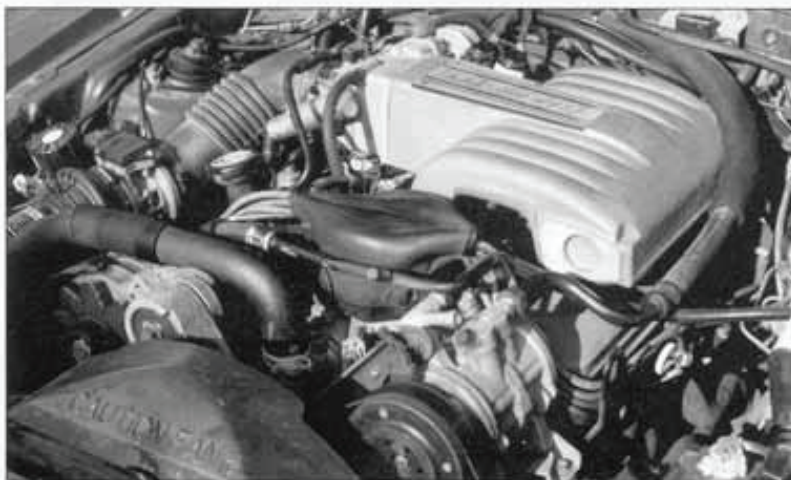


By Alan Scrimager  
PHOTOGRAPHY BY THE AUTHOR

# IT'S AUTOMATIC

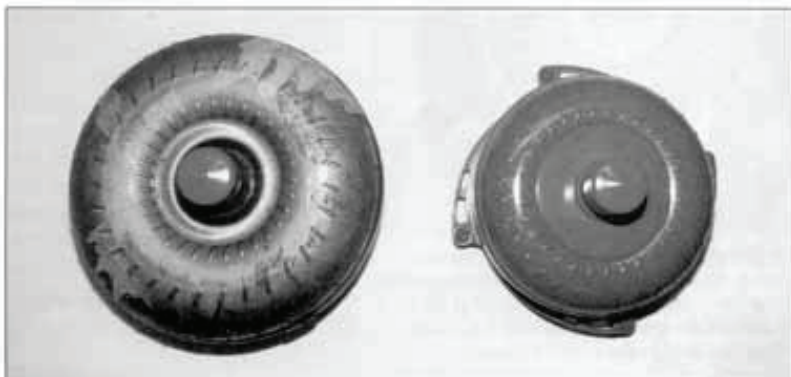


Your basic bone-stock 5-liter V8 powered Don Hedrick's coupe to consistent 15.5s in the quarter-mile.

## Knocking a second off your AOD Mustang's ET.

**W**hen the Fox platform Mustang was introduced, it was common knowledge that the 5-speed was the hot ticket for performance. Automatic-overdrive-equipped Mustangs suffered routine beatings from 5-speeds on the street as well as at the drag strip. Many 5.0 owners swapped out the sloppy-shifting, performance-robbing AOD in favor of the traditional T-5 or one of the other high-performance trannys available on the market.

Although when used to its ultimate potential, a T-5 car is generally faster than an AOD, there are two



Notice the difference in size between the stock converter (left) and Precision Industries' Stallion. As Terry Hedrick noted, bigger is not always better. The 9.5-inch Stallion is a huge improvement over the stock 12.25-incher.

problems inherent with the design of the 5-speed for drag racing applications. First and foremost is the inability for all but the most skilled of drivers to be consistent with shifts and shift points. Have you ever heard of someone missing a shift with an automatic? Second is the durability factor. If you do invest in one of the higher-quality 5-speeds, the clutch becomes the weak link in the drivetrain. This is especially apparent in higher-horsepower applications.

Enter Don Hedrick of Memphis, Tenn., and his '89 Mustang LX 5.0 coupe. Totally stock except for the addition of a K&N filter, Flowmaster mufflers and 14° advance in the timing, Hedrick's AOD-equipped Mustang ran consistent 15.50s at 90.5 mph. In fact, Don had bracket raced his car several times, and because of his car's consistency did quite well.

But Don, like any true Mustang enthusiast, wanted to go faster; he wanted more. Because there are so many stock-motored Mustangs running in the 13s, Don realized that it would be stupid to make upgrades to the engine when the full performance potential of his car had not been tapped.

