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Rod set to work and had the 310 engine out in record time. We uncrated the 325-hp engine and installed a Hays 10 1/2-inch Special clutch assembly on the crank. The assembly included a 37-pound steel flywheel (\$95 list), a 10 1/2-

inch pressure plate (\$80 list) and a riveted clutch disc (\$34 list). Vic Edelbrock balanced the clutch assembly for us prior to installation—an important step that should not be overlooked. We went to the heavy Hays wheel to eliminate any bogging tendency that we might encounter with the 325. At the same time, we also discarded the aluminum bellhousing that is standard equipment on the Olds and replaced it with a Lakewood Chassis hydroformed one-piece bellhousing (\$100 list). It's good insurance (and good sense), because even the best clutch has been known to give up and it's not a pretty sight. The new engine was slipped into place and we set about reconnecting all the lines and wires that make up the tedious part of an engine swap. Rod installed the Force-Air scoops under the front bumpers and fitted them with the induction tubes, and the engine swap was complete.

Drawing from our previous experience with the 310 Olds, we shimmed the rockers out to the extended position right away (June HRM). Using the same procedure that we outlined in Part I, we found that we needed to shim the rockers on our particular engine .075-inch to prevent lifter pump-up. Oldsmobile engineers had advised us that the 325 would wind 6000 rpm with no difficulty, so our shims were added protection if we needed additional rpm. The engine sounded very healthy, so we proceeded to put a few miles on it before we did any serious testing. Timing on the 325 was set at 38 degrees total advance—quite a change from the 25 degrees used on the 310-hp engine. Oldsmobile explained that the 310 just wasn't intended for performance use, so it couldn't take the extra lead.

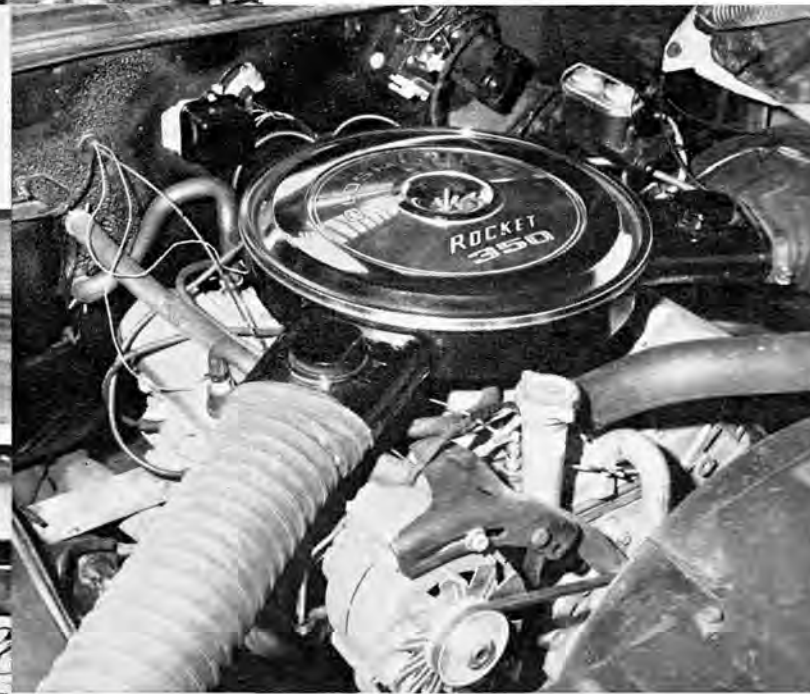
One bit of insurance that we added when we installed the 325 was a complete set of gauges from Rite Autotronics Corporation (RAC). Known as the Black Diamond Trio, the set contains an oil pressure gauge, an ammeter and a water temperature gauge (\$20 list). We also added an RAC 270-degree tach (\$35 list). Upon installation of the gauges we found why our battery had been requiring water every time we stopped for gas. The Olds had a defective voltage regulator and was charging 40 amps! Those idiot lights just don't get the job done.

