427 COUGAR PHOTOS BY PAUL E. HANSEN

FLOORING THROTTLE after maximum deceleration caused Cougar XR-7 nearly to lift front wheels. Almost total lack of shock absorber rebound control showed here, plus in driving car over undulating roadways and around tight turns. Wheelies may impress drag racing fans, but much more shock damping and increased suspension stability would be wiser.

Does the Daytona Engineering Filter Down the Line?

427 AND 302 COUGARS

302 COUGAR PHOTOS BY RALPH POOLE

STANDARD COUGAR with 302-cid engine was very soft, giving high degree of roll during moderate cornering. Overly strong understeer caused serious lack of responsiveness, and weak shock absorbers hurt overall stability.

OF ALL THE CARS in the Mercury camp, the Cougar comes closest to having a performance image. The image has been with it right from its introduction, even though lately Cougar advertising has suspiciously taken a middle-age bent.

Never mind. A Ponycar means performance. If it has the looks and ad budget, it has to deliver. Our goal was to find out if the Cyclone image and engineering could be passed on to its smaller, but older, brother.

It wasn't fair to expect Daytona Cyclone performance from our first test Cougar, a 302-cid/210-bhp model. It came with soft-ride suspension, automatic transmission, power steering, disc brakes and a fistful of other comfort and convenience options. There is a place for comfort in a Ponycar—so long as it can still perform. For testing purposes, we ran tests of our two Cougars several weeks apart—too close a comparison with a big-engine, high-performance model would have been unfair to the cars, and a little rough on the testers.

So we accustomed ourselves to the control layout of the 302, and headed down the road. . . .

City streets brought out some of the best and worst in the Cougar's suspension system. Normal, small-amplitude ▶

EXTREME LIFT of inside of standard Cougar occurred at relatively low cornering speeds. Inside front tire shows alarming camber angle, with only inner edge of tire maintaining contact with pavement.

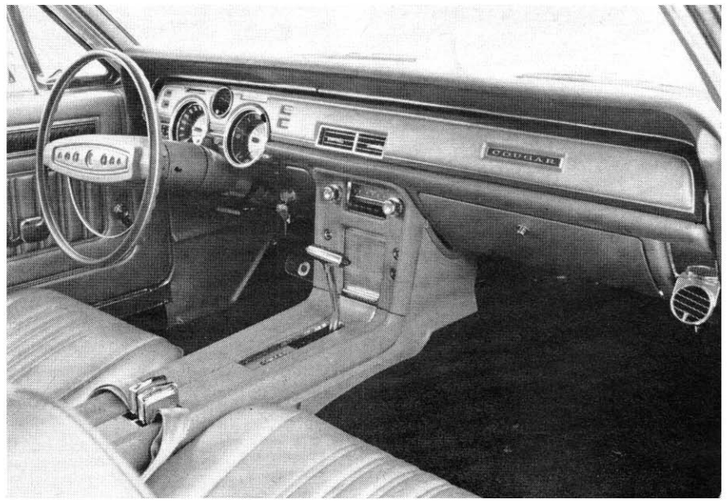
COUGARS

continued

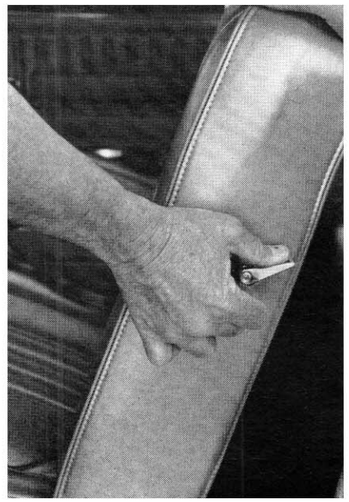
bumps were absorbed nicely by Cougar's soft, compliant springs and shock absorbers. The brake torque-resisting struts running forward from lower control arms to frame members are rubber isolated, and do a fine job of absorbing sharp impacts. Road noise level was acceptable, and tar strips were diminished by the suspension and eliminated by the soft seat padding, so occupants never felt their presence.

