BUICK GS455 STAGE 1

The 455 V-8 and factory-installed performance package provide more power without reducing comfort.

CAR LIFE
ROAD TEST

WITH ITS BIG NEW ENGINE, the Buick GS 455 gets a jump on the competition, inside GM and outside, too. It's just as quick as the stripped and dealer-tuned GS of yesteryear, handling is better and the production version is much happier on the street.

All the General Motors divisions go to bigger engines this year. It's close to being the only real news, so far, from GM in 1970. We wanted to try one, and we did, even though it meant breaking one of our favorite rules.

We take great pains to insure that all road tests are conducted under similar conditions, which means on our turf, using the same drivers and testing equipment. Road testing at the factory proving grounds is something that we seldom put up with. For two reasons. One, it changes the ambient conditions: altitude, weather conditions, test strip coefficient of adhesion, etc. Second, it gives the factory boys an excellent opportunity to slip the testers a ringer, with blueprinted engine, specially prepared suspension and all the loving care of the engineering department, instead of it being a representative sample of what a customer buys.

Buick had a GS 455 at GM's proving grounds at Mesa, Ariz. It was before introduction time, so the car couldn't leave home. We arranged to test it there, then worried all the way to the track.

The worrying stopped when the car drove up. It had no tachometer, an automatic transmission, drum brakes and air conditioning. The factory guys asked politely if we would consider turning the air conditioning off during acceleration runs. Whatever else the car was, it wasn't a road test special.

What it turned out to be was a high-performance car with comfort, and a surplus of usable power, if there can be such a thing.

Ten minutes after climbing into the car, the driver clicked off a 14.6-sec. quarter-mile while carrying on a conversation about the weather, and with the transmission in drive. The mildly tuned engine enabled the drivers to repeat this at will, none of the E.T.'s varying more than a couple of tenths. That's unusual in road testing, where unfamiliarity and experimenting raise hob with consistency.

The new engine feels like the small block Chevy grown up. It always leaped to life at the slightest nudge of the accelerator, and sounded perfectly happy with its revs up, something few engines of this size can brag about. Although it was perfectly willing to rev above 6000 rpm, best times were recorded with the Turbo Hydro shifting automatically at 5500. This would drop engine speed right into torque peak, where there is enough leverage to straighten the Tower of Pisa.

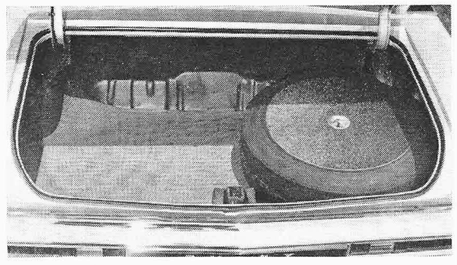
Traction was no problem with the latest Goodyear Polyglas G60-15s, which have no less than 8.5 in. of tread on the ground. Hardly a chirp was heard coming out of the hole. Since it isn't our practice to make banzai starts, even with factory cars, we wouldn't know if this would cause tire breakaway or even improve times. We doubt it. The unceremonious manner in which the car went about turning those great gobs of torque into forward motion seems to exclude any sort of manhandling. It seemed to respond best when the driver let the car go about the delicate application of force with its own shift points and stall speeds.

At highway speeds it was about the same. To pass, we simply stepped down; the transmission decided if engine speed was proper and shifted as required. Instantly, but not harshly, acceleration followed. The extra displacement pays off, especially when compared with the competition.

The whole business of putting full-size engines into intermediates began with the GTO. Similar cars followed from Chevy and Olds, but by the time Buick got into the act, emission laws and corporation policies put a damper on the practice (GM slapped a 400-cid limit on the intermediates when it started getting out of hand—Chevrolet was trying to put 427s into Chevy IIs). Everybody built long stroke 400-cid engines, but the bigger-engine competition from Ford and Chrysler Corp. was putting the GM Supercars down. They in turn were putting down the Buick. For some reason, Buick's 400 engine was never quite equal to the ▶

DRUM BRAKES on test car performed well, and stopping distance shortened as they warmed up. We'd still prefer the optional front disc brakes on such a fast car.

HUGE SPARE tire took most of the space in the trunk. When criticized, the factory men said a deflatable spare will be offered as an option later in the model year.



GS455

continued

others. For '70, GM relaxed its self-invoked performance penalty, and allowed 455-cid engines in its performance cars. Everybody moved up a notch.

