

Crank It Up With



KOCSIS TECHNOLOGIES, INC.

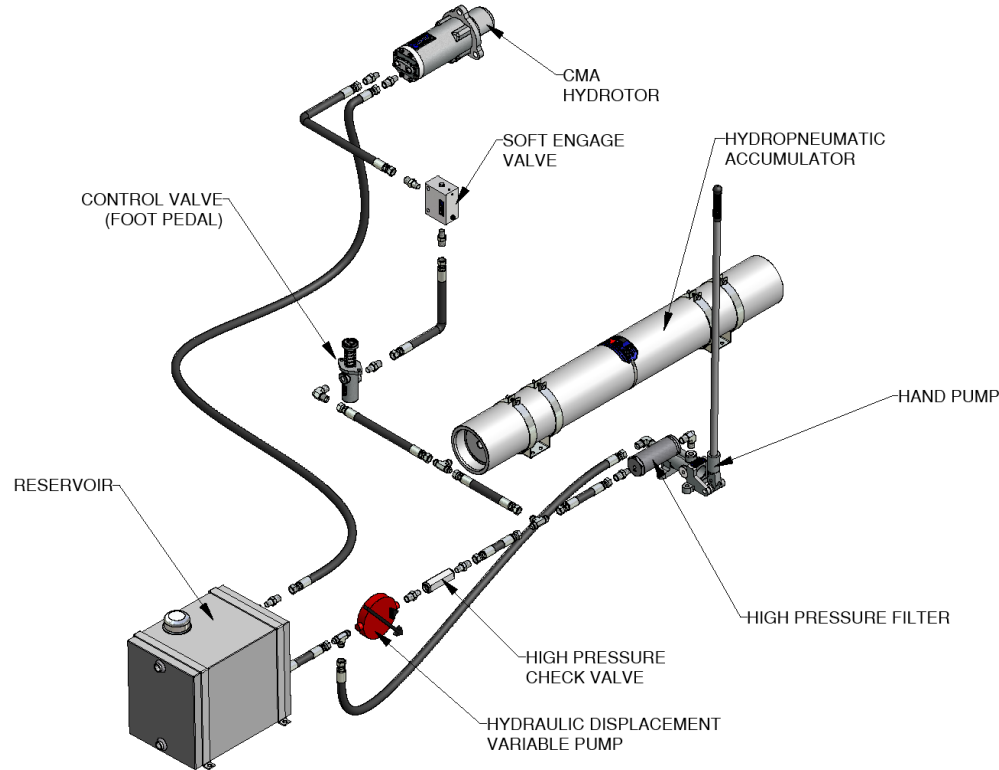
**11755 S. Austin Avenue
Alsip, IL 60803**

Division Of Kocsis Brothers Machine Co.

