

CHEVROLET CORVETTE

with four-speed gearbox and fuel injection

ROAD TEST 4-SPEED CORVETTE

IN JANUARY of this year, Chevrolet announced that their Corvette would be available not only with fuel injection, but also with four speeds forward. We were shown the transmission unit at the time (in Detroit) but only recently have they become generally available.

Prior to testing the 4-speed model we were given a standard 3-speed fuel-injection car to drive, and though a complete road test was not made, we did publish some of the data last month. Unfortunately, exact comparison of data between the two cars is not possible because the 3-speed car had a 3.70 axle, standard differential, stock rear springs and original equipment (6.70-15) tires.

Our 4-speed test car is the property of enthusiastic owner-driver Andy Porterfield (his 3rd Corvette). The car was raced at Palm Springs and Santa Barbara a month earlier and had just had the new gearbox installed on the day before the test. A standard Chevrolet option, "Positraction" rear end with 4.11:1 gears, was installed, along with heavy-duty rear springs (one extra leaf), stiffer shocks and special re-treaded 6.50-15 tires. We measured these tires very carefully; as loaded and inflated they are a close equivalent to the 7.10-15 size, which give 720 tire revolutions per mile at 35 mph and 2960 engine revs per mile. The 3-speed car, with radio and heater, the hard top and full tank weighed 2880 lb, while the 4-speed car without radio and heater and with cloth top weighed exactly the same.

Even the Anglophiles now readily admit that the Corvette will go. The only question left is how *well* it goes. Our figures in the data panel are, as usual, the mean of several runs in opposite directions, and corrected for speedometer error. Owner Porterfield, who drove during the tests, made consistent starts with very little trouble and brisk shifts without speed-shifting. The data are unequalled by any other production sports car.

In 1st gear, the normal production 3-speed car was an abomination, for the standard rear springs are much too flexible and the standard tires without benefit of the special differential make wheelspin difficult to overcome. Under the same conditions the 4-speed car, with its modifications, was nearly fault-free, although initial wheelspin could be provoked. When this was done, the rear end would chatter and hop for the first 50 ft.

Either car would reach 60 mph from a standstill in one magnificent roar, using 1st gear only. In the case of the 4-speed car, the 4.11 axle meant that 6600 rpm was required, but the engine seemed quite willing to go on beyond that. The owner states that he exceeded 7000 rpm on several occasions when racing with the original 3-speed gearbox (which has the same gear ratio in 1st as the new box).

A study of the acceleration chart would indicate that the 2nd-gear spurt is too short (from 60 to 76 mph) but the rev limits used for 1st and 2nd were not the same (see data under

add fuel injection and get out of the way

performance). A truer picture of useful shift points can be gathered by considering the fact that even 1st gear is synchronized. In a race, it would normally be used on a slow turn from, say, 41 mph to 56 mph, while if 2nd is used over an equal rpm range (from 4500 to 6200 rpm) the corresponding speeds are 56 to 76 mph. In other words, the gear ratios are close and very well spaced for competition work. Incidentally, although the gearbox was brand new it shifted beautifully, with an easy, short throw. It is virtually impossible to clash and is also much quieter than the 3-speed box. Though we approached the synchronized low with caution it didn't complain.

The fuel-injection engine is an absolute jewel, quiet and remarkably docile when driven gently around town, yet instantly transformable into a roaring brute when pushed hard. It idles at about 900 rpm and pulls easily and smoothly from this speed even in high gear. Its best feature is its instantaneous throttle response, completely free of any stutter or stumble under any situation. The throttle linkage has a certain amount of back-lash and friction, but there are no flat spots such as we described in last year's test of two Corvettes with twin 4-barrel carburetors.

No timed top speed runs were made for the simple reason that it would be relatively pointless to do so, with the short-course 4.11 axle gears. An engine speed of 6500 is easily reached in 4th gear, equivalent to 132 mph with no allowance for tire expansion. With suitable gears the Corvette can approach 150 mph, as has been proven at Bonneville and at Daytona.

The brakes on our test car were normal duo-servo Bendix type, but with Ferodo linings. The owner reports good though not ideal anti-fade characteristics; we made three stops from just over 100 actual mph with no sign of trouble and a normal feel. A brake booster is not supplied, nor is it needed.

Perhaps a few words should be allotted to the numerous items of special equipment which are available. The base price of the Corvette is \$3909.52 f.o.b. St. Louis. This includes the fuel-injection engine with high-performance camshaft, lightweight valves, etc., but very little else. The 4-speed transmission is \$188 extra, or \$275 outright. Wheels with extra wide rims (5.50 in.) are \$14.00 each.

In addition, there is a special package bearing part No. RPO-684, which carries a list price of \$725. Included are:

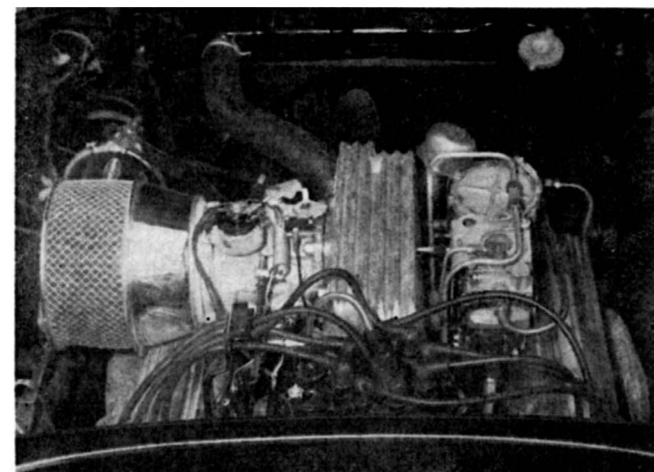
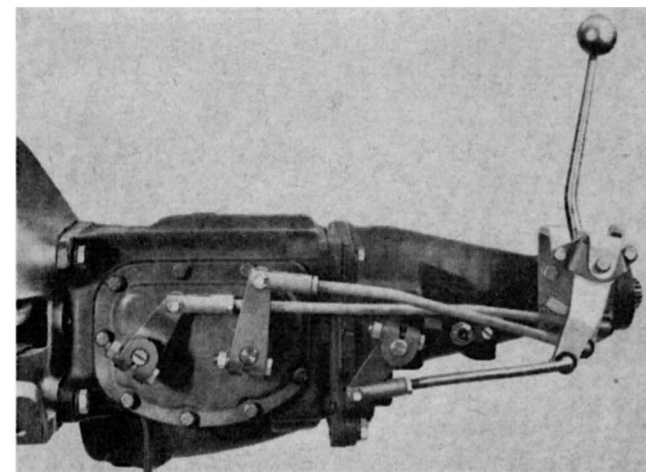
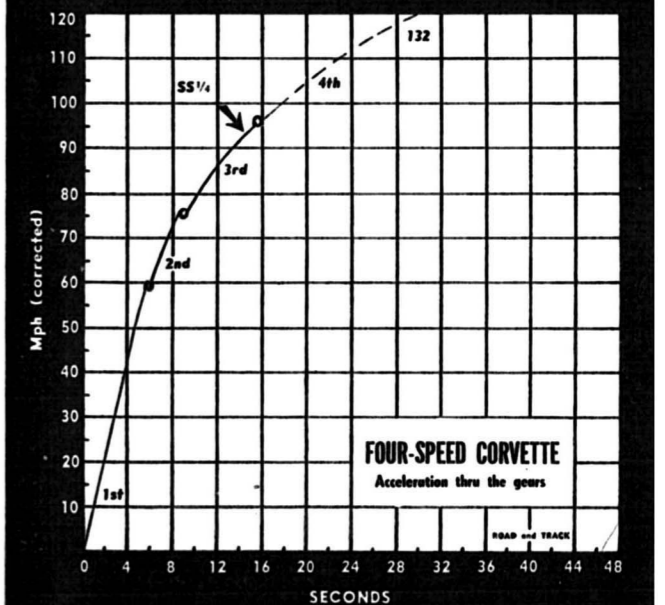
1. Heavy-duty front springs which increase the ride rate from 105 to 119 lb/in. (14% stiffer).
2. Special heavy-duty rear springs with a ride rate of 125 lb/in., not 115 (8.7% stiffer).

(continued on page 63)

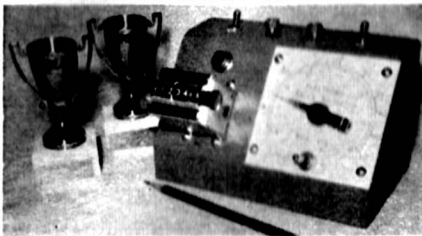
SPECIFICATIONS		PERFORMANCE, Mph	
List price	\$4098	Top speed (at 6500 rpm)	132
Wheelbase, in.	102	3rd (6500)	101
Tread, f/r	57.0/59.0	2nd (6500)	80
Tire size	6.50-15	1st (6600)	60
Curb weight, lb	2880	Mileage range	11/16 mpg
distribution, %	53.5/46.5	ACCELERATION, Sec.	
Test weight	3180	0-50 mph	4.7
Engine	V-8, ohv	0-60 mph	5.7
Bore & stroke	3.875 x 3.0	0-70 mph	7.7
Displacement, cu in.	283	0-80 mph	10.2
cu cm.	4639	0-90 mph	13.3
Compression ratio	10.5	0-100 mph	16.8
Horsepower	283	Standing start 1/4 mile	14.3
peaking speed	6200	TAPLEY DATA, Lb/ton	
equivalent mph	134	4th	380 @ 82 mph
Torque, lb-ft	290	3rd	505 @ 69 mph
peaking speed	4400	2nd	off-scale
equivalent mph	95	1st	off-scale
Gear ratios, overall		Total drag at 60 mph, 119 lb	
4th	4.11	SPEEDOMETER ERROR	
3rd	5.38	Indicated	Actual
2nd	6.82	30 mph	28.8
1st	9.28	40 mph	37.4
		50 mph	47.1
		60 mph	57.5
		70 mph	67.0
		80 mph	77.4
		90 mph	87.8
		100 mph	98.2

CALCULATED DATA

Lb/hp (test wt)	11.23
Cu ft/ton mile	152.4
Engine revs/mile	2960
Piston travel, ft/mile	1480
Mph @ 2500 ft/min	101



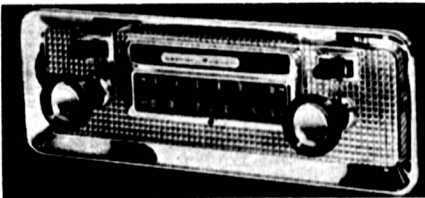
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CORVETTE TEST

(continued from page 23)

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4. Special stabilizer bar with diameter increased from .6875 to .8125 in.

5. Fast steering adapter, a plate which changes the overall steering ratio from 21.0:1 to 16.3:1 (Here Chevrolet seem confused, since they advertise 16.0:1 as standard steering ratio. However, this adapter reduces turns from 3.7 to 2.9)

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