extending radially outward of and axially inward from the step portion, the inner end portion being in radial compression against the outer surface of the hose end portion;

wherein the outer surface of the hose end portion has an outer diameter that is larger than an inner diameter of the step portion, such that the outer surface of the hose end portion is secured axially inward of the first annular flange;

wherein at least one of the first and second annular flanges defines a tapered side surface of the dog lock groove, with the dog lock contacting the tapered side surface of the dog lock groove; and

wherein the dog lock has an axial width greater than an axial inner width of the dog lock groove, such that an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

2. The hose assembly of claim 1, wherein the hose includes a plastic core tube defining the inner bore of the hose end portion.

3. The hose assembly of any of claims 1 and 2, wherein the dog lock is crimped into the dog lock groove.

4. The hose assembly of any of claims 1-3, wherein the inner end portion of the collar is crimped against the hose end portion.

5. The hose assembly of any of claims 1-4, wherein an outer surface of the first annular flange and an inner surface of the step portion define an annular radial gap.

6. The hose assembly of any of claims 1-5, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove.

7. A hose assembly comprising:

a hose including an end portion defining an inner bore and an outer surface;

a connector body having an outer end portion defining a fluid connector, an inner end defining a nose portion received in the inner bore of the hose end portion, and an intermediate portion including a dog lock groove; and

a collar including an outer end portion defining an inner radial dog lock received in the dog lock groove and an inner end portion extending radially outward of and axially inward of the dog lock, the inner end portion being in radial compression against the outer surface of the hose end portion;

wherein the dog lock groove includes at least one tapered side surface, with the dog lock contacting the tapered side surface of the dog lock groove to provide an electrically conductive connection between the collar end the connector body; and

wherein the dog lock has an axial width greater than an axial inner width of the dog lock groove, such that an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

8. The hose assembly of claim 7, wherein the hose includes a plastic core tube defining the inner bore of the hose end portion.

9. The hose assembly of any of claims 7 and 8, wherein the dog lock is crimped into the dog lock groove.

10. The hose assembly of any of claims 7-9, wherein the inner end portion of the collar is crimped against the hose end portion.

11. The hose assembly of any of claims 7-10, wherein the intermediate portion of the connector body includes an inner axial first annular flange and an outer axial second annular flange spaced apart from the first annular flange to define the dog lock groove.

12. The hose assembly of claim 11, wherein the second annular flange defines the tapered side surface of the dog lock groove.

13. The hose assembly of any of claims 7-12, wherein an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

14. The hose assembly of any of claims 7-13, wherein the connector body and the collar each comprise metal.

15. A method of making a hose assembly, the method comprising:

providing a collar including an outer end portion defining an inner radial dog lock, an annular step portion extending radially outward of and axially inward of the dog lock, and an inner end portion extending radially outward of and axially inward from the step portion;

inserting a hose end into the inner end portion of the collar such that an axially outer edge of an outer surface of the hose end abuts an axially inner end of the annular step portion;

inserting a nose portion of a connector body through the outer end portion of the collar and into an inner bore in the hose end portion, such that the dog lock is axially aligned with an annular dog lock groove in an intermediate portion of the connector body; and

crimping the collar radially inward, such that the dog lock is received in the dog lock groove, with the dog lock contacting a tapered side surface of the dog lock groove, and the hose end portion is radially compressed between the inner end portion of the collar and the nose portion of the connector body;

wherein the dog lock has an axial width greater than an axial inner width of the dog lock groove, such that an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

16. The method of claim 15, wherein the intermediate portion of the connector body includes an inner axial first annular flange and an outer axial second annular flange spaced apart from the first annular flange to define the dog lock groove.

17. The method of claim 16, wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises axially aligning the first annular flange with the annular step portion, such that when the collar is crimped radially inward, the outer surface of the hose end portion is secured axially inward of the first annular flange.

18. The method of any of claims 16 and 17, wherein the at least one of the first and second annular flanges defined a tapered side surface of the dog lock groove, wherein crimping the collar radially inward comprises crimping the dog lock into contact with the tapered side surface of the dog lock groove.

19. The method of any of claims 16-18, wherein the intermediate portion of the connector body further includes a third annular flange axially outward of and spaced apart from the second annular flange to define a tool engaging groove, the method further comprising positioning the gage tool in the tool engagement groove for abutment with the outer end portion of the collar.

20. The method of any of claims 15-19, wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises abutting the outer end portion of the collar against a surface of a gauge tool assembled with the connector body.