On large-amplitude dips, like California's infamous intersection drainage troughs, the weak Cougar shock absorbers betrayed their almost total lack of rebound damping. A concave dip produced a "squash-snap" sensation that caused occupants to be flung upward against tight seat belts. Also, the oscillation would continue for two or three cycles after the dip. Undulating roads and even smooth looking freeways produced the same sort of porpoising, to a lesser extent. In all, an example of shock absorbers calibrated to perform without intrusion into smooth-road ride comfort. Unfortunately, the shocks didn't intrude into the natural oscillations of the springs either.

The standard 302-cid engine was no fireball, but it isn't supposed to be. It did a satisfactory job of propelling the Cougar down the highway at a respectable speed. High-speed cruising was reasonably quiet, and reserve power was sufficient for reasonable passing maneuvers. Around town, acceleration away from stoplights was more than adequate, though few stoplight grand prix will be won. Performance in first and second gears was not as quiet as it should have been. Engine noise and particularly fan roar was excessive at low vehicle speeds. ▶



STANDARD COUGAR interior package was pleasant blend of soft, upholstered panels and tasteful application of brightly plated metal. Control layout was fair, but minor switches under lower edge of panel were difficult to reach.



SEATBACK release was high enough to reach without stooping, a decided advantage to passengers.

1968 COUGAR
HARDTOP

DIMENSIONS

Wheelbase, in.....111.0
Track, f/r, in.....58.5/58.5
Overall length, in.....190.3
width.....71.3
height.....51.7
Front seat hip room, in.....21.5 x 2
shoulder room.....53.9
head room.....37.3
pedal-seatback, max.....39.0
Rear seat hip room, in.....43.8
shoulder room.....53.4
leg room.....29.8
head room.....35.8
Door opening width, in.....39.0
Trunk liftover height, in.....30.5

PRICES

List, FOB factory.....$2908
Equipped as tested.....$4131
Options included: Automatic trans.; power disc brakes, steering; am radio; deluxe belts; tilt steering wheel; console; tinted glass; air conditioning; decor group.

CAPACITIES

No. of passengers.....4
Luggage space, cu. ft.....9.2
Fuel tank, gal.....16.0
Crankcase, qt.....4
Transmission/dif., pt.....18/4
Radiator coolant, qt.....20.5

CHASSIS/SUSPENSION

Frame type: Unitized.
Front suspension type: Independent by s.l.a., coil springs, telescopic shock absorbers.
ride rate at wheel, lb./in.....88
antiroll bar dia., in.....0.72
Rear suspension type: Hotchkiss live axle, multileaf springs, telescopic shock absorbers.
ride rate at wheel, lb./in.....78
Steering system: Linkage assist, recirculating ball gear, parallelogram linkage behind front wheels.
overall ratio.....20.3:1
turns, lock to lock.....3.74
turning circle, ft. curb-curb....38.0
Curb weight, lb.....3385
Test weight.....3710
distribution (driver) % f/r.....57.2/42.8

BRAKES

Type: Cast iron disc front, single leading shoe cast iron drum rear.
Front rotor, dia. x width, in.....11.3 x 2.07
Rear drum, dia. x width...10.0 x 1.75
total swept area, sq. in.....324.8
Power assist: Integral vacuum.
line psi at 100 lb. pedal.....1050

WHEELS/TIRES

Wheel rim size.....14 x 6.0JJ
optional size.....14 x 5.5JJ
bolt no./circle dia. in.....5/4.5
Tires: Firestone Super Sport Wide Oval.
size.....F70-14
normal inflation, psi f/r.....25/25
Capacity @ psi.....4860 @ 25

