SUGGESTIONS FOR A SUCCESSFUL PUMP INSTALLATION

Mounting location:
Gear pumps are much better at pushing liquids than lifting (suction). While designing your system, position your pump as **close as possible to the source** (tank).

Power supply:
Power supplied to the pump motor should come from a battery, **NOT a battery charger!**
Wire size: There are tables on the Internet, and in you're A&P book, that will give you the correct AWG size required for longer runs. Incorrect size (wire too thin) will cause voltage drop and heating up of the electric motor.

Adequate voltage is very important. For 12VDC is between 12.8VDC – 13.8VDC, and for 24VDC pumps 26VDC – 28VDC while the pump is running under load.

Pump Speed control
Low voltage will cause the motor to heat up and lower performance.
<u>Do not use reduced voltage to control the pump speed</u>.

Plumbing:
Larger is better when considering the ID size of your fittings, hoses, one-way check valves, in-line filters, and/or tubing. The below chart shows the difference in cross section compared to ½" ID fittings, hoses, one-way check valves, in-line filters, or tubing.

Something to consider when selecting fittings, hoses, one-way check valves, in-line filters, and tubing

Hose/Tubing /Fitting ID's as a Fraction	Hose/Tubing /Fitting ID's as a Decimal	Hose/Tubing /Fitting Radius as a Decimal	Hose/Tubing /Fitting Area as a Decimal in Square Inches	Difference, relative to 1/2" Plumbing	
1/4	0.2500	0.125	0.0491	75.000%	smalller
5/16	0.3125	0.1563	0.0767	60.938%	smalller
3/8	0.3750	0.1875	0.1104	43.750%	smalller
7/16	0.4375	0.2188	0.1503	23.438%	smalller
1/2	0.5000	0.2500	0.1963	OPTIMUM ID	
5/8	0.6250	0.3125	0.3068	-56.250%	Larger
3/4	0.7500	0.375	0.4418	-125.000%	Larger

*Try to **avoid sharp 90-degree fittings!** They create lots of backpressure and reduce the pump's output. Use instead round elbows, hose sweep or tube bends. Again: larger ID is better.