

CAR LIFE  
ROAD TEST

...For the second  
part of a two-car  
comparative test...

PHOTOS BY DAVID GOOLEY



# HEY LOOK! WE TRACKED DOWN A BOSS 302 MUSTANG

**S**UPPLY AND DEMAND isn't always a law. Sometimes it's a force, moving in mysterious ways and not subject to any logical interpretation. Just as well, for us. We are happy to announce that we have overcome a mysterious force, while we might not want to say we took the law into our own hands.

At mid-model year, Ford announced two performance Mustangs, the Boss 429 and the Boss 302. The 429 featured the NASCAR racing engine, new bits for the rear suspension and an entirely new front suspension. Such a change, in fact, that the Boss 429s are built separately, by hand, far from the standard assembly line. The Boss 302 is the street Trans-Am Mustang, with routine high-performance suspension and new cylinder heads. Comes down the assembly line just like any other Mustang.

The exotic Boss 429, special parts, hand labor and all, arrived for test almost as soon as we asked for one. The modified production Boss 302, kidnapable from the assembly line, hasn't arrived yet.

Oh, come now, you say. Last month a one-car group, this month test pictures and no test? For an encore you plan maybe 80 blank pages?

No. What we have is a surprise test. Look here, Ford! See what faith your customers have in your product! We found a Boss 302 parked in Laguna Beach, Calif., tracked down the owner, a nice guy named Douglas Durst, and borrowed his car. Best car he's ever had, Doug said, and he'd be happy to let an eager world learn what the Boss 302 can do.

What it does first is fill a gap in Ford's model line-up. The Boss 302 is competition for the Camaro Z/28, in Trans-Am races and for that growing segment of enthusiasts who like small, wild engines and drive on roads with curves.

Ford engine designers took a rational approach, aided by the opportunity to see what, and why, Chevrolet did first. The Boss 302 uses the same dimensions as the standard Ford 302-cid V-8, but the block is new, in both street and race versions. Both Boss engines have four-bolt main

bearing caps and stronger crankshafts. Cylinder heads are more than new. They are, in fact, 1970 production heads, put into use early because they have better breathing than the standard 1969s, and will fit both the current 351-cid block and the new 351 planned for 1970.

The new heads, known as Cleveland heads, breathe. Ford uses bigger valves (2.23-in. intake, 1.71-in. exhaust) than Chevrolet does. The Cleveland heads have huge ports, and the valves are canted to give the mixture easy entry and exit. The ports are carefully shaped and sized for optimum flow. Atop the heads goes an aluminum high-rise intake manifold and a big (780-cfm) four-barrel carburetor.

The Boss 302 camshaft, in the production cars, is very mild. Lift, duration and timing sequence were picked to provide power from idle up to the engine's peak of 6000 rpm. It's done for several reasons. First, the cool timing lets the engine develop vacuum at idle so it will provide power for the brake booster. Second, performance on the street is good. The Boss

# BOSS 302

continued



302 will pull its weight at lower engine speeds than the Z/28 will. Third, the Boss 302 signs off relatively early for a race-oriented engine. Built into the ignition system is a limiter, a transistorized device that counts impulses to and from the coil. It only allows the engine to turn that peak 6000 rpm. Chicken and egg sort of thing. The factory must warranty the engine while knowing the buyer is likely to use all the power he can get. The engineers have provided power at a usable engine speed, so they built in the limiter and prevent the buyer from trying to get more out of the engine than he's supposed to.

Boss 302 suspension is entirely conventional. Like the Z/28, it is standard design, with stiffer springs and bigger shocks. Neither car uses the rather simple axle-locating devices put to such good use by the racers. The Boss 302 doesn't get the Boss 429 mods of widened engine compartment and revised front suspension geometry—and doesn't need them. The 302 engine isn't big and doesn't add weight. Same

## 1969 MUSTANG FORD BOSS 302



### DIMENSIONS

Wheelbase, in.	108
Track, f/r, in.	58.5/58.5
Overall length, in.	187.4
width	71.8
height	50.3
Front seat hip room, in.	21 x 2
shoulder room	56
head room	37.1
pedal-seatback, max.	41.1
Rear seat hip room, in.	40.5
shoulder room	55
leg room	30
head room	36
Door opening width, in.	42
Trunk liftover height, in.	33

### PRICES

List, FOB factory	\$3416
Equipped as tested	\$3788
Options included: Boss 302 pkg., \$676	
—includes: 290-bhp V-8 with slant valve Cleveland heads, HD suspension, F-60 tires on 7-in. rims, rpm limiter, 4-spd., \$205; power discs, \$65; limited slip, \$41; radio, \$61.	

