



300H in its quickest street trim produces 380 horsepower from 413 cu. in. when fitted with this dual-quad carb manifold.



Progressive mechanical linkage is fitted and rear carb, which opens first, has automatic choke. Manual choke kit is available. Manifold (below) is of log type with four barrels of one side feeding left bank and four barrels of other side feeding the right bank.



Dividing wall between manifold logs is visible. Some exhaust heat is supplied through the crossover, but it may be blocked-off quite simply.

# 405-PLUS PERFORMANCE HORSES

## FROM CHRYSLER'S 413 V8 BLOCK

**T**HE CHRYSLER 300 series does not need any introduction in hot rodding circles. This year, the 300H makes its appearance on a shorter wheelbase that has trimmed several hundred pounds of needless weight, making it HOT competition. You can purchase the 300, 305, 340 and 380 horsepower versions, directly off the dealer's showroom floor. Beyond that, you run into the realm of dealer-installed options. Here you are likely to encounter a certain amount of reluctance on the factory's part to come up with the necessary parts unless you are specifically in the racing field.

An understandable reason for the reluctance to let these parts come too far out into the open is that they can create service difficulties for people who are not in the know. There were too many instances of Long Ram super dupers getting into the hands of people who not only had no need for them, but who also complained about fuel economy or lugging capacity of machines they just didn't know how to use. The result is that the legitimate strip participant now has difficulties in coming by some of the "special" parts.

The mildest of the Chrysler engines delivers 305 hp at 4600 rpm and 410 pound-feet at 2400 rpm. This is accomplished on a 10-to-1 compression with a two-barrel carb, 383 cubic inches and a bore and stroke of 4.25 by 3.23. Next in line is a 413 cubic inch mill with 4.19 x 3.75 bore and stroke which serves as the basic engine for the "power" versions. Using a four-barrel carb and a fairly mild 10-to-1 compression, this engine is good for 340 hp at 4,600 rpm and 470 pound-feet of torque at 2,800 rpm, which makes it an eminently practical engine for the street. It is also the highest powered Chrysler engine normally available off the showroom floor with a stick shift. Next up the ladder is a 380 horsepower mill also based on the 413 block, which incorporates many mechanical goodies ranging from mechanical lifters to dual quads. At the top of the ladder is a 405 horsepower engine which is for the all-out competitor, though milder versions can be used on the street.

The 405 hp engine is now available in limited quantities from the factory equipped with a clutch and stick shift. However, the factory makes some exceptions to this by delivering a 405, with stick shift, to "racing-qualified" people. The interpretation given to this statement does not seem to include weekend warriors. If you don't belong to this narrow classification, but want the right to shift for yourself, other modifica-

tions must be made after the purchase of the car.

First step toward the magic 380 horses is a conversion to the mechanical camshaft, solid lifters, beefier pushrods, cast rockers and stiffer valve springs. Two cams are available. One, with a 268-degree duration (part number 2264195) is the closest to a street cam and should be used in the more sedate power version. The other cam (part number 2129568) has a 284-degree duration and should be reserved for all-out work with high compression pistons, big valves and REVS. These cams are also available from Camcraft.

With the mechanical cam you need an appropriate valve train, and this used to be available only through Chrysler Marine. However, since they are now standard equipment on 300H's, you can or should be able to purchase the parts directly from a Chrysler dealer. The pushrods, made by Iskenderian in Englewood, California, can also be purchased from Chrysler dealers. Cast rocker arms are needed for the conversion since the stamped ones do not have any provision for adjustment. The rockers come in right and left (parts numbers E6265M and E6264M) versions and call for rocker shafts, springs and brackets. This conversion will bring forth a healthy rpm and power rise from 340 to 380 hp).

The 380 engine features a simple log-type manifold with two four-barrels mounted one behind the other. The Long Ram has disappeared, and the Short Ram is available only as a dealer option (more on this later). The dual four-barrel is much less expensive than the Short Ram and is a handy bolt-on item for earlier engines. Unfortunately, it also produces less power. A dividing wall within the manifold seals off the left bank intake ports from those on the right bank. Progressive linkage connects the two four-barrels. An automatic choke is fitted only on the rear carb, which acts as the primary and is the first to open. You can, however, install a manual choke conversion. Exhaust crossover head supplied to the manifold is one of the features that make this engine eminently driveable even in cold weather. Unlike the tuned Ram manifolds, this manifold maintains a fairly smooth idle in spite of the two four-barrels. The entire assembly is capped by a pair of oval-shaped air cleaners without silencers.

