

PROJECT JUDGE

PHASE II

LOOK OUT, ALL YOU HORSES, BIRDS, FISH AND SNAKES!
HERE COMES A STREET-LEGAL, 12-SECOND JUDGE! NO BRAG, JUST FACT.

Can Project Judge find happiness in the world of today's super-cars? The answer to that question is a resounding "YES" as Project Judge, still a street-strip machine, has broken into the 12-second bracket and still has a long way to go to completion. We have even picked up a trophy on the way as our Judge grabbed the gold in E/S at the Bakersfield Fuel and Gas Championship in March. Just how did we turn our super Pontiac into a 12-second dual purpose screamer? Here's the answer.

As we left Project Judge in the April issue of POP ROD, it was a 13.65-second, 104.68 mph machine. At that point we were still running a 3.55 rear gear and a three-speed transmission, and the engine had only received a minor tuneup. After our last session at the drag strip we took the Judge to our garage and installed a set of 3.90 gears (available from Pontiac). Back at the strip (Orange County Raceway) once again, we raised our speed to 105.88 mph and lowered our ET to 13.55 seconds. Our problem now centered on that lovely three-speed transmission. As we mentioned in our last installment, the three-speed never shifted twice the same way. It was very erratic and under no circumstances could a full power shift be made. There was only one thing to do: change to a four-speed. And if you're thinking of buying a Judge, bypass that standard three-speed and go with the optional Muncie four-speed. It's well worth the extra cost.

Since we were going to have the transmission out of the car anyway, we decided to change our clutch assembly, just to be on the safe side. We contacted Harry Weber at Weber Speed Equipment Co. in Santa Ana, Calif., and arranged for him to ship us one of his complete clutch assemblies. Included in the assembly were a 40-lb. steel billet flywheel, a 10½-inch diaphragm pressure plate and a 10½-inch aluminum-backed clutch disc. With this setup installed we felt a lot safer when pulling those high rpm shifts! After installing the Weber clutch unit we slipped the Muncie M22 four-speed into place. It bolted up perfectly; even the hole in the floor for the Hurst shifter did not have to be moved from the position it occupied with the three-speed. A few words to the wise if you plan to go through this

same procedure: the yoke on the three-speed and the yoke on the four-speed have the same inside diameter but there is one tooth difference between the two. You'll have to change yokes if you change transmissions, but the same driveshaft can be used. And when you change to the Weber clutch setup you'll either have to use a slightly longer throw-out bearing than the stock unit (try a Chevrolet garage; Chevy has three different throw-out bearing lengths and they all work on Pontiacs) or lengthen the clutch rod.

There is one other thing that we should warn the readers about when changing from a three-speed to a four-speed in a Judge. Hurst doesn't make a competition four-speed shifter for the GTO! Since four-speed GTO's come equipped with Hurst linkage from the factory, Hurst doesn't make a separate kit for them. We ran into this problem when we tried to find linkage for our Muncie, but fortunately Hurst's Shifty Doctor, Ed Beyer, came to our rescue. In about five minutes he disassembled a couple of shifters he had laying around and made us a composite competition four-speed shifter from the parts. Needless to say, it worked beautifully. If you happen to run into the same problem, give him a call or write a letter to Hurst Performance Inc., Warminster, Pa. 18974.

We had planned to go back to the strip after installing the new clutch assembly and four-speed to determine just how much the new items would affect our ETs and speeds, but Mother Nature was against us. With two weeks of rainy weather forecast, we decided to "freshen" our Judge's engine, so we took the car to Larry Kennedy at K-Kar Engineering for some "super tuning". The Royal Racing Team had supplied us with a Royal Bobcat package, so Larry went to work on the installation. Since we covered this installation procedure thoroughly in the March '69 issue of POP ROD, we won't go into great detail; we'll just mention some of the specifics. First of all, the Royal kit includes two thin head gaskets, two blocked heat riser intake gaskets, a carburetor jetting package, a distributor modification package, special hydraulic lifter high-rev kit and eight Champion UJ-10Y spark plugs. We did not use the distributor modification kit since we had previously reworked our stock distrib-

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First step (and most important) in the Royal treatment was the removal and cc'ing of the heads. Larry found the average combustion chamber cc's to be just above 69 as compared with the minimum allowable of 65, so the heads would have to be sent out to be milled. Larry told us that Pontiac heads lose one cc per .005 milled, so a cut of .020 would bring our average combustion chamber cc down to the 65 figure that we were looking for. After the heads were back, Larry performed a valve job on them; nothing trick, just a straight valve job since the car was to be driven on the street as well as thrashed on the strip. Another important step followed: checking for correct valve spring height. The average spring height on our heads was 1.656 so Larry added .060-inch shims per valve spring to bring the spring height to 1.596. This would help us to turn the high rpm needed to win those all-important races.

