

1965 FORD MUSTANG

A Spirited and Agile
Pony Shows Up in
the TeePee Corral

A MARKET WHICH has been looking for a car has it now. Ford Motor Co. has finally recognized that market, the voice of which has been easily detectable amid the pages of automotive enthusiast magazines, and has staged a round-up of its state of the Total Performance art to produce the Mustang. It is a sports car, a gran turismo car, an economy car, a personal car, a rally car, a sprint car, a race car, a suburban car, and even a luxury car—it is, in short, a car which can be many things to many people.

If there is any substance to FoMo-Co's Total Performance concept, as Car Life editors are convinced, the Mustang justifiably should be called a TP car. Though such a category may lack historical justification (the idea first occurred to us last October), it has much merit now that there is a car to list thereunder. More than that, however, the Mustang stands as a milestone in the automotive contribution of Ford Motor Co. There have been only a few others—the Model T, the Model A and the mass-produced V-8 (although the racer "Old 999" which got the company started might be inincluded). In concept, the Mustang draws from the original Thunderbird and the Corvair Monza; in execution, it has ancestry in the Fairlane and Lincoln Continental; and in appearance, it reflects Continental Mark II. Small wonder, then, that Ford introduces the Mustang in April and designates it the first of the 1965 cars.

Yet, while the Mustang fulfills the great expectations of many in that long-suffering market, it also must disillusion others among that same throng. A lengthy list of options, designed to let the buyer tailor the finished car to his pocketbook and proclivities, stops just short in some as-

pects of all-out grand sport. Some items which would make the Mustang truly comparable to the highly refined GT cars of Europe also are lacking. But that is about the only valid criticism which can be leveled at the car as a concept.

The Mustang is built on a platformtype frame, a design evolved from unitized Fairlane and Thunderbird construction methods. The two body styles—a 2-door hardtop and a convertible—require somewhat differing designs for this understructure. The platform frame is, however, the key to realization of the design goal of minimum weight with maximum strength.

The all-welded platform structure consists of front and rear side rails of box section tied into heavy boxed-in rocker panels. There are five heavygauge crossmembers, joining the side members into a ladder-type configuration. The front and rear side rails extend under and are welded to the floor pan, which utilizes the full-length propeller shaft tunnel as a backbone for more rigidity. The backbone, incidentally, gains added strength by eliminating the weakened area where the seat riser normally is stamped into the floor pan and tunnel juncture. In its place, a separate riser is welded across the platform, in turn adding more rigidity. The extra cost of this procedure is offset by eliminating the seat adjustment mechanism for the front seat.

In front, a deep box to surround the engine compartment is welded up of full-depth heavy-gauge stampings for cowl, side panels and radiator support. All are welded to the side rails at the lower end.

Integral torque boxes, welded up where the side rails join the rocker rails at front, are used in the convertible only. Ford engineers said the boxes were eliminated from the inherently stronger hardtop because they made it too stiff. Also exclusive to the convertible is a longitudinal strap of steel welded between C sections of the rocker rail. Both of these additions, plus heavier gauge steel in some areas, replace the structural rigidity which the convertible loses without the top structure.

To this sturdy platform, the body panels are welded. The body has wide doors of double panel construction, providing easy access to the rear seat. They are welded up with rolled outer edges to form a sturdy box structure. The roll-up side windows are tempered, curved safety glass. A usable luggage capacity, one of the design objectives, totals 8.8 cu. ft.

Basic engine is the Falcon 170-cu. in. 6-cyl. developing 101 bhp at 4400 rpm. Optional engines are the Falcon/Fairlane 260-cu. in., 164-bhp V-8 and the Fairlane/Comet 289-cu. in. V-8 developing 210 bhp at 4400 rpm. Soon to be available will be the 289 HP engine, generating 271 bhp at 6000 rpm and 312 lb.-ft. of torque at 3400 rpm.

Transmission options are the 3-speed manual (Falcon, with 3.29:1 low) for the Six. all-synchro 3-speed manual (2.79:1 low) for the V-8s, 4-speed manual (English Ford with 3.16:1 low) for the Six. 4-speed manual (T-10 heritage with 2.78:1 low) for V-8s, and 3-speed Cruise-O-Matic (with 2.46:1 low and a stall ratio of 2.05:1) for either Six or V-8.

