

CAR LIFE ROAD TEST



an additional item of comfort for the long-distance driver, and which CL feels is a better arrangement than the buckets-and-console option. When the console is ordered, the automatic transmission (standard equipment for all Rivas) shift lever is transferred from the normal steering column position and changed into an inverted U-shaped control atop the center divider.

Particularly appreciated by the CL testers were the slope-away fascia and the bin-type glove compartment. The instrument section is an inlay in the slope of the fascia, to present a well-ordered, black-backgrounded set of four dials, plus clock. The new digital-reading drum-type speedometer is extremely easy to read and a worthwhile innovation by GM.

The inside-out view has greatly improved with the elimination of the quarter panes. Upon entering the car, the driver feels he is in a greenhouse and immediately senses something missing. A few miles of driving and he wonders at all the visibility he'd missed before with that slim window-guide pillar in place. However, it's been replaced by a wind whistle—at least in the test car—at the front pillar.

Buick's new ventilation system uti-

lizes the low-pressure area behind the fastback roof to draw out interior air. Pressurizing the passenger compartment by opening the front cowl vent also forces open a flap on the rear vent so fresh air can flow through. Unlike the Ford system, in which the rear vent is opened by a vacuum-powered valve, the Riviera's venting is automatic. On the test Riviera the fan-switch had to be "on" before the cowl vent would open. However, the outcome is the same, an abundant supply of noiseless fresh air without an annoying buffeting from opened side-windows. We expect this feature to be on all cars within a few years.

The Riviera chassis is probably the car's best selling feature outside of its handsome good looks. This chassis has the solidarity of a bridge truss and the integrity of a Federal Reserve Bank. In all driving conditions its performance is completely predictable and understood, fully without strange thumpings and bumping going on underneath. Particularly notable by its absence is that indefinite twisting, working "Flexible Flyer" feeling that seems to be part and parcel of all perimeter-frame type cars.

There's good reason for the absence: ▶

RIVIERA GRAN SPORT

SOME CARS are just plain harmonious—everything about them works together to form an impressive, eye- and ego-pleasing entity. Such is the 1966 Riviera, Buick's prestigious style-setter. It is far and away the most handsome car of the current crop, it has reasonably fine manners on the roadway and has good, strong performance; handsome is as handsome does!

Buick Motor Division of General Motors has considerably revamped its Riviera for the new model year and, while the mechanical package has been left virtually untouched, the car abounds in detail and styling improvements. Of course, the version tested

here is the Gran Sport option, which puts on stiffer springs and things to make the car more appealing to the knowledgeable motorist. However, most of the improvements apply to all Rivas, *Gran* or *limite*.

Most immediately apparent is the Riviera's new sleekness. Where before it had a rather chamfered crispness to its tailored looks, it now is frankly sensuous in its swooping lines. The broad, blunt front is still broad, but is more definitive in shape. Headlights now tuck up under the overhanging hood when not in use. The mid-section has a leaner look, yet swells into hip-like suggestions of rear fenders. Gone are the front corner vent windows, giv-

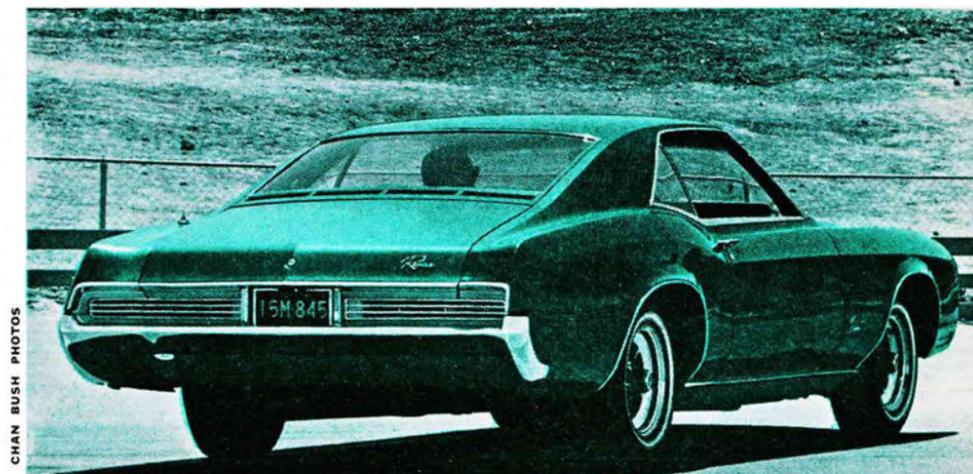
ing both the inside a better view outward and the outside a cleaner, neater window shape. The roofline flows rearward from the windshield header in true fastback fashion, truncating in a bobbed-off tail just like all the fast racing coupes of the sports car circuits. If the overall effect is reminiscent of certain European styled sports cars, at least the purity of their lines has been propagated and U. S. automotive styling is the better for it. Seldom does a single car emerge as visually exciting as this new Riviera.

