

ROAD RESEARCH REPORT: CAMARO SS 350

What's a Camaro? Chevrolet sent us a French-English dictionary which defined "camaro" as a little-known colloquialism meaning "comrade" or "pal." The word was so little-known that none of our French friends had ever heard of it. Sounds Spanish, they said, so we tried a Spanish-English dictionary. Eureka! "Camaro" is defined as a gratuity, a shrimp or something very much like something else. Perfect! There was even a little quotation which translated: "The shrimp that sleeps is carried away by the stream."

Chevrolet seemed to sleep for two years while Ford racked up Mustang sales by the millions. Now the Camaro is here, and whether it's gratuity, shrimp, pal, comrade or very much like the Mustang, Chevrolet must have decided it was better late than never. The mystery is why it took Chevrolet so long to launch a car in the animal-name market. GM is mum on the subject, but we can speculate.

The Corvair may—in a roundabout way—be partially responsible for the Camaro gap. The Corvair was intended to be the American Volkswagen, and in that, it failed. While Ford's Falcon and Plymouth's Valiant burned up the sensible-transportation market, Chevrolet fiddled with the Chevy II. By the time the Chevy II was ready, Chevrolet had inadvertently created a whole new market—the enthusiasts were accepting the Corvair as a sporty car. Chevrolet failed to capitalize on this, and Ford again stole the thunder—this time with the sporty Mustang. Chevrolet was still a leap behind.

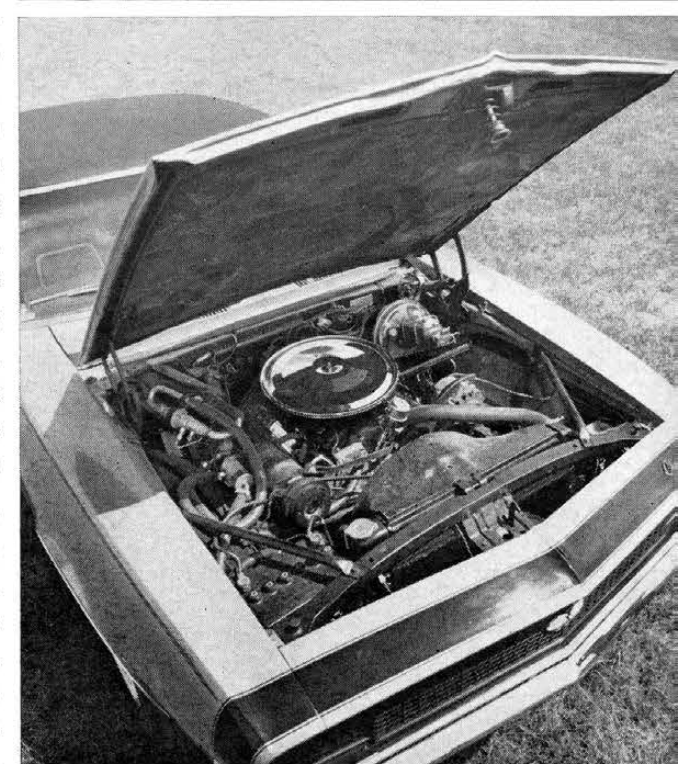
As a sporty car, the Corvair was a *cul de sac*. Chevrolet took great pains to make it the best-handling sedan in America only to discover that potential buyers were more interested in looks and power. With

The Camaro SS 350 looks like a tasteful American interpretation of a European *Gran Turismo*, so we expected a lot of it.

If a girl who looks like Monique Van Vooren shows up at your party, you'd kind of like to think she's in show biz.

If it turns out that she works the check-out counter at the A&P, that's nice too, but you're bound to have mixed feelings.