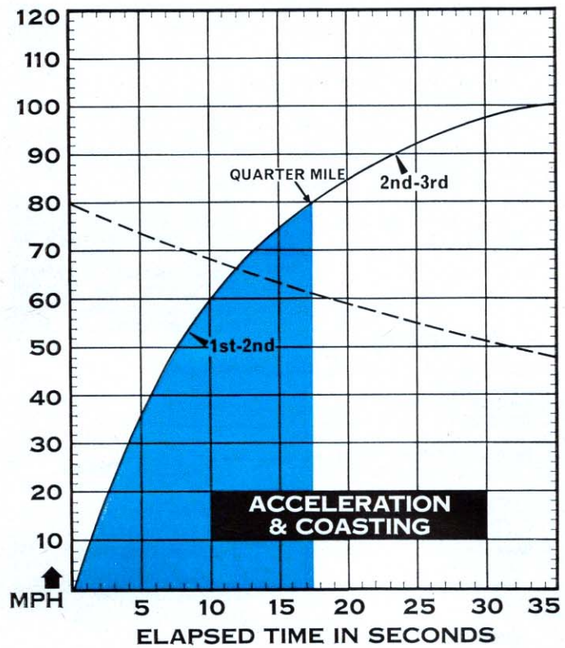
ENGINE

Type, no. of cyl.....ohv 90° V-8
Bore x stroke, in.....4.0 x 3.0
Displacement, cu. in.....302
Compression ratio.....10.0:1
Fuel required.....premium
Rated bhp @ rpm.....230 @ 4800
equivalent mph.....122
Rated torque @ rpm.....310 @ 2800
equivalent mph.....71
Carburetion: Autolite 1x4.
throttle dia., pri./sec.....1.44/1.56
Valve train: Hydraulic lifters, pushrods and overhead rocker arms.
cam timing deg., int./exh.....15-61/55-19
duration, int./exh.....256/254
Exhaust system: Dual, reverse-flow mufflers.
pipe dia., exh./tail.....2.25/2.0
Normal oil press. @ rpm..45 @ 2000
Electrical supply, V./amp.....12/38
Battery, plates/amp. hr.....54/45

DRIVE TRAIN

Transmission type: Three-speed automatic with torque converter.
Gear ratio 3rd (1.00:1) overall.3.00:1
2nd (1.46:1).....4.38:1
1st (2.46:1).....7.38:1
1st x t c. stall (2.02:1).....14.90:1
Shift lever location: Console.
Differential type: Hypoid.
axle ratio.....3.00:1

CAR LIFE ROAD TEST



CALCULATED DATA

Lb./bhp (test weight).....16.1
Cu. ft./ton mile.....111.2
Mph/1000 rpm (high gear).....25.4
Engine revs/mile (60 mph).....2360
Piston travel, ft./mile.....1180
CAR LIFE wear index.....27.8
Frontal area, sq. ft.....20.4
NHRA-AHRA class.....K/SA-n.a.

SPEEDOMETER ERROR

30 mph, actual.....28.6
40 mph.....38.5
50 mph.....48.4
60 mph.....59.1
70 mph.....69.2
80 mph.....79.4
90 mph.....89.5

MAINTENANCE

Engine oil, miles/days.....6000/120
oil filter, miles/days.....6000/120
Chassis lubrication, miles.....36,000
Antismog servicing, type/miles.....replace PCV valve/12,000, tune check/12,000.
Air cleaner, miles.....clean, 12,000
Spark plugs: Autolite BF-32.
gap, (in.).....0.035
Basic timing, deg./rpm...6BTC/600
max. cent. adv., deg./rpm 19/4000
max. vac. adv., deg./in. Hg..18/17
Ignition point gap, in.....0.017
cam dwell angle, deg.....27-31
arm tension, oz.....17-21
Tappet clearance, int./exh.....0/0
Fuel pressure at idle, psi.....4.5
Radiator cap relief press., psi...12-15

PERFORMANCE

Top speed (4200), mph.....107
Test shift points (rpm) @ mph
2nd to 3rd (5200).....90
1st to 2nd (5200).....54

ACCELERATION

0-30 mph, sec.....4.0
0-40 mph.....5.7
0-50 mph.....7.6
0-60 mph.....10.0
0-70 mph.....13.4
0-80 mph.....17.5
0-90 mph.....23.7
0-100 mph.....34.2
Standing ¼-mile, sec.....17.41
speed at end, mph.....79.9
Passing, 30-70 mph, sec.....9.4

BRAKING

Max. deceleration rate from 80 mph ft./sec.²....25
No. of stops from 80 mph (60-sec. intervals) before 20% loss in deceleration rate....3
Control loss? Severe.
Overall brake performance.....poor

FUEL CONSUMPTION

Test conditions, mpg.....12.8
Normal cond., mpg.....12-16
Cruising range, miles.....175-230

DRAG FACTOR

Total drag @ 60 mph, lb.....n.a.