With a little over 500 miles on our new engine, we headed for Riverside International Raceway in Riverside, California, where the Southern California Tim-

ing Association was holding half-mile drags. Once at the track, the Olds went through one of the most thorough safety inspections we've seen. Bear in mind that this was not a national event but a regularly scheduled affair. The inspector didn't just check to see if there were seat belts in the car; everything was given the once-over. It's good to know that in this age of "hurry up and do it" there's still an organization that puts safety ahead of all else. We'd like to commend the SCTA for a job well done. Among the things that we were advised to correct or supplement were: to install a driveline loop to hold the driveshaft in case of U-joint failure (since done); to install an engine compartment fire extinguishing system operable from inside the car (we're working on it); and to install some sort of locking device on the hood so that it could not accidentally pop open at speed (since done). The Olds was classified as a C/Production entry. Our first run with stock tires and closed headers netted us a 22.40-second e.t., with a speed of 117 mph. Shifts were made at 6000 rpm, and at that spot the engine was still pulling strong. Back in the pits, we opened the Belanger headers, put on the Foremost slicks, changed to a fresh set of AC 43S plugs gapped at .030-inch and hurried back to the line for another attempt. This time we ran 120.48 mph in 21.98 seconds. We were coming off the line at 5000 rpm and power shifting at 6000. The 3.91 gear was ideal for the half-mile course. We were just peaking out past the timing lights. Our best run of the day was a strong 121.45 mph in 21.88 seconds. Everyone we talked to was impressed with the little stocker. Oh, by the way, don't let anyone tell you that the Force-Air system doesn't do any good on these small engines. We disconnected the unit on one all-out run and lost two mph and .2-second e.t. Of course quarter-mile times wouldn't necessarily be affected that much, but it does make a difference. We also found that the Force-Air system ran better with the air filter element removed.

After the half-mile drags, we took the Olds back to Ak Miller's chassis dyno for some comparison tests. The 325 Olds put out 225 hp at 5000 rpm at the rear wheels, a 10-hp increase over the 310 version. However, the engine was still not thoroughly broken in, so we postponed further tests until we could get a few more

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Text and photos by Lee Kelley