Less apparent, because of the more careful styling, is that the '66 Riviera is a larger car than its predecessors. Where it previously had a 117-in.

wheelbase it now has 119 in.; where overall length and width were 209 and 76.6 in., they now are 211 and 78.8 in.; overall height has been increased 0.4 in. and curb weight has been increased by some 200 lb.

Most noticeable of all is the Riviera's high-styled interior. Here is where the car's elegance is manifested. Though leather-like fabrics are vinyl and the wood grain (GS models) is another form of plastic simulation, the overall effect is one of tastefully luxurious decor.

The bucket-type seats, of course, are optional, as is a bucket-shaped bench seat. The latter has a fold-down armrest between seatbacks, which provides



CHAN BUSH PHOTOS

RIVIERA GS

The Riviera is one of the few U.S.-made passenger cars to retain the old self-supporting, rigid framework. Only Checker, Studebaker, Kaiser-Jeep Wagoneer, Chrysler Imperial and Cadillac Limousine continue this type of separate chassis and body construction. It is true that the perimeter frame cars also have separate bodies and frames, but their load-carrying assignments are completely different. On a perimeter frame car, the frame really serves only as a sub-frame, on which are attached engine, drive-line and suspension. The body is rigid and mounts atop the perimeter frame at the least number of points. The theory behind the perimeter car is to let the frame twist, and flex to damp out unwanted vibration while the body is isolated by soft rubber mounting pads. Noise, vibration and harshness are thus supposed to be prevented from reaching, and irritating, the passengers.

THE OLD RIGID, self-supporting frame which, for all intents and purposes,

has been replaced by perimeters in the U.S. industry, harks back to Year One in automobile design. It is a direct descendant of the horse-drawn, and then horse-less, carriage. About 1929 Cord introduced a significant variation on the parallel-rail, ladder type of frame by putting an X-member in the middle, greatly increasing both beam strength and torsional rigidity. GM went a step farther in the late 1950s by removing the outer rails, leaving only a massive X-shaped structure. But Buick, Cadillac and Chevrolet replaced their X or cruciform frames in '65, following the growing trend to perimeter frame/separate body construction started by Oldsmobile and Pontiac in 1961.

However, when the Riviera first appeared in the fall of '62, it was on a cruciform frame, despite the general trend of GM car design toward perimeters. And it has remained on the big X-frame since, even though the car was extensively redesigned for the '66 model and despite the fact that the sister-ship Toronado utilizes a perimeter type of understructure with its basically similar body.

Through its brute strength approach to the problem of structural rigidity, the cruciform frame achieves far more resistance to flexing and twisting than

does the perimeter frame, which depends upon body rigidity to give the passengers and driver the feeling of vehicle strength. When a strong, semi-unit body such as the Riviera/Tornado structure is placed on top of an already strong chassis, the result is, as we've said, integrity and solidity. In this context, the Riviera knows no peer among General Motors passenger cars.

Operating from this sturdy bank vault of a frame/body construction are contemporary suspension systems, aided, in the case of the test car, by the Gran Sport option of stiffer springs and shock absorbers. The front suspension is a short- and long-arm independent system, incorporating ball-joints and link-type stabilizer. The lower arm incorporates a drag-strut front link. Integral power steering is standard equipment.