### CAPACITIES

No. of passengers	2+2
Luggage space, cu. ft.	5.3
Fuel tank, gal.	20
Crankcase, qt.	4
Transmission/dif., pt.	4/5
Radiator coolant, qt.	13.5

### CHASSIS/SUSPENSION

Frame type: Unitized.	
Front suspension type: Independent by s.l.a., with drag strut, coil springs	
ride rate at wheel, lb./in.	11.5
antiroll bar dia., in.	0.72
Rear suspension type: Live axle, semi-elliptical leaf springs, staggered shocks.	
ride rate at wheel, lb./in.	148
Steering system: Manual recirculating ball and nut.	
overall ratio	20.3:1
turns, lock to lock	3.7
turning circle, ft. curb-to-curb	37.6
Curb weight, lb.	3260
Test weight	3610
Distribution, (driver)	
% f/r	56.4/43.6

### BRAKES

Type: Power assisted disc front/drum rear.	
Front rotor, dia. x width, in.	11.3 x 0.940
Rear drum, dia. x width	10.0 x 2.5
total swept area, sq. in.	282.5
Power assist	
line psi at 100 lb. pedal	1000

### WHEELS/TIRES

Wheel rim size	14 x 7
optional size	none
bolt no./circle dia. in.	5/4.5
Tires: Goodyear Polyglas	
size	F60-15

### ENGINE

Type, no. of cyl.	V-8
Bore x stroke, in.	4.0 x 3.0
Displacement, cu. in.	302
Compression ratio	10.5:1
Fuel required	premium
Rated bhp @ rpm	290 @ 5800
equivalent mph	115
Rated torque @ rpm	290 @ 4300
equivalent mph	85
Carburetion: 1x4 Holley 780 cfm	
throttle dia., pri./sec.	1.68/1.68
Valve train: Overhead rocker arms, solid lifters, pushrods.	
cam timing	
deg., int./exh.	40-80/84-36
duration, int./exh.	300/300
Exhaust system: Dual, reverse flow mufflers.	
pipe dia., exh./tail	2.5/2.0
Normal oil press. @ rpm	.40 @ 2000
Electrical supply, V./amp.	12/55
Battery, plates/amp. hr.	54/45

### DRIVE TRAIN

Clutch type: Single dry disc plate.	
dia., in.	11.0
Transmission type: Four-speed manual, fully synchronized.	
Gear ratio 4th (1.00:1) overall	3.91:1
3rd (1.29:1)	5.04:1
2nd (1.69:1)	6.60:1
1st (2.32:1)	9.18:1
Shift lever location: Floor.	
Differential type: Hypoid with limited slip.	
axle ratio	3.91:1

for the 429 rear anti-roll bar. The big engine requires super-stiff springs, and that causes understeer; so the rear bar is added to reduce it. Without the weight in front, the bar in back isn't needed. It will fit, and we'd like to try one on the 302, but it is an NR part—not replaceable—and cannot be purchased off the car. The '70s can be though.

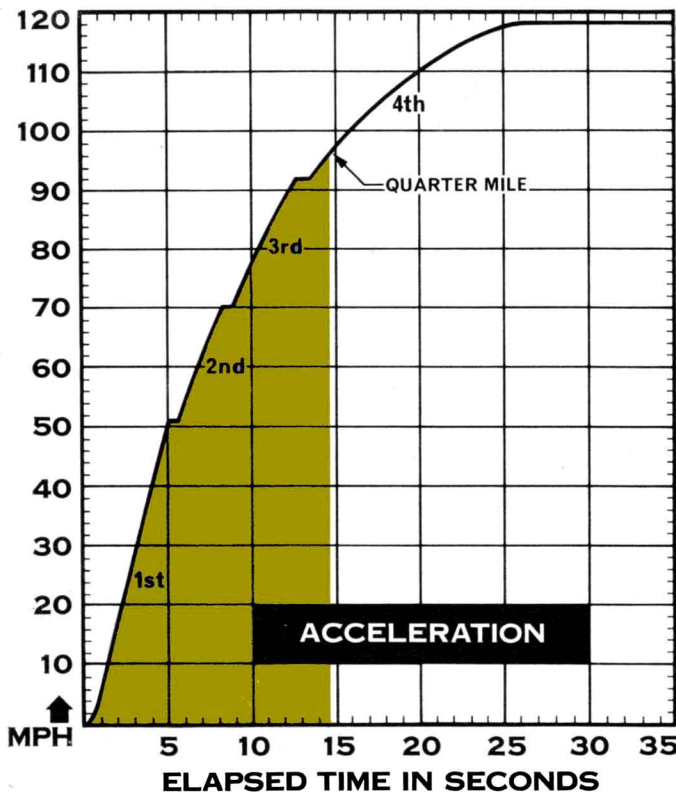
Steering for the Boss 302 comes in one ratio and two types, with and without power assist. It's the standard Mustang power-boost system, but you can buy it without the boost. Durst's car didn't have the assist. It's quick, but heavy at parking speeds. For street driving with an occasional slalom, the buyer can depend on his personal preferences. The power assist does filter out some road feel, but the booster lets the driver steer with his wrists rather than his shoulders.

