



# Chevrolet Bel Air Six

*The Old Stovebolt Six Ain't What She Used to Be!*

**C**HEVROLET and 6-cyl. engines have been synonymous in the eyes of the car-buying public ever since 1929 when this division of General Motors pulled the lid off its "Stovebolt Six." That Chevrolet now sells, and has for the past 10 years sold, more V-8s than Sixes makes little dent in this identity—a Chevy still is an economical 6-cyl. passenger transport.

In the beginning, no doubt, there was certain excitement to the performance of the "Six that Sells for the Price of a Four." Smoother running, stronger acceleration and better gas mileage convinced a great many buyers that Chevrolet was the way to go—anywhere. In those days Chevrolet offered only one engine, the Six, so if the buyer wanted something different, or more powerful, he had to shop elsewhere. However, 6-cyl. performance was completely adequate through the '30s and '40s and many a friendly wager was made on whether the "Stovebolt" could outrun the Brand F "Bent-Eight." The discussion continues.

Somewhere along the line, the Six's popularity waned. It probably started when the overhead valve V-8, and its impressively better performance, became optional and standard equipment in American automobiles in the late '40s and early '50s. The Six then was relegated, because of its lower initial and operating costs, to strictly an "economy" role.

Engine designers, nonetheless, have retained some interest in the Six. Chevrolet has been one of the leaders in adapting 7-main bearing crankshafts just as Pontiac is showing the way with belt-driven, overhead-camshaft Sixes. Chevrolet now leads in the unheralded cubic inch race among the 6-cyl. engine makers, its 1966 offering being a 250 cu. in. offspring of its 7-main, 194-230 family.

The current Chevrolet Six series was introduced for 1962 as the basic power for the then-new Chevy II. With a bore and stroke of 3.56 x 3.25 in. it had (and remains at) 194 cu. in./120 bhp. The second version was 3.875 x 3.25 in. for 230 cu. in./140 bhp and it powers the Chevelle, introduced for 1964. After two more years, the 250-cu. in./155-bhp version was shown for the '66s, with a bore and stroke of 3.875 x 3.53 in. This counts up as one bore and one stroke increase for the original engine.

Common to all Chevrolet in-line Sixes are the 7-main bearing block, heads, valves, manifolds and other ancillary equipment. The only major physical difference that the 250-cu. in. version has over its 194- and 230-cu. in. brethren is a longer stroke crankshaft with 12 counterweights instead of four.

The bigger Six also has a higher-lift camshaft, although cam timing and valve overlap remain the same as for the smaller versions. Notably, rated horsepower per cu. in. displacement remains virtually identical at 0.61-2 for all three engines—rather mild when compared with the 327-cu. in./350-bhp V-8 (1.07 bhp/cu. in.) available in Chevy IIs and Corvettes.

With a compression ratio of 8.5:1 and a single-barrel carburetor of 1.56 in. diameter throat, the Six is tuned directly for regular fuel, low-speed operation. Its torque peak is at a mere 1600 rpm—or right in the vehicular speed range where it will be most usable—and its horsepower peak is at an unattainable speed. What this means, basically, is that the Chevrolet Six is geared to do most of its running in the range the engineers believe is most economical.

The particular example of Chevrolet Six tested by *CL* was a Bel Air 4-door sedan, additionally equipped with Powerglide automatic transmission, power steering and the California-mandatory exhaust emission control system. All of these items have a more or less detrimental effect on the vehicle's performance.

Test driving this car for 1200 miles produced some rather illuminating thoughts concerning the true economies of 6-cyl. power. To begin with, it achieved only 14.4 mpg over that distance, which included mainly the average sort of office-and-back operation, and moderate amounts of stop-

and-go and freeway driving. A lighter-footed driver might have registered as high as 16 mpg, a harder driver as low as 13 or 14 mpg. However, the range is somewhat lower than might have been expected from the "Economy Six." Something around 16-17 should be anticipated for this car weight (3560 lb., curb) and engine size.

The data panel acceleration graph and figures show that fuel economy certainly wasn't sacrificed for get-up-and-go performance. The combination of a 3.08:1 axle ratio and an undergeared automatic transmission makes Chevrolet Sixes barely competitive with Volkswagens in acceleration.

**E**CONOMY MUST suffer, too, from the power steering pump, which probably costs it 1 mpg, and the air-injection "anti-smog" device. This latter item may be the real culprit in the test car's poor mileage (see *CL* Editorial, "Controlled Loss," Feb. '66). Addition of air conditioning also would reduce performance to a point that would make *CL* recommend the optional V-8s any time air conditioning is to be ordered.

