

Waiting lists of great length and duration for the Corvette Sting Ray at all Chevrolet dealers' are the best proof of the public's acceptance of the new model. We hailed the car's technical advances with great enthusiasm (Oct. C/D) after our brief test drives last fall.

Now it's time for an exhaustive report on America's leading grand touring car (which many drivers think of only as a sports car). We chose the 300-bhp version of the coupé, because it seems to enjoy some market preference over models equipped with the 250-, 340-, or fuel-injection 360-bhp engines.

However, the key to the personality of the Corvette Sting Ray lies neither in the power available nor in the revised styling, but in the chassis. Up to now the Corvette has been struggling to rise above a large number of stock components, notably in the suspension, where their presence created all kinds of problems that re-

quired extensive modifications for any competition use beyond normal road rallies. The new all-independent suspension has completely transformed the Corvette in terms of traction and cornering power, but it still has some faults. The standard setup on the test car seemed a bit more suitable for race tracks than for fast back-road motoring. A rigid front anti-roll bar in combination with a relatively stiff transverse leaf spring in the rear reduces the resilience and independence of the suspension of each wheel with the result that even on mildly rough surfaces the car does not feel perfectly stable. On bumpy turns it's at its worst, veering freely from one course to another, making high-frequency corrections s.o.p., but on a smooth surface it comes incredibly close to perfection. Cornering stability under conditions permitting minimal wheel deflections is remarkable, and an initial feeling of pleasant surprise

rises to sheer astonishment when one discovers that the car can be taken off the predetermined line with ease and still complete the turn in perfect balance.

There is some understeer but the car has such a tremendous power surplus, even with the next-to-bottom engine option, that the tail can be slung out almost any old time, and after a while throttle steering seems the natural way of aiding the car around a curve. This is so easy to do that a newcomer to the car can master it in half an hour of fast driving.

Given surface roughness, the rear end becomes skittish. We experienced this with a full tank as well as one almost empty, indicating that normal loads don't appreciably affect its behavior in this respect.

One of our test cars had the new Saginaw power steering, three turns lock to lock with enough road feel to satisfy the most critical tester and observer, while

eliminating all difficulties of parking and maneuvering in tight spaces. We also tested a car with manual steering, and found it so light in comparison with previous Corvettes that there can be no conceivable need for power assistance. While the power system is every bit as good as those used by Rover and Mercedes-Benz in terms of feedback and road feel, it seems strange that Chevrolet should get around to introducing it when there is no longer any need for it. The three-spoke wheel is steeply raked (15° 23') as on previous Corvettes, and its relatively thin rim offers a good grip. The entire semi-circle between nine and three o'clock is free of spoke attachments, providing a clean hold for any but the most eccentric drivers. The steering column has a three-inch adjustment for length but our test drivers all kept the wheel in its foremost (bottom) position while making the most of seat-adjustment possibilities. There

*At long last America has a formidable weapon to challenge*

*Europe's fastest grand touring cars on their home ground*

**CAR and DRIVER ROAD RESEARCH REPORT:**

# Corvette Sting Ray



## CORVETTE STING RAY CONTINUED

are four inches of fore-and-aft travel but backrest angle is variable only by setting screws at its floor abutments. In addition, there are three seat-height positions with a total span of 1.24 inches.

The result is a range of adjustment adequate to let our test drivers (ranging in height from five-seven to six-four) find a nearly ideal seating position. Maximum effective leg room (to the accelerator) is 43.7 inches and the maximum vertical height from the seat to the headlining is 33 inches. In view of the over-all height of only 49.8 inches, this is a good example of the care that has gone into designing the living quarters of the new Corvette Sting Ray.

As the engine and drive train are offset one inch to the right to provide wider leg room for the driver, he sits facing exactly in the direction he is going, with the pedals straight in front of him. The accelerator is nicely angled for normally disposed feet, but the clutch pedal has a rather excessive travel. With standard adjustment, you cannot release it without taking your heel off the floor, causing a bit of annoyance in traffic.

Instead of a fly-off handbrake, the Corvette has a T-handle under the instrument panel labeled "Parking Brake"—one of the few features of the new model which reminds you of its relationship with Chevrolet's mass-produced sedans.

Compared with previous Corvettes, the Sting Ray is improved in almost every imaginable respect: performance, handling, ride comfort, habitability and trunk space. The trunk is only accessible from inside the car, however, since the tail is full of fuel tank and spare wheel, but the storage space behind the seats is even larger than outside dimensions indicate. A third person, sitting sideways, may come along for short rides, but will soon feel cramped from lack of headroom. An occasional extra passenger will actually be better off sitting on the console between the seats and sharing legroom with the shotgun rider.

Having driven the Corvette Sport Coupé in all kinds of weather conditions, we found the heater and defroster units eminently satisfactory. The heater fan has

three speeds, and air entry is variable by a push-pull control. Warm-up is not extremely rapid but seems to be faster than average. The body proved absolutely draft-proof and water-tight.