ULTIMATE CORNERING speeds produced front tire smoke, an unheard-of phenomenon. Extreme forward weight bias with 427-cid engine, and front suspension which allowed tire to heel over at high degree of positive camber, caused overworked tire to scrub furiously. Shock absorbers caused porpoising through successive turns.

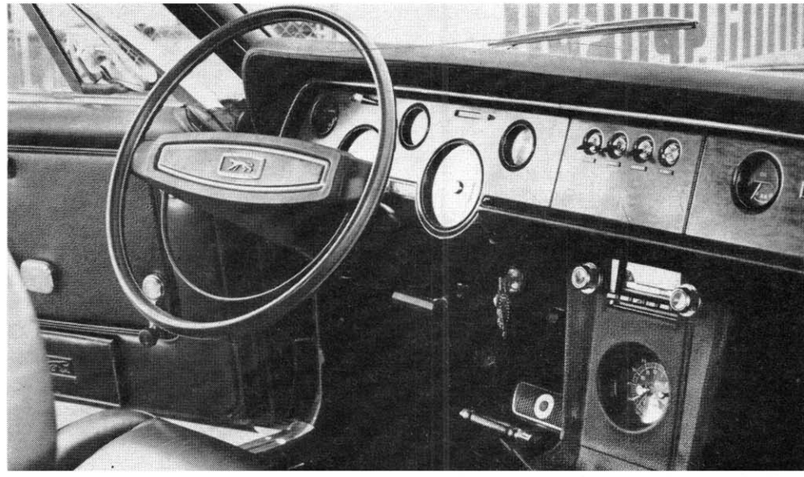
COUGARS

continued

The only real flaw in the Cougar 302-cid engine performance was a direct result of its emission control system. The fast idle cam setting, necessary to avoid stalling after cold starts, caused a very high idle speed after starts made in 50° F to 70° F weather. Of course, engaging a gear with the engine screaming at about 1500 rpm caused a severe lurch, frequently accompanied by engine stalling. We suspect Mercury engineers need to spend some more time on choke and carburetor calibration for emission control. The present setup demands a very firm foot on the brake pedal to keep from lurching when the transmission selector lever is moved.

At Orange County International Raceway, we undertook the project of finding the Cougar's overall performance limitations. This is usually a pleasant task, since operating most cars near their limits is fun for an automotive enthusiast, given a safe, controlled environment. With the Cougar, we kept the test period to a minimum. Flatly stated, high-speed handling maneuvers with the standard Cougar were more work than fun. Gross understeer and a very high degree of body roll, together with the lack of shock absorber control made the 302-cid Cougar an experience in unresponsive, unenthusiastic motoring. Cornering limits were unnecessarily low, and controllability was poor. The car was predictable, in that the limits were so low that the most inept driver could push the car into a nose-first plow without working very hard. It covered the quarter-mile in 17.4 sec., placing the car ahead of standard-engined sedans, but below the high-performance cutoff point.

In the braking tests, the Cougar again received bad marks. The brakes themselves seemed good, with reasonable pedal pressure requirement, adequate fade resistance and consistent friction characteristics. However, the rear suspension gave up completely during hard, 80-0 mph pulldowns.



PLUSH UPHOLSTERY, wood-wrapped instruments and a raft of toggle switches mark the Cougar XR-7 interior. Big, readable speedometer and tachometer are complemented by similar, white-on-black dials of auxiliary gauges. In all, superb instrumentation.

Rear tires left dotted lines on the pavement, and offered very little retardation force. The front discs were never strained, since pedal pressures had to be limited to the amount the rear suspension could handle. In short, the most critical phase of CAR LIFE's brake test, the first panic stop from 80 mph, was nearly disastrous for the testers.