The '66 Chevrolet itself is no lightweight in either bulk or mass. At test weight (driver, passenger and full tank of fuel), the Six provides only one horsepower for every 26 lb. The car body is quite wide and projects a frontal area of 24.6 ft., which is quite a bit of body for the Six to push through the wind at highway speeds. Small wonder that Chevrolet upped



CHAN BUSH PHOTOS

# Bel Air Six



CHEVROLET'S simplicity and neatness of design are readily apparent, add to its already good resale value. Bel Air 4-door with 6-cyl. engine has nearly equal weight distribution.

the basic Six from 230/140 to 250/155 for this year's model—it needs that extra power.

The '66 Chevrolet Six, then, is rather lightly powered for its size; it is undergeared in both axle choice and automatic transmission usage; it suffers from add-on, power-sapping equipment. It isn't nearly as economical as

it ought to be. Why, then, should a car-buyer even look at the Chevrolet Six?

There's that size: The big Chevrolet is a 6-passenger car with 6-passenger luggage space. The basic price is attractively low—low enough so the budget-conscious parent of a large family could afford a car able to haul

his brood in relative comfort. It is a stylish car of modest, if plain, good looks and it has proved to maintain reasonable resale value.

If underpowered for today's freeway driving demands, the Chevrolet Six at least makes the most of its abilities with reasonably good ride, handling and braking. It either mini-

## 1966 CHEVROLET BEL AIR SEDAN



### DIMENSIONS

Wheelbase, in.	119.0
Track, f/r, in.	62.5/62.4
Overall length, in.	213.2
width	80.0
height	55.4
Front seat hip room, in.	63.7
shoulder room	62.3
head room	38.1
pedal-seatback, max.	40.5
Rear seat hip room, in.	62.9
shoulder room	61.3
leg room	39.5
head room	37.3
Door opening width, in.	32.3/30.7
Floor to ground height, in.	11.0
Ground clearance, in.	5.7

### PRICES

List, fob factory	\$2514
Equipped as tested	2979
Options included: Power steering, radio, 7.75-14 wsw tires, outside rearview mirror, seat belts, Calif. emission control, PowerGlide, tinted glass, wheel covers, floor mats.	

### CAPACITIES

No. of passengers	6
Luggage space, cu. ft.	18.3
Fuel tank, gal.	20.0
Crankcase, qt.	4.0
Transmission/diff., pt.	3.0/3.5
Radiator coolant, qt.	12.0

### CHASSIS/SUSPENSION

Frame type	perimeter
Front suspension type: Independent by s.t.a. with coil springs and concentric tubular shock absorbers; ball joint steering knuckles.	
ride rate at wheel, lb./in.	132
anti-roll bar dia., in.	0.8125
Rear suspension type: Live axle; 2 lower, 1 upper control arms, tie-rod; coil springs and tubular shock absorbers.	
ride rate at wheel, lb./in.	124.5
Steering system: Coaxial power assisted recirculating ball nut; parallelogram linkage; 2 tie-rods.	
gear ratio	17.5
overall ratio	19.4
turns, lock to lock	3.52
turning circle, ft. curb-curb	40.8
Curb weight, lb.	3560
Test weight	3900
Weight distribution, % f/r	51.3/48.7

### BRAKES

Type: Single-line hydraulic; self-adjusting duo-servo shoes in composite drums.	
Front drum, dia. x width, in.	11 x 2.75
Rear drum, dia. x width	11 x 2.00
total swept area, sq. in.	328.3
Power assist	none
line psi @ 100 lb. pedal	717

### WHEELS/TIRES

Wheel size	14 x 5J
optional sizes	14 x 6JK, 15 x 5K
bolt no./circle dia., in.	5/4.75
Tire make, brand: Firestone Deluxe Champion.	
size	7.75-14
recommended inflation, psi	24
capacity rating, total lb.	4480

