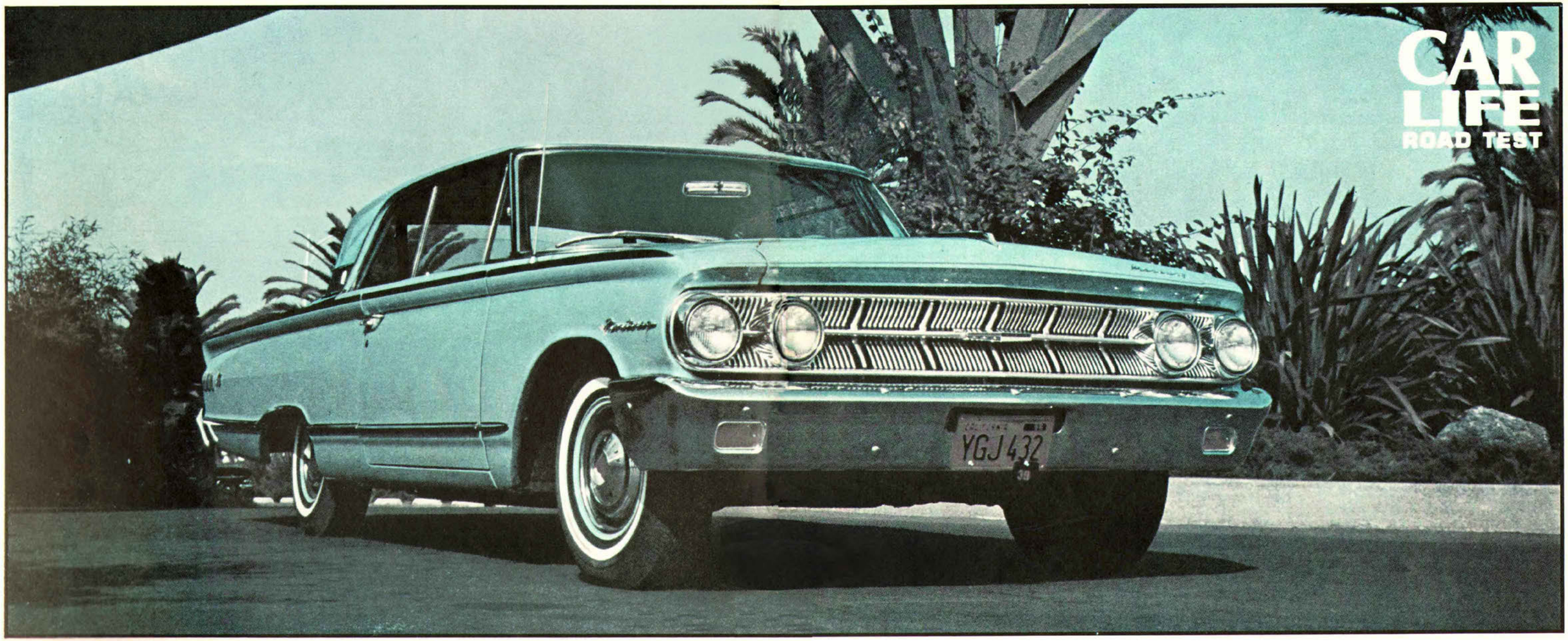


Mercury 427 Super Marauder S-55

ONCE RENOWNED as "the Big M," the big Mercury of recent years has assumed more the role of "Little Brother" in the Ford Motor Company family of fine cars. Where the Lincoln-Mercury division formerly developed its own engines for both everyday and special purposes, it is now dependent upon the Ford Division for its array of powerplants.

While this may seem an enormous handicap, particularly in the view of the salesman who must sell competitively against everything that approaches the price or performance level of his product, there are some interesting benefits and/or advantages to the Mercury concept of contemporary motoring.

Mercury has always been a "big-engined Ford" since the inception of the line with the 1939 model. In that year the standard Ford had a side-valve V-8 of 221 cu. in. while the Mercury boasted 239 cu. in. This, as is well known, was accomplished by the simple expedient of not using cylinder liners in the Mercury, thus giving it a 3.188-in. bore (both had a 3.750-in. stroke). The Ford had 85 bhp, the Mercury 95 bhp and the performance of the Mercury was noticeably better. Thus "the Big M" legend was begun.

When Ford Motor Company dropped its flatheads in favor of more efficient overhead-valve V-8s for the 1954 Fords and Mercurys, the Ford got 239 cu. in. and 130 bhp, the Mercury 256 cu. in. and 161 bhp. The difference again was a larger, by 0.125-in., bore (although Mercury had larger ports and valves and slightly higher compression, too). The Mercury performed well, the Ford didn't seem to have quite enough.

