

Final PAVE Type II Fuel Consumption Test Results between Parallel and Series Installation Configuration

In the trucking industry, Auburn University's "Program for Advance Vehicle Evaluation" (PAVE) is the premier testing facility in this country. TMC (Technology & Maintenance Council) recommends that manufacturers of products claiming improved fuel economy must conduct a Type II, III or IV fuel economy test to verify product claims before being accepted in the marketplace. Therefore, World NCI contracted with PAVE to conduct testing of our *Fuel & Air Saver Technology™* (FASTechnology™) to quantify the benefits from installing and utilizing the FASTechnology™.

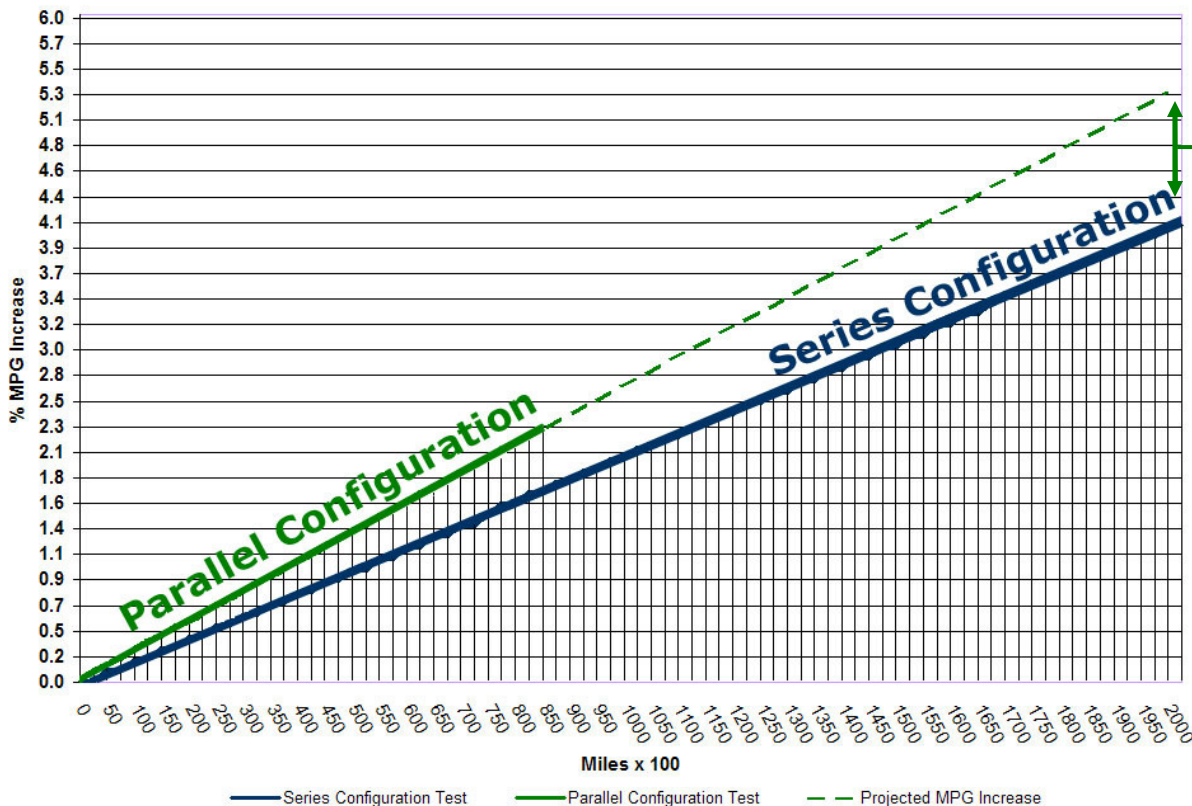
During 2007, the first of two separate tests were conducted using the "Fuel Economy Benefit Product Qualification" (TMC RP-1115) and its associated "[Type II Fuel Consumption Test](#)" (TMC RP-1102 or SAE J1321). Final results from the first test concluded "When all data points were used, the computed fuel savings increased to 4.1 percent." Given the significance of this report, World NCI should have been fully satisfied. We had proven the FASTechnology™. However, for test purposes, World NCI modified the installation of the two *Fuel & Air Saver™* units in a "Series" configuration on two tractors with Detroit Diesel 60 Series DDEC-IV (EGR) engines used to conduct the test at PAVE. Prior to the PAVE testing, standard installation of the *Fuel & Air Saver Technology™* was in a "Parallel" configuration. The modification from a "Parallel" to "Series" configuration was suggested to determine if there could be an increase in the technologies performance. As a result of this configuration change, World NCI received notification that there were isolated cases of oil seepage around the engine's oil dipsticks which was from engine back pressure. Upon further investigation, it was determined that the new "Series" configuration had, in fact, restricted the proper flow through the FASTechnology™ system. As a result of this test and investigation, World NCI has withdrawn the optional "Series" modification and mandating the FASTechnology™ only be installed using the "Parallel" configuration.

As a result of this new mandate, World NCI determined it was necessary to conduct a second "[Type II Fuel Consumption Test](#)" test of the FASTechnology™ for two reasons:

1. To validate crankcase pressure does not exceed engine manufacturer's design limits
2. Re-quantify benefits derived from the installation and utilization of the FASTechnology™.

The second test at PAVE was conducted between April 30 and May 20, 2008 with the following results: "...fuel economy was observed after 8,715 miles: 2.3% improvement in fuel economy..." Also in the report was the fact that the FASTechnology™ did not exceed the engine manufacturer's back pressure design limit.

As a result of these events, World NCI, and our customers, has a better understanding and an increased confidence in benefits provided by the FASTechnology™ system. The first test resulted in a 4.1 percent increase in fuel savings after 24,000 miles. Due to test scheduling restrictions at the Auburn University's PAVE facility, only 8,715 miles were recorded resulting in a 2.3% improvement in fuel savings. The chart below is a representation of increased fuel efficiency between the two configurations tested. The "Parallel" configuration saw both an increase in fuel efficiency over the "Series" configuration and validation of World NCI's decision to mandate the "Parallel" installation of the FASTechnology™ system.



At 20,000 miles, this projection realistically illustrates the "Parallel" configuration increasing fuel efficiency by as much as 1% over the "Series" configuration.