427 CAMARO

Corvette's Muscular Mover Provides The Power for a Cobra-Style Transformation

BY JIM WRIGHT

THE CAMARO seems destined to be a second-thought car. For a time, Chevrolet preferred to ignore Ford's highly successful Mustang, but then had second thoughts. The Camaro was designed and built. The announcement of the Camaro stated the 350-cu. in. engine would be the top option. Meanwhile, with advent of the 1967 Mustang, Ford stated its top option would be the 390-cu. in. engine. On second thought, a month or so later, Chevrolet announced the 396-cu. in. engine option. Then, Carroll Shelby made a few announcements of his own, offering a package called the GT-500, his version of the Mustang powered by Ford's 428-cu. in. engine.

The Chevrolet factory ignored this one completely, but two of its dealers didn't. Nickey of Chicago and Dana of South Gate, Calif., had simultaneous second thoughts and started to build their own versions of the Camaro—powered by 425-bhp/427-cu. in. Chevrolet Corvette engines. In a way, they have trumped Shelby and Ford because the latter's 428-cu. in. engine is rated at only 355 bhp.

This action on the part of the two Chevrolet dealers wasn't surprising, considering their performance backgrounds. Nickey (with a mirror-image K) long has been active in stock, sports car and drag racing. Recently the firm announced a tie-in with Bill Thomas/racing cars of Anaheim, Calif., for the purpose of building the 427 Camaros as well as merchandising a line of Chevrolet performance equipment and accessories.

Dana Chevrolet is a long-time operation that recently changed hands. One of the new partners, Peyton Cramer, for several years was associated with Shelby-American and was instrumental in initiation of the Mustang GT-350 project. Cramer understands hybrids. Rawhiding the Dana 427 Camaro project for Cramer is another Shelby works alumnus, Don McCain. His specialty is drag racing. McCain spent the past few years putting various versions of Cobra and Mustang GT-350 at the head of their respective drag racing classes.

CL wasn't able to have a go at the Nickey version, but test crewmen were able to thoroughly familiarize themselves with the Dana offering. And, some people think they have problems keeping the 350 Camaro at low altitude. They haven't seen anything. The 427 Camaro is just *too* much—in more ways than one.

