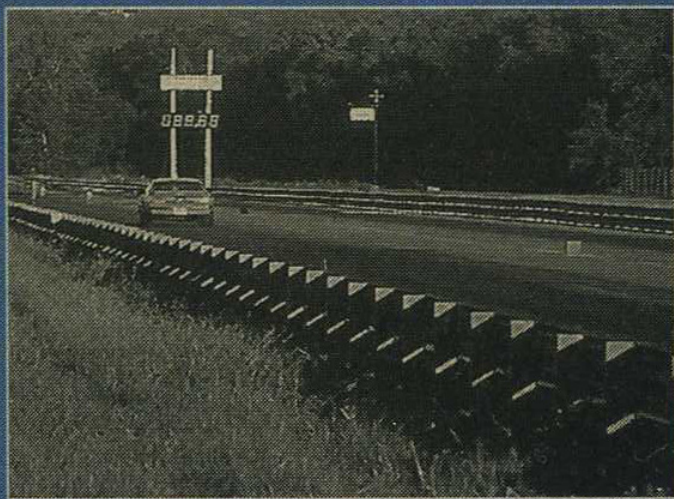


Here Level 10 technician Rick Moore installs our rebuilt trans and Vigilante converter into Magnum TPI. The Vigilante's more efficient design and higher stall speed were felt immediately. The higher stall speed did swallow some of the shift harshness of the Level 10 Hydro System, making things livable around town.



Magnum TPI off on another run. We were continuously dogged with a persistent stutter at the top of second gear (and sometimes first) around 4400 rpm. This has no doubt cost us serious ET. We're looking into several possible causes including a bad fuel pressure regulator, incorrect rotor phasing, and bad injectors. We'd like to locate the problem before we upgrade our engine management system later this year.



We really love our DOT-legal Mickey Thompson ET Street tires. We bolt 'em on at home and drive to the track (a 45-minute trip) with no problem. We've found 12 psi to be nearly ideal for Magnum TPI. These are the same tires and rims we used to go 11.94 with Thunderchicken and 11.47 with Old Gray.

We found TPI expert Kevin Crane hanging out on the [www.thirdgen.org](http://www.thirdgen.org) tech message board. He volunteered to help us burn a better program for Magnum TPI but the harder he tried, the slower it ran. Kevin's '82 Z28 (converted to a TPI 350 from an '89) runs nearly as fast as Magnum TPI but with far less hardware.





promised to run Magnum in a grudge run against Keith Maney of Next Generation. You may have seen Keith's immaculate '88 Formula 350 in the Next Generation catalog or on the tour circuit. It's one nice TPI 'bird and we wanted to play. Unfortunately, the Next Gen car got the best of us. But Keith did

## MAGNUM TPI PERFORMANCE CHART

ET                      trap                      speed                      60-ft.

Best run prior to Vigilante converter:

..... 13.54                      100.5                      2.05\*

Runs made with Vigilante & slicks

1. .... 13.36                      102.3                      1.92

2. .... 13.28                      102.3                      1.92

3. .... 13.10                      102.9                      1.80

4. .... 13.01                      103.1                      1.77

5. .... 13.02                      103.3                      1.80

6. .... 13.00                      103.0                      1.77

net ET gain: .54 seconds

\*run made with Yokohama A520 radials

throttle about 5 psi no matter what the base setting was. Right now we're guessing that we have a faulty fuel pressure regulator. (Fuel pressure should go up, not down when the vacuum signal goes down.) We'll look into this and get back to you soon. **GMHTP**

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help us by rigging up a fuel pressure gauge before the run. With the gauge taped to the outside of the windshield we discovered that the fuel pressure would go down at full



# CHIRPIN' AWAY



## A VIGILANTE TORQUE CONVERTER SHAVES A HALF SECOND OFF MAGNUM TPI, BUT WE'RE STILL LOOKING FOR 12S.

by Johnny Hunkins  
photography by the author,  
Kevin Crane and Dave Localio

**W**hen we last left our '88 Firebird Formula 350 project car, Magnum TPI, we had just replaced the stock fuel pump at Corbin's Performance Center in Agawam, Mass. ("Kock Bottom," Jan. 2001). The OEM pump had failed almost immediately after upgrading the induction components, putting us so hopelessly behind schedule that we have officially thrown our editorial calendar out the window.

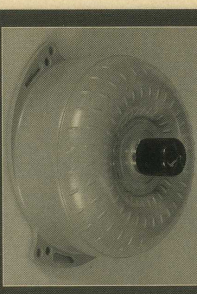
Sharp-eyed readers will remember that after replacing the fuel pump we squeezed a 13.54/100.5 out of Magnum TPI at Englishtown during our last GMHTP Challenge of the year. This was achieved with a stock shortblock, a stock 700-R4 trans with an STP shift kit, the stock 9-ball rear, radial

tires, and an induction system comprised of a ported stock plenum, ACCEL 1000-cfm throttle body, ported ACCEL Street Kam runners, Extrude Honed ACCEL Superkam base, Extrude Honed JFS 23° heads, a Comp Cams Extreme Energy cam, SLP 1 1/4-inch headers, dual Kardon Tech cats and a cat-back SLP exhaust.

That's a lot of parts for a 13.54 ET, but we were unable in that setting on that particular day to maximize our ET without sticks and some minor tuning. Still, we expected more from the trap speed, which according to our informal survey of experts, is about 4.5 mph shy of where it ought to be for a TPI engine with 9:1 compression and aluminum heads.