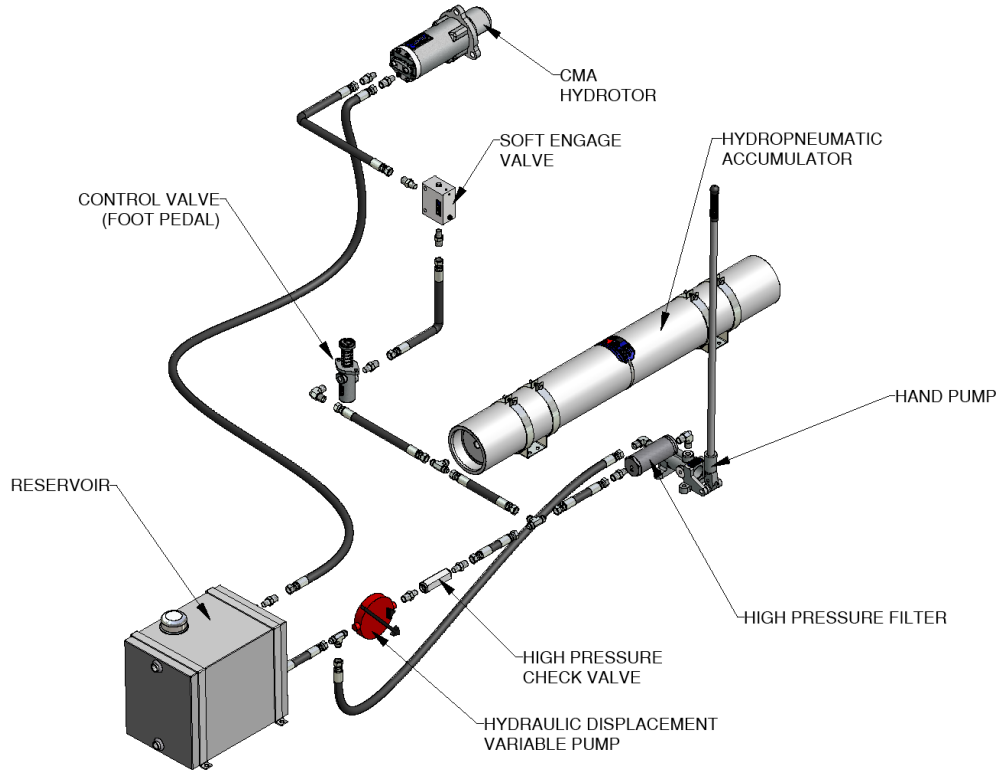
KTI HYDRAULIC STARTING SYSTEMS

Fast, reliable starting in all conditions

System Overview

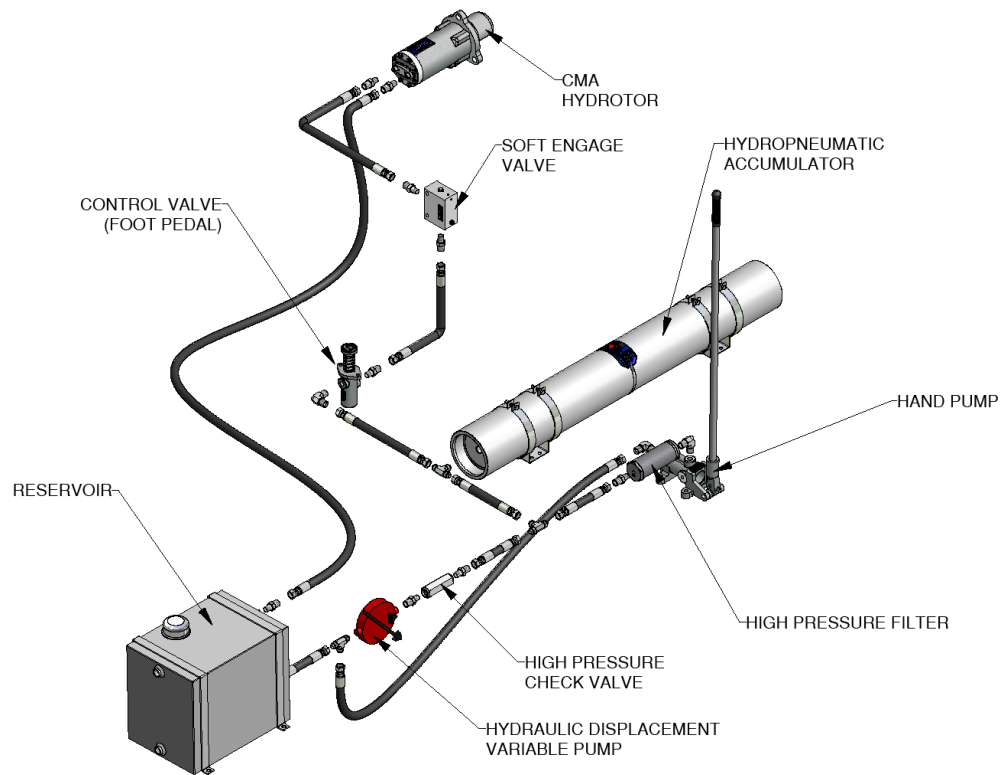


Stage 1- System Charge



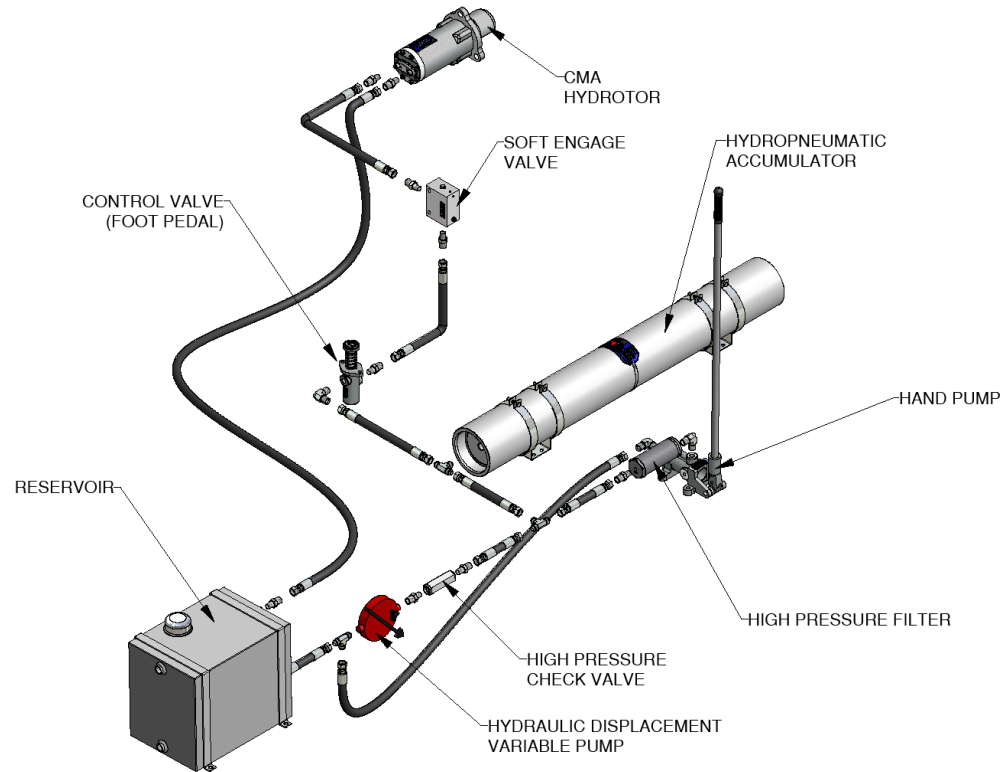
The system at rest has a precharge pressure in the accumulator of 1500 psi. This precharge is in the form of nitrogen gas under pressure. The hydraulic system pressure at this stage will be 0. In order to charge the system for a starting attempt, the accumulator must be charged with hydraulic pressure. To achieve hydraulic pressure, the operator will manually pump the hydraulic fluid from the reservoir into the accumulator. Since the hydraulic starter performance is optimal at 3000 psi, the operator should charge the system to this value.

Stage 2- System Actuation



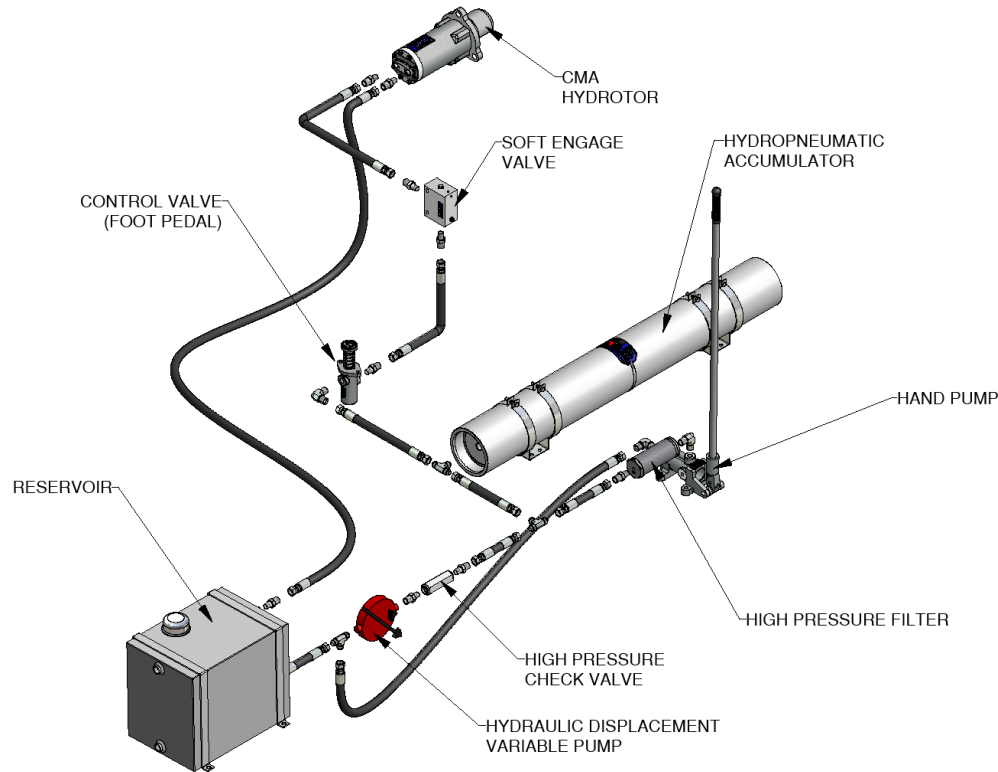
With the accumulator reading 3000 psi, the system is now ready for a starting attempt. In order for the flow of oil (under pressure) to be sent to the starter, the valve must be opened. In the example system shown to the left, the control valve is foot pedal actuated. The operator would then simply depress the pedal to open the valve. The flow of oil will travel from the accumulator through the valve and into the soft engage valve. The soft engage valve will then pilot the flow of oil to the starter. When this happens, the reduced amount of oil flows to the starter and causes a smooth rotation of the shaft inside the starter motor. The rotation is just enough to allow the inertia based drive assembly to softly engage with the flywheel. Once the pinion gear of the starter and the ring gear meet, the soft engage valve opens fully and allows the oil to freely flow to the starter. This flow of oil will turn the starter and in turn crank the engine. *Note: The amount of cranking time is dependant upon the size of the starter and the capacity of the accumulator.*