Chevrolet has not produced a car demonstrably superior to the Mustang



Although neither sports car nor "Super Car," the Camaro has many of the characteristics of both. Quarter-mile acceleration is in the low 16s, braking and cornering forces approach 0.8 "G". All told, Chevrolet's Camaro does not offer the extremes of performance that the Mustang does. GM's eggs are in a softer, more middle-of-the-road basket



PHOTOGRAPHY M. BRADY

the 180-hp turbocharged engine, the little flat-six was at the end of its tether as far as more power was concerned. The situation demanded a whole new engine, which would have cost a fortune, and the prospects for a decent return on the investment were slim. A whole new car looked like a better bet than improving the old one. Accordingly, all basic engineering work on the Corvair stopped two years ago, and the Camaro project (which was code-named the "Panther," or the "F" car) was initiated.

Like the Mustang, the Camaro is not so much a new car as it is a new approach. Like the Mustang, the Camaro is based largely on existing hardware—in this case, the Chevy II/Chevelle models. Like the Mustang, the Camaro is a sporty-looking car with a long hood and a short rear deck, although its styling is related much more closely to the Corvair than to the Mustang.

The youth market—or what's left of it after The Draft and tight money—is what the Camaro is aimed at, with older folks wanting in on the fun because that's where they think the action is. It's Everyman's "cute little car," with practicality or performance, as you choose. We naturally opted for the performance model, the SS 350. The "SS" stands for Super Sport, a family of high-powered Chevy options. There's an SS 427 in the full-size Chevrolet line-up and an SS 396 Chevelle (the Chevy II 327 is too hot to publicize, and the 164 cu. in. Corvair is barely warm to the touch). The figure 350 will not be familiar to Chevy fans because it refers to a new engine size. The ubiquitous 327 cu. in. V-8 was enlarged to 350 cu. in. by increasing the stroke from 3.25 in. to 3.48; the bore remains unchanged at 4.00 in. The 350 engine is available only in the Camaro, and is mildly tuned to produce an easy 295 horsepower at 4800 rpm, with good pulling power from 800 rpm on up. We would have preferred something like the Corvette's 327 cu. in., 350-hp engine, which is a very sporting unit and would be rated around 375 hp at 350 cu. in., but there's an unwritten corporate ban on more than one horsepower for every 10 pounds of weight in any GM car that isn't a sports car. The 3200-lb. Camaro is thus limited to 320 hp, because it doesn't exactly qualify as a sports car, as we shall see.

The Mustang's equivalent to the SS 350 is the 390 GT, which boasts an engine some 40 cu. in. larger and 25 hp more powerful. But in almost every other specification, the Camaro and the Mustang are indistin-