Also part of the Boss package are styled steel wheels, with 7-in. rims, F60 Goodyear Polyglas tires, disc front brakes and power assist, a four-speed manual transmission, matte black paint on hood and trunk and a big front spoiler. Options include a set of oversized Venetian blinds *outside* the rear window and a big spoiler on the trunk lid. The front spoiler probably works. Because it's standard



302-CID V-8 looks lost in big engine bay, but new Cleveland heads and four-barrel carburetor produce exciting Ponycar performance. It has more low end torque than competing Chevy Z/28s.

## CAR LIFE ROAD TEST



### CALCULATED DATA

Lb./bhp (test weight).....	12.4
Cu. ft./ton mile.....	147.0
Mph/1000 rpm (high gear).....	19.75
Engine revs/mile (80 mph).....	3040
Piston travel, ft./mile.....	1520
<b>CAR LIFE wear Index.....</b>	<b>46.1</b>

### SPEEDOMETER ERROR

Indicated	Actual
30 mph.....	28.0
40 mph.....	33.7
50 mph.....	39.3
60 mph.....	45.4
70 mph.....	52.0
80 mph.....	58.9
90 mph.....	65.6

### MAINTENANCE

Engine oil, miles/days....	6000/180
oil filter, miles/days....	6000/180
Chassis lubrication, miles....	36,000
Antismog servicing, type/miles....	clean/PCV/6000; tune up/12,000
Air cleaner, miles....	replace/24,000
Spark plugs: Autolite BF-32.	
gap, (in.).....	0.034
Basic timing, deg./rpm....	6 BTC/800
max. cent. adv., deg./rpm....	n.a.
max. vac. adv., deg./in. Hg....	n.a.
Ignition point gap, in.....	0.017
cam dwell angle, deg.....	.28
arm tension, oz.....	n.a.
Tappet clearance,	
int./exh.....	0.020/0.020
Fuel pressure at idle, psi.....	5
Radiator cap relief press., psi....	14

### PERFORMANCE

Top speed (8000), mph.....	118
Test shift points (rpm) @ mph....	
3rd to 4th (8000).....	92
2nd to 3rd (8000).....	70
1st to 2nd (8000).....	51

### ACCELERATION

0-30 mph, sec.....	2.9
0-40 mph.....	3.9
0-50 mph.....	5.0
0-60 mph.....	6.9
0-70 mph.....	8.5
0-80 mph.....	10.5
0-90 mph.....	12.7
0-100 mph.....	16.0
Standing 1/4-mile, sec.....	14.85
speed at end, mph.....	96.15
Passing, 30-70 mph, sec.....	5.6

### BRAKING

Max. deceleration rate from 80 mph	
ft./sec./sec.....	30
No. of stops from 80 mph (80-sec.	
intervals) before 20% loss in de-	
celeration rate. 3 stops—10% loss	
Control loss? None	
Overall brake performance.....	excellent

### FUEL CONSUMPTION

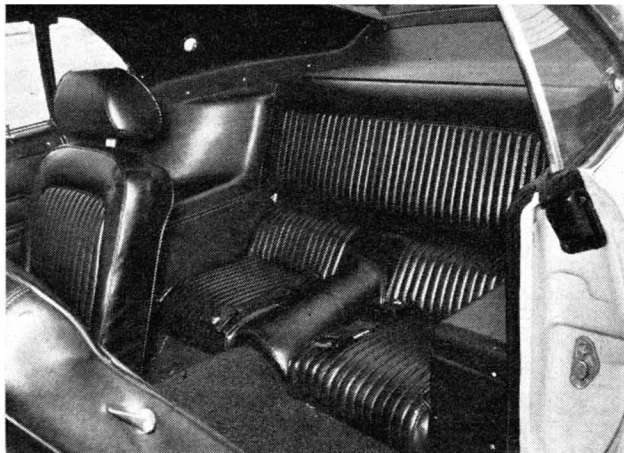
Test conditions, mpg.....	9.6
Normal cond., mpg.....	11-13
Cruising range, miles.....	220-260



**TRACKING THROUGH** test corner, Boss Mustang grips pavement, refuses to permit much body lean. Despite so-so weight balance, 302 goes where it's pointed.

