

MARVIN LYONS PHOTOS

CHEVROLET Impala Super Sport 409 V-8 with Powerglide

ONE OF THE automotive world's most interesting developments for 1963 is the wider application of huge, relatively slow-turning V-8 engines. Both Chevrolet (at 409 cu. in.) and Pontiac (421) have followed the trend set by Chrysler (413) a few years ago. Ford/Mercury (with 390), Dodge/Plymouth (383) and Oldsmobile (394) already had hydraulic lifter, single 4-barrel carbureted versions of earlier racing engines.

Chevrolet's high-torque model is a variation of its own successful 409-cu. in. racing engine (one won Stock Eliminator category in the NHRA championship drag races last summer) and follows the now-established pattern: hydraulic lifters, 4-barrel carburetor and a camshaft of more modest duration and overlap. Instead of developing the 425 bhp @ 6000 rpm of the racing engine, it produces 340 bhp @ 4600 rpm—a much more docile and livable amount. More important, the torque of this very large engine is no less than 420 lb.-ft. @ 3200 rpm, where the all-out engine produces only 425 lb.-ft. and that at 4200 rpm!

This means that the engine in our test car develops more torque than the

425-bhp model over the speed range most used, i.e. from 500 to about 3500 rpm. Stated another way, the high torque 409/340 engine's advantage extends from 10 to 80 mph and at any speed in between it will have more high-gear punch than the 409/425 engine.

Do not, by the way, confuse this 340-bhp engine with the similarly rated engine option in the Corvette. All Corvette engines are the same size (327 cu. in.) and because of the (relatively) small displacement the 327/340 Corvette engine shows only 344 lb.-ft. @ 4000 rpm, 18% below the 409/340 engine.

With so much torque available it is quite surprising to find that the standard axle ratio is 3.36:1 (even the standard 230-cu. in. 6-cyl. models get a 3.08 axle ratio). However, the 409-powered models come with larger 8.00-14 tires as standard. At 60 mph this big 409 is still turning over at a modest 2600 rpm.

Coupled to this powerhouse in *Car Life's* test '63 Impala SS is Chevrolet's traditional 2-speed Powerglide automatic transmission, the first of this combination offered to the general public. While the Powerglide has only one geared ratio (1st), the torque con-

verter gives the benefit of an extra-low low and in effect there are 3 speeds forward, with an overall starting ratio of 12.4:1. This, in our test car, was low enough to produce any amount of wheelspin desired, even on dry pavement.

As a matter of fact, there is so much torque that punching the throttle wide open at 40 mph will produce a very inspiring screech from the driving wheels and the car will literally leap ahead like the Impala for which it was named. However, it is easy to manage and wheelspin, too, is always controllable. Keep in mind one important proviso, however: it is not good judgment to put your foot down too hard when coming out of a corner, or when crossing a wet spot on the street. With so much acceleration available it is possible to pull out of a side street in front of oncoming traffic and punch it so hard the car will spin out!

Our usual data panel tells the acceleration story—a 0-60 time under 8 sec. isn't unusual these days but the real indication of performance is the 0-100 mph time. Last year (*CL*, Sept. '62) we tested one of the really hot Chevrolet 409 combinations, and with a 4-speed transmission. It romped to 100 corrected mph in 9.4 sec.! The Power-

glide 409 isn't quite that much of a dragster but it is only 2 sec. slower to 60 mph and it gets to an indicated 100 mph on a very honest speedometer in just under 20 sec. As a further example of what might be called practical performance vs. the 409 Super Stocker, the elapsed time for the 1/4-mile is only 3 sec. longer, with (again) Powerglide. The speed at the end of the 1/4-mile was exactly 90 mph, by the way.

So when the performance is there, what are the disadvantages? There are a few of course, but nothing like those found in a typical car set up for drag racing and little else. This is a practical, docile, fun-to-drive car that is equally at home on the street or the expressway. The engine isn't quite as smooth and quiet as the 283 or 327 powerplants, but the difference is bare-

