

TRUCK NEWS

December 2007 Volume 27, Issue 12

Delivering daily news to Canada's trucking industry at www.trucknews.com



Putting it to the test

Feric tests fuel-saving devices

By Carroll McCormick Blainville, Que.

Impressive findings rolled off the Transport Canada test track in Blainville, Quebec this October: Twelve fuel-saving technologies, mostly of the aerodynamic type, and a couple of other ideas were installed on tractor-trailers and driven under rigorous experimental conditions to see if they would deliver on promised fuel reductions. Of the lot, 10 showed improvements in fuel economy ranging from 1% to almost 10%.

The trials, dubbed EnergoTest 2007, represent a historic collaboration of suppliers, fleets, federal and Quebec government agencies and the FPIInnovations Feric division, all brought together to determine, using well-established procedures, how well a variety of fuel-saving technologies work.

The genesis of EnergoTest 2007 lay with Robert Transport, which had tested some deflectors in Blainville last year.

Recognizing the value of running more trials on the concrete, seven-kilometre oval track, Robert and Cascade Transport approached Transport Canada this year about using it again. Transport Canada agreed to provide track time at no cost, provided that Feric, which has 32 years of experience in testing technologies according to accepted scientific procedures, manage the trials, and that the results be disseminated across the trucking industry.

Feric researchers designed and carried out the tests to conform with the SAE J1321 Joint TMCISAE Fuel Consumption Test Procedure-Type II, Recommended Practice.

This lent a credibility to the trials that drew technology companies from as far away as California on very short notice. SAE II is so credible that test results are considered statements on whether a technology delivers fuel savings in the given test conditions, according to Feric.

"The idea for fleet owners is that we test technologies that are on the market. If it is a prototype, the test data will confirm whether the technology needs improvements," explains Richard Carme, an engineer and researcher with Feric.

Yves Provencher, Feric business development and group leader, road and transportation adds, "The transport companies came to us because they wanted to know if their technologies worked. What Robert told us is that if it tests a technology and decides to equip 1,100 trucks, the price tag adds up to big numbers."

Ominously, Provencher adds, "There are big fleets in the States running fuel savings tests."

There are those in the Canadian trucking industry who are casting a nervous eye across the border at another competitive edge in the making. As well, some companies, like Wal-Mart, have what one might call "green" requirements carriers must meet before they can do business with them.

Just six weeks after the plan was first discussed, Feric, Robert and Cascade had people and hardware assembled in Blainville for five days of testing. Strict driving procedures were enforced for every 100-kilometre trial to measure fuel consumption with and without the fuel-saving devices; for example, one time a driver missed a gear in the required shifting pattern that necessitated a repeat of the base run.

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Underscoring the critical importance of using true experts to run such trials (there is nothing like claiming that a particular device saves fuel to set off a tidal wave of controversy and accusations) some of the participants thought cutting a few harmless-looking corners would not make any difference.

"They are learning about our test procedures and the importance of doing the tests according to the SAE procedures," says Carme. Provencher chimes in, "Some of the suppliers only came because they knew we were following rigorous test procedures."

"The trials give industry-wide validity to the tests," adds Andrew Smith, the CEO of Advanced Transit Dynamics in Solana Beach, California, which attended EnergoTest 2007 with its TrailerTail technology.

Robert engineer Rejean Laflamme expresses the difficulty of doing road tests. "We need reliable answers. Do you (compare) last week with this week? Last hour with this hour? But at the test track we had the same driver, trucks and day. This way you can have some results."

Laflamme also attaches great importance to the fact that anyone who had something to test could come and that everything deserves to be tested. "You have to invite everybody. I said we have to treat everyone at the same level. Put your stuff on the track and see how it works."

As of press time Feric expected that the full EnergoTest 2007 results would be posted on its Web site and that of Transport Canada by late November, but here are the bottom line trial results:

Michelin Canada tested X-One 445/50 R22.5 singles (also known as wide-base tires) which replace duals: XDA on tractor drive axles and XDE MRT (retread) on the trailer axles. The tires are designed to reduce rolling resistance and weight. Mounted on all the drive axles and trailer wheel positions, they yielded a fuel savings of 9.7%.

Freight Wing Incorporated, based in Seattle, Washington, tested its side skirts prototype. This is an aerodynamic device that clamps onto a trailer's I-beams. It yielded a 7.2% savings in fuel consumption.

Laydon Composites Ltd., from Oakville, Ont., tested its aerodynamic side skirts, with the product name Trailer Skirt. It scored a 6.8% improvement in fuel economy.

Advanced Transit Dynamics, Inc., tested a product it calls TrailerTail, a tractor-trailer rear drag reduction device. TrailerTail yielded a 5.1% improvement in fuel economy.

Econoco Inc. headquartered in St-Jerome, Quebec, makes an engine fuel line-mounted device designed to cut fuel consumption and engine emissions. It showed fuel savings of 3.4%.

Transtex Composite Inc., from Montreal, signed up its BoatTail, which attaches to the back of trailers. The company Web site explains that it, "diminishes the turbulence that causes aerodynamic resistance by sending the air flow into a smaller "corridor" behind the semi trailer." It reaped fuel savings of 2.6%.

Feric tested the commonly-held belief that leaving the back doors open on empty wood chip trailers with the top open improves air flow and fuel economy. That little trick wrung out a 1.6% improvement in fuel economy.

Meka Form, which hails from Saint-Alphonse de Granby, east of Montreal, builds aerodynamic truck fenders that snugly wrap like a slinky letter "M" over both duals on the tractor. They scored a 1.4% improvement in fuel economy.

Passing Lane Distributors Inc., offered the Liberator Exhaust System, for which it is the exclusive Canadian distributor, according to its Web site. Tested on a Cummins ISX and a 35,000-lb. payload, it improved fuel economy by 1.1%.

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Significant fuel savings realized

"At the test track we had the same driver, trucks and day. This way you can have same results."

- Rejean Laflamme, Robert Transport

The trials were so successful that Feric regards EnergoTest 2007 as merely the first of many such events.

Fleets were so impressed that some wanted to become Feric members and reap the benefit of its good science and exemplary work ethic. "When we commit to something we make it happen, because we have members who want to make things happen," says Provencher. "The best reputation that Feric has is that it is a doer."

So without losing a beat, Feric launched the creation of a sort of subsidiary called the Transportation Innovation Project (TIP) as way to bring trucking companies together in an organized manner to do technology testing, development and implementation under the Feric umbrella.

Any (but only) Canadian fleets and suppliers can become members, and government wants in too, so it can use TIP as a sounding board for proposed legislation. Stay tuned for membership details.