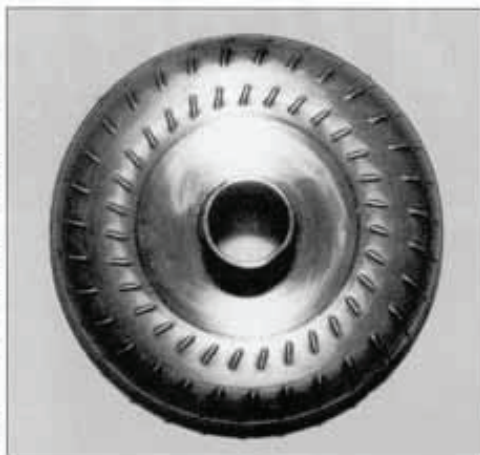
He resisted the temptation to build the engine knowing he had a weak drivetrain, and he began to seriously consider a torque converter change and transmission upgrade.

Don began to search for a torque converter. During one of the weekly test-and-tune sessions at Memphis Motorsports Park, he met Terry Hedrick (no relation) of Memphis-based Precision Industries. Terry had been looking for a stock or nearly stock 5.0 Mustang to put one of his torque converters in and get some real-world test results. Don and his car were perfect candidates.

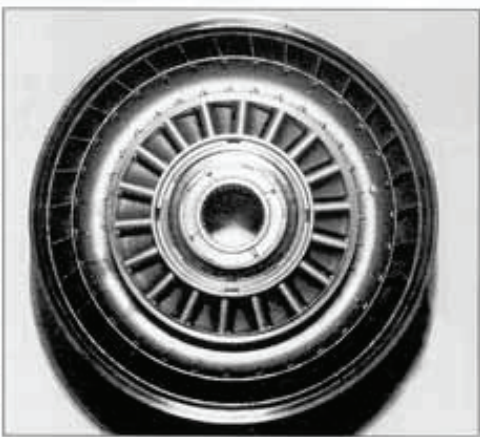
Baselining the car with hard street radials and the stock 2.73 gears—yes, we said 2.73 gears—the car would run consistent 15.50s within a hundredth or two each pass. In fact, with such a low rear gear the car went through the traps of the quarter in second gear at about 4500 rpm. Slicks at this point



*All impeller fins are furnace-brazed for strength and rigidity. The angles of the impeller fins are also important in determining the stall speed.*



*This is the side of the converter that mounts to the transmission. The impeller hub is surrounded by an anti-ballooning plate to prevent the possibility of expansion due to high rpm or high oil pressure.*



*This is the Stallion in preassembly stage. The stator has been placed inside the converter and awaits final assembly. The stator working in conjunction with the rest of the converter will produce a torque multiplication factor of 2.56:1 at full stall, as opposed to 1.97:1 (stock).*

would have been a waste of money since the car wouldn't even spin the street radials. The baseline passes were 15.524/90.94 (2.311 60-foot), 15.579/90.79 (2.353 60-foot) and 15.573/90.46 (2.323 60-foot).

To keep all testing and results consistent, the car was always foot braked and launched in First at 2100 rpm. At 5400 rpm, it was upshifted into Drive to pull second gear. Once the trans shifted, Don pulled the shifter back into Low to lock it there. Although Third was not needed with the 2.73 rear gears, future testing would require shifting the car back into Drive at 5400-5500 rpm to reach Third.

After baselining the car in stock trim, we took it to Precision Industries, where Terry and his crew installed their Stallion 9.5-inch torque converter (see "Torque Converters: The Hows and Whys," page 164). Stallions can be equipped with stall speeds ranging from 2200 to 4000 rpm. Our particular application was equipped with a 2800-rpm stall, which would put the launch and shifts closer to the peak powerband of the engine.

Driving the Mustang on the street after installation of the Stallion proved to be quite a different experience. Because of the low rear end gear and the relatively high stall speed compared with stock, the car had totally different characteristics on the street. In fact, Don couldn't believe that just a torque converter change could make such a difference. He now found it hard to leave a red light without going up in smoke. Even more exciting was the fact that Terry said that with the installation of a numerically higher rear end gear, the car's driveability would increase even more.

