



LUBRICATION
SPECIALTIES INC

Where Innovation Lives

FR3 Friction Reducer

Test Vehicles:

Test Subject A – 2016 Dodge 3500 6.7L Cummins

Test Subject B – 2007 Dodge 2500 6.7L Cummins

Evaluation of horsepower and torque effects of two industry-leading oil additives through a series of third party dynamometer tests.

Test completed by

firepunk
DIESEL

Tested with

DYNOTECH
BY **DYNO DYNAMICS**



Where Innovation Lives

Overview

Lubrication Specialties, Inc. initiated third party dynamometer testing through Firepunk Diesel in Plain City, Ohio on March 2, 2017. The horsepower and torque effects of two industry-leading oil additives were evaluated through the following series of dynamometer tests. Hot Shot's Secret FR3 Friction Reducer was tested against another industry-leading oil additive (Competitor X).

This evaluation utilized a DynoTech chassis dynamometer to determine the results of the tested products on separate trucks. All testing was completed on the same day, by the same driver, with the truck remaining on the dynamometer for the duration of its test. All results shown in this document were collected and reported by the third party Firepunk Diesel. Test trucks included a 2016 Ram 3500 with the 6.7L Cummins engine and a 2007 Dodge Ram 2500 equipped with the 6.7L Cummins. Each test truck was equipped with an aftermarket tuner with two tunes for each truck: a manufacturer default tune and a performance tune.

The 2016 Ram 3500 was subject to a series of ten baseline dynamometer tests, five for each tune to establish a baseline average. The first tune was set to the manufacturer's specifications; the second tune used was a high-performance tune. After initial baseline averages were established for each tune, Competitor X's oil additive was added to the engine oil system at the ratio recommended on the product's label. After 30 minutes of idling while on the dynamometer to disperse product, ten product trial tests were completed, five for each tune.

The 2007 Dodge Ram 2500 was also subject to a series of ten baseline dynamometer tests, five for each tune to establish a baseline average. The first tune was set to the manufacturer's specifications; the second tune used was a high-performance tune. After initial baseline averages were established for each tune, Hot Shot's Secret FR3 Friction Reducer was added to the engine oil system at the ratio recommended on the product's label. After 30 minutes of idling while on the dynamometer to disperse product, ten product trial tests were completed, five tests for each tune.





Where Innovation Lives

Test #1 – Competitor X oil additive

The 2016 Ram 3500 completed five baseline dynamometer tests with the original tune, with an average of the tests displaying 349.44 horsepower and 654.4 ft/lbs of torque.

The Ram 3500 then completed five baseline tests with the performance tune, with an average of 428.42 horsepower and 873.9 ft/lbs of torque from the five tests.

Competitor X’s oil additive was added through the oil fill cap of the 6.7L Cummins at the dosage recommended on the product’s label. The truck was then started and the engine was idled for 30 minutes. The test vehicle remained stationary on the dynamometer to preserve baseline accuracy.

The Ram 3500’s computer was set back to the factory tune and five tests were completed. The average for these five tests measured 353.48 horsepower with no measurable effects to the vehicle’s torque. This equates to a 1.1% increase in horsepower using the factory tune.

Next, the factory tune was replaced with the performance tune and five more tests were completed with an average of 430.28 horsepower and 874.72 ft/lbs of torque. This equates to a .04% increase in horsepower using the performance tune. Horsepower results for Test #1 are shown below.

Competitor X Results:

	<u>Stock Tune Baseline (Horsepower)</u>	<u>Stock Tune with Competitor X (Horsepower)</u>
	342.5	359.3
	349.1	349.4
	350.6	353.9
	350.3	352.8
	354.7	352.0
Average	349.44	353.48 (4.04 HP increase)
	<u>Performance Tune Baseline (Horsepower)</u>	<u>Performance Tune with Competitor X (Horsepower)</u>
	424.8	427.3
	426.1	429.0
	427.6	431.8
	431.5	431.8
	432.1	431.5
Average	428.42	430.38 (1.86 HP increase)



Where Innovation Lives

Test #2 – Hot Shot’s Secret FR3 Friction Reducer

The 2007 Dodge Ram 2500 completed five baseline dynamometer tests with the original tune, with an average of the tests displaying 331.02 horsepower and 634.77 ft/lbs of torque.

The Dodge Ram 2500 then completed five baseline tests with the performance tune, with an average of 460.94 horsepower and 875.68 ft/lbs of torque from the five tests.

The Hot Shot’s Secret FR3 Friction Reducer oil additive was added through the oil fill cap of the 6.7L Cummins at the dosage recommended on the product’s label. The truck was then started and the engine was idled for 30 minutes. The test vehicle remained stationary on the dynamometer to preserve baseline accuracy.