## BOSS 302 continued

**INFAMOUS** Mustang rear seat has been compared to a park bench. Besides being so stiff, the back seat is too small for comfortable passenger transport. Solution? Forget about the hauling of more than two people at once. But the quality control of the 302 is quite good.



on the Boss, it can be used on the racing cars; and it is. The back spoiler... well, if the factory thought they needed the rear blades for racing, they could make them part of the stock package. They haven't, which may tell us something the ad agency doesn't want us to know.

The performance figures on the Boss 302 came as a surprise. In our last chapter, the test of the dual-carb Z/28, we made mock of magazines willing to ride in prototypes and use factory supplied figures, especially when the figures showed Boss 302 and Z/28 to be dead even.

As we bragged about earlier, we won't do that sort of thing. We'll wait, and round up a privately owned car instead. And we take said car to the test track, where it records a standing quarter-mile of 14.85 sec.

Check the test last year of a single-carb Z/28, with four-speed and acceleration gearing, and we find that it turned—you guessed it—14.85. Still, the editors believe a do-it-yourself tie

is better than a take-our-word-for-it tie.

But the acceleration curves aren't the same. The Boss had much more power off the line, and with its bigger tires it had more traction. It is faster to speed through the gears. The Z/28's trap speed of 101 mph is much higher than the Boss 302's 95, indicating that the Z/28 has more sheer horsepower.

Had we been able to put the two cars on the strip at the same time, the Boss would have pulled the Z/28, in either form, off the line and held its lead until both cars were wound tight. Then the Z/28 power would show, and it would catch the Boss in that confounded dead heat, right at the quarter-mile finish line. The Z/28 would be going faster, and it would have more top speed because of the 302's ignition limiter.

On the street, the Boss 302 is more flexible. The idle has enough rumpy-rump to persuade would-be stoplight challengers that now is a good time to

turn right, but the 302 has torque for easy starts and cruising. The Boss will handle a passing situation in third gear where the Z/28 needs second. The Boss is easier to drive in a casual manner, while it doesn't make the keen noises and the demands on the driver's attention that the Z/28 does. It may be that street Trans-Am drivers are like sports-car types, happy only when the car needs them. Only the sales figures will tell for sure.

Handling of the two cars is as important, and as hard to compare. Wearing bigger tires puts the Boss ahead, in terms of sheer cornering power. The ride is firmer, body lean is less. Driven into a fast corner, the Boss responds to the steering wheel instantly and it goes where it's pointed. Weight balance still is far from ideal; but the lighter engine allows the Boss to develop only mild understeer, where the Boss 429 requires reworked suspension, and the Mach 1 428 copes with its weight via the big tires. The Boss 302 is the easiest of the three to drive at the limit.

The price is a bumpy ride, and more than a trace of the family's cumbersome feeling. On the highway, the Boss 302 feels like a standard engine in a racing frame, while the Z/28 feels like a racing engine inside standard suspension. In a tight turn, the Z/28 has more agility. It can be snapped this way and that, while the Boss driver wrestles his car around. In a fast turn, the Boss tracks around on an even keel, with the power to put the car into a drift, while the Z/28 is more apt to plow.

The test Boss wasn't subjected to our usual eight-stop brake sequence, what with it being privately owned. We made three hard, quick stops from 80 mph, and recorded deceleration figures of 30 ft./sec./sec., then 25, then back up to 27. Ford brakes, on all models, have been outstandingly good this year; and we have no doubt that the Boss brakes would do as well as the others.

Inside, the Boss is standard Mustang fastback. Good bucket seats in front, the infamous sculptured and fabric-covered park bench in back. The fastback Mustang is closer to a two-place car than any other four-place car on the market. Speedometer and tachometer are in front of the driver, with oil pressure gauge and ammeter set high above the center console. Better there than not in the car at all.

So we conclude the two-month, two-car group comparison test of street Trans-Am cars, with a victory for the Boss 302, by maybe two car lengths over a two-mile course. The Boss was easier to drive slowly, and it was easier to drive fast.

Besides, it's winning races. ■