

CHRYSLER 300 SS/SA

Last February, we reported on the 1962 Chrysler 300 series automobiles. At that time, we touched lightly on a 300 sedan with the optional high performance 405 horsepower engine. We had borrowed such a car and spent a Sunday afternoon at the drags with what we thought were some pretty good results. We also mentioned that we would play around with the car some more and report later on our attempts to improve performance.

When we originally borrowed this high performance 300 to run at the drags, the car was exactly as it had been delivered from Chrysler's assembly line except that a 4.56 rear axle ratio had been installed. The 413 engine differed from the standard 300 model 413-inch engines in the following ways: Forged aluminum 11.1 pistons were fitted with extra skirt clearances; larger exhaust valves (1.74 inches versus 1.60 standard) were used in the otherwise standard heads; a 284° duration mechanical camshaft was used with adjustable rockers and other high rpm valve train; and dual

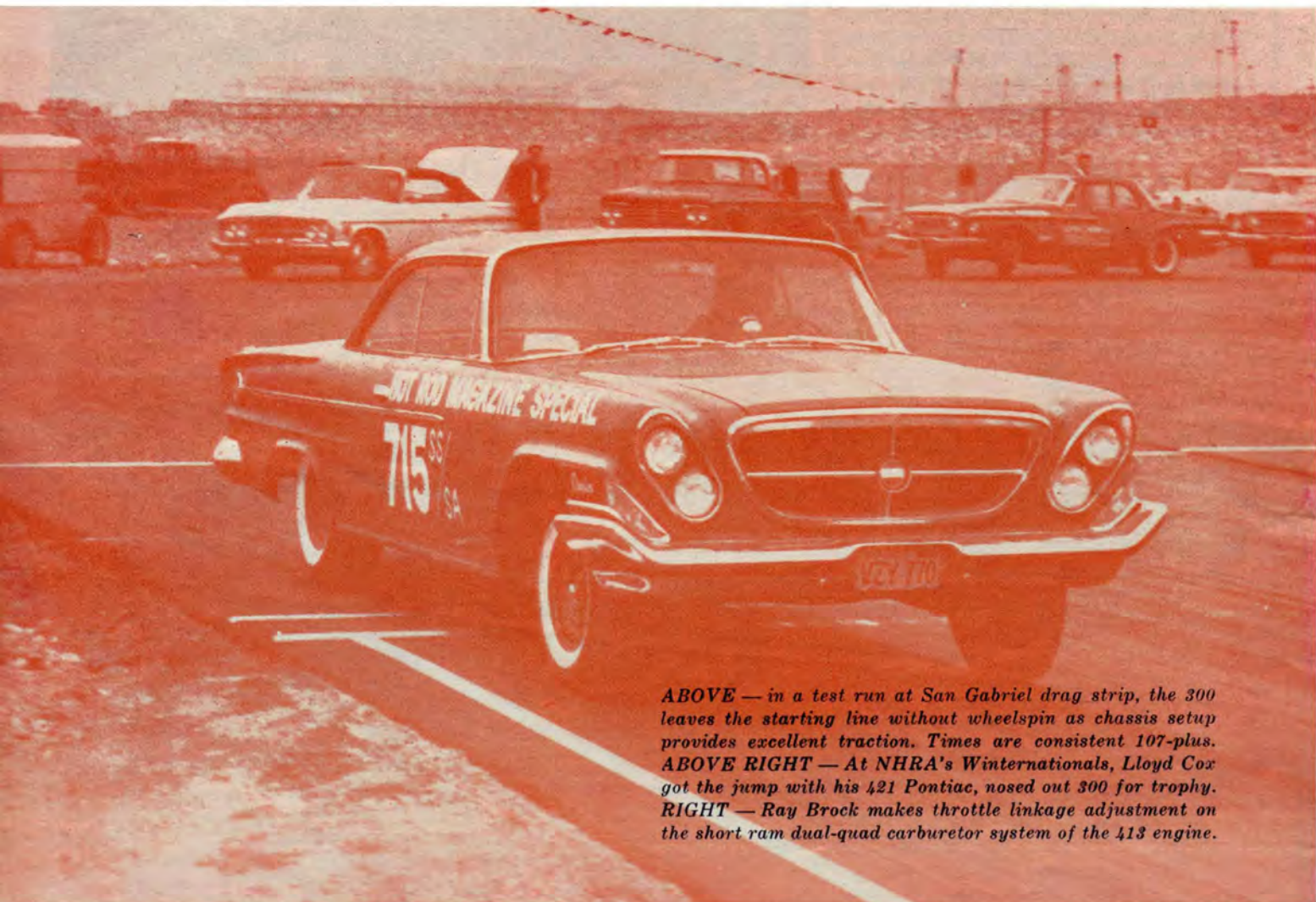
Hot Rod Magazine got into the act at the 1962 *Winternationals* with an entry in the stock automatic category. The results were good but not quite good enough. **by Ray Brock /** Photos by Eric Rickman

Carter four-barrel carburetors were used with short ram intake manifolds.