But this time Buick got the edge. While its corporate brothers had to increase crank stroke to reach the limit, Buick merely bored the block out to 4.31 in., leaving the stroke at 3.90 in. This not only gave Buick a 455-cid with a highly desirable bore/stroke ratio, but also seems to have unlocked some natural breathing area. Early attempts to increase the output of the 400 and 430 engines by increasing the valve size had all come to naught. Flow paths around valves are notoriously fickle and invariably only a portion of the valve pocket actually flows any air. Finding this "neutral" flow path is a tricky business, but making the cylinders an eighth of an inch bigger apparently removed the major restriction from the natural flow path. That's all that was needed to make the big Buick engine a "breather."

The entire test was conducted in the Arizona monsoon season (100+ heat and 50% humidity—it doesn't rain there, it just sweats). An ambient temperature of 105° just about negates the advantage of the GS cold air system (still the snorkle design, not as effective as the '69 Olds system or a cowl pickup system) and the decrease in air density alone could account for those tenths of a second. Under similar conditions, we'd bet it would give the '69 Hurst/Olds a run for its money. Now you see why we insist on using our turf.

The high temperature environment did give us an opportunity to make some interesting judgments. For instance, the CAR LIFE brake fade test, the same one that completely wiped out the four-wheel disc system on a lightweight foreign sedan tested a few months ago—in ambient air some 40° cooler—never even fazed the Buick. And this was with the all-drum, power assisted system. In fact, the fade we were able to induce actually improved braking feel, allowing better utilization of the front brakes as the rears faded. But braking distance from 80 mph was nothing to brag about. First stop took a full 380 feet, at a mediocre rate of 24 ft./sec./sec. After the fade test, this improved because of better braking balance to 282 ft., even though the rate dropped off to 23 ft./sec./sec. This isn't bad, but one cannot help wondering how well a set of optional discs would perform.

Handling was almost exactly like the Hurst/Olds, as it should be, since high-performance suspension is essentially the same right down to and including the rear anti-roll bar. However, like the H/O, the 4-4-2 and the W-31, handling is still basically understeering. Not impossibly so. Oversteer could be induced with a little brake pitching and throttle steer action, but it is an over-center sort of action with understeer persisting to the last minute then, oversteer comes along, in much greater amounts than you really wanted.

It's still the same thing. If you get over your head going into the corner, you're going to plow off the road nose first, just like all the others.

Handling was commensurate with the rest of the car. Cool it with all the hero action and allow the car to do its own thing and the result was much better. Touring at eight-tenths was an effortless, one-hand-on-the-wheel situation. Chassis response signaled that the best happened with low tire slip angles and the smart driver responded with more tidy cornering technique. Steering was effortless, yet retained good feel. No wonder. This year all the GM intermediates get the impressive variable-rate power steering. Good show. Another item that is good for the grandmother *and* the teeny-bopper.

Two minor quibbles. One, the inside rearview mirror is HUGE, and blocks the line of sight for traffic signals and tall girls. Two, the wide tires, for all the good they do on the driving wheels, are an absolute menace in the trunk, where they occupy nearly half the available space. Questions of a possible changeover to an inflatable spare *à la* Pontiac brought curious looks from the factory men at Mesa, but subsequent news releases from Buick indicate this will be available as an option for '70.

The GS 455, the first of the '70s, is a car we would take home to mother, or to the dragstrip on grudge night. ■

1970 BUICK
GS 455 STAGE 1

DIMENSIONS

Wheelbase, in.	112.0
Track, f/r, in.	59.4/59.0
Overall length, in.	200.7
width	75.6
height	53.0
Front seat hip room, in.	54
shoulder room	58.8
head room	37.8
pedal-seatback, max.	41
Rear seat hip room, in.	52
shoulder room	58.2
leg room	33.1
head room	36.3
Door opening width, in.	42
Trunk liftover, in.	30

PRICES

List, FOB factory	n.a.
Equipped as tested	n.a
Options included: GS455 Package, includes: 360 bhp engine, H.D. Suspension, G60 Tires; Positrac; Turbo Hydra-matic; A/C; AM/FM; Special Trim.	

CAPACITIES

No. of passengers	2+3
Luggage space, cu. ft.	13.7
Fuel tank, gal.	20
Crankcase, qt.	4
Transmission/dif., pt.	23.0/2.9
Radiator coolant, qt.	19.6

CHASSIS/SUSPENSION

Frame type: Perimeter
Front suspension type: Independent by s.l.a., coil springs, antiroll bar
ride rate at wheel, lb./in. 142
antiroll bar dia., in. 0.97
Rear suspension type: Live axle, coil springs, torque arms, anti-roll bar
ride rate at wheel, lb./in. 122
Steering system: Integral power assist, variable ratio recirculating ball
overall ratio 18.7:1-15.4:1
turns, lock to lock 4.06
turning circle, ft. curb-curb 39.9
Curb weight, lb. 3950
Test weight 4310
Test weight distribution, %f/r 57/43

