



Hydraulic Hybrid Innovator Uses Sun Solutions...



Photographs courtesy of Lightning Hybrids, CO

Lightning Hybrids (LH) based in Colorado had an idea that would commercialize hydraulic hybrid systems for vehicles making them cost effective to fit on city busses and delivery trucks while still giving return on investment (ROI) well within the expected vehicle life.

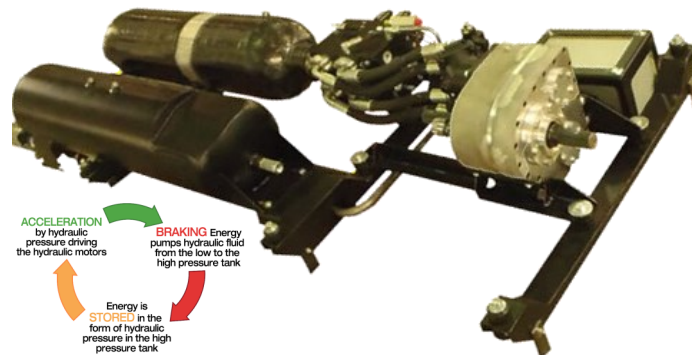
Because of the high system cost, hydraulic hybrids have typically been the domain of refuse trucks with heavy start/stop drive cycles because they were the only vehicles that could achieve a reasonable ROI.

The LH system bridged that gap and now offers all the benefits of lower fuel usage, less emissions, reduced brake wear and increased vehicle power availability while offering a very driver friendly experience combined with an extended vehicle operating life for medium and heavy duty vehicles like transit and shuttle buses, and delivery trucks.

Sun Hydraulics Corp. was selected as a key supplier because of our ability to supply small quantity orders, meet fast changing system and design requirements while ensuring on-time product delivery that LH needed as the first designs were developed and tested.

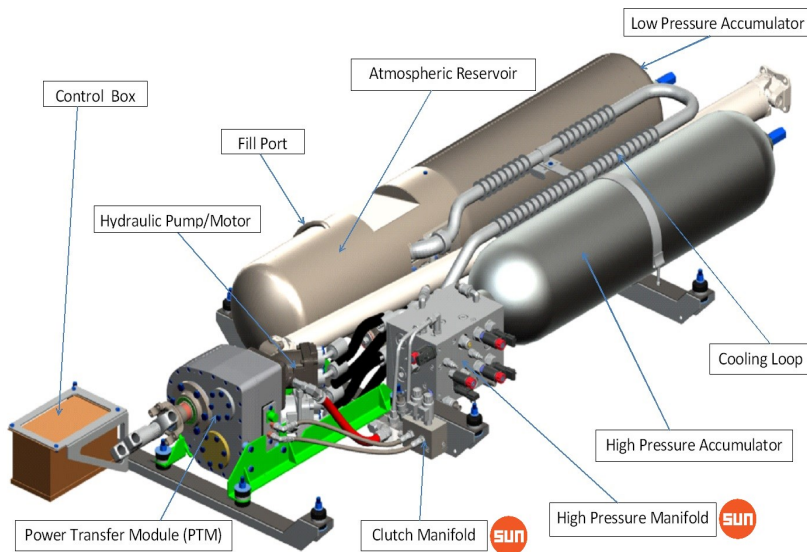
The project scope was to design, build and provide two different high-flow, low-loss, compact integrated packages that control both low pressure circuits and the high pressure clutch actuation, that manages the engage or disengage of the power transfer module (PTM) which is attached to the main drive shaft.

In simple terms, the system starts to work as the brake pedal is pressed, and the PTM spins a pump to quickly fill the high pressure accumulator. When the accelerator pedal is pressed to pull away, the stored pressurized fluid in the accumulator discharges through a motor on the PTM to help launch the vehicle without the need for the engine to do any work.



This short description sounds easy, but is in reality, needs high levels of system control to operate smoothly, so the manifolds Sun provides are key parts of the system, having all the hydraulic logic integrated to make this sequence happen safely and reliably multiple thousands of times during the vehicle's working life.

Market Speak...



The nuts and bolts... and Valves !

Each hydraulic hybrid drive system uses two ductile iron integrated packages, (SUN) supplied from the new Sarasota Integrated Package plant at 803 Tallevast Road.

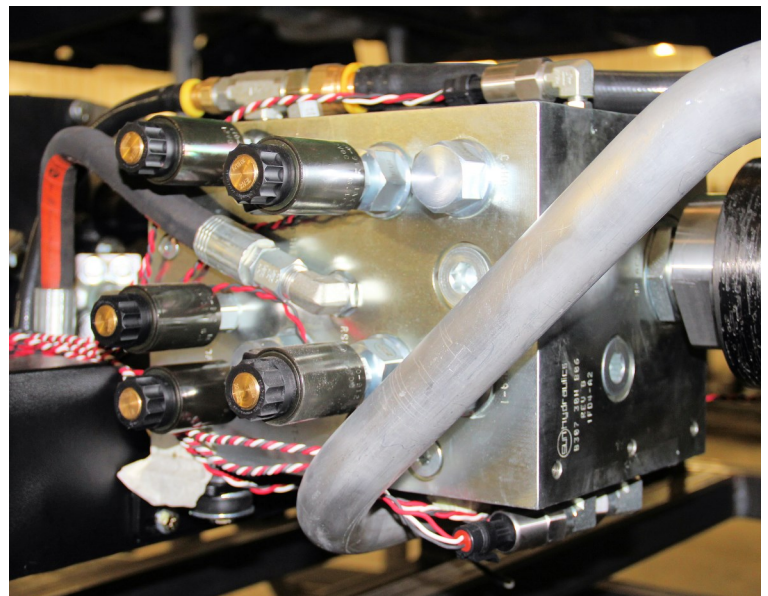
Between the two manifolds, there are more than 17 various sizes of flow, directional and solenoid operated Sun control valves used in the finished design.

In countries with high fuel prices and/or in vehicle applications that constantly start and stop, like airport shuttle busses, this novel hybrid product has been recognized as a smart way to effectively increase fleet efficiency and reduce many operating costs.

Sales of these systems are growing with significant orders already received and production numbers scheduled to rise as multiple countries outside the U.S.A and Canada, including the U.K, Chile and India start looking at this solution, to maximize their fuel usage and reduce emissions of their vehicle fleets.

Lightning Hybrids uses Sun valves exclusively in this system and considers Sun to be an easy to work with, trouble free supplier with high quality products that continue to meet their development and increasing customer driven system demands.

By using our product knowledge, technical support and compact, cost-competitive solutions to complement their innovation means the future is looking very bright for Lightning Hybrids and Sun Hydraulics systems.



For more information on this Hydraulic Hybrid solution, visit Lightning Hybrids at www.lightninghybrids.com



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