In '55, Ford went up to 272 cu. in., Mercury to 292 and 198 bhp (with optional 4-barrel carburetor); in '56, Ford got the 292 and Mercury went out to 312, the maximum stretch-out for the original Y-block V-8, and could boast of 235 bhp. Tuning produced a 255-bhp version in '57, but for the high horsepower option Mercury turned to the first model of what is now the Lincoln engine. This one had a 4-in. bore and a 3.66-in. stroke, displaced 368 cu. in. and was initially rated 290 bhp at 4600 rpm. Still very much the Big M.

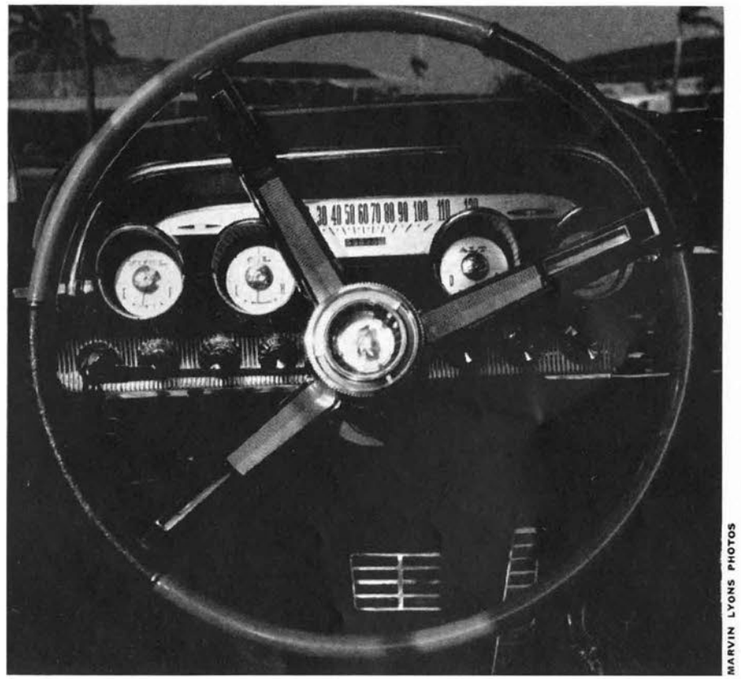
To clarify the engines used in Mercury since the inception of the ohv V-8 in '54, we have listed all those offered and categorized them into block families. In our table, all those marked A are derived from the original Ford Y-block, the B blocks are the Lincoln-Edsel-Mercury series, and the C blocks are the current big Fords.

Mercury further exploited this big engine in '58 when it was enlarged to 383 and 430 cu. in., with strokes of 3.3 and 3.7 in., respectively, and a bore of 4.3 in. In its most powerful form this huge engine (it weighs nearly 750 lb.) produced a whopping 400 bhp at 5200 rpm with the help of triple 2-barrel carburetion; with single 4-barrel carburetor it was optimistically rated at 360 bhp.

These were peaks in Mercury engine development. In '59, the top option was reduced to 345 bhp and in '60, the last year of the 430-cu. in. Mercury, it was rated at only 310 bhp. One must remember, however, that the economic climate of this period was one of parsimony and that big, powerful gas-gulpers are not synonymous with frugal operation. Significantly, Mercury's new-in-'60 compact, the Comet, outsold the big Mercury in 1960, '61 and '62.

In '61 the big 430-cu. in. engine was relegated to exclusive Lincoln (and truck) use and the Ford 292, 352 and 390-cu. in. engines offered to Mercury buyers, in 170, 220 and 300-bhp form. Virtually the same lineup was offered in '61 and '62, although in late '62 the big Ford Super/Stock engine, the 406-cu. in. version of the 390, was made available in very limited quantities. This came in two strengths, 385 bhp with one 4-barrel carburetor or 405 bhp with three 2-barrel units.

For '63, Mercury simplified its lineup still further, offering only three 390s and two 406s. The 250-bhp, 2-barrel 390 is standard in all big Mercurys except the S-55, which has the 300-bhp, 4-barrel version. A 330-bhp police model is also available on special order, as were the two 406s previously listed. However, these two ▶



MARVIN LYONS PHOTOS

Mercury 427

latter engines now have been replaced by a pair of 427-cu. in. units of positively brutal horsepower, 410 bhp for the single 4-barrel model and 425 for the twin 4-barrel. These, of course, are the racing engines—for drag strip, round track and road course, and for the driver who wants every little bit of performance he can get.

The 390s and the 427s are all of the same genre, stemming from what started out as a 352-cu. in. high-performance engine. The 390, 406 and 427 all share the same 3.784-in. stroke, but have successively larger 4.050, 4.130 and 4.235-in. bores. How much more can the engine be expanded? A 427 test engine was fitted with a 4.30-in. stroke for a displacement of 483 cu. in.! Small wonder that both NASCAR and NHRA racing organizations put a 427-cu. in. ceiling on competition engines.