### ENGINE

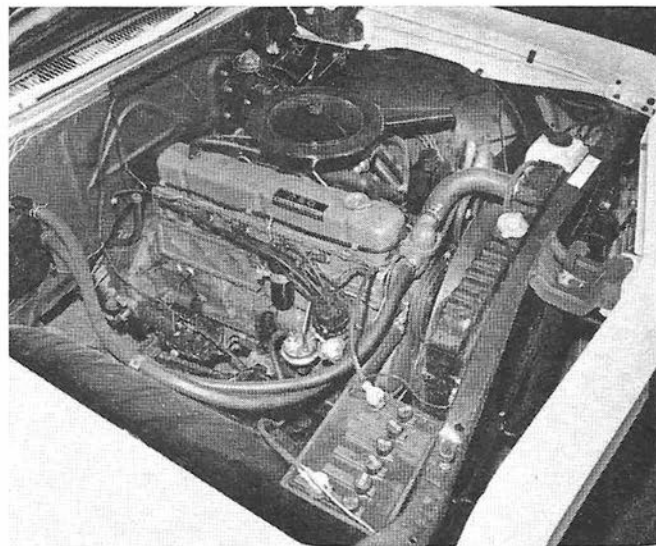
Type, no. cyl.	IL-6, ohv
Bore x stroke, in.	3.875 x 3.53
Displacement, cu. in.	250
Compression ratio	8.5
Rated bhp @ rpm	150 @ 4200
equivalent mph	105
Rated torque @ rpm	235 @ 1600
equivalent mph	40
Carburetion	1 x 1 barrel dia., pri./sec.
	1.56
Valve operation: Hydraulic tappets, tubular lifters and rocker arms.	
valve dia., int./exh.	1.72/1.50
lift, int./exh.	0.388
timing, deg.	62-94, 92-63
duration, int./exh. (incl. ramps)	336
opening overlap	125
Exhaust system: Single, reverse-flow muffler.	
pipe dia., exh./tail	2.0/1.875
Lubrication pump type	gear
normal press. @ rpm	30 @ 1500
Electrical supply	alternator
ampere rating	9-37
Battery, plates/amp. rating	54/44

### DRIVE-TRAIN

Clutch type	
dia., in.	
Transmission type: Automatic; torque converter, 2-speed planetary gearbox.	
Gear ratio 4th ( ) overall	
3rd ( )	
2nd (1.00)	3.08
1st (1.82)	5.62
1st x t.c. stall (2.10)	11.8
Shift lever location	column
Differential type: Semi-floating, overhung pinion.	
axle ratio	3.08



GOOD BIT of customer service is sticker telling recommended tire pressures for various car loads.



SIX-CYL. engine is a mechanic's delight; everything is readily accessible, easy and quick to service.

mizes or resolves most of the complaints in these areas that *CL* has made about other, V-8 powered, Chevrolets.

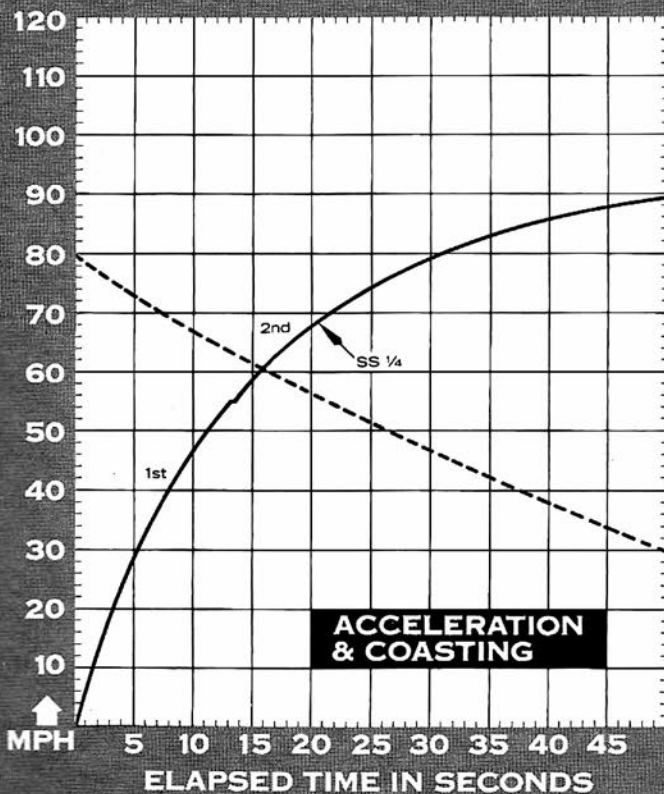
Because of the lighter weight 6-cyl. engine, it scales out as the best-balanced Chevrolet sedan *CL* has tried—51.3% of its test weight on its front wheels, 48.7% on its rears. The 283/195-220 V-8 engine option adds ap-

proximately 170 lb., virtually all of it to the front end, and the 327- and 427-cu. in. engines are progressively heavier.

