This invention relates to a hydraulic pump mechanism and more particularly to an improved sump mechanism for a fluid pump. It is the object of the present invention to provide a sump for a fluid pump which pump and its mounting may be rotated relative to said sump to provide for mounting of the pump in various angular orientations with respect to horizontal and wherein, due to relative rotation of said pump with respect to said sump, the fluid inlet to the pump and the fluid inlets to the sump may be maintained in proper relationship to horizontal to ensure adequate supply of fluid to the pump.

It is a further object of this invention to provide an improved sump mechanism for a pump including an improved inlet tube structure which acts both as a support mechanism for the sump and as a fluid supply means for the pump.

The invention consists of the novel constructions, arrangements and devices to be hereinafter described and claimed for carrying out the above stated objects and such other objects as will appear from the following description of preferred embodiments of the invention illustrated with reference to the accompanying drawings wherein:

FIGURE 1 is an overall view of the motor, pump and sump combination;

FIGURE 2 is a cross-sectional view taken along lines 2—2 of FIGURE 1, and

FIGURE 3 is a cross-sectional view taken along lines 3—3 of FIGURE 1.

Referring to FIGURE 1, therein is disclosed a motor 10, a valve casing 11 and a sump 12. Sump 12 includes an end wall 12a. Within the sump 12, as will be seen in FIGURE 2, a pump mechanism 13 is located which is attached to the valve casing 11 and is connected by shaft 14 to be driven by motor 10. The mechanism 10, 11, and 12 comprises a power unit which is adaptable to be used in various environments where fluid pressure is desired. As for example, to act as the fluid pressure source for the lifting mechanism on the lifting ramp on the rear of trucks so equipped.

Referring to FIGURE 2, the pump 13 has a housing extension 17 therein which has the inlet port (not illustrated) therein for the pump 13. The extension 17 has a bore 18 therein in which is rotatably fitted an inlet tube 20 which may be of molded plastic or other construction. The tube 20 is generally an L-shaped construction having a horizontally extending portion 21 and a vertically extending portion 22. A bore 23 runs through the tube 20 having an outlet portion 24 and an inlet portion 25. Mounted within the inlet portion 25 is a filter screen 26 which is of slightly larger diameter than the bore or inlet portion 25 so that it may be forced into inlet portion 25 and will be retained therein. A bolt 27 extends through the horizontal portion 21 of inlet tube 20 and is threaded in extension 17 at 30.

The bolt 27 extends through the portion 21 of inlet tube 20 and is coaxial with inlet tube 20. The bolt 27 passes through a hole 31 in the sump 12 and thereby serves to secure the sump 12 to the valve casing 11 with end wall 12a engaging tube 20.

Seal rings are provided at various locations to provide fluid sealing engagement. Seal ring 32 provides a fluid seal between extension 17 and inlet tube 20. Seal ring 33 provides a fluid seal between inlet tube 20 and sump 12 and seal ring 34 provides a fluid seal between sump 12 and valve casing 11.

An inlet hole or opening 38 is formed in sump 12 which is closed by a breather cap 39. The sump 12 may be filled with fluid through opening 38.

The inlet tube 20 is illustrated as secured to the sump 12 by a screw 40, however, other known means may be used to connect the tube 20 to the sump 12 so that the sump 12 and the tube 20 will rotate as a unit with respect to the bolt 27 and the pump 13 and valve casing 11.

As will be apparent from the above description, when the motor 10 and casing 11 and thereby pump 13 are mounted they may be mounted in various angular displacements with respect to a horizontal line and the inlet 38 to the sump and the inlet 25 to the pump regardless of the angular relationship to horizontal so that fluid in sump 12 will not run out inlet 38, by means of relative rotation of the sump 12 with respect to motor 10, casing 11 and pump 13. Further, the pump and motor unit could be mounted with the end portion 12a of the sump 12 horizontal and below the pump 13, and the proper relationship of parts still maintained since with respect to horizontal, inlet 25 for the inlet tube 20 would still be in the lower portion of the sump and the inlet hole 38 for the sump at the upper portion of the sump.