Perhaps poor handling can be excused by saying that the car was never intended for truly sporting driving, and should not be subjected to such treatment. While we find this a poor excuse, it is not worth a major adjustment. The brakes are another matter. ▶

1968 MERCURY
COUGAR XR-7 COUPE

DIMENSIONS

Wheelbase, in.	111.0
Track, f/r, in.	58.5/58.5
Overall length, in.	190.3
width	71.3
height	51.7
Front seat hip room, in.	22.6 x 2
shoulder room	53.9
head room	37.3
pedal-seatback, max.	39.0
Rear seat hip room, in.	43.8
shoulder room	53.4
leg room	29.8
head room	35.8
Door opening width, in.	39.0
Trunk liftover height, in.	30.5

PRICES

List, FOB factory	$3209
Equipped as tested	$4850

Options included: Select-Shift trans.; power steering, disc brakes, 7 Liter GTE pkg.; console; AM/FM stereo; F70-14 tires; Competition handling pkg.; tinted glass; styled steel wheels.

CAPACITIES

No. of passengers	4
Luggage space, cu. ft.	9.2
Fuel tank, gal.	16.0
Crankcase, qt.	4
Transmission/dif., pt.	18/4
Radiator coolant, qt.	26.5

CHASSIS/SUSPENSION

Frame type: Unitized.
Front suspension type: Independent by s.l.a., coil springs, telescopic shock absorbers.
ride rate at wheel, lb./in. 124
antiroll bar dia., in. 0.85
Rear suspension type: Hotchkiss live axle, multileaf springs, telescopic shock absorbers.
ride rate at wheel, lb./in. 128
Steering system: Linkage assist, recirculating ball gear, parallelogram linkage behind front wheels.
overall ratio 20.3:1
turns, lock to lock 3.74
turning circle, ft. curb-curb 38.0
Curb weight, lb. 3662
Test weight 4982
Distribution (driver), % f/r 58.1/41.9

BRAKES

Type: Disc front, single leading shoe drum rear.
Front rotor, dia. x width, in. 11.3 x 2.07
Rear drum, dia. x width 10.0 x 1.75
total swept area, sq. in. 324.8
Power assist: Integral vacuum.
line psi at 100 lb. pedal 1050

WHEELS/TIRES

Wheel rim size 14 x 6 JJ
optional size none
bolt no./circle dia. in. 5/4.5
Tires: Firestone SS Wide Oval.
size F70-14
normal inflation, psi f/r 25/25
Capacity @ p.s.i. 4860 @ 25

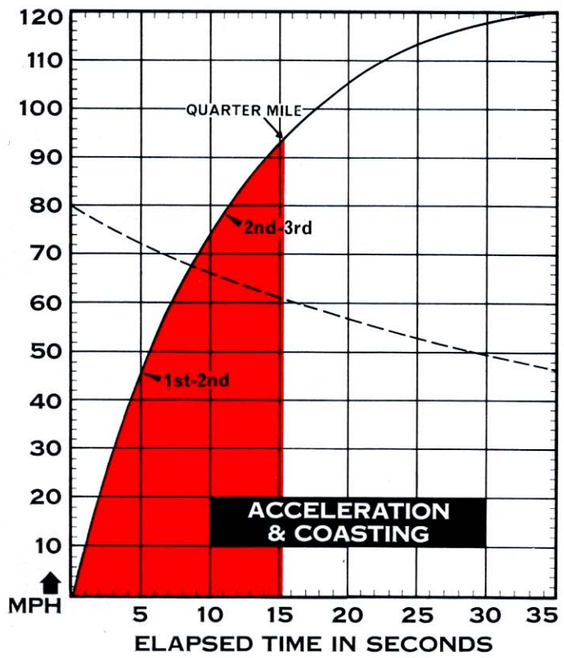
ENGINE

Type, no. of cyl. ohv 90° V-8
Bore x stroke, in. 4.23 x 3.78
Displacement, cu. in. 427
Compression ratio 10.9:1
Fuel required premium
Rated bhp @ rpm 390 @ 5600
equivalent mph 122
Rated torque @ rpm 460 @ 3200
equivalent mph 70
Carburetion: Holley 1x4.
throttle dia., pri./sec. 1.69/1.69
Valve train: Hydraulic lifters, pushrods and overhead rocker arms.
cam timing
deg., int./exh. n.a.
duration, int./exh. n.a.
Exhaust system: Dual, reverse-flow mufflers.
pipe dia., exh./tail 2.25/2.0
Normal oil press. @ rpm. 52 @ 2000
Electrical supply, V./amp. 12/38
Battery, plates/amp. hr 66/55