We liked the ball-shaped interior door handles but were not convinced of the advantages of the wheel-type door lock buttons. A minor complaint is the location of the window winders, as you cannot set your knee against the door panel for bracing on a sharp turn without coming in contact with the window handle.

Brakes have long been a sore point with Corvettes, and further advance has now been made without taking the full step of going to disc brakes (which the car really deserves). The Delco-Moraine power brakes have 11-inch steel drums cast into the wheel rims, with 58.8% of the braking force being directed to the front wheels. Sintered iron brake linings are optional and will certainly be found necessary for anyone planning to race, as fade is easily provoked with the standard linings, although the cooling-off period required to restore full efficiency is very short.

Chevrolet is prepared for a fair-sized demand for special performance parts, but has restricted their application to the structurally stronger Sport Coupé. The sintered-iron heavy-duty brake system also includes vented backing plates and air scoops and a dual-circuit master cylinder. There is a heavy-duty anti-roll bar, heavy-duty front and rear shock absorbers, aluminum wheels with knock-off hubs, and a 36-gallon fuel tank. The brake mechanism, in contrast to that fitted as standard, automatically adjusts the brakes when applied during forward motion. To be ordered, this special performance kit (RPO ZO6) also requires the 360-bhp engine, the four-speed Warner T-10 gearbox and a Positraction limited-slip differential.

Race preparation of the 327-cubic-inch Corvette engine has been thoroughly treated by Bill Thomas in an article for the *Corvette News* (Volume 5 No. 3), a GM publication invaluable to both the active Corvette competitor and his "civilian" counterpart. For information, readers are advised to write to *Corvette News*, 205 GM Building, Detroit 2, Michigan.

For all kinds of non-competitive driving, the 300-

bhp version gives more than ample performance for anyone, with our average standing-quarter-mile time at 14.4 seconds. This was achieved with the "street" gearbox and an axle ratio which limits top speed to about 118 mph, a combination which results in extreme top-gear flexibility as well. Top-gear starts from standstill to limit wheelspin present no problem with regard to stalling, but detonations were inevitable.

Fiberglass bodies usually have peculiar noises all their own but the Corvette was remarkably quiet, no doubt due to the steel reinforcement surrounding the entire passenger compartment. The car is also notable for low wind noise and high directional stability. Engine noise is largely dependent on the throttle opening—it will respond with a roar to a wiggle of the toe if you're wearing light shoes, and this holds true within an extremely broad speed range. Top-gear acceleration from 50 to 80 is impressive indeed, both in sound and abdominal effects.

In this connection, the gear lever has a set of speeds at which it vibrates and generates a high-pitched rattle (this is in the lever itself and not in the reverse catch), and there are intermittent peculiar noises from the clock, probably when it rewinds itself.

The now-familiar Warner T-10 gearbox has faultless synchromesh and when fully broken in can be as light as cutting butter. One interesting aspect of its operation is the fact that the owner's handbook specifies double-clutching for down-shifts.

We are in complete agreement with this recommendation, over which there has been some controversy. Some people feel that double-clutching will wear out the synchromesh. This can be true only if on down-shifts the engine is accelerated so much that the synchromesh has to work harder than it would with a single-clutch change, a situation which does not seem to occur very often.

While we agree that the Buick Riviera, for example, is the kind of car where automatic transmission has a function, we cannot see its place in the Corvette and our testing was done exclusively on a pair of manual-shift cars, one with power steering and one without, neither with Positraction limited-slip differential, which

perhaps should be standard equipment on this car.

As the majority of new Corvettes are built with four-speed transmissions, it is hard to understand why the three-speed remains listed as standard equipment. We can see no reason for even continuing to offer it, and recommend that both the Powerglide and the three-speed manual gearbox be dropped. This would let Chevrolet standardize the wide-ratio four-speed transmission throughout and make the close-ratio version optional for the 340- and 360-bhp models.

Our testers preferred the car with the fewest automatic "aids," and probably most of our readers will, too. That keen drivers prefer manual controls is not baffling at all—except possibly to advanced research personnel who forget that nowhere else can they get an effective 180-pound corrective computer which can be produced at low cost by unskilled labor.