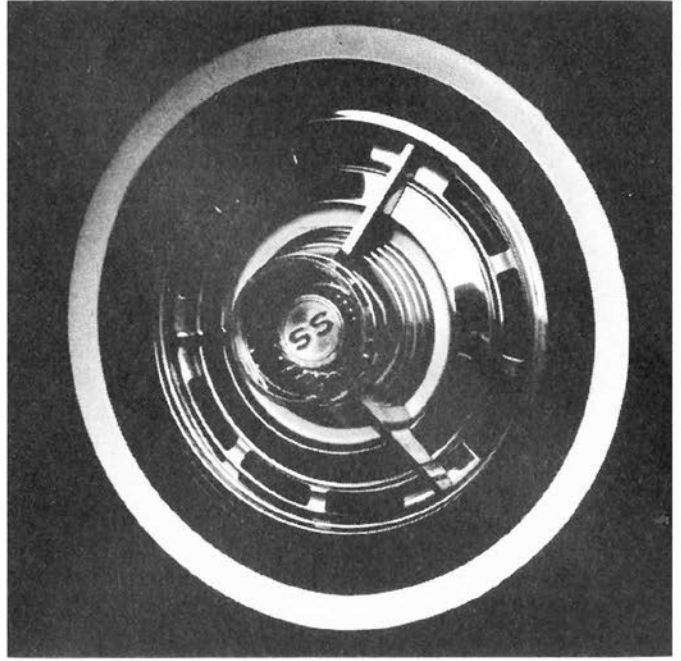
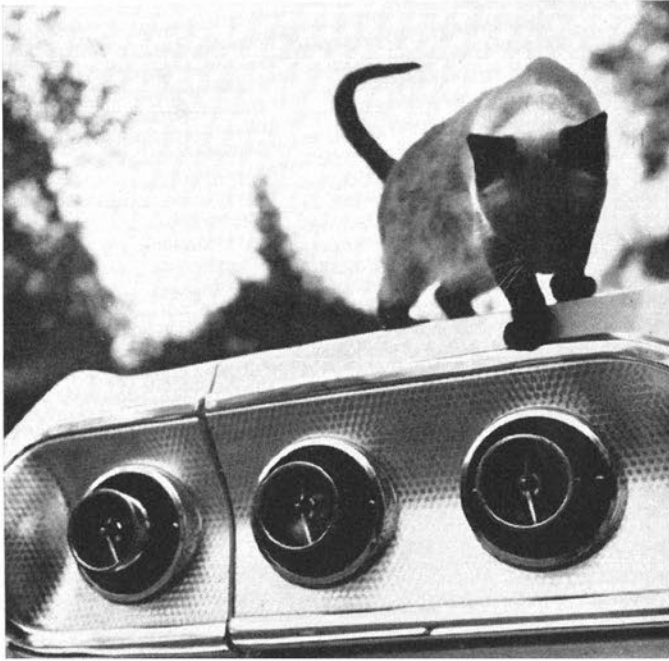
ly noticeable. Fuel consumption is a little heavier; we got an overall average of 12 mpg for 700 miles of assorted driving, which included taking occasional advantage of the tremendous performance. Here is a case where, even more than usual, the driver is the key to economy. The extra urge is hard to resist and a lead foot would have to be satisfied with 10 mpg. On the other hand, a Mobilgas Economy Run type of driver could probably squeeze 16 mpg out of the car under ideal highway conditions.

Here we might go back to our earlier remarks regarding the surprising choice of axle ratio (3.36:1). This ratio was obviously chosen to give very high performance, rather than economy. In our earlier test of the new 6-cyl. engine (*Car Life*, November

1962) we remarked that "acceleration in the 40-60 mph range is decidedly weak." This would be expected from its performance factor of only 81.6 cu. ft. of explosion volume per ton-mile. The 409 V-8 factor is 150 cu. ft./ton mile, slightly higher than our December test car, a Sting Ray with 3.36 axle. Most buyers of the 409 would be well advised to specify the 3.08 axle ratio. This is a change of only 8.3% and won't affect the performance by much, yet will improve gas mileage and, incidentally, raise the top speed to nearly 130 mph (the valve lifters pump up at just over 5600 rpm). As a matter of fact, it is unfortunate that Chevrolet's fastest axle ratio is 3.08. Pontiac, for example, offers ratios of 2.56, 2.69 and 2.87. Even the 390-cu. in. Cadillac has a standard axle ratio of only 2.94,



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giving a performance factor of 99.5 cu. ft./ton mile, which translates into very acceptable acceleration and hill-climbing ability.