With the heads reassembled and back on the engine, Larry installed the blocked heat riser intake manifold gaskets and the intake manifold and carburetor. The "poly-lok" rocker arm nuts were installed next and the engine was cranked. Each lifter was adjusted out until it was noisy and then tightened down carefully until the noise stopped. Then the rocker nut was turned about 1/8-turn more and locked down. This adjustment would allow maximum rpm from the hydraulic lifters. Caution: when cranking the engine for the first time after installing the Bobcat package, make sure that the lifters are as close to final adjustment as possible. It's very easy (if the lifters are adjusted too loose at



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Our final step in the Bobcat installation was to rework the Rochester Quadrajets. Larry removed the #72 primary jets and replaced them with #73 jets. He left the secondary metering rods as they were because we had modified them previously (April '69 POP ROD), but he did replace the stock needle and seat with the one included in the Bobcat kit. The Bobcat needle and seat has a Buick part number 7023896 and has a bigger diameter inlet than the stock needle and seat (.136 compared to .125). The stock accelerator pump was also exchanged for a modified one which was approximately 3/16-inch shorter. Larry cleaned the throttle bores of casting flashings, adjusted the throttle plates and we were ready for the strip.

Before we returned to the strip, we headed to Ak Miller's Garage once more to put his dyno to good use. Jack Lufkin again handled the chores and our Project Judge responded with 225 hp at the rear wheels. Jack reported that the Judge was holding power well over a broad range, starting around 4000 rpm and holding steady until just over 5500 rpm. Our timing was checked and set at 36 degrees total (20 crank degrees in the distributor), and our jetting looked to be just right according to the analyzer, so our next step was to get some more runs in at the strip.

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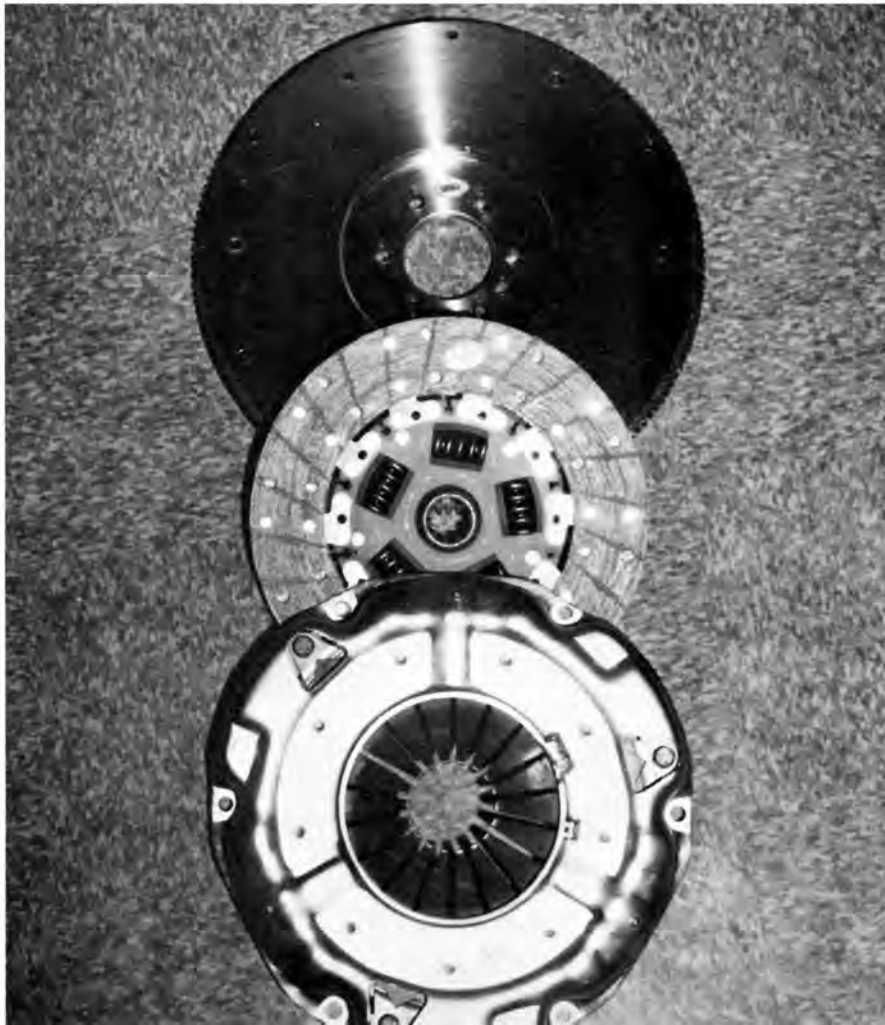
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Goodyear D-5 slicks, compliments of Gerry Tiffan, lowered our ETs from 13.20s to 12.86. New D-5 compound may be the answer for stockers and modified production cars.

