What is claimed is:

1. A system, comprising:

a moveable structure, moveable in at least a linear direction relative to a supporting structure;

a supporting structure comprising a piston chamber of a PVT (pressure/volume/temperature) measurement system, wherein the moveable structure comprises a piston located within the chamber and movable within the chamber to vary a volume in a fluid receiving portion of the piston chamber;

a magnetic field sensor assembly including a magnetic field sensor; and

a magnet, wherein one of the magnet and the magnetic field sensor is coupled to the moveable structure, and wherein the other of the magnet and the magnetic field sensor is coupled to the supporting structure, and wherein the magnetic field sensor assembly is configured to determine the relative position of the magnet to the magnetic field sensor.

2. The system of claim 1, wherein ~~the supporting structure comprises~~

~~a piston chamber of a PVT (pressure/volume/temperature) measurement system, wherein the moveable structure comprises a piston located within the chamber and movable within the chamber to vary a volume in a fluid receiving portion of the piston chamber; and~~

~~wherein~~ the magnet is located at the piston and the magnetic field sensor is located outside the piston chamber such that the magnetic field sensor is located to sense the location of the piston within the piston chamber to ascertain the volume of a sample fluid within the chamber.

3. The system of claim ~~2~~ 1, wherein the magnetic field sensor includes an array of GMR (giant magnetoresistance) sensors.

4. The system of claim 3, wherein the GMR sensors are located on a circuit board mounted adjacent the piston chamber.

5. The system of claim ~~2~~ 1, wherein the system includes a downhole tool including a formation tester tool having a draw down piston assembly within the formation tester tool,

and wherein the PVT measurement assembly is in communication with the draw down piston to receive a sample fluid from the draw down piston.

6. The system of claim 1, wherein the magnet is located at a movable member of a downhole tool and the magnetic field sensor is positioned to determine the location or the change of location of the magnet as the movable member moves.

7. The system of claim 6, wherein the movable member includes a piston movable within a piston chamber as part of a draw down probe assembly.

8. The system of claim 6, wherein the movable member includes a movable pad.

9. The system of claim 1, wherein the magnetic field sensor assembly is mounted in a downhole tool and the magnet includes an array of magnets mounted to a downhole casing.

10. The downhole assembly of claim 9, wherein the magnetic field sensor assembly includes an array of GMR sensors configured to determine to the position of the downhole tool relative to the array of magnets.

11. A PVT (pressure/volume/temperature) measurement system comprising:

a piston chamber;

a piston located within the chamber and movable within the chamber to vary a volume between the piston and an end wall of the piston chamber, the piston including a magnet; and

a magnetic field sensor located to sense the location of the magnet within the piston chamber.

12. The PVT measurement system of claim 11, wherein the PVT measurement system is located within a downhole tool.

13. The PVT measurement system of claim 11~~12~~, wherein the piston chamber is configured to receive a sample fluid from a downhole source.

14. The PVT measurement system of claim 11, wherein the magnetic field sensor includes a GMR sensor.

15. The PVT measurement system of claim 14, wherein the GMR sensor includes an array of GMR sensors located on a circuit board mounted adjacent the piston chamber.

16. A downhole assembly comprising:

a formation tester tool;

a draw down piston assembly within the formation tester tool; and

a PVT measurement assembly in communication with the draw down piston to receive a sample fluid from the draw down piston, the PVT measurement assembly including a piston chamber to hold a portion of the sample fluid, a piston located within the chamber and movable within the chamber to vary a volume between the piston and an end wall of the piston chamber, the piston including a magnet, and a magnetic field sensor assembly to ascertain the volume of the sample fluid within the chamber, the magnetic field sensor assembly having a magnetic field sensor, located to sense the location of the magnet within the piston chamber.

17. The downhole assembly of claim 16, wherein the magnetic field sensor includes a GMR sensor.

18. The downhole assembly of claim 17, wherein the GMR sensor includes an array of GMR sensors located on a circuit board mounted adjacent the piston chamber.

19. A method comprising:

moving at least one magnet~~,~~ located at a piston within a PVT measurement assembly, and at least one magnetic field sensor~~,~~ located to determine the location of the magnet as the piston moves; relative to each other in a downhole environment, wherein one of the magnet and the magnetic field sensor is coupled to a moveable downhole structure and the other of the magnet and the magnetic field sensor is coupled to a supporting downhole structure; and

determining the location or the change of location of the magnet relative to the magnetic field sensor.

~~20. The method of claim 19, wherein the magnet is located at a piston within a PVT measurement assembly and the magnetic field sensor is located to determine the location of the magnet as the piston moves.~~

~~21~~20. The method of claim 19, wherein the magnet is located at athe piston movable within a piston chamber as part of a draw down probe assembly ~~and the magnetic field sensor is located to determine the location of the magnet as the piston moves~~.