The two-door hardtop was equipped with Torqueflite automatic transmission, power steering, heater and leather bucket seats. Only a radio and power brakes were lacking from the normal equipment of a "loaded" car. The first time we took the car to the drag strip, we weighed in and found that the 300 tipped the scales to the tune of 4040 pounds with a half tank of fuel.

This car had the first engine put together on Chrysler's high performance engine line since it was a pre-production show model so it did not have all of the pieces with which later 405 hp 300's were equipped. Exhaust manifolds were regular log type passenger car items whereas the later cars all used cast iron headers with passages routed to minimize back pressure. Also, the later production 405 engines used a camshaft with 292° timing.

Before we headed for the strip and our first runs with the



ABOVE — in a test run at San Gabriel drag strip, the 300 leaves the starting line without wheelspin as chassis setup provides excellent traction. Times are consistent 107-plus. **ABOVE RIGHT** — At NHRA's Winternationals, Lloyd Cox got the jump with his 421 Pontiac, nosed out 300 for trophy. **RIGHT** — Ray Brock makes throttle linkage adjustment on the short ram dual-quad carburetor system of the 413 engine.

300, we had a pair of head pipe bypass outlets installed so that we could "uncap" ahead of the mufflers for best results. We also borrowed a pair of Vogue 9.50 x 14 tires for the rear. On our first few runs, we left the car in street trim with air cleaners, tight fan belt, power steering pump operative, standard exhaust and recommended initial timing of 10° BTC, 32° total. Under these conditions, the best speed recorded was 95.74 mph with an elapsed time of 14.73 seconds. Next, we uncapped the exhaust outlets and jumped to 98.36 mph and 14.61 secs. We then played around with initial timing and found 13° BTC seemed to give best results; speed, 98.68 and e.t., 14.46 seconds. We then tried smaller 8.00 x 14 tires to buzz the engine tighter but ran slower; 95.94 and 14.74. This indicated, as did the slow rising tachometer above 5500 rpm, that we were falling off at higher rpm's, probably due to the standard Chrysler exhaust manifolds.

So, we traded back to the 9.50 x 14 Vogues, pulled the air cleaners, loosened the fan belt so that it would slip at high engine speeds and absorb less driving power, removed the power steering belt, and then tried another run. This time, we clocked 100.11 mph with an e.t. of 14.28 mph. Several more runs were in the same bracket and that was the best we managed on our first outing. These figures were also the ones we used in our February story.

To cure the "sleepy" performance at high rpm, we went to work trying to improve the exhaust system. The cast iron headers being used on the later 300's were available but the engine would have to be pulled to get these sweeping items into the car and they also weighed 30-plus pounds apiece. We cancelled these headers out for two obvious reasons. We

procured a pair of commercially available steel tubing headers which had better gas flow than the stock exhaust manifolds and installed them. They helped somewhat and the top speed went up to 101.80 mph while the e.t. dropped to 13.80.

We still were not satisfied with the rapid acceleration to 5000 rpm and then a not-so-fast acceleration above this point, especially above 5500 rpm. The engine would turn 6000 rpm without valve float but the last few hundred rpm didn't come easy.

We called on a friend in the muffler business, had him get an armful of 1¾-inch tubing bends, some 2½-inch pipe and a pair of flanges cut out to match the exhaust ports on the cylinder heads. We figured out a new set of headers that met the following specifications: cylinders paired on each bank in the best possible combination; no sharp bends; fit in the car without alteration to inner fender panels or other chassis parts; be removable with engine in place; and have long branches.

