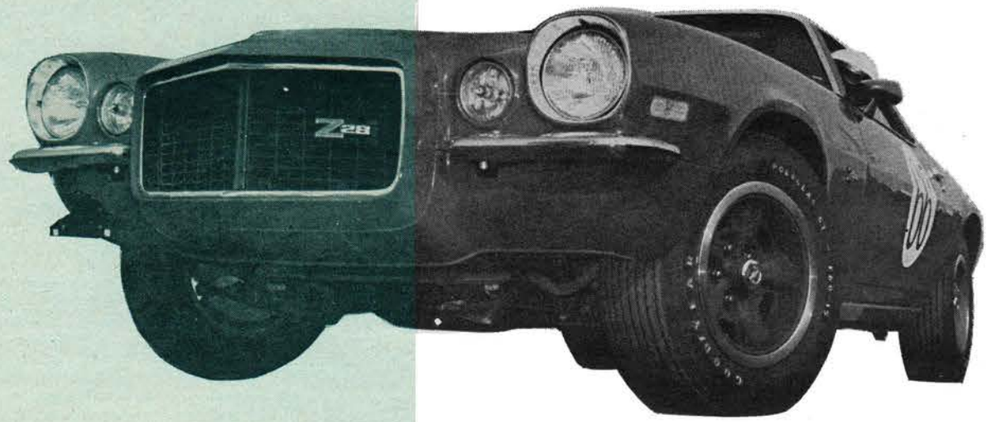


CHEVY'S NEW 370-HP 350

Placed high on the rumor list last year, the "LT-1" finally makes the scene in '70 as the standard powerplant for Z/28s

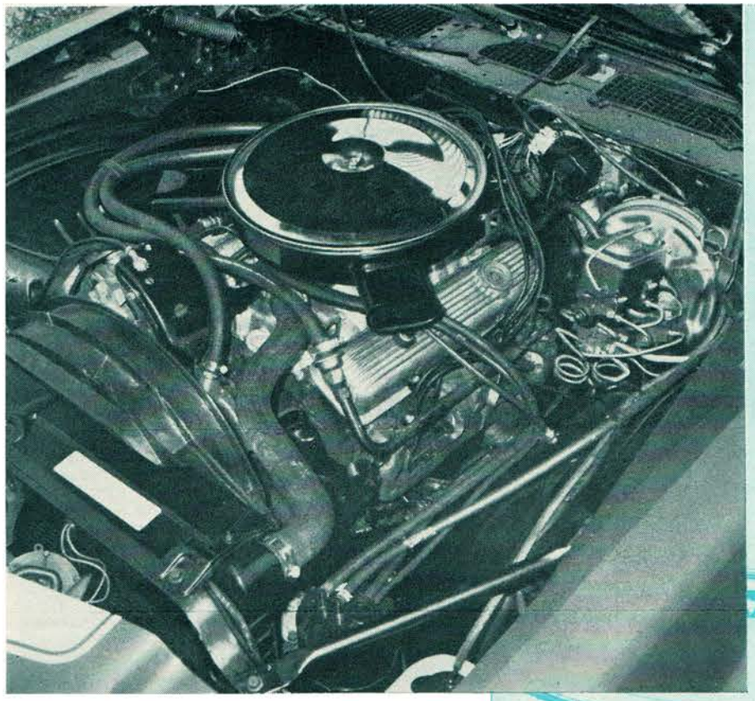
By John Dianna ■ Chevrolet Motor Company recently announced the introduction of a new 350-cubic-inch engine that has a rating of 360 horsepower (pardon us, that's 370 hp in a Corvette) and utilizes many of the high-performance component designs of yesterday's 302 engines. In all honesty, this engine really isn't new. Why, just last year it was listed (by mistake) at 370 horsepower in Chevy's '69 Chassis Service Manual.

It seems that they (Chevy) had every intention of releasing the engine in last year's Z/28s and Corvettes, but they felt the Service Package parts availability would be questionable if they tried to produce two such engines — and they were right. Naturally, the 302 got the nod for production because of the SCCA rules governing the Trans-Am series. But now that SCCA has included a destroking rule in their '70 classification, there isn't a need for producing both the 302- and the 350-inch versions of the special performance package — the Z/28.

The street version of the Z/28 is quite an impressive little package over last year's car — and brother, that's sayin' somethin'. We were afforded an opportunity to wring out the car (no sense calling it driving) around Riverside's twisting course, and you didn't have to be a Mark Donohue to turn in a few quick laps — that car really worked. The power felt strong, but was somewhat weak at low rpm; however, it's still an improvement over the low-throttle response of the smaller 302. Our car was equipped with a standard 3.73 rear gear ratio, but we strongly recommend ordering the optional 4.10 gear — even for the street. After all, who would buy this car for economy purposes anyway?