The rear suspension is pure GM live axle with four locating links and coil springs. Three links provide longitudinal location and stabilization, the fourth, a track bar, provides lateral location. One of the better systems now in use, it provides good axle location without incurring a penalty of extra stiff springing. With the two main links converging, that is pointing toward the center of the X-frame, some degree of

1966 BUICK RIVIERA GRAN SPORT HARDTOP COUPE



DIMENSIONS

Wheelbase, in.....	119.0
Track, f/r, in.....	63.5/63.0
Overall length, in.....	211.2
width.....	78.8
height.....	53.4
Front seat hip room, in.....	56.0
shoulder room.....	58.8
headroom.....	38.0
pedal-seatback, max.....	47.0
Rear seat hip room, in.....	55.0
shoulder room.....	57.4
leg room.....	35.2
head room.....	37.5
Door opening width, in.....	49.5
Floor to ground height, in.....	11.9
Ground clearance, in.....	6.0

PRICES

List, fob factory.....	\$4424
Equipped as tested.....	5940
Options included: GS package, chromed wheels, am/fm/stereo, speed control, air cond., power windows, bucket seats & console, power seat, tinted windshield, cornering lights, smog controls, 2x4 carburetion.	

CAPACITIES

No. of passengers.....	6
Luggage space, cu. ft.....	10.3
Fuel tank, gal.....	22
Crankcase, qt.....	4
Transmission/diff., pt.....	22/4.25
Radiator coolant, qt.....	18.3

CHASSIS/SUSPENSION

Frame type.....	cruciform
Front suspension type: Independent s.l.a., ball joints and coil springs; tubular shock absorbers within springs.	
ride rate at wheel, lb./in.....	180
anti-roll bar dia., in.....	0.781
Rear suspension type: Live axle, 4-link location; coil springs, tubular shock absorbers.	
ride rate at wheel, lb./in.....	160
Steering system: Power-assisted recirculating ball nut; parallel links.	
gear ratio.....	15:1
overall ratio.....	16.6:1
turns, lock to lock.....	3.0
turning circle, ft. curb- curb.....	44.0
Curb weight, lb.....	4375
Test weight.....	4710
Weight distribution, % f/r.....	55/45

BRAKES

Type: Single-line hydraulic with self adjusting duo-servo shoes in composite drums.	
Front drum, dia. x width, in. 12 x 2.25	
Rear drum, dia. x width.....	12 x 2.00
total swept area, sq. in.....	320.5
Power assist.....	Integral, vacuum, std. equip.
line psi @ 30 lb. pedal.....	500

WHEELS/TIRES

Wheel size.....	15 x 6.00L
bolt no./circle dia., in.....	5/5.00
Tire make, brand.....	Goodyear Power Cushion
size.....	8.45-15
optional size available.....	8.85-15
recommended inflation, psi.....	24
capacity rating, total lb.....	5120

ENGINE

Type, no. cyl.....	ohv, V-8
Bore x stroke, in.....	4.313 x 3.64
Displacement, cu. in.....	425
Compression ratio.....	10.25
Rated bhp @ rpm.....	360 @ 4400
equivalent mph.....	104
Rated torque @ rpm.....	465 @ 2800
equivalent mph.....	66
Carburetion.....	2 x 4 barrel dia., pri./sec. 1.5625/1.6875
Valve operation: Hydraulic lifters, pushrods and rocker arms.	
valve dia., int./exh.....	1.875/1.50
lift int./exh.....	0.439/0.441
timing, deg.....	29-81, 71-48
duration, int./exh.....	290/299
opening overlap.....	77
Exhaust system: Dual, reverse-flow mufflers with separate resonators.	
pipe dia., exh./tail.....	2.25/2.00
Lubrication pump type.....	gear
normal press. @ rpm.....	40 @ 2400
Electrical supply.....	alternator
ampere rating min.....	15
Battery, plates/amp. rating.....	66/70

DRIVE-TRAIN

Transmission type: Torque converter with 2-position stator blades; planetary gearbox.	
Gear ratio 4th () overall.....	
3rd (1.00).....	3.42
2nd (1.48).....	5.06
1st (2.48).....	8.48
1st x t.c. stall (2.22).....	18.7
synchronous meshing.....	planetary
Shift lever location.....	column
Differential type: Hypoid, pos. trac.	
axle ratio.....	3.42

roll understeer is achieved. Earlier Rivieras had about 14% roll understeer, but the '66 model has about 20%—an increase of 50% which Buick engineers like to cite as “improving the handling.” However, Gran Sport springing for the Riviera probably contributes more than the increased understeer to improved handling.

