

Peterbilt Model 597 EPIQ and the Cummins-Peterbilt DOE Supertruck

Peter Lobner, 2 April 2020

Introduction

With a market share of 15.2% in December 2019, Peterbilt is tied with Kenworth as the second largest manufacturer of Class 8 tractor-trailers for the North American market. Peterbilt is owned by PACCAR, which also owns Kenworth. Their flagship Class 8 truck is the Model 597 EPIQ. Peterbilt teamed with Cummins Corporation to lead one of the teams that participated in the DOE SuperTruck I program, which was conducted from 2010 to 2016. The Cummins-Peterbilt team is continuing their participation in SuperTruck II, which runs from 2017 to 2022.

Peterbilt Model 579 EPIQ

The Model 587 was introduced in 2012. The current flagship model, the Model 579 EPIQ incorporates “a cutting-edge package of technological and aerodynamic features,” many of which were developed by the Peterbilt – Cummins team during their participation in DOE’s 2010 - 2016 SuperTruck I program.

On 18 July 2019, Jim Park, writing for the website HDT Truckinginfo reported: “Designers added the EPIQ aero-trim package in 2015, which included a roof fairing bridge to reduce the gap between truck and trailer, enhanced chassis fairings, rubber wheel closeouts on the front wheel wells, a bumper dam and a bumper-to-hood seal to improve the frontal profile. At the time, Peterbilt said that version would be up to 8% more (fuel) efficient compared to the EPIQ-less 579. In 2019, following even more refinements, the Model 579 can now claim to be the most fuel-efficient truck to ever wear the Peterbilt badge.”



Peterbilt 579 EPIQ tractor. Source, both graphics: Peterbilt



Peterbilt 579 EPIQ with trailer.

Source: Jim Park via HDT Truckinginfo, 18 July 2019

Cummins- Peterbilt SuperTruck

The team of Peterbilt and Cummins Corporation fielded a modified Model 579 tractor-trailer with a highly-modified Cummins diesel engine in DOE's SuperTruck I program. This truck, known as the Cummins-Peterbilt SuperTruck, exceeded all of DOE's objectives.

- It demonstrated a freight efficiency gain of 86% on a 24-hour duty cycle vs. the DOE objective of 68%. During this test, the truck operated at a GVW of 65,000 pounds at 64 mph.
- The truck demonstrated a 75% increase in fuel efficiency, achieving 10.7 mpg on one 312 mile route.
- The Cummins diesel achieved 51% BTE, exceeding the DOE objective of 50%.



Cummins-Peterbilt SuperTruck I. Source: DOE



*Aerodynamic boat-tail on the Cummins-Peterbilt SuperTruck I.
Source: FleetOwner.com, 12 March 2015*



Cummins-Peterbilt SuperTruck I.

Source: Screenshot from Peterbilt test drive video

As noted previously, many of the aero improvements successfully demonstrated in the DOE SuperTruck I program were adopted in 2015 in the Peterbilt production model 579 EPIQ.

You'll find more information on Cummins-Peterbilt SuperTruck in the following articles & presentation:

- Sean Kilcarr, "Transferring SuperTruck savings to the real world," FleetOwner.com, 12 March 2015: <https://www.fleetowner.com/industry-perspectives/trucks-at-work/article/21690205/transferring-supertruck-savings-to-the-real-world>
- Jason Cannon, "Up close with Peterbilt's SuperTruck," June 2015: <https://www.ccjdigital.com/up-close-with-peterbilts-supertruck/>
- SuperTruck II presentation: "2019 Annual Merit Review - Cummins/Peterbilt SuperTruck II, 13 June 2019, on the DOE website here: https://www.energy.gov/sites/prod/files/2019/06/f63/ace102_dic_kson_2019_o_4.26_9-52t.pdf

The following videos provide a good overview of the Peterbilt – Cummins SuperTruck I. The aerodynamic features are covered in the Pt 4 (part 4) video.

- “SuperTruck Test Drive Pt 1: An Overview” (6:55 minutes):
<https://www.youtube.com/watch?v=X0XGX6BqOBA>
- “SuperTruck Test Drive Pt 4: A Walk Around” (9:40 minutes):
<https://www.youtube.com/watch?v=E1EGTat7mLQ>