We're not at all happy with this state of affairs, we're supposed to be the experts by showing you how to do things right. For failing to do this, we apologize, but we must soldier on humbly until we find the root of

our problem. However, take heart! Tuned Port brethren, for we have good news for you.



We poked up .54 second in ET by installing a Precision Industries 9.5-inch Vigilante converter (\$700). Each Vigilante is made to order and comes with a full 2-year warranty and one free steel adjustment. All Vigilantes go out the door capable of handling 1200 hp.

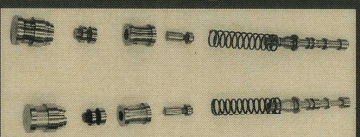
GM/HIGH-TEC—PERFORMANCE

intend to tell you, where!

Why the transmission thought? When we made our three runs at E-town, we noticed a shuddering at the top of first and second gear and a reluctance to up-shift at full throttle. It was necessary to lift the throttle to get third gear to shift—a technique that had a negative effect on both ET and trap speed. (How much, we're not sure but it could easily cost a quarter second and 2 mph.) Not knowing the true condition of our trans (we bought the car when it was 11 years old), we reasoned that even if the trans wasn't at fault it would be a good idea to have it gone through. Therefore we brought it to our friends at Level 10 in Hamburg, New Jersey, where it was completely rebuilt. While things weren't in terrible shape, we don't think it could've handled our future upgrades without generating so new internals were a good preventative measure.

The real exciting news was that while the trans was out, we swapped the old factory torque converter and sanked in a 9.5-inch Vigilante converter from Precision Industries. Yeah, we've done a story or two about Precision's Vigilante before (see "Shall

When we had our trans rebuilt at Level 10, they installed one of their Hydro Systems. These two pressure regulator kits, we go into the ported line, pressure within the transmission. They are very different, however. The one on the left is stock and the one on the right is the Hydro System by Level 10. From the top, the pressure regulator valve from Level 10 raises overall line pressure throughout the trans via a different seat height and spring tension. The reverse boost valve has a larger piston for more line pressure in reverse, and the bottom shows a larger-diameter TV boost valve measuring .50 inch. The larger TV boost valve works in conjunction with the pressure regulator valve. The Level 10 assembly is designed to supply a greater volume of fluid to the converter, and is matched to the Vigilante's design.



Tactics," November 2001), but you can never get enough of a good thing! You may recall that staller Jay Heath picked up nearly 4 tenths with a 2800-rpm stall Vigilante in his 1996 1/A. For an investment of \$700, it's a far better value than what we had previously accomplished with over \$4000 in induction hardware and port work!

Still, \$700 is a lot of money, even for a guaranteed improvement. What you get, however, is a lot. For starters, Precision manufactures each converter to order. Each unit is designed to handle 1,200 hp no matter how tame the application. That's because each piece employs a pre-hat treated 4130 alloy turbine hub, anti-halting plates, billet steel apply cover, Torrington stator bearings, furnace-brazed turbine and impeller fins and an industry-leading .25:1 stall ratio. This thing is built like an M1 tank and that's the way! Precision likes it. (They tell us it saves them the headache of warranty problems.) If you don't like the stall, Precision will give you one free stall adjustment during the lifetime of the converter—a rather expensive operation that no other converter supplier provides for free. Change your engine combination? Don't buy another converter, send it off to Precision and they'll tailor it to your new needs.

With the trans rebuilt and the Vigilante converter in, we felt the difference immediately. A whack of the throttle, the tires spin and Magnum TPI gets sideways! Shifts are crisp with our Level 10 Hydro

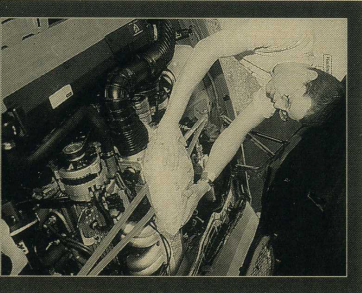
System (their term for a shift-improver kit) and the shift lever now responds more precisely thanks to a new shift cable. We were good to go!

Seat-of-the-pants feel is altogether different from ET, so we were off again to the track this time to nearby Island Dragway in Great Meadows, NJ. (We, in this case, meaning the author and friend Kevin Crane, a self-styled "Tuned Port" enthusiast we met through the [www.tintgen.org](http://www.tintgen.org) site.) Right off the bat we noticed two things: the car was much quicker (it ran 13.36/102.3 on the first run), and the stuttering was still there at the top of each gear. The trans rebuild had eliminated the need to lift the throttle between shifts, but we now knew for sure that the stutter was not due to a slipping trans or converter.

Try as we might to adjust fuel pressure, change the timing or reprogram the computer (Kevin flashed several chips for us that day), we kept coming back to the same old ADS chip that came with the car when we bought it used. As long as we worked with this program, the times steadily dwindled. We honed the driving technique, which consisted mostly of cooling the manifold with ice, doing a good burnout, staging shallow, and leaving just off idle. Once the technique was perfected, the ET stabilized around 13.0 with a best run of 13.00/103.0.

Try as we might to break into the 12s, it wasn't going to happen that day, or even that year. This was our last planned track outing before the winter break. Bummer.

We did manage to pick up one more clue to the high-end stutter when we drove Magnum TPI down to the GMHTP Nationals in Bristol, Tennessee. We had earlier



Back at the track, the author prepares Magnum TPI for more quarter-mile passes to match temperatures and laps of ice before the heater can over-ET by two tenths or more.