

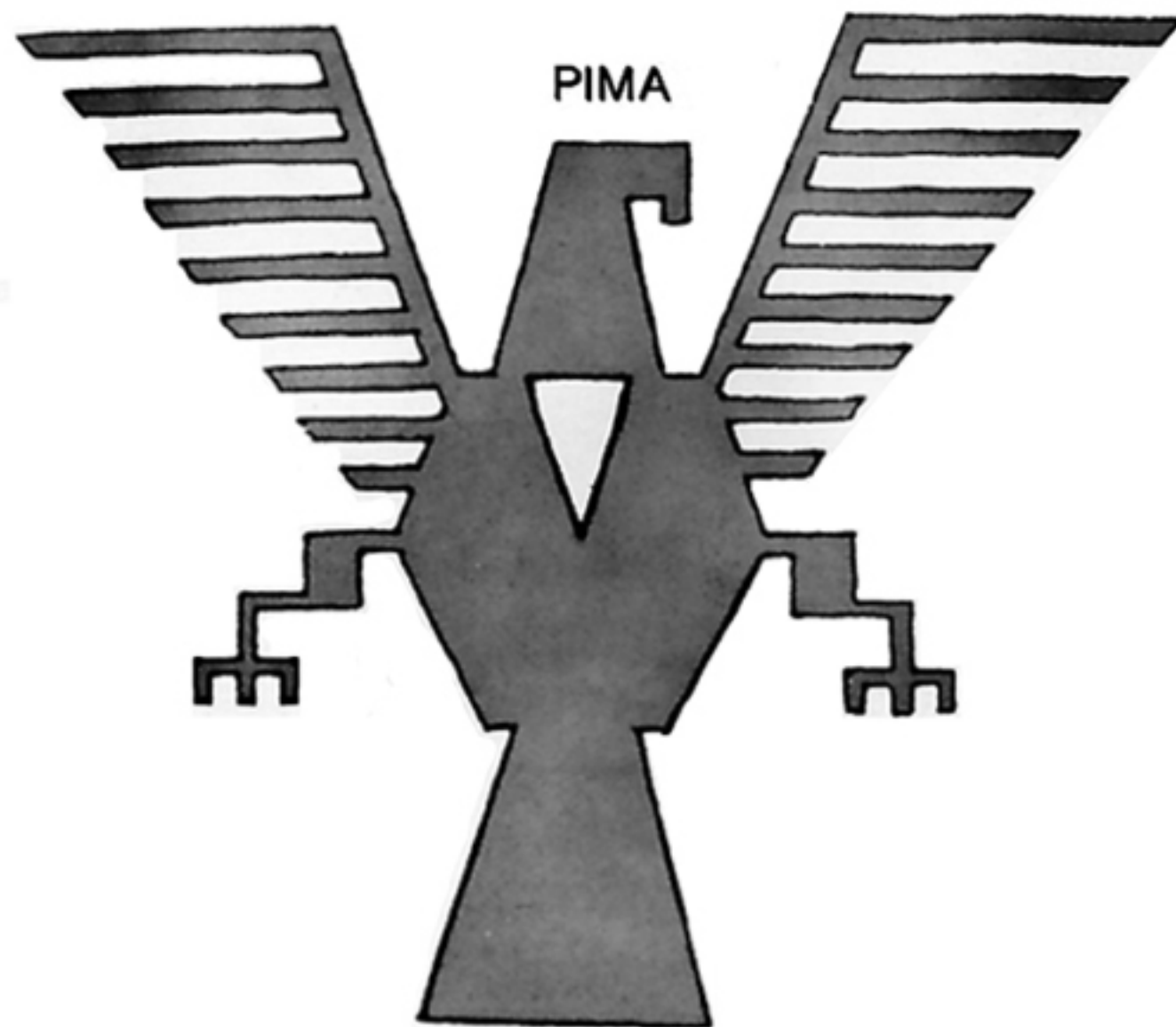
Thunderbird



Squarebirds
.arg

Online T-Bird
Resource

HOW THUNDERBIRD GOT ITS NAME



It has been a common practice of automobile manufacturers since the first gas-powered, four-wheel contraption sputtered to life, to select the names of dieties for them. The list is almost endless, but some of the more prominent ones of the past 70-years spring quickly to mind: Diana, Minerva, Zephyr, Orion and Mercury.

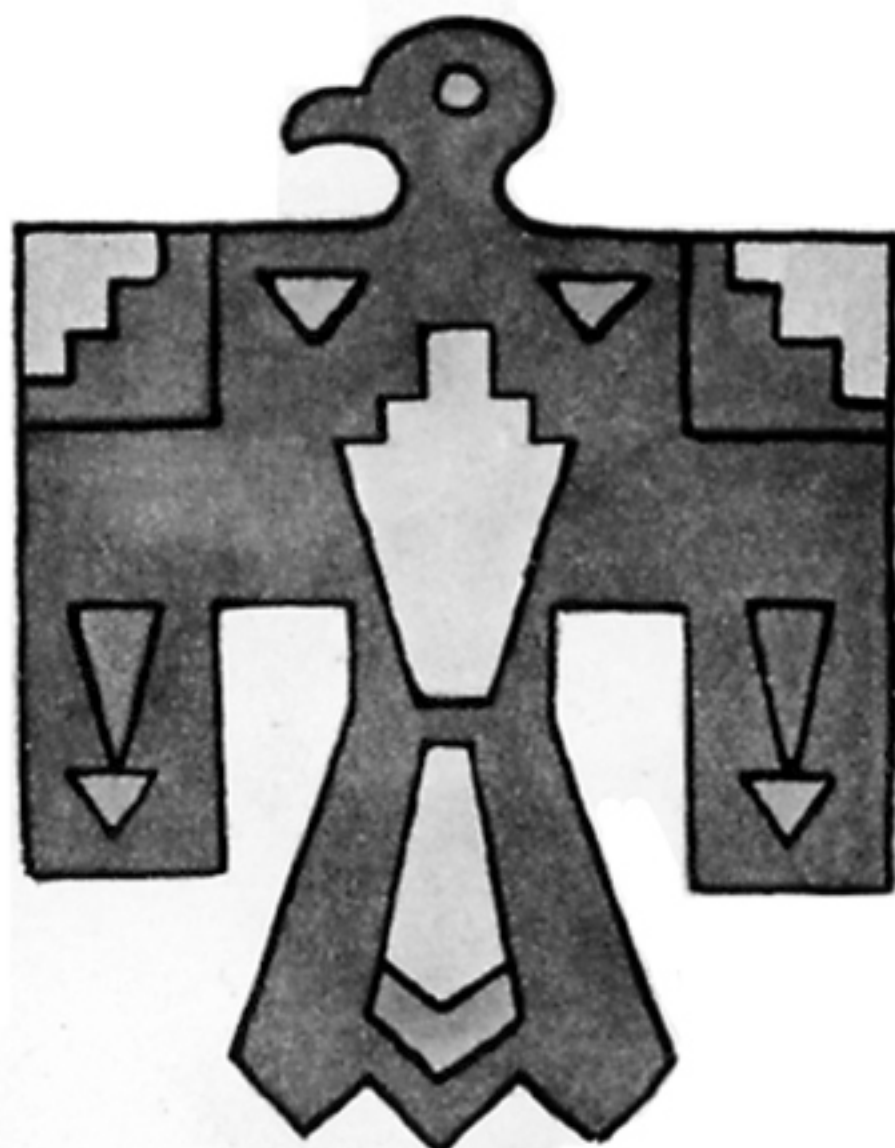
It appears that in most cases this kind of invocation of the Gods has failed to

keep the companies in business. With the exception of Mercury, the others have gone to that great market place in the sky. Not that this has stopped the naming of automobiles after the Gods, it hasn't.

A recent review of World Cars 1974, reveals that the Buick Apollo and Electra are very much with us, as are a score of other names like Silver Shadow and Corniche that have a lyrical ring to them, and improbable names like Wartburg,

(yeek!) ZAZ, Red Flag, Puma, Sunny, Violet and Cherry. But for pure masculine appropriateness, Thunderbird stands out as a classic of christening. The name fits perfectly, everything from the "Early Bird" two-seaters to the opulent 1975 products, but what, many have asked, is it?

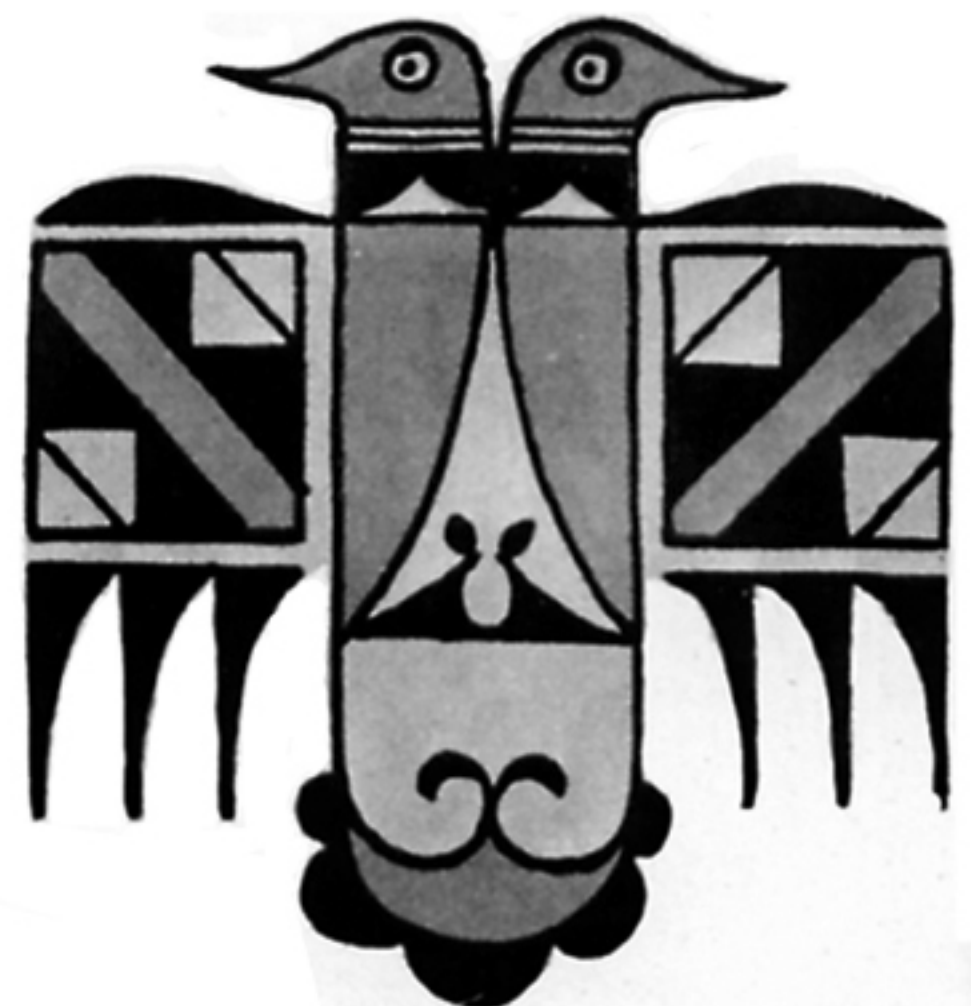
In the past 20 years the word Thunderbird has come to mean a luxury personal car, built by the Ford Motor Company.



PUEBLO



ARAPAHO



ACOMA

but its roots go much deeper than that, and like the automobile builders of old, Ford executives turned to the Gods for inspiration in selecting the name. But instead of going to Mt. Olympus where the previous Greek dieties were found, the Ford people went to the Southwest deserts of Arizona and New Mexico, where according to Indian legend the mighty Thunderbird was said to rule the sky with its great flapping wings that split the heavens with their sound, the clap of thunder.

For a thoroughly American automobile, it was proper and fitting that an original American name be selected. It has always been assumed that the word Thunderbird came from the Americas, but research shows that there is also an Australian bird of that name which is known in scientific terms as *Pachycephala* and is classified with the shrike family.

South American Indians also had a Thunderbird in their mythology which corresponded very closely to the bird known in the Southwest as the spirit behind the thunder and lightning and rain. Archaeologists had long wondered at the delicately carved figures of birds with outstretched wings they found carved on cliffs, on soft stone at sacred spots, and made with loose rocks on the parched, baked playa of remote desert locations.

As they began to study the mysterious symbols of past ages, they learned of the bird's name, and a new piece of the jigsaw puzzle of ancient America started to fall into place.

The Thunderbird meant many things to the inhabitants of the Southwest. It was a symbol of good luck because of his rain making prowess. Old Indian soothsayers, seated in ceremonial caves or in earth

covered hogans, spoke of this divine helper of man with wings invisible to mortal eyes, but whose benevolent attitude toward his earth-bound friends was manifest with his great wings flapping to create winds, and thunder, then water to sustain them in the dry wilderness into which fate had flung them.

Sweeping across the skies, his eyes trained on the needs of those below, the great creature carried arrows of lightning beneath his wings which he threw with his claws at the ground when he was angry, or when there was another message to deliver to his mortal friends.

Only a few of the oldest members of the tribes, usually the Holy Men, were ever given the privilege of seeing the mighty bird gliding above the earth, ever watchful of the goings-on among men, ever ready to help when called up in sacred ceremony. The magic powers of the fabled bird grew with each generation as wise men told of the creature's exploits to the small children, who would in turn pass the stories on to their children through generations of time.