~~22.~~21. The method of claim 19, wherein the magnetic field sensor is mounted to a downhole tool and the at least one magnet includes an array of magnets mounted to a downhole casing.

~~23~~22. The method of claim ~~22~~21, wherein the at least one magnetic field sensor includes an array of GMR sensors configured to determine to the position of the downhole tool relative to the array of magnets.

What is claimed is:

1. A system, comprising:

a moveable structure, moveable in at least a linear direction relative to a supporting structure;

a magnetic field sensor assembly including a magnetic field sensor; and

a magnet, wherein one of the magnet and the magnetic field sensor is coupled to the moveable structure, and wherein the other of the magnet and the magnetic field sensor is coupled to the supporting structure, and wherein the magnetic field sensor assembly is configured to determine the relative position of the magnet to the magnetic field sensor.

2. The system of claim 1, wherein the supporting structure comprises

a piston chamber of a PVT (pressure/volume/temperature) measurement system,

wherein the moveable structure comprises a piston located within the chamber and movable within the chamber to vary a volume in a fluid receiving portion of the piston chamber; and

wherein the magnet is located at the piston and the magnetic field sensor is located outside the piston chamber such that the magnetic field sensor is located to sense the location of the piston within the piston chamber to ascertain the volume of a sample fluid within the chamber.

3. The system of claim 2, wherein the magnetic field sensor includes an array of GMR (giant magnetoresistance) sensors.

4. The system of claim 3, wherein the GMR sensors are located on a circuit board mounted adjacent the piston chamber.

5. The system of claim 2, wherein the system includes a downhole tool including a formation tester tool having a draw down piston assembly within the formation tester tool, and wherein the PVT measurement assembly is in communication with the draw down piston to receive a sample fluid from the draw down piston.

6. The system of claim 1, wherein the magnet is located at a movable member of a downhole tool and the magnetic field sensor is positioned to determine the location or the change of location of the magnet as the movable member moves.

7. The system of claim 6, wherein the movable member includes a piston movable within a piston chamber as part of a draw down probe assembly.

8. The system of claim 6, wherein the movable member includes a movable pad.

9. The system of claim 1, wherein the magnetic field sensor assembly is mounted in a downhole tool and the magnet includes an array of magnets mounted to a downhole casing.

10. The downhole assembly of claim 9, wherein the magnetic field sensor assembly includes an array of GMR sensors configured to determine to the position of the downhole tool relative to the array of magnets.

11. A PVT (pressure/volume/temperature) measurement system comprising:

a piston chamber;

a piston located within the chamber and movable within the chamber to vary a volume between the piston and an end wall of the piston chamber, the piston including a magnet; and

a magnetic field sensor located to sense the location of the magnet within the piston chamber.

12. The PVT measurement system of claim 11, wherein the PVT measurement system is located within a downhole tool.

13. The PVT measurement system of claim 12, wherein the piston chamber is configured to receive a sample fluid from a downhole source.

14. The PVT measurement system of claim 11, wherein the magnetic field sensor includes a GMR sensor.

15. The PVT measurement system of claim 14, wherein the GMR sensor includes an array of GMR sensors located on a circuit board mounted adjacent the piston chamber.

16. A downhole assembly comprising:

a formation tester tool;

a draw down piston assembly within the formation tester tool; and

a PVT measurement assembly in communication with the draw down piston to receive a sample fluid from the draw down piston, the PVT measurement assembly including a piston chamber to hold a portion of the sample fluid, a piston located within the chamber and movable within the chamber to vary a volume between the piston and an end wall of the piston chamber, the piston including a magnet, and a magnetic field sensor assembly to ascertain the volume of the sample fluid within the chamber, the magnetic field sensor assembly having a magnetic field sensor, located to sense the location of the magnet within the piston chamber.

17. The downhole assembly of claim 16, wherein the magnetic field sensor includes a GMR sensor.

18. The downhole assembly of claim 17, wherein the GMR sensor includes an array of GMR sensors located on a circuit board mounted adjacent the piston chamber.

19. A method comprising:

moving at least one magnet and at least one magnetic field sensor relative to each other in a downhole environment, wherein one of the magnet and the magnetic field sensor is coupled to a moveable downhole structure and the other of the magnet and the magnetic field sensor is coupled to a supporting downhole structure; and

determining the location or the change of location of the magnet relative to the magnetic field sensor.

20. The method of claim 19, wherein the magnet is located at a piston within a PVT measurement assembly and the magnetic field sensor is located to determine the location of the magnet as the piston moves.

21. The method of claim 19, wherein the magnet is located at a piston movable within a piston chamber as part of a draw down probe assembly and the magnetic field sensor is located to determine the location of the magnet as the piston moves.

