



RPM PROJECT

GREEN MACHINE

PART II

The Fun Begins!!

Story & Photos By Brian Hansen

What's Next?

The next step in getting our 1966 Chevy Bel Air closer to getting on the road is to install the Big Block Brawler 489 big block Chevy, Thompson's Transmission TH400, Midwest Converters Ultra Damper torque converter and AEM Electronics Dyno-Shaft on-board dynamometer. Our "Green Machine" previously had a big block nestled between the frame rails, so installing our Brawler was a snap. With the help of the Nickey Chicago ace wrenches Cory Clayton and Tom Dietz we now have the engine, transmission and torque converter installed.

Midwest Converters- "Ultra Damper"

With 1180hp and 1069 ft lbs of torque at our disposal, we knew that a custom made torque converter would be needed to harness the power. With over 40 years of experience in building torque converters, and transmissions, we reached out to our friends at Midwest Converters (located in Rockford, Illinois) to build one of their revolutionary Ultra Damper Converters for the Bel Air. The Ultra Damper is a new design specifically for drag racing applications and features a built-in viscous damper. This dampening system

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absorbs, and dissipates, torsional vibrations created in the drive train. Reduction in this undesirable energy increases horsepower to the rear wheels and reduces transmission wear.

Midwest Converters has been developing the Ultra Damper Converter for over 2 ½ years and is now offering this revolutionary converter in 9", 10" and 10.5" diameters with stall speeds ranging from 2,500-5,500 rpm. The CNC machined Ultra Damper Converters are also available with the Hydra Lock option that reduces converter slippage on the top end to near 0%. The converter that Midwest Converters owner Dennis Snead designed for our Bel Air is their top of the line "Annihilator" Series 10.5" diameter converter with a "Brute" sprag and aforementioned Hydra Lock option.

Thompson's Transmission- Stage II TH400

Mike Thompson (who owns Thompson's Transmission in Roscoe, Illinois) put his 32 years of transmission building experience into the Turbo Hydromatic 400 for the Green Machine. No stranger to big cars with lots of horsepower, Mike owns a 4,250 lb 1968 Impala (powered by a nasty 509 BBC) that has run 9.40's through the mufflers!

As Mike stated," I chose the HD GM case for this application and put in the



Midwest Converters Annihilator 10.5" Ultra Damper Converter for the Green Machine can handle over 2,000hp and comes with a Lifetime Warranty from Midwest. The patent pending Hydra Lock option included in this converter has shown performance improvements of 1 to 1.5 seconds and 3-4 mph in testing on a 7 second drag car. This converter will be the first, and last, torque converter that this car will even need.

Shown here is the the data broadcast device (controller housing) for the AEM Dyno-Shaft installed on the tailshaft of the TH400 transmission. Laboratory-grade strain gauges in the slip-yoke measure torque at the driveline and an optical sensor in the controller housing allow the rotational speed to be measured. The combination of real torque and RPM readings allows the Dyno-Shaft to output horsepower readings as accurately as any dynamometer.

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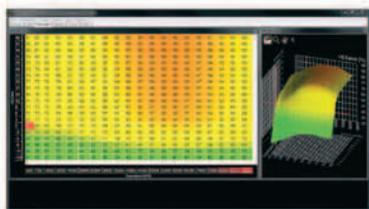
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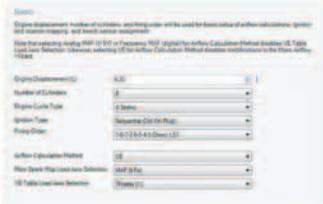
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same parts that I've been using in heavy hi-powered cars for years. There are a lot of high dollar parts out there that could be used, but I've found that a TCI forward hub, 36 element 2nd sprag, Hipster Valve Body and Red Line Clutches are reliable for these kinds of applications, so that's what I use."