When the HP V-8 is available, it will use only the new Ford-designed 4-speed trans-

mission with 2.32:1 low, driving into a Galaxie-de-



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DRIFTING THROUGH a 300-ft. radius corner, Ford's new Mustang shows fine handling characteristics and minimum body lean even at racing speed.

rived ring gear and pinion of either 3.89 or 4.11:1. It also will be fitted with a dual exhaust system, unlike the large single muffler mounted transversely beneath the trunk on other models. Rear axle for the Six has the Falcon-derived 3.50:1 ratio (3.20:1 for hardtop); that for the other V-8s is Fairlane-developed with 3.00:1. Clutches are semi-centrifugal, 10 in. for the smaller engines and 10.4 in. with the 289s.

To the curb weights of the base car

(2561 lb. hardtop, 2740 lb. convertible), the 260 engine adds 269 lb. and the 289 an additional 24 lb. The automatic adds 51 lb. to the Sixes and 17 lb. to the V-8s, while 4-speed manual transmissions add 45 and 20 lb., respectively, over the standard 3-speed.

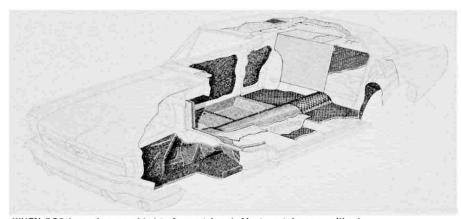
Suspension components draw heavily from Falcon Sprint, Comet Caliente and Fairlane experience. A special handling option, designed for buyers who put the car to more strenuous than normal usage, is a feature of the

Mustang design. This package includes stiffer springs, larger and recalibrated shock absorbers, larger anti-roll bar, faster steering ratio and the optional 14 in. tires and wheels (5 in. rims). Comparative data are:

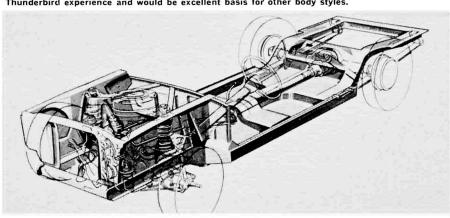
	6-cyl.	V-8	SH
Spring rate			
lb./in., F	82	89	101
lb. /in., R	101	101	130
Anti-roll bar, dia.	0.690	0.690	0.840
Roll center, F	2.6	2.6	1.55
R	9.3	9.3	9.3
(with 13-in, wheels)			

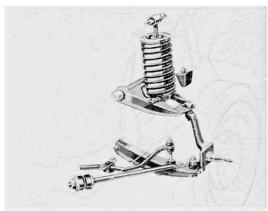
Standard ratio of the recirculating ball-and-nut steering is 27:1, but gearing of 22:1 is optional for faster response. The latter is used in power-assisted options. Brakes are 9-in. drums for the Six, providing 131 sq. in. of lining area and 212 sq. in. swept area, or 10-in. drums for the V-8s, having 154.2 sq. in. lining area and 251.3 sq. in. swept area. Disc brakes, reportedly of Kelsey-Hayes design, are to be offered "in the near future."

From an engineering standpoint, the die had been cast before the engineers saw the car: Never before has a car been developed so extensively in the styling studio. Unlike the normal side-by-side presentation to top manage-

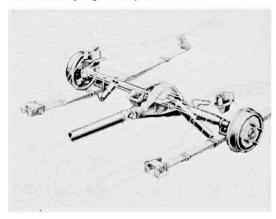


WHEN BODY panels are welded to frame (above), Mustang takes on unitized aspect. Various layers of sound deadening materials are depicted. Platform frame (below) has been adapted from unitized Fairlane and Thunderbird experience and would be excellent basis for other body styles.





FALCON SPRINT-inspired front suspension (above) is fully rubber-bushed to prevent harshness. Hotchkiss rear (below) has 53-in, 3-leaf springs with tip liners.



ment conducted by both styling and engineering specialists, the Mustang was privately shown by styling officials to top management and got a go-ahead before engineering knew of the project. There was more than a little consternation once the engineers saw what they had to produce. The hood line was too low, the roll-under at the lower edges was too extreme, the bumper-to-sheet metal clearance was much too small. Above all, there were the major limitations of light weight and cheap price with which to contend.