When the Indians had a special place which they regarded as sacred or holy, they very often would carve a Thunderbird close by as a warning and as good luck. It was thought that whoever carved a Thunderbird in stone would add years to his life, or would accomplish some great deed for which his people would benefit. Only certain people were allowed to undertake such tasks, as improper use of a Thunderbird, or a poorly carved one, could drive the bird away from the people — taking their life-giving water with it.

Like another bird of the Southwest Indian legend, the Phoenix whose wings lifted it from the flaming pyre of its own

cremation, the Thunderbird continued to bring water to the thirsty inhabitants of the deserts — long after the whiteman came with his own form of lightning — guns.

When the fields dried up and whitemen helplessly cursed the skies, their Indian counterparts would retreat to their special sanctuary in the mountains and pray to the Thunderbird for relief. Even today, there are old medicine men whose wrinkled faces betray no emotion when they tell of seeing the Thunderbird flash through the skies, but usually only after an all night vigil lashed to a tree in a thunderstorm that made the earth tremble and shake with its fury.

Perhaps it was these images that made Alden R. "Gib" Gilberson, a young stylist at Ford and a native of Arizona, suggest the name Thunderbird in place of those under consideration. Perhaps also Gilberson felt offended by the list of possible choices. For the record, here they are:

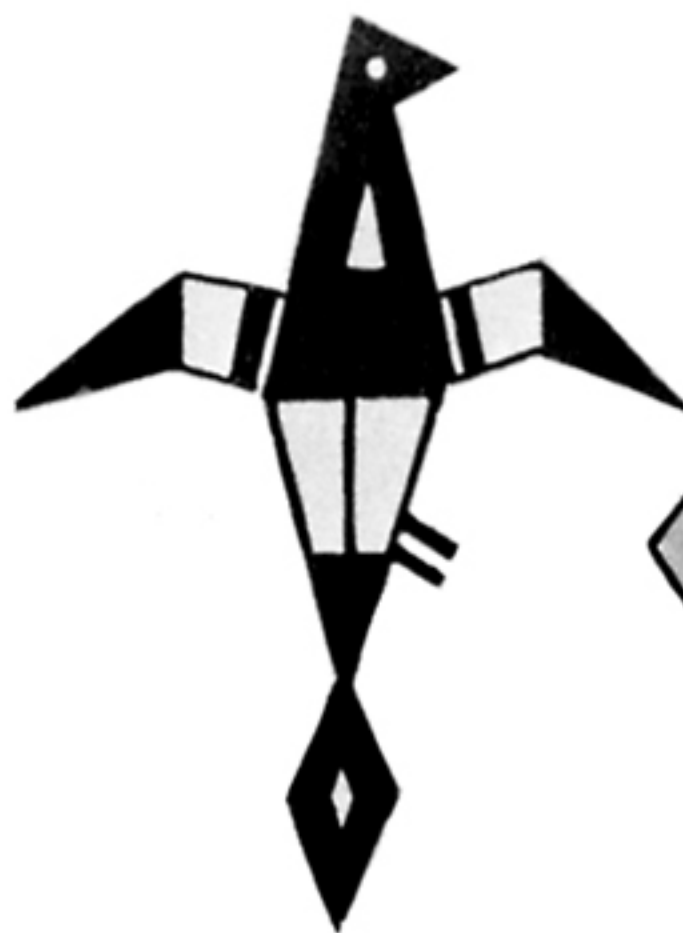
Savile, El Tigre, Coronado, Sportsman, Arcturus, Fairlane, Runabout.

In this corporate name contest, it is interesting to note that General Motors also had this same name under consideration, but had failed to register it; an oversight that Ford lawyers were quick to capitalize on by registering it themselves. The GM "Thunderbird" product was named "Firebird" instead.

More than 20 years after its inception, the mystique of the first Thunderbird is still with us, a mystique that has created a legend of its own — far removed from the mystical Indian legend from which it took its name; but each of the Thunderbirds in its own way is an American original, unduplicated anywhere else on earth.



NORTHWEST



SOUTHWEST



OJIBWA



1966 Thunderbird

Eleven years after introduction, the Thunderbird had become a world famous symbol of status, luxury and success. Little remained of the clean, fresh look it had worn for the first three years of its existence, but if many people missed the little two-passenger "early birds," it wasn't apparent in the sales figures for that year.

The body used in the 1966 cars had been introduced in 1964, so a styling update was called for. Little was done to the already crowded passenger compartment, which has enough gauges, dials and switches to make an airline pilot blanche. Weighing over 4,500-pounds, the car packs plenty of weight on its short 113-inch wheelbase — and a few customers complained about the somewhat sluggish performance and handling — but the 1966 Thunderbird really didn't handle badly at all.

It could slip over the century mark, but barely, turning in an honest 105 mph in a two-way average. Still, that was ample performance in the mid-1960's, and it is exactly 50 mph faster than one is allowed to drive today. The weight factor, which held the speed down, offered an advantage of great importance in cross-winds.

Even at speeds upwards of 80 mph, the car held the road with a rock-steady stance, and we rated the car excellent in directional stability. Brake fade was rapidly apparent when the car was brought to a stop several times in a row from 50 mph, and the weight certainly accounted for most of this, but under normal driving conditions, the brakes pulled the car to a quick stop without effort.

Gas mileage on the road was reckoned to

be around 14 mpg, but around town and in traffic, it dropped to a little over 8 mpg. In 1966, gas mileage wasn't anything to worry about — but today, it is a serious consideration with fuel at 58.9 a gallon in certain parts of Southern California.

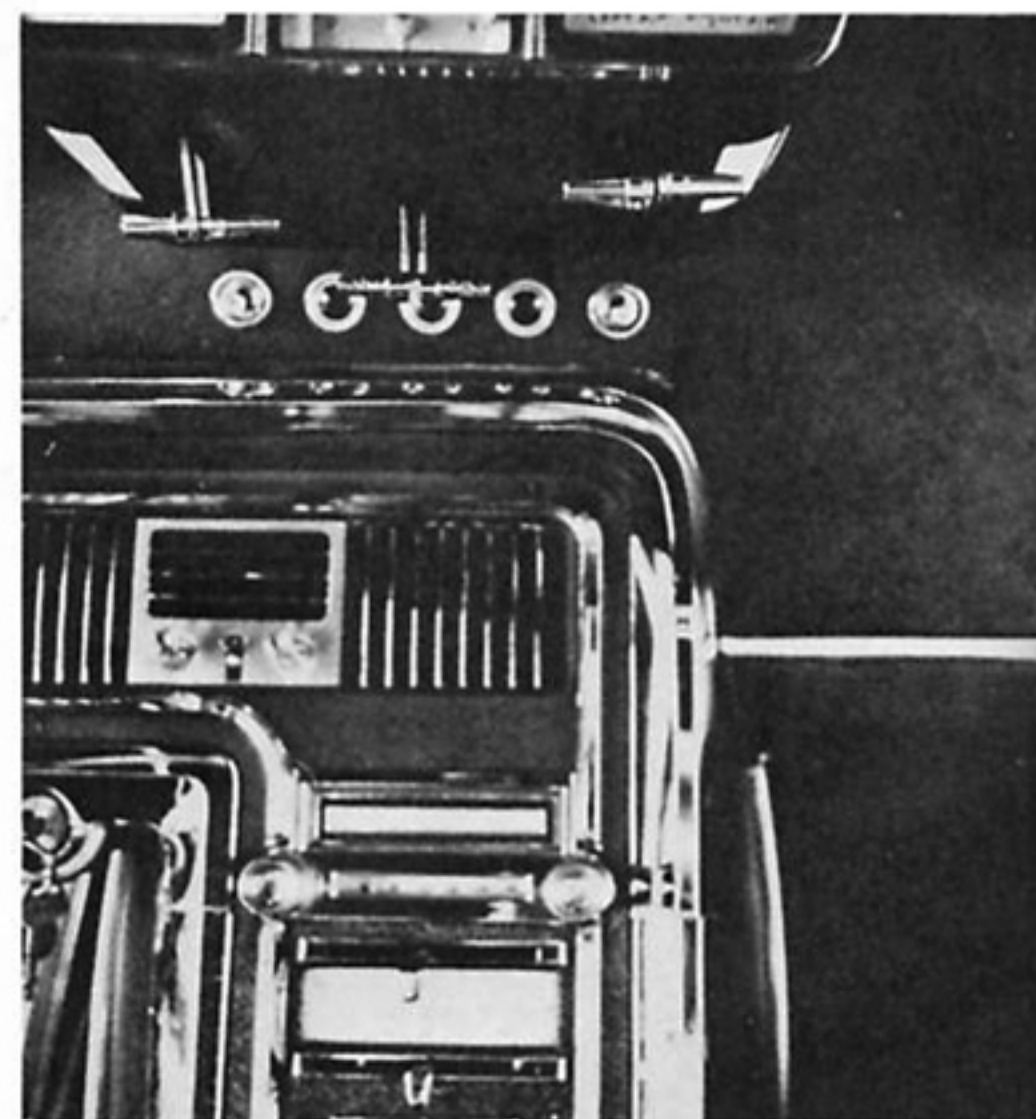
One of the innovations that Ford introduced in the Thunderbird was a full-length air vent under the back window that changed the air every few seconds when traveling at 50 mph. The car shown in these photos is a convertible, so it didn't have the vent — but with the electric rag top, it wouldn't have been really necessary.

We gave the electric top high points. Many of the parts used in it were developed for the retractable hardtop of the 1957-59 era and at the time of our test were still giving good service. Once in a while a relay switch goes out and this will cause problems, but nothing is perfect, not even Thunderbird!

The rear seat, sometimes referred to as a "lounge," is comfortable as well as easy to reach, but leg room becomes scarce if the front seats are slid backwards to make more leg room for the driver or front passenger.

Even though our test car was eight years old, it was still being used for everyday transportation by the owner, who incidentally has three Thunderbirds ranging from a 1955 to a 1972 model. The normal body squeaks that convertibles seem to have were non-existent — but we have noticed squeaks and even rattles on earlier models of Thunderbird.

We decided that the reason the car didn't have the usual old-age creaks and groans



CONTROL PANEL — The driver had all the instruments necessary for driving and operating the luxury options at his finger tip.

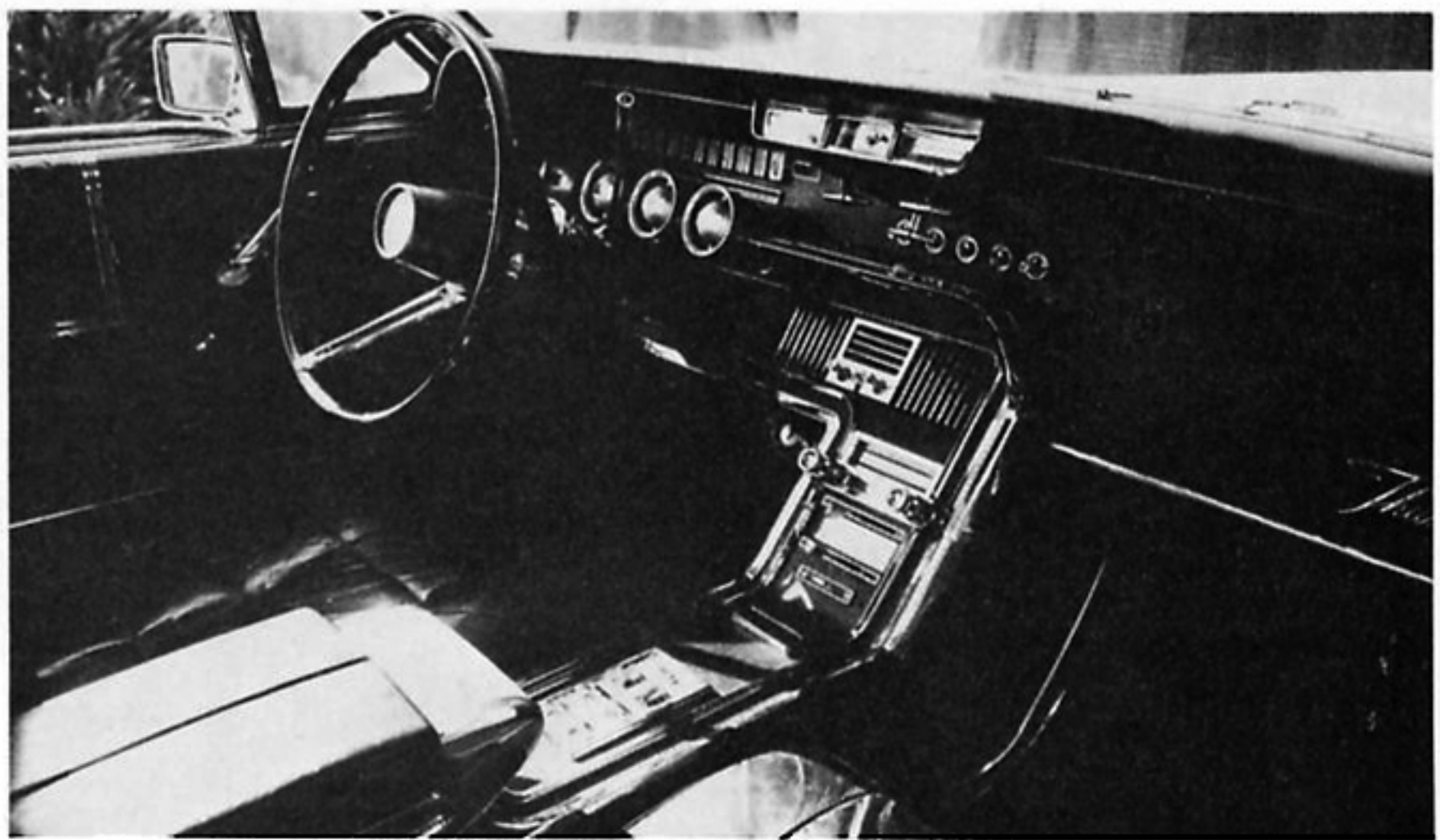
was the fact that it used a unitized body with reinforced side rails and crossmembers instead of a separate body and frame.