Weber steel billet flywheel, diaphragm pressure plate and aluminum-backed clutch disc gave Project Judge one of the quickest and cleanest releasing clutch assemblies we've ever used.



year 8.00/8.50 x 14 slicks (D-3's) netted us 13.20 ETs at speeds of 108.30 mph. We had lowered the ET by .35-second and raised the speed almost three mph, but we had just begun to play! Unfortunately, our old D-3 compound Goodyear slicks weren't allowing us to come off the line as hard as we wanted, but Goodyear's man-on-the-spot, Gerry Tiffan, came to our rescue with a pair of 8.00/8.50 x 14 Goodyear D-5's (which were experimental at the time but which should be available by the time you read this). We mounted the new slicks but ran into some distributor trouble at the same time so we were unable to better our previous times, although we did manage to win our class. It seems that our stock distributor had a defect, one of those once in a million things, so we had to replace it after the Bakersfield meet. Yes, we used another stock distributor that had been reworked by Jack Lufkin, utilizing 20 crank degrees in the distributor with full advance at 2500 rpm. Jack checked the distributor out of the Sun machine and reported that we had no point bounce at 8000 rpm, well above our intended 5800 rpm shift points.

With the new distributor, a new set of Goodyears and a fresh engine, we were ready to tackle the strip once more. But first we added a touch of class to our Project Judge: a set of International Slot Mags. These new mag wheels from International Manufacturing Co., Benicia, Calif., have a Dial-Fit universal mounting system that allows the wheels to be changed from one car to another. They're also equipped with a unique Dial-Plate which slips over the wheel studs and is centered in relation to the bolt pattern being used. The Dial-Plate seats flush within a machined mounting flange of the wheel, centering the wheel for a truer ride. The Slot Mags gave our Judge a very sporty appearance, so now if we could just make it run in the 12-second bracket, we could back up our looks with performance.

Orange County Raceway once again was the scene where we did battle with the quarter-mile. We mounted the Goodyear D-5's, opened the Doug's headers, changed to a fresh set of Champion UJ-10Y spark plugs gapped at .030-inch, and we were ready. We started out with 15 lbs. of air in the Goodyears and held our shift points to 5800 rpm under full power. Our first run netted us a 13.10, 108.82 mph followed by a quicker 13.00, 109.63. A word here about our new Weber clutch setup and the Muncie four-speed and Hurst shifter. We have never shifted a unit that was any quicker or any smoother than the one in Project Judge. The clutch release is unbelievable. If you're used to stiff clutches in competition cars, you'll think something is wrong with the Weber clutch in the Judge. The clutch action is very soft, softer even than the stock unit,



International Slot Mags add a touch of class to Project Judge. Unique Dial Plate slips over studs, keeps wheel centered at all times. Special lug nuts are supplied.

but the release is clean and quick. You'll have to try it to believe it. And that Hurst shifter, well, suffice it to say that it'll shift just as fast as you can pull it through the gears.

We lowered the air pressure in the Goodyears down to 10 lbs. (make sure that the tires are screwed to the rims when using air pressure this low), and we got some kind of unbelievable bite. We had to come off the line at 5500 rpm just to break the slicks loose! After a couple of shots like this (which netted us times of 12.97, 109.22) we took the Judge into the pits for some minor tuneup work. We retarded the timing to 33 degrees total advance, checked the plugs (they were okay) and replaced the filter element which we had removed from the Ram Air package for the previous runs. Back at

the line and off at 5500; we pulled our shifts at 5900 this time and the car felt much better. Returning to the timing stand we were rewarded with a 12.86 ET at 109.89 mph. We were finally convinced that timing was a critical factor on the Pontiac 400, something that Milt Schornack had been trying to tell us for a couple of years. The 400 just doesn't like a lot of lead; keep it around 32-36 degrees and the car will run with the best and live a long life. Above 36 degrees, you'd better have a big basket in the car at all times because you're going to need it to pick up the pieces.

Well, we've hit the 12-second bracket with our Judge and it's still a dual purpose machine. We're getting all sorts of comments on the car, both by mail and in person at the strip and

around town, and most of them have been good. We feel that we have one of the most popular project cars in Project Judge, and we're going to do everything in our power to make it run a little better with each installment. We plan to put a set of 4.33 gears in for the next go-round, with maybe of set of Air Lifts or some suitable traction assists to help that off-the-line wiggle we're now experiencing. We're in the process of adding a Hurst Line/Loc to grab that little extra advantage on the "Tree", and there's a rumor going around that somebody just delivered a brand new Ram Air IV engine to our back door. Hmmm, wonder how Project Judge would look going up against some of the Super Stock hot dogs? Would you believe 12.20s at 115? Just maybe!

Royal Bobcat package proved its worth once again as we realized an immediate 0.3-second reduction in ET and three mph gain in speed, without any fine tuning!

Special blocked heat riser intake manifold gasket aids performance in warm weather but should not be used in colder climates.