The 390s themselves produce more than enough horsepower to propel the Mercury at higher-than-average velocities. Even with an automatic transmission behind the 300-bhp 390, *Car Life* testers clicked off 0-60 in 10 sec., 0-100 in 30 sec. and a standing quarter in 16.4 sec. Considering the car's 4500-lb. test weight, this is impressive performance.

The key to this, of course, is the fact that the 390 is perhaps the most versatile big engine to come out of Ford Engineering. It develops 378 lb.-ft. of torque in its "economy" form and 427 lb.-ft. in its 300-bhp form. Although they are virtually identical, mechanically, there are certain differences to better fit them into their sales role: the 250/390 has 8.9:1 compression and can operate on regular grade fuel, while the 300/390 has 9.6:1 and must burn premium; the 250 has a 2-barrel Holley carburetor with 1.4375-in. venturis, the 300 has four 1.562-in. venturis. Both have hydraulically operated valves, while the police 330/390 has mechanical lifters and a longer-duration camshaft. All cams have a 270° duration and 0.408-in. lift. Valve diameters are 2.03-in. intake and 1.55-in. exhaust.

The 390 features a wedge-design combustion chamber with a fairly large quench area on the inboard side of the piston. Valves are inclined into the head at an angle of 13° to follow the wedge, but the heads are not shrouded and the port area backing them is more than generous. Despite relatively small exhaust valves, breathing at high rpm doesn't seem to be a Ford/Mercury problem (other than one we shall note further on). Lifter pump-up, of course, is the limiting factor in the hydraulically-equipped engines and this generally occurs somewhere around 5000-5200 rpm. With the mechanical valve gear, another 1000 rpm is available, although not always advisable.

MODERN MERCURY ENGINES

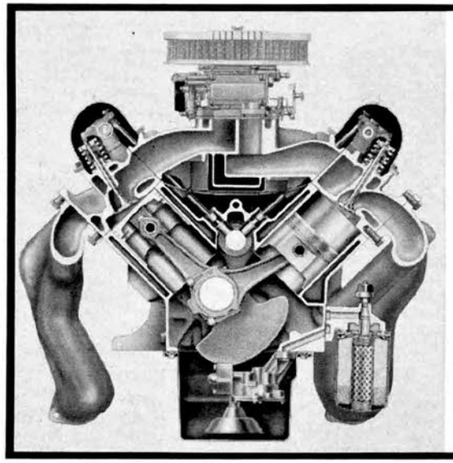
year	cu. in.	Bore x stroke	bhp/rpm	block
1954	256	3.625 x 3.100	161/4600	A
1955	292	3.750 x 3.300	188/4400	A
	292	3.750 x 3.300	198/4400	A
1956	312	3.800 x 3.440	210/4600	A
	312	3.800 x 3.440	225/4600	A
	312	3.800 x 3.440	235/4600	A
1957	312	3.800 x 3.440	255/4600	A
	368	4.000 x 3.660	290/4600	B
1958	312	3.800 x 3.440	235/4600	A
	383	4.300 x 3.300	312/4600	B
	383	4.300 x 3.300	330/4800	B
	430	4.300 x 3.700	360/4600	B
	430	4.300 x 3.700	400/5200	B
1959	312	3.800 x 3.440	210/4400	A
	383	4.300 x 3.300	280/4400	B
	383	4.300 x 3.300	322/4600	B
	430	4.300 x 3.700	345/4400	B
1960	312	3.800 x 3.440	205/4000	A
	383	4.300 x 3.300	280/4200	B
	430	4.300 x 3.700	310/4100	B
1961	292	3.750 x 3.300	175/4200	A
	352	4.000 x 3.500	220/4400	C
	390	4.050 x 3.784	300/4600	C
1962	292	3.750 x 3.300	170/4300	A
	352	4.000 x 3.500	220/4300	C
	390	4.050 x 3.784	300/4600	C
	406	4.130 x 3.784	385/5800	C
	406	4.130 x 3.784	405/5800	C
1963	390	4.050 x 3.784	250/4400	C
	390	4.050 x 3.784	300/4600	C
	390	4.050 x 3.784	330/5700	C
	427	4.235 x 3.784	410/5600	C
	427	4.235 x 3.784	425/6000	C

On the other hand, the racing engines are stressed to operate all day in the upper register, as well they must in NASCAR's form of competition. Although drag racers turn their Ford 427s as high as 6500 rpm on occasion (but only for an instant in each run), the round-trackers seldom exceed 6000. Instead, they gear the car so that it will lap Daytona, for instance, at 161-162 mph without exceeding that rpm, longevity usually paying better than absolute speed. To achieve this durability, Ford Engineering has made significant changes in the 427 block so that while it still has most of the same dimensions as the 390 (except for bore), it's far from being a chip off the same old ingot.