Changes in chassis and body for '66 have widened the Riviera's stance by 4 in. at the rear tread, 3 in. at the front. Rear springs are now mounted atop the Salisbury-type rear axle where they previously had been seated on the lower control arms. This allowed softer springs (105 vs. 160 lb./in. in '65 standard Rivieras) without unduly softening the ride—in fact, the '66s are a little firmer. Gran Sport springing is firmer still. Ride rates are 180/160 (front/rear) for the Gran Sport, as compared with 130/110 lb./in. for the standard Riviera.

Another change over the standard model is the Riviera's 15:1 steering gear ratio. This gives an overall ratio of 16.6:1 which is “faster” steering than any current U.S.-built car other than the Corvette. The steering wheel needs only three turns for lock-to-lock movement of the front wheels and this, along with the firm springing, imparts

a feeling of nimbleness to the car. Instead of wallowing, it arrows along the highway and zips about town with the alacrity of a light-heavyweight boxer.

CL SAMPLED both engines available in the '66 Riviera, although it didn't collect acceleration data on the 425-cu. in./340-bhp standard version. The Riviera's only engine option is two 4-barrel carburetion which boosts horsepower to 360, but doesn't affect the torque rating. Buick says the 2x4 setup must be dealer installed, probably because of the lack of demand for it, and there are no other differences, other than carburetion, between the two engines. The single carburetor used is the new Rochester Quadrajct, which, as far as we could determine, delivered just as much performance as the optional, dual Carter AFB arrangement. As a point of comparison, the single Rochester has 10.92 sq. in. of throttle bore area at wide-open throttle, the dual AFBs have 16.62 sq. in.

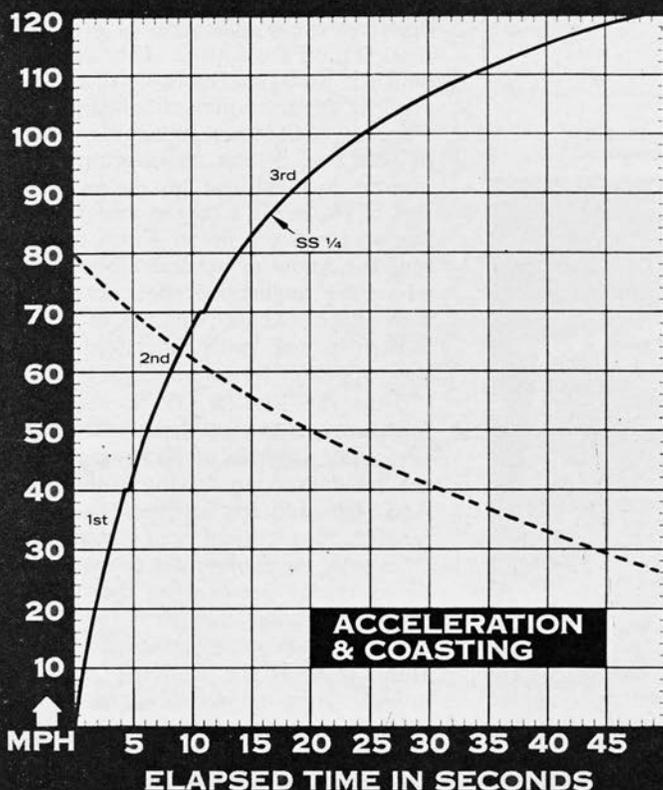
The 425, of course, is Buick's standard big car engine of 401 cu. in. with an extra eighth of an inch bore. With the dual exhausts and low restriction air-cleaner fitted to the Riviera, the engine is a willing enough piece of

machinery, although it seems to run out of revs too soon (at least by present HP and HO standards). During acceleration runs CL pulled over 5000 rpm in gears, but got better acceleration times by letting the transmission shift itself at 4200-4400 rpm. Though capability of only 16.7 sec. won't earn the Riviera any quarter-mile trophies, it at least is compatible with today's fast traffic-flow demands. The test car was equipped with the optional 3.42:1 axle ratio while the standard ratio is 3.23, which might reduce performance to a less than enthusiastic level.