The Dodge Ram 2500’s computer was set back to the factory tune and an additional five tests were completed. The average for these five tests measured 345.97 horsepower and 652.7 ft/lbs of torque. This equates to a 4.3% increase in horsepower with the factory tune.

Next, the factory tune was replaced with the performance tune and five more tests were completed with an average of 478.44 horsepower and 901.5 ft/lbs of torque. This equates to a 3.7% increase in horsepower using the performance tune.

Hot Shot’s Secret FR3 Results:

	<u>Stock Tune Baseline (Horsepower)</u>	<u>Stock Tune with FR3 (Horsepower)</u>
	332.8	346.6
	333.4	347.4
	331.0	346.2
	326.8	343.8
Average	331.0	346.0 (15.0 HP increase)

	<u>Performance Tune Baseline (Horsepower)</u>	<u>Performance Tune with FR3 (Horsepower)</u>
	461.4	476.6
	459.2	482.9
	459.9	475.8
	461.9	478.7
	462.3	478.2
Average	460.94	478.44 (17.5 HP increase)



Where Innovation Lives

Why it works

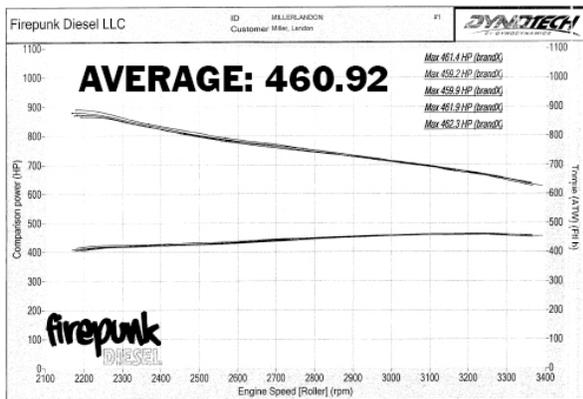
Hot Shot's Secret FR3 Friction Reducer utilizes patented carbon nano particles to fill in microscopic irregularities on the machined surfaces in an engine. FR3 can affect power output of an engine with its ability to restore the compression of an engine's combustion chamber and increase the efficiency of an engine by reducing friction. FR3 smooths engine surfaces to provide an optimal surface for the host oil and FR3 formula to form a superior lubricating film. The synergy of FR3's components and its advanced synthetic PAO/ester base allow it to improve the host oil's performance in shear stability, oxidation stability, film strength and wear reduction.

Conclusion

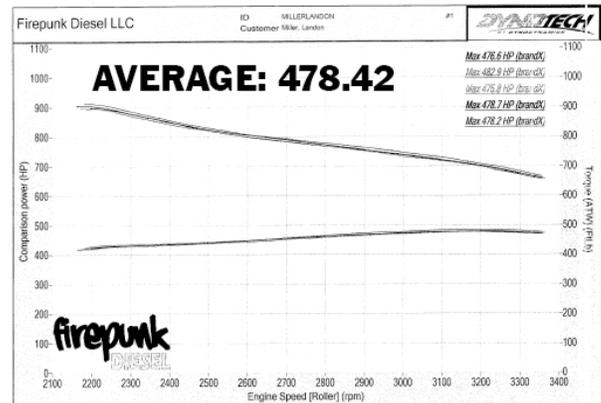
Between the two evaluated products tested with separate 6.7L Cummins engines, the Hot Shot's Secret FR3 Friction Reducer was determined to be more effective for increasing horsepower and torque. Hot Shot's Secret FR3 Friction Reducer increased horsepower by 14.95 and increased torque by 17.93 ft/lbs while the truck utilized the factory tune.

Hot Shot's Secret FR3 Friction Reducer increased horsepower by 17.5 and increased torque by 25.82 ft/lbs while the truck utilized the performance tune. Below are the corresponding dynamometer results of the performance tune test provided by Firepunk Diesel.

Performance Tune Baseline



Performance Tune with FR3



Hot Shot's Secret FR3 Friction Reducer increased horsepower by 17.5 HP and torque by 25.82 ft/lbs.



Where Innovation Lives

What we don't know about these results

Further testing will need to be completed to answer the following questions:

- How long will the results be seen for either product?
- Does power continue to be increased after running the engine for a longer period of time, or will power plateau or decrease?
- Can we recreate these results on another brand or model of dynamometer?
- What were the fuel economy effects of either product?
- How were the output of emissions effected?
- Exactly how long the products must be inside a running engine to see peak performance.
- How do these results compare to the results of using a gasoline application?
- Would results be similar if the competitor X's additive had been tested in the 2007 Dodge Ram 2500 and Hot Shot's Secret had been tested in the 2016 Ram 3500?
- Would results be comparable to this evaluation's results if both trucks were the same model year?