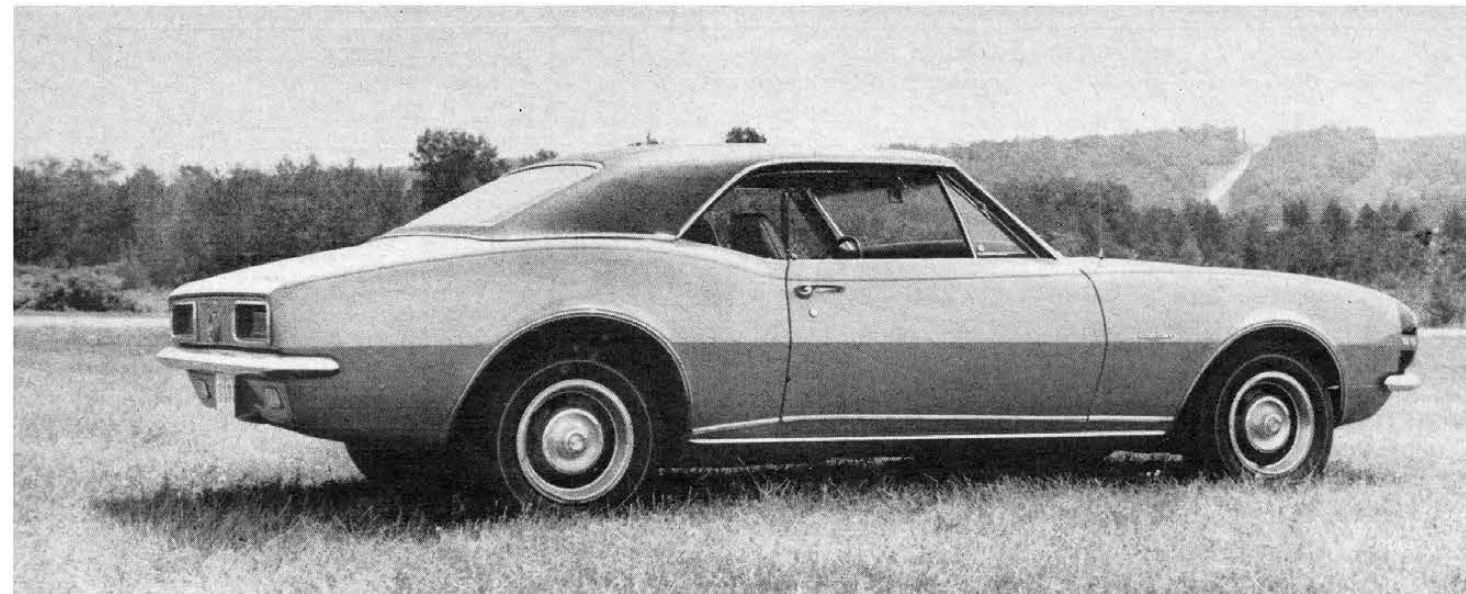
guishable. The Camaro engine line-up consists of a 140-hp six-cylinder, 210-hp and 275-hp V-8s, as well as the SS 350. The Camaro's 108.1-inch wheelbase is 0.1-in. longer than the Mustang's; the Camaro is also longer overall by 1.3 inches, wider by 1.9 inches, lower by 0.6 inches, and its track is wider by 0.9 inches. Internal dimensions are similarly comparable. (All dimensions, incidentally, are also very close to the '65-'67 Corvair's.)

General Motors isn't interested in racing, but Ford is. As a result, Ford offers much more specialized equipment on the dealer level, like traction bars, HD suspension parts, wide-rim wheels, multiple carburetion set-ups, closer-ratio transmissions, and a wide selection of rear axle ratios. Racing aside, both Ford and Chrysler offer 3-speed automatic transmissions for their sporty cars, while the Camaro is forced to limp along with a 2-speed. But regular production options, like front-wheel disc brakes, 4-speed manual transmissions, razzmatazz interiors, and color-striped tires are equally available on the Camaro and the Mustang.

The Camaro and the Mustang are alike in using unitized body-chassis construction, but the structure extends only to the Camaro's cowl. A sub-frame is bolted onto the front end, supporting the engine and front suspension—an arrangement something like that used on the Toronado/Eldorado. The 56-inch single-leaf, semi-elliptic rear springs appear to be borrowed directly from the Chevy II, but Chevy engineers were quick to point out that the Camaro's "Monoplate" springs are six inches shorter. By contrast, the Mustang uses classic multiple-leaf, semi-elliptic leaf springs. A more substantial departure from current suspension practice is evident at the front end. Whereas the Mustang and the Chevy II use an upper wishbone, a lower control arm and a drag strut, the Camaro reverts to the older system of unequal-length wishbones, top and bottom. The reason given for the Camaro's bolt-on front assembly is to isolate noise and make repairs easier, but we suspect that in the future it could also be used the way GM used the "E" body—as a basic shell shared by several divisions. All told, Chevrolet's Camaro does not offer the extremes of performance that the Mustang does. GM's eggs are in a softer, more middle-of-the-road basket.

The Camaro is only available in two body styles, a notchback coupe and a convertible, both 2-doors.

(Continued on page 86)



CHEVROLET CAMARO SS 350

Manufacturer: Chevrolet Motor Division
General Motors Corp.
General Motors Building
Detroit, Michigan

Vehicle type: Front-engine, rear-wheel-drive,
4-passenger sports sedan, all
steel integral body/chassis,
with front sub-frame

Number of dealers in U.S.: 6600

Price as tested: \$ N.A.
(Prices for the 1967 models had not been
released by the manufacturers at press time.
Our unofficial estimate would be ca.
\$3400.00, as our test car was equipped.)