Although we had a set of 3.73 gears on hand, we didn't install them until we had a chance to test the car at the track with the Stallion in place. I will say that it was easier to smoke the tires on the street than it had been, and that the car actually felt quicker. However, that was just a seat-of-the-pants

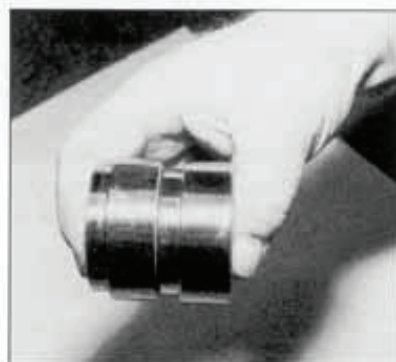
judgment call. The real proof would be at the track.

Terry had predicted an increase of a half-second. I was a little more skeptical and predicted three- to four-tenths. Much to Don's delight, Terry turned out to be right on the money.

We arrived at the track and immediately made our way to the front of staging. With the temperature hovering around 95° with about 100 percent humidity, we made our first pass, a 15.3 at 91.24. We were disappointed, we were dejected, but we were also spinning the heck out of the tires! Yes, tirespin was now a problem. Luckily, we had secured a pair of 26x8.5x15 Mickey Thompson ET Drag slicks mounted on stock 10-hole Mustang rims. We set the



*Notice the race on the inside of the stator. It is manufactured from a special alloy that is much harder than the stock piece to resist brinnelling (see photo below). The stator is used to reverse the direction of fluid coming out of the turbine. This gives the converter its torque multiplication capability.*



*Notice the shiny ridge on the race on the left. This is called brinnelling and should not be there. Eventually, this will cause the race to fail and the converter to lose its stall. The race in the Stallion is made of a special alloy to prevent brinnelling.*

Mickey's at 19 psi, did a short burnout and alleviated our traction problems.

The real trick was learning to drive the car with the new torque converter. Once we got the launches down pat, we pulled three consistent 15.0s and some change and even one 14.994 at 91.30 mph (2.192 60-foot), the quickest pass the car had ever made. All in all, we made a total of eight passes, allowing 15-20 minutes between runs for cooldown. However, the car was still going through the traps in second gear. We did manage, with the help of the Mickey Thompsons and the Stallion converter, to knock a consistent half-second off our quarter-mile times. Plus, our best 60-foot was now 2.155, almost two-tenths better than stock. Now it was time to install the gear.

Don opted for a 3.73 gear since his car sees more street time than track time. Many Mustang houses recommend 4.10s for maximum performance with the AOD, but Don really wanted a livable gear to use for the long-distance drives he makes for his job. The 3.73 combined with the overdrive capability of his AOD made for a really nice street combo.

Installation of the 3.73 is pretty straightforward, but rather than do it ourselves in the parking lot of my apartment complex, we opted to let local Memphis Mustang enthusiast Tom Beaudette perform the installation. The installation took about two hours and was done right the first time. Tom has a lot of experience setting up Mustang rear ends and had us on our way quickly.

The gear in conjunction with the Stallion converter made for an awesome combination. Don's car felt like a brand-new machine. We could hardly wait to get the car to the track.

As luck would have it, test and tune was canceled Thursday night due to rain. The only thing worse than having a part lying around the house that you want install is having it installed and not being able to go to the track and test it. It was kind of like waiting for Christmas morning. It's the anticipation.

Finally the next Thursday rolled around. Another beautiful 100°, 100-percent-humidity day. After a few shakedown passes, we slashed

another four-tenths of a second off our quarter-mile times. The car now ran consistent 14.60s at over 91.5 mph with 60-foot times in the 2-ohs. In fact, we even turned one 1.997 60-foot time by knocking the Mickey's down to 17 psi. Our best runs were a 14.668/91.84 (2.011 60-foot) and 14.642/92.30 (2.063 60-foot).

Needless to say, we were impressed with the results thus far; however, we both wanted to turn a 14.50 before the night was over. Earlier in the week, Don had visited another local Memphis performance house, Hypertech Inc., and purchased a Hypertech Power Module, Power Stat and Power Pulleys.

The track announced last call to the lanes, and we decided to install the Hypertech Power Module before we made our last run. Don disconnected the battery and moved his timing back to stock, per Hypertech's instructions, and I installed the Power Module. Installation took about 10 minutes, and we made it to the back of staging with about five minutes to spare.