Overall, even though the 1966 Thunderbird no longer thundered and roared, it was still a fine road car, and the excess weight it had gained over the years since 1955 seems to have been pretty well distributed. Because large numbers of these cars are now turning up in the hands of collectors, we predict they will become another segment of the collecting syndrome that affects those dedicated people who like Thunderbirds above all other cars — no matter what year they are.

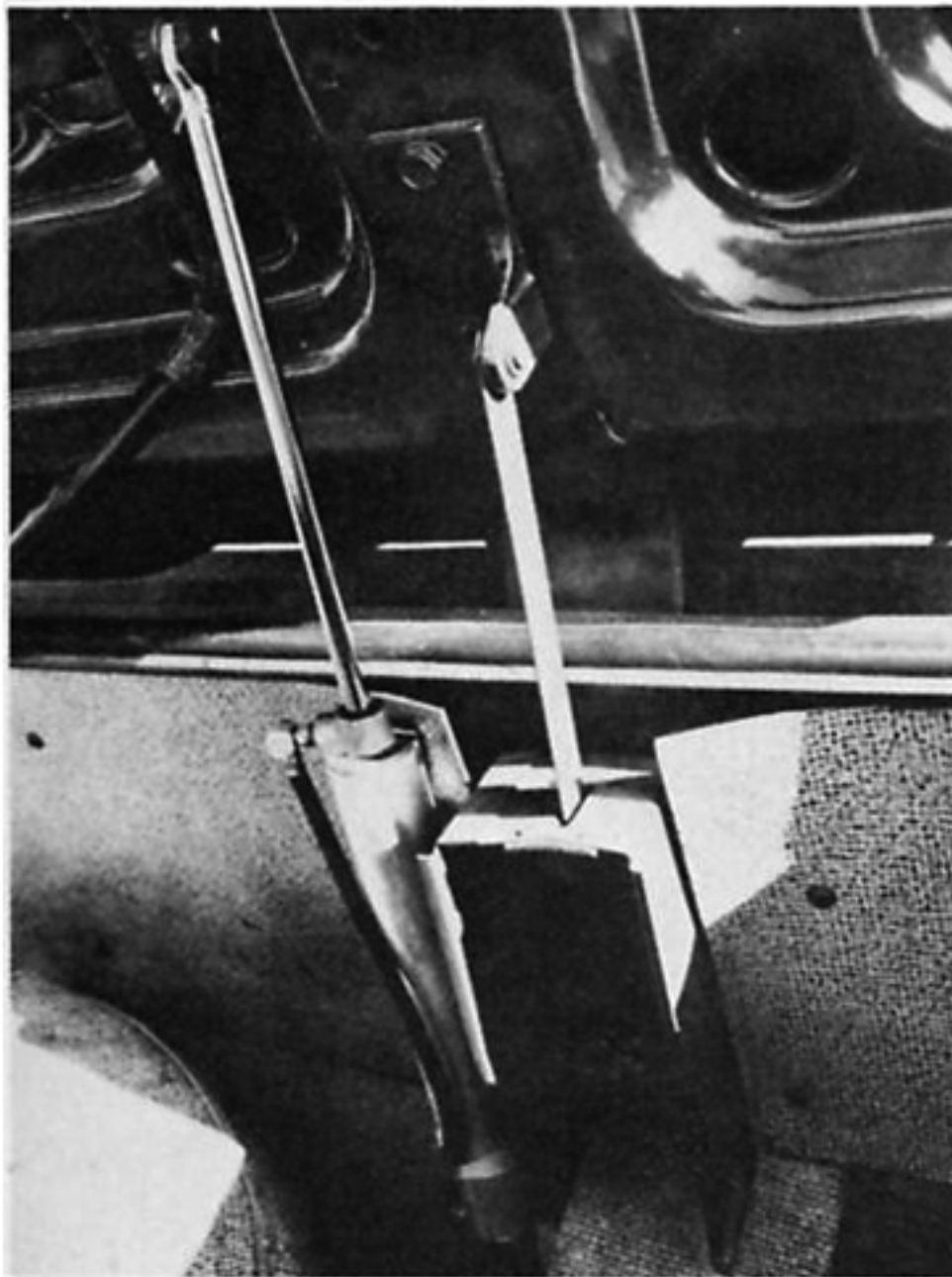
This is one Thunderbird that still has a lot to offer in its old age.



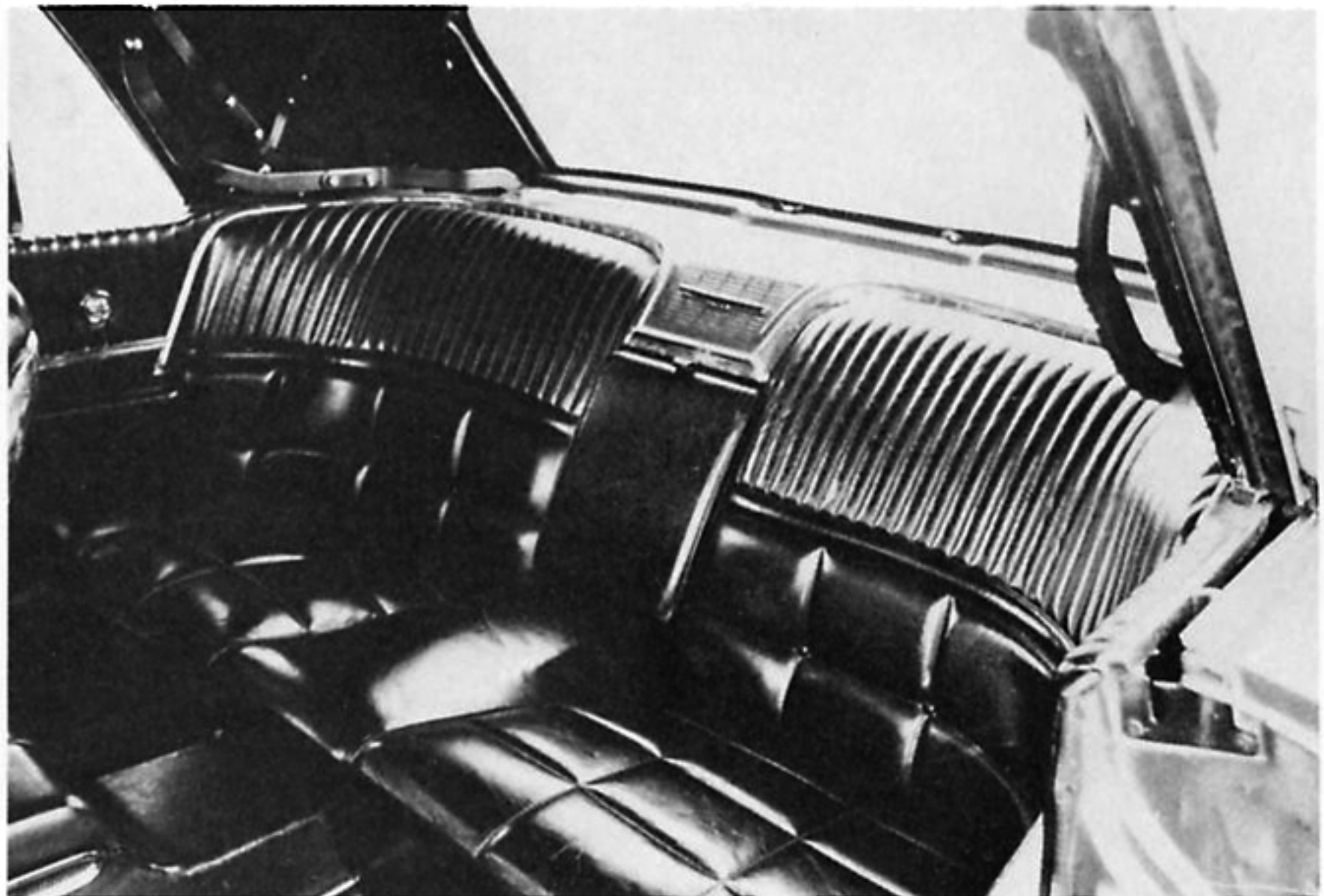
THUNDERBIRD LOOK — The driver could look back on traffic with this special Thunderbird mirror.



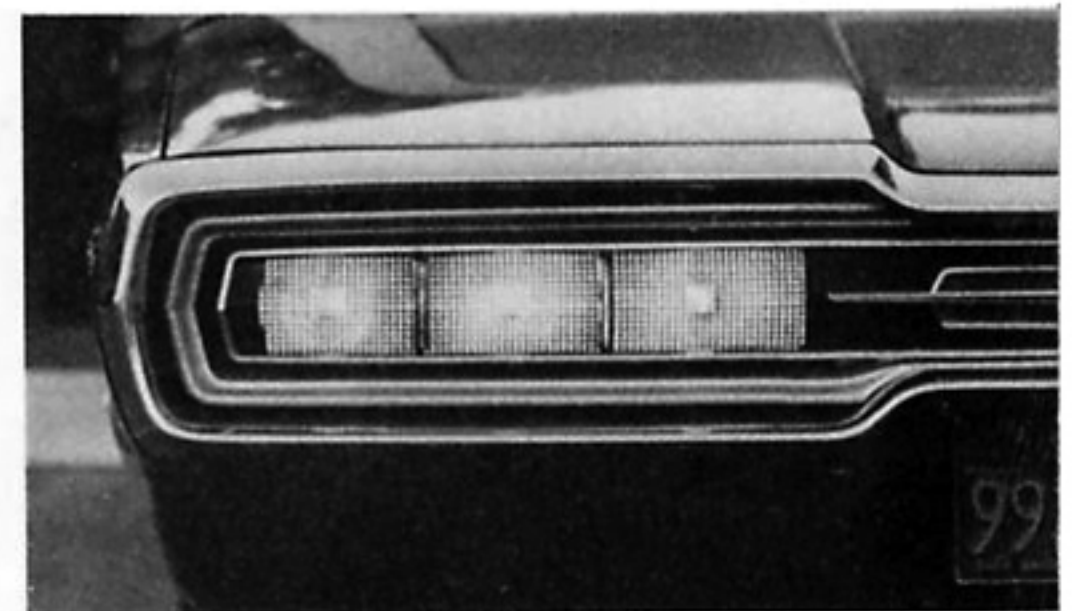
PASSENGER VIEW — The cockpit of the 1966 car looks like this when viewed from the passenger side.



HYDRAULIC RAMS — The rear deck and parts of the top are operated by hydraulic rams such as these.



REAR SEAT — The pleated leather seats and chrome trim divider can be seen.



FAMOUS LIGHTS — As can be seen in this sequence of flashing tail light photos, the 1966 Thunderbird had one of the most distinctive turn signals ever devised for an automobile. This same bank of lights also doubled as brake and tail lights.

HARD CORNER — The Thunderbird Illustrated team tries the car out in a hard corner.

1962 THUNDERBIRD ROADSTER

The Thunderbird Roadster was a rare edition of the personal car concept.

When it first appeared, the 1962 Thunderbird offered more than 100 engineering improvements and offered the now rare and desirable two-seat Sports Roadster. Another exciting car for 1962 was the Landau model with a full vinyl-covered hardtop, but for sheer excitement and drama, it was the 1962 Sports Roadster that stole the show.

The distinguishing feature of the car was a molded fiberglass tonneau cover with padded head rests which transformed the four-seat standard convertible into a two-seat automobile, closely akin, in theory anyway, to the original two-passenger Thunderbirds of 1955-57.

The special features of the Roadster, other than the tonneau cover, were manifold, but in some cases they were hard to identify unless you knew what to look for. Among the outstanding things were the chrome wire wheels with simulated "knock-off" hub caps.

An optional feature, but one that quickly caught on, was the narrow whitewall tire. This was first introduced in 1961 in limited numbers by the tire industry in an effort to cut down the costs of the dated wide whitewalls. A special emblem, placed on the front fenders just below the "Thunderbird" name script, was another feature of the Roadster.

This same emblem was also mounted on the tonneau cover extension between the front and back seats. The emblem was graceful and distinctive, a gull-wing bird superimposed on a red, white and blue crest. An assist bar was also placed on the far right of the dash "... for the comfort," the factory told patrons "... of the passenger during cornering." Obviously somebody at the Ford Motor Company expected people to put this car through its paces — and most owners took them at their word.