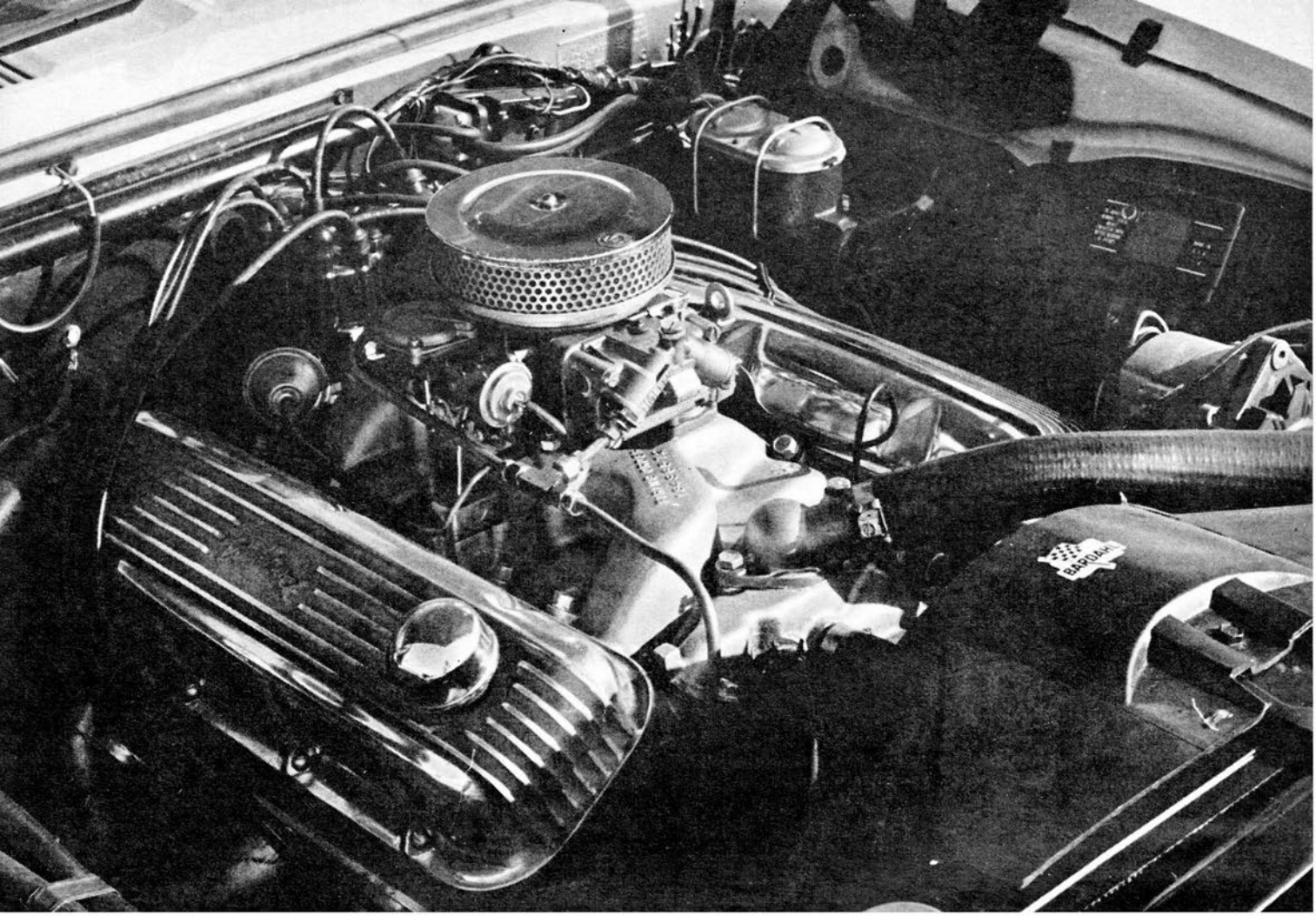
The particular car tested was built by Dana for the Bardahl Oil Co., which plans to use it for show and as a high-speed test vehicle for numerous lubricant products. As such, the car carried a few more accessories than one usually would encounter on the average Dana 427 Camaro, mainly because of price. The base price of the Dana package is $4495, but the extras raise the Bardahl car to $5500.

The Dana 427 price includes the base car, which is the 350 SS model. Standard 350 SS performance equipment includes Chevrolet's idea of heavy-duty suspension, increased capacity radiator (17 qt. rather than 13 qt.) and 14 x 6 wheels mounting D70-14 Firestone Wide Oval tires.

To this, as part of the $4495 package, Dana adds the 427/425 engine, Muncie 4-speed transmission, 3.55:1 Positraction rear end, metallic brakes, a set of headers with dual exhaust system, heavy-duty clutch and pressure plate with NHRA-approved scatter-shield, chrome-plated valve covers and air cleaner, 8500-rpm electronic tachometer, and dash-mounted oil pressure and water temperature gauges.

Extras on the Bardahl car, many of which are more for show than go, include custom interior, Rally Sport package, vinyl roof, custom steering wheel, tinted glass, push-button radio, appearance and lighting groups, front disc brakes, quick-response steering, Traction Masters and F70-14 Wide Tread tires. The last four items are 100% desirable choices from any enthusiast's standpoint.

DANA PEGS the unit package price at $1078, which makes allowance for the 350-cu. in. engine that is sold over the counter at $475, less starter ▶



JUST AS IF THE engine compartment had been designed for it originally, the Corvette 427/425 fits snugly in place. Low-restriction paper element air cleaner and polished aluminum rocker covers are standard.

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and alternator. This means the Camaro 350 SS, as Dana orders it, lists at $3417.

Nickey 427 Camaros carry a list price of $3711, which doesn't include special exhaust headers, heavy-duty clutch, pressure plate and approved scattershield, or extra instrumentation as does the higher base price of the Dana 427 Camaro.