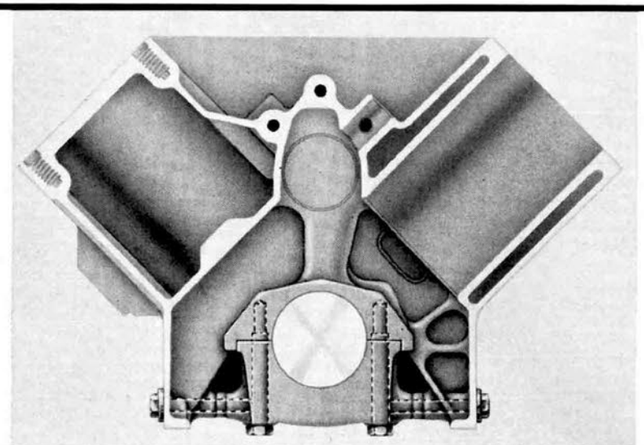
The engineers and racing people discovered somewhere in mid-'62 that some strengthening of the main bearing area was needed to prevent crankshaft "whip" and subsequent bearing failure during those long, long events. The quickest, and best, expedient was the now-familiar cross-bolting of the main bearing caps, thereby further utilizing the block's deep Y skirts as strengthening members. This system is not particularly new, having been used by several European racing engine builders notably Maserati. It was new to U.S. stock car racing, however, and gave Ford just what it needed. Subsequent engines also had stronger bulkheads (the walls that position the main bearings), stronger crankshafts and stronger rods. The whole engine became remarkably sturdy and Fords began to win races again.

With more reliability down below, the tuners turned to the upper end. Cleaner, better-shaped, sonic-tuned ▶

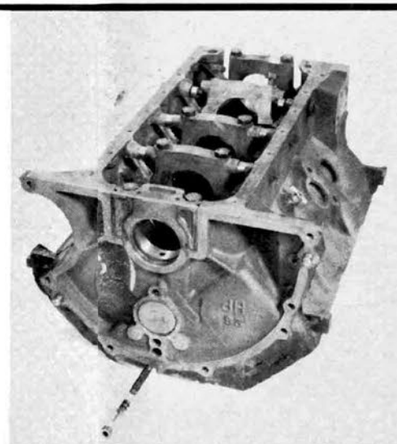
CROSS-SECTION of 427 shows excellent porting.



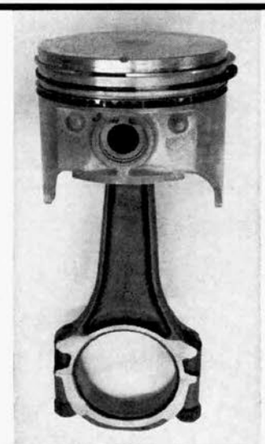
CROSS-BOLTING of block strengthens main bearing area.



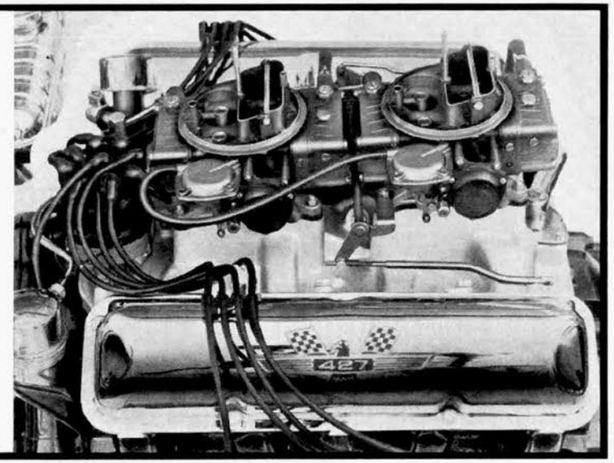
ANOTHER view of the cross-bolt system.

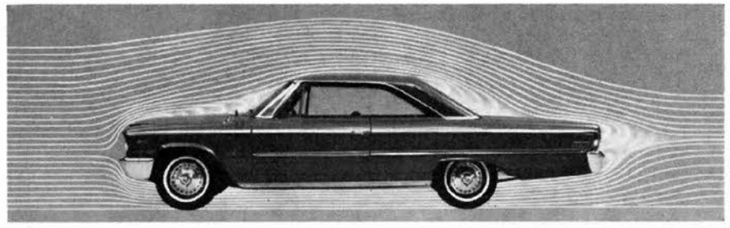


EXTRUDED piston and new rod.

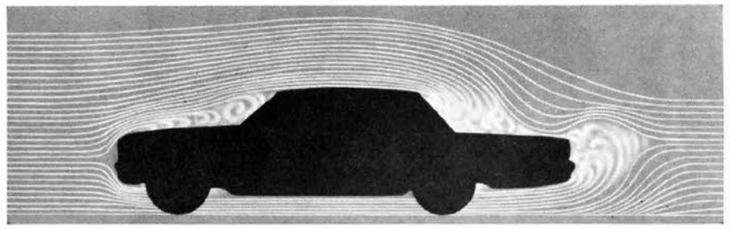


NEW DUAL 4-barrel carburetion for 427 engines.