The rakish roll-under of the lower body panels, the engineers insisted, would result in paint-chipping problems from stones thrown by the wheels in normal service. But they bent up some panels in those shapes, tried them out on cobbled engineering vehicles, and discovered that the text-book was in error—stone-throw patterns were not as extensive as anticipated and the design was actually better in this respect than the Monza, which was without particular complaint on this score.

Similarly, the low hood line necessitated a lower air cleaner for the car-

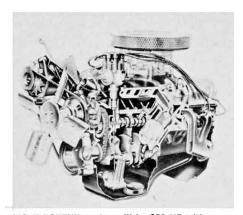
	Valiant	Monza	Falcon	Mustang	Thunderbird	Tempest GTO	
Wheelbase	106.0	108.0	109.5	108.0	113.2	115.0	
Tread, F	55.9	54.4	55.6	56.0	61.0	58.0	
R	55.6	55.1	56.0	56.0	60.0	58.0	
Length	188.2	180.0	181.6	181.6	205.4	203.0	
Width	70.1	67.0	71.6	68.0	77,1	73.3	
Height	53.5	50.9	53.2	51.1	52.5	54.0	
Box Volume	410	355	410	365	481	465	
Frontal Area	20.9	19.0	21.6	19.3	22.5	22.0	
Turn Circle	37.1	38.2	38.8	38.0	40.2	40.9	
		Effective	Interior D	imensions			
Headroom, F	38.3	37.6	37.0	37.5	37.4	38.3	
Legroom, F	40.9	41.0	41.5	40.9	39.7	42,1	
Hiproom, F	56.9	58.1	57.1	54.7	59.7	60.1	
Headroom, R	37.2	37.2	35.8	35.4	37.6	36.8	
Hiproom, R	57.0	56.6	56.5	50,6	49.9	58.7	
Luggage Cap.	14.1	6.6	11.6	8.8	11.5	n.a.	

buretor to permit the necessary inch or so rocking clearance called for "in the book." Engineers redesigned the air cleaner to sit lower over the carburetor, a change which was made ahead of time for all Falcons and Fairlanes. The radiator top tank was also redesigned, eliminating the too-high filler neck by "countersinking" it down to clear the hood.

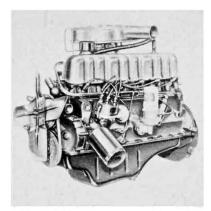
Just as the engineering changes which would be required in the Mustang were made in earlier Falcon and Fairlane models, thereby reducing the investment necessary to produce the Mustang by increasing component interchangeability, so also does the Mustang incorporate engineering changes which may be expected to be seen on future Ford cars in other lines. The platform frame, for instance, is a particularly graphic example of the direction in which Ford Engineering is moving.

Evolution of the Mustang is almost as inter-

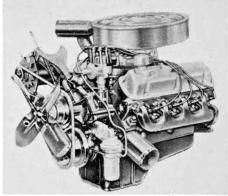




MOST POTENT engine will be 289 HP with 4-barrel carburetor, mechanical lifters.

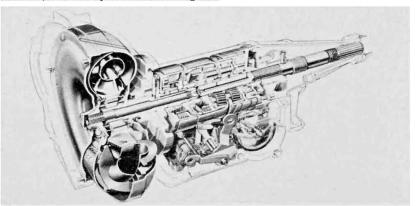


ECONOMICAL 6-cyl. engine of 101 bhp is standard, provides good performance.

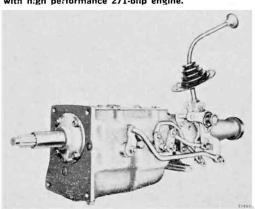


MID-RANGE powerplant is 260-cu. in. V-8 with single 2-barrel carburetor.

AUTOMATIC TRANSMISSION is Cruise-O-Matic 3-speed with torque converter, fitted to 6-cyl. as well as V-8 engines.



FORD 4-SPEED transmission will be standard with high performance 271-bhp engine.



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esting as the car itself. When Ford stopped production of the 2-seat Thunderbird in 1957, a steady stream of letters asking for its return flowed into corporate offices. Yet, the 4-seater 'Bird outsold the total for the two previous years the first year it was on the market. This was also a time when imported cars were beginning to be sold in this country in meaningful numbers. Ford's market research people began gathering data.

