



# Irrigation Pump Testing

The *Vortex Fuel Saver* was tested on an 80 HP non-turbo engine, manufactured by John Deere, typically used as an irrigation pump, utilizing #2 road diesel (low sulfur). The engine was tested at four different RPMs and the resultant savings ranged from 5.08% to 7.69% in what was then believed to be the best fuel magnet configuration. With these savings, the *Vortex Fuel Saver* would pay for itself in less than one growing season. Subsequent testing with other configurations (in different applications) has resulted in better results.

Frankly, this is the worst testing results we have ever achieved, but the results are presented here to make an important point -- the testing included an A-B-A test (with the *Vortex Fuel Saver*, without and with again). At one point during the testing, the system was removed and the savings was dramatically reduced. As there is still some residual electromotive force in the engine after removal, the savings did not completely disappear, though at 2500 RPM, the savings actually went negative without the system installed. **The system was then re-installed and the savings then increased again!**

There were several other points of interest in this test:

1. The air intake on this engine is solid steel. Putting an electromotive force into the air is crucial to the *Vortex Fuel Saver's* performance. An electromotive force in the fuel without doing the same for the air is like building half of a bridge. Also, the pump has no inter-cooler, which would greatly improve the results as well.
2. Vortex knows that the saving results get better over time. We strongly believe the test results would have been better had the test run longer. (A prospective customer of ours was the party responsible for the tests.)
3. The results were obtained in a laboratory setting, by a well respected third party, with the testing performed with a proper scientific protocol. There were no other variables involved.

Some of the skeptics, or critics, of this technology always want to find some other reason to explain good test results. Results from real world drivers, mechanics, or fleet operators are explained as the result of people changing their driving habits (the "placebo" effect), city vs. highway driving, different gas, etc. This test had only one variable, the Vortex Fuel Saver. Removing the variable decreased (or at 2500 RPM eliminated) the savings.



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Mr. Kulish,

Thank you for the opportunity to do business with your company. These are the results from the tests run on the 80 hp non-turbo 4.5-liter engine.

We ran several different scenarios at four different RPM's:

After the baseline test was run: two red magnets were installed on the lower radiator hose, four blue magnets on the pipe between the air cleaner and the intake manifold, two green magnets on the fuel supply, two on the return line and one prototype magnet per two fuel injector lines. Then the unit was run for 8 hours, then retested.

Next, only the Prototype magnets were removed from the injector lines and replaced with the stronger Neo-Magnets (one per two injector lines). The unit was ran for another 3 hours then tested.

Next, only the Neo-Magnets were removed from the injector lines, the unit ran for an hour, and then retested.

Finally the Neo-Magnets on the injector lines were replaced and one was added to the supply and return line, then tested again.

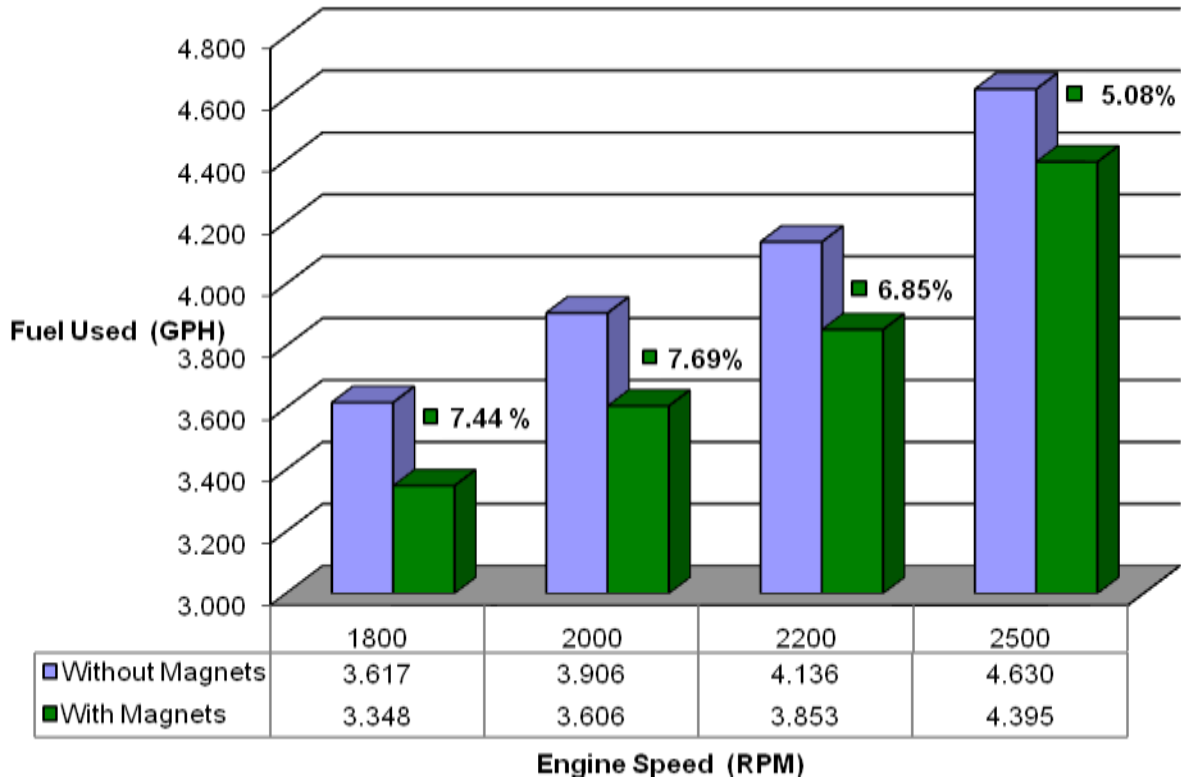
The second scenario resulted in the largest fuel savings, being between a 5 and 7.69% increase in fuel savings.

All of the testing was run using # 2 on road diesel.

Again we appreciate the opportunity to perform test your magnets, and feel free to call us on any other testing you may need.

Regards,  
Damon Kennon  
Testing Supervisor

### Fuel Consumption John Deere 4D80



4D80	RPM	HP	Time(sec)	Fuel Used	Gal/HR	Fuel Saved	%
Baseline	2500	72	121.5	20	4.630		
	2200	68	136.0	20	4.136		
	2000	67	144.0	20	3.906		
	1800	62	155.5	20	3.617		
After Baseline installed magnets and ran for 8 hrs before test.							
Fuel Saver	2500	72	128.0	20	4.395	0.235	5.08%
	2200	68	146.0	20	3.853	0.283	6.85%
	2000	66	156.0	20	3.606	0.300	7.69%
	1800	62	168.0	20	3.348	0.269	7.44%
After removing Magnets, ran unit for 1 hr then tested.							
No Magnets	2500	72	117.5	20	4.787	-0.158	3.40%
	2200	68	141.0	20	3.989	0.147	3.55%
	2000	67	148.0	20	3.801	0.106	2.70%
	1800	62	165.0	20	3.409	0.208	5.76%
After installing magnets, ran for 3 hrs then tested.							
Fuel Saver	2500	70	128.5	20	4.377	0.252	5.45%
	2200	66	145.0	20	3.879	0.257	6.21%
	2000	66	150	20	3.750	0.156	4.00%
	1800	60	164	20	3.430	0.187	5.18%

\*Used On Highway Low Sulfur Diesel