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Matching CORVAIR • MUSTANG • PLYMOUTH
Slaloms, drag racing, rough-road runs; braking; fuel mileage

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Mustang

Plymouth Barracuda

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Test Matching Three

.....



Low-Cost Tigers

Ford's **MUSTANG**

It'll win every stop - light grand prix in its class, but this horse suffers from live-axle rear wheel hop

Corvair's **CORSA**

Road-holding by new suspension is worth an extra 100 hp . . . Cowl quake is typical of U.S. convertibles

Plymouth's **BARRACUDA**

This highway charger takes 2+2 adults in comfort, but the exhaust note is still its top sports-car feature

How does this sinewy threesome compare? To find out, a top racing driver gave them a three-day handling, cornering and rough road wringout, topped by braking tests and an economy run

By Ed Nelson

IF YOU WANT to look, sound and act young on the road, each of the Big Three car builders is aiming a new model right at you.

Plymouth's Barracuda, Ford's Mustang, and the turbocharged Corvair Corsa may look somewhat tigerish, but which has the sharpest performance bite? Which responds best to harsh handling demands? How good are their brakes and how modest is their appetite for fuel? And, finally, how comfortable are they to live with, in relaxed as well as competitive moments?

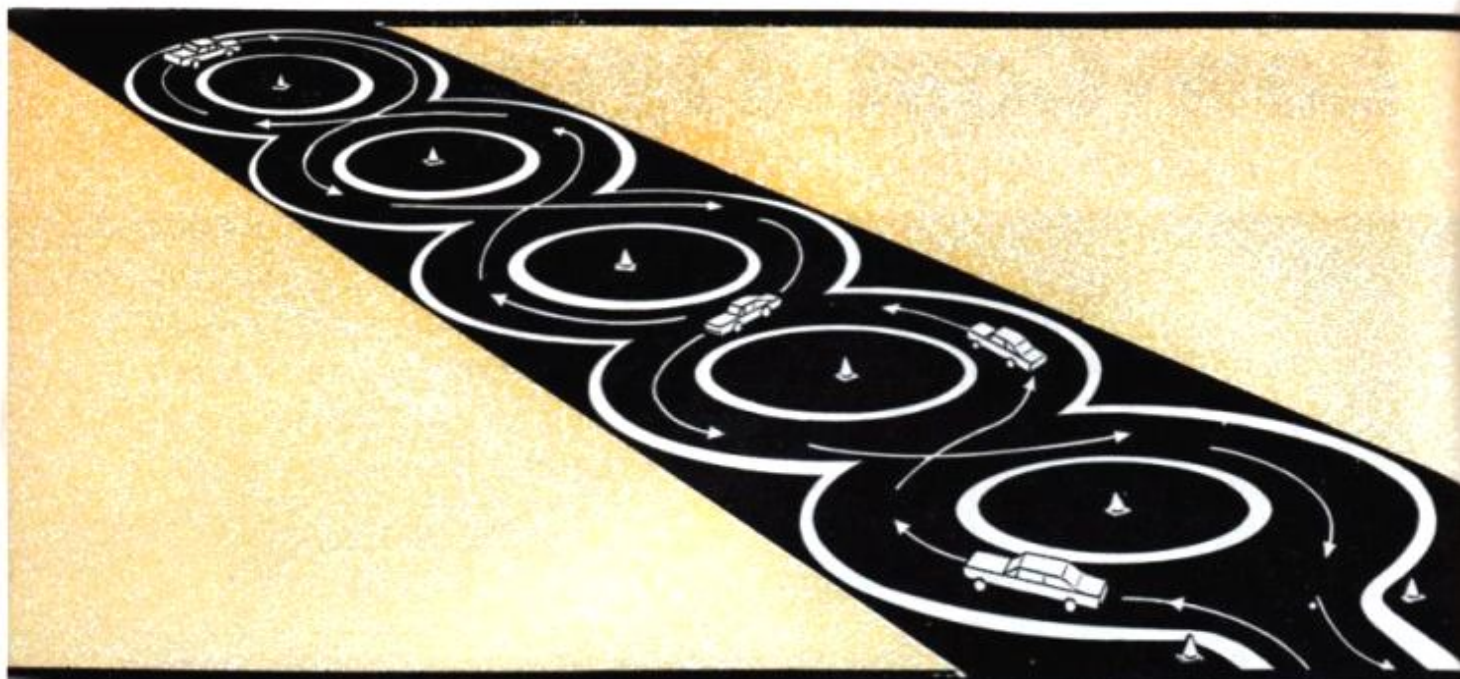
To find out, we subjected each car to a three-day series of race track acceleration and handling tests, back road runs, braking competitions and fuel mileage comparisons.

