



2017 FUSO FE160 Still More Fuel Efficient Than the Competition

FUSO has once again commissioned an independent testing company, Automotive Testing & Development Services Inc. (ATDS), to compare the fuel economy of its FE160 Series medium-duty truck to the fuel economy of an equivalent Isuzu NPR-HD and a Hino 155. The full report is available on mitfuso.com. However, to help summarize the tests and their implications, we've developed a set of questions and answers that explain the test results and provide highlights of the test procedures.

Bottom line:

The FE160 prevailed again, consuming 8 percent less fuel on average than the Hino 155, and 5 percent less than the Isuzu NPR-HD, measured over a mixed course of city, suburban and highway driving. When ECO mode was engaged on the FE160 for half the runs (a feature not available on the Hino or Isuzu models), the FE160's fuel consumption improved to 10 percent less than the Hino 155, and 9 percent less than the Isuzu NPR-HD.

That translates to a 100,000-mile savings in fuel costs for the FUSO FE160 of \$1,476 compared to the Hino 155 and \$907 compared to the Isuzu NPR-HD. These savings result when the FUSO is operated half the time in ECO mode, based on a national average diesel fuel price of \$2.509 per gallon. If the FE160 is operated full time in ECO mode, the savings increase to \$1,966 and \$1,616, respectively.

Here are some questions we expect you might have after reviewing the report, along with answers that may provide additional clarification.

Q: Did Mitsubishi Fuso participate in the conduction of this test?

A: No. While Mitsubishi Fuso paid for the testing, the tests were conducted entirely by ATDS, using procedures based on ATDS standard practice, and meeting the basic requirements of the SAE J1321 Fuel Consumption Test Procedure, in combination with the SAE J1264 Fuel Consumption Test Procedure.

Q: What were the overall results?

A: At the end of testing, which included 10 total runs over an on-road test route, conducted between April 27, 2017 and May 22, 2017, the FUSO FE160 had consumed 8 percent less fuel than the Hino 155, and 5 percent less than the Isuzu NPR-HD. Five of the ten runs were conducted with the FUSO in ECO mode (not available on the Hino or Isuzu) and five runs were conducted with the FUSO ECO mode off. For the five runs with ECO mode on, the FUSO FE160 fuel consumption was 10 percent less than the Hino 155, and 9 percent less than the Isuzu NPR-HD.

Q: The curb weights and GVWRs for these three trucks are different. How was that handled?

A: While the curb weights of the three trucks are different, the test vehicles were as matched in configuration as commercially available. All were Class 4 medium-duty cabover trucks fitted with a standard dry van body. The FUSO FE160 has a GVWR of 15,995 pounds, compared to a GVWR of 14,500 pounds for both the Hino 155 and Isuzu NPR-HD, while its curb weight (7,983 pounds) is lower than that of the Hino (10,020 pounds) and Isuzu (8,519 pounds). To assure test conditions were the same for all of them, all three trucks were loaded with ballast to a total weight of 14,500 pounds, the maximum GVWR of the Hino and Isuzu, for all test runs—measured with the driver and a full complement of fuel aboard.

Q: Different drivers can achieve different fuel economies. Could that have affected the results?

A: To prevent driver skill and driving habits from affecting the test results, four different drivers were used during the tests, and they were rotated regularly among the three trucks, so driver effects would be averaged out over the course of the 10 test runs.

Q: What if the fuel gauges or odometers in the trucks had different accuracies?

A: To eliminate this variability, the in-dash odometers and the trucks' standard fuel tanks and fuel gauges were not used during the testing. Identical auxiliary fuel tanks were mounted in the dry van box on each truck, and each truck was outfitted with a Race Logic GPS data logger and a Rosco Video GPS data logger. Fuel consumption was measured by weighing the full auxiliary fuel tank at the start of a run, and then weighing it again after each truck had completed the run. The difference was the amount of fuel consumed by each truck. The scale used to weigh the auxiliary fuel tanks had an accuracy of ± 0.02 pounds (1/3 of an ounce).

Q: How about tire pressures? That can have a significant impact on mileage.

A: Before the start of each run, the tire pressures were adjusted to the manufacturer's recommended cold tire pressure (100 psi for the FUSO FE160 and Hino 155, and 80 psi for the Isuzu NPR-HD).

Q: If these were on-road tests, could traffic have affected the results?

A: To minimize any differences in road conditions encountered by the three trucks during a run, and to eliminate any aerodynamic interactions, the trucks started each run one minute apart. The order in which the trucks departed was rotated, so each truck operated in first, second and third position.

Q: What about the course? Could that have favored one truck over the others?

A: The test route was deliberately formulated to provide a mix of driving conditions. It was comprised of city sections with heavy traffic and stop-and-go conditions; suburban sections, featuring higher speeds with some stops and longer drives in between; plus, highway sections, marked by high operating speeds and long stretches with no stops. The total circuit for each run was 97 miles long, consisting of two laps around a 48.7-mile course.

Q: Could differences in auxiliary equipment power draws have affected fuel consumption?

A: While it's possible that auxiliary equipment—such as HVAC compressors—can vary in power draw and influence fuel consumption, all test trucks were operated identically. All runs were made with the windows closed and the HVAC systems at the same settings in each truck. And any other accessories that might have impacted fuel consumption were carefully operated in an identical manner on each truck. Electric exhaust brakes were also disengaged during all runs.

Q: What about other conditions that might have affected fuel consumption?

A: ATDS carefully monitored and set all conditions to make the test as fair as possible. All trucks were operated with their automatic transmissions in the D (Drive) position, and electric exhaust brakes were turned off for the duration of testing. All trucks were fueled with commercial-grade, ultra-low-sulfur No. 2 diesel fuel, sourced from the same pump at local fuel stations and dispensed from barrels stored at the ATDS facility. All trucks included diesel exhaust fluid (DEF) tanks and those were topped off prior to the beginning of testing. Prior to the start of testing, each truck underwent a front-end alignment to assure the steer tires were set to the manufacturer's specifications.

Q: Did the difference in starting odometer reading for each of the trucks affect the test?

A: The FUSO FE160 was a new truck with 43 miles on the odometer. The Hino 155 and Isuzu NPR-HD were obtained from a commercial truck dealer. The Hino had an odometer reading of 14,531 miles at the start of testing and the Isuzu had an odometer reading of 257 miles. While the odometer reading was highest on the Hino, all test trucks had operating parameters checked and adjusted if necessary to meet the manufacturer's specifications.

Q: A 2017 Model Year Canter was used for the test, but the Isuzu and Hino were 2016 Model Year trucks. Why?

A: The test was contracted specifically for the 2017 MY Canter to measure effects of new hardware: the electrically-engaged radiator fan and new emissions after-treatment equipment. Competitive models were selected based on readiness and regional availability. Per respective engine emissions certifications from EPA and from CARB (California Air Resources Board): engine power, torque, and emissions levels for both the Isuzu and Hino models are equivalent to the latest available for each at the time of testing.

If you have additional questions about the fuel consumption testing, please see your local authorized FUSO dealer. To find the dealer nearest you, visit www.mitfuso.com, click on the Dealer Locator button, and enter your Zip Code (US) or Postal Code (CAN).