One facet of the option list will interest those performance minded buyers of the Riviera GS. Standard tires are 8.45-15 Goodyear Power Cushion white-sidewalls. However, Firestone “Red-line” high performance nylon tires (low cord angle, but not radial ply) are available at no extra cost. Note that Riviera, along with all large Buicks, remains on 15-in. wheels. This gives Buick cars a better tire “footprint” area on the pavement and allows Buick to utilize larger diameter brake drums than any other U.S.-made car (except Cadillac, which also uses 12-in. drums).

Buick brakes often have been praised by CL. The Buicks we have

CAR LIFE ROAD TEST



CALCULATED DATA

Lb./bhp (test weight)	13.1
Cu. ft./ton mile	132
Mph/1000 rpm (top gear)	23.6
Engine revs/mile (60 mph)	2530
Piston travel, ft./mile	1530
Car Life wear index	38.9
Frontal area, sq. ft.	23.4
Box volume, cu. ft.	512

SPEEDOMETER ERROR

30 mph, actual	30.5
40 mph	40.5
50 mph	49.5
60 mph	59.0
70 mph	69.0
80 mph	79.0
90 mph	89.0

MAINTENANCE INTERVALS

Oil change, engine, miles	6000
trans./diff.	24,000/as req.
Oil filter change	6000
Air cleaner service, mi.	12,000
Chassis lubrication	6000
Wheelbearing re-packing	as req.
Universal joint service	6000
Coolant change, mo.	24

TUNE-UP DATA

Spark plugs	AC 44S
gap, in.	0.035
Spark setting, deg./idle rpm	2.5/350
cent. max. adv., deg./rpm	30/3900
vac. max. adv., deg./in. Hg.	19.5/12
Breaker gap, in.	0.019
cam dwell angle	30
arm tension, oz.	19-23
Tappet clearance, int./exh.	0/0
Fuel pump pressure, psi.	5.5
Radiator cap relief press., psi.	15

PERFORMANCE

Top speed (5050), mph	120
Shifts (rpm) @ mph	
3rd to 4th ()	
2nd to 3rd (4400)	70
1st to 2nd (4200)	40

ACCELERATION

0-30 mph, sec.	3.0
0-40 mph	4.2
0-50 mph	5.9
0-60 mph	8.2
0-70 mph	10.7
0-80 mph	13.9
0-90 mph	18.4
0-100 mph	24.6
Standing 1/4-mile, sec.	16.7
speed at end, mph	87
Passing, 30-70 mph, sec.	7.7

BRAKING

(Maximum deceleration rate achieved from 80 mph)	
1st stop, ft./sec./sec.	22
fade evident?	no
2nd stop, ft./sec./sec.	21
fade evident?	slight

FUEL CONSUMPTION

Test conditions, mpg	10.2
Normal conditions, mpg	10-13
Cruising range, miles	220-286

GRADABILITY

4th, % grade @ mph	
3rd	14 @ 74
2nd	23 @ 53
1st	36 @ 41

DRAG FACTOR

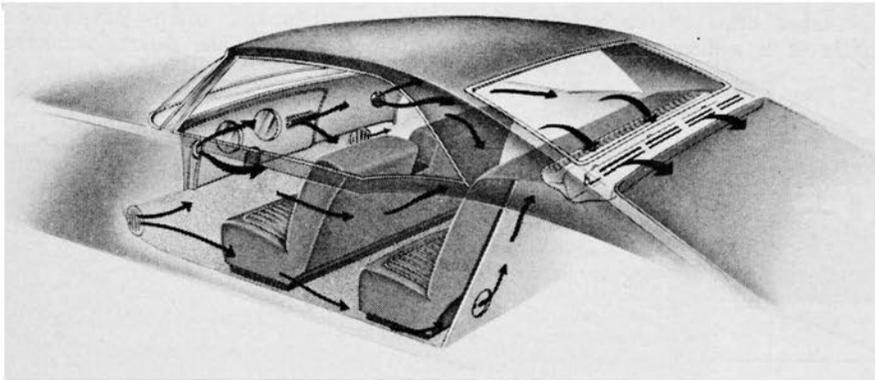
Total drag @ 60 mph, lb.	223
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RIVIERA GS