21. A hose assembly comprising:

a hose including a plastic inner core tube defining an inner bore of the hose and an outer sheath defining an outer surface of the hose;

a connector body having an outer end portion defining a fluid connector, an inner end defining a nose portion received in the inner bore of the hose, and an intermediate portion including first and second annular flanges spaced apart to define a dog lock groove; and

a collar including an outer end portion defining an inner radial dog lock received in the dog lock groove, an annular step portion extending radially outward of and axially inward of the dog lock in axial alignment with the first annular flange, and an inner end portion extending radially outward of and axially inward from the step portion, the inner end portion being in radial compression against the outer surface of the hose;

wherein the outer surface of the hose end has an outer diameter that is larger than an inner diameter of the step portion, such that the hose outer sheath is secured axially inward of the first annular flange; and

wherein an outer surface of the first annular flange and an inner surface of the step portion define an annular radial gap sized to permit limited extrusion of the plastic inner core tube between the first annular flange and the annular step portion.

22. The hose assembly of claim 21, wherein the plastic core tube comprises PTFE.

23. The hose assembly of any of claims 21 and 22, wherein the outer sheath comprises a braided metal sheath.

24. The hose assembly of any of claims 21-23, wherein the dog lock is crimped into the dog lock groove.

25. The hose assembly of any of claims 21-24, wherein the inner end portion of the collar is crimped against the hose end portion.

26. The hose assembly of any of claims 21-25, wherein an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

27. The hose assembly of any of claims 21-26, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove.

28. The hose assembly of any of claims 21-27, wherein the connector body and the collar each comprise metal.

29. The hose assembly of any of claims 21-28, wherein the inner core tube abuts an inner end of the first annular flange.

30. A method of making a hose assembly, the method comprising:

providing a collar including an outer end portion defining an inner radial dog lock, an annular step portion extending radially outward of and axially inward of the dog lock, and an inner end portion extending radially outward of and axially inward from the step portion;

inserting a hose end into the inner end portion of the collar such that an axially outer edge of an outer surface of the hose end abuts an axially inner end of the annular step portion;

inserting a nose portion of a connector body through the outer end portion of the collar and into an inner bore in the hose end portion, such that the dog lock is axially aligned with an annular dog lock groove defined by axially spaced first and second annular flanges in an intermediate portion of the connector body; and

crimping the collar radially inward, such that the dog lock is received in the dog lock groove, and the hose end portion is radially compressed between the inner end portion of the collar and the nose portion of the connector body;

wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises axially aligning the first annular flange with the annular step portion, such that when the collar is crimped radially inward, the outer surface of the hose end portion is secured axially inward of the first annular flange.

31. The method of claim 30, wherein an outer surface of the first annular flange and an inner surface of the step portion define an annular radial gap.

32. The method of any of claims 30 and 31, wherein an inner surface of the dog lock and an outer surface of the dog lock groove define an annular radial gap.

33. The method of any of claims 30-32, wherein axially aligning the first annular flange with the annular step portion comprises abutting the outer end portion of the collar against a surface of a gauge tool assembled with the connector body.

34. The method of claim 33, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove, the method further comprising positioning the gage tool in the tool engagement groove for abutment with the outer end portion of the collar.

35. The method of any of claims 30-34, wherein the hose includes a plastic inner core tube defining the inner bore of the hose end portion and an outer sheath defining the outer surface of the hose end portion.

36. The method of claim 35, wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises bringing the inner core tube into abutment with an inner end of the first annular flange.

37. A method of making a hose assembly, the method comprising:

providing a collar including an outer end portion defining an inner radial dog lock, an annular step portion extending radially outward of and axially inward of the dog lock, and an inner end portion extending radially outward of and axially inward from the step portion;

inserting a hose end into the inner end portion of the collar such that an axially outer edge of an outer surface of the hose end abuts an axially inner end of the annular step portion;

inserting a nose portion of a connector body through the outer end portion of the collar and into an inner bore in the hose end portion, such that the dog lock is axially aligned with an annular dog lock groove disposed in an intermediate portion of the connector body; and

crimping the collar radially inward, such that the dog lock is received in the dog lock groove, and the hose end portion is radially compressed between the inner end portion of the collar and the nose portion of the connector body;

wherein axially aligning the dog lock with the annular dog lock groove comprises abutting the outer end portion of the collar against a surface of a gauge tool assembled with the connector body.

38. The method of claim 37, wherein the intermediate portion of the connector body further includes a third annular flange spaced apart from the second annular flange to define a tool engaging groove, the method further comprising positioning the gage tool in the tool engagement groove for abutment with the outer end portion of the collar.

39. The method of any of claims 37 and 38, wherein the hose includes a plastic inner core tube defining the inner bore of the hose end portion and an outer sheath defining the outer surface of the hose end portion.

40. The method of claim 39, wherein inserting the nose portion of the connector body through the outer end portion of the collar and into the inner bore in the hose end portion comprises bringing the inner core tube into abutment with an inner end of the first annular flange.