The interiors of the 1962 models as a whole were completely new over the 1961 line. One feature that was a holdover from the previous year was the extra-wide doors. The 1955-57 Thunderbird had used doors over three-feet wide, but this was increased with the introduction of the 1961-63 models to a width of more than four-feet — a feature appreciated by passengers who got in and out of the car in formal evening dress or who used the back seat frequently.

The individual bucket seats of the previous season were retained and refined; the front seats were divided by an attractive and useful console, and in back were simulated bucket-type divided seats. The controls for the temperature and optional air condition-

ing were moved to the center console for better accessibility and convenience for the passengers as well as the driver.

The rayon carpeting was improved for better wear and longer life by the addition of nylon, and the front compartment heel pads were made of sturdy vinyl, rather than rubber, to stand up under hard use much longer.

The unique swing-away steering wheel, which was ordered by nearly 77 per cent of all Thunderbird owners when it was made available on the 1961 model, was standard equipment for 1962.

Improvements in lighting and instrument pointer visibility also added convenience and safety to the 1962 Thunderbird.

Engineering improvements under the hood and body of the new Thunderbird gave it better riding characteristics than any previous Thunderbird.

The unitized body was double-protected against rust and corrosion since the underbody and superstructure were fabricated from zinc-clad stock, and the body was dipped in a zinc-rich bath after assembly. The Thunderbird then received three primer coats of paint followed by two finish coats of hard, durable enamel that needed little waxing. A heavy undercoating gave the Thunderbird its third layer of protection against water, slush and salt, an exclusive quality feature in the Thunderbird's price class.

The Thunderbird's durable aluminized muffler was also improved in 1962. All critical parts, including resonators, were made of stainless steel for longer life.

Even better in 1962 was the Thunderbird's renowned short-stroke, low-friction, 390-cubic-inch engine. Its advanced induction system featured an easy-breathing intake manifold which gave the car exceptionally flexible performance.

A new, 30,000 mile disposable fuel filter stopped water and foreign particles from entering the engine while the new four-barrel carburetor incorporated some 15 improvements over 1961, providing greater smoothness at idle or for fast passing spurts or turnpike cruising.

With the engine's full-flow oil filter and the elimination of the crossover valve, oil change intervals were extended from 4,000 to 6,000 miles — an economy we would appreciate today.

New factory-installed long-life coolant eliminated the need for regular fall and spring cooling system changes, and anti-freeze needed changing only once every

two years or 30,000 miles. The engine was protected to 35 degrees below zero — an ample safety margin.

Brake improvements also added to the car's over-all quality excellence in 1962. A new, larger master cylinder reduced pedal effort, yet increased braking power, and a new type of lining — more durable and highly fade-resistant — was found to recover faster for smooth, sure braking.

Another feature that helped make the 1962 Thunderbird the finest ever produced up to that time was the car's improved sound insulation. Some 45 pounds of sound-deadening materials — sheet aluminum insulation, thick fiber and mastic felt, undercoating and fiberglass — were added under the Thunderbird's hood and to wheelhouses, dash, instrument panel, passenger and trunk floors, roof panels and rails, package tray and quarter panels.

The 1962 Thunderbird had a wide range of standard equipment that was optional on most other cars, including the 390-cubic-inch engine, dual range automatic transmission, power steering, power brakes, back-up lights, undercoating, padded instrument panel and sun visors, electric windshield wipers and interior courtesy lights.

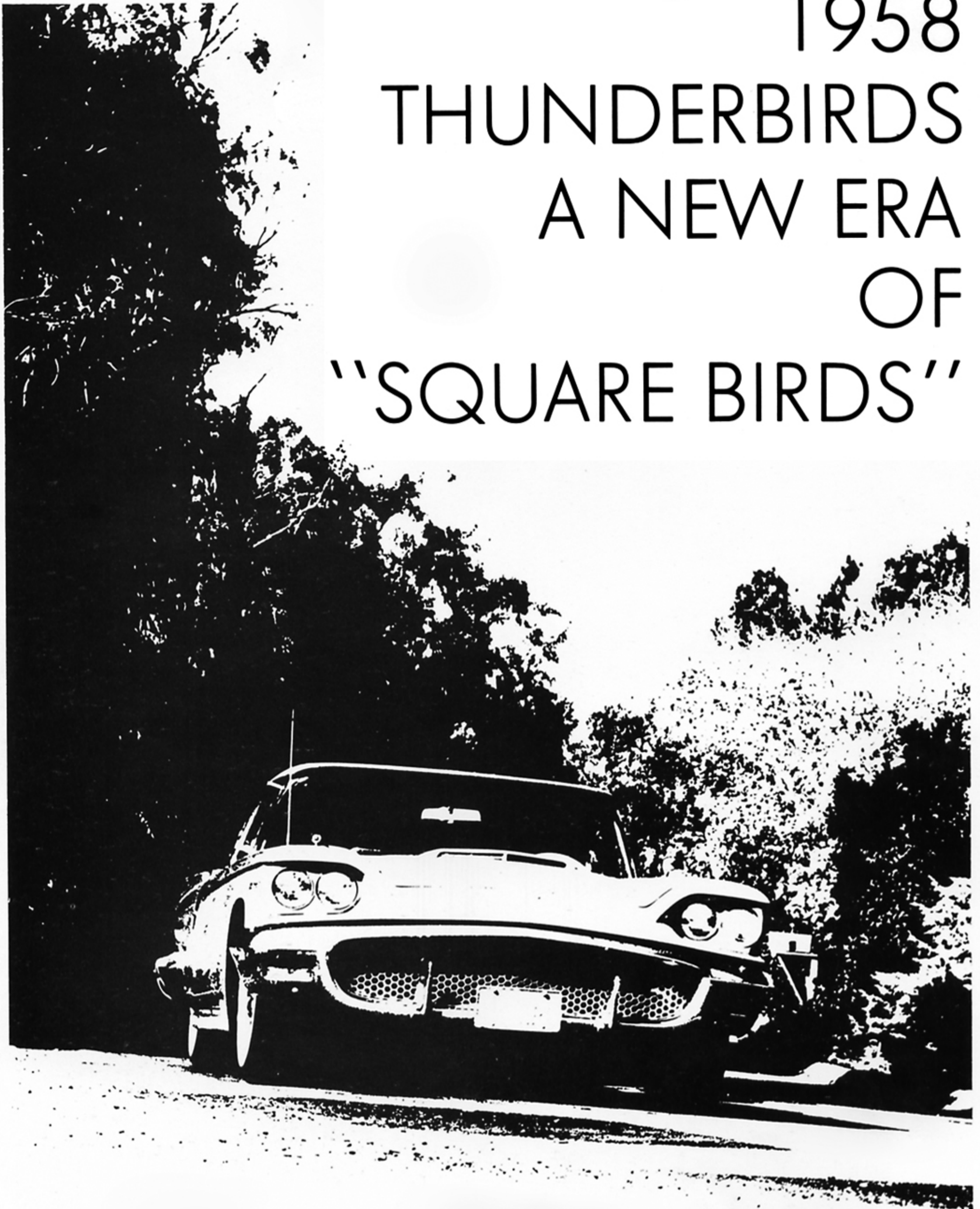
The interior harmonized in a flow of color from the instrument panel to the doors, seats, floor and console. Seven basic colors were available: blue, turquoise, beige, black, red, silver mink, and chestnut.

Seat cushions, inserts and bolsters were offered in seven all-vinyl combinations, five vinyl and bedford cord fabrics and seven all-leather materials.

The exterior enamel finishes, designed to last longer and stay brighter, were available in 18 colors.

Even though the Roadster has faded from the scene, its memory lingers on in the hearts of collectors who feel it was a car worth preserving. We do, too.

1958 THUNDERBIRDS A NEW ERA OF "SQUARE BIRDS"



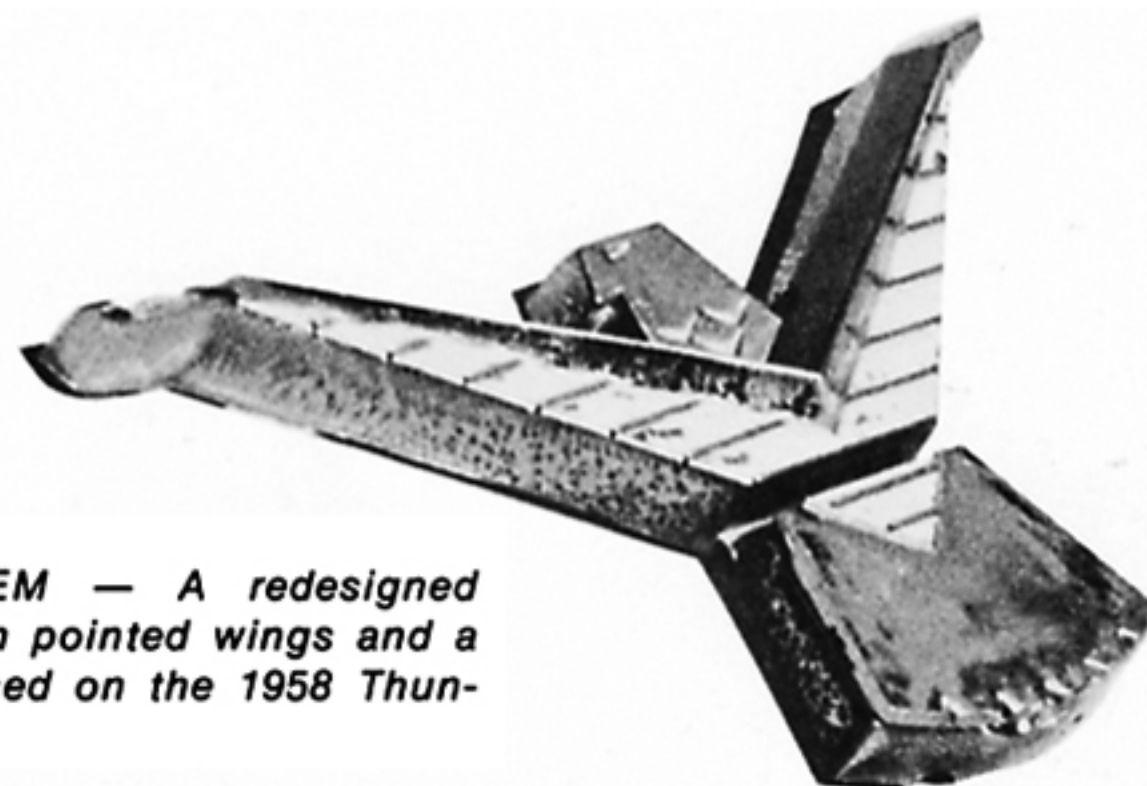
Totally new, totally unlike the previous Thunderbirds —
the 1958-60 cars are in a class by themselves

There were four periods in the history of the Ford Motor Company when new products excited interest far beyond the normal public concern over the introduction of a new car. The first period came when Henry Ford decided to stop production on the famous Model "T" and bring out the Model "A." For this, the factory was shut down almost a year for the changeover.

In 1932, when Ford decided to drop the Model "A" and bring out the improved V-8 engine, there was another period of intense public interest, and many journals who hardly mentioned an automobile in any context gave full-page stories to their speculations about the new power plant and the car it would be installed in.

Aside from the excitement of the immediate post-war era when any new automobile was something to get excited about and Ford tacked a few chrome trimmings on the 1942 models, offering them as 1946 products, the next period of public excitement came in 1955, with the Thunderbird's introduction, and the fourth in 1958 with the introduction of the four-passenger Thunderbird as a replacement for the 1955-57 models.

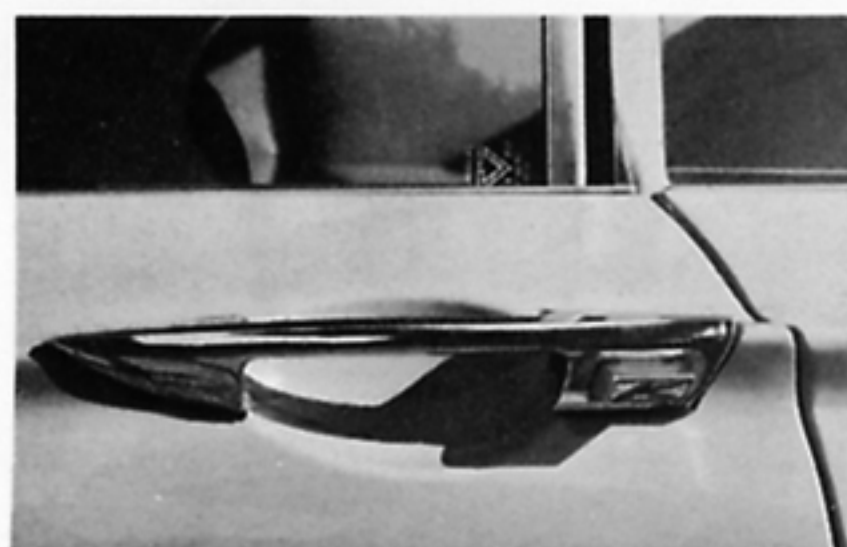
Few cars have galvanized public attention as the 1958 Thunderbird did. It was such a dramatic departure from the smaller, classic Thunderbird that it was hard to tell the two cars were even from the same factory. From a commercial standpoint, the "square birds" were a success. They outsold any previous Thunderbird, and established Ford once and for all in the luxury car market.



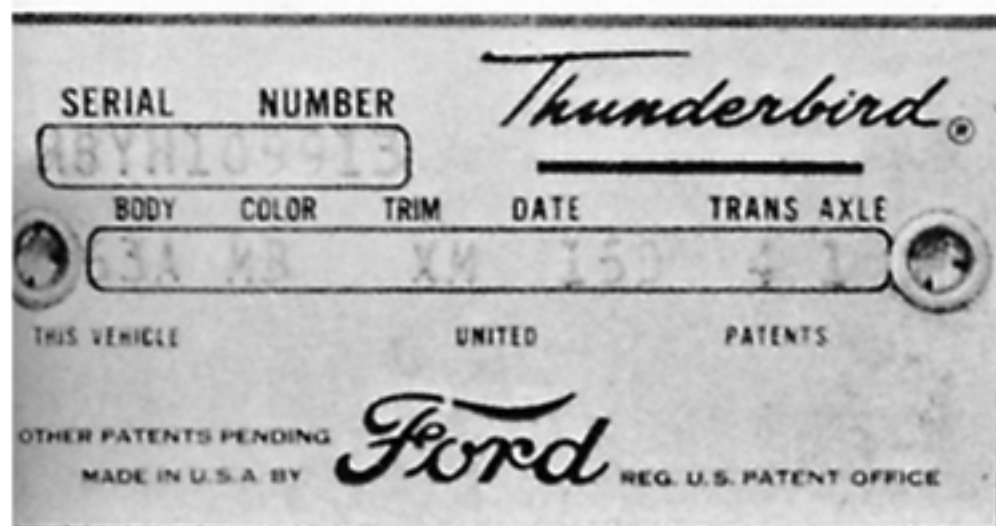
FAMOUS EMBLEM — A redesigned emblem with high pointed wings and a broad tail was used on the 1958 Thunderbird.



SCULPTURED STYLING — The deep sculptured rear styling of the rear deck is punctuated with the Thunderbird emblem.



HANDSOME HANDLE — The door handle is sculptured to fit the hand, as a part of the car's overall styling.



BODY I.D. — The body identification plate is located on the left hand side of the car, inside the door jamb next to the hinges.

The Mark II Lincoln Continental had been a step in that direction, but it wasn't the kind of luxury car the public seemed to be seeking. Whether it was the 10,000 dollar price tag, or the styling, or a multitude of other factors, the Mark II didn't start a stampede of customers rushing for the nearest showroom — but the 1958 Thunderbird *did*.

Just as magazines do today, *Motor Trend* gave their award, "Car of the Year," (read, "advertiser") to the 1958 Thunderbird. Other publications quickly jumped on the bandwagon, (or were already on it because of the heavy ad



EXTRA LARGE — The tail lights are massive and, some have said, overpowering. They are not easily forgotten.

schedule Ford was running to push the new car) and a flurry of articles appeared in *Sports Illustrated*, *Popular Mechanics*, *Collier's*, and scores of newspapers, touting the automobile. Much of the praise was sincere, but a lot of it was written with one eye on the advertising insertion orders and the other on the automobile report.

Be that as it may, *Motor Trend* could only give one "Car of the Year" award, and the 1958 Thunderbird got it, so it was notable. A plaque was given to the Ford Motor Company by Petersen Publishing, owners of *Motor Trend*, which read:

"Presented annually to the United States manufacturer making the most significant engineering advancement.

To Ford Division for the overall concept of the 1958 Thunderbird, a car that combines safety with performance and comfort with compactness."

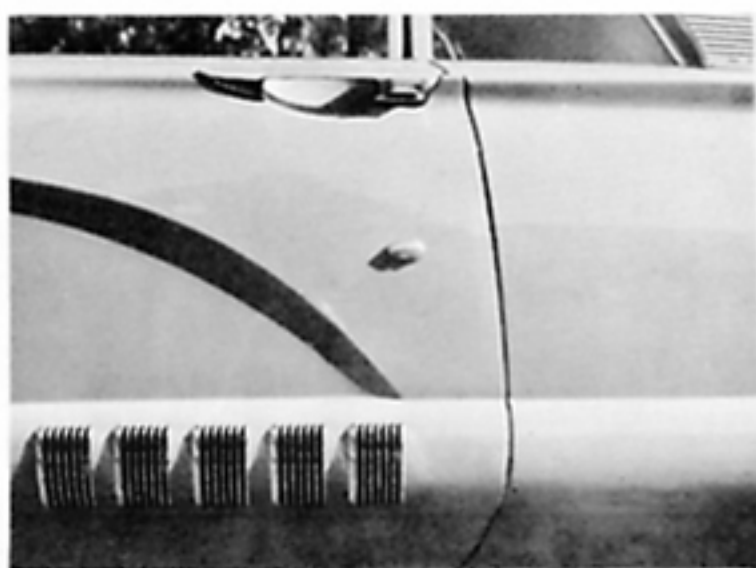
So much for the plaudits of automobile journals.

The car was a sensation at the annual introduction of new products to the major stockholders; the meeting was completely disrupted by its presence. Hardly any of the assembled guests looked at the other Ford cars on display, so much attention was devoted to the new car. Then, after four years had passed, the automobile started to look "dated," and it wasn't as popular as it had been previously. The 1958-60 Thunderbirds seemed to go into an eclipse, and it wasn't until five years ago that people began to take a second look at them, and serious attention was given to them as collector cars.

Looking back on the "square bird" from the vantage point of 17 years, it is possible to make some assessments of it, and there is enough of a body of knowledge accumulated by enthusiasts and others to properly evaluate the car and its place in the world of automobiles when it appeared almost two decades ago.

First of all, let's look at the Ford Motor Company line for 1958. That was the year of Edsel, (remember *that* ill-fated car?) and a lot of the company attention was focused on getting that vehicle 'sold' to the public. It was also the second year, but a disappointing one, for the new retractable hardtop Ford, and worst of all, it was a year of Robert McNamara's re-styled product line — a line of cars that had looked good in 1957 but suffered considerably from the 'face lift' of 1958.

The reasoning behind the extensive face lift went back to 1956. The cars for 1956 were little changed from the popular 1955 cars, and a quick decline in sales was noted. Hoping to avoid a repetition of this by offering a 'new' line of automobiles, the 1958 mishmash



DOOR TRIM — Doors on the Thunderbird are replete with deep sculpturing and chrome trim.



METAL SCULPTURE — The front end is a complex and ornate composite of compound curves and bends, with heavy chrome bumpers.

resulted. McNamara later went on into government under Presidents Kennedy and Johnson as Secretary of Defense.

In 1958, Lincoln was also trying to dominate the 'big car' market with the biggest automobile anyone could remember. The lumbering, super-long 1958 Lincoln certainly attracted plenty of attention, if few buyers. The Mercury automobiles were likewise changed, and it was hoped they would expand their foothold in the mid-size market.

Shuffled into all this was the 1958 Thunderbird. No wonder it looked so good to so many new car buyers! What exactly was different about the bigger, and some said, better, Thunderbird? First of all, there was SIZE. The original Thunderbird had been mounted on a 102-inch wheelbase. That was now pushed out to 113 inches. The engine size was enlarged from 292 cubic inches to 352 cubic inches, and the horsepower was also boosted. The 193 horsepower of the 1955 cars was punched up to nearly 300 in 1958 to shove the larger car around without apparent effort.

The car was also, well, 'square,' front to rear. It was, in fact, a totally 'square' concept in automobile styling, with a few concessions to rounded corners fore and aft. The most arresting feature of the new Thunderbird was the rear tail lights. They were giant-sized metal pods full of plastic lamp housings.

The familiar 'ears' of the 1957 Thunderbirds were there, but in place of two neatly-placed tail lights on the 1957 vehicles, the car now had *four* full-sized tail lights. Across the bottom was a



BULLS-EYE — Ornaments were common on the fenders of 1958 Ford products.



CUT-OUT — The rear seat cushions are cut out to match the sculpture styling of the rear deck.

massive bumper which formed part of the design, and the grooved rear deck lid completed the sheet metal surrounding the rear lamps.

From the rear, no one could mistake the 1958 Thunderbird for any other car! The car was still low, even by the previous standards of the 'early birds.' Overall height was 52.5 inches, which still gave the car a low-slung appearance. Another major departure from the 1955-57 line was the use of unitized construction in the body instead of the more familiar chassis and body combination.

This was a definite advantage, since it reduced the noise level in the passenger compartment and eliminated many of the squeaks and rattles the chassis/body combination is prone to develop.

Some people think, and they are probably right, the 1958 Thunderbird was intended to be a mini-Continental, and it certainly came close. When one considers the room inside for passengers, the extra-long trunk space, and the heavier weight, the vehicle balanced out as a big improvement in the luxury department, but some of the things people had come to expect in a Thunderbird were missing. The handsome (and handy) tachometer was gone, as were the adjustable steering wheel and the combination of soft and hard tops.

For 1958, Thunderbird offered either a convertible or a hardtop, but not both in the same car. Goodbye, also, to the semi-sports car ride of the little Thunderbird. When one stepped into the 1958 car, one stepped into a family sedan —



DEEP-DISH — The steering wheel of the car is deep-dish, surrounded by chrome window trim and a lush interior of fancy fabrics.

of smaller dimensions than the regular Ford line — but a sedan nonetheless. Cornering was pretty dismal when compared to the earlier cars.

Another disadvantage was the small amount of leg room in the back. An awful lot of sheet metal was bolted and welded around the passenger cabin, but, for some reason, the people who were going to ride in the car were more or less forgotten in the rush to slap in a big engine and more trunk space (which was needed) along with four headlights and four tail lamps.

To squeeze more 'soup' out of the engine, the compression ratio was punched up to 10.1, and a larger four-barrel carburetor was bolted on. This was helped along with dual exhausts and the previously mentioned 352 cubic inch mill. Another advantage of the 1958 Thunderbird, which has completely vanished today, was the optional manual three-speed with automatic fourth gear (overdrive). One other option, but one that few people bought, was the three-speed manual transmission — these are rare collectors' cars today, incidentally.

Most of the 1958 Thunderbirds were delivered with the dependable, if unexciting, Fordomatic Drive. The car was small, but at 205.4 inches long, it wasn't that small. Other options were seat

belts, air conditioning, deluxe wheel-covers, windshield washers, four-way seat, and those famous 'gunsight front fender ornaments' that seemed to be so popular in 1958 on all Ford products.

One advantage of the Thunderbird was access to the seats. The doors were wide enough to bridge a small stream, and this allowed rear-seat passengers a fighting chance to get in and out without having to see a chiropractic clinic afterward.

Cost of all this new luxury and size was considerable. The factory said (none too loudly) that the car could be purchased for a figure near \$4,000, but it was a rare customer indeed who got out the dealer's door for that price. A much more accurate figure was \$5,200.

For all its beefed-up power, the 1958 car wasn't too terrifying in the upper speed ranges. Several were tested by leading automobile journalists; one of these, Tom McCahill, claimed that he got 102 miles per hour out of one at Daytona. This same writer also claimed that he was able to wring 127 miles per hour from a 1955 Thunderbird. We will let our readers draw their own conclusions about the performance of the Thunderbird in the upper ranges and the claims made for it by McCahill and others.

We tested three Thunderbirds, all of which were original cars, none of which had been overhauled. Here are the average speeds we tallied up after going against the clock. The best time in the 0-30 range was 5.1 seconds. The zero-to-60 speed range was just a bit under 11 seconds. The 40-60 range was much better. Here we recorded a 5.3 time, very healthy indeed for passing!

For the salon photography in this issue, we selected the 1958 Thunderbird owned by Dr. Lloyd Budwig, D.D.S., whose car is original and in excellent shape, as can be seen from the accompanying pictures. The doctor is also the first subscriber to *Thunderbird Illustrated*, and holds copy number one in his collection. He reports excellent service from his car, and uses it for quite a bit of everyday driving.

Like most other 1958 Thunderbird owners, he reports a fairly heavy gas bill, which wouldn't have bothered anyone in 1958 when gas could still be purchased for somewhere around 26.9 cents per gallon. Today, with gas prices hovering around 55 to 60 cents a gallon, even in California where they refine the stuff, the mileage of a 'square bird' is nothing to write home about.

The gamble that Ford management took in dropping the smaller, very successful Thunderbird in favor of the larger, bulkier automobile was vindicated in the sales records. They continued to build more and more Thunderbirds (each one bigger than previous models) until they reached the one million mark in 1972 — a sales figure a country mile ahead of Corvette, which stuck to the two-passenger

concept of a sports-luxury car.

Unitized construction was also another plus, although it resulted in plenty of 1958-60 Thunderbirds going to the scrap heap before their time because of the expense involved in fixing a seriously damaged unitized-construction car over a chassis/body unit.

The unitized construction of Thunderbird was also a forerunner of this type of construction throughout the industry. It can be said with complete truthfulness that the 1958-60 Thunderbirds were watershed vehicles in many ways for the Ford Motor Company in general and Thunderbird in particular.