The 427/425 engine used by both Dana and Nickey actually is a 1966 Corvette version of the 427 (RPO L72) that is ordered new from the factory. This is the single 4-barrel, mechanical lifter camshaft version. Compression ratio is 11:1. The engine achieves its rated 425 bhp at 5600 rpm and 460 lb.-ft. of torque at 4000 rpm. For the Camaro conversion, it appears a much better choice than any of the 1967 427s—390 bhp, single quad, hydraulic lifter camshaft; 400 bhp, three 2-barrel carburetors, hydraulic lifter camshaft; or 435 bhp, three 2-barrel carburetors, mechanical lifter camshaft. It is better than the first two because it develops greater bhp and is better than the last—even with 10 fewer bhp—because a single 4-barrel is less trouble than three 2-barrel carburetors. It is also a slightly more responsive engine in the middle and upper ranges because of its longer cam timing—54-102, 102-54; 336° duration; 108° overlap; and 0.5197-in. lift compared with 44-92, 86-36; 316/302° duration; 80° overlap; and 0.5197-in. lift for the 1967 435-bhp engine. The 427/425 engine also has a broader torque curve, peaking out at 4000 rpm as compared with 3600 rpm for the 435-bhp engine.

Both engines share the basic internal parts—extruded aluminum pistons, forged steel crankshafts and drop-forged steel connecting rods. Intake and exhaust valves are identical for each engine—2.19-in., 1.72-in. diameter respectively. Valve spring pressures are 94-106 psi closed and 303-327 psi open, identical for either.

Swapping engines is a snap, because the Camaro engine compartment obviously was designed to accept the 396 and external dimensions of the 396 and 427 are exactly alike. The 427 engines arrive at the Dana shop minus carburetor, starter, alternator, pressure plate, clutch disc and bell housing. Starters and alternators are taken from 350-cu. in. engines. Other parts are added from stock. The big Holley carburetor is rated at 785 cfm and handles 427 engine demands. When the 427 is installed it is simply a matter of extracting the original engine and bolting in the replacement. There's plenty of room in the compartment for ease in maintenance and servicing.

THE RESULTING combination is not the best for 'round-town junketing. The fairly large Goodyear tires and absence of power-assisted steering make the 427 Camaro very difficult to park. If the driver doesn't have a set of well developed shoulder muscles, he will after a few sessions.

The throttle was approached with caution. The test car was fitted with a 3.55:1 rear axle, not an extreme ra-

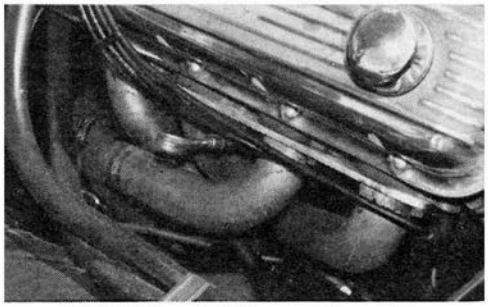
tio, but numerically high enough so full throttle in any gear produced a prodigious amount of wheelspin. Even if the car were eased out and not trod upon until well under way, as soon as the secondary throttles were opened and the engine climbed upon its camshaft at about 3500 rpm, the wheels broke loose. This occurred in every gear except fourth, which illustrates the tremendous amount of torque available from the Chevrolet 427/425 engine.

This is one engine that requires 2000 rpm be maintained for town-type driving. The camshaft is on the wild side and doesn't pull well in any gear below this engine speed. In traffic, the 30-mph city variety, fourth gear seldom was used.

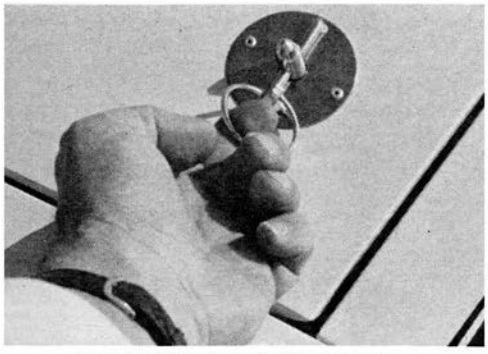
During the acceleration runs at Carlsbad (Calif.) Raceway it was very difficult to get the Camaro off the line with any semblance of order. For some reason, not explained, the test car once had had a Positraction differential, but did not when received by *CL*. Such help was sorely needed. First gear, for all practical purposes, was useless. Wheelspin was less violent in second gear, but still occurred throughout the range of the gear. Halfway through third gear, the tires finally bit solidly. Fourth gear produced only initial wheelspin. Traction Masters completely eliminated spring wrap-up, even in first gear where wheelspin was most pronounced. Very little effort was required to keep the car in a straight line.

