HELLCAT / DEMON
Kenne Bell was first with the higher HP big Twin Screw Rear Inlet concept on the ’07-’17 Challenger/Charger 6.4, 6.1, 5.7. No undersized 2.3 or 2.65 with restrictive front inlet. Now, these same record breaking Kenne Bell 3.6, 4.2 and 4.7 kits will soon be available for the Hellcat/Demon. And look for them to be 50 State Legal like all our other Hemi Kits.

6.4 vs. 6.1, 5.7 MAMMOTH™ KITS
The 6.4 develops more HP than a 6.1 because of 1) .3L larger engine displacement, 2) improved heads and 3) higher compression (10.9 vs 10.3). Unfortunately, the higher 10.9 CR ratio of the 6.4 limits boost from any supercharger kit by 1 psi (6 vs. 7 psi etc.) all else equal. The #1 limiting factor, as always, is fuel octane. (See “Jim Bell’s Supercharged/Turbocharged Performance Guide”, Supercharger Tech Tips). Basically, all kits are otherwise identical except for pulley size.

AUTOMATIC vs. MANUAL TRANS RWHP vs. EHP
No other company tests like Kenne Bell. Some don’t even publish dyno tests. We do hundreds.
1. We do both auto and manual trans dyno testing. A supercharged manual trans car makes 23-40 more HP than an automatic.
2. Engine HP ratings look better, but can be misleading vs. industry standard RWHP (rear wheel HP). Example: A 500EHP claim is equivalent to 425RWHP (500x.85=425) when comparing HP numbers, a big 75HP difference.
3. And we specify the type of dyno (chassis or engine), correction factor, stock HP, fuel type and octane - and NEVER “hide” or “fail to mention” engine mods to make our supercharger kit look good.

MAMMOTH™ INLET TRACT
Other kits use the stock restrictive Hemi inlet filter/box which was NOT designed for higher cfm/HP superchargers. The Kenne Bell Mammoth™ was engineered to support a whopping +500HP and 1800 cfm - twice the cfm of the stock system (929 cfm and 974 cfm with K&N), all at no extra cost. Inlet upgrades and tunes by others typically cost another $1000 for a filter still located in the underhood oven.

COOL AIR INLET
The Hellcat designers and old Hemi owners realized the value of cool, dense horsepower producing air better than anyone. That’s why they - and every knowledgeable racer in the world today - use hood scoops or external cool air pick ups like Kenne Bell. Ever notice how dynos always open the hood so the underhood filter receives cooler air instead of 200° underhood air? But after they close the hood, the power typically drops a big 40HP, even with the huge dyno fan blowing on the car. Oops. But not with the Kenne Bell “external” cool air filter which is “fully open’ to cool air (no restrictive hood scoop). There is an old saying posted on our dyno that says: “If you open the hood and see a filter, it is in the wrong place.”

DYNO HP
Keep this in mind. There is no “magic” or free ride in HP tuning. Here are the standard methods of increasing dyno HP.

IGNITION TIMING - Ever 1° of advance from 16-22° is approx. 7HP or up to 50HP total.
BOOST - 1 psi boost - with a high cfm non restrictive inlet tract like the Mammoth™ - is approx. 20HP.
AFR - 12.5 vs. 11.5 is 10HP. 11.0 vs. 10.5 is 25HP. Remember that the Hemi is speed density. Any HP increase is accompanied by a leaner mixture. If +30HP is 6%, then the mixture leans 6% from 11.0 to 11.6.
RPM - Project our supercharged graphs beyond 6300 and notice the HP increase. No supercharger boost drop off from our big 2.8.

Unfortunately for all us power mongers, all the above demand HIGHER FUEL OCTANE. It takes 1.5 octane to support an additional 1 psi boost and .75 octane for 1° of added spark. See Jim Bell’s Supercharged/Turbocharged Performance Guide at: http://kennebell.net/KBWebsite/Common/pdfs/jimbells-supercharged-perf-guide.pdf

TUNING
All Kenne Bell kit calibration is done in house. We never rely on the tuning companies for calibration. We do not recommend re-tuning our kits unless adding bolt ons (headers, throttle body, boost, injectors, etc.). See “Do I Need My Kenne Bell Supercharger Retuned” in Tech Section.

