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### Parker Launches Its IVT Hydraulic Hybrid

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#### A Hydraulic Hybrid Driveline for Class 4-6 Trucks

Parker Hannifin's hybrid drive systems division has formally launched its fuel- and brake-saving series hydraulic hybrid drive for Class 4-6 medium duty trucks. The new handle, Parker IVT, is short for infinitely variable transmission with brake energy recovery technology.



Son of RunWise? It's the Parker IVT, short for infinitely variable transmission with brake energy recovery, a new series hydraulic hybrid drive for package delivery trucks.

"Medium duty trucks equipped with the Parker IVT use energy stored in a hydraulic high-pressure accumulator to seamlessly propel the vehicle," Parker says. "Stop-and-go operation of the vehicle recharges the hydraulic system and allows the truck to achieve a significant fuel economy improvement over traditional diesel-powered vehicles that use automatic transmissions while also reducing emissions."

"We are happy to broaden our hydraulic hybrid drive technology to include the Class 4-6 medium duty truck market," Parker hybrid drives GM Shane Terblanche said in a release.

#### 50% Fuel Economy Boost

"From the results we are seeing with our early adopters of the technology, up to 50% fuel economy improvement over a 7-month period, we fully anticipate that the Parker IVT will provide outstanding bottom line results for trucks in the snack food, beverage and parcel delivery markets as well as vehicles serving the work truck segment in general."

The Parker IVT has been tested for package delivery with U.S. DoE funding under Calstart auspices by FedEx, UPS and Canada's Purolator Courier. The Parker IVT is a smaller version of Parker's RunWise hydraulic hybrid drive that has found success on Class 8 refuse trucks, notably the Xpeditor E3 by Autocar.

#### Prior Package Delivery Testing



UPS has previously deployed 20 delivery trucks with hydraulic hybrid drivetrains by Parker Hannifin in Atlanta, and 20 in Baltimore.

The Parker IVT also starts the engine, reducing wear on the 12-volt starter. The system powers the truck's steering components as well, Parker says, while a mechanical connection from the engine to the rear axle allows for an efficient power transfer during highway-speed operation.



Parker IVT – 'infinitely variable transmission with brake energy recovery'

Over and above its highly efficient dual-mode operating system of using both the engine and hydraulic energy in series to propel the vehicle, Parker claims three IVT advantages:

- Brake energy recovery – the hydraulic system captures and returns approximately 71% of the vehicle's kinetic energy for use in propulsion.
- Optimized engine control – decouples the engine from the drive wheels allowing it to operate at higher efficiencies for a given power level.
- Engine-off – the system uses stored hydraulic power to operate the vehicle at low speeds while keeping the engine off. The vehicle also shuts down the engine during deceleration to reduce the amount of time the engine idles.

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"In terms of fuel economy, range and performance, the Parker IVT is ideal for challenging pickup and delivery routes like those served by work trucks in the delivery service, beverage and snack food industries," Parker says. "The efficient dual-mode operating system helps reduce operating costs and inherently protects the environment through reduced emissions."

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Source: Parker Hannifin and Fleets & Fuels at the Work Truck Show

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