There were some surprising results. You may not have thought that the Corsa belonged in this league, and indeed it was not the tiger we had tried to get—the Corvette Sting Ray. But Sting Rays were strike-bound at the time of testing, so we obtained a Corsa instead, in full combat-ready condition. And it won its full share of the competitive events in this league.

The cars. We tried for the most combat-equipped specimens to represent each make. Here's how we fared—

Corsa: 180-hp. turbocharged six. 3.55:1 rear axle. Four-speed stick shift. Telescopic steering column. New independent rear suspension. Convertible weighed in at 2863 lbs. Power-weight ratio was 15.9 lbs./hp.

Mustang 2+2: 271-hp. V8 with 11.6:1 compression ratio. 3.89:1 rear axle. Four-speed stick shift. Heavy-duty front stabilizer bar and front and rear shocks and springs. Weighed in at 3005 lbs. Power



CORSA SCOOTED THROUGH the slalom course in best average time. Mustang power was close behind, but 'Cuda fast steering couldn't compensate for heavy lean on end turn. The engine faltered; carb jets may have been uncovered



ACTION OF THE MUSTANG'S stick was pleasantly snappy. Linkage operated positively and precisely, but four-speed transmission seemed to waste a gear



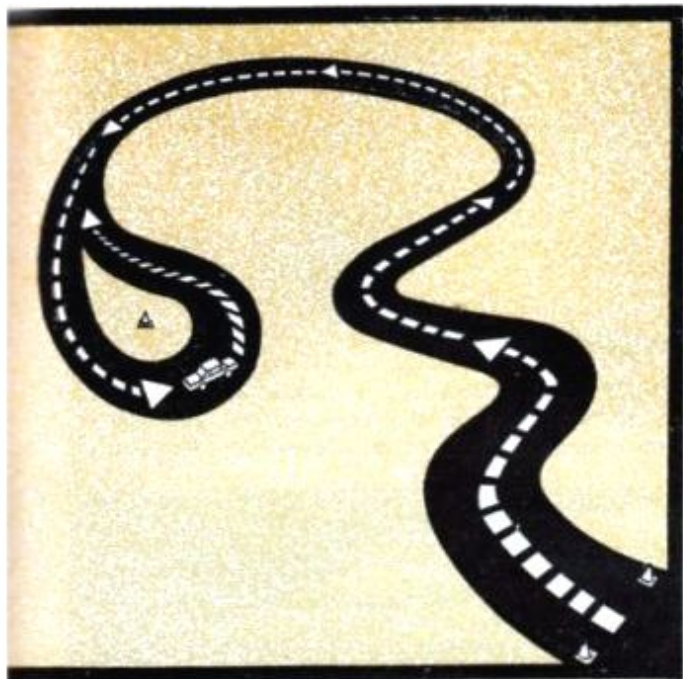
CORSA'S SNUG REAR SEAT was still more spacious than Mustang's. Telescoping steering column lets you stretch your arms, but drops wheel against your legs

ACCELERATION					
	Barracuda		Mustang		Corsa
	Time	Stick	Time	Gears	Time
		Pos'n			Gears
0-60	9.47	Drive	8.13	1-2	10.13
40-60	4.12	1-2	3.65	2	5.73
			3.90	2-3	
50-70	5.25	1-2	3.75	2-3	6.80
			4.30	3	
BRAKE FADE					
Pedal Force,	35 #		75 #		60 #
First Stop					
Pedal Force,	140 #		95 #		103 #
Fourth Stop					
Effective	156.2		127.8		168.9
Lining Area	sq. ins.		sq. ins.		sq. ins.

weight ratio was 11.1 lbs./hp.

Barracuda: 235-hp. V8 with 10.5:1 compression ratio. 3.23:1 rear axle. Automatic transmission (sad to say, no stick shift was available), power brakes and steering, air conditioner. Sure-grip differential. Heavy-duty springs and torsion bars. But car had no sway bar, extra-wide 14-in. wheels or special tires, normally part of "Formula S" handling package. Weighed in at 3280 lbs. Power weight ratio was 14 lbs./hp.

