Kenworth T680 and the PACCAR-Kenworth DOE SuperTruck

Peter Lobner, 2 April 2020

Introduction

With a market share of 15.2% in December 2019, Kenworth (https://www.kenworth.com) is tied with Peterbilt as the second largest manufacturer of Class 8 tractor-trailers for the North American market. Kenworth is owned by PACCAR, which also owns Peterbilt. The Kenworth flagship Class 8 truck is the T680 Advantage. Kenworth did not participate in the DOE SuperTruck I program, which was conducted from 2010 to 2016. Kenworth is a member of the PACCAR-led team that is participating in DOE's SuperTruck II program, which runs from 2017 to 2022.

Kenworth T680 Advantage

Kenworth introduced the T680 in 2012. At the time, Kenworth said the T680 was the most aerodynamic truck it had ever built.

Kenworth T680 Advantage. Source: Kenworth

Kenworth reported the following improved aerodynamic performance for their trucks incorporating EPA SmartWay-verified trailer nose fairing, side skirts, and a trailer tail:
• A nose fairing fills the gap between the tractor and front of the trailer, shielding the trailer from the effects of a crosswind. On its own, this fairing can improve fuel economy by up to 3%.

• Side skirts provide up to 5% improvement in fuel economy.

• ATDynamics reported that its TrailerTail® is certified to deliver 6.6% fuel economy gains at 65 mph (105 kph).

See the following video, “2018 Kenworth T680: An Updated Aero Package,” (4:35 minutes) for a good description of how the various aerodynamic features work together to improve vehicle performance.
https://www.youtube.com/watch?v=H7G1CxBShc
PACCAR SuperTruck

Kenworth did not participate directly in the DOE SuperTruck I program. However, Kenworth is a member of the PACCAR team, which joined the DOE SuperTruck II program in October 2017, about one year after DOE selected the four original SuperTruck II teams (all of which had participated in SuperTruck I). As explained by Michael Berube, Director of DOE’s Vehicle Technologies Office, the PACCAR team was added to the SuperTruck II program per Congressional direction on the basis that they offered, “novel engine downsizing and hybridization concepts as well as advanced combustion concepts to improve engine and powertrain efficiency.”

The PACCAR team also will pursue implementation of:

- Engine waste heat recovery system
- More efficient transmission and axle configurations
- Tractor and trailer aerodynamics improvements
- Weight reduction
- Predictive powertrain management for the route being driven

The PACCAR SuperTruck contract runs from October 2017 to September 2022. The team will prepare a demonstration tractor-trailer for SuperTruck II based on the Kenworth flagship T680 tractor and an industry leading PACCAR model year 2018 MX engine. Team member UPS will provide guidance on their drive and duty cycles and will provide advice on the commercial feasibility and driver acceptance of technologies developed under the SuperTruck II program.

You’ll find more information on the Kenworth T680 Advantage production truck here:

You can read more about the PACCAR / Kenworth SuperTruck in the following sources: