CAR and DRIVER ROAD TEST

CHEVROLET CAMARO Z-28

The Z-28 is Chevrolet's version of the Shelby Mustang—
a Gran Turismo disguised as a Detroit sporty car.

Almost! Inch by cubic inch, Chevrolet warily circles the enthusiast, closing in for the kill. With the Camaro Z-28, they're getting warm—very close to what we'd like to see the Camaro become.

The Z-28 designation refers to an engine option, a 302.4 cu. in., 290-hp V-8, the heart of a sedan racing package. The option adds $437.10 to the Camaro's $2572.00 base price, but additional mandatory options, such as power disc brakes (front) and a four-speed close-ratio Muncie transmission, bring the sticker price up to a minimum of $3314.60. Additionally, the Z-28 option includes heavy-duty springs and shocks front and rear, shot-peened front ball studs, a rear radius rod, 15 x 6-inch wheels with 7.35-15 nylon red-stripe tires, and a pair of broad fore-and-aft racing stripes that all but say, "Awright kid, let's see your license and registration."

This equipment has been brought together in the Camaro primarily for the Sports Car Club of America's sedan races, which are governed by Group 2 of Appendix J of the Federation Internationale de l'Automobile's Sporting Code. Group 2 sedans are supposedly production touring cars, modified only slightly—in the interests of safety—for competition. The manufacturer must produce 1000 identical cars before the FIA will certify that it is a production car. The SCCA imposes some additional restrictions, including a maximum wheelbase of 116 inches, and a maximum engine displacement of five liters (305.1 cu. in.).

Chevrolet had no intention of entering passenger cars in sedan races itself, but there was such a hue and cry from road racing Chevy lovers that management was persuaded to make a suitable vehicle available and have it certified for competition ("homologated" in the obtuse jargon of the FIA), just as Chevrolet has done with the Corvette Sting-Ray in the sports car class.

Actually, the Chevy II would be a more competitive basis on which to build a Group 2 sedan (because it's

(continued)

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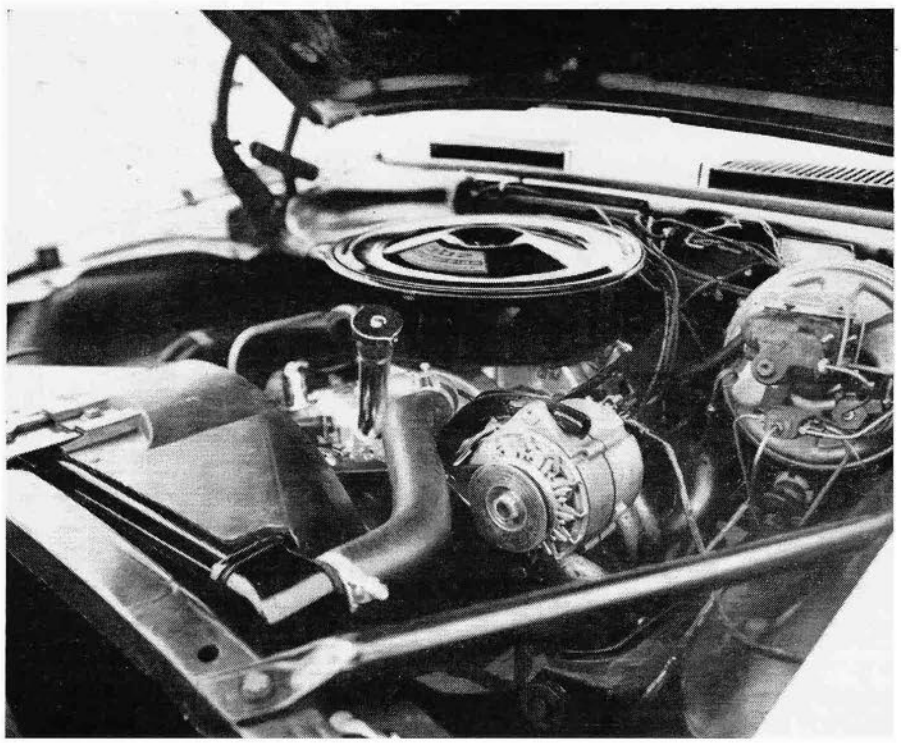

lighter), but Chevrolet likes to think of the Chevy II as a family sedan and the Camaro as a sporty car—and would just as soon have the public think likewise.

The SCCA's five-liter displacement ceiling is what prompted the 302 cu. in. engine size of the Z-28. Until the Z-28, the Camaro was available only with a 250 cu. in. six-cylinder engine (not powerful enough) and the 327 and 350 cu. in. V-8s (over the limit). If the standard Chevy 283 cu. in. V-8 had originally been offered with the Camaro, that's probably the engine Chevy would have homologated, but starting from scratch, the opportunity to create a new engine with a displacement close to sedan racing's maximum proved tempting. And it could be easily built up from existing hardware. Chevy took the crankshaft from the 283 with its 3.0-inch throws, and put it in the 327 block with its 4.0-inch bore, and came up with the Z-28's 302 cu. in. displacement. (This bore/stroke combination has been used for years in Chevy engines in USAC sprint cars.)

The Z-28's engine is special in several other respects. It has mechanical lifters, which are noisier than hydraulics, but allow higher revs. The carburetor is a high flow capacity (800 cu. ft. per minute) Holley four-barrel, sitting atop a "high-rise" aluminum intake manifold, and fed from a plenum chamber picking up cool air from the grille near the base of the windshield—a trick invented by Chevy for their 427 cu. in. Mark II racing engine in 1963. The Z-28's heads, from the 327, feature large valves: 2.0 inches (intake) and 1.6 inches (exhaust). Dual-point transistor ignition, a 5-blade viscous-drive fan, and double fanbelt pulleys are also standard on the Z-28.

There have been some problems with the exhaust plumbing. Chevrolet asked one of its big suppliers for a price on fabricated headers. The supplier, accustomed to working on 100,000-job lots, sheepishly came up with an initial estimate of $400. Ridiculous! You can buy headers for

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the Chevy 283/327 from practically any speed shop in the country for under $150. So, although the Z-28 option includes tuned headers, the $437.10 price doesn't reflect this. Production Z-28s will have headers made to the same pattern—at an extra cost of about $150 (our estimate).

After our blast at the Camaro SS 350's tenuous axle location (*C/D* November), Chevy met us halfway . . . by putting *one* traction arm on the car—on the right side. Under heavy acceleration, reaction to the engine's torque tips the car counterclockwise (viewed from the rear), unloading the right rear wheel. If the right side of the axle isn't tied down, it goes haywire. One traction arm on the right side will control axle judder, but the car still comes off the line sideways. Also, it will behave differently in a righthand corner than when turning left. Worst of all, under heavy braking the torque is coming from the opposite direction, and the left side of the axle judders violently. Under Group 2 rules, it isn't legal to add a traction arm, so competitors will have to use the left trailing link of a rear antisway bar (not an option, but legal in Group 2).

As a racing car, we expect the Z-28 to do quite well. The 283/327 engine has been around long enough that extracting its maximum power is old hat for any experienced speed shop (souped-up versions of the 327 powered five of the six Can-Am winners last year), particularly as the choice of such key items as the camshaft and pistons is up to the individual Group 2 engine tuner.

Modified to the legal limit, the 302 engine should be capable of 390 horsepower, as compared with the 380 hp of the Cougar 289 (with two four-barrel carbs), the 370 hp of the Mustang 289, and the 360 hp of the Plymouth/Dodge 273 installed in Barracudas and Darts. In fighting trim, the Z-28's weight should be under 2700 lbs. The new notchback Barracuda is expected to weigh about 100 lbs. less than last year's fastback (2600 lbs.), while the Cougar is expected to weigh about 100 lbs. more than the Mustang (2600 lbs. in '66). Brakes, transmissions, suspensions and aerodynamics are roughly equal between the cars in this class.

The list of race-worthy options for the Z-28 includes items like an aerodynamic spoiler-lip for the trunk lid, 7 x 15-inch cast magnesium wheels, and sintered metallic brake pads and linings (no prices have been set for these yet), and choices of axle ratios from 3.07 to 4.88, with or without Positraction.

No more than a handful of these cars will actually be raced—say 100 at most. This leaves at least nine hundred Camaro Z-28s that will be sold through regular Chevy dealers as street cars to customers smart

(Text continued on page 94; Specifications overleaf)

CHEVROLET CAMARO Z-28

Manufacturer: Chevrolet Motor Division
General Motors Corp.
Detroit, Michigan 48202
Number of dealers in U.S.: 6600
Vehicle type: Front-engine, rear-wheel-drive, 4-passenger sports sedan, all steel integral body/chassis with front sub-frame
Price as tested: $4051.00
(Manufacturer's suggested retail price, plus Federal excise tax, dealer preparation and delivery charges; does not include state and local taxes, license or freight charges)
Options on test car: Z-28 package ($437.10, includes 302 cu. in. engine, tuned-length aluminum intake manifold, 5-blade fan with viscous clutch, Holley 4-bbl 800 cu. ft./min. carburetor, plenum air intake, special coil and distributor, dual exhausts; tuned-length headers, approximately $150.00 extra), 4-speed "Muncie" transmission ($184.35, mandatory), front disc brakes ($79.00, mandatory), power brakes ($42.15, mandatory), Positraction ($42.15), instrument package ($79.00; ammeter, water temperature and fuel level gauges, electric clock, tachometer on instrument panel, fuel level warning light), spoiler lip ($50.00, our estimate), Rally Sport package ($105.35; electric headlight doors, special grill and side trim), vinyl top ($73.75), AM radio ($57.40), tinted window glass ($30.55), custom interior ($94.80), console ($47.40)

ENGINE
Type: Water-cooled V-8, cast iron block and heads, 5 main bearings
Bore x stroke..4.00 x 3.00 in, 101.6 x 76.3 mm
Displacement.....302.4 cu in, 4956 cc
Compression ratio.....11.0 to one
Carburetion.....1 x 4-bbl Holley
Valve gear.....Pushrod-operated overhead valves, mechanical lifters
Power (SAE).....290 bhp @ 5800 rpm
Torque (SAE).....290 lbs/ft @ 4200 rpm
Specific power output.....0.96 bhp/cu in, 58.5 bhp/liter
Max. recommended engine speed...6000 rpm

DRIVE TRAIN
Transmission: 4-speed manual, all-synchro
Clutch diameter.....10.4 in
Final drive ratio.....3.70 to one

Gear	Ratio	Mph/1000 rpm	Max. test speed
I	2.20	9.4	57 mph (6000 rpm)
II	1.64	12.6	76 mph (6000 rpm)
III	1.28	16.1	97 mph (6000 rpm)
IV	1.00	20.6	124 mph (6000 rpm)

DIMENSIONS AND CAPACITIES
Wheelbase.....108.1 in
Track.....F: 59.0 in, R: 58.9 in
Length.....184.6 in
Width.....72.5 in
Height.....51.4 in
Ground clearance.....5.5 in
Curb weight.....3250 lbs
Test weight.....3550 lbs
Weight distribution, F/R.....57.0/43.0%
Lbs/bhp (test weight).....12.2
Battery capacity.....12 volts, 45 amp/hr
Alternator capacity.....444 watts
Fuel capacity.....17.8 gal
Oil capacity.....5.0 qts
Water capacity.....18.0 qts

SUSPENSION
F: Ind., unequal-length wishbones, coil springs, anti-sway bar
R: Rigid axle, single-leaf springs, single trailing link on right-hand side

STEERING
Type.....Recirculating ball
Turns lock-to-lock.....5.0
Turning circle.....37 ft

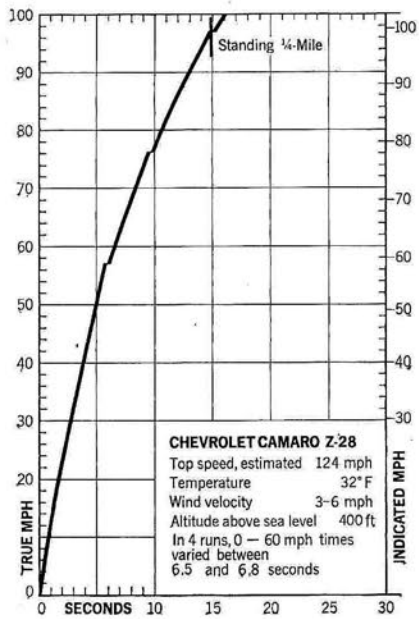
BRAKES
F: Delco-Moraine 11.0-in vented discs
R: 9.5 x 2.0-in cast iron drums
Swept area.....332.4 sq in

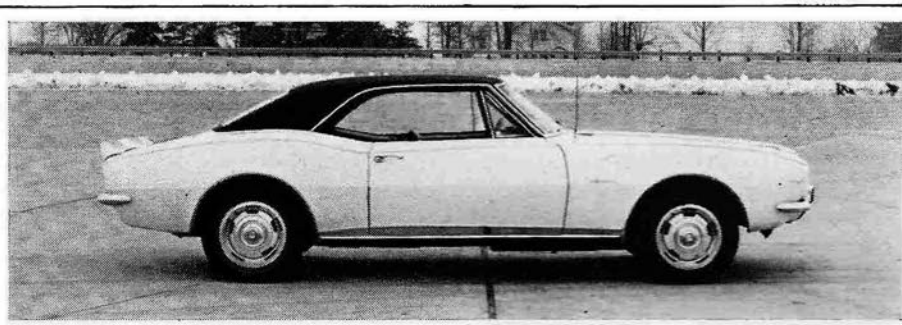
WHEELS AND TIRES
Wheel size and type.....6.0JK x 15-in, pressed steel disc, 5-bolt
Tire make, size and type:..Goodyear 7.35-15 Power Cushion, 2-ply nylon tubeless
Test inflation pressures...F: 30 psi, R: 30 psi
Tire load rating.....1180 lbs per tire @ 24 psi

PERFORMANCE

Zero to	Seconds
30 mph	2.6
40 mph	3.7
50 mph	5.0
60 mph	6.7
70 mph	8.3
80 mph	10.5
90 mph	13.0
100 mph	16.2

Standing ¼-mile.....14.9 sec @ 97 mph
80-0 mph.....293 ft (.73 G)
Fuel mileage.....11-15 mpg on premium fuel
Cruising range.....195-267 mi





CHECK LIST

ENGINE
Starting.....Good
Response.....Excellent
Vibration.....Very Good
Noise.....Poor

DRIVE TRAIN
Shift linkage.....Very Good
Synchro action.....Excellent
Clutch smoothness.....Very Good
Drive train noise.....Very Good

STEERING
Effort.....Fair
Response.....Very Good
Road feel.....Fair
Kickback.....Fair

SUSPENSION
Ride comfort.....Good
Roll resistance.....Very Good
Pitch control.....Very Good
Harshness control.....Good

HANDLING
Directional control.....Very Good
Predictability.....Excellent
Evasive maneuverability.....Very Good
Resistance to s dewinds.....Very Good

BRAKES
Pedal pressure.....Very Good
Response.....Very Good
Fade resistance.....Very Good
Directional stability.....Good

CONTROLS
Wheel position.....Good
Pedal position.....Fair
Gearshift position.....Very Good
Relationship.....Fair
Small controls.....Good

INTERIOR
Ease of entry/exit.....Fair
Noise level (cruising).....Poor
Front seating comfort.....Fair
Front leg room.....Fair
Front head room.....Fair
Front hip/shoulder room.....Good
Rear seating comfort.....Poor
Rear leg room.....Poor
Rear head room.....Poor
Rear hip/shoulder room.....Fair
Instrument comprehensiveness....Excellent
Instrument legibility.....Fair

VISION
Forward.....Fair
Front quarter.....Good
Side.....Very Good
Rear quarter.....Poor
Rear.....Fair

WEATHER PROTECTION
Heater/defroster.....Good
Ventilation.....Fair
Weather sealing.....Good

CONSTRUCTION QUALITY
Sheet metal.....Good
Paint.....Good
Chrome.....Very Good
Upholstery.....Fair
Padding.....Good
Hardware.....Fair

GENERAL
Headlight illumination.....Very Good
Parking and signal lights.....Fair
Wiper effectiveness.....Fair
Service accessibility.....Good
Trunk space.....Poor
Interior storage space.....Fair
Bumper protection.....Fair

CHEVROLET CAMARO Z-28

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enough to know what to insist on. The primary purpose of this road test is not to speculate on the Z-28's potential as a racing car—the record will speak for itself—but to evaluate the Z-28 as a high-performance street machine.

Basically, the Z-28 is Chevrolet's version of the Shelby Mustang—a Gran Turismo disguised as a Detroit sporty car. The Z-28's performance is remarkably similar to the Shelby GT 350, at a price almost $1000 less. Of course, Carroll Shelby has had three years of experience with his Super Mustang, so he's learned to avoid some of the pitfalls that are new to Chevrolet's Super Camaro.

The engine is obviously the Z-28's strongest point. Pulling a slightly tighter gear than the SS 350 we tested in November (3.70 vs. 3.31), and with nearly 20% less displacement, the Z-28 jumps through the quarter-mile 1.2 seconds faster, yet reaches a slightly higher top speed. The 290-hp figure quoted for the Z-28 engine seems ridiculously conservative; it feels at least as strong as the 327 cu. in., 350-hp hydraulic-lifter engine offered in the Corvette.