Options on test car: Deluxe exterior and
interior packages, 4-speed transmission, front
disc brakes, HD suspension, 6-in wheel rims,
Firestone Wide Oval tires, special instru-
mentation package, console, AM/FM radio,
fast-ratio power steering, power brakes,
power windows, tilting woodrill wheel, head-
rests and speed warning buzzer.

ENGINE

Type: Water-cooled V-8, cast iron block and
heads, 5 main bearings
Bore x stroke.....4.00 x 3.48 in,
101.6 x 88.5 mm
Displacement.....350 cu in, 5694 cc
Compression ratio.....10.5-to-1
Carburetion.....1 x 4-bbl Rochester Quadrajet
Venturi area.....10.93 sq in
Valve gear.....Pushrod-operated overhead
valves, hydraulic lifters
Valve timing
Intake opens.....36° BTC
Intake closes.....94° ABC
Exhaust opens.....86° BBC
Exhaust closes.....54° ATC
Valve lift.....Intake 0.39 in, exhaust 0.41 in
Valve diameter.....Intake 1.94 in,
exhaust 1.50 in
Power (SAE).....295 bhp @ 4800 rpm
Torque (SAE).....380 lbs/ft @ 3200 rpm
Specific power output.....0.844 bhp/cu in,
51.8 bhp/liter
Maximum recommended
engine speed.....5500 rpm

DRIVE TRAIN

Clutch.....11.0-in single dry plate
Transmission.....4-speed manual,
all-synchromesh
Gearshift position.....Console-mounted
(standard H-pattern)
Gear Ratio Mph/1000 rpm Max. test speed
I 2.54 8.6 45 mph (5200 rpm)
II 1.80 12.2 63 mph (5100 rpm)
III 1.44 15.3 80 mph (5200 rpm)
IV 1.00 22.0 120 mph (5400 rpm)
R 2.54 -8.6 N.A.
Final drive ratio.....3.31-to-one

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.....51.0 in
Ground clearance.....5.0 in
Curb weight.....3269 lbs
Test weight.....3714 lbs
Weight distribution, F/R.....57.0/43.0%
Lbs/bhp (test weight).....12.6
Battery capacity.....12 volts, 61 amp/hr
Alternator capacity.....444 watts
Fuel capacity.....18.5 gal
Oil capacity.....5.0 qts
Water capacity.....15.0 qts

SUSPENSION

F: Ind., unequal-length wishbones, coil springs,
anti-sway bar
R: Rigid axle, single-leaf springs

STEERING

Type.....Recirculating ball
Turns lock-to-lock.....4.0
Turning circle.....37 ft

BRAKES

F: Kelsey-Hayes 11.0-in vented discs
R: 9.5 x 2.5-in drums
Swept area.....332.4 sq in

WHEELS AND TIRES

Wheel size and type.....6K x 14-in, pressed
steel disc, 5-bolt
Tire make, size and type.....Firestone
D70-14 Super Sports Wide Oval (2-ply nylon
tubeless)
Test inflation pressures.....F: 35 psi, R: 40 psi
Design load capacity.....1120 lbs per tire @ 24 psi

MAINTENANCE

Warranty period.....24 months or 24,000 mi
(drive train.....5 years or 50,000 miles)
Air cleaner change interval.....12,000 mi
Oil change interval.....2 months or 6000 mi
Chassis lubrication interval.....6 months or
6000 mi

PERFORMANCE

	Seconds
Zero to 30 mph	2.8
Zero to 40 mph	4.1
Zero to 50 mph	5.9
Zero to 60 mph	7.8
Zero to 70 mph	10.4
Zero to 80 mph	13.3
Zero to 90 mph	17.6
Zero to 100 mph	23.0
Standing ¼-mile	16.1 sec @ 86.5 mph
80-0 mph	280 ft (.764G)
Fuel mileage	13-16 mpg on premium fuel
Cruising range	230-296 mi