22. The method of claim 19, wherein the magnetic field sensor is mounted to a downhole tool and the at least one magnet includes an array of magnets mounted to a downhole casing.

23. The method of claim 22, wherein the at least one magnetic field sensor includes an array of GMR sensors configured to determine to the position of the downhole tool relative to the array of magnets.

What is claimed is:

1. A system, comprising:

a moveable structure, moveable in at least a linear direction relative to a supporting structure;

a supporting structure comprising a piston chamber of a PVT (pressure/volume/temperature) measurement system, wherein the moveable structure comprises a piston located within the chamber and movable within the chamber to vary a volume in a fluid receiving portion of the piston chamber;

a magnetic field sensor assembly including a magnetic field sensor; and

a magnet, wherein one of the magnet and the magnetic field sensor is coupled to the moveable structure, and wherein the other of the magnet and the magnetic field sensor is coupled to the supporting structure, and wherein the magnetic field sensor assembly is configured to determine the relative position of the magnet to the magnetic field sensor.

2. The system of claim 1, wherein the magnet is located at the piston and the magnetic field sensor is located outside the piston chamber such that the magnetic field sensor is located to sense the location of the piston within the piston chamber to ascertain the volume of a sample fluid within the chamber.

3. The system of claim 1, wherein the magnetic field sensor includes an array of GMR (giant magnetoresistance) sensors.

4. The system of claim 3, wherein the GMR sensors are located on a circuit board mounted adjacent the piston chamber.

5. The system of claim 1, wherein the system includes a downhole tool including a formation tester tool having a draw down piston assembly within the formation tester tool, and wherein the PVT measurement assembly is in communication with the draw down piston to receive a sample fluid from the draw down piston.

6. The system of claim 1, wherein the magnet is located at a movable member of a downhole tool and the magnetic field sensor is positioned to determine the location or the change of location of the magnet as the movable member moves.

7. The system of claim 6, wherein the movable member includes a piston movable within a piston chamber as part of a draw down probe assembly.

8. The system of claim 6, wherein the movable member includes a movable pad.

9. The system of claim 1, wherein the magnetic field sensor assembly is mounted in a downhole tool and the magnet includes an array of magnets mounted to a downhole casing.

10. The downhole assembly of claim 9, wherein the magnetic field sensor assembly includes an array of GMR sensors configured to determine to the position of the downhole tool relative to the array of magnets.

11. A PVT (pressure/volume/temperature) measurement system comprising:

a piston chamber;

a piston located within the chamber and movable within the chamber to vary a volume between the piston and an end wall of the piston chamber, the piston including a magnet; and

a magnetic field sensor located to sense the location of the magnet within the piston chamber.

12. The PVT measurement system of claim 11, wherein the PVT measurement system is located within a downhole tool.

13. The PVT measurement system of claim 11, wherein the piston chamber is configured to receive a sample fluid from a downhole source.

14. The PVT measurement system of claim 11, wherein the magnetic field sensor includes a GMR sensor.

15. The PVT measurement system of claim 14, wherein the GMR sensor includes an array of GMR sensors located on a circuit board mounted adjacent the piston chamber.

16. A downhole assembly comprising:

a formation tester tool;

a draw down piston assembly within the formation tester tool; and

a PVT measurement assembly in communication with the draw down piston to receive a sample fluid from the draw down piston, the PVT measurement assembly including

a piston chamber to hold a portion of the sample fluid, a piston located within the chamber and movable within the chamber to vary a volume between the piston and an end wall of the piston chamber, the piston including a magnet, and a magnetic field sensor assembly to ascertain the volume of the sample fluid within the chamber, the magnetic field sensor assembly having a magnetic field sensor, located to sense the location of the magnet within the piston chamber.

17. The downhole assembly of claim 16, wherein the magnetic field sensor includes a GMR sensor.

18. The downhole assembly of claim 17, wherein the GMR sensor includes an array of GMR sensors located on a circuit board mounted adjacent the piston chamber.

19. A method comprising:

moving at least one magnet, located at a piston within a PVT measurement assembly, and at least one magnetic field sensor, located to determine the location of the magnet as the piston moves; relative to each other in a downhole environment, wherein one of the magnet and the magnetic field sensor is coupled to a moveable downhole structure and the other of the magnet and the magnetic field sensor is coupled to a supporting downhole structure; and

determining the location or the change of location of the magnet relative to the magnetic field sensor.

20. The method of claim 19, wherein the magnet is located at ~~a~~the piston movable within a piston chamber as part of a draw down probe assembly.

21. The method of claim 19, wherein the magnetic field sensor is mounted to a downhole tool and the at least one magnet includes an array of magnets mounted to a downhole casing.

22. The method of claim 21, wherein the at least one magnetic field sensor includes an array of GMR sensors configured to determine to the position of the downhole tool relative to the array of magnets.