NEW FASTBACK design (above) supposedly provides a better airflow over top surface.



Mercury 427

headers were developed and the archaic triple 2-barrel carburetion dropped in favor of two 4-barrels (although NASCAR cars are limited to one 4-barrel carburetor), giving a venturi area total of 15.3 sq. in. as against the 10.6 sq. in. of the previously used arrangement. Compression has been increased from 10.9 on the early 406s to 11.5:1 on the 427s; obviously, only Super Premium fuel can be burned under any conditions. For '63, Ford's own new transistorized ignition is offered as optional equipment.

The increase to 427 cu. in. also brought a new piston of impact-extruded aluminum to replace the forged units, and a new connecting rod with a larger boss on rod and cap and improved reinforcement contouring. The crankshaft itself is balanced to 0.5 oz./in. @ 6000 rpm before assembly. Bearings are the steel-backed copper-lead alloy insert type used in all heavy-duty Ford engines.

The valve springs have been redesigned, as have the spring retainers. A new pilot at the base of the spring helps prevent "bouncing" and a secondary winding inside the main valve spring damps harmonic oscillations. The 427 uses the 390's 203-in. intake but has a larger, 1.66-in., exhaust valve which helps high rpm breathing to some degree. Chrysler, Pontiac and Chevrolet engines of the same displacement all have larger exhaust valves and all but Pontiac have larger intakes. Perhaps the next major development of the engine will be in this area.

At any rate, the new 427s are highly refined engines. Their torque output is nearly as impressive as their bhp rating—476 lb.-ft. @ 3400 rpm and 480 @ 3700, respectively. And their performance characteristics leave nothing to be desired.

The 427s, as we said, are the racing engines. They are the Ford racing engines and the Mercury racing engines. Outside of the lettering on the rocker covers, there is no difference. If Lincoln wanted racing engines, it, too, would have to use the 427.

Chassis specifications follow the same pattern (what's good for General Bullmoose is good for the country!). Although the Mercury has a 120-in. wheelbase to Ford's 119.0, this is accomplished by sliding the rear axle back 1 in. on the leaf rear springs; other chassis dimensions are identical. The Ford Division even got the Mercury's best chassis feature for '63, the "Cushion Link" front suspension.

This development, which Ford ballyhoos as a "10-million-dollar suspension," merely gives the lower front control arms some fore and aft latitude along with the usual up-and-down movement. A cleverly contrived cranked compliance link connects the front point of the A-arm to the frame so that when the tire meets a bump, the action can be absorbed at more of an angle. The weight of the vehicle keeps the crank centered. The other components in this "Anti-Harsh" suspension are large rubber bushings in the front mounts of the rear springs. These act in the same manner, giving up to 0.4 in. of horizontal movement.

Actually, there are three stages of suspension for the 1963 Mercurys. The first and standard one is the compliance link arrangement, the second is the compliance link with heavy-duty springs, shock absorbers and anti-roll bar specified in the Super Marauder package, and the third is the "non-anti-harsh," with which the special purpose (i.e., racing) cars are equipped. This latter system does not have compliance links; rather, it has everything snubbed up as tight as possible, with minimum use of rubber bushings for maximum stability at high speeds.

The anti-harsh suspension combined with the heavy-duty springs and shocks is a virtually ideal package for enthusiastic, but non-racing, purposes. It provides excellent control while virtually eliminating that spanking sensation usually associated with stiff springs. The Super Marauder-equipped Mercurys have spring rates (at the wheels) of 130 lb./in. in front, 133 rear, where the normal rates are only 79 and 103. Shock absorbers have 1.188-in. dia. pistons instead of 1.0 in., anti-roll bars are either 0.62 or 0.75 in. dia. and the steering ratio can be lowered to 22:1 (5 turns, lock to lock). Power steering is not available with the 427-cu. in. engines, as problems develop in trying to keep on drive belts at 6000 rpm and more.

Mercury, of course, uses a ladder-type of separate frame with box-section side rails and cross-members, although Ford Motor Company espouses the unit-chassis for Lincoln, Thunderbird, Meteor/Fairlane and Comet/Falcon. Both Mercury and Ford have had notable success with this older type of chassis, achieving both a high level of "tune" for comfort/stability and a low level of noise transmission, the bugbear of unit-construction. The penalty, however, is high weight; our test Mercury scaled some 4155 lb. at the curb, certainly a factor to limit accelerative performance.

FASTBACK SHAPE and 427-cu. in. engine (either 1-4 or 2-4 carburetion) are latest options.