Due to the use of the molded inlet tube 20 a very economical structure is provided since the inlet tube serves both as an inlet to the pump and as a support structure for the sump 12. The sump 12 and inlet tube 20 are made coaxial to provide for the relative rotation described above.

From the above it will be apparent that applicants have provided an improved pump and sump structure utilizing a combined support and inlet tube of low cost construction. Further relative rotation of the sump with respect to the other parts is provided to maintain the proper fluid relationship of the sump inlet and pump inlet with respect to the fluid within the sump regardless of the angular orientation of the motor and pump unit, thus allowing a great flexibility in the installation of the fluid pressure supplying package.

Various of the features of the invention have been particularly shown and described; however, it should be obvious to one skilled in the art that various modifications may be made therein without departing from the scope of the invention.

We claim:

1. In a combined motor and pump assembly, a casing enclosing said motor and said pump being mounted on an end of said casing, a cylindrical sump for said pump mounted on said casing enclosing said pump and having a central axis, said cylindrical sump having a fluid sealing engagement with said casing and being rotatable with respect thereto, a housing for said pump housing having a fluid sealing relationship with respect thereto and being coaxial with said central axis, said inlet means having a fluid inlet portion remote from said pump and extending radially outwardly from said inlet means, a fluid inlet for said pump formed in said cylindrical sump on the opposite side of said central axis from said fluid inlet portion of said pump and motor unit may be mounted in various angular positions about said axis and said sump and pump inlets maintained in proper vertical relationship to horizontal by relative rotation of said sump with respect to said pump and motor.

2. A mechanism as claimed in claim 1 wherein said inlet means comprises a molded plastic tube.

3. A mechanism as claimed in claim 1 including means mounted in said inlet means adapted to secure said inlet means to said pump and said sump to said casing.
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4. A mechanism as claimed in claim 2 including means extending through said inlet tube connected to said pump housing and adapted to secure said inlet tube and said sump to said housing and casing respectively.

5. In a pump mechanism a cylindrical sump adapted to be filled with fluid having a central axis, and encircling said pump, said sump having an end wall, inlet means for said pump comprising a tube extending between said pump and said end wall of said sump, said inlet means having an inlet portion extending radially from said central axis, a fluid inlet means for said sump including an inlet portion formed in said cylindrical sump on the opposite side of said central axis from said radially extending inlet portion of said pump inlet means, said inlet means and said sump being rotatable with respect to said pump whereby said pump may be mounted in various radial positions about said axis and the vertical relationship of said sump inlet and said pump inlet with respect to horizontal maintained by relative rotation of said sump with respect to said pump.

6. A pump mechanism as claimed in claim 5 wherein said pump inlet means comprises a support structure for said sump and said sump is secured to said inlet means for rotation therewith.

7. A pump mechanism as claimed in claim 5 wherein said inlet means for said pump comprises a plastic tube.

8. A pump mechanism as claimed in claim 7 wherein the inlet portion of said inlet tube is adjacent said end wall and remote from said pump whereby fluid will be supplied to said pump through said inlet portion when said pump is mounted with said end wall being horizontal and said central axis extending vertically upward from said end wall.

9. A combined fluid inlet and support structure for a pump comprising a plastic inlet tube having a central axis mounted on said pump and being relatively rotatable with respect to said pump, a housing for said sump, a cylindrical sump for said pump adapted to be filled with fluid and including an end wall engaging an end of said inlet tube remote from said pump and encircling said pump, said sump engaging said pump housing and being relatively rotatable with respect thereto, means extending through said inlet tube and coaxial therewith securing said sump and said inlet tube to said pump housing whereby said pump may be mounted in various angular positions about said central axis and by relative rotation of said inlet tube and said sump with respect to said pump the proper space relationship of said inlet tube with respect to the fluid in said sump maintained.

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