"By 1961, there was this marketing data available—and not much else—to back up the decision (to produce the Mustang)," Executive Engineer Jack Prendergast says. "But then it grew in concept. At first it was supposed to compete with the Monza, being sold to women and as a second car. If it had stayed there, we could have stopped with the 6-cyl. engine."

The data which market researchers gathered "ties together into a package that literally leads directly to the Mustang," in the words of General Marketing Manager Chase Morsey Jr. Statistics like the tremendous surge in population (particularly in the young age groups); the growth of multiple car owning families; the increase in the number of higher-income groups; the growth in college enrollments—all had an important effect.

Ford's studies showed that 11.5 million more people would be in the 15-19 and 20-24 age groups by 1970, increasing 41 and 54% respectively. Just as important, the young people are better educated. College enrollments should double (to 7 million) by 1970, hit 9 million by 1980. And college-educated people buy cars at "a phenomenally higher rate than non-college people." In fact, 46% of annual new car sales are made to people who have had some college—even though such customers are only 19% of the current over-18 population.

Once that vast market potential was discovered, researchers began looking into the automotive tastes of that mar-

ket. Among the young married group with multiple car ownership, 15% owned foreign cars and another 15% had convertibles. Of those under 25 years of age, 36% wanted a 4-speed stick shift and 35% wanted bucket seats. Maneuverability was an important demand. But the most important factor which the researchers found was a demand for a 4-seat configuration, 2-seat Thunderbird devotees notwithstanding. The Mustang seating proposal was preferred by 71% of imported economy car owners and 33% of the imported sports car owners, over unidentified seating packages from the Volkswagen and Corvair Monza which were suggested. The Mustang began to take definite form.

The Mustang was one of five experimental styling exercises undertaken by Ford's Corporate Projects Studio, "to keep abreast of any changing market trends and be ready to meet these trends without having to start from scratch," according to Styl-



IN CREATING "car for the masses with styling of the elite," proportions which recall the \$10,000 Continental Mark II (above) were selected.

Original Mustang clay mockup (below) also had long hood, close-coupled cockpit.



CHANGES MADE between above mockup and final production car (below) are difficult to detect. Unlike usual practice, Mustang had few alterations after styling staff got management approval, thus avoided compromising.





"COUGAR" WAS first name for car, and stylized cat had been grille emblem. Oval lights were replaced by conventional singles since duals looked worse. Grille bars can easily be removed from wire screen.



ing Director Gene Bordinat. Other cars were the Allegro and the Cobrabased Cougar II (although the Mustang originally carried the Cougar name, subsequently changed to a designation "T-5" during development).

Bordinat revealed that the Cougar and the original rear-engined Mustang I had style "successful enough to elicit mail urging the company to begin production. But both were 2-passenger models. We were not convinced that the market was sufficiently large to justify production of an all-new automobile in this category." The company decision, he said, was for the Mustang II, an X-car version that could accommodate the four passengers found necessary by market research.

From the original clay mockup of the Mustang, through the public pulsequickening Mustang II show car, to the final production Mustang, hardly a line or a curve has been altered (as the engineers found out). "Never before has a car retained its appearance in virtually every detail—from first review through all the necessary proveouts and cost studies right up to Job One on the production line," emphasizes the styling boss. "We demanded—and received—engineering flexibility and inventiveness that made it possible for us to win what we call 'the battle of the inch.' Individually, these small dimensional differences won't make or break a car, but, collectively, they make all the difference in the world."

Bordinat terms Mustang styling as "classically aesthetic proportions" with long, low hood; low overall height, close-coupled passenger compartment and short rear deck. The rear of the car is devoid of trim except for the distinctive taillights and the large fuel filler cap simulating a racing-type fixture. "The only thing on the rear." comments another stylist, "will be the dealer's ad sticker."

Inside, the instrument panel is deeply hooded by a padded lip, a touch made possible because there will be no

column-mounted shift lever. An optional "rally pack" of sweep-second-hand clock and tachometer fit in a saddle-like mounting over the steering column against the instrument panel. An all-vinyl interior, molded nylon carpets and the bucket seats with bright metal trim are all standard for the inside.

Outside, full wheel covers, bright window moldings and bumper guards are standard. So is a simulated air scoop at the rear of the side panel sculpturing, but a factory option removes this and substitutes an outline pin-stripe for the purist. Arm rests, cigarette lighter, courtesy lights, seat belts, foam padded seats and the padded dash are standard.