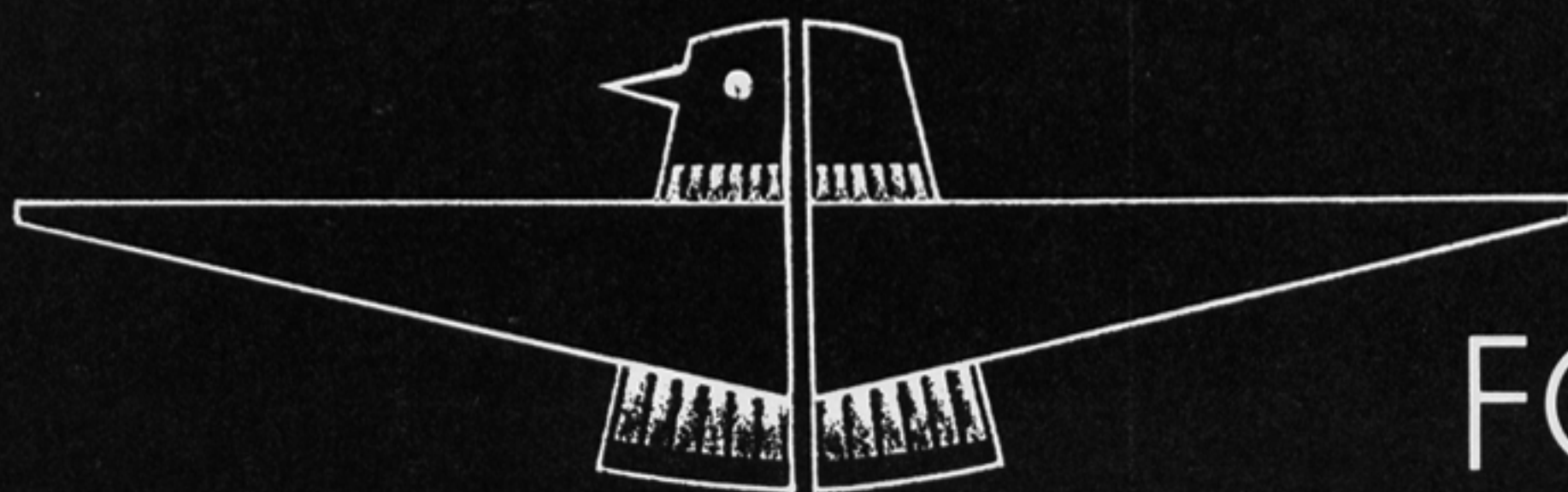
After years of neglect as a collector's car, these vehicles are now being sought by collectors, and, in time, will become as popular among certain enthusiasts as the 'early birds' are now. There's good news for those collectors. There will be more of the 'square birds' to collect than there are of the two-passenger cars! The abundance of this era Thunderbird will also mean that these cars will not be as expensive as the 1955-57 cars, so more people will probably enter the hobby via this route than have ever entered it before.

We might also go out on a limb and predict that in time, (say about five years) 'square birds' will have a club larger than the 'early bird' club. Another trend that we feel is coming is a rush to get the convertible models of the 1958-60 cars, and the very rare, and now desirable, sunroof cars. Less than 200 of these were made in 1960, so that gives collectors something to shoot for.

They will become so valuable to interested parties that they will be counterfeited — the same way that 1960 Edsel convertibles are being counterfeited right now. These collector cars have reached the rarefied atmosphere of \$4,500-5,000 — prices that make it worthwhile to construct one from a 1960 Ford convertible that is fairly easy to obtain. The sunroof in a hardtop would be much easier to install than all the rear deck pieces and Edsel trim on a convertible, and only the serial numbers would trip up a scheme of this nature. So, a word to the wise. If you want to get on the ground floor of a coming collector's car, get the 1960 Thunderbird sunroof, but get a *real* one, not a homemade model!

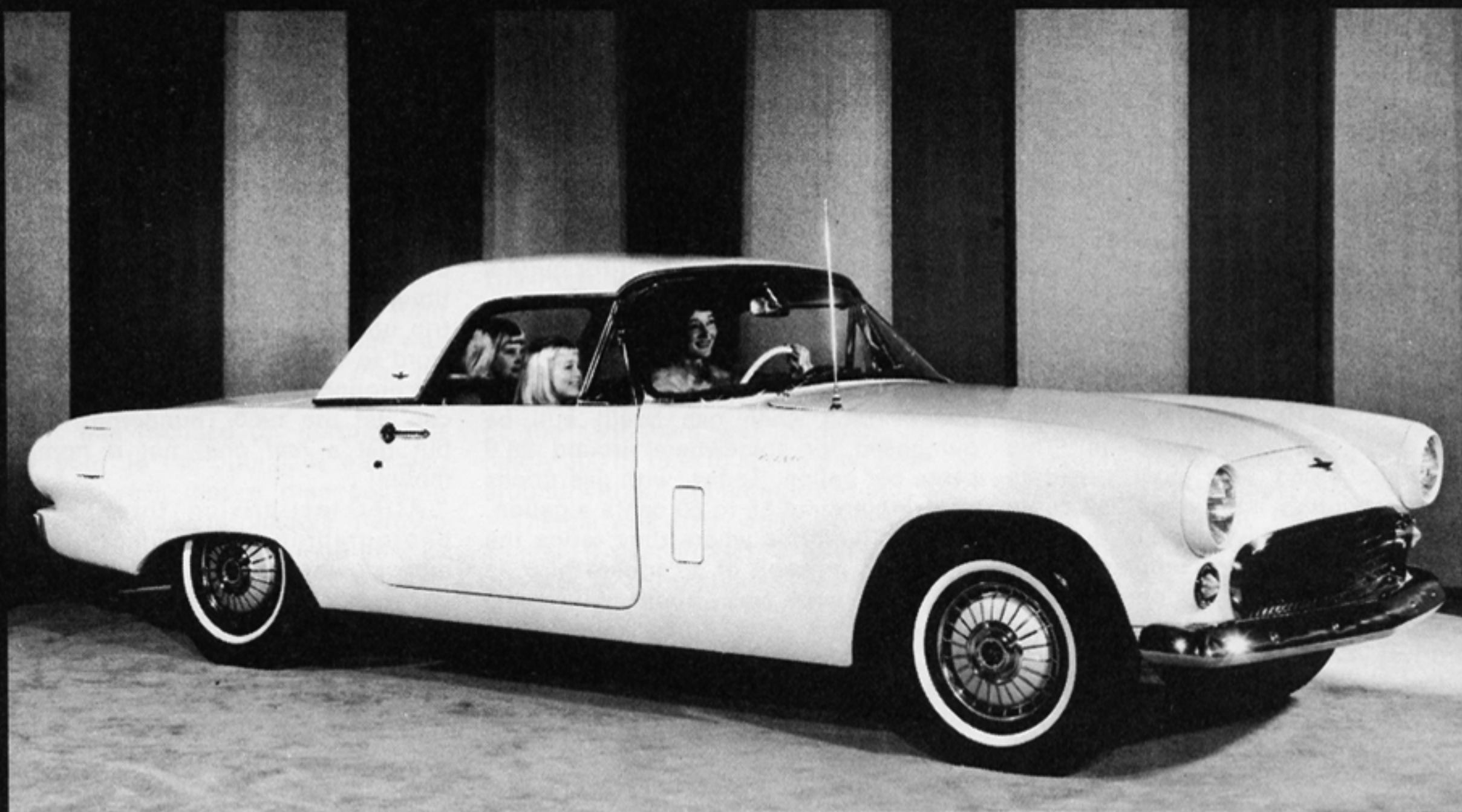
After test-driving three cars and photographing the exceptional 1958 model owned by Dr. Budwig, it is our impression that, accepted for what it is — a semi-large luxury car, not a semi-sports car like its progenitors — the 1958-60 Thunderbird is well worth collecting and restoring. These cars have many unique attributes, and in years to come will probably become scarce and high-priced special interest cars.

Start watching the back rows of used car lots. You may yet find a low-mileage beauty waiting to be taken home!

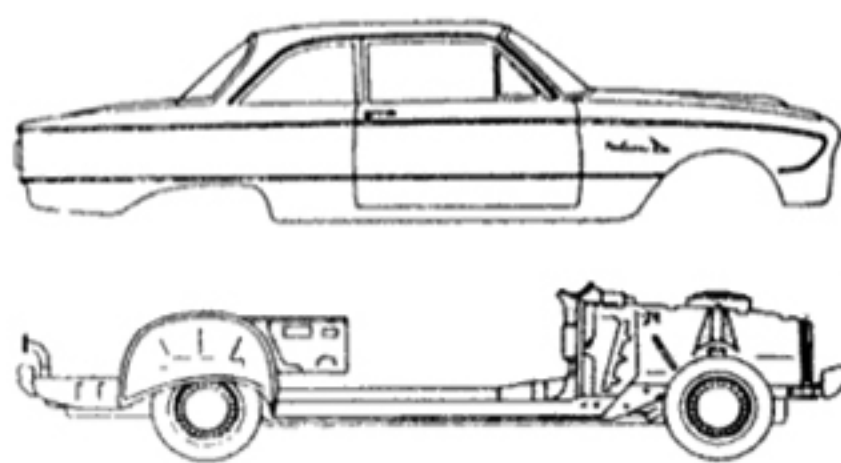


FORD'S ATTEMPTED RESURRECTION OF THE "EARLY BIRDS"

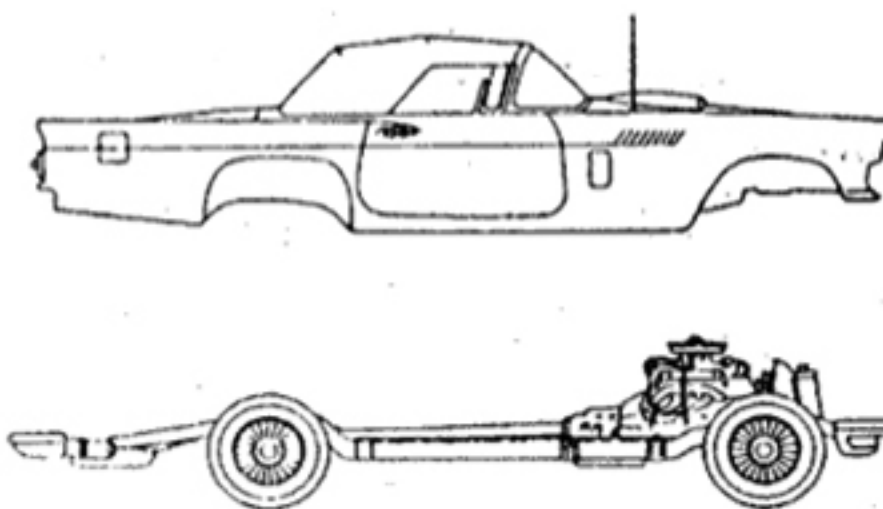
The two-passenger Thunderbirds of 1955-57
were almost reprised in 1963 —
but fate intervened at the last minute



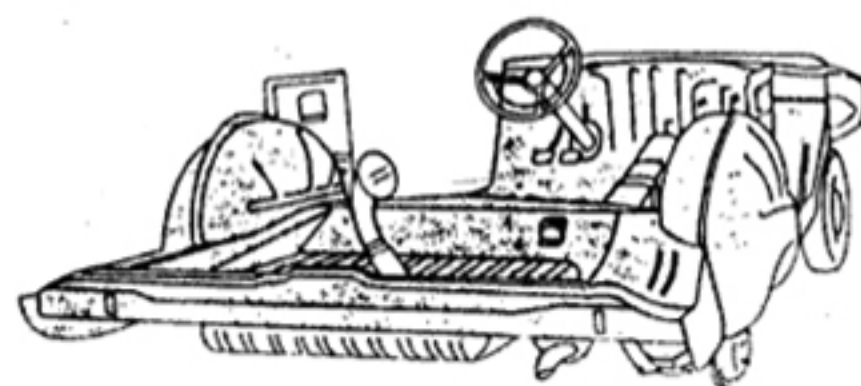
HANDSOME "BIRD" — When completed, the XT-BIRD was an attractive car with a small rear seat and "rounded" fender profile.



BASIC CAR — The Budd engineers started with the then-current Falcon chassis, which had a longer wheelbase than the original Thunderbird.



EARLY BIRD — A 1957 Thunderbird was found and the body removed so that it could be re-assembled on the Falcon chassis.