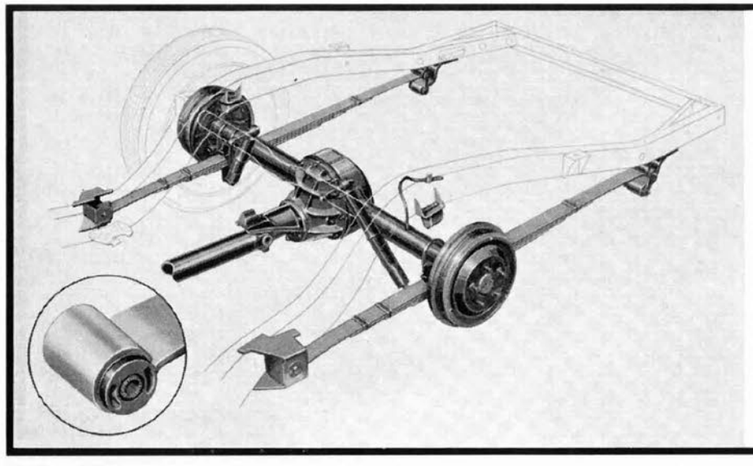
Nonetheless, a 427-cu. in. engine just doesn't take no for an answer, and the Super Marauder S-55 is startlingly quick. Although neither specially tuned nor equipped for maximum acceleration, it would accomplish the standing quarter mile in 15.1 sec. and do 0-100 in 20.5 sec. Compare this with the performance we measured for the 300-bhp, 390-cu. in. automatic-equipped S-55, and that which we obtained from testing a 406-cu. in. S-55 last year.

PERFORMANCE COMPARISON

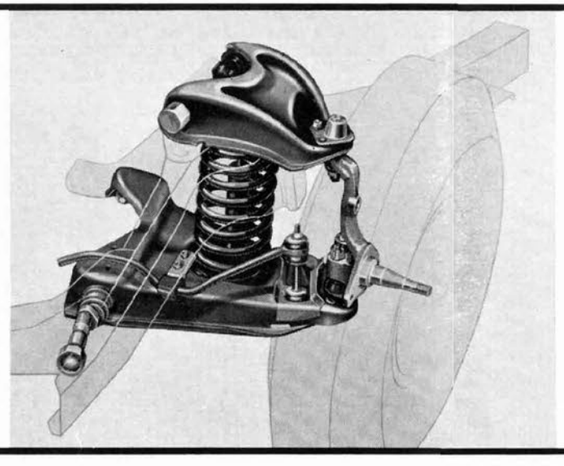
	390	406	427
Transmission	auto.	4-spd.	4-spd.
Axle ratio	3.00	3.56	4.11
Acceleration, sec. e.t.			
0-40	6.0	4.4	3.8
0-60	10.0	8.0	7.0
0-80	18.0	14.1	12.4
0-100	28.8	25.1	20.5
Standing ¼-mile	16.4	16.1	15.1
speed at end, mph.	75	85	87

We hasten to emphasize the not- ▶

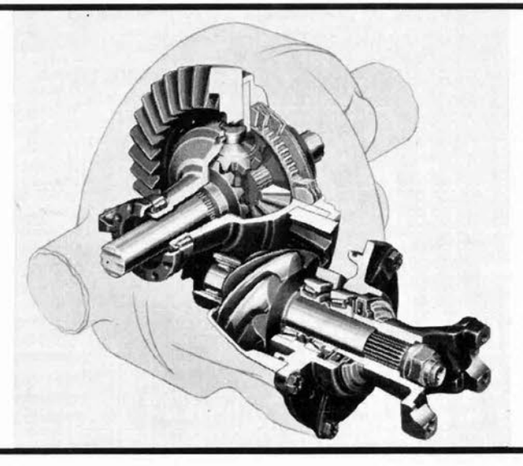
DETAIL SHOWS rubber cushion link in the leaf-spring rear suspension.



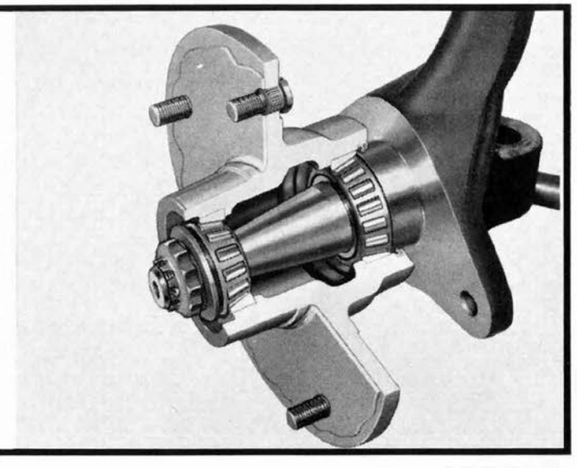
CRANKED LINK on lower arm allows fore-aft motion.