Vastly more practical than any previous Corvette, the Sting Ray Sport Coupé appeals to a new segment of buyers who would not be interested in a convertible, and production schedules at the Saint Louis assembly plant have been doubled from the 1962 model's. As an American car it is unique, and it stands out from its European counterparts as having in no way copied them but arrived at the same goal along a different route. Zora Arkus-Duntov summed it up this way: "For the first time I now have a Corvette I can be proud to drive in Europe." We understand his feelings and are happy to agree that the Sting Ray is a fine showpiece for the American auto industry, especially since it is produced at a substantially lower price than any foreign sports or GT car of comparable performance. **CPD**



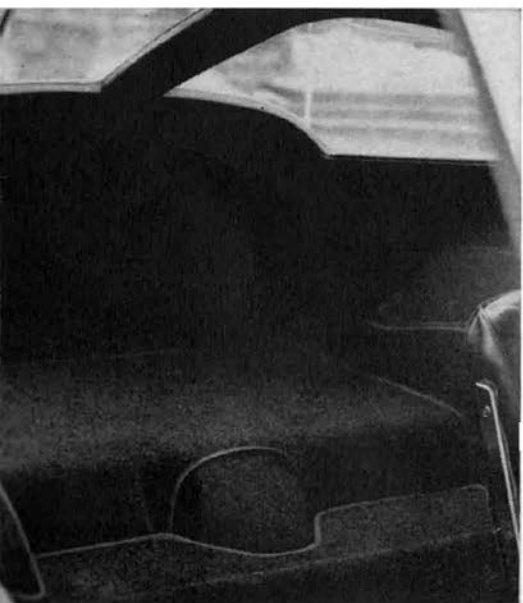
Directional and parking lights are part of bumper design but the retractable headlamps are concealed for daytime driving.



The Corvette is perhaps best looking from behind, and this is a view that drivers of other cars will soon become used to.

Body was wind-tunnel tested but many

object to superfluous decoration by emblems and dummy vents.



Luggage space is surprisingly roomy but central window partition ruins rear view.



A ventilated fuel filler cap is reached through lid. Gear positions are labeled.



# Road Research Report

## Chevrolet Corvette Sting Ray Sport Coupe

Manufacturer: Chevrolet Motor Division  
General Motors Corporation  
Detroit 2, Michigan

Number of U.S. dealers: 7,000 (approximately)  
Planned annual production: 16,000

### PRICES

Basic price ..... \$4,252

### OPERATING SCHEDULE

Fuel recommended ..... Premium (99-101 Octane)  
Mileage ..... 10-18 mpg  
Range on 20-gallon tank ..... 200-360 miles  
Oil recommended ..... Single grade ..... Multi-grade  
32° F and over ..... SAE 20 or 20W ..... SAE 10W-30  
0° F ..... SAE 10W ..... SAE 10W-30  
below 0° F ..... SAE 5W ..... SAE 5W-20  
Crankcase capacity ..... 5 quarts  
Change at intervals of ..... 6,000 miles  
Number of grease fittings ..... 10 (9 with manual steering)  
Most frequent maintenance ..... Lubrication at every 6,000 miles

### ENGINE:

Displacement ..... 327 cu in, 5,370 cc  
Dimensions ..... 8 cyl, 4.00-in bore, 3.25-in stroke  
Valve gear: ..... Pushrod-operated overhead valves (hydraulic lifters)  
Compression ratio ..... 10.5 to one  
Power (SAE) ..... 300 bhp @ 5,000 rpm  
Torque ..... 360 lb-ft @ 3,200 rpm  
Usable range of engine speeds ..... 600-5,500 rpm  
Carburetion ..... Single four-throat Carter WCFB carburetor

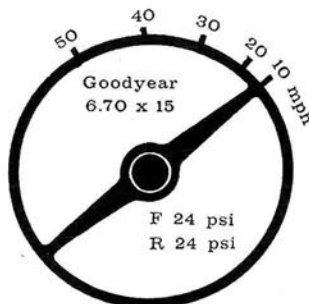
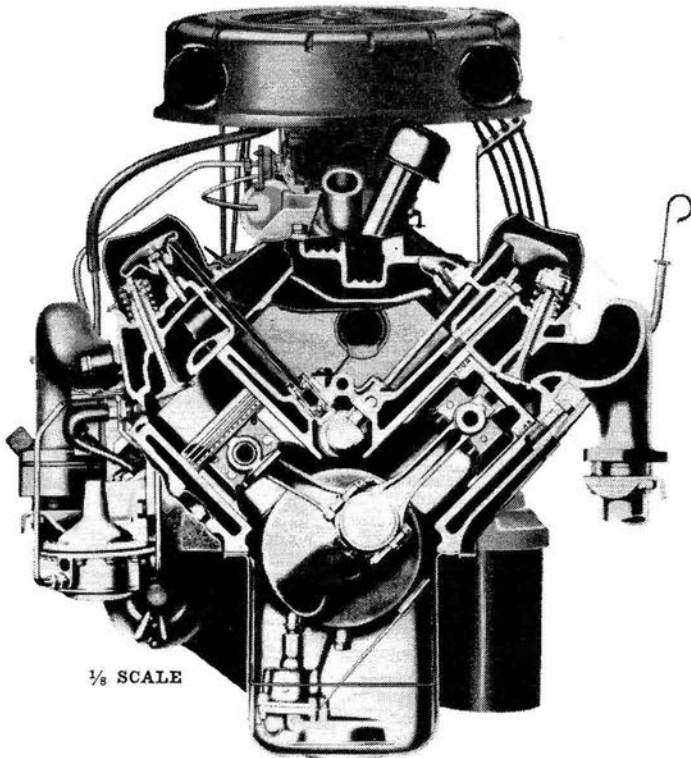
### CHASSIS:

Wheelbase ..... 98 in  
Track ..... F 56.3 in, R 57.0 in  
Length ..... 175.3 in  
Ground clearance ..... 7.5 in  
Suspension: F: Ind., coil springs and wishbones, anti-roll bar  
R: Ind., lower wishbones and unsplined half-shafts acting as locating members, radius arms and transverse leaf spring  
Steering ..... Saginaw recirculating ball with power assistance  
Turns, lock to lock ..... 3  
Turning circle diameter between curbs ..... 36 ft  
Tire size ..... 6.70 x 15  
Pressures recommended ..... F 24, R 24 psi  
Brakes: ..... Delco-Moraine 11-in drums front and rear, 328 sq in swept area  
Curb weight (full tank) ..... 3,180 lbs  
Percentage on the driving wheels ..... 53

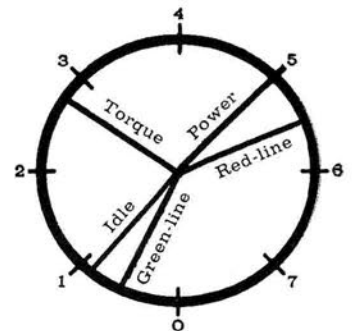
### DRIVE TRAIN:

Gear	Clutch	Step	Over-all	1,000 rpm
Rev	No	2.61	8.78	-9.0
1st	Yes	2.54	8.52	9.3
2nd	Yes	1.89	6.36	12.4
3rd	Yes	1.51	5.08	15.6
4th	Yes	1.00	3.36	23.5
Final drive ratio			3.36 to one	

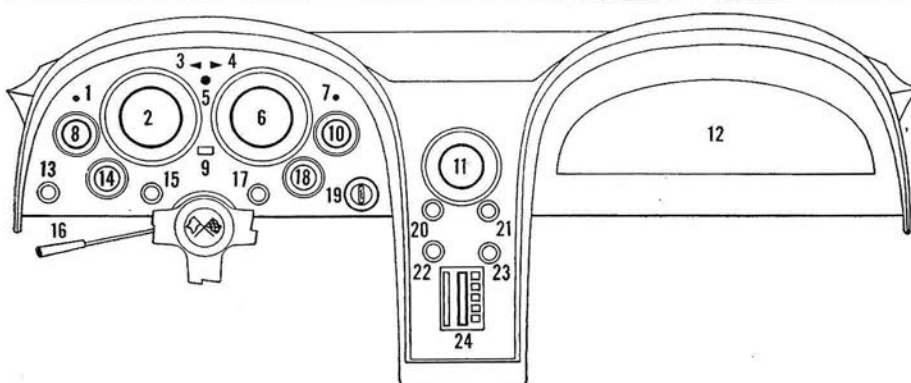
Borg & Beck 10-in single dry plate



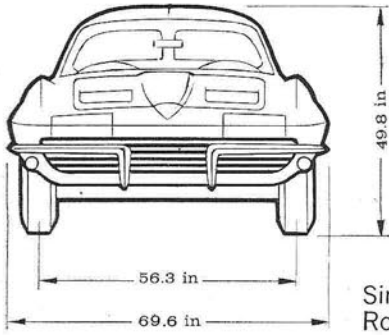
Steering Behavior  
Wheel position to maintain 400-foot circle at speeds indicated.



Engine Flexibility  
RPM in thousands



- (1) Turn signal warning light (left);
- (2) Speedometer and odometer;
- (3) Warning light for headlights on in closed position;
- (4) Parking brake warning light;
- (5) High beam warning light;
- (6) Tachometer;
- (7) Turn signal warning light (right);
- (8) Water temperature gauge;
- (9) Trip odometer;
- (10) Oil pressure gauge;
- (11) Clock;
- (12) Glove box;
- (13) Light switch;
- (14) Ammeter;
- (15) Windshield wiper and washer;
- (16) Turn signal lever;
- (17) Cigarette lighter;
- (18) Fuel gauge;
- (19) Ignition key and starter;
- (20) Heater fan and fresh air control;
- (21) Defroster control;
- (22) Radio volume and tone control;
- (23) Radio tuning selector;
- (24) Radio dial.



Single four-barrel Rochester carburetor

Delcotron alternator

Stamped steel radius arm

Control arm for lateral location

Warner T-10 gearbox

Anti-roll bar

11-inch brake drum