The 380 also features a dual exhaust system which begins with a pair of hefty cast iron headers. Fitting them under the hood next to the power steering and other goodies was no mean feat. Gas flow is good,

but weight is quite high. Among other engine features, the 380 sports a dual point distributor with a tach takeoff and a 2.2-to-1 alternator drive to keep it from over-revving. A clutchomatic fan saves horsepower at high rpm and the radiator, though of the same capacity as on lower-powered Chryslers, has a deeper core section and more fin capacity.

Since the 405 is primarily in the realm of the dealer, we sought out one most likely to give us first-hand information. Bud Faubel of Coldbrook Motors in Chambersburg, Pennsylvania, is a man who has campaigned Chrysler 300's on tracks and on drag strips for longer than he cares to remember. During one return trip from Detroit we stopped off for a look at the Chrysler 405 horsepower version and were treated to an interesting session on the finer power and handling points of a 300H.

Bud won handsomely at Daytona with both Chrysler and Dodge in '61, posting 156.65 mph one way, has earned quite a stack of trophies, and is not only a good driver but a top-notch mechanic. He was quick to point out that the 380 and 405 engines were only part of the car, and that other items such as 12-inch brakes and a heavy-duty handling package, including heavier torsion bars and rear springs, plus stiffer shocks and a torsion bar kit, are essential to derive full benefits from the increased engine power.

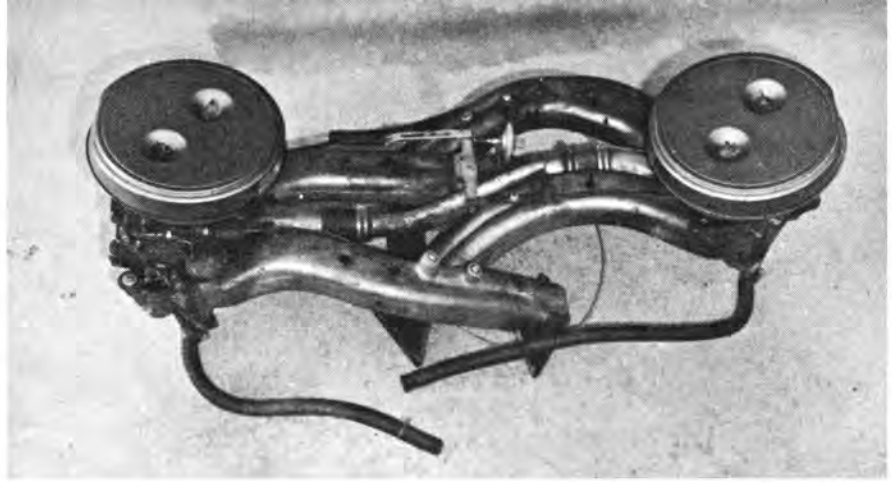
Bud ordered his car in 340 trim, since you cannot get the standard shift in higher horsepower. From there on the engine was built up piece by piece to 405 specifications. The block is assembled with the optional forged pistons (Forged-True) and 11-to-1 compression. Domed "405" pistons are available with as much as 12-to-1 compression, but this is strictly for track work rather than street or mixed street and drag use. A 284-degree cam is used with all of the valve parts we spoke of for the 380 engine. There is, however, a major change from the rocker arms down. Heads with larger exhaust valves (1.74 instead of 1.60 inches) have been fitted. Also, the 380 valve springs have been replaced with stiffer ones with flat-wound damper springs that reduce surge and raise the rpm limit.

This brings us to the manifold on Bud Faubel's car. During '60 and '61, the top item in Chrysler power options was the Long Ram manifold with two four-barrels, one at each side of the engine, and an impressive set of ram pipes. These rams were tuned for moderate rpm and gave impressive street and road performance, but did not catch on too well among rpm enthusiasts. The

