

HTUF 2009 in Atlanta

Hydraulic Hybrids

Technology Is Fast Coming Into Its Own, Especially for Refuse and Package Trucks

The hydraulic has moved well beyond its status as a hybrid vehicle oddity, with large companies and small embracing the technology. Hydraulic hybrid designs offer a battery-free alternative to electrics, with tremendous efficiency potential, especially for the start-stop duty cycles of refuse and package delivery trucks.

Manufacturers of compressed natural gas cylinders like Lincoln Composites and SCI (page 5) see hydraulic accumulator shells as a market opportunity, and at least two small firms at HTUF are targeting the aftermarket with their hydraulic hybrid hardware offerings (see box, below).



Autocar refuse truck with Parker hydraulic drive

"We believe we're going to have an ROI in the three- to four-year timeframe," Mike Stark of Freightliner Custom Chassis Corp said, stating that pricing has not yet been set. FCCC showed a hydraulic hybrid chassis with Lincoln accu-

Limo-Reid Technologies

Michigan's Limo-Reid Technologies, the former Hybra-Drive (*F&F*, June 23, 2008) promoted a new drop-in hydraulic hybrid drivetrain option, which is being supplied for Calstart's package delivery working group.

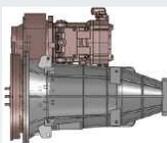
The developmental unit currently in vehicle trials is to be replaced by a more aerodynamic drop-in solution when the company enters production.

Jim O'Brien is Limo-Reid president and CTO. *Limo-Reid*, VP Mr. Chris Samfilippo, 517-447-4164; csamfilippo@l-rtech.com; www.limo-reid.com



CZero

Start-up CZero is targeting the retrofit market for Class 7 and Class 8 trucks, initially refuse trucks, as it develops a new hydraulic hybrid drivetrain in league with Colorado State University in Fort Collins. The target price for a retrofit is \$25,000 to \$30,000, says company president Guy Babbitt, who says fuel savings could amount to 30%.



Babbitt says his firm's drop-in transmission replacement operates "much like a parallel system."

"We're very confident about the technology," Babbitt told *F&F*. CZero is applying finite element analysis, and is using off-the-shelf parts where feasible, with MotoTron control technology.

CZero has tapped White Oak Group's Brad Bohlman, ex-Eaton, for business development support.

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mulator shells, and there were hydraulic hybrid UPS and FedEx parcel delivery trucks in the ride-and-drive. HTUF 2009 included a Freightliner-chassis refuse truck with Eaton parallel drive, an American LaFrance Condor truck with Bosch Rexroth drive, and an Autocar truck with Parker Hannifin drive.



FCCC truck with Eaton drive billed as 'world's first hydraulic hybrid delivery vehicle'

Hydraulic hybrids have been strongly encouraged by the U.S. EPA, which has furthered the technology at the Office of Transportation & Air Quality's Advanced Technology Division in Ann Arbor, Mich. Last week hydraulic hybrid guru John Kargul was again on hand at HTUF.



American-LaFrance Condor with Bosch-Rexroth drive

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Peterbilt chassis, Heil body with Eaton hydraulic drive

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