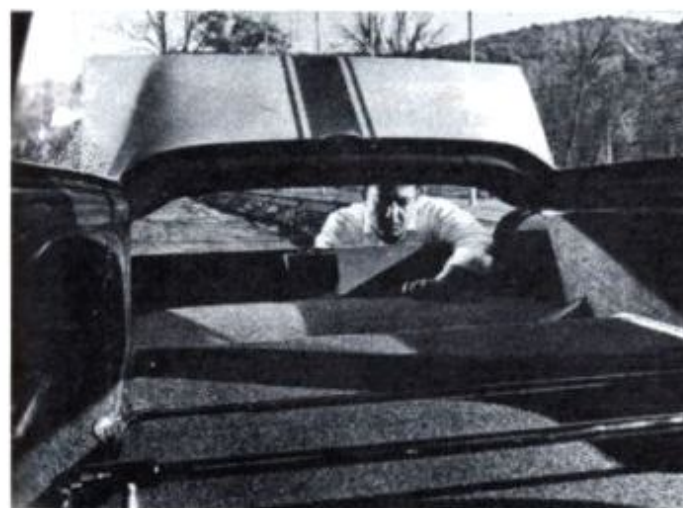
The driver. The cars were presented to John Fitch, road-racing professional and veteran of wheel-to-wheel battles at such international events as Nassau, LeMans and Sebring. He designs and builds



HANDLING COURSE took cars from the gate (foreground) to turnaround pylon and back. On return trip, the first turn is a deceptive, diminishing radius



THE BRAKING WHEEL HOP after Mustang's handling runs left this series of short skid marks on track surface. These punishing stops were hard to control



BARRACUDA, LIKE MUSTANG, gives long-load capacity by dropping its rear seat and trunk panel. Bar in foreground restrains load or latches seat upright

handling and performance equipment for domestic cars—and even the VW bus. His assignment: Wring them out and tell us what you think.

The tests. For our answers, we headed for Lime Rock Park, an SCCA-sanctioned, road-racing track in Connecticut. It has over a mile of hills, twists and turns plus a 1/3-mile straightaway. We set up an acceleration course on the straight, a handling course to run at speed, and a tight slalom to evaluate steering. Back roads in Connecticut and Massachusetts let us compare behavior up steep hills, across railroad tracks, along gravel and blacktop roads. Brake fade was measured on a de-

FUEL COMPARISON CHART (MPG.)			
	Barracuda	Mustang	Corsa
Weight	3280	2996	2863
30 mph.	20.44	18.18	22.69
40 mph.	21.84	18.92	21.32
50 mph.	18.75	16.61	19.98
60 mph.	18.24	15.92	18.59
70 mph.	15.38	14.33	17.83
Caravan	18.72	15.00	20.00

AT NEARLY EVERY SPEED, including highway caravan after the tests, the little Corsa engine was the economy champ while its blower saw little service

serted side road. A straight, flat stretch of multi-lane highway gave us steady-speed fuel consumption. And a convoy trip for the 100-plus miles back to New York provided over-all fuel figures for general highway driving.

After bringing tire pressures on all three cars up to manufacturer's recommendations for high-speed driving, we headed for the track. And these were our findings:

Handling Course (see drawing above)—Average times for these runs were Mustang, 71.5 seconds; Corsa, 71.8 seconds; Barracuda, 79.6 seconds.

The Mustang, Fitch noted, "behaves



THE DOOR IS LATCHED SHUT, but you can still see a slice of sky through the sizable gap at this Corsa's A-pillar. Its cowl quaked some—as it does on most U.S.-built convertible body shells



SHORT BELTS HOLD 'CUDA rear seat flat. Bar latches in assembly at right to hold the seat upright, but flip it back too hard and bar can over-ride its catch



REAR SEAT HEADROOM? In Mustang's 2+2 it's almost non-existent. Barracuda headroom is better. Rear quarter louvers in the Mustang extract cigarette smoke neatly

IF YOU WANT FANCY Mustang wheel covers, be sure to insist on getting extra long valve stems. Otherwise you'll have big trouble checking or adding air pressure

more than decently—almost like a good road-racing car within the limits of its weight and type. There's one outstanding exception: the rear wheel hop. On acceleration and—more out of place—on braking, the leaf springs wind up, then unwind with a bang and jump the wheel off the ground. When it comes down the process repeats. In a hard stop, this shuddering puts the car out of control."

While Ford, John suggests, controls the live axle with stiff springing and accepts the rougher ride penalty, Barracuda designers compromise with softer springs and avoid the axle tramp. "But you don't get something for nothing."

The Barracuda's time was slower because of the trouble in controlling the car. Fitch said: "There was severe bottoming through these turns; body roll takes up all the suspension travel and there's practically no jounce room left. It wallows and thumps quite severely." This is just the behavior that the sway bar, when it's installed, should prevent. Our 'Cuda had

57 percent of its weight on the front wheels.

Coming back to the starting gate for a hard stop, we found there was so little weight on the 'Cuda's rear wheels that they locked up quickly. In Fitch's words, "to get through the gate and stopped, I had to let off on the brakes and keep the rear end from sliding around. Maybe with five in the car, this braking effort is right. For two in front it isn't very efficient."

Although it gave away 89 hp., the Corsa came within 0.3 second of Mustang's average time. And Fitch commented, "It doesn't bottom . . . has a pleasant, manageable drift. It's a real pleasure to push a stock American car through medium to fast bends in an easily controlled drift. A few years ago no-one would have predicted Detroit could—or would—produce such a vehicle, but it's real."