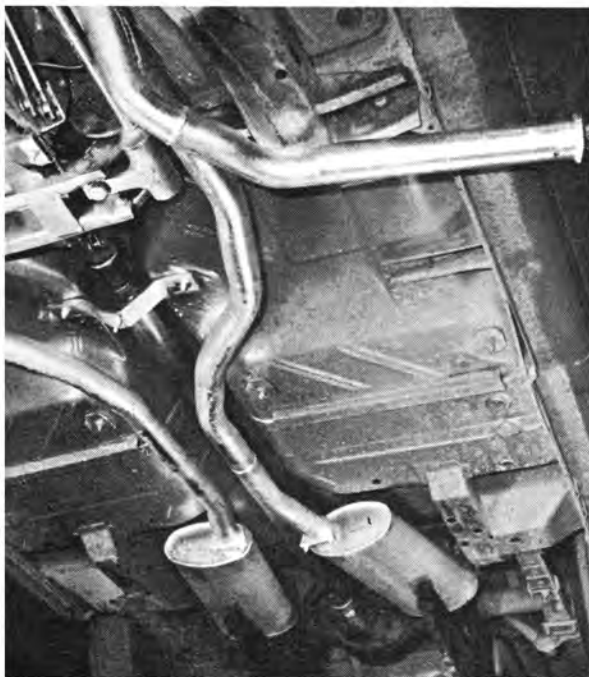
## 405-PLUS HP

Long Ram Manifolds had pairs of passages running side by side from the plenum chamber under each carburetor to the ports on the opposite cylinder bank.

Chrysler engineers soon found that by knocking out part of the divider between the passages the rams could be shortened, raising the rpm at which peak torque occurred and making the engine much more suitable for the drag strip. Short Ram mani-



**Bud Faubel shows water-heated Short Ram installation. Heat helps make car tractable on street. Coolant flow can be shut off for competition running. Prodigious set of headers at left is must for good breathing, but offers weight penalty. Passages are studied for maximum gas flow. Full dual exhaust system is standard on 300H. Also, heavy duty suspension package should be ordered for firm ride.**



**On 300H with 405 horsepower option, exhaust is more hairy and pipes are of 2½-inch diameter, tail pipes two inches across, to match special headers' flow.**

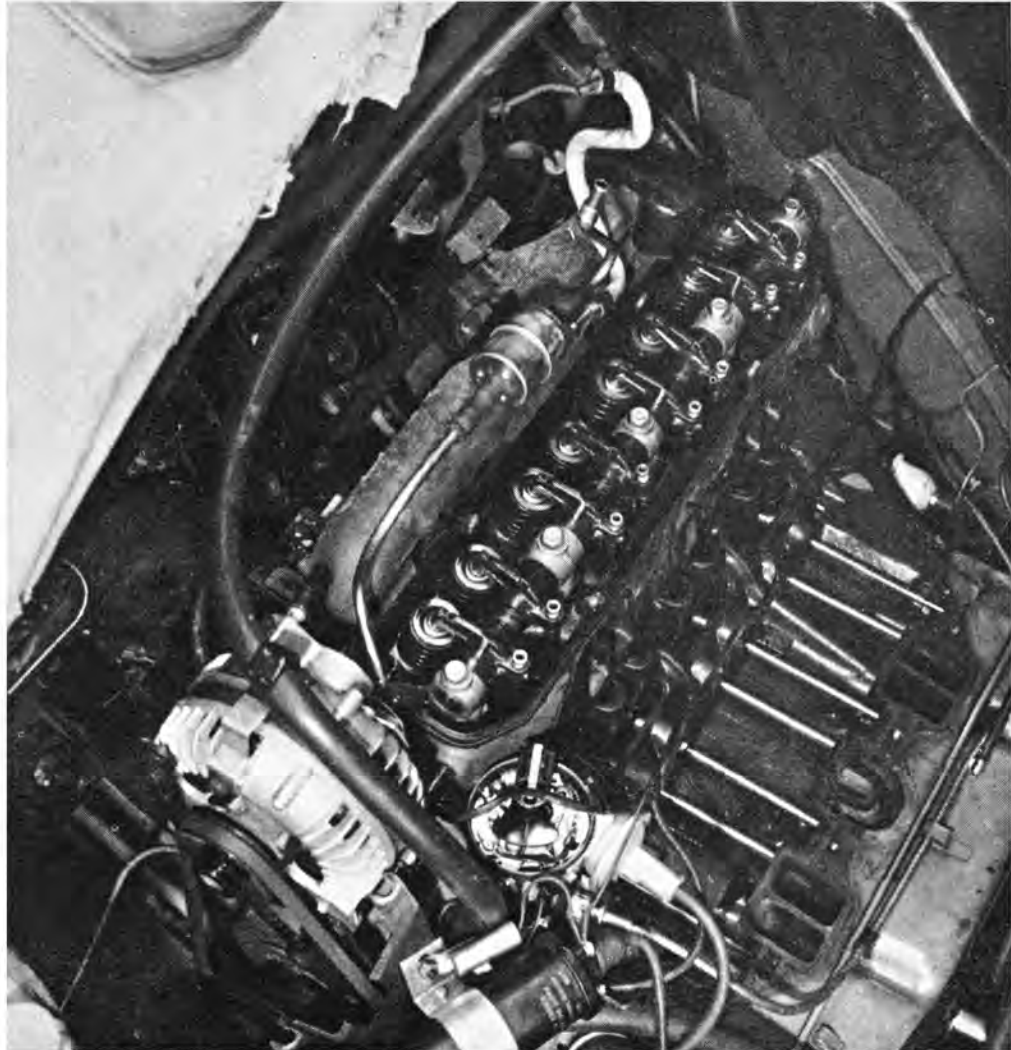
folded suffered from a fierce price, lack of availability, and a traditional factory lament that they were losing money on each one. This brought about a factory suggestion for modifying the Long Rams. It involves cutting out a window in the top and bottom of each branch for a length of 10½ inches, removing the divider and rewelding the manifold. For our money, there are much simpler ways of doing the same job with a side mill, or a drill and grinder, which would limit welding to two narrow slits.