DRIVE TRAIN

Transmission type: Three-speed automatic with torque converter.
Gear ratio 3rd (1.00:1) overall 3.50:1
2nd (1.46:1) 5.11:1
1st (2.46:1) 8.62:1
1st x t.c. stall (2.10:1) 18.08:1
Shift lever location: Console.
Differential type: Hypoid.
axle ratio 3.50:1

CAR LIFE ROAD TEST



CALCULATED DATA

Lb./bhp (test weight)	9.4
Cu. ft./ton mile	185.5
Mph/1000 rpm (high gear)	21.8
Engine revs/mile (60 mph)	2755
Piston travel, ft./mile	1737
CAR LIFE wear index	47.8
Frontal area, sq. ft.	20.4

SPEEDOMETER ERROR

30 mph, actual	26.2
40 mph	35.7
50 mph	45.0
60 mph	54.1
70 mph	63.6
80 mph	72.9
90 mph	82.4

MAINTENANCE

Engine oil, miles/days	6000/120
oil filter, miles/days	6000/120
Chassis lubrication, miles	36,000
Antismog servicing, type/miles	replace PCV valve/12,000; tune check/12,000
Air cleaner, miles	clean/12,000
Spark plugs: Autolite BF-32.	
gap, (in.)	0.035
Basic timing, deg./rpm	6BTC/600
max. cent. adv., deg./ rpm	28/4000
max. vac. adv., deg./in. Hg	22/16.4
Ignition point gap, in.	0.017
cam dwell angle, deg.	27-31
arm tension, oz.	17-21
Tappet clearance, int./exh.	0/0
Fuel pressure at idle, psi	4.5
Radiator cap relief press., psi	15

PERFORMANCE

Top speed (5600), mph	122
Test shift points (rpm) @ mph	
2nd to 3rd (5200)	78
1st to 2nd (5200)	46

ACCELERATION

0-30 mph, sec.	2.9
0-40 mph	4.0
0-50 mph	5.4
0-60 mph	7.1
0-70 mph	9.1
0-80 mph	11.4
0-90 mph	14.1
0-100 mph	17.6
Standing ¼-mile, sec.	15.12
speed at end, mph	93.6
Passing, 30-70 mph, sec.	6.2

BRAKING

Max. deceleration rate from 80 mph ft./sec.²	26
No. of stops from 80 mph (60-sec. intervals) before 20% loss in deceleration rate	5
Control loss? Moderate.	
Overall brake performance	good

FUEL CONSUMPTION

Test conditions, mpg	10.2
Normal cond., mpg	10-14
Cruising range, miles	140-200

DRAG FACTOR

Total drag @ 60 mph, lb.	n.a.

COUGARS

continued

OPTIONAL SUSPENSION did not reduce incredible understeer of Cougar XR-7. Angle of front wheels relative to vehicle direction graphically demonstrates lack of steering effectiveness. Wheels turn, but Cougar refuses to answer the helm.

No driver can be expected to drive in such a manner as to avoid situations where panic stops may be necessary.

The Cougar is the plushest of Ponycars. The ultra-thick seatbacks promised sofa-like comfort, but failed to deliver. The seatback angle in our test car was too vertical, causing the driver to fall toward the steering wheel after a few miles of highway travel. This angle is adjustable, a fact which we learned after the test period was over. Perhaps more back rake would help, but the lack of thigh support will still be a problem for average-to-tall drivers.

We liked the appearance of the instrument panel, but most of the controls are recessed well back under the lower surface. This is great for safety laws, but awkward for use of these controls. The driver must lean forward, and reach to uncomfortable limits to grasp some of the knobs. Frankly, for controls behind the steering wheel, there seems little reason to worry about facial injuries.