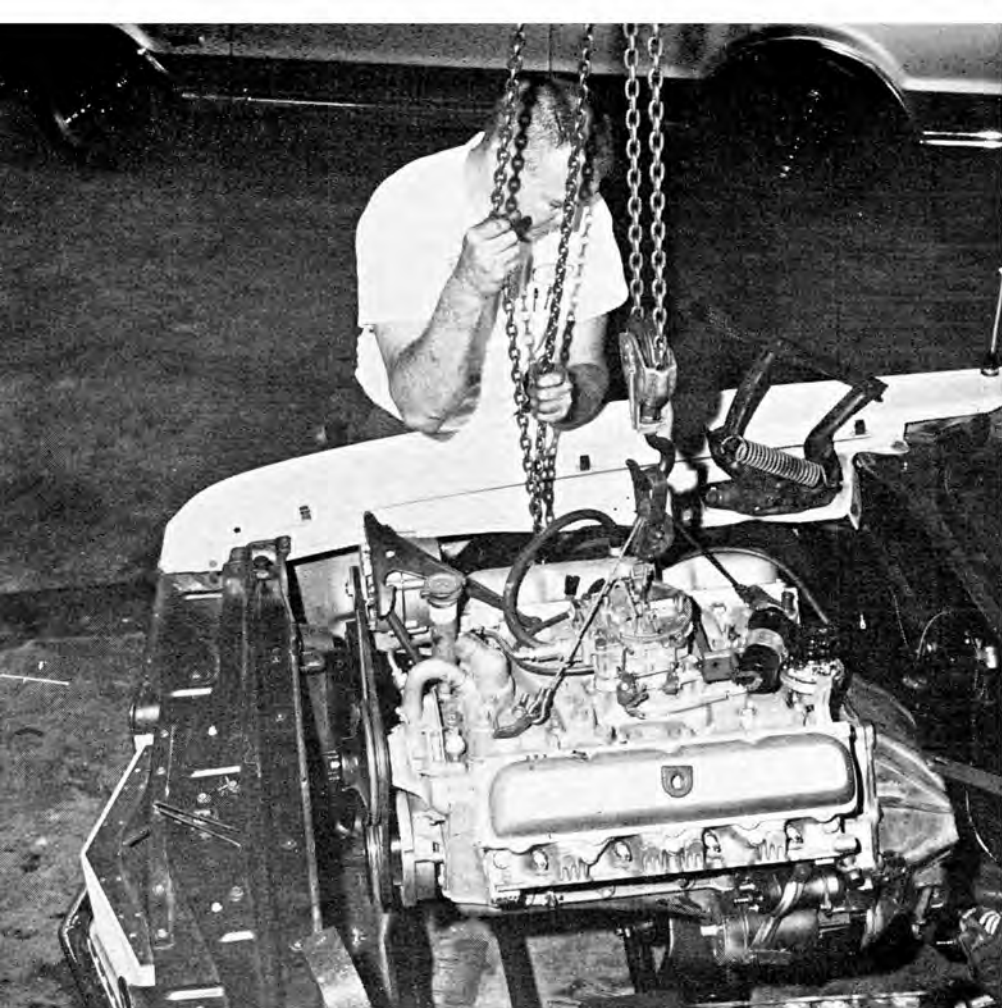
Switching to a 325-hp

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Low-Budget

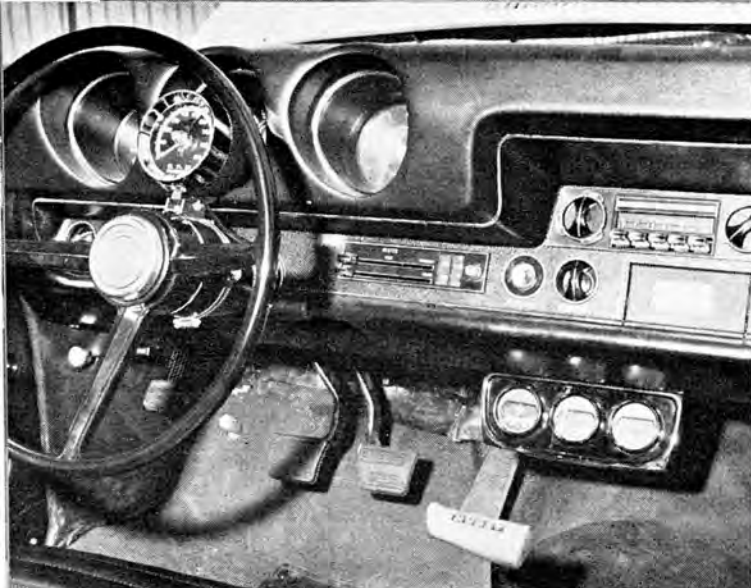
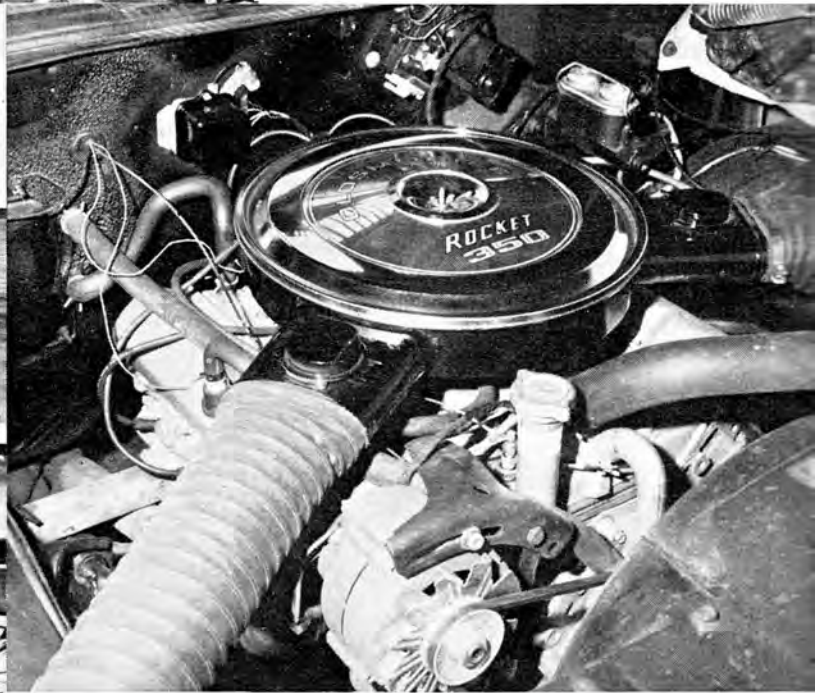
Screamer

PART TWO



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Rod Peppmuller of Century Olds installed the 325-hp 350 engine in our F-85 with a minimum of difficulty. A straight bolt-in operation, the engine swap gave our project car a real boost in the performance department. Best times recorded at Irwindale Raceway were in the 13.20-second-e.t. category with speeds over 105 mph. Note air induction scoops under front bumper. The Olds Force-Air system is good for 2 mph boost in half-mile, just a shade less in the quarter. To keep better tabs on our new engine, a complete set of RAC gauges was installed, along with an RAC 270-degree tach.

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Screamer

PART TWO

Low-Budget Screamer



miles on it. We also noted that while the 310 was all through at 5000 rpm, the 325 was just starting to come to life. The 325 was slightly on the lean side, but we decided to wait until we had some preliminary quarter-mile tests before we re-jettied the Quadrajets.