Bud's engine does feature the Short Rams but they were an item carried over from a previous Chrysler 300. An interesting feature of these manifolds is that they have a water-heated section right under the plenum chamber into which the carburetors deliver. Thus the machine retains mild street manners. On the strip, however, the coolant supply is turned off to avoid additional heat input into the manifold and improve volumetric efficiency.

The exhaust system is quite elaborate. It begins with the large cast iron headers and 2½-inch exhaust pipes. Tail pipes are 2¼ inches and the mufflers (Chrysler part number 2122831) are reasonably open, with a pop and a crackle. Lake pipes of 2½-inch diameter were fabricated. Other engine modifications follow along conventional 380 lines, and there are others of Bud's personal choice, but that is another story.

A super high-performance kit is now rumored to be on the way which would include even higher compression heads, still larger exhausts (1.88 instead of 1.74 inches) and a 292-degree cam. As you see, the auto enthusiast's world is in a turmoil.

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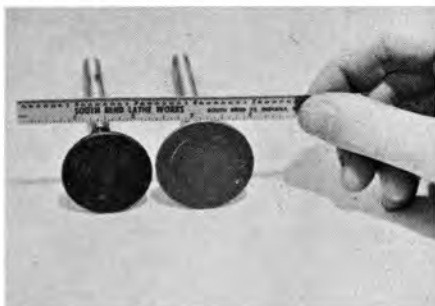


Beefy pushrods and adjustable cast rocker arms (above) are used with mechanical lifters. Shown at left, these parts were available through Chrysler Marine, but are now available from Chrysler car dealers as options.



Stiffer valve springs with flat wound dampers help return big valves of 405 hp option.

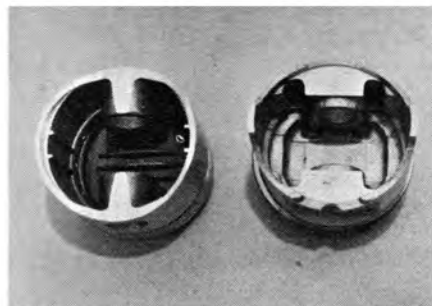
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Optional exhaust valves have 1.74-inch overall head diameter rather than 1.60. Optional heads' ports are big, too.