Stage 3- Engine Start



The drive assembly will stay engaged into the flywheel until the engine starts. When the engine starts the flywheel's momentum will overcome the momentum of the pinion gear causing the drive to disengage. When the pinion disengages, the starter is once again at rest. This will allow time for the system to recharge.

Stage 4- System Recharge



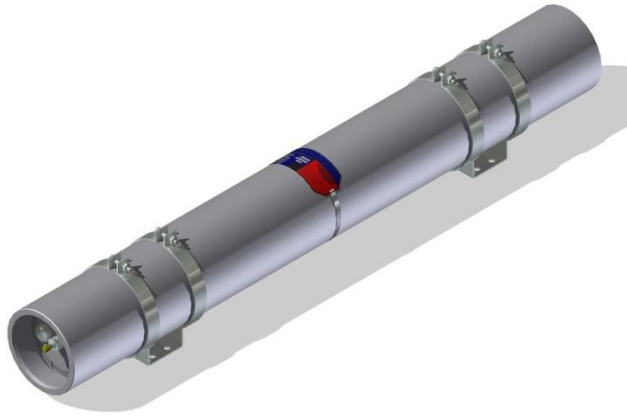
While the engine is running, the hydraulic pump (shown in red) will recharge the accumulator(s) for subsequent starting attempts. The pump will “charge” the accumulator much like an alternator would charge a battery in an electrical system. Once the accumulator pressure reads 3000 psi, the pump will unload to the reservoir. When this happens the system is fully recharged and is ready for another starting attempt.

Component Variables



Kocsis Technologies, Inc. manufactures hydraulic starters in numerous sizes and configurations. This range is capable of starting an engine as small as a 4 cylinder and as large as 16 cylinder.

Component Variables



Kocsis Technologies, Inc. manufactures accumulators for starting systems in numerous sizes. The standard line of accumulators are as follows:

4.0" bore, 3000 psi rated

6.0" bore, 3000 psi rated

7.0" bore, 3000 psi rated

9.0" bore, 3000 psi rated

Capacities range from 1 quart up to 30 gallon.

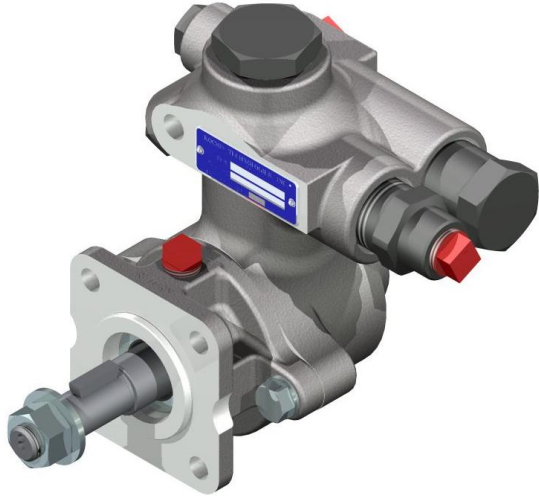
The accumulators also can be approved to standards such as: ASME, CE, DNV, ABS, and more.

Component Variables



Kocsis Technologies, Inc. manufactures several kinds of control valves including cable actuated, foot pedal actuated, and solenoid actuated.

Component Variables



Kocsis Technologies, Inc. manufactures several kinds of recharging pumps with different mounting configurations. We offer variations that mount directly on the drive output of an engine as well ones that can be driven by an electric motor.

Capabilities

State of the art
 manufacturing
 & engineering
 capabilities