BRAKES

Type: Power assist drum
Front drum, dia. x width, in. 9.5x2.5
Rear drum, dia. x width 9.5x2.0
total swept area, sq. in. 268.6

WHEELS/TIRES

Wheel rim size 15 x 7JK
bolt no./circle dia. in. 5/4.75
Tires: Goodyear Polygias
size G60-15

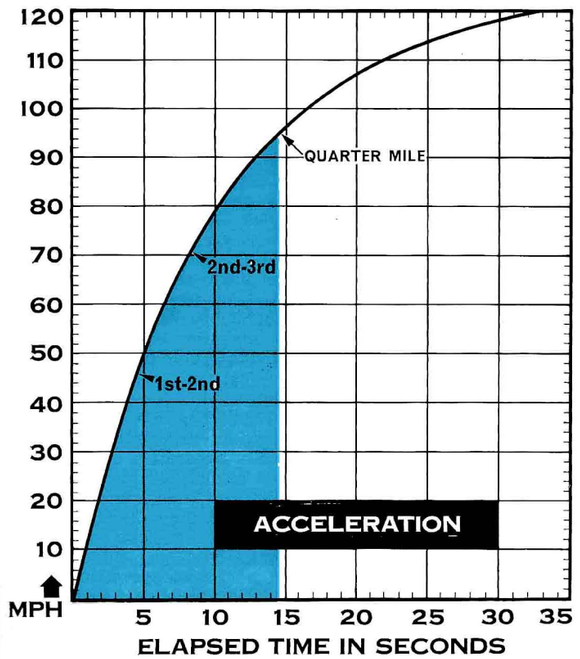
ENGINE

Type, no. of cyl. ohv, V-8
Bore x stroke, in. 4.31x3.90
Displacement, cu. in. 455
Compression ratio 10.0:1
Fuel required Premium
Rated bhp @ rpm 360 @ 4600
equivalent mph 91
Rated torque @ rpm 510 @ 2800
equivalent mph 56
Carburetion: 1, 4V Rochester
throttle dia., pri./sec. 1.37/2.25
Valve train: Rocker arms, pushrods, hydraulic valve lifters
cam timing
deg., int./exh. 17–93/93–49
duration, int./exh. 290/322
Exhaust system: dual reverse flow mufflers
pipe dia., exh./tail 2.25/2.0
Emission Control: PCV, controlled combustion system

DRIVE TRAIN

Transmission type: 3-speed automatic "Turbo Hydra-matic"
Gear ratio 3rd (1.00:1) overall 3.64:1
2nd (1.48:1) 5.39:1
1st (2.48:1) 9.03:1
1st x t.c. stall (2.05:1) 18.5:1
axle ratio (Positrac) 3.64:1

CAR LIFE ROAD TEST



CALCULATED DATA

Lb./bhp (test weight)	12:1
Cu. ft./ton mile	185.1
Mph/1000 rpm (high gear)	19.8
Engine revs/mile (60 mph)	3025
Piston travel, ft./mile	1964
CAR LIFE wear index	58.4

SPEEDOMETER ERROR

Indicated	Actual
30 mph	30
40 mph	39
50 mph	48
60 mph	57.7
70 mph	67.0
80 mph	76.3
90 mph	85.0

MAINTENANCE

Engine oil, miles/days	6000/120
Chassis lubrication, miles	6000
Spark plugs: AC	
gap, (in.)	R44TS
Basic timing, deg./rpm	6BTDC/600
max. cent. adv., deg./rpm	28/4600
max. vac. adv., deg./in. Hg	19.5/25
Ignition point gap, in.	.013-.019
cam dwell angle, deg.	30
arm tension, oz.	19-23
Tappet clearance, int./exh.	Hydraulic
Fuel pressure at idle, psi	4
Radiator cap relief press., psi	15

PERFORMANCE

Top speed (6400), mph	129.5
Test shift points (rpm) @ mph	
2nd to 3rd (5300)	71
1st to 2nd (5400)	46

ACCELERATION

0-30 mph, sec.	3.0
0-40 mph	4.0
0-50 mph	5.0
0-60 mph	6.5
0-70 mph	8.0
0-80 mph	10.5
0-90 mph	13.0
0-100 mph	16.5
Standing ¼-mile, sec.	14.6
speed at end, mph	95.2
Passing, 30-70 mph, sec.	5.0

BRAKING

Deceleration rate and stopping distance from 80 mph	
ft./sec./sec.	24.5
distance, ft.	387
Rate and distance after 8½g stops from 80 mph	
ft./sec./sec.	23
distance, ft.	283
Overall brake performance	good

FUEL CONSUMPTION

Test conditions, mpg n.a.