Acceleration times were very good, in spite of the lack of traction, but really only indicate the 427 Camaro's potential. Chassis modification and suitable tires should easily knock a full 2 sec. off the car's 14.2 sec. e. t. in the quarter-mile. Zero to 60 mph probably would be under 5.5 sec. and the 0-80 mph time around 7.5 sec. Even without chassis tuning, the 427 Camaro will keep pace with just about anything operating on the streets of America today.

THE TEST car was equipped with optional front disc brakes and it was all they could do to meet the needs of the car. With standard linings, the added weight of the 427 engine presents a few problems. The 23 ft./sec./sec. stop from 80 mph was up to the usual standards test crewmen have come to expect from discs. The second panic stop indicated that the brakes were being overloaded and fade was apparent as the deceleration rate dropped to 21 ft./sec./sec. Some trouble was experienced with rear brakes locking. The brake system employs a pressure-proportioning valve between front and rear brakes to keep the rear from receiving enough pressure to cause locking. This works well in most cases, but with the Dana Camaro the added weight of the 427 caused an increase in the amount of apparent rear-to-front mass transfer during hard braking and removed more mass from the rear tires than anticipated. The result is that rear brake lock occurs before it should, thereby keeping the rate of deceleration from exceeding 23 ft./sec./sec. Here, again, a certain amount of chassis tuning might be able to alleviate the problem. Fade probably could be cured by switching to competition- ▶

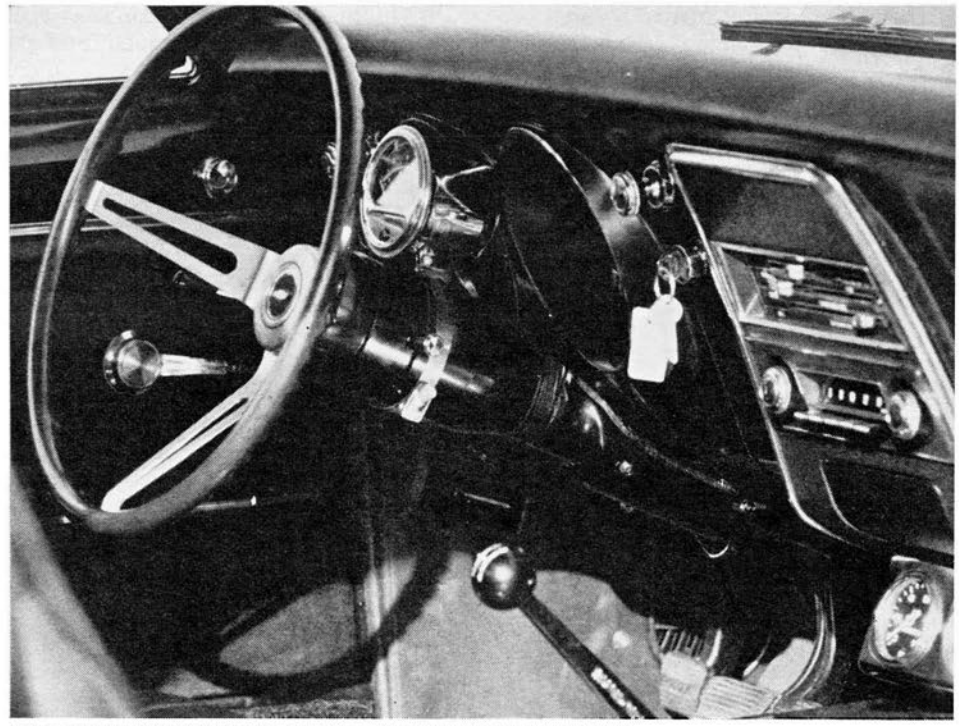


HEADERS nestle between engine and fender panels, help produce added power.

