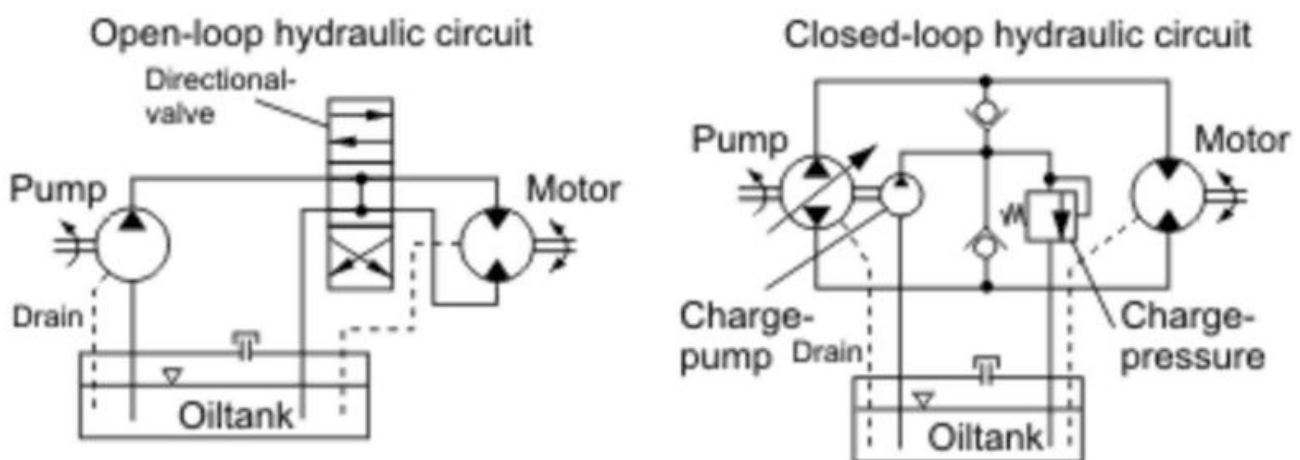


Hydraulic Charge Pump Overview

For OEMs that build on-road and off-road mobile machinery, a hydrostatic transmission should be considered versus a standard gear transmission because of the seamless way speed ratios and torques can be achieved. A hydrostatic transmission is made up of a hydraulic pump connected (and dedicated) to one or more hydraulic motors. By making either or both of these pump and motors variable displacement, it allows for a continuously variable transmission. As part of this closed loop hydraulic circuit, a charge pump is needed.



What Is a Hydraulic Charge Pump?

A hydraulic charge pump is a fixed displacement pump (typically a gear pump) that feeds the hydrostatic pump loop. It is an integral part of the transmission circuit that provides many functions including the following:

- Replenish hydraulic fluid lost from the transmission loop due to the internal leaking of the pumps and motors. The charge pump makes up for all of these internal leakages.
- Provides constant back pressure and lubrication of the hydrostatic pump and motors rotating group. Most manufacturers of these products require a back pressure of 222 – 300 psi for proper functioning.
- Provides flow/pressure source for auxiliary functions such as hydraulic parking brakes and servo circuits. In addition, it can be used to supply pilot pressures.

If you are considering a hydrostatic transmission for your machine, the team here at Cross Company and our Mobile Systems Integration Group can assist you with your overall hydraulic system design including the charge pump. If you are interested in learning more about Cross Mobile Systems Integration, optimizing your work vehicle, considering making the switch to a hybrid or electric work vehicle, or would like to discuss your specific system or machine requirements, contact a team member today.