Success Story: Miller Electric

Location: Appleton, Wisconsin
Segment: Commercial vehicles: heavy-duty service trucks
Challenge: Package a diesel engine, a hydraulic pump, a belt-driven air compressor, and a 6,000 watt generator in a 2'x 3'x 4' box
Solution: Eaton 420 pumps, Vickers valves, and custom hose assemblies supplied by Eaton distributor Price Engineering
Results: Miller's EnPak™ Mechanic Series integrated power system for service trucks based on Eaton hydraulic components
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Eaton’s Advanced Hydraulics Save Fuel and Money in Self-Contained Power System for Heavy-Duty Service Trucks

Background
Heavy equipment service is usually supplied on-site by a technician driving a specialized service truck equipped with a power take off (PTO) driven air compressor, generator, and hydraulic crane. Once the truck reaches the job site, its engine will be idling to power the compressor and hydraulic pump, while a secondary engine is used to provide auxiliary and welding power.

In practical terms, that means a diesel engine with enough horsepower to move a multi-ton truck will be used to run components that easily could be powered by the engine on a mid-size garden tractor. In today's world, the maintenance and operating costs involved, not to mention the fuel used and emissions being generated, are simply unacceptable.

Challenge
Eaton was approached with designing a completely self-contained unit that fits into the truck’s bed or on the side of the body containing a 27 horsepower diesel engine to power a generator, a highly-efficient screw compressor, and a variable-displacement hydraulic pump. Meanwhile, include a digital power management system to match engine output to load requirements and utilize a variable displacement hydraulic pump to help match engine power to the total load placed.

“When we say it’s an Eaton pump we get a lot of head nodding, and at that point you aren’t talking about pumps anymore. It’s a non-issue.”
—Chris Wierschke, Miller Electric

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on the system. The hydraulic system also had to be flexible enough to handle either open-center or closed-center architectures with either 10 or 20 gallons per minute capacities.

Solution
Eaton distributor Price Engineering recommended an Eaton® 420 variable-displacement piston-type pump with load-sensing capability and a Vickers® EFV-1-12 Series proportional throttle valve in the pump outlet to control flow based on input commands from the power management system.

Price subsidiary, Price-On-Site, is an Eaton 420 pump warranty repair center which gives Miller a single point of contact for any required warranty service.

“\textit{A variable-displacement piston-type pump was the best solution to Miller’s requirements. It could handle the dual displacement requirement with a simple mechanical displacement stop, and the infinitely variable displacement greatly simplified the flow metering required by the engine management system.}”

Scott Taylor
Price Engineering

Compact Eaton hydraulics helped Miller keep the EnPak small enough to fit in a truck bed or be mounted on a body side.