The parallelogram linkage from the Corsa independent rear gets the credit for the new controllability. Fitch pointed out, "Before this year, the characteristic of

(Please turn to page 228)

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Test-Matching Three Hot Ones

(Continued from page 94)

stock Corvairs was a rather sudden and unwholesome switch from understeer to oversteer." Now the camber change during full wheel travel is about half what it was. And wheel camber reduces oversteer by reducing tire adhesion in a bend.

Slalom tests (see drawing, page 92)—A row of five pylons was spaced along the straight; we zigzagged through for a fast turnaround and twisting dash back to the gate. It was meant to repay a quick steering ratio and a system that tells you what's happening where the wheels meet the road.

Times were close: The Corsa 23.2 seconds; Mustang 23.4; Barracuda 24.5.

"The car is sound," Fitch said after the Mustang run. "It's solid and well balanced for its size and weight." The Barracuda's power steering is faster than the Mustang's manual gear (18.1:1 to 22:1), but twice the 'Cuda engine faltered at the turnaround and "power assist fell off completely," John reported. "You notice we made the end turn with the Mustang in a single curve; we couldn't do that in the Barracuda." While the Mustang suspension held the car relatively flat, the Barracuda thrashed and wallowed. "Coming back to the starting gate, I had to aim for the pylons and hope we'd fishtail through," Fitch said.

(A quick manual steering ratio is on the way for Barracuda; it should help.)

The Corsa "didn't show any power, really," John commented, yet it produced the best slalom times of the day. The independent rear let speed hold up, but throttle delay prevented much pick-up in the short space between each corner.

Acceleration tests—As expected, the bigger, higher-revving, higher-powered Mustang engine and its low-g geared rear axle won all the marbles in the acceleration tests (see p. 92). Even with its automatic transmission, the Barracuda put up a good show in dead-ahead running. Speeds weren't high enough for the Corsa's turbocharger to help. The boost delay also hurt on passing-speed tests.

To the Back Country—For a general-use check of the cars, we left the track and toured back roads with each one. Here are comments we got:

"Barracuda is the most spacious, comfortable highway car of the three, but as it stands now, its sportiest feature is still the low, hollow exhaust note. For non-sporting highway use—this car has a good bit of performance. Power and passing speed are there, although you have to push. Off smooth roads, the suspension seems a little uncontrolled and sloppy."

(Please turn to page 230)



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Test-Matching Three Hot Ones

(Continued from page 228)

Mustang "The immediate sensation in the Mustang is one of stiff power—a rough, tough combat machine. Driver legroom is fine. Wind noise fairly strong. The car follows into reasonably sharp undulations smoothly and firmly, then quickly levels out in stable condition." On a steep, wash-board-y gravel hill you have to feed gas with a delicate toe to keep from breaking loose. There's an even guttier axle available—4.11:1—maybe for towing trucks.

With all this power, the four-speed transmission seemed a waste of dollars. "You can do anything you want just using Second and Fourth," Fitch said.

Corvair Corsa. Fitch charged Corsa's delayed throttle response to "the unavoidable spookiness of the exhaust-restrictive design" in which exhaust gases drive the compressor to load the cylinders. But the new suspension charmed him. "I don't think you can call a design really sophisticated unless it has an independent suspension," he said, and the drawbacks of the old Corvair system have been attacked with the Corvette-ish rear links.

But Their Brakes. How well do those three cars stop? We made four stops with each car from 60 m.p.h., one every 30 seconds so each set of brakes had the same cooling time. Each was at the same hard rate—about 17½ ft sec² by the Bennet-Feragen decelerometer—so demands on each system were the same. And PM's Clark Pressometer told how required pedal force increased as heat affected linings.

While the pedal pressure required quadrupled in the Barracuda, it increased only 27 percent in the Mustang and 71 percent in the Corsa. Engineers see brakes as a device to change dynamic energy to heat energy—but you have to get rid of the heat robs linings of stopping ability.

Full Mileage Tests—On our caravan trip back to New York, we weren't shooting for economy-run figures, but we weren't charging down the highway either. So the Corsa's turbocharger got a rest—and its 164-cu.-in. Six showed up as economy champ. Even at 80 m.p.h., the manifold gauge showed negative pressure.

How's the final score? Here's how we see it: The Corsa provides nimble, lively action with a controllable drift on curves that's a true delight. The Mustang gives lots of brute power, generally well designed and organized. And without its complete battle-dress, Barracuda's strong points are good highway power, smooth road comfort and a look of action.

There's also that soul-satisfying gurgle from it's beautifully tuned exhaust. ★★