Enginewise, this once-referred-to LT-1 option (Z/28 standard equipment) utilizes a cast iron block with four-bolt mains and an oversquare (4.00- x 3.48-inch) piston/crankshaft assembly. The crank is a high-performance forged-steel unit utilizing unchanged main and rod bearing dimensions (2.450-inch mains and 2.099-inch rods). Connecting rods are also from the high-performance family, and are good-quality drop forgings. Center-to-center lengths run from 5.695-to-5.705 inches and are only available with pressed-in .927-inch chromium steel pins. Piston-pin offset is again held to the standard (.060-inch) offset to the major thrust side of the engine.

As far as piston selection is concerned, the engineers again chose a winner. The pistons are basically the same as last year's 302 units, with the same dome configuration and identical 11.00:1 compression ratio. The L-46, 350-inch, 350-hp Corvette engine also used these 11-to-1 pistons. It would seem that Chevrolet is so satisfied with this design that any extruded dome pistons they may need in the near future will most likely be of similar design. The pistons are manufactured by TRW and are impact-extruded (forged) aluminum slugs that feature a slipper skirt design. They are fitted with between .0036-inch and .0042-inch clearance in the bores, and this figure is taken 1.660-inch from the top of the pistons. Spacing between the bores is 4.40 inches.



The engine that was once referred to as the "LT-1 option" is now a reality and is available in both the Z/28 Camaro and the '70 Corvette. This high-strung off-breed of the ever-popular 302 engine offers more sound engineering per dollar than any of its predecessors. This package has it all.

According to the specs, the camshaft was altered this year. The standard RPO Z/28 stick has lost some of its intake timing, overlap and total lift. The new design reads: Intake valve opens 42°40′ BTC and closes 94°20′ ABC. Intake duration is 317°, which is some 29 degrees shorter than last year's production cam. Exhaust opens 112°50′ BBC, and closes 53°23′ ATC. Exhaust duration is 346°13′, valve-opening overlap is 96°3′, and lift for both intake and exhaust is .458-inch. At this time, word was not final on the possibility of an optional cam being offered, but if there is such an option, it will be strictly limited to over-the-counter sales. We have not driven a '70 Camaro with the new Z/28 cam on the street, but from our experience during those Riverside "spin-out" laps, the new cam design should benefit low-rpm street performance and off-idle acceleration.

An interesting change in the "would-be" identical heads are the new screw-in studs and the hardened steel pushrod guide plates. Although lift was cut some .027-inch for this LT-1 engine, 206 pounds open valve spring pressure and quick lobe ramps have been known to pull a stud or two. The guide plates were added to eliminate wear-out problems which were normally associated with the pushrod guide holes originally cast and machined in the older style heads. For years, racers have been crying for these two simple additions, so Chevy parts-supply depots had better stack 'em high. Once the word hits the field on the availability of these units, Chevy's head business should soar. Valve sizes remain unaltered (intake 2.02-inch and exhaust 1.60-inch), and they also retain the same material content (alloy steel). Valve springs employ a spring dampener and carry the following specs: 84 pounds at 1.70-inch in the closed position and 206 pounds at 1.25-inch open. Rocker arm ratio is 1.50:1.

The intake manifold for this "Duster buster" is a high-rise aluminum design fitted with a 780-cfm Holley four-barrel (3973123). No new "trick" manifolds have been released by Chevy, but the original dual-quad large plenum manifold/carbs combo is still available. Oddly enough, there will be no optional fresh-air hoods for the '70 Camaros — Z/28s or otherwise.

The cooling system includes a dual-belt fan drive, external bypass water pump, and a five-blade (18-inch-diameter) thermostatically controlled fan. Internally, the engine, radiator and heater will handle 16 quarts of coolant, and is equipped with a thermostat designed to circulate the coolant between 177-183 degrees (F). Other items that are incorporated on this newly released engine are: aluminum single-point vacuum-controlled distributor, high-performance oil pump (same as used on the 302), chrome-plated air cleaner cover, aluminum rocker covers and, of course, the M-22 four-speed with Hurst shifter and the 10½-inch (raised-finger) diaphragm clutch.

We must admit, the times turned with the car Steve Kelly tested fell somewhat short of our honest expectations, but don't let that bother you. This engine is a real sleeper, and is capable of producing "cubic" horsepower. We've seen a few "homemade" versions of this new LT-1 package, and the only area in which they needed improvement was in hooking the power to the ground — and that's just one of the things this new "better-late-than-never" Z/28 has going for it. ■■