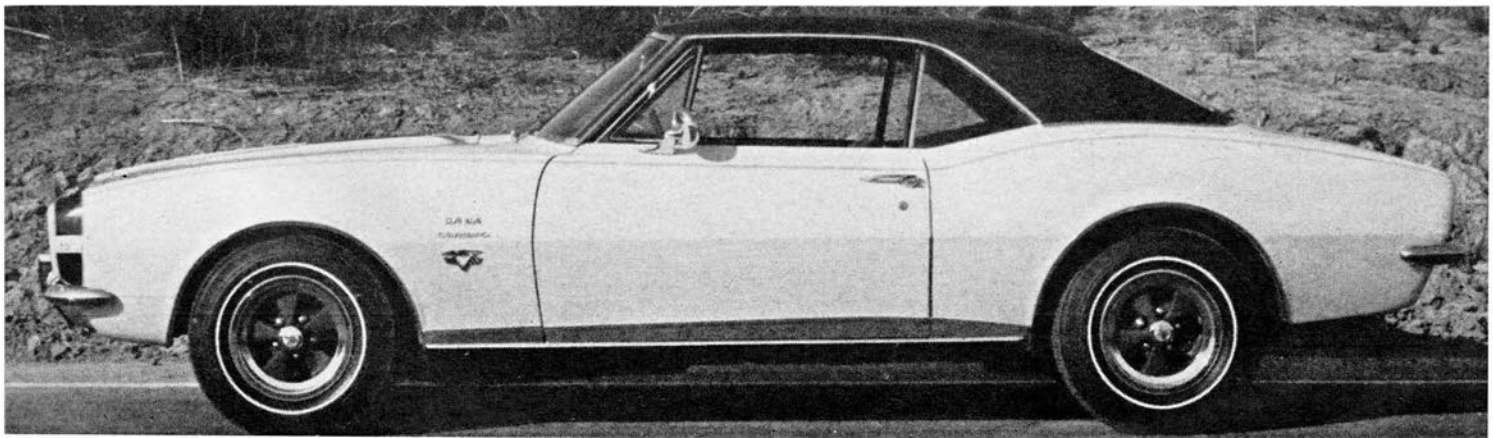


PIN LOCKS for hood hold-downs are a racing styled dress-up accessory.

JIM WRIGHT PHOTOS



ELECTRIC TACHOMETER atop steering column and oil pressure and coolant temperature gauges are standard additions for 427 Camaro.



type brake pads at the front. The rear drums already are equipped with metallic linings as part of the Dana package. In any event, the front brakes did not lock and all the test stops were accomplished in fairly straight lines with the barest minimum of steering correction required.

The test Camaro was equipped with quick steering option, which added to the car's overall responsiveness. One serious drawback to the 427 Camaro is a considerable degree of understeer, much greater than displayed by the factory Camaro. It appears that engine weight is the culprit once again. The chassis is designed for the weight of the 350-cu. in. engine and front and rear suspension geometry is set accordingly. Additional weight upsets the original balance. A larger front antiroll bar would help. The one supplied has a diameter of 0.6875, which is identical to the one used on a Camaro with a lighter 327 engine. The addition of a rear antiroll bar, as in Oldsmobile's 4-4-2, also might help matters by increasing roll stiffness at the rear and less forward mass transfer during cornering. The test car also exhibited very little jounce/rebound control, though so-called heavy-duty shock absorbers were factory installed. They were especially poor on rebound. If slight dips or bumps were encountered on high speed freeway curves, lack of rebound control, coupled with the high degree of understeer, never failed to produce a few anxious moments for the driver. Test crewmen declined to wring out the suspension on mountain roads, discretion being the better of valor.

The supreme test for a car of this type came when it was shown off to a certain well-known engine builder. His shop had the usual contingent of drag racers hanging about as the 427 Camaro drove up. Because all involved are prominent in the sport and supposed to be old enough to know better, names

1967 CHEVROLET
DANA 427 CAMARO

DIMENSIONS

Wheelbase, in.	108.1
Track, f/r, in.	59.0/58.9
Overall length, in.	184.6
width	72.5
height	51.0
Front seat hip room, in.	2 x 20.5
shoulder room	56.7
head room	37.0
pedal-seatback, max.	40.5
Rear seat hip room, in.	54.8
shoulder room	53.8
leg room	30.5
head room	36.7
Door opening width, in.	41.2
Floor to ground height, in.	10.0
Ground clearance, in.	6.3

PRICES

List, FOB factory	$4495
Equipped as tested	5500

Options included: RS package, vinyl roof, custom interior, tinted glass, radio, appearance and light groups, power disc brakes, Traction Master torque arms.

CAPACITIES

No. of passengers	5
Luggage space, cu. ft.	8.3
Fuel tank, gal.	18.5
Crankcase, qt.	5.0
Transmission/diff., pt.	3.0/4.0
Radiator coolant, qt.	22.0

CHASSIS/SUSPENSION

Frame: Unitized body; front subframe.