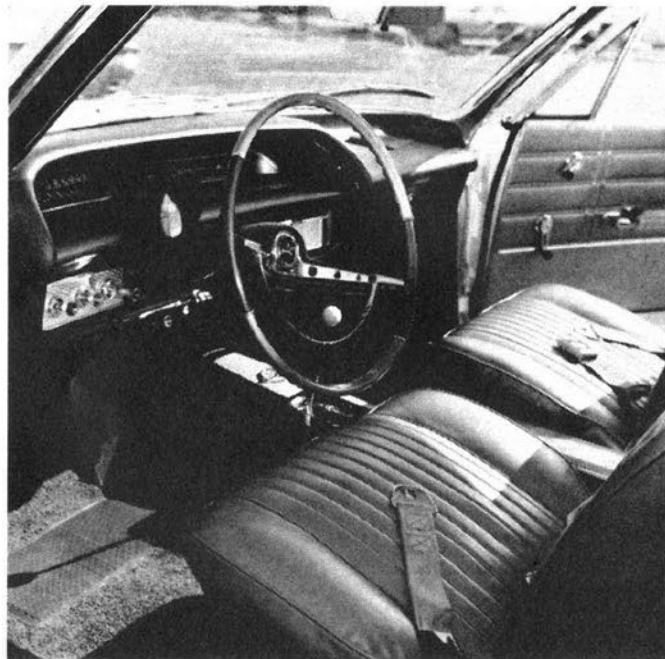
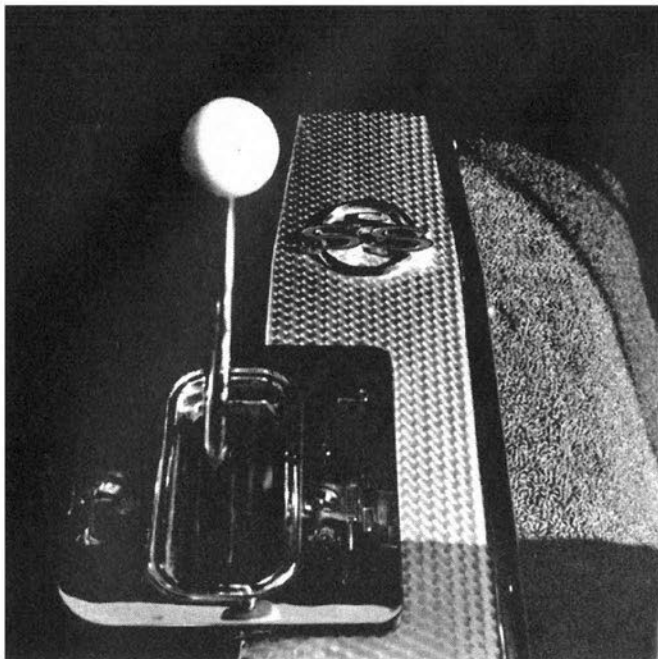
Other than the above, our principal objection to this package stems from

the slow steering (power) on a car which literally demands very quick steering in case the rear end starts to slide out from too much throttle pressure. The ride too, in typical GM fashion, is quite soft and anyone contemplating much cross-country driving should order the heavy-duty springs and shocks. It would also be a good

idea to order the metallic brake linings.

Because the 409 engine is about 100 lb. heavier than the 283-327 V-8s and most of this extra weight is on the front wheels, there is more understeer than usual—a good feature to help offset the oversteering capability of so much power at the rear wheels. This weight bias also contributes to better straight-