LIMITED-SLIP differential is optional on all Mercurys.



FRONT WHEEL bearings need repacking only every 30,000 miles.



Mercury 427

equipped-for-dragging point. Our Super Marauder S-55 developed two problems during our normal testing: One, traction was poor under full-throttle acceleration, and, two, back-pressure at higher rpm would, after several runs, eventually blow the muffler off the header pipe. The standard 8.00-14 tires were not up to all-on starts and would break loose at the slightest prodding of the throttle—good S/S cheater slicks probably would give the car at least a full second better time, while a torque reaction device, such as Traction Masters, would probably drop off another half-second by improving the tractive ability. The muffler problem was one we had also encountered with the 406 S-55.

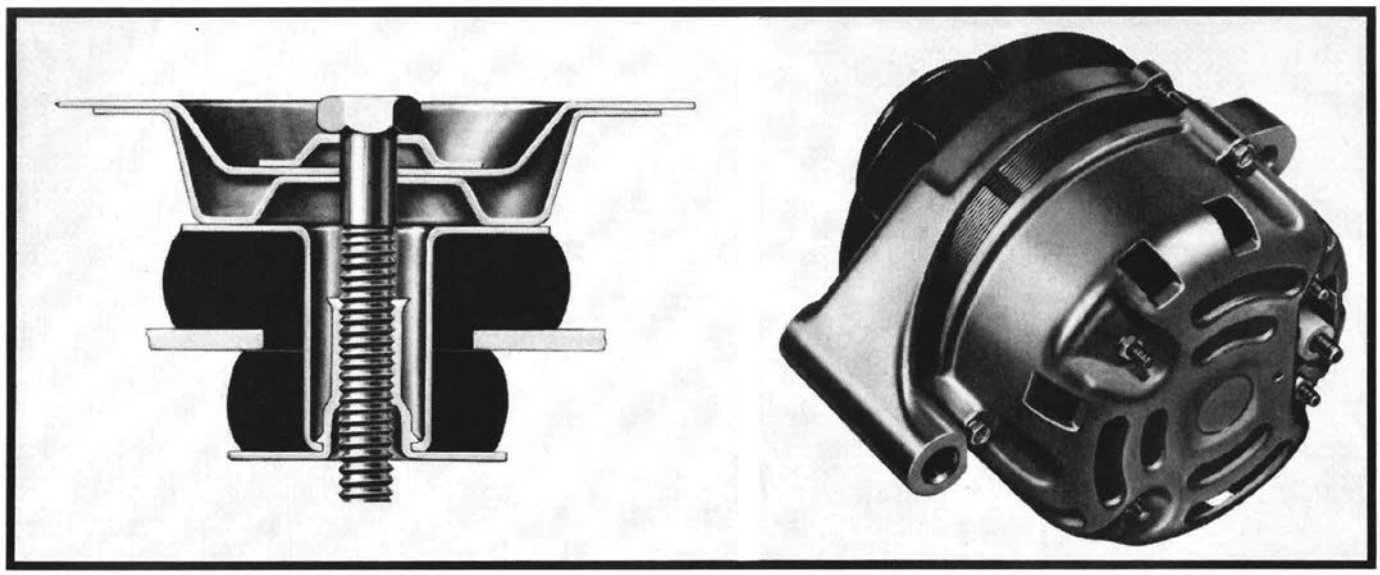
On the open road, the Mercury S-55 Super Marauder showed respectable manners and proved a nice combination of firm ride and good handling. The non-power steering is a bit stiff around town, but a blessing on the open road. And having all that power on tap under one's right foot—well, that makes passing a pleasure and hill-climbing fun.

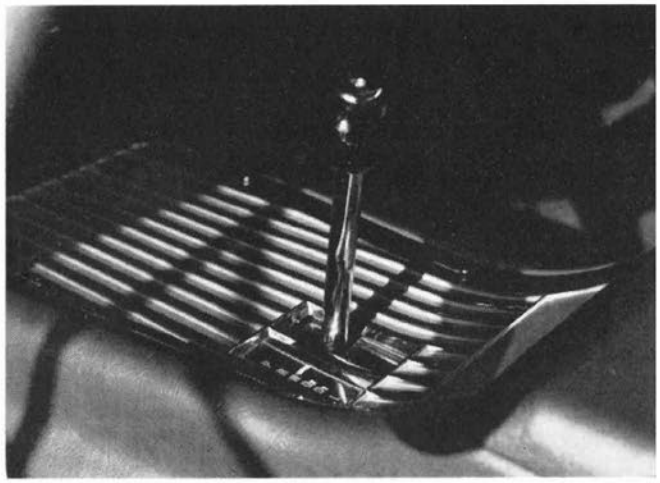
The overall level of finish in this, Mercury's most expensive line, was quite high—as one would expect when paying $4200 for a car. Except for a rather gaudy use of stainless steel and chromium-plated trim, we found little to complain about. The interior seemed very well done, despite an overly ornate instrument panel and dash, with excellent carpeting and upholstery materials used throughout. The dash, however, leaves a lot to be desired. Although it has the full five necessary instruments (speedometer, fuel, oil pressure, water temperature and amps), each is placed inside its own hooded, chromed socket and the overall effect is of Wurlitzer nickelodeon.

