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engines running on the open road. While this tactic delivered optimized fuel consumption, EPA took the stance that this was cheating and penalized the engine manufacturers – with the notable exception of Navistar International – with fines. The pull-ahead of 15 months was to offset the additional pollution caused by the different lookup tables.

But because of the pull-ahead, development was not completed before trucks were in the hands of customers, and the early EGR systems were trouble-prone.

tomer demo units since January.

The Freightliner Cascadias, pulling dry van freight in a dedicated/regional operation, have been running with teams to rack up the most possible test miles. At six months they had just passed the 100,000-mile mark, reports Steve Duley, vice president of purchasing. They're on routes that get them back to Schneider's Green Bay, Wis., headquarters frequently so they can refill the diesel exhaust fluid tanks, required by the engines' new selective catalytic technology, at the bulk

testing testing

2010 engines get real-world shakedown

When the 2004-emissions engines were rolled out 15 months early as part of the Environmental Protection Agency's punishment of engine manufacturers it said had cheated on prior emissions standards, it was a disaster.

At issue was the optimization of electronic fuel system controllers' dual lookup tables, which offered different scenarios for urban and suburban operation than they did for

For 2010, the situation is far better managed. Trucks are already in the hands of fleets and engine makers are completing the last fine-tuning in real-world situations.

One exception is Navistar, which is opting for extensive testing by its own engineers rather than by customer fleets.

Schneider's experience

Schneider National is one of those fleets. It's been running two Detroit Diesel DD15 2010-technology cus-

tomers there. There are also truckstops along the route that stock 2.5-gallon jugs. The trucks have been using 800 to 900 gallons of diesel fuel a week. The trucks need DEF in the range of 2 to 2.5 percent of the diesel used, so that means a weekly fill of the 23-gallon DEF tanks.

When it comes to concerns that have been expressed about the potential toxicity of the urea-based fluid, Duley says his fleet is "just taking the normal care you would take in handling any kind of fuel. I believe it is somewhat corrosive with aluminum

if you let it sit there.” That’s why the DEF tank on the truck is a polyurethane material, and the storage and dispensing equipment is designed with that in mind.

DEF also freezes at a higher temperature than diesel fuel, so heating equipment is necessary for winter climates. Schneider has its bulk DEF tote housed in a small shack-like kiosk with a heater. The DEF supply is housed near the fuel island, but Duley says that may not be possible in some areas because of local fire codes.

“Generally, we’ve had very positive feedback from drivers,” Duley says. “To be able to operate 100,000 miles without any significant failures, I think the drivers are very happy with that.” The drivers had about two hours of training on how to deal with the DEF, and the mechanics had about a week of training to be able to deal with any issues that might come up. “But so far it’s been a pretty successful test,” he said, when compared with previous test engines, especially from a downtime standpoint.

So far it’s been hard to gauge the fuel economy. The company is planning on a more controlled fuel mileage test this summer.

Schneider plans to buy about 50 2010 trucks early in the year so it can get in some testing on production units. It probably won’t buy more until mid year at the earliest, Duley says. “Six months really just lets you make sure there aren’t any instant-type problems. If those first 50 are looking OK, I think our age of fleet is such we would want to buy quite a few trucks at the second half of 2010 going into 2011 and 2012. We might buy a thousand trucks next year, but mostly near the end of the year.”

Testing progress

As of June, all the engine makers had 2010 test units in customer operations, with the exception of Navistar. Here’s the rundown:

Cummins: Cummins is on track to exceed its field test mileage target for both heavy-duty and MidRange



Schneider National has been testing two Freightliner Cascadias with 2010-technology DD15 engines. Here you can see the 23-gallon tank for the diesel exhaust fluid.

products, says spokesman Louis Wenzler. “Our testing includes a variety of test cycles, from very high load factors to light duty cycles to mountainous terrain to winter and summer validation testing. Results from field testing have exceeded our expectations.”

At production launch in January 2010, he says, heavy-duty field testing will cap 3 million miles and MidRange field testing will approach 2 million miles.

Detroit Diesel: DDC has more than 40 EPA 2010 vehicles in operation, including engineering vehicles for functional testing, “reliability growth” vehicles for mileage accumulation, and customer demonstration vehicles like the ones at Schneider.

The company has test vehicles powered by DD13, DD15 and DD16 engines using the company’s BlueTec 2010 emissions technology running literally 24/7. More than 40 2010 engines are running around the clock in test cells.

Testing has included a multitude of road and environmental conditions, including cold and hot ambient, high altitude, extreme high and light load, and urban, mountain and highway routes.

International: Navistar has been

testing its EGR-only 2010 solution in engine labs and field test units during the last 18 months. More than 60 engineering test vehicles with 2010-compliant International engines are in operation. In March, Navistar completed its final stages of cold weather testing in northern Minnesota. Final testing at high altitude and high temperature is being done in the mountainous regions of Colorado and in the Nevada desert.

However, the company does not have any 2010 vehicles in customer hands. “Since our 2010 solution does not require significant changes to truck hardware and, at this point, our testing mainly involves engine calibration refinements, we believe the benefit of road testing by our own engineering team outweighs the learning obtained from customer field test units,” explains spokesman Steve Schrier.

Mack: Mack’s SCR technology is being tested in approximately 30 customer test trucks, including tractors, vocational trucks and low cabover refuse trucks. The first test truck entered service in early 2008, and accumulated mileage on these customer test trucks is more than 3 million miles.

“We’re receiving very positive reports on overall performance and fuel economy,” says Mack spokesman John Walsh. “We’re working with test customers on DEF supply as necessary. To date, they have not expressed concerns about availability moving forward, or any other aspect

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of this nonhazardous fluid.”

Paccar: Paccar has test engines operating in engine test labs, on test tracks, and in customer applications, says Alan Treasure, Paccar Powertrain spokesman. “The tests are progressing well,” he said, but the company does not release information about the number of test units, customers involved in the tests, test miles accumulated, or specifics about

test results, he explained.

Volvo: Volvo had 30-plus units in customer operation by mid 2009, with more than 3 million miles accumulated to date, plus another 40 units in corporate testing. Spokesman Jim McNamara says the engines and emissions systems are running

very well, including Volvo’s “no regen” feature on the diesel particulate filter for 2010. “DEF availability has not been an issue. Customers are pleased with fuel economy.”

Most significantly, said Ed Saxman, Volvo’s powertrain chief, there have been 2010-spec engines running through two winters. “That’s our best bragging point as far as testing,” he said. 