CHECK LIST

ENGINE

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

DRIVE TRAIN

Shift linkage.....Good
Synchro action.....Very Good
Clutch smoothness.....Very Good
Transmission noise.....Very Good

STEERING

Effort.....Excellent
Response.....Very Good
Road feel.....Poor
Kickback.....Very Good

SUSPENSION

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

HANDLING

Directional control.....Good
Predictability.....Fair
Evasive maneuverability.....Good
Resistance to sidewinds.....Very Good

BRAKES

Pedal pressure.....Very Good
Response.....Very Good
Fade resistance.....Good
Directional control.....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).....Good
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.....Good
Instrument legibility.....Fair

VISION

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

WEATHER PROTECTION

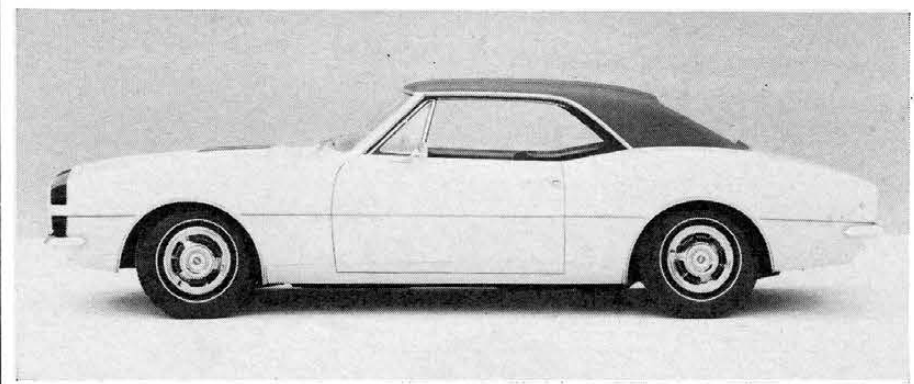
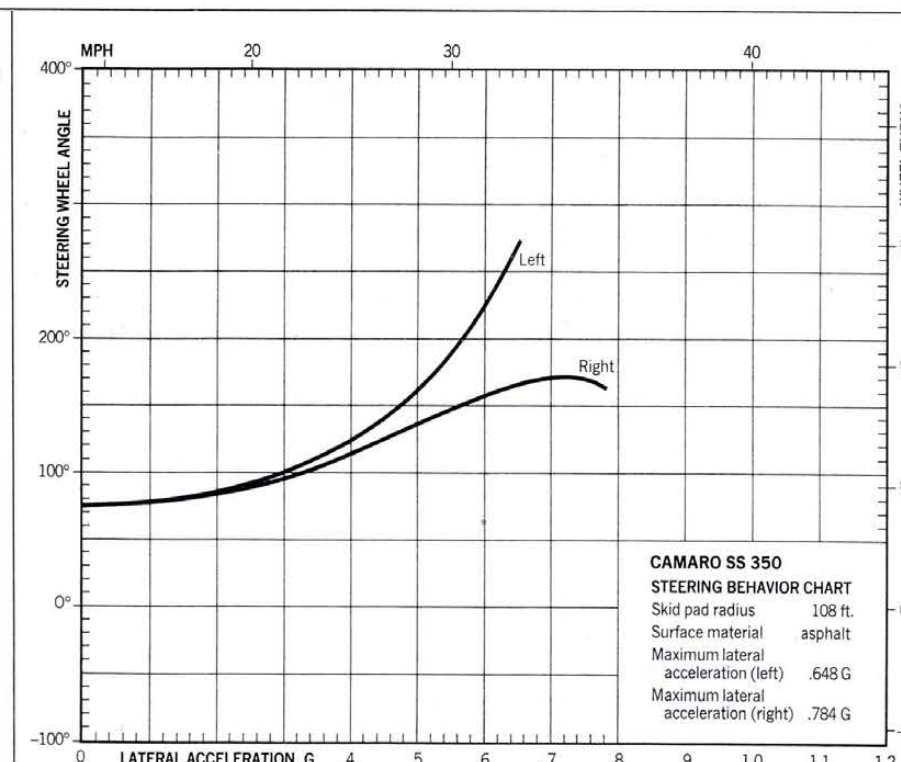
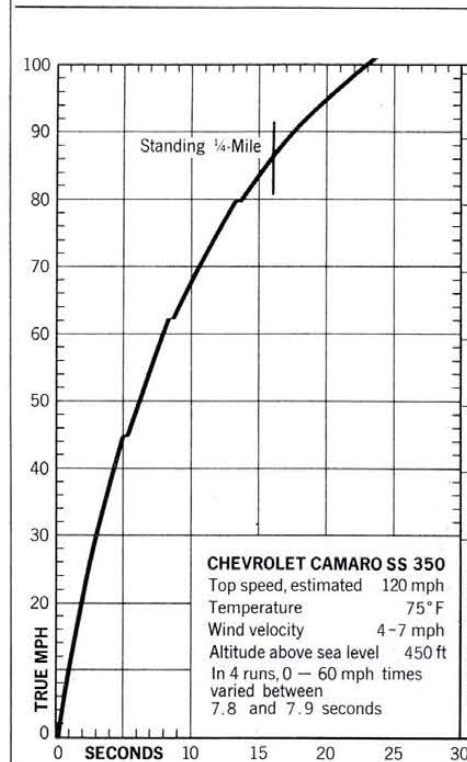
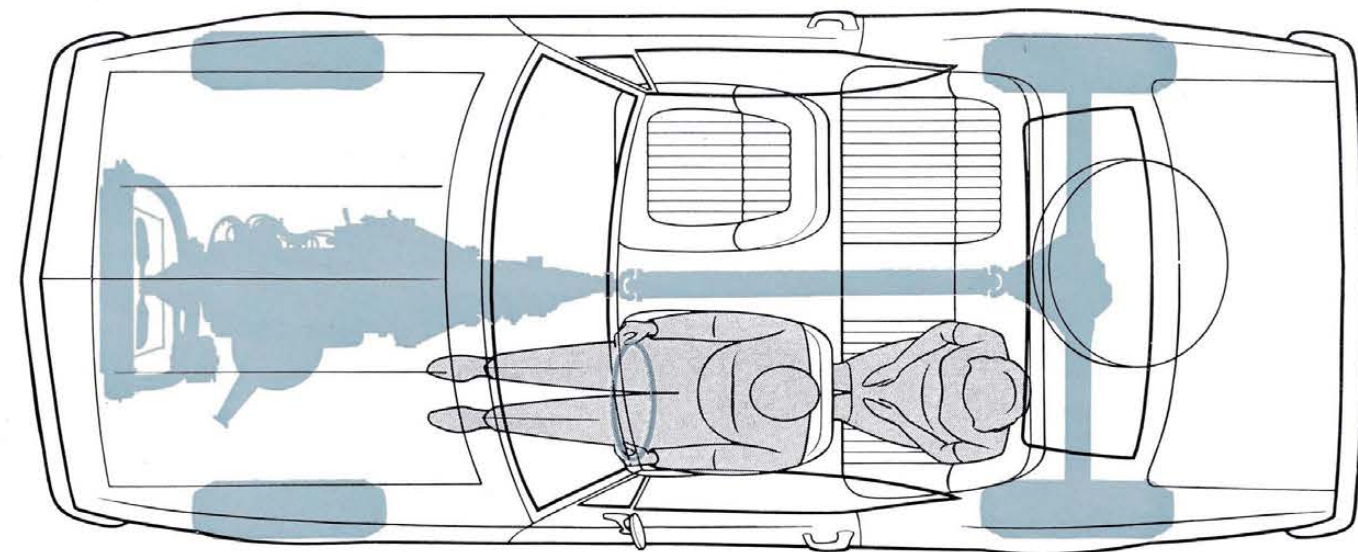
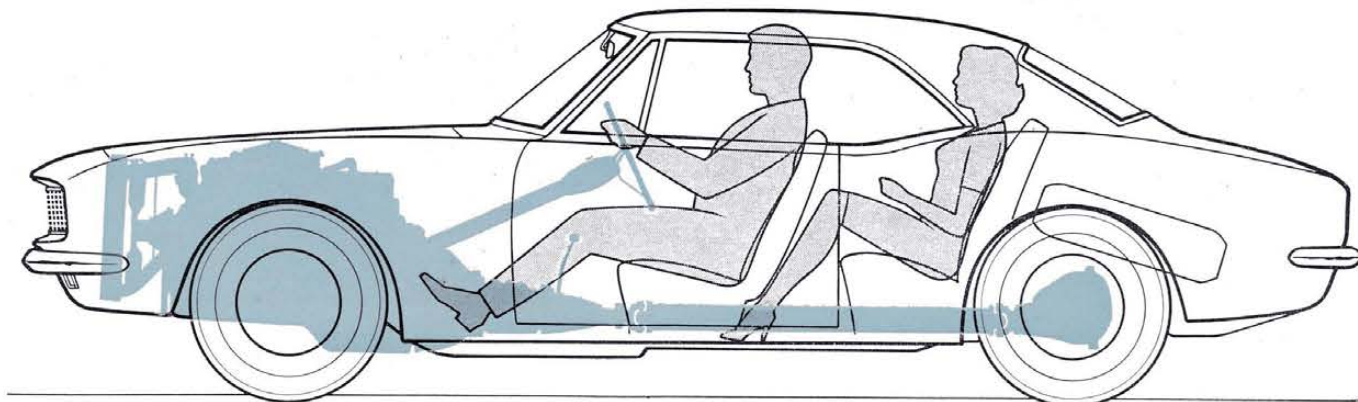
Heater/defroster.....Very Good
Ventilation.....Fair
Weather sealing.....Good