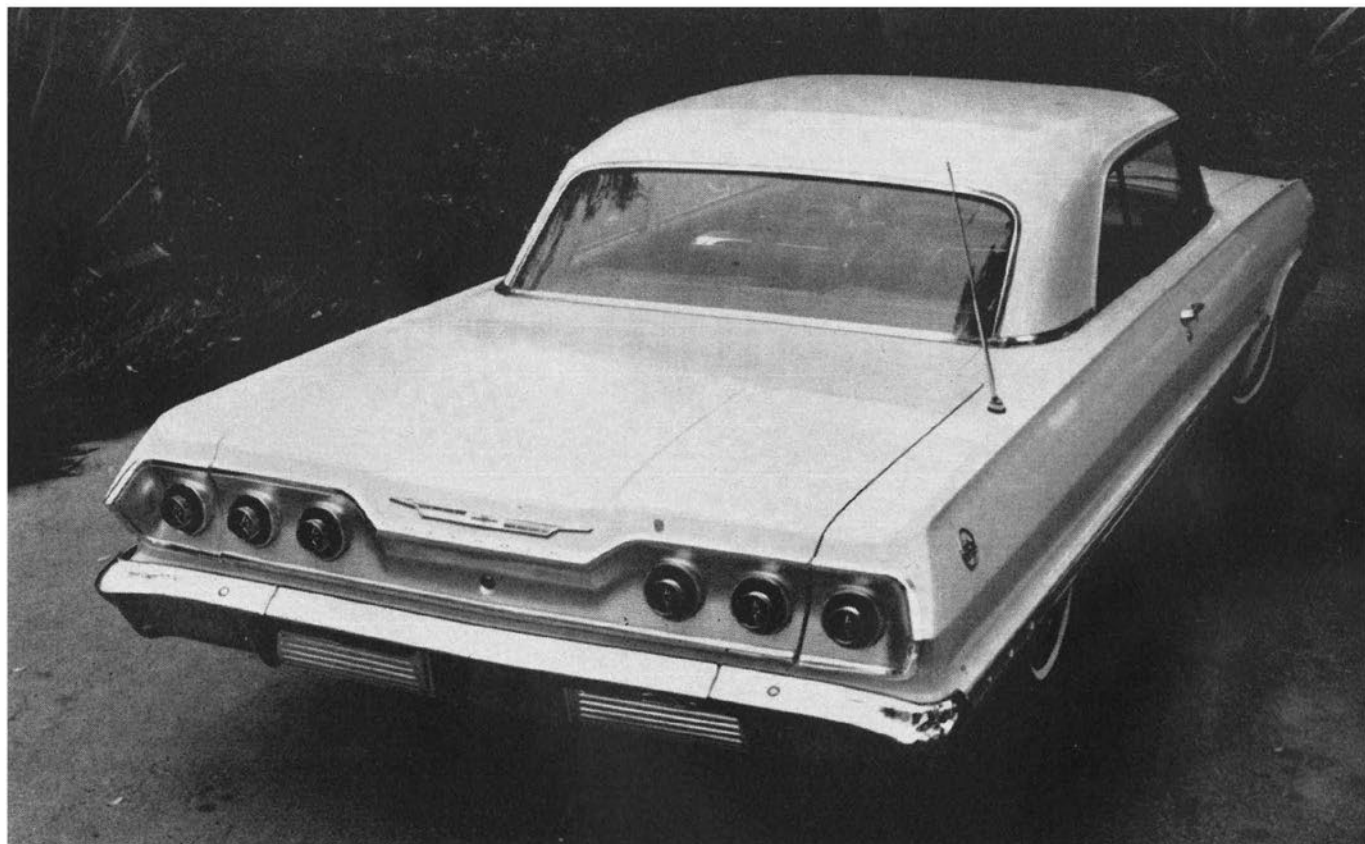
line stability but makes the car skitterish in vigorous cornering.

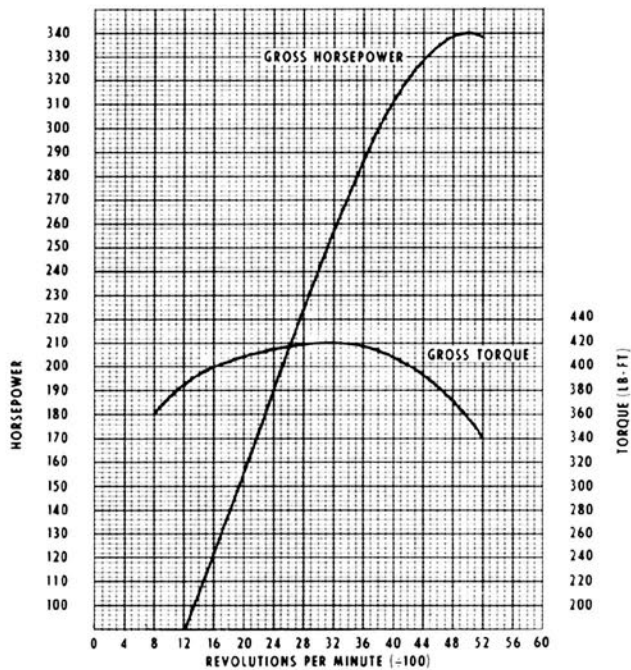
The brakes are something else, though to our surprise they survived our standard brake test of two crash stops in succession from 80 mph. However, the tremendous weight and speed potential of this machine is a force to be reckoned with and a hard driver,

or one living in a mountainous area, should order the heavy-duty metallic brake option we mentioned earlier.