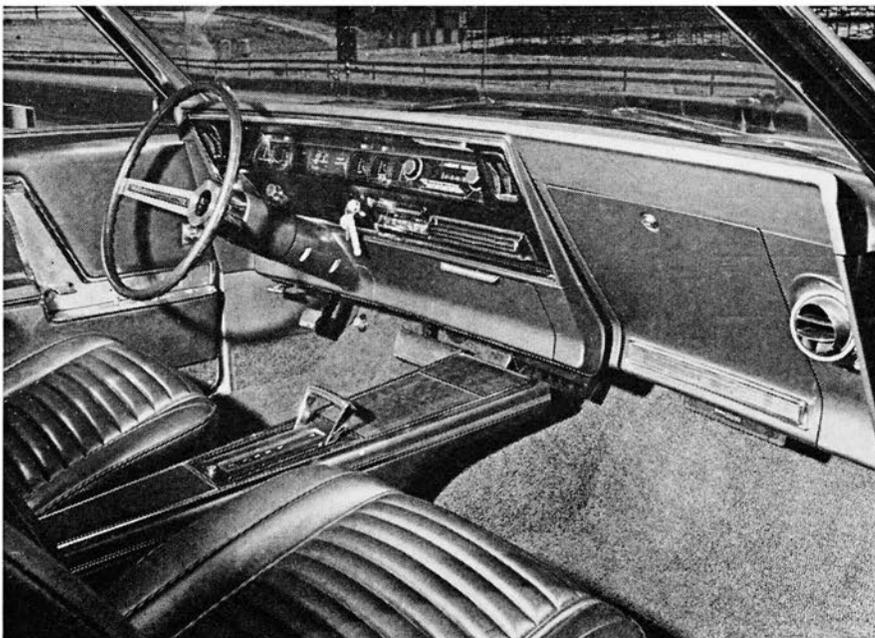
HEADLIGHTS SWING down into place when light switch is pulled "on," retract upward when it's pushed "off." Cross-flow radiator lets Riviera have a low hoodline.



IN-AND-OUT ventilation system draws fresh air in through cowl vent, sends it to five outlets, then it pulls it out through a flap-protected opening below rear window.



BUCKET SEAT interior features central console. Massive lever is automatic transmission control. Note how fascia slopes away from driver and passenger, giving added knee-space.



tested usually stopped well with minimum fade (though such is not the case with the smaller Buicks which seem to have just as bad brakes as the larger cars have good brakes). For one reason, Buick makes its front brake drums of aluminum, puts fins around their outer edge to aid cooling and bonds in an iron liner for a friction/rubbing surface. The combination of the larger diameter and the greater heat rejection properties of aluminum has given Buick significantly better brakes than those of manufacturers still using duo-servo drum-type brakes. CL testers generated maximum stopping power of 21-22 ft./sec./sec. for five consecutive stops from 80 mph before incipient fade became noticeable.

GOOD AS THESE brakes are, and they certainly represent the best of their type, they still cannot match the performance of disc brakes being used by competitors. Buick once upheld the banner of leadership in brakes, but must now be relegated to mediocrity because of the available superiority of disc brakes. Reference CL's tests of the Ford 7-Litre (Jan. '66 issue), the Corvette (Aug. '65), the Mustang GT-350 and Barracuda S (June '65), and the Thunderbird (Nov. and Dec. '64). The Riviera, and more particularly the Gran Sport variation, needs to have the best of everything.

Over-the-road handling of the Riviera GS is, for the most part, satisfactory. The heavy understeer on tight cornering is masked by the power steering and good roll resistance of the stiffer springing. If really pressed, the GS gives every indication of plowing head-first off the outside of the corner, which it would no doubt do if an imprudent driver continued his pressure. Once the GS owner learns the limits of adhesion, he can attain reasonably rapid velocities even on the twisting sort of roads. CL's biggest criticism in this area was for firmer shock damping. We know of several GS owners who have augmented their springing with such devices as Air-Lifts, or Delco Superlifts, and vastly improved their cars' appetites for non-straight roads.

Thus the Riviera GS in its 1966 form emerges as a satisfyingly adequate performer, capable of pleasing all but the most exacting driving enthusiast. And, with sufficient attention to detail modification, it could even please him. Of course, the Riviera can never really be as purely personal as the closer-coupled Corvette, but then the latter can't be a 4-6 passenger sedan, either. Here, then, is the Riviera's greatest appeal: It is a well-designed, well-finished, good-performing medium-sized sedan; one that can give its master pleasure in both driving and ownership. ■