The 302 engine is without a doubt the most responsive American V-8 we've ever tested, although there is a trace of unevenness at low speeds because of the carburetor's unusually large venturi area. Once it begins to pull, however, it smooths out and lunges forward like a 426 Hemi. The red-line on the tach was at 5500, which we and the engine cheerfully ignored. It revs quickly to 6000 rpm, with no sign of getting tight, and we reluctantly shifted—in the interests of prudence. The test car had the pre-production headers and a set of Harry Highschool dual exhausts that were L-O-U-D! Chevrolet promised that these cop-baiters would be toned down in the production Z-28s.

The clutch engages easily but smartly, and pedal pressure is ideal for high-spirited driving. The Muncie gearbox has the very close ratios (2.20/1.64/1.28/1.00) used in the high-performance Corvettes, and the synchromesh is absolutely unbeatable, except going into fourth. The shifter mechanism is as positive as a Hurst linkage, although not as stiff.

Drag racing starts, as mentioned, will result in a lot of snaking around as the lefthand single-leaf spring flexes. Pontiac uses huge dual traction arms on virtually the whole Firebird line as standard equipment, so the easy solution would be to

junk the Chevy part and bolt on a pair of Tiger Tamers.

The braking ability of our test car wasn't good enough to win anything in the Pure Oil Trials, much less on the race track. The 80-0 mph stopping distance was 293 feet (.73G), which compares with the Camaro SS 350's 280 ft. (.76G), which had a braking system identical to the Z-28's, and with 287 ft. (.74G) for the 428 cu. in. Shelby GT 500. The Chevrolet engineer with us during this phase of the test later called to say that one of the test car's front disc pads had been incorrectly installed, and that a shorter stopping distance would be more realistic. Let's hope so; it will take something better than 1.0G (213 ft.) to make it as a race car. With the metallic linings and some fiddling with the brake balance, 1.0G should be within the Z-28's grasp. But it will take better tires, too.

Operating on the theory that anyone who buys a Z-28 is such a knowledgeable enthusiast that he will disagree with Chevy's choice of tires anyway, these Camaros are equipped with Goodyear 7.35-15 Power Cushions—a rather nondescript street tire not up to the performance of Goodyear's own E70-15 Speedway Wide Treads.

We didn't have a chance to try the Z-28 on a skid pad, but we see no reason why it shouldn't be as good as the SS 350, which recorded .78G lateral acceleration with full directional control (on Firestone D70-14 Super Sports Wide Ovals). In fact, with the 7-inch mag wheels and big fat tires, the Z-28 should be capable of over .90G. Again, the race cars will generate over 1.0G . . . or else.

The test car had the Z-28's standard 24:1 manual steering, which is quite slow. A shorter, 20:1 manual ratio is optional—the one that will be on most of the race cars—and good for high-speed driving, but unreasonably heavy around town. Probably the best compromise for the enthusiast is the 15.6:1 power steering with only three turns lock-to-lock.

Otherwise, the Z-28 test car was identical to the SS 350 we tested in November—even to the vinyl top, custom interior, console, AM radio, tinted glass, Rally Sport package (peek-a-boo headlights), and all that other trick stuff that doesn't make it go any faster. On a car like this, we would consider the extra instrumentation package (with necessary items like a tach and an oil pressure gauge) and Positraction essential. All the other options normally available for the Camaro (except air conditioning), are available with the Z-28. The Z-28's exterior striping will be exclusive plumage—presumably so you can tell the road racers from the drag racers.

It's insane, really, that it took Chevy's idea of a road racing car to make the Camaro acceptable to us as an enthusiast's high-performance street car. We're not that far out. If anything, it goes to show how far out of touch Chevrolet has been since it forever renounced racing, the last time in 1963.

With the Z-28, Chevy is on the way toward making the gutsy stormer the Camaro should have been in the first place. It's an appealing car; as tough and purposeful as an F-5 jet fighter, but a car you could be happy living with. The brakes need a little work, there's that nonsense with the single traction arm (a medal for Half-Price Harry, pride of the Costing Department), and we'd like a wider choice of tires—but it's a start. Any owner who wants to rectify these drawbacks on his own is going to wind up with one of the 1000 best Camaros ever built. C/D