With no other changes or chances for tuning, we ran a 14.562 at 92.62 mph (2.028 60-foot). If we had more time, we could have worked with the timing for what we believe could have been even greater gains. In any event, the Power Module seemed to provide us with the extra horsepower we needed to run the 14.5 we were looking for.

By making a total of four changes (including the slicks), we were able to knock a full second off the quarter-mile times of Don's AOD car. Time constraints did not allow for the installation of the Hypertech Power Pulleys, nor for the tuning of the car with the Hypertech Power Module installed. Judging from results on other cars and previous experience, the Power Pulleys should be good for at least another couple of tenths. That increase would put us right on the verge of breaking into the 13s.

Don plans to install the Power Pulleys and a Precision Industries high-performance AOD transmission. The goal is to put the car into the high 13s. Stay tuned to MM&FF to find out what happens. ▶



Terry Hedrick holds one of his prized Stallions. All Stallions are custom-built by hand for each individual application, are electronically balanced and leak tested, and are backed by a 1-year unconditional guarantee.

## TORQUE CONVERTERS: THE HOWS AND WHYS

While installing the Stallion in Don Hedrick's car, Terry Hedrick, the main man at Precision Industries, gave us a brief introduction to torque converters and how and why they work.

The most obvious difference between a Stallion and the stock converter is the overall diameter of the stock piece (12.25 inches) as compared with the Stallion (9.5 inches). Terry explained something we all know well: bigger is not always better.

In layman's terms, the stock converter was installed in the Mustang as a compromise between performance and economy. The stock converter's 1800-rpm stall is far below the stock 5.0's powerband. However, when combined with a numerically low rear end gear, this converter makes for decent fuel economy and decent performance. At the track, unfortunately, this translates to sluggish performance, slow 60-foot times and anemic quarter-mile ETs.

The Stallion's smaller size allows engine stall to be increased without losing the efficiency of the converter. When combined with a taller rear end gear, the Stallion dramatically improves 60-foot times as well as quarter-mile ETs. By placing the 5.0 in the powerband from the get-go and at every shift thereafter, it actually increases the efficiency of the already potent 302.

Precision manufactures more than 30 different models of the Stallion. Each one is hand-made and electronically balanced to ensure quality. Factors such as car weight and power produced are important in determining the correct stall speed and interior fin angle.

Terry went on to explain that Precision beefs up the Stallion to handle the rigors of consistent street/strip action. Precision wants to make sure its converters are strong, as it offers a year-long unconditional warranty on every converter it sells.

To understand exactly what makes the Stallion so strong and efficient, you have to look inside the converter itself. All of the fins are furnace-brazed for strength, rigidity and better efficiency.

The inner race of the stator is made of a special alloy that resists brinnelling, and the hub is heat-treated to resist wear and breakdown. The impeller hub is protected by a special anti-ballooning plate to prevent the possibility of expansion due to high rpm and high oil pressure in the converter.

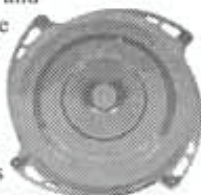
By taking all of this into account, Precision can produce a torque converter that is almost bulletproof. Terry said that if he were to make only one modification to an AOD or AOD-E Mustang, it would be changing the converter.

We all know that big heads, lumpy cams and high-flow intake manifolds make power up high. You need something to get your engine into the powerband quickly, and that's where the Stallion comes in. —A.S.

# NOW! 100% 2 YEAR WARRANTY

## AOD, AODE, E40D Lock-Up and Non Lock-Up Converters

Precision Industries' New 9.5" Stallion Converter is available for all 1994 and later Mustangs and Thunderbirds. The Stallion can be used with stock, turbo, supercharged or nitrous engines and your vehicle remains completely streetable.



You will see gains of up to 50 horsepower to the rear wheels, cut 2 tenths off your 60 foot time, and over 1/2 second on your 1/4 mile E.T.



Every Stallion Converter is custom made for your specific application. And, when your needs change, we'll adjust your stall speed FREE at any one time during your 100% 2 year Warranty period. Stalls available from 2400 to 5800 RPM's and can be shipped within 3 to 4 working days. No cooler is required for this easy bolt-on installation and the Stallion will not void your factory warranty.

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