The S-55 line, which now includes 4-door and 2-door hardtops and a convertible, has a long console dividing its comfortable individual front seats,

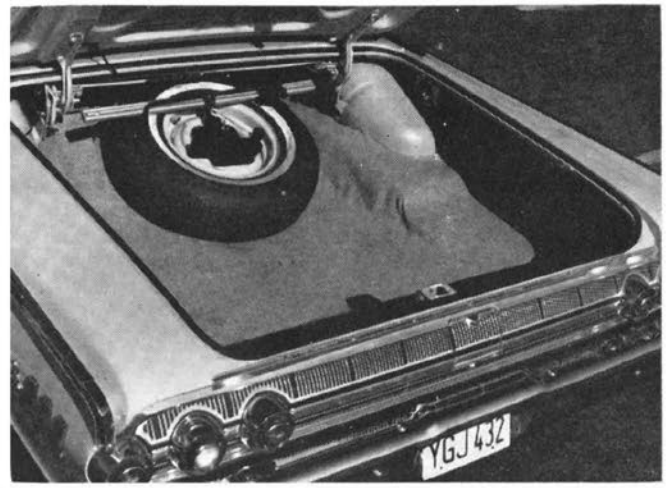
16 OF THESE body mounts attach Mercury body to frame.

30 AMP ALTERNATOR is standard on all '63 Montereys, S-55s.





AUTOMATIC SHIFT lever is mounted on S-55 console.



TRUNK SPACE of S-55 hardtop is overwhelming.

and the shift levers for both automatic and manual transmissions sprout therefrom. While this makes a nice, contemporary decoration, it puts the 4-speed shift lever too far away from the driver for good, clean shifts.

About the styling of the current Mercurys, we can only say that the "notch-back" rear window provides the best ventilation and rearward visibility we've yet found on a '63 car. It does make the rear-end appear abnormally long. If you don't like it, there's always the new "fastback" line just introduced. ■

CAR LIFE ROAD TEST

1963 MERCURY
S-55 Super Marauder

SPECIFICATIONS

List price	$3650
Price, as tested	4201
Curb weight, lb	4155
Test weight	4485
distribution, %	54/46
Tire size	8.00-14
Tire capacity, lb @ 24 psi	4700
Brake swept area	381
Engine type	V-8, ohv
Bore & stroke	4.23 x 3.78
Displacement, cu in	427
Compression ratio	11.5
Carburetion	2x4
Bhp @ rpm	425 @ 6000
equivalent mph	113
Torque, lb-ft	480 @ 3700
equivalent mph	69

EXTRA-COST OPTIONS

427 V-8 package, 8.00-14 wsw tires, tinted glass, radio, courtesy lights, crankcase vent, windshield washer.

DIMENSIONS

Wheelbase, in	120.0
Tread, f and r	61.0/60.0
Over-all length, in	215.0
width	80.0
height	55.5
equivalent vol, cu ft	553
Frontal area, sq ft	24.7
Ground clearance, in	5.5
Steering ratio, o/a	23.0
turns, lock to lock	3.9
turning circle, ft	41.0
Hip room, front	2 x 20.5
Hip room, rear	63.5
Pedal to seat back, max.	40.5
Floor to ground	13.2
Luggage vol, cu ft	15.0
Fuel tank capacity, gal	20.0

GEAR RATIOS

4th (1.00), overall	4.11
3rd (1.41)	5.79
2nd (1.78)	7.35
1st (2.36)	9.70

PERFORMANCE

Top speed (6000), mph	113
Shifts, rpm–mph, (manual)	
3rd (6000)	80
2nd (6000)	63
1st (6050)	48

ACCELERATION

0-30 mph, sec	2.7
0-40	3.8
0-50	5.4
0-60	7.0
0-70	9.7
0-80	12.4
0-100	20.5
Standing ¼ mile	15.1
speed at end	87

FUEL CONSUMPTION

Normal range, mpg	10-12

SPEEDOMETER ERROR

30 mph, actual	29.0
60 mph	58.0
90 mph	90.0

CALCULATED DATA

Lb/hp (test wt)	10.5
Cu ft/ton mile	176.7
Mph/1000 rpm	18.8
Engine revs/mile	3200
Piston travel, ft/mile	2040
Car Life wear index	64.5

PULLING POWER

4th, maximum gradient, %	17.0
3rd	24.4
2nd	31.3
Total drag at 60 mph, lb	160