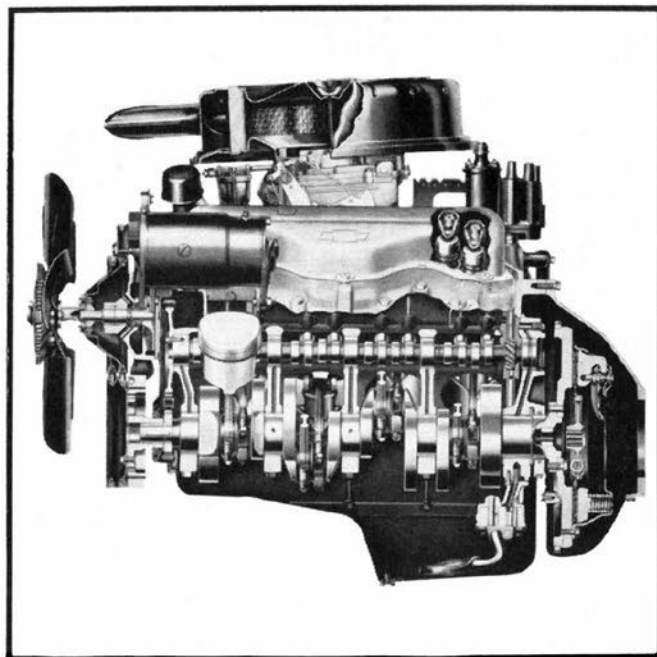
The Impala SS, of course, carries the most luxurious, bucket-seat interiors Chevrolet can put into its cars. It has a center console which houses a small odd-parcel locker and serves to bring the Powerglide shift lever into the

driver's reach. Although nicely assembled with a chrome shift guide around it, the lever has no provision for lighting and a nighttime driver must either grope for the correct slot or turn on the bright interior lights. We must praise the electric tachometer mounting as the first sensible one we've seen on a production '63 model. It is directly in





POWER CURVES for the new 409/340 show a torque range of 4000 rpm at 360 lb.-ft. or more but a sharp gross horsepower peak.



409 ENGINE is virtually identical to racing unit (above), has hydraulic valve lifters and milder camshaft timing.

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front of the steering wheel, in the speedometer "tunnel" and is so located that the driver can be aware of engine rpm without actually having to remove his eyes from the road. The other instruments are much less easy to read, being