AEM Electronics Dyno-Shaft

Whether you have a stout street machine or a 5 second Pro Modified, having the ability to monitor your vehicle's performance is crucial to maximizing its performance. In the not so distant past data logging was something that only the "Pros" did. Gathering information was expensive and so complex that it required someone with an extensive computer background just to operate the system. AEM Electronics has released a real game changer with its Dyno-Shaft on-vehicle dynamometer that provides true on-board power measurement, and when combined with its AQ-1 data logger racers can log up to 8 channels (plus any other CAN

AEM Performance Electronics Dyno-Shaft is an on-vehicle dynamometer device that will deliver real-time horsepower and torque numbers while the Bel Air is being operated in real world conditions. The data can be stored on a data acquisition device like the AEM AQ-1 data logger or a number of other data logging devices.



Waiting patiently as we prepare the Green Machine! First we'll unbolt the hood of the Impala, then unfasten the Brawler from it's pallet, and it's go time!



In last month's issue we published a photo taken in late 1966 of legendary drag racer Dick Harrell and ace Nickey mechanics Lou Anzelmo/Mike Terrofina installing the first 427 in a 1967 Camaro. Pictured here is the 2013 Nickey team (CEO Stefano Bimbi, and Nickey tech's Corey Clayton/Tom Dietz) installing the Big Block Brawler 489BBC in the Bel Air.

enabled AEM devices) for about the entry price of most competitor's data logging systems.

Revolutionary is the first word that comes to mind... no pun intended! The Dyno-Shaft housing attaches to the transmission tail-shaft housing and a precision chrome moly slip-yoke replaces the factory yoke. As the driveshaft spins, the strain gauges in the calibrated slip-yoke measure the twist in the driveshaft before the rear wheels, and the optical sensor in the controller housing measures driveshaft RPM. This data is converted to the true horsepower numbers that are unaffected by factors like crosswinds, vehicle aerodynamics, uphill or downhill transitions, vehicle weight or a variety of other factors that affect GPS/Accelerometer-based products.

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that you can muster and applying it to the ground. That's the goal right? The Dyno-Shaft will allow us to see exactly how much power can be applied before the tires break loose on the Green Machine. Based on the data collected from a pass we'll be able to make the necessary adjustments to the ignition timing, chassis, shift points, launch RPM, nitrous tuning, and ultimately maximize our vehicle performance.

Whether you're running an automatic (like our TH400), or manual,



Our big block fits, with plenty of room to spare! It's amazing how big the engine compartment is in the B-Body cars from the 1960's. The Big Block Brawler is in place and ready to get a serious exhaust system in the form of Stainless Works 2 1/4" primary headers, a trick set of Dynatech mufflers and 3 1/2" X-Pipe.



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transmission the Dyno-Shaft can provide you invaluable data. For automatic applications torque converter stall speed, and slip in each gear, are logged for analysis. Manual transmission tuning can be rather challenging and this is where the Dyno-Shaft can take some of the guess work out of tuning a clutch. Launch RPM, changes in clutch slippage and RPM variances down track can be identified to make the necessary changes to reduce ET and increase MPH.

Data acquisition made easy. In the next issue we will introduce you to the AEM Electronics AQ-1 data logger that is being installed in our 1966 Bel Air "Green Machine". The AQ-1 is affordable no matter what your budget, and best of all it's user-friendly enough that anyone can use it to get the data that they need to maximize their vehicle performance. Stay tuned...



Sources:

Nickey Chicago
(630) 377-1222
www.nickeychicagoinc.com

AEM Electronics
(310) 484-2322
www.aemelectronics.com

Thompson's Transmission
(815) 877-2550
www.thompsonstransmissions.com

Midwest Converters of Rockford Illinois
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Since we expect the Green Machine to exceed 150mph in the quarter-mile, a DJ Safety parachute was a must! **Right:** Just like in the 1960's Nickey conversion cars received special emblems on the dash to remind lucky passengers that they were in a true high-performance car. Emblems, or decals, were often also located on the front fenders and trunk lid to warn would-be stoplight warriors that you meant business.

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