After better than a week of solid work, discarded tubing and new starts, our header specialist, Hank Bolman, finally finished the job. The left side header had cylinders 1 and 5 flowing into a common 1¾-inch pipe as did cylinders 3 and 7. These two pipes then flowed together at the 2½-inch head pipe section which was capped with a flange cover about 3 feet downstream. On the right side, cylinders 2 and 4 flowed into a common branch as did cylinders 6 and 8. These two pipes also joined at the 2½-inch head pipe section with an outlet 3 feet farther back. The standard dual exhaust system tied into each of the 2½-inch pipes just ahead of the bypass outlet.

After all of the work involved, we were very anxious to check the results. We weren't disappointed. Speed jumped better than 4 mph and elapsed time dropped a half-second. Final results for the day were 106.13 and 13.33 seconds. Engine performance was acting like we thought it should at last. One last item was left to try in our attempt to get maximum engine performance; the 292° camshaft used in later production 300's. We ordered one of these cams from the factory and the engine really started to buzz. Low speed torque was down slightly and the car would not "jump" off the starting line as fast as with the early production cam but there sure was a difference in acceleration above 3000 rpm. This single change jumped the ¼-mile speed to 107.78 mph and lowered the elapsed time to 13.18 seconds.

By this time, the NHRA Winternationals were just a few weeks away and we got enthused about trying to win the Super Super/Stock Automatic class with the Chrysler. We entered the car as the *Hot Rod Magazine Special* and then spent the final couple of weeks "fine tuning." All of the tuning was on the chassis though, we didn't touch the engine after the 13.18 run.

We had made changes to the chassis during the previous weeks and had the traction problem very well solved. Every time we unlocked a little more power through exhaust headers or the later camshaft, we made necessary changes to get the best "bite." By the time we reached the 107 mph and 13.18-second bracket, these changes included: 1½-inch lowering blocks at the rear; removal of rear spring leaf tip inserts and clamping of leaves to eliminate most spring action; two turns on the front torsion bars to raise the front of the car one inch; taller pinion snubber to contact the bottom of the car; worn front shock absorbers obtained from the local Yellow Cab garage; lightweight nylon 7.50 x 14 front tires with minimum tread and 50 pounds air pressure; and 9.50 x 15 Vogue rear tires with 40 pounds pressure.

During the pre-Winternationals tuneup period, we concentrated on trimming weight as much as possible and reducing rolling friction. First, we pulled the heater and windshield washer mechanism. Then we substituted a standard steering



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gear for the power steering unit. Next, the 55 pound battery was replaced with a compact battery weighing about 30 pounds less. We cut ready-to-run weight from 4040 with half tank of fuel to 3880 pounds with a quarter tank.

To reduce rolling friction, we first pulled all four wheels and eliminated surplus grease from wheel bearings. Just a light coating was left in each of the roller bearings. Pre-load of .015-inch on the rear axle bearings was changed to .010 clearance, cold, by shimming the bearing retractor. Contact points between the brake shoes and backing plates were lubricated to ensure complete retraction. After the drums and wheels were reinstalled, brake adjustment was made to provide ample pedal travel but absolutely no drag. The driveshaft parking brake was adjusted to prevent any possible drag. The rear axle housing was shimmed to give a near-zero rear U-joint angle when the car was in the nose-high, tail-down attitude it would assume on the strip. The final preparation was to align the front wheels for zero camber, 1°caster, 1/16-inch toe-in.

We felt the 300 was ready for a supreme effort at the Winternationals but as you learned in last month's HRM, rain delayed the event for a week and that threw a monkey wrench in our personal plans. We were scheduled to cover the 500-mile stock car race in Daytona Beach, Florida, on the NHRA rain date so could not run the car ourselves. We asked a friend, Gary Nichols, to take over the chore and he eagerly agreed. Gary had never driven the car before but listened to the few words of instruction and assumed the chore while we hopped a jet to Daytona.

Gary did very well with the 300 and during practice and early eliminations, recorded times as fast as 108.40 mph with elapsed time as low as 12.88 seconds but unfamiliarity with the slightly temperamental starting technique and a 421-inch '62 Pontiac kept him from going all the way in Super Super/Stock Automatic class. In the trophy run for the class, Lloyd Cox, automatic champion at last summer's NHRA Nationals, edged the 300 by about two feet with an elapsed time of 13.00 seconds and a top speed of 107.78 mph.

So that's the story of the 300 Chrysler with optional high performance 405 horsepower engine. The 300 is much lighter than similar models of past years but it's still a pretty heavy machine to be going so fast. We think that its performance is quite outstanding and from comments heard at the various strips we tried, spectators and competitors were in accord.