Front suspension type: Independent by s.l.a., coil springs, telescopic shock absorbers, ball-joint steering.

ride rate at wheel, lb./in.	125
antiroll bar dia., in.	0.6875

Rear suspension type: Live axle, Hotchkiss drive; single-leaf parallel springs, telescopic shock absorbers, torque arms.

ride rate at wheel, lb./in.	131

Steering system: Semi-reversible recirculating ball nut gear, parallelogram linkage.

gear ratio	24.0
overall ratio	21.6
turns, lock to lock	3.5
turning circle, ft. curb-curb	37.0
Curb weight, lb.	3368
Test weight	3728
Weight distribution, % f/r	59/41

BRAKES

Type: 2-circuit hydraulic with tandem master cylinders; caliper discs, front; duo-servo shoes in composite drums, rear.

Front rotor, dia. in.	11.0
Rear drum, dia. x width	9.5 x 2.25
total swept area, sq. in.	332.4

Power assist: Integral, vacuum

line psi @ 100 lb. pedal	n.s.

WHEELS/TIRES

Wheel size	14 x 6JK
optional size available	14 x 5J
bolt no./circle dia., in.	5/4.75

Tires: Goodyear Wide Tread

size	F70-14
recommended inflation, psi	26
capacity rating, total lb.	4840

ENGINE

Type, no. cyl.	ohv, 90° V-8
Bore x stroke, in.	4.25 x 3.76
Displacement, cu. in.	426.506
Compression ratio	11.0
Rated bhp @ rpm	425 @ 5600
equivalent mph	120
Rated torque @ rpm	460 @ 4000
equivalent mph	86
Carburetion	Holley, 1x4
barrel dia., pri./sec.	1.686/1.686

Valve operation: Mechanical lifters, pushrods, overhead rockers.

valve dia., int./exh.	2.19/1.72
lift, int./exh.	0.5197/0.5197
timing, deg.	54-102, 102-54
duration, int./exh.	336/336
opening overlap	108

Exhaust system: Headers, dual mufflers.

pipe dia., exh./tail	2.50/2.00
Lubrication pump type	gear
normal press. @ rpm.	50-75 @ 2000
Electrical supply	alternator
ampere rating	37 @ 12 V.
Battery, plates/amp. rating	66/61

DRIVE TRAIN

Clutch type: Diaphragm; centrifugal disc.

dia., in.	11.0

Transmission type: Manual 4-speed.

Gear ratio 4th (1.00) overall	3.55
3rd (1.27)	4.52
2nd (1.64)	5.83
1st (2.20)	7.82
synchronous meshing?	4 forward
Shift lever location	floor console

Differential type: Hypoid; overhung pinion.

axle ratio	3.55

won't be recorded. After one and all had looked over the car, the decision was that nothing would do but all should pile into the car and head for a nearby drive-in restaurant, the purpose of this impromptu excursion being to "blow the kids' minds."

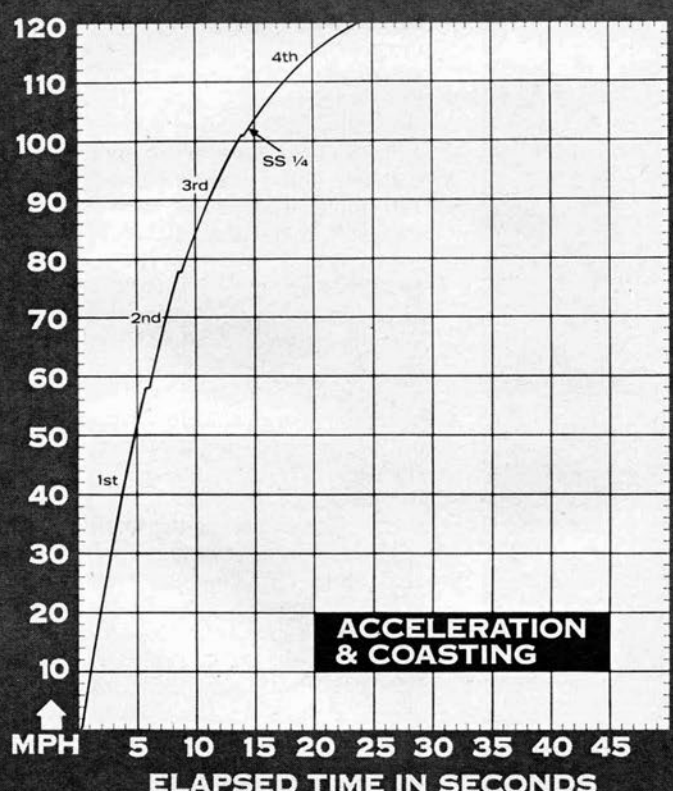
As it was evening, the drive-in lot was was full of the usual crowd. Cars and people of all description were gathered. Tight little groups stood about discussing whatever it is tight little groups discuss. Pulling into the lot, we selected first gear and the Camaro was allowed to idle on through. The radical camshaft produces a nasty lope at first gear idle—very effective. From time to time as the car pulled abreast of first one group, then the other, its occupants shouted, "Go for pinks," or other such archaic phrases. These pointed challenges were met with rather slack-jawed silence. We cruised through twice more with like results. The kids' minds were blown! The nasty lope of the engine could have done it, though several of those involved suspect it may have been the sight of a carload of older types trying to regain the automotive pleasures of their lost youth.

