



than its sedan brethren and thus maintains its characteristic identity.

The extra doors may be considered convenience items, to ease entrance and egress from the rear passenger compartment and in this context they fit well into the Thunderbird scheme. Thunderbird is a car of convenience, abundance and luxury.

Dramatic exterior styling makes Thunderbird stand out among the '67 crop. Long tapering snout, prominent wheels, limousine-like passenger compartment, and the short, blunt rear end make it the most stylish car of the year. Unfortunately, the mechanical niceties that back up the appearance with character and quality are not as clearly visible. Beneath that shapely exterior lie a new perimeter frame and rear suspension system which combine to give the car a quietness and riding comfort previously unattainable.

Thunderbird's new chassis relates

directly to Ford and Mercury sedan development of recent years. In fact, many of the Thunderbird underpinnings are interchangeable with those of Ford and Mercury: Common to all three series are perimeter frame end sections, suspension systems and drive-train components. The differing wheelbases (Thunderbird, 115 and 117 in.; Ford, 119 in.; Mercury 123 in.) are achieved through merely varying side-rail length. However, Thunderbird's semi-unit bodywork is exclusive to this line of cars where Ford and Mercury share virtually everything beneath the "outer skin" body panels.

THE PERIMETER frame chassis, as applied by Ford Engineering, makes extensive use of computer analysis for its design. The construction itself is simple and straightforward, consisting of suspension-carrying sections connecting to widespread (i.e., perimeter)

side-rails through built-up torque boxes. However, the computer suggested such important items as metal thickness, box-section size and body mount placement, all critically necessary in achieving maximum strength and effectiveness along with minimum weight and cost. The torque boxes are the most critical: noise and vibration transmitted from road wheels and drive-train are trapped and damped out here before they can reach the passenger compartment.

The semi-unit body is, in effect, a rigid passenger capsule floating atop the frame on 14 tuned mounting pads. Computer analysis revealed the proper

composition of these mounts to effectively damp vibration and their proper location to resist body/chassis shake.

Body construction follows Ford's most recent unit-body technology of having a full-length drive-train tunnel "spine," as the backbone for a rigid body/chassis platform. The tunnel joins toeboard and cowl section to rear riser and floor panels. The panels have stamped-in stiffeners, and terminate at parallel, longitudinal U-channels that fit over the frame's side-rails. Rear wheel arches add measurably to rear body stiffness, as do the wide C-pillar roof supports. Hinging the rear doors off this more-rigid body section greatly

Ford's Shapely Prestige-Maker Is also an Industry Pace-Setter

THUNDERBIRD 4-DOOR

IN FORD's animal farm of specialized cars, big daddy Thunderbird endures as an innovator and originator, the bearer of new gadgetry and a pacesetter for the industry. What's new for the Thunderbird eventually becomes what's new on Ford sedans. And, while Thunderbird also has its direct imitators, its concept rates general credit for hatching today's burgeoning flock of personal/sporting cars.

A quick glance at Mustang, Cougar, Camaro, Riviera, Toronado and Eldorado reveals distinct physical resemblance. The short-deck, long-hood, close-coupled proportioning is directly traceable to Thunderbird influence. The concept of personalized transportation in a highly powered, luxury-fitted chassis has been best characterized by Thunderbird, though the idea had its beginning elsewhere in the automotive world.

Though Thunderbird has evolved from 2- to 4-passenger coupe and from smallish convertible to medium-sized sedan, it has maintained the concept in 12 years of production. Almost from the very beginning the Thunderbird has frankly appealed to the automotive

individualist who desires something readily distinctive, which offers good performance with neither implication and fuss of the highly tuned, nor the inconvenience of the diminutive. Thunderbird has been very much the conveyance of those who would show personal expression without risking social rejection.

The 1967 versions, and there are two, of the long-lived Thunderbird should expand both its luxury image and market acceptance. Ford has gone the extra mile for the '67s, making Thunderbirds larger, softer, quieter and even more plush. Thunderbirds also are slightly lighter, handle better and are a bit faster. The lessened bulk comes from Ford's switch from unitized chassis-body construction to a separate frame, semi-unit body format.

The most distinctive 1967 Thunderbird is the 4-door Landau, apparently a direct departure from the concept. But is it? The extra set of doors is unobtrusive enough, and the overall shape is carefully styled to retain the traditional, close-coupled appearance. Though larger than its predecessors, the new Thunderbird remains smaller



CHAM BUSH PHOTOS



THUNDERBIRD'S "flight deck" shows abundant use of chrome plating, simulated wood texture, vinyl covering and projecting instruments, knobs and levers.



PART OF the rear roof pillar swings out with the door to give a broader opening.

THUNDERBIRD 4-DOOR

reduced the size and strength requirement for the central B pillars. Although the 4-door body is not a true hardtop because it has floor-to-roof B pillars, it probably could have been with little added strength.

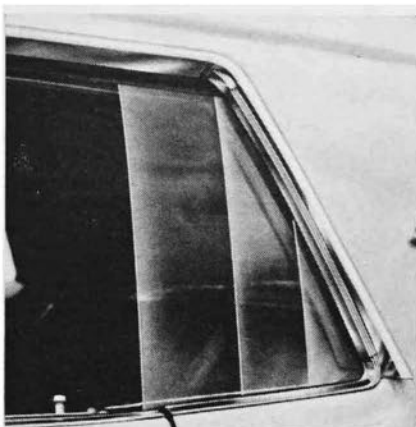
Ford finishes the body with its Electro-Coating process in which the positively charged body is dipped into a tank of negatively charged primer.

This electrical interaction is said to coat every portion of exposed metal with a uniform layer of primer paint. The body is then undercoated in selected areas and, later in the construction process, given generous amounts of insulating (for both noise and temperature) material.

Suspension of the Thunderbird is, as mentioned, purely Ford passenger car.

An independent front system is achieved through the use of short-and-long parallel arms with coil springs between. The front leg of the wider-based lower arm actually is a diagonal drag strut while the rear leg is a single-pivot beam. The steering spindle is on ball joints. All attachment points are rubber-bushed for compliance and noise reduction.

Rear suspension also utilizes coil springs, but with a live axle. Control of axle location is achieved through three longitudinal links (also rubber-bushed for quietness) and a lateral track bar. The two outboard links control fore-aft location, the central link controls axle rotation. The track bar gives side-to-side control.



TWO-DOOR HARDTOP model has shorter wheelbase and overall length, 115 and 206.9 in., plus 1 in. lower height. Difference is made up in door area, and by shortening frame side-rails. Unique feature of the 2-door model is its retracting quarter windows which slide into broad roof pillar. Window is actuated by a flexible cable that is driven by a worm gear off the window crank; system gives rapid motion with low crank effort. Main side windows are ventless, as rear deck outlet takes care of ventilation requirements.

RELATIVELY SOFT springs are used on the Thunderbird, to give it a smooth and unobtrusive ride. A good-sized front anti-roll stabilizer helps prevent front-end gyrations during cornering while adequately valved shock absorbers give a reasonable control to the soft ride. The overall effect is pleasing, but not stimulating.

Braking continues to be one of the Thunderbird's outstanding features, as it has been since the advent of the power-assisted front disc/rear drum system on the 1965 model. Disc front brakes are standard equipment on Thunderbird, not an extra-cost option as on its competitors, a factor too often ignored by the style-only-conscious buyer. What disc brakes mean to Thunderbird owners is simply reliable, controllable, effective braking under all conditions.

The front discs have 11.87-in. rotors with 4-piston calipers. The rotors are cast with radial ventilation slots to increase their cooling capacity. The cali-

pers have twin pads, or shoes, of 20.7 sq. in. area, which sweep a total of 234.5 sq. in. Added to the 11.03-in. drum rear brakes' swept area of 163.5, this gives the Thunderbird the awesome total of 398 sq. in. of swept area.

The significant key to Thunderbird brake success perhaps lies in the interacting valving of the fore and aft portions of the system. A proportioning valve permits a great deal more of the master cylinders' pressure to be transmitted to the front wheels than to the rears, thus preventing the rears from being "overpowered" and locked up on hard, fast stops. The proportioning range is 125-450 psi, reducing pressure as much as 43.5% once cut-in is reached.

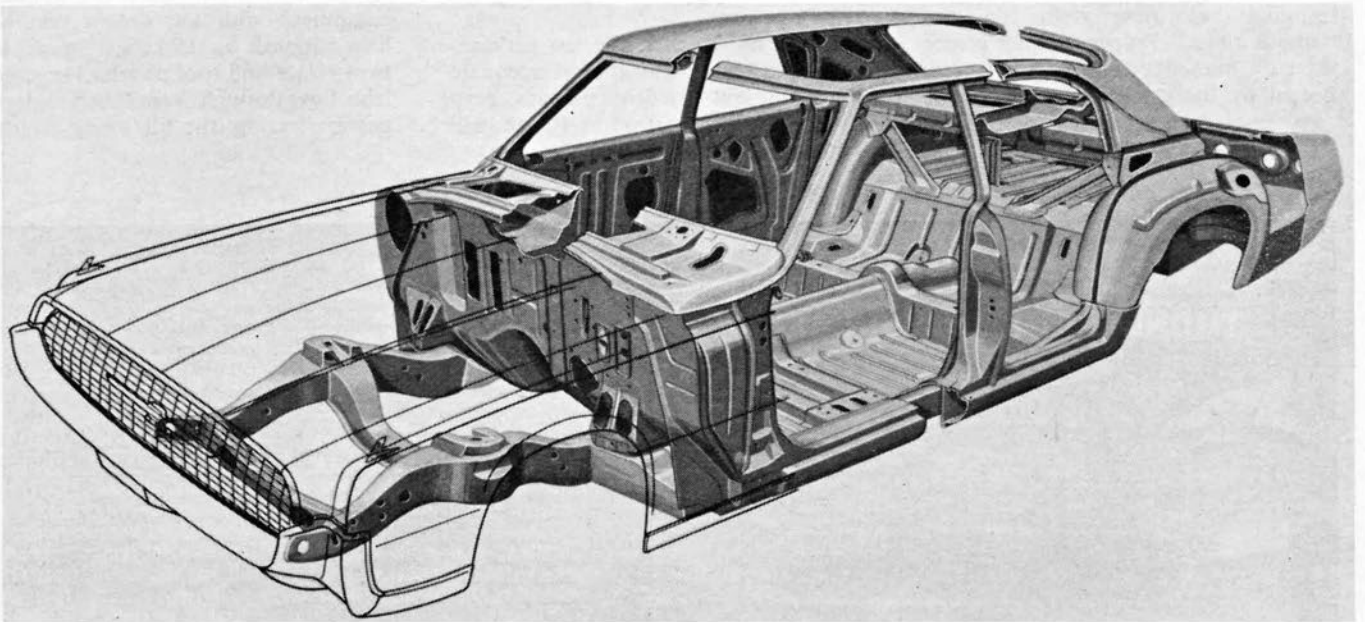
This effectiveness was demonstrated by *CL*'s usual two-stops-from-80-mph deceleration test. The first stop registered 27 ft./sec./sec. rate; the sec-

ond stop registered 23 ft./sec./sec. Impressed by this performance in such a hefty (5000 lb.) car, the testers called for three more all-on stops from 80 to check for fade. The results were decelerations of 24, 25 and 26 ft./sec./sec., with no fade and a thoroughly cheered set of testers. Just over three years ago, *CL* sampled the last of the all-drum braked Thunderbirds (*CL*, Nov. '64), recorded two stops of 17 and 18 ft./sec./sec., cited severe front wheel fade, rear wheel lock-up and temporary loss of directional control. Ford's disc system has transformed Thunderbird from one of the very worst to one of the very best-braked cars manufactured in the U.S.

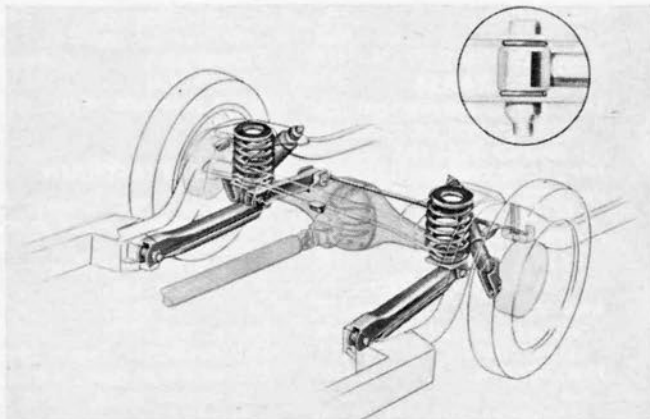
THUNDERBIRD'S POWER COMES in two strengths, both mild, though the test vehicle had the more powerful of the two. Standard for all Thunderbirds is

the 390-cu. in. V-8 and the only option is a 428 variation of the same engine. The 390 is Ford's long-time veteran notable only for its smoothness and long life. The 428, which uses similar heads, valves and camshaft, has more power simply because it is 38 cu. in. larger. Thus the Thunderbird buyer gets only the choice of the standard engine, with its 315 bhp and 427 lb.-ft. of torque, or the option with 345 bhp and 462 lb.-ft. With either, the 3-speed "Cruise-O-Matic" is the only transmission available, so the Thunderbird purchaser's engine choice really only is academic.

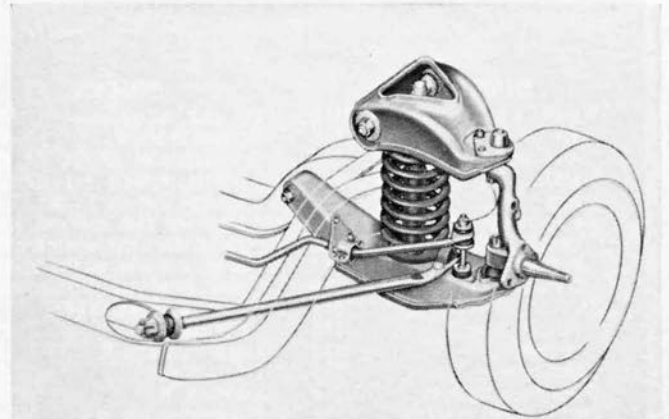
What power is generated is delivered smoothly and quietly, however, so perhaps the 390 and 428 have less obvious advantages in that particular area of performance. Peak power of both engines occurs at 4600 rpm, or 118 mph, which was just about the test



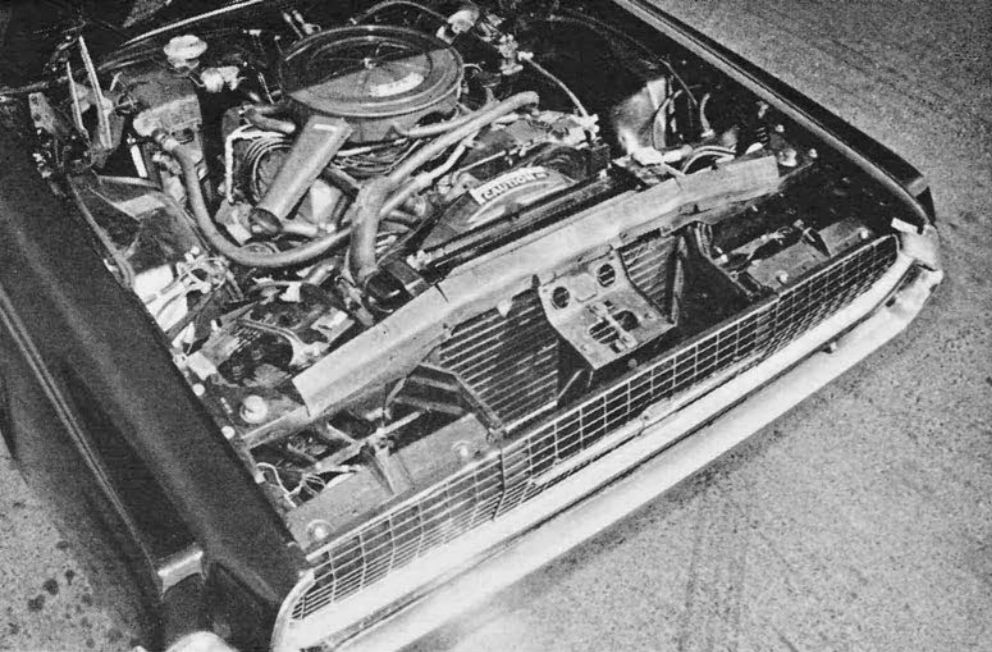
SEMI-UNIT BODY of '67 Thunderbird fits over the perimeter frame, bridging between end-sections and mounting on 14 tuned pads. Body construction closely follows that of other Ford semi-unitized cars.