CONSTRUCTION QUALITY

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

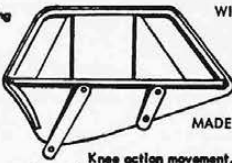
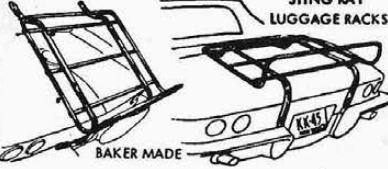
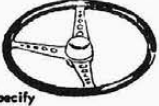
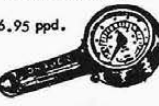
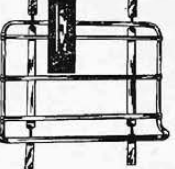
GENERAL

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



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CAMARO SS 350

(continued from page 30)

Fastbacks, 4-doors and sports wagons—if any—will come later. Both Camaro styles are candidly billed as 4-passenger cars, and we chose the sport coupe because it looks better. The optional "RS," or Rally Sport package sounded like it might have something to do with improved roadability, so we asked for that too. In fact, it consists of the trick grille with concealed headlights and "distinctive rear lamp treatment." The crazy stripe around the nose is part of the SS 350 deal. If you want better roadability, you ask for the performance suspension package.

Although our test car was the raciest of all possible performance option combinations, it was not, as hinted, a sports car. If anything, it's like a pint-sized edition of the "Super Cars" we tested in the March issue, with a quarter-mile capability of 16.1 sec. at 81 mph, compared to the SS 396's 14.7 at 100. The SS 396 looks like a Chevelle and the Camaro SS 350 looks like a tasteful American interpretation of a European *Gran Turismo*, so we expected a lot of it. If a girl who looks like Monique Van Vooren shows up at your party, you'd kind of like to think she's in show biz. If it turns out that she works the check-out counter in the A&P, that's nice too, but you're bound to have mixed feelings. Our hopes had been raised. Chevrolet has had at least two years to come up with a car demonstrably superior to the Mustang. That Chevy hasn't, may speak volumes about Ford. Maybe GM *can't* build a better mousetrap, only a good one.