In any event, the 427 Camaro cruised off into the night, unchallenged, unmolested and, probably, unticketed.

One of the participants on the way back to the shop said, "There we were —all of us—17 years old again." And that's really what a car like this is all about. Of course, if one happens to really be 17, he probably won't notice anything other than the fact that the Dana Camaro is an exceptionally fast car.

It's quite a feeling to be 17 again, but something a little less spectacular, with a little more emphasis on *overall* performance and a little less on raw, brute horsepower is *CAR LIFE*'s preference. But then again, with a little help in the suspension department. . . ■

CAR LIFE ROAD TEST



CALCULATED DATA

Lb./bhp (test weight)	8.78
Cu. ft./ton mile	187
Mph/1000 rpm (high gear)	21.4
Engine revs/mile (60 mph)	2800
Piston travel, ft./mile	1750
Car Life wear index	49.2
Frontal area, sq. ft.	20.5
Box volume, cu. ft.	395

SPEEDOMETER ERROR

30 mph, actual	29.0
40 mph	38.0
50 mph	47.0
60 mph	56.0
70 mph	64.0
80 mph	74.0
90 mph	85.0

MAINTENANCE INTERVALS

Oil change, engine, miles	6000
trans./dif.	as req.
Oil filter change	6000
Air cleaner service, mo.	6
Chassis lubrication	6000
Wheelbearing re-packing	as req.
Universal joint service	none
Coolant change, mo.	24

TUNE-UP DATA

Spark plugs	AC 43N
gap, in.	0.033-0.038
Spark setting, deg./idle rpm	8/800
cent. max. adv., deg./rpm	28/4600
vac. max. adv., deg./in. Hg.	15/12
Breaker gap, in.	magnetic pulse
cam dwell angle	magnetic pulse
arm tension, oz.	magnetic pulse
Tappet clnc., int./exh.	0.024/0.028
Fuel pump pressure, psi.	5.7-7.0
Radiator cap relief press., psi.	15

PERFORMANCE

Top speed (6000), mph	130
Shifts (rpm) @ mph, manual	
3rd to 4th (6000)	101
2nd to 3rd (6000)	78
1st to 2nd (6000)	58

ACCELERATION

0-40 mph, sec.	3.7
0-50 mph	4.9
0-60 mph	6.3
0-70 mph	7.7
0-80 mph	8.4
0-90 mph	11.4
0-100 mph	14.0
0-110 mph	17.3
Standing ¼-mile, sec.	14.2
speed at end, mph	102
Passing, 30-70 mph, sec.	5.4

BRAKING

(Maximum deceleration rate achieved from 80 mph)

1st stop, ft./sec./sec.	23
fade evident?	slight
2nd stop, ft./sec./sec.	21
fade evident?	yes

FUEL CONSUMPTION

Test conditions, mpg	n.a.
Normal cond., mpg	n.a.
Cruising range, miles	n.a.

GRADABILITY

4th, % grade @ mph	20 @ 90
3rd	30 @ 74
2nd	40 @ 56
1st	off scale

DRAG FACTOR

Total drag @ 60 mph, lb.	120