REAR suspension has three fore-aft links for axle location, and rubber-bushed track bar (inset) for side-side control.



FRONT suspension utilizes rubber-bushed drag strut and beam for lower A-arm. Shock absorber is inside coil.



MECHANIC'S NIGHTMARE of plumbing and components fills the engine compartment. Though the 428 engine is larger in displacement, it is 25 lb. lighter than the 390.

car's theoretical maximum, but more importantly their torque peaks lie at 2800 rpm or 72 mph. This means the car always is cruising, at freeway and turnpike velocities, right on the "torque bulge." Proper gearing places the car's maximum pulling ability (reflected by the gradient figures in the data panel) exactly in the most useful

speed range. Thus the car cruises at speed-limit velocity with minimum apparent effort, and this feature is another of the 1967 Thunderbird's great selling points.

While no dragster, the test car's acceleration ability was at least adequate for all present-day driving needs. Zero to 60 mph acceleration in 10 sec. will

take care of the exigencies of on-ramp maneuvering, while sprinting to 82 mph within a quarter-mile's space certainly implies more briskness than most drivers ever will require or employ. A greater power/weight ratio contributes to this capability.

Thunderbird long has served Ford as both a testing ground and display case for automotive gadgetry. The '67 versions continue the tradition by having a catalog full of options available to the connoisseur of contrivances. Though modestly equipped, CL's test car was fitted with an AM/FM radio with a powered retracting/extending antenna, power deck lid release (through a dash control lever), a 6-way power seat for the driver, power window lifts, what Ford calls its "Convenience Control Panel" and air conditioning, along with more usual items such as emission controls, tinted window and windshield glass, limited-slip differential and heavy-duty suspension components.

The vinyl roof covering and landau "irons" on the sail panels are standard equipment with the 4-door, as they help disguise an awkward break between door and roof panels. The excellent flow-through ventilation system, power steering, the tilt/swing steering

wheel and host of lesser, but important items also are standard.

THE CONVENIENCE Control Panel requires some comment. This item is billed as a safety component because it includes warning/reminder lights for door ajar, seat belts, low fuel supply and parking brake on, all located on the windshield header. In this package are vacuum-powered door locks, which operate both manually and automatically. In the automatic mode, the door locks are secured by a centrifugal control whenever vehicle speed reaches 5-9 mph and remain locked when the vehicle is stopped unless the passenger or driver either presses the lock switch bar on the console, or lifts the individual lock button. In theory, this system works just fine; in practical application, it proved a pain in the neck, or at least the shoulder. The de-locking bar in the test car was broken and would not effect its intended purpose. Whenever the car was driven, all four locks automatically locked, which was dandy; but, when the car was stopped, the driver/passenger was forced to reach over and lift the door lock button on whichever door he wished to open. Compounding the problem were the "free-wheeling"



DESPITE ITS short tail, the Thunderbird has a large, usable trunk. Tripod and camera cases give indication of its depth and width. Fuel tank is below spare.

door latches Ford and others have espoused in the name of safety. These let inside door handles turn without releasing the latch whenever the lock button is depressed. Obviously, it makes difficult any rapid exit as one must always remember to lift the lock button before using the handle. Safety?

Back seat passenger accommodation

in the '67 Thunderbird proved completely adequate and comfortable, much more so than that of any previous 'Bird CL has tested. But, then, the entire car is slicker, quieter, smoother and more comfortable than its predecessors. In truth, the 4-door Thunderbird seems more smallish limousine than overly-ample personal car. ■

1967 FORD THUNDERBIRD 4-DOOR SEDAN



DIMENSIONS

Wheelbase, in.	117.0
Track, f/r, in.	62.0
Overall length, in.	209.4
width	77.2
height	53.9
Front seat hip room, in.	2 x 22.5
shoulder room	57.8
head room	38.4
pedal-seatback, max.	43.6
Rear seat hip room, in.	54.3
shoulder room	57.6
leg room	37.4
head room	37.3
Door opening width, in.	27.2/24.6
Floor to ground height, in.	7.8
Ground clearance, in.	6.5

PRICES

List, f.o.b. factory	\$4825
Equipped as tested	6126
Options included: 428/345 V-8, cloth interior, exhaust and crankcase emission controls, l.s. diff., 6-way power seat, deck-lid release, antenna, windows, convenience/control panel, wsw tires, am/fm radio, air cond., tinted glass, HD suspension.	
CAPACITIES	
No. of passengers	5
Luggage space, cu. ft.	12.3
Fuel tank, gal.	24.1
Crankcase, qt.	5.0
Transmission/diff., pt.	26.0/5.0
Radiator coolant, qt.	22.7

CHASSIS/SUSPENSION

Frame type	perimeter
Front suspension type: Independent by s.l.a. with ball-joint steering spindles and coil springs, telescopic shock absorbers, link-type anti-roll stabilizer.	
ride rate at wheel, lb./in.	115
anti-roll bar dia., in.	0.69
Rear suspension type: Live axle with 3 longitudinal, 1 lateral control arms; coil springs, telescopic shock absorbers.	
ride rate at wheel, lb./in.	127
Steering system: Integral power gear, recirculating ball and nut; parallelogram linkage.	
gear ratio	17.1
overall ratio	21.9
turns, lock to lock	3.5
turning circle, ft. curb-curb	48.1
Curb weight, lb.	4590
Test weight	5000
Weight distribution, % f/r	56.4/43.6

BRAKES

Type: 2-circuit hydraulic; cast iron caliper discs, front; duo-serve shoes in composite drums, rear.	
Front disc, dia. x width, in.	11.87 x 1.25
Rear drum, dia. x width, in.	11.03 x 2.25
total swept area, sq. in.	398
Power assist: integral, dual diaphragm line psi @ 100 lb. pedal	890

WHEELS/TIRES

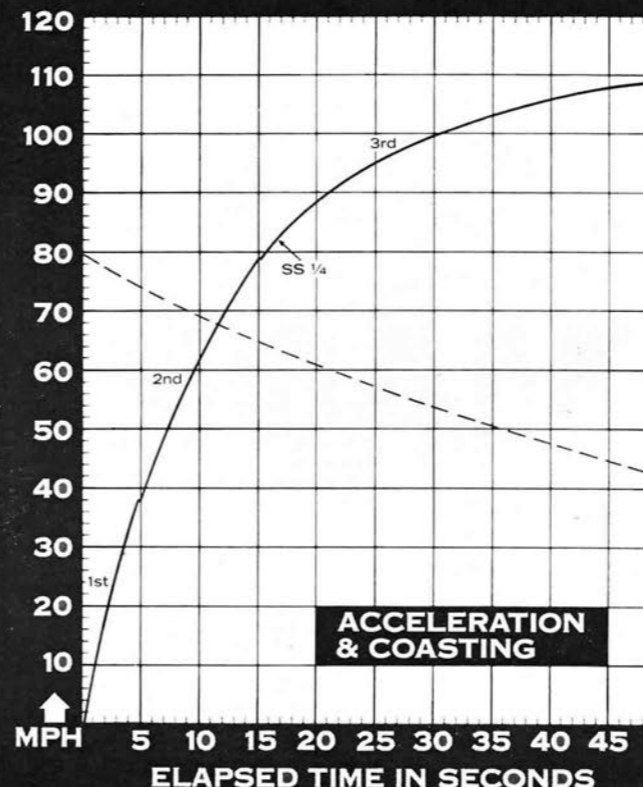
Wheel size	15 x 5.5JK
optional size available	none
bolt no./circle dia., in.	5/4.5
Tires: Goodyear Power Cushion size	8.15-15
recommended inflation, psi	26
capacity rating, total lb.	4920