KNOCK SYSTEM
IMPORTANT. The 6.4 “knock protection” system (KS) is more sensitive than the older 5.7, 6.1 cars. This is what protects your engine. Be CAREFUL if re-tuning or increasing boost. The KS must be re-calibrated by a very competent tuner. The Chrysler factory tunes knock and fuel for each individual cylinder. We do the same for our supercharger kits. There is even a “background” noise calibration that compares cylinder firing vs. non firing events. So knock sensors can and are activated by normal engine “noise” instead of detonation. This noise source must be identified in tuning or the engine will “retard” spark and kill HP even when fuel octane is sufficient. Worse yet, the knock sensors DO NOT detect detonation if de-sensitized excessively. The result is piston damage. Knock sensors must be re-calibrated when boost is increased.
6.4 BOLT ONS vs. SUPERCHARGING

There are dozens of misleading HP claims for bolt ons, yet supercharging remains the best and most cost effective approach to significantly increasing 6.4 HP. Who doesn’t agree that superchargers dramatically increase HP. Chrysler engineers aren’t dummies. They are in a HP war with Mustang and Camaro, so they leave nothing on the HP table. There is no HP gain with an aftermarket cool air kit, especially a hot underhood “cone” filter. And consider this: the 81mm throttle body flows only 924 cfm, about the same as the inlet system. And the manifold opening is also only 81mm. So how can a larger throttle body or cool air kit help? The Kenne Bell manifold is 168mm and capable of supporting 1400HP with our 148mm (1850 cfm) throttle body. Do the math. The motor is limited to the manifold and throttle body size and air flow. A cat back may sound louder, but is “0” HP gain, long tube headers can be good for up to 25HP, but are not 50 State Legal. Like Ford, GM, Mercedes, Audi, Jaguar, etc., Chrysler realizes there is little if any HP to be extracted from their engines from bolt ons, so supercharging is the only viable option. Turbos are too complex and like centrifugals, lack the big low and mid range offered by the Twin Screws.

2.3 or 2.65 TVS vs. 2.8, 3.2, 3.6, 4.2, 4.7 Challenger/Carger or Hellcat/Demon

The supercharged 2014 up Dodge Hellcat chose the more powerful Twin Screw. Even though it costs less than a Twin Screw, Chrysler felt the little off the shelf 2.3L or 2.65L Eaton Roots style supercharger or rotors used by numerous OEM’s and 9 aftermarket companies was too small and inefficient for their big 6L Hemi. Larger engines require a supercharger be spun faster for a given boost. The higher the RPM, the greater the heat and power consumption. The Kenne Bell has no jackshafts or front inlet/backward mount design with a driveshaft protruding inside the manifold to restrict air flow. Ever see a 3L or larger front inlet? You won’t mistake this intimidating billet supercharger for an intake manifold or a plastic engine cover. Our 2.8 is +20% larger in displacement than a 2.3 TVS - and then there’s our 3.2, 3.6, 4.2 and 4.7. That leaves lots of room to grow. And finally, the King of Dodge Superchargers - the Patented Liquid Cooled 3.6, 4.2 and 4.7.

UPGRADING

Inlet system, manifold, intercooler, etc. do not need upgrading for higher HP levels - just a larger KB148mm Throttle Body (+24-50HP). See test data. Larger than stock 50lb injectors and re-tuning are required after 620-650HP. 21V BOOST-A-PUMP® will support 750RWHP. See Fuel Pump Tech at: http://kennebell.net/KBWebsite/Common/pdfs/fuelpumptech.pdf All tests run at 18°/11.5 AFR. 22° makes another 28HP. 3” pulley with 148mm Throttle Body, 80lb injectors, re-tune and race unleaded made 672RWHP (auto) and 694RWHP (manual) at 11-12 psi.

BOOST-A-PUMP™

Stock 5.7, 6.1, 6.4 pump is 189L/HR and 320 (17.5V) - 401 (21V) with Boost-a-Pump™. Hellcat stock is 340L and 590L (17.5V).

50 STATE LEGAL

No worries about not being able to register or sell your vehicle - or removing the supercharger kit and calibration to pass a current or future (it’s coming) emissions inspection and/or tailpipe testing.

2011-'17 6.4 Challenger/Charger 2.8 Black Liquid Cooled Billet Twin Screw with Mammoth™ Inlet System. 775RWHP rated BOOST-A-PUMP®, billet fuel rails and factory tuned for 91 or 93 octane (manual or automatic trans). Plenty of room to grow with big 2.8 or optional direct bolt on 3.0, 3.6 and 4.2. Lower supercharger HP consumption allows use of 6 rib system up to 18 psi.
6.4 MANUAL TRANS*
*Auto trans cars are 20HP lower

STOCK vs. KENNE BELL 91 OCTANE (6.5 PSI)
KENNE BELL 6.4 CHALLENGER REAR WHEEL HP & TQ
RWHP & TQ. DIVIDE BY .85 FOR ENGINE HP & TQ.