Balance, in an automobile, is something to be desired. Concentrations of weight, either front or rear, can cause untoward riding, handling and braking problems. Seemingly, the closer the

weight distribution is to 50/50, the fewer problems there are. The Chevrolet Six seems to be a good example of this. Handling, that ability to negotiate all types of roadway, is good in that one end is as "sticky" as the other; the car, when pushed through a curve, feels as if it is neither plowing off the curve nose-first, nor whipping off tail-

## CAR LIFE ROAD TEST



### CALCULATED DATA

Lb./bhp (test weight)	26.0
Cu. ft./ton mile	80.2
Mph/1000 rpm (high gear)	25.0
Engine revs/mile (60 mph)	2400
Piston travel, ft./mile	1410
Car Life wear index	33.9
Frontal area, sq. ft.	24.6
Box volume, cu. ft.	546

### SPEEDOMETER ERROR

30 mph, actual	28.8
40 mph	38.9
50 mph	49.4
60 mph	60.3
70 mph	70.2
80 mph	81.2
90 mph	

### MAINTENANCE INTERVALS

Oil change, engine, miles	6000
trans./diff.	12,000/as req.
Oil filter change	6000
Air cleaner service, mi.	12,000
Chassis lubrication	6000
Wheelbearing re-packing	as req.
Universal joint service	none
Coolant change, mo.	n.a.

### TUNE-UP DATA

Spark plugs	AC 46N
gap, in.	0.033
Spark setting, deg./idle rpm	6/500
cent. max. adv., deg./rpm	30/3200
vac max. adv., deg./in. Hg	21/14.5
Breaker gap, in.	0.019
cam dwell angle	31-36
arm tension, oz.	19-23
Tappet clearance, int./exh	0
Fuel pump pressure, psi	3.5
Radiator cap relief press., psi	15

### PERFORMANCE

Top speed (3800), mph	95
Shifts (rpm) @ mph	
3rd to 4th ( )	
2nd to 3rd ( )	
1st to 2nd (4000)	55

### ACCELERATION

0-30 mph, sec.	5.2
0-40 mph	8.0
0-50 mph	11.4
0-60 mph	15.5
0-70 mph	21.4
0-80 mph	30.3
0-90 mph	
0-100 mph	
Standing 1/4-mile, sec.	20.5
speed at end, mph	69
Passing, 30-70 mph, sec.	16.2

### BRAKING

(Maximum deceleration rate achieved from 80 mph)	
1st stop, ft./sec./sec.	26
fade evident?	no
2nd stop, ft./sec./sec.	22
fade evident?	slight

### FUEL CONSUMPTION

Test conditions, mpg	14.4
Normal conditions, mpg	15-17
Cruising range, miles	300-340

### GRADABILITY

4th, % grade @ mph	
3rd	
2nd	8 @ 50
1st	17 @ 35

### DRAG FACTOR

Total drag @ 60 mph, lb.	215
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first. The ride, if rather softly damped, does not exhibit the pitching tendencies associated with out-of-balance automobiles.

Braking is most satisfactory for a standard equipment, basic car. *CL*'s testers stomped out their usual two consecutive 80 mph crash stops; the first achieved a deceleration rate of 26 ft./sec./sec., without wheel lockup, the second was 22 ft./sec./sec., but with just a trace of fade causing the rears to grab slightly. Here again, good

balance prevented the pendulum effect of deceleration from overworking the front drums (overheating and fading them so that the extra hydraulic pressure required to maintain their constant effort locks up the lighter-loaded rear drums). Another factor enters this picture: This car did not have power assisted brakes and the driver thus was better able to control the amount of stopping pressure sent through hydraulic lines to the shoes.

Chevrolet's fit and finish of this Bel

Air sedan is best described as mediocre. Item: The actual paint job was smooth and run-free, but the body panels beneath showed wrinkles and waves. Item: Interior upholstery appeared durable and tasteful, but the trunk/luggage compartment was finished only in a speckled paint—not even a rubber mat covered its floor. Item: Body panels mated with minimum “gaps,” but the windshield header—leftside A-pillar body joint—creaked and snapped every time the car went over a bump. Item: Windshield wipers didn't work when car was picked up and dealer had to wait three days to get a replacement motor. Item: Translucent plastic domelight cover fell off on the second bump. Conclusion: Quality seems only skin-deep.

**O**N THE BRIGHTER side, there are some noteworthy features. The driving position, for one, has been greatly improved: Seat height is slightly higher, steering wheel location lower, and the wheel is slightly farther from the driver. Driver visibility is good, although a blind spot at the rear quarter panel remains. The instrumentation is sparse, but the huge speedometer is magnificently easy to read; the bright-light indicator says just that, “Bright,” when the high-beam lamps are on. Ventilation and heating are excellent, offering an infinite variety of temperature conditions. And the trunk, albeit uncarpeted, is immense in capacity.

If the car-buyer then expects nothing more than durable, reliable transportation, devoid of frills or excitement, the Chevrolet Six has to be the point from which he starts looking. ■

**INTERIOR** design is nearly as functional as exterior; features are vinyl upholstery, huge speedometer face.



**TAILLIGHT** outboard segments are turn, stop, taillights, inboard portions house back-up lamps. Trunk is cavernous.

