TECH & TUNING TIPS

BLOWZILLA 2300 (2.3L) LIGHTNING-HARLEY

PULLEY / BOOST / RATIO / HP GUIDE

These are "real" dyno tests performed with calibrated sensors. A Ford NGS Scanner also monitored fuel, spark, load, temps etc. to guarantee accuracy of tests. Boost and HP tests were conducted by 3rd party Richard Holdener for Truckin' Magazine. The vehicle was a 100% stock Lightning. Only the Kenne Bell BOOST-A-SPARK was added at 10 psi to insure adequate ignition. The fuel system was 100% stock. The Kenne Bell BOOST-A-PUMP was not necessary as fuel pressure and AF ratio was adequate to 540HP. If switching to 50lb injectors, the BOOST-A-PUMP is all that's necessary for 25% more fuel capacity. Note that 1 psi boost is approx. 11-13 psi rear wheel HP (RWHP). Test 1 and 2 compared Eaton vs. Kenne Bell air charge temp and HP (RWHP) at the same boost. The Kenne Bell produced +15HP, yet the air charge temp was a whopping 42º cooler. That's akin to an 80º day vs. a 122º day. *Test 8 and 9 were both 20.5 psi but test 9 was with the big inlet and oval throttle body (+18HP). Test 12 was with AFR heads and long tube headers. This makes enough power for a 10 sec run and is the same basic set up used by Johnny Lightning, who as of this printing, has recorded best 1/4 times of 10.59/125 with a 1.49 60' time carrying the front wheels . . . and this is with NO NITROUS. Other companies often post times on the internet, but conveniently neglect to mention that THEY USED NITROUS! Johnny Lightning's best time with the Eaton was 11.5/115. Adding the Kenne Bell improved 1/4 mile times to 10.59/125 and increased power by 110HP! As of 12/2003, his new stroker motor makes 719HP and 870 ft. lbs. torque at 24 psi.

PULLEY SIZE / BOOST / PULLEY RATIO

Supercharger Pulley	7.5" Crank *(stock)*		9.0 Crank	
	Boost	Ratio	Boost	Ratio
3-1/2"	9.5	2.14	13.5	2.57
3-1/4"	11.0	2.3	15.5	2.77
3"	12.5	2.51	18.0	3.00
2-3/4"	14.5	2.73	20.5	3.27
2-1/2"	16.5	3.0	22.0	3.43

$\frac{\textit{Crankshaft Pulley}}{\textit{Supercharger Pulley}}$ ***= Ratio. Ratio x engine rpm = Supercharger rpm. Maximum rpm for racing is 18,000 rpm.***

REAR WHEEL HORSEPOWER GUIDE (HP vs. BOOST vs. 1/4 MILE)

Test	Pulleys	Boost	RWHP	Peak HP Gain	1/4 Mile Speed	1/4 Mile ET	Min ET
1	3" x 7-1/2"	9.5	349	BASELINE	100	13.6	13.0
2	3-1/2" x 7-1/2"	9.5	364	+15	101.5	13.4	12.8
3	3-1/4" x 7-1/2"	11.0	373	+24	104.0	13.1	12.5
4	3" x 7-1/2"	12.5	393	+44	106.0	12.9	12.3
5	2-3/4" x 7-1/2"	14.5	415	+66	108.6	12.7	12.1
6	2-1/2" x 7-1/2"	16.5	442	+93	111.9	12.3	11.7
7	3" x 9"	18.5	468	+119	114.5	12.0	11.4
8*	2-3/4" x 9"	20.5	493	+144	117.0	11.8	11.2
9*	2-3/4" x 9"	20.5	511	+162	118.8	11.7	11.1
10	2-1/2" x 9"	21.5	522	+173	119.9	11.6	11.0
11	2-1/2" x 9"	22.0	527	+178	120.4	11.5	10.9
12	2-1/2" x 9"	22.0	560	-	126.5	10.9	10.4
13	stroker motor	24.0	719	+348	132.0	9.9	9.8

Divide rear wheel HP by .80 to determine engine HP

Note: Test 1 is the Eaton and Test 2-12 is the Kenne Bell supercharger. The most frequently asked questions are "How much HP does the Kenne Bell supercharger make and "What will my Lightning run in the 1/4 mile." These tests should give you a good idea of what to expect from a Kenne Bell Twin Screw supercharged Lightning. The Harley is around 450 lbs heavier and with all else equal will be .5 sec/5 mph slower than the Lightning. 1/4 mile times are based on a stock Lightning with only Cool Air Kit and Street Drag Radials. "Minimum ET" is the lowest ET possible for the corresponding speed. It's usually around .6 sec lower than the average street truck. Minimum ET requires maximum traction with slicks, suspension, torque converter and optimum gearing.

Note: See article reprints on website for additional dyno tests and other comparison information.

➡ **Torque supercharger pulley to 75 ft lbs using long 10mm hex bit socket and pulley wrench.**

➡ **<u>Important</u>! Pulley bolt is special center drilled M10 x 60 SHCS class 12.9 black oxide. Do not use any other bolt. This bolt also acts as a vent.**