After we had just over 1000 miles on the 325, we took it to Irwindale Raceway for its first quarter-mile wring-out. With stock tires and closed exhausts we ran a 14.08-second e.t. at 98.90 mph (still with the 3.91 gear). After a plug change (AC 43S at .030-inch), we opened the exhausts and bolted on the Foremost slicks and ran a 13.73-second e.t. at 103.21 mph. Starting line rpm was still 5000 and shifts were at 6000, but we weren't bothered by that bogging problem we'd experienced with the 310 version under similar circumstances. We tried several advance settings but found that 38 degrees total was about the best for our setup. Our best run with the 3.91 gears was 13.61 seconds, with a top speed of 103.21 mph. With no fine tuning whatsoever, the 325 Olds was about .7-second quicker and 7 mph faster than the 310! As far as street machines are concerned,



Spacious engine compartment has ample room for even bigger powerplants, like maybe a 455. Our project car is equipped with lightweight inner fender panels that cut front end weight. Rod is shown putting the final torque on the Hays 37-pound flywheel prior to installing the 325-hp engine. For a production-line engine, it's something else! Before installation of the 325, we added a Lakewood Chassis bellhousing, just for safety's sake. It's darn good insurance.

the 325 Olds is most impressive.

Before we made any tune-up modifications, we decided to change rear ends. Olds had supplied us with a set of 4.66 gears, so we drove back to Century Olds where Rod Peppmuller installed them. With a few easy miles on the gears to seat them in, we went back to Irwindale for further tests. We were sure that the 4.66 gears would put us in the low 13-second bracket with speeds over 106 mph, but we hadn't counted on some unfavorable track conditions. Once at the track, we encountered 15-mph headwinds, which certainly didn't help our disposition. We dropped the exhausts, put on the slicks and found immediately that the small tires (27 inches tall, 6 $\frac{3}{8}$ inches wide) that we had been using until then wouldn't do the job with the big gears. On our first run, we dropped the clutch at 5000 rpm and literally went up in smoke. After some experimenting we found that we had to come out at 3500 rpm to keep from breaking loose. With the headwind we ran a couple of 13.50's, but the speed stayed right around 103. We were also encountering some shifting problems. A quick check of the Hurst linkage showed nothing wrong, so that left only two areas — clutch or transmission. Fortunately Wiley Cossey and Bill Casler of Casler Racing Tires were on the scene with their SS/C Plymouth, and they offered their services, even though we were running someone else's tires. After a couple of check-out runs, Wiley told us that we had the clutch adjusted too close to the floor. On full powershifts we weren't pushing the clutch in far enough to release it, and the transmission couldn't get into the next gear. A

simple adjustment and we were right back on the track, shifting away. Wiley also told us to let the pressure in the tires down to 12-15 pounds (we had been running 20 pounds). He agreed that our tires were too small but they were all we had at the time, so we had to make do with them. By heating up the tires, staging carefully (the Olds likes to creep through the lights) and running hard all the way against the headwind, we came up with two identical runs of 13.40 seconds e.t. and 104.04 mph — far from what we had hoped. All things considered, the times were very good, but we weren't satisfied.

We decided to run the Olds at the National Hot Rod Association's Division Seven World Championship Series points meet for some official times. The meet was held June 1, 1968, at Irwindale Raceway. To prepare our car for the event, we took it back to Ak Miller's Garage for some fine tuning. Jack Lufkin opened up the primaries on the Quadrajets .002-inch, and we turned the diameters of the ends of the secondary metering rods down .004-inch. With these modifications, the Olds 325 put out 230 hp at 5000 rpm. The little engine was getting stronger and stronger. We added a Hurst Line/Loc (\$50 list) to prevent the car from creeping into the timing lights, and as a final preparatory measure, we mounted a pair of Foremost 9.00-9.50 x 14 slicks to use instead of the smaller tires. These slicks were a full 7 inches wide and 29 inches tall. We were ready.

At the meet, we went through another thorough technical inspection and received a seal of approval. The Olds was classified as E/S, a tough class by any standards. Keep in mind that we drove the car to the strip; we didn't tow it. On went the slicks, down came the headers and we headed for the line for another go. After a full day of racing, we came up with a best of 13.20 seconds e.t. and 105.75 mph, not quite up to national marks but not too far from them. In fact, those marks would take E/S laurels at the majority of meets, and the car could be a threat in Stock Eliminator. The bigger slicks made quite a difference because we could come off the line at 4500-5000 with no fear of frying the tires.

So now we've wrung out the 325 in its stock form pretty thoroughly. We have a stock street machine that is close to the 12-second bracket, and we drive it to work every day. What now? Well, from here on we'll depart a little from the low-budget operation and add a few goodies, such as a wilder cam and carburetion, to see just how fast and quick the Olds 350 can go. Would you believe an 11-second machine with 350 inches? How about 170 mph on the Bonneville salt flats? Only time will tell, but don't sell this little yellow Olds short. It doesn't know when to quit. ■ ■