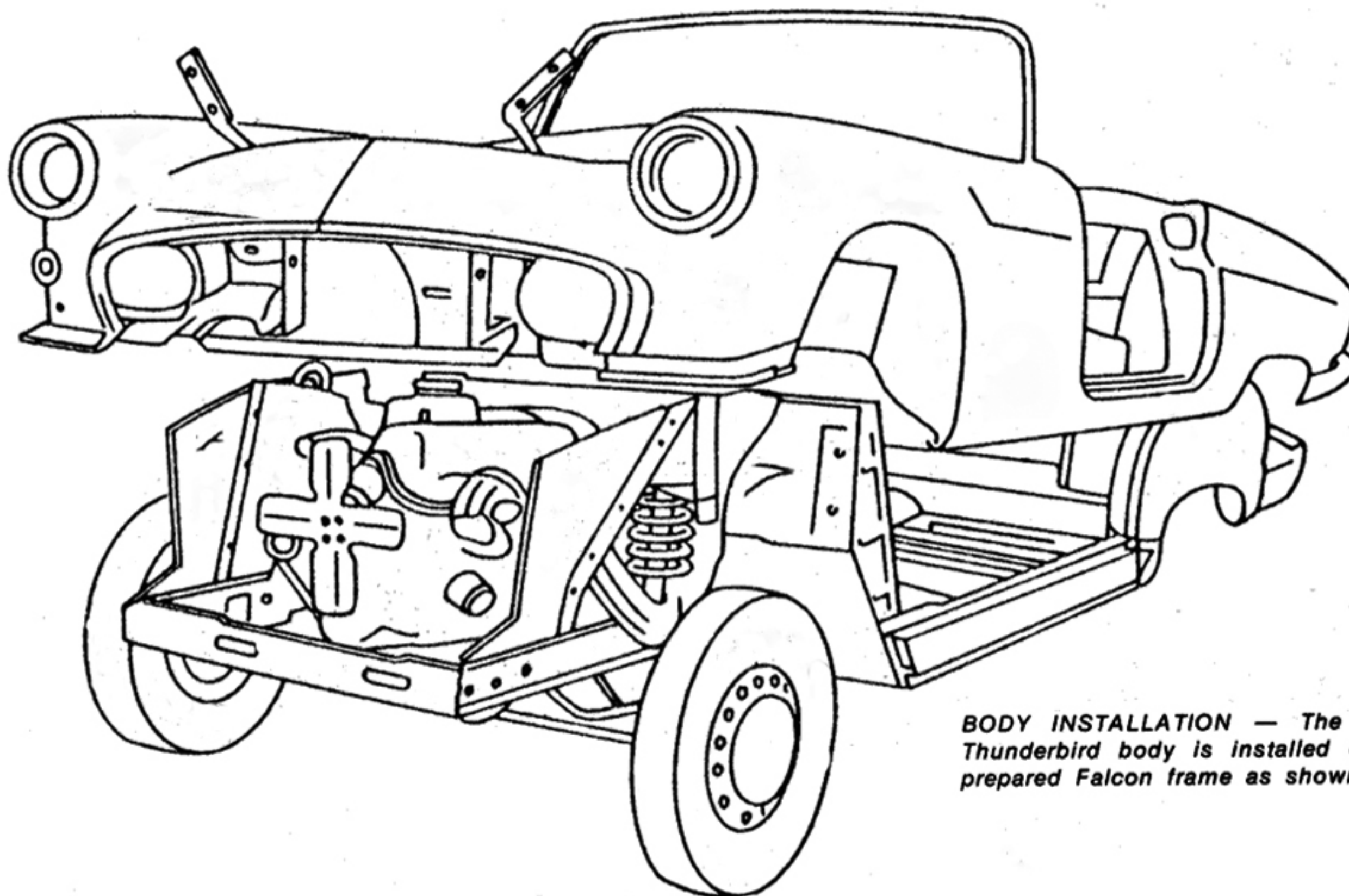
BASIC CHASSIS — With the body removed, the basic Falcon chassis looked like this. Shaded areas were retained, others cut away by Budd.

Detroit, like Hollywood, frequently thinks lightning strikes twice in the same place, and there is a constant effort on the part of factory heads and stylists to re-create past (and present) successes in sheet metal. A current example of this kind of thinking is the Ford Granada, which openly claims its "inspiration" from the Mercedes-Benz line of automobiles.

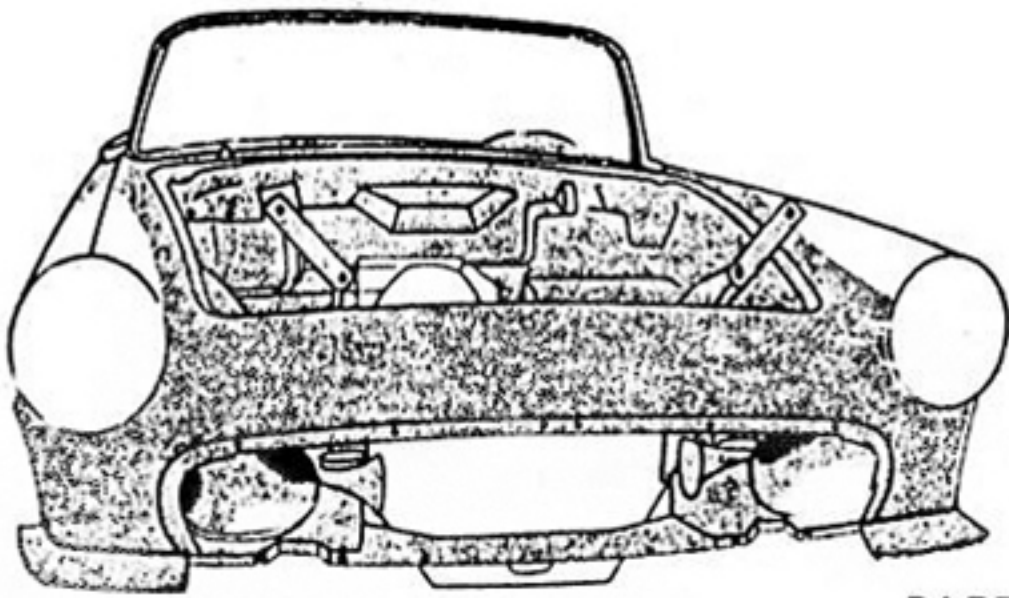
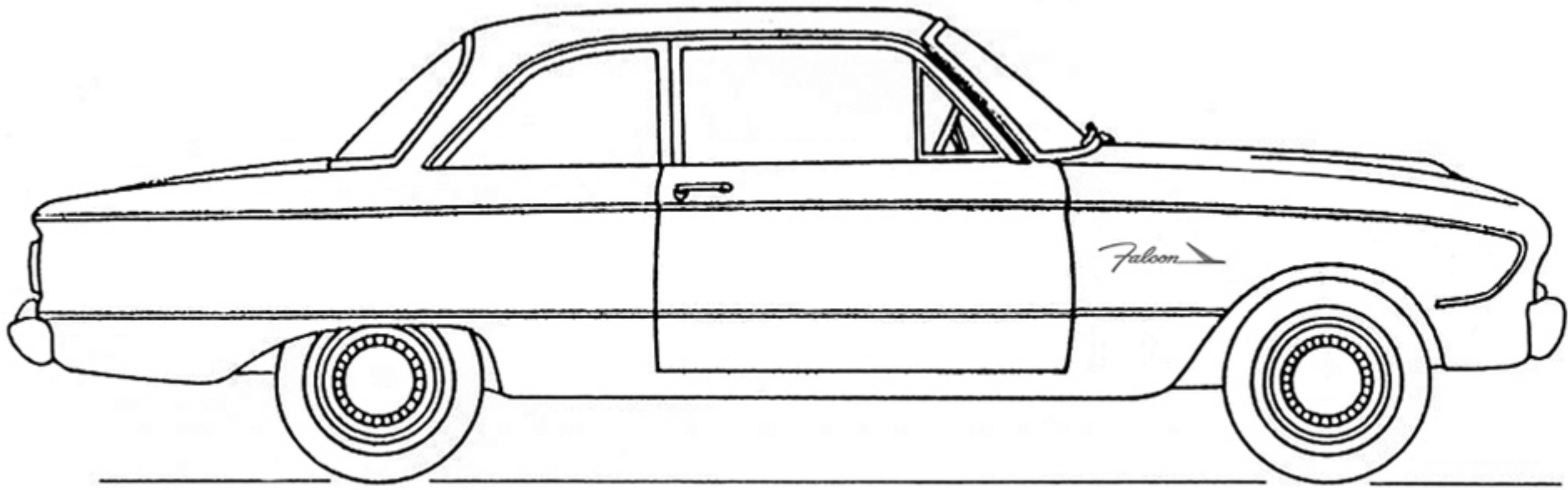
But in 1963, Ford wasn't looking to Germany for its styling and marketing inspiration. The factory executives were looking backwards at their highly successful and popular two-passenger Thunderbird. The mid-sized Falcon was al-

ready a sales hit, and there had been moderate attempts to give it a "sporty" look with the Futura luxury options and styling — but something more was needed than a mere adornment of fancy body parts and a different name.

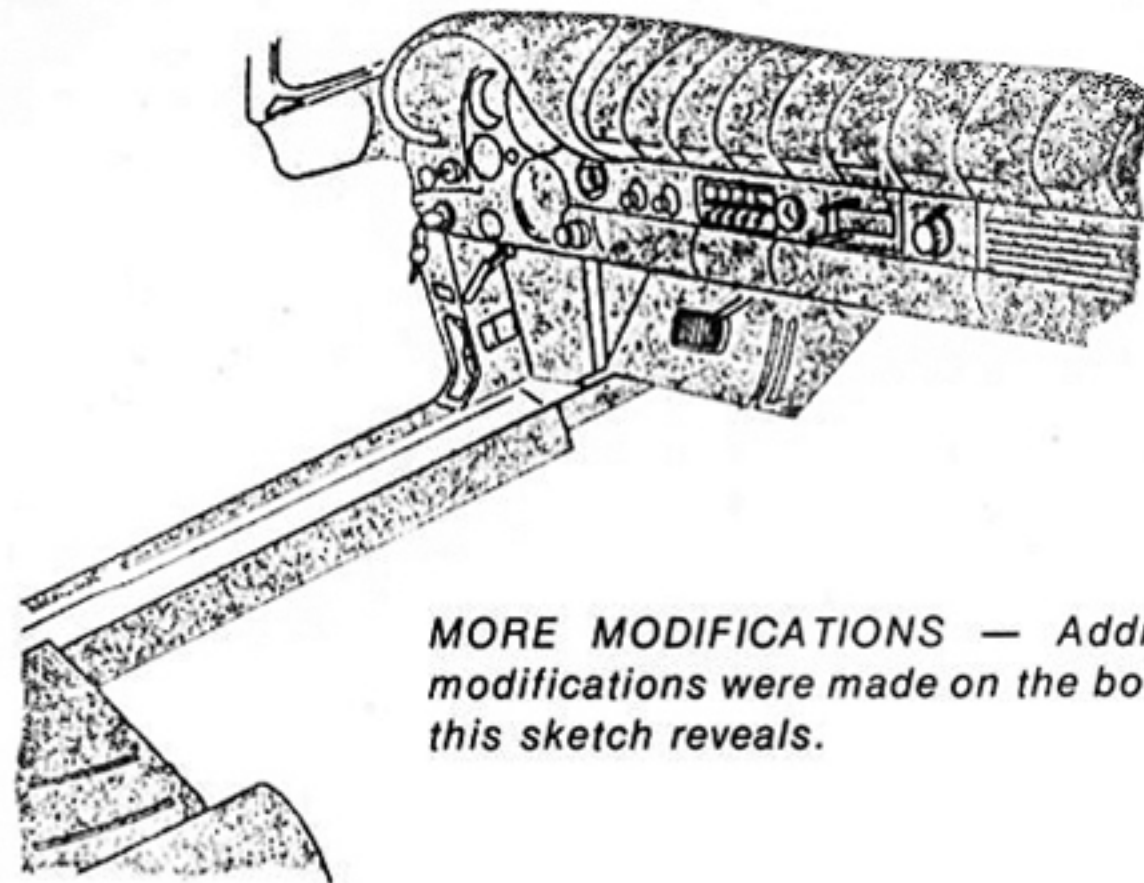
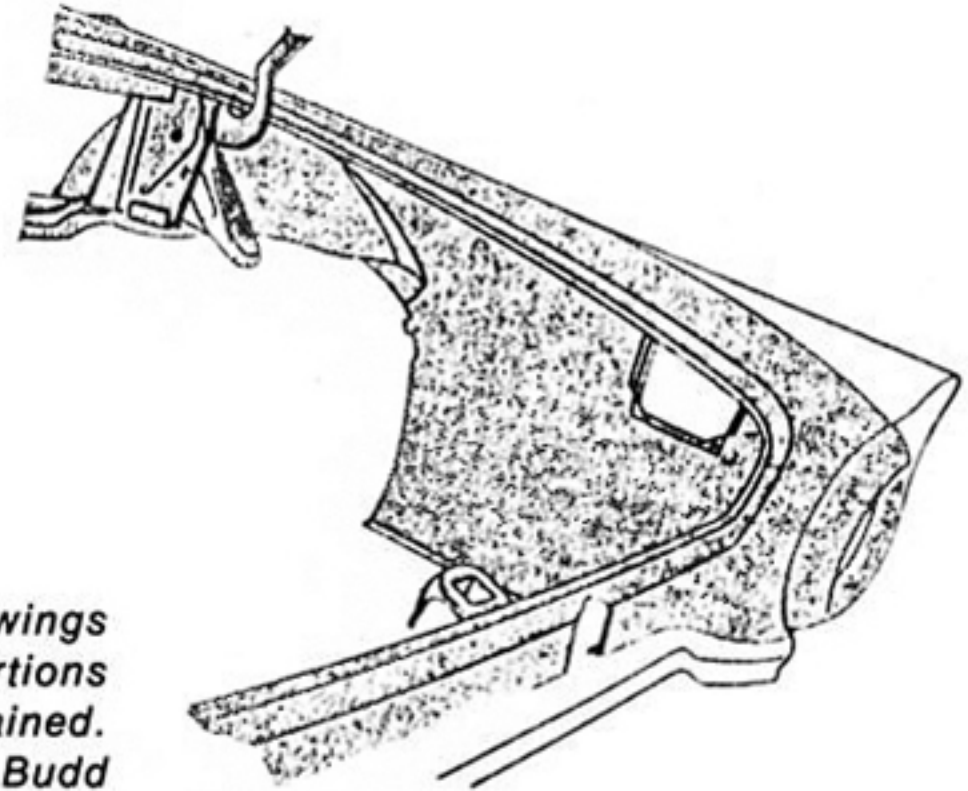
Dynamic and market sensitive, Ford president Lee Iacocca wanted a new automobile to capture a large chunk of the small car market — a car that could not only increase sales, but one that would help boost the over-all Ford image — something "classic." Something, someone suggested, like the two-passenger Thunderbird? Iacocca nodded.