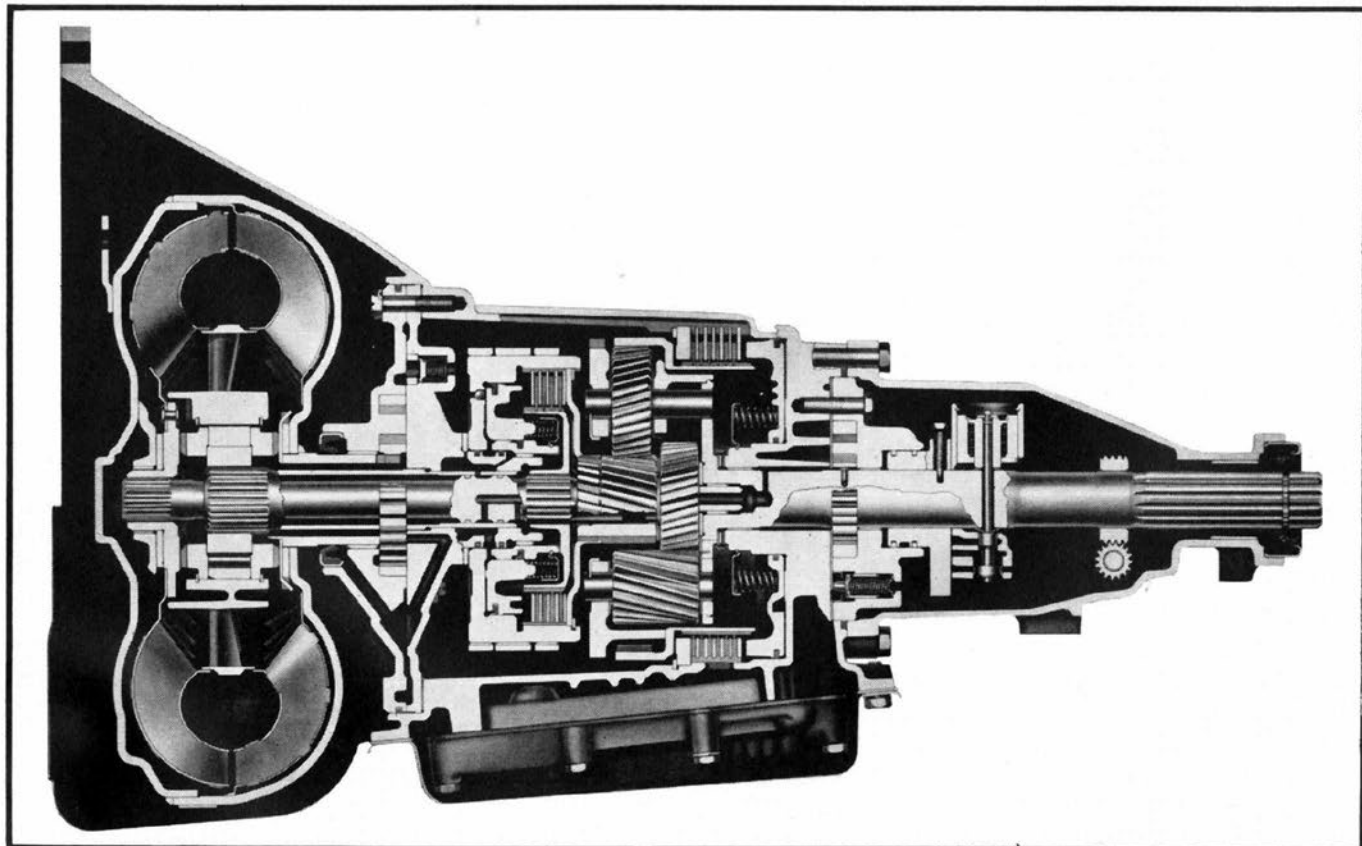
located at the bottom end of the aforementioned tunnel.

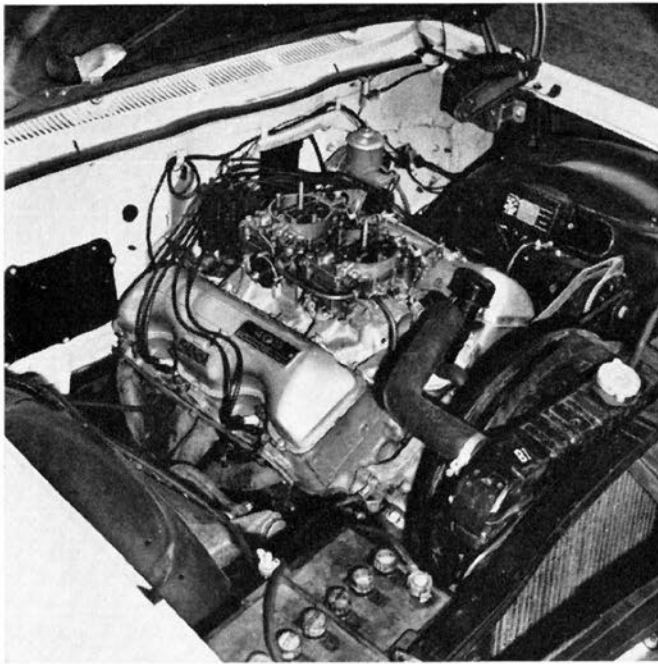
The driving position is awkward: the seats, while comfortable and luxurious, are too low and the steering wheel projects too far back. (A solution to that continuing problem is to replace it with a flat, racing type wheel which would move the plane of the rim at least 5 in.

closer to the dash.) Luggage space is tremendous, as would be expected.