In standard trim, the Mustang belies its low price tag. Freely ordering from the option list, however, makes it possible to rival the Thunderbird in luxury while still remaining below it in price.

There are the engine



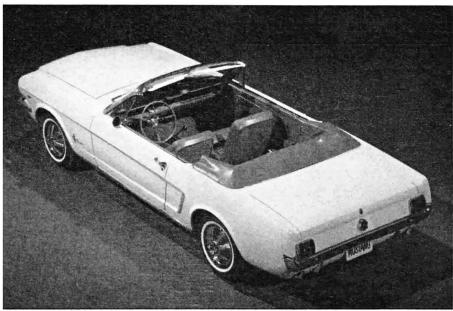


CLEAN DESIGN of rear view was little altered. Distinctive taillights are now single units, to cut costs. Sole appearance of "brand name" is on big gas filler cap simulating a race car's.





AS STYLING exercise, Mustang made an earlier appearance as Mustang II idea car which had headlights hidden behind grillework. Finished production car is quite similar and has same rakish roll-under at base.

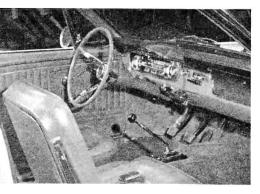


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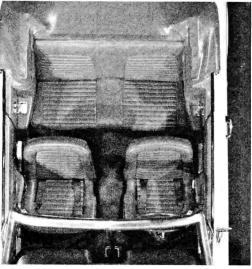
and transmission options, air conditioning, power brakes and steering, power-operated convertible top, tinted glass, console, vinyl roof, rocker panel moldings, deluxe wheel covers, wire wheel covers, the rally pack, locking differential, the handling options, different wheel and tire sizes, and other such add-on items. In addition, some 100 or so buyers will be able to order one with full independent rear suspension.

Cars with the latter, three of which will be campaigned by Carroll Shelby under Ford colors in FIA events this season, draw heavily on the Eric Broadley-designed Lola GT car which Ford is also producing for world event competition. "We would like to see the Mustangs come in second to the Cobras and ahead of the Sting Rays," comments Competition Manager Frank Zimmerman. In addition, Mustangs will immediately replace Falcons as the company's principal rally cars.

Even without the IRS, the Mustang



DEEP HOOD over instruments, tunnel-mounted shift lever are interior features. Thin shell bucket seats give lateral support, provide extra legroom for rear passengers.



performs with the best Detroit has brought out. The car may well be, in fact, better than any domestically mass-produced automobile on the basis of handling and roadability and performance, per dollar invested.

Only one of 5 pre-production cars which CL tested-a blue hardtop with white vinyl roof and the 260-cu, in. V-8 and Cruise-O-Matic-was fitted with the normal off-the-shelf suspension components. Handling characteristics had that typically Ford feelwhich is to say, confidence-inspiring if a bit nose-heavy—until the car was pressed. Then, deliberately storming too fast around the Dearborn test track handling circuit, with its series of turns at lessening radii, the Mustang came into its element. So long as power was judiciously applied, it seemed to lift its nose and negotiate the bends in a perfect drift. Only minor steering corrections were necessary to maintain this attitude, despite road surface irregularities; body lean (and hence adverse tire scrub) was at a minimum.

The margin between drift and broadslide, of course, is as narrow as one turn on the steering wheel, but not once was the car's attitude anything but the former while at speed. On the other hand, the plowing of understeer caused some worry as to whether the road would be wide enough when the same circuit was attempted at lesser velocities. At such moments, however, throttle-induced oversteer (with two aboard) quickly righted the wrong.

Even to those conversant with Fairlane and Caliente handling, such characteristics with the stock, general-purpose underpinnings on the Mustang were exhilarating. It was obvious that the car had borrowed more suspension from those two than from the Falcon, though its dimensions had led some (including us) to expect the Mustang to be merely a Falcon Sprint "special."

There should be little doubt that the special handling suspension options would produce a nearly optimum vehicle for serious, European-style rallying and American-style road racing. (Unfortunately, however, the Mustang will have to run in SCCA modified classes until new classifications are made next December.) Aiding and abetting this fine edge of handling excellence, of course, will be the selection of wheel and tire options available when the car is ordered. Only Rambler American has a similar variety, but for a somewhat different reason.