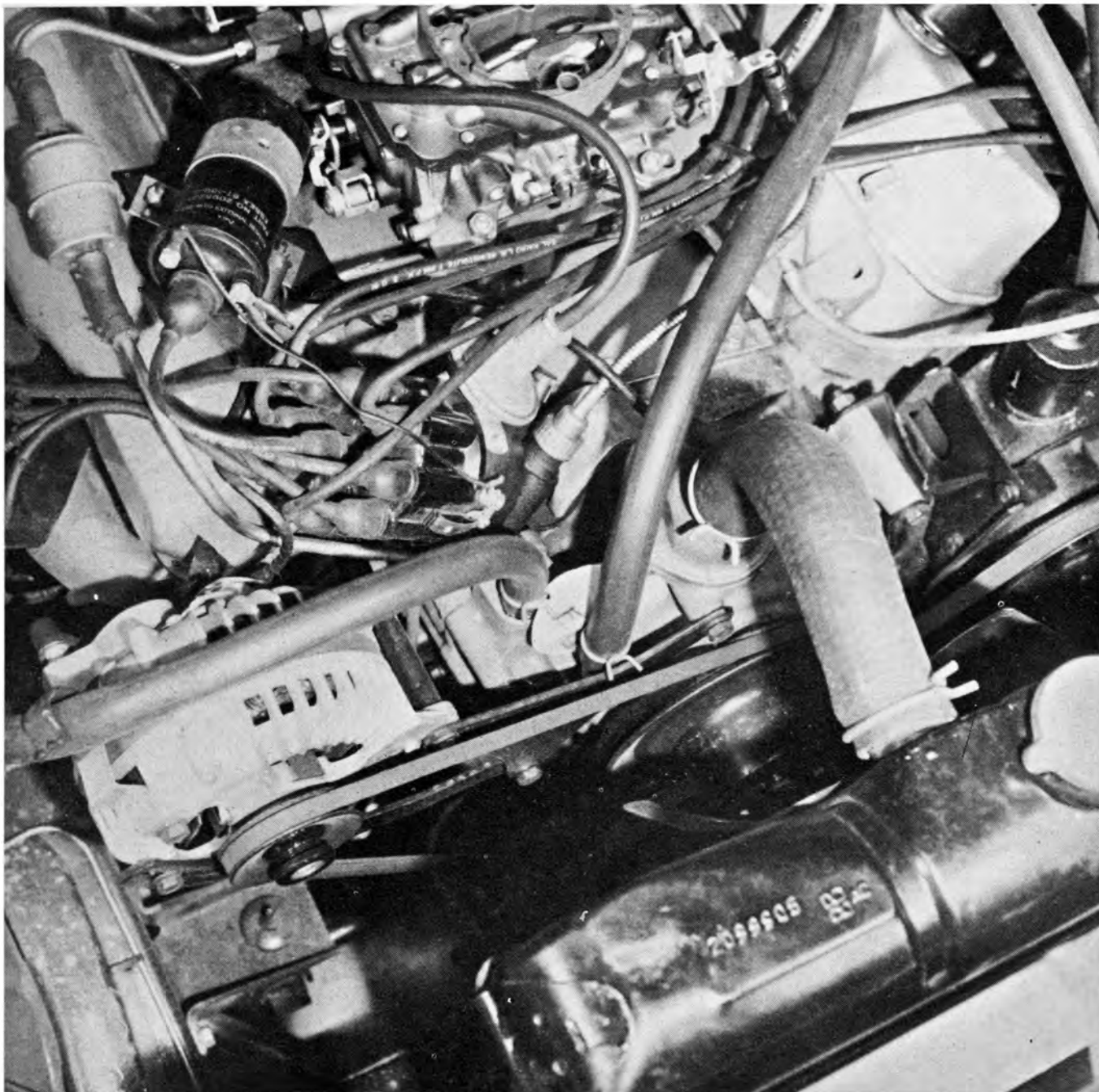


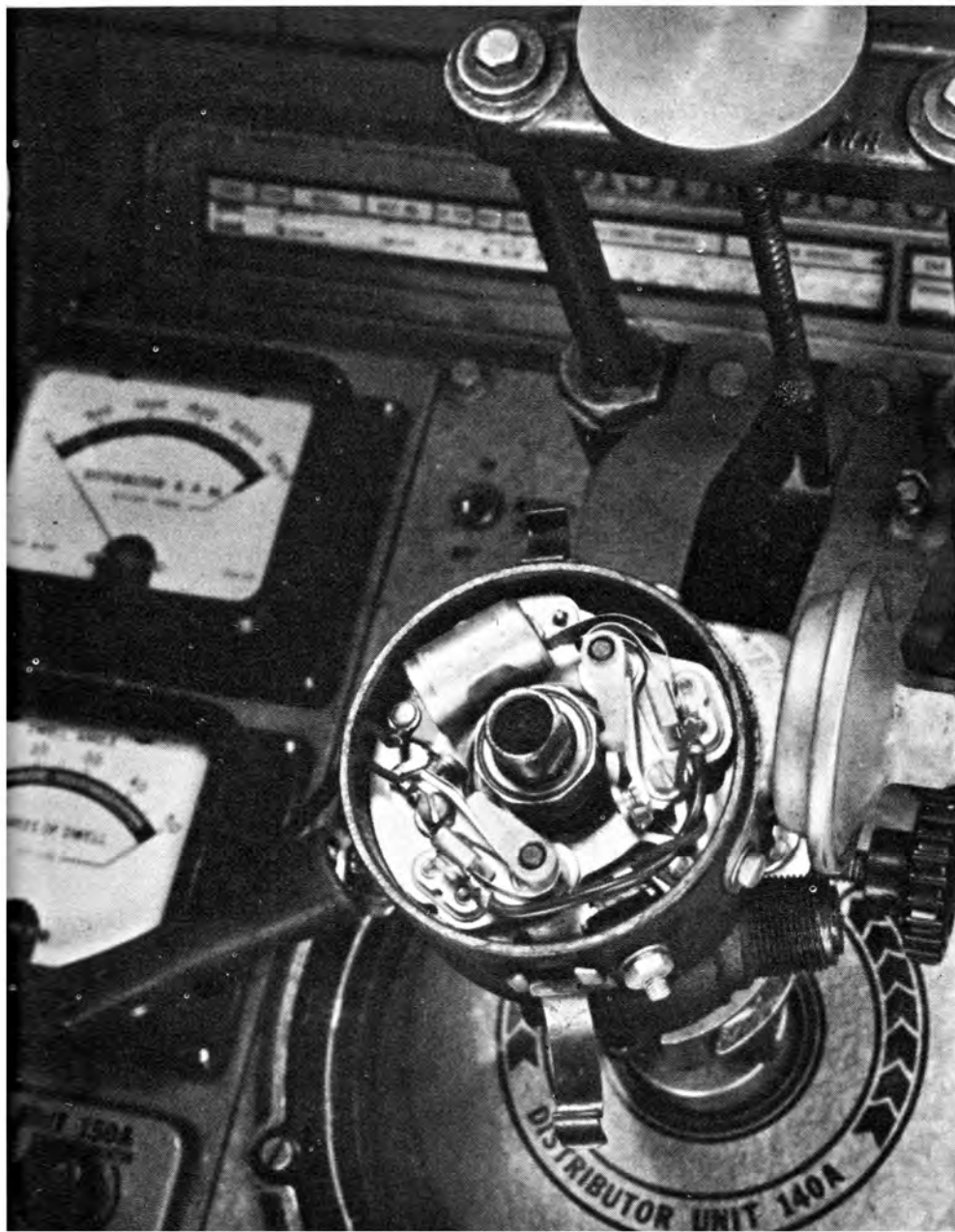
Raised dome pistons are available from Forged True. 11-to-1's are ample for either street or dragging.



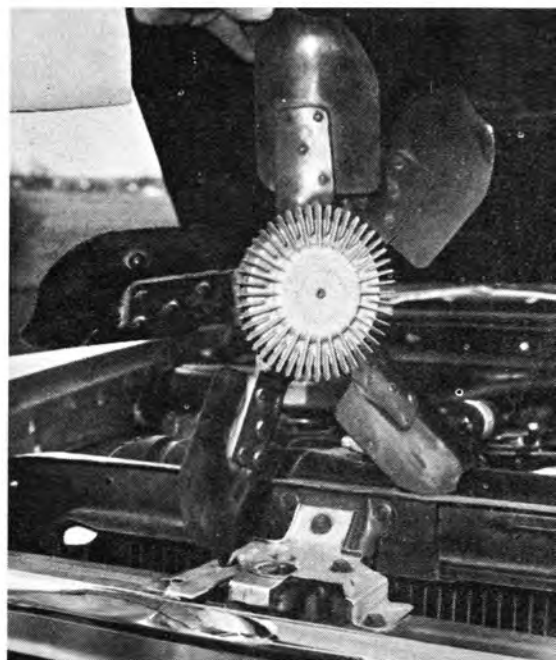
Stock piston is cast while one at right has posts for wrist pin bores. Stiffening ribs are used at tops.

300H distributor is fitted with handy tach take-off. Wiring has a metal core. Use non-resistor wiring for all racing.





**Dual point distributor is a must for high revs. Ten degrees initial advance and 22 degrees mechanical advance are stock settings.**



**Special fan above has slip clutch, saves hp at high end. 300H radiator is heavy duty model with deep core, additional fins. Heavy duty clutch plate and pressure plate at left are musts to handle all this power.**