None of this philosophizing is any real reflection on the car itself. In fact, the only glaring design error we could find was obviously an easily correctable oversight. With the combination of the SS 350 engine and the 4-speed manual transmission, drag racing starts are impossible. The rear axle judders almost uncontrollably, with the car hopping sideways almost as far as it is making forward headway. The solution is a set of torque-control arms underneath the Monoplate springs, soon to be a factory option.

A fast-ratio manual steering option was considered during the prototype phase, but dropped at the last minute when it was discovered that the driver would need arms like Steve Reeves' just to steer it around town. The same ratio is available with power steering. Although the Camaro's steering is as light as a plucked feather, it still doesn't seem fast enough, and there is virtually

no road feel through the wheel rim.

Complaints aside, the Camaro is a pleasant little car, with several characteristics that won't go unnoticed by the taste-making enthusiasts. Our test car was equipped with Firestone Wide Oval tires on optional 6-inch rims, which gave exceptional traction at a very small expense in ride comfort. With 35/40 psi in the tires, front disc brakes, and the car thoroughly checked out by the factory, we could record a .76 G braking force and a .78 G cornering force, both well above average. Our new Road Research Report test procedure includes a steering behavior graph which reveals understeer on left-hand turns and a more neutral-steering attitude on right-hand turns, with a suggestion of final oversteer at the limit of controllability. This is not at all uncommon; the engine's clockwise rotation tends to tip the car to the left as a torque reaction. In a second-gear right-hand turn, this reaction will unload the inside rear wheel and "overload" the outside wheel, resulting in a traction loss, with the opposite being true in left-hand corners. In faster turns and high-speed evasive maneuverability tests, this phenomenon is much less pronounced.

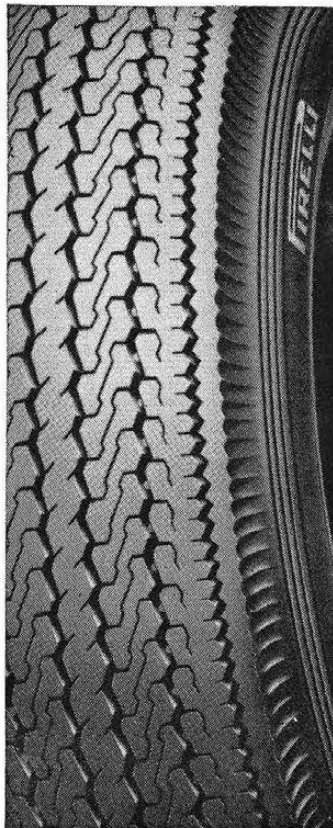
Under normal braking, the Camaro seemed stable, although the inadequate rear axle control would become evident in panic stops. A sharp, heavy stab at the brakes would result in excellent initial deceleration, followed by some axle tramp. The loss of directional control experienced in the acceleration runs was not as bad, but the driver does have to back off the brakes to keep the rear end in line, and this showed up in the results at longer stopping distances.

The Camaro has no quirks or idiosyncrasies. It should be a fairly easy car to live with. Everything is straightforward and simple and intelligently sorted-out. The interior is sensibly arranged and comfortable (bucket seats are standard equipment), although not exactly luxurious. There's no reason on earth why the Camaro shouldn't sell phenomenally well.

The comparison with the Mustang is inevitable, and the Camaro ought to give Ford a helluva good run for its money. We'd hate to predict the outcome, but if success is measured in terms of the number of cars sold, Chevrolet will probably be content. Measuring the Camaro in terms of what it could be, we—and some other enthusiasts—don't think it is yet the kind of success that we'd been hoping for. **cjo**

NOVEMBER, 1966

THERE'S ONE THING ITALIANS LOVE TO DO. AND THEY DO IT ON WHEELS.



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