Straight-line performance of the

289-cu. in. powered car was expected to be brisk, and our test figures show that it was. But the biggest surprise to our testers was the performance of the 6-cyl. "basic" Mustang. This car, which had differing spring rates at each wheel (for testing) and thereby was eliminated from handling considerations, demonstrated a lurch off the line that was startling, in view of the heavier convertible body and the engine's marginal performance in earlier Falcons of our acquaintance.

The performance improvement must definitely be attributed to the 3-speed automatic transmission. Hooking this transmission to the engine rather than the Falcon 2-speed proves the truth of that old adage: "If it won't go, gear it." Here is a car that, while designed for the little woman with its economical Six and efficient automatic, avoids the stigma of underpowering by a most effective utilization of available torque.

Best balanced of the Mustangs tested was the 260 with automatic. This undoubtedly will be the hottest-selling combination, providing as it does quite respectable acceleration and performance for the minimal extra cost of V-8 and automatic. With the 2-barrel carburetor and 3.00:1 rear axle ratio, it should return fuel mileage figures which will be quite acceptable to a vast segment of car buyers.

For the hell-for-leather enthusiast, or the serious racer—drags or road circuits—that soon-to-be 271-bhp engine using mechanical lifters, high lift camshaft, dual exhausts and free breathing 4-barrel manifold, or all the various Cobra bits and pieces which are available for the two V-8 engines (including Weber carburetors), should make for some silver-lined stripsmanship.

With all that go-power, the brakes assume greater importance. Here again, it seems that more development work is in order. The disc option, when it arrives (probably for fall announcements), should bring this characteristic up to the standards set by the rest of the design. The CL decelerometer registered stopping powers in the 18-21 ft./sec./sec. range, that vast average for all domestic cars, but some insight into this problem may have been lent by Prendergrast in talking about brake design.

One of the design objectives involving brakes was pedal pressure at 0.7 G stopping power. Once this pressure (65 lb. for the Six, 72 lb. for the V-8s) was achieved, further development on

brakes apparently ceased. Hence, these cars—and conceivably other domestic cars—are engineered only to provide 0.7 G (which translates into 18 ft./sec./sec. stopping rate on the decelerometer) as a result of a ratio established by an engineering and cost per unit minimum.

Steering on the test cars was quite

precise, but the purists will still feel that the faster ratio remains too slow. An annoyance was the deep-dish steering wheel, projecting too far toward the driver's chest, even with the seat at its most rearward notch.

The Mustang will have a significant effect on the domestic automobile scene, more so perhaps than had it

incorporated revolutionary concepts. It stands as the culmination, the sum total of 35 years of development, executed with an awareness of the proper order of motoring requirements. It brings together diverse and scattered efforts to achieve various ends into a highly styled package of tasteful dimensions.

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Displacement, cu. in. 170 Compression ratio 8.70 Carburetion 1 x 1 Carburetion 101@4400 equivalent mph 88.3 Corque, lb-ft. 156@2400 equivalent mph 48.1 GEAR RATIOS	260 8.70 1 x 2 164@ 4400 105	289 9.00 1 x 4 210@4400 106	Hip room, front Hip room, rear Pedal to seat back Floor to ground Luggage vol., cu. ft. Fuel tank cap., gal. CALCULATED	2 x 21.0 43.7 43.0 10.0 n.a. 16.0	2 x 21.0 50.6 43.0 10.0 8.8 16.0	2 x 21.0 43.7 43.0 10.0 n.a. 16.0	0-50 0-60 0-70 0-80 0-100 Standing 1/4 mile speed at end, 1	9.2 12.5 17.6 24.8 n.a. , sec. 20.0 nph 74 SUMPTIO	8.8 11.2 14.5 20.0 48.0 18.8 78	6.9 8.9 11.6 14.9 27.5 17.0 85
nd (1.46)5.11	(1.00)3.00 (1.46)4.38 (2.46)7.38 (2.05 x 2.46	(1.93) 5.79 (2.78) 8.35	Lb./hp test wt. Cu. ft./ton mile Mph/1000 rpm Engine revs/mile Pistontravel,ft./mile Car Life wear index	31.7 91.8 20.0 2990 1460 43.7	20.7 111 24.0 2505 1200 30.5	15.9 124 24.1 2490 1190 29.6	Normal range, m SPEEDOME 30 mph, actual 60 mph 90 mph		30.5 63.0	30.2 63.1 92.5
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