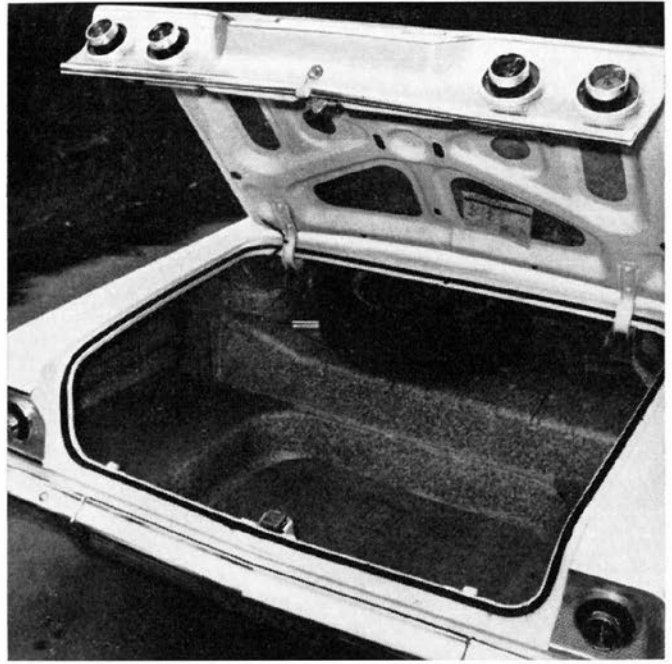
But, while we criticize some of the minor things about the car, we can enthuse over its general concept. Big and strong, with a smooth transmission and plenty of muscular draft horses up front, it begins to approach the ultimate in U.S. performance cars. ■

IMPROVED POWERGLIDE was adopted in 1961, allowed Chevrolet engineers to harness 409 to automatic transmission. Complete unit was strengthened, then encased in aluminum.





TWIN 4-BARREL version of the 409 has mechanical lifters, hotter valve timing and now produces a rousing 425 bhp at 6000 rpm.



TRUNK WELL in Chevrolet's tail adds to its already huge capacity. Although difficult to reach, spare is nicely out of the way.

CAR LIFE ROAD TEST



1963 CHEVROLET Impala SS 2-door hardtop

SPECIFICATIONS

List price.....	\$2828
Price, as tested.....	3708
Curb weight, lb.....	3877
Test weight.....	4120
distribution, %.....	56/44
Tire size.....	8.00-14
Tire capacity, lb @ 24 psi.....	4700
Brake swept area.....	328
Engine type.....	V-8, ohv
Bore & stroke.....	4.31 x 3.50
Displacement, cu in.....	409
Compression ratio.....	10.0
Carburetion.....	1 x 4
Bhp @ rpm.....	340 @ 5000
equivalent mph.....	115
Torque, lb-ft.....	420 @ 3200
equivalent mph.....	74

EXTRA-COST OPTIONS

409 V-8, auto. trans., power steering, power brakes, radio, positraction, wsw tires, bucket seats, tachometer, windshield washers, crankcase vent., seat belts.

DIMENSIONS

Wheelbase, in.....	119.0
Tread, f and r.....	60.3/59.3
Over-all length, in.....	210.4
width.....	79.0
height.....	55.5
equivalent vol, cu ft.....	533
Frontal area, sq ft.....	24.4
Ground clearance, in.....	6.0
Steering ratio, o/a.....	24.0
turns, lock to lock.....	5.1
turning circle, ft.....	40.8
Hip room, front.....	2 x 25.7
Hip room, rear.....	55.0
Pedal to seat back, max.....	41.0
Floor to ground.....	11.2
Luggage vol, cu ft.....	19.0
Fuel tank capacity, gal.....	20.0

GEAR RATIOS

3rd ().....	overall.....
2nd (1.00).....	3.36
1st (1.76).....	5.91
1st (1.76 x 2.10).....	12.4

PERFORMANCE

Top speed (5400), mph.....	124
Shifts, rpm-mph (forced)	
3rd ().....	
2nd ().....	
1st (5800).....	76

ACCELERATION

0-30 mph, sec.....	2.6
0-40.....	3.6
0-50.....	5.0
0-60.....	6.6
0-70.....	9.2
0-80.....	11.9
0-100.....	19.4
Standing 1/4 mile.....	15.2
speed at end.....	.90

FUEL CONSUMPTION

Normal range, mpg.....	11-13
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SPEEDOMETER ERROR

30 mph, actual.....	28.0
60 mph.....	59.2
90 mph.....	91.0

CALCULATED DATA

Lb/hp (test wt).....	12.1
Cu ft/ton mile.....	150
Mph/1000 rpm.....	23.0
Engine revs/mile.....	2605
Piston travel, ft/mile.....	1520
Car Life wear index.....	39.6

PULLING POWER

70 mph, maximum gradient, %.....	23.1
50.....	33.5
30.....	off scale
Total drag at 60 mph, lb.....	200