ENGINE

Type, no. cyl.	ohv, 90° V-8
Bore x stroke, in.	4.13 x 3.984
Displacement, cu. in.	426.327
Compression ratio	10.5
Rated bhp @ rpm	345 @ 4600
equivalent mph	118
Rated torque @ rpm	462 @ 2000
equivalent mph	72
Carburetion	Autolite, 1x4 barrel dia., pri./sec. 1.437/1.437
Valve operation: Hydraulic lifters, pushrods and overhead rockers.	
valve dia., int./exh.	2.03/1.54
lift, int./exh.	0.437/0.437
timing, deg.	16-90, 55-21
duration, int./exh.	256/256
opening overlap	37
Exhaust system: Dual, reverse-flow mufflers, dual resonators pipe dia., exh./tail	2.00/2.00
Lubrication pump type	rotor
normal press. @ rpm	52-62 @ 2000
Electrical supply	alternator
ampere rating	@ 55 12 V.
Battery, plates/amp. rating	78/80

DRIVE-TRAIN

Transmission type: Automatic with torque converter, 3-speed planetary gearbox	
Gear ratio 3rd (1.00) overall	3.00
2nd (1.46)	4.38
1st (2.46)	7.38
1st x t.c. stall (2.10)	15.5
Shift lever location: Steering column.	
Differential type: Hypoid with straddle-mounted pinion, friction disc limited slip.	
axle ratio	3.00



CALCULATED DATA

Lb./bhp (test weight)	14.5
Cu. ft./ton mile	116
Mph/1000 rpm (high gear)	25.6
Engine revs./mile (60 mph)	2340
Piston travel, ft./mile	1550
Car Life wear index	36.3
Frontal area, sq. ft.	23.1
Box volume, cu. ft.	502

SPEEDOMETER ERROR

30 mph, actual	30.5
40 mph	39.9
50 mph	50.0
60 mph	59.8
70 mph	68.8
80 mph	80.4
90 mph	88.2

MAINTENANCE INTERVALS

Oil change, engine, miles	6000
trans./differential	as req.
Oil filter change	6000
Air cleaner service, miles	6000
Chassis lubrication, mo.	36
Wheelbearing re-packing	30,000
Universal joint service	none
Coolant change, miles	36,000

TUNE-UP DATA

Spark plugs	Autolite BF-42
gap, in.	0.032-0.036
Spark setting, deg./idle rpm	10/525
cent. max. adv., deg./rpm	19.0/4000
vac. max. adv., deg./in. Hg	25.0/19.0
Breaker gap, in.	0.014-0.016
cam dwell angle	26.0-28.5
arm tension, oz.	17-20
Tappet clearance, int./exh.	0/0
Fuel pump pressure, psi	5-6
Radiator cap relief press., psi	12-15

PERFORMANCE

Top speed (4700), mph	120
Shifts (rpm) @ mph—automatic	
3rd to 4th ()	79
2nd to 3rd (4500)	79
1st to 2nd (3700)	38

ACCELERATION

0-30 mph, sec.	3.6
0-40 mph	5.4
0-50 mph	7.5
0-60 mph	9.8
0-70 mph	12.2
0-80 mph	15.3
0-90 mph	21.2
0-100 mph	30.4
Standing 1/4-mile, sec.	16.4
speed at end, mph	82
Passing, 30-70 mph, sec.	8.6

BRAKING

(Maximum deceleration rate achieved from 80 mph)	
1st stop, ft./sec./sec.	27
fade evident?	no
2nd stop, ft./sec./sec.	23
fade evident?	no

FUEL CONSUMPTION

Test conditions, mpg	10.8
Normal cond., mpg	11-14
Cruising range, miles	265-350

GRADABILITY

4th, % grade @ mph	
3rd	13 @ 64
2nd	19 @ 50
1st	27 @ 37

DRAG FACTOR

Total drag @ 60 mph, lb.	138
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