The second test Cougar was, quote, a 7-liter, XR-7, GTE sport coupe. This numerical snowstorm describes a top-of-the-line Cougar, with heavy-duty suspension, a custom interior package complete with "wood" instrument panel containing a full complement of readable gauges, and the famed 427-cid FoMoCo racing engine, suitably detuned for street operation. A big, fake hood scoop announced to the knowledgeable world that this was a Ponycar to be reckoned with. Successes at Daytona, Riverside and elsewhere have created an almost mystical aura about the 427 engine, and we were anxious to sample the street version of this excellent racing powerplant.

The XR-7 should have been all that the stodgy, standard 302-cid Cougar wasn't. Heavy-duty suspension looked, on paper at least, like the answer to handling and cornering power deficiencies. The 427 engine should have taken care of any power shortages. And the European-flavor instrument panel looked like an enthusiast's delight.

The XR-7's 427-cid/390-bhp engine performed as it should have, perhaps with more refinement and better low-speed driveability than we had expected. The engine displayed the kind of torque that has won so many races, and revved smoothly and freely to well over 5000 rpm. CAR LIFE has never tested a more *flexible* engine, one which could pull strongly in top gear at 40 mph, yet scream past 5000 rpm so quickly a sharp eye on the tachometer was mandatory. Quarter-mile times were just over 15 sec., not quite up to Supercar status, but the reader should bear in mind that the test car did not have any form of limited-slip rear axle. Thus, much of the 427's strong low-speed torque went up in right rear tire smoke. A pussy-footing start was required, hardly recommended for low elapsed times.

In city traffic driving, the 427 stayed calm, cool and quiet. Kickdown may have been required for some sort of maneuver, but we never found it necessary. High gear provided all the acceleration a rational driver would normally require. Fuel economy was about average for super/power engines, recording 10.2 mpg for a mixture of city, highway and performance test driving. Oil consumption was rather high, totalling three quarts for the 800 mile test cycle.

The XR-7's suspension system removed the standard Cougar's braking deficiencies. No axle hop was detected, even under the most severe of panic stops, but some juddering from the rear axle indicated that even the stiffer rear suspension may have been marginal in axle control. Deceleration rate was good at 26 ft./sec.^{2}, and serious fade did not occur until after the fifth stop from 80 mph. Pedal pressures remained moderate through the first five stops. The system was pleasantly insensitive. That is, no real conscious effort was required to keep from locking the brakes or decelerating at a greater rate than was intended.

When it came time for handling evaluation, disappointment reared its head. The stiffly sprung XR-7 displayed almost as much lack of shock absorber effectiveness as the standard Cougar. Lack of rebound control caused porpoising and wallowing in a succession of medium-speed curves, and body roll was extreme. Front tire camber pattern was very poor, allowing the tires to roll under any scrub away at the sidewalls. Cornering power was impressive by its absence. Its severe understeer undoubtedly came from the heavy engine up front, but a large amount must have been due to tire lean. In short, the XR-7's handling did not keep pace with its strong engine.

Ride quality of the XR-7 also was poor. Smooth roads caused some harshness over tar strips, and rough roads promoted such pitching and bounding that occupants were hard pressed to remain in the middle of their seats. Even freeway travel was marred by some high-speed wallowing and front-end bounding. The XR-7 Cougar was simply not a "Total Performance" machine. Fast? Yes. Roadable? No.

In both Cougars, we were impressed by the trim, styling and overall quality level. The Cougar probably is the most luxurious, heaviest-feeling Ponycar on the market. For the performance enthusiast, the Cougars displayed serious shortcomings. Interestingly, it's an illusion. Cougars are among the lightest overall, according to the certified scales CAR LIFE runs every test car across. Handling was below par, in both cases. The XR-7 did handle with slightly more precision than the standard version, but it did not measure up to its competition in the high performance Ponycar category. The standard Cougar's rear axle hop during heavy braking was a dangerous flaw. The XR-7 stopped well. In both cases, the Cougar appears to be a car to be seen in, one to use for mundane transportation purposes, rather than a car in which to enjoy driving. After the exciting Cyclone, the Cougars were disappointing. Mercury's race-course technology seems to have stopped when it got to the Cyclones. The top-of-the-line and bottom-of-the-line Cougars obviously spring from a different set of slide rules. ■