BODY INSTALLATION — The "new" Thunderbird body is installed on the prepared Falcon frame as shown here.



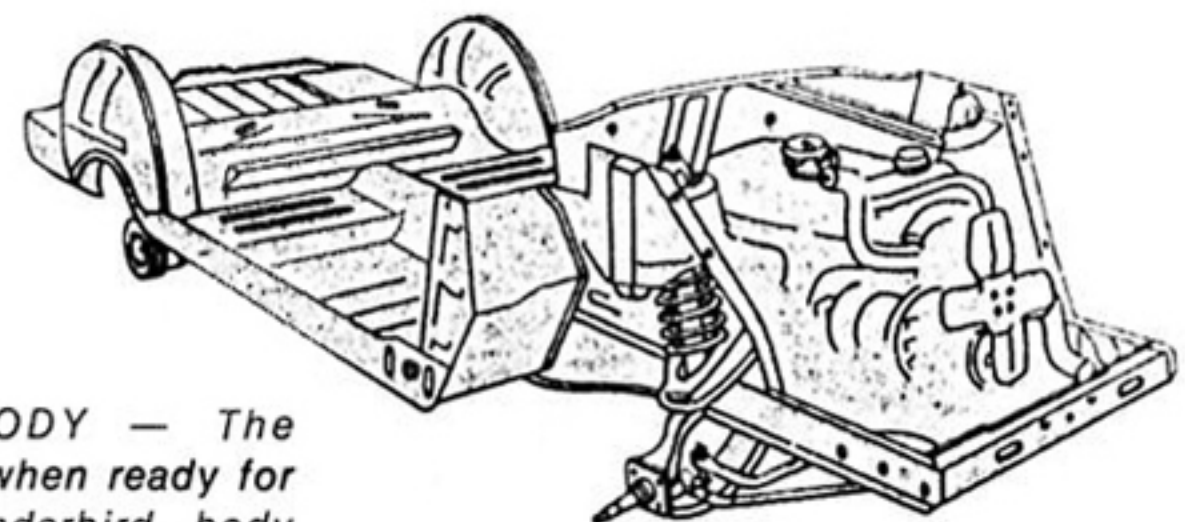
PARTS REMOVED — These drawings show with shaded areas, which portions of the original Thunderbird were retained. The white areas were cut away by Budd engineers.



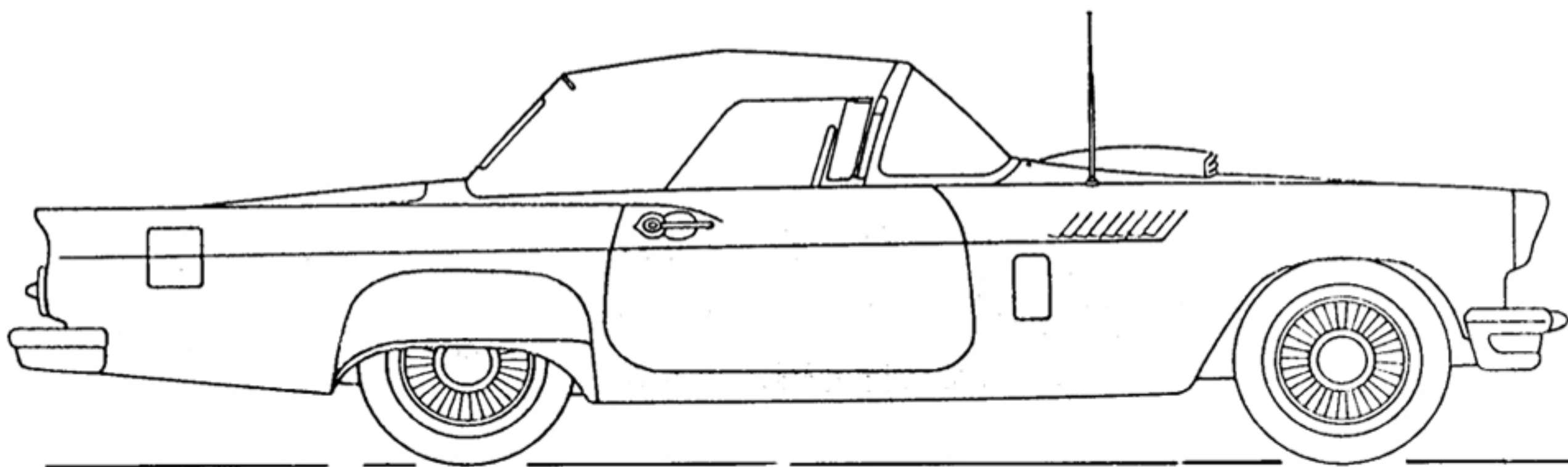
MORE MODIFICATIONS — Additional modifications were made on the body, as this sketch reveals.

A reprise of the little Thunderbird idea hit a responsive chord with the Ford president, and calling in Tom Case, one of the original "birdmen," Iacocca asked about availability of the original dies of the 1955-57 Thunderbirds at the Budd Company where they had been stamped out. If the dies still existed, Iacocca wanted to know what it would take to put them into production again with a revised styling treatment — if the project would be economically feasible.

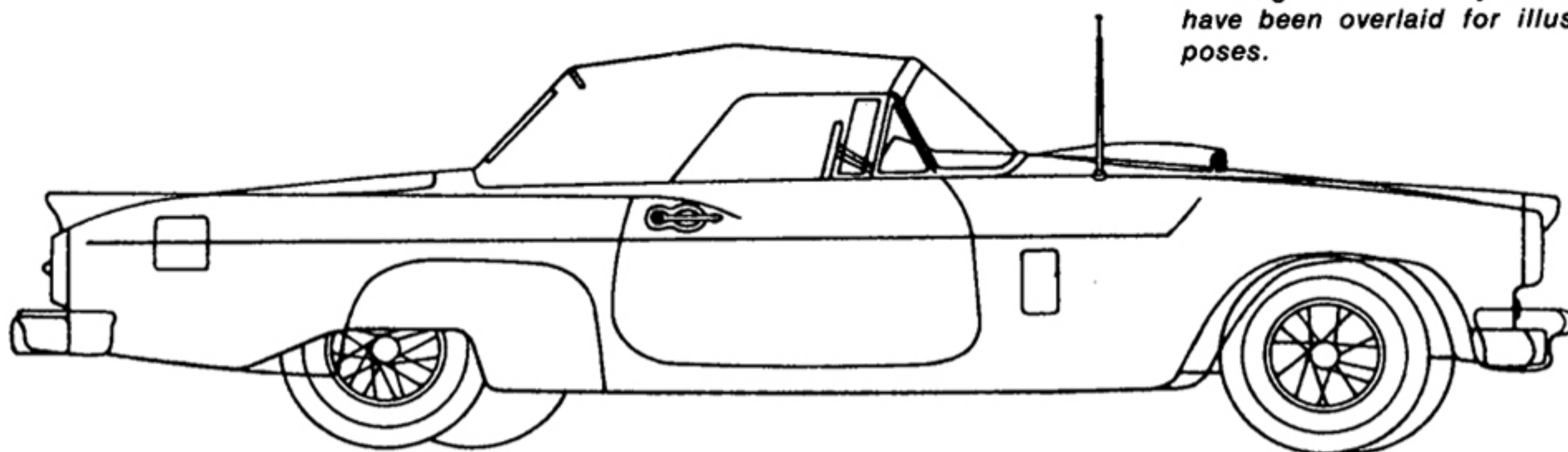
Case went directly to the Budd Company with the questions, and shortly had an answer. It was discovered that the dies still existed — and would not be hard to modify. This was the best-sounding news of all. Excited by the prospect of being able to use the dies again, Budd launched a program of possible body options in which they would be able to cooperate in the resurrection of the little cars.



COMPLETED UNDERBODY — The underbody of the Falcon when ready for installation of the Thunderbird body shell looked like this.



COMPARATIVE DRAWINGS — The external differences between the 1957 body and the 1963 version are shown in this drawing of the body outlines, which have been overlaid for illustration purposes.



It was decided that the basic Falcon chassis would be used for the new Thunderbird, creating a longer wheelbase, allowing for more passenger compartment space. The object was to add a small seat behind the original passenger seat of the 1955-57 cars, for packages and possibly small children.

Taking a Falcon chassis and a used 1957 Thunderbird body, Budd engineers set to work creating a complete car that could be viewed by Ford officials in sheet metal — a shortcut not usually available in the early stages of a new car design — and could be driven as well.

To change the appearance of the original body, it was decided to snip off the top of the front fenders and trim the ears off the rear fenders of the old Thunderbird body, (see illustrations) so that the finished car would have a rounded, mid-1960's look to it, one that would match the auto styling vogue then in favor and the general product line of the rest of the Ford products.

For identification, the Budd Company selected the name XT-BIRD, which was a clever play on words. It was worth the time of the Budd people to put the XT-BIRD project over — for it would mean a body stamping run of at least 100,000 units, should it become the replacement of the earlier Thunderbirds.

There were high hopes at both the Budd Company and at the Ford management level that the new car would become a reality — especially with "birdmen" at Ford who would now be able to help in the resurrection of the original concept in a new form.

With the old Thunderbird body matched to a Falcon

frame, the sheet metal changes completed, and a new top fitted, plus the additional small rear seat, it was easy to get excited about the prospect of the second car — and many of the executives at the Ford Motor Company confidently predicted a selling bonanza if the car were put into production.

With everything ready, the new/old Thunderbird was taken to the Ford executive offices along with a proposal that stated, in facts and figures, the cost and advantages of the new car revival. Everything was now up to Lee Iacocca.

It was estimated the complete XT-BIRD body could be built for \$350-\$400 and the Falcon chassis was already in production — so no special initial costs, other than a few minor modifications, would be needed. The new car could be put into production quicker and cheaper than a new model — a definite advantage.

When it came, the decision was a shock to many people, and Iacocca is reported to have agonized over it himself for a considerable amount of time before telling Budd Company officials, "No." Even though it was a disappointment, in the long run, Iacocca's decision proved to be a good one for the Ford Motor Company.

He gave the green light for another new car, (this time it was to be an *all* new auto concept) the Mustang, which has become an American tradition — just as the "early bird" Thunderbird has become since its introduction more than 20 years ago. Put in dealers' showrooms in 1964, the new Mustang was an instant hit, and has remained close to the hearts of the American public ever since. But one wonders what might have happened if the XT-BIRD had been given a chance to try its wings.

TROUBLE - SHOOTING 1960-1966 THUNDERBIRD CONVERTIBLE TOPS

By Richard Holloway

If your malfunctioning electric top makes you want to blow your top — read this. The author might be able to help you fix your electrical woes in a few minutes with a few tools, by following these simple hints.

Top problems fall into three groups: 1. Electrical; 2. Hydraulic; and 3. Mechanical. Electrical mal-function causes most top operating failures, simply because there are more electrical components. The "Flip-Top" birds built from 1960 to 1966 go through eight operations: 1. Deck Lid Unlock; 2. Deck Lid Lock; 3. Deck Lid Open; 4. Deck Lid Close; 5. Tray Extend; 6. Tray Fold; 7. Top Up; 8. Top Down. Therefore, there are eight relays, one for each of these operations.

The most common problems, in order of occurrence, are: Frozen pump; Broken or maladjusted tray fold switch; Burned-out relay; Low fluid level in the pump reservoir; Worn pump "O" ring; Poor ground; and Weak battery.

HOW TO GET A LOCKED TRUNK OPEN

Locate the 9/16-inch bolts forward of the rear wheels up under the wheel well area. Remove the bolts, and, using a screwdriver wrapped in cloth to prevent marring the paint, pry up the deck lid at the left forward corner until it can be raised three or four inches. Then find a chisel or screwdriver about five inches in length and wedge it under the raised lid. Now go to the right forward corner of the deck lid and pull it up until you can wedge a five-inch or so chisel or screwdriver under it. Return to the left corner and remove the five-inch wedge and, pulling up, insert a nine-inch or longer wedge. Return to the right side and, pulling up, insert a nine or ten-inch wedge, then do the same to the left side. This is as far as you can go without damaging the top parts.

This will now allow you to get your arm in under the deck lid to unfasten the hinge pins or bolts on the deck hinges. Sometimes these pins or bolts bind due to the stress of the wedges and it becomes necessary to remove the hydraulic lines at the pump or deck cylinders. Be sure to use plenty of rags to absorb the fluid.

Once the problem is found, refill the pump reservoir until it begins to overflow the fill hole, then replace the cap with a screwdriver. You can use brake, transmission, or shock absorber fluid. Tighten all fittings and run the top and deck lid up and down three or four times, checking and refilling the reservoir each time. Air will be bled automatically from the system each time you open the reservoir plug to refill it. Do not run the top or deck lid up or down more than four times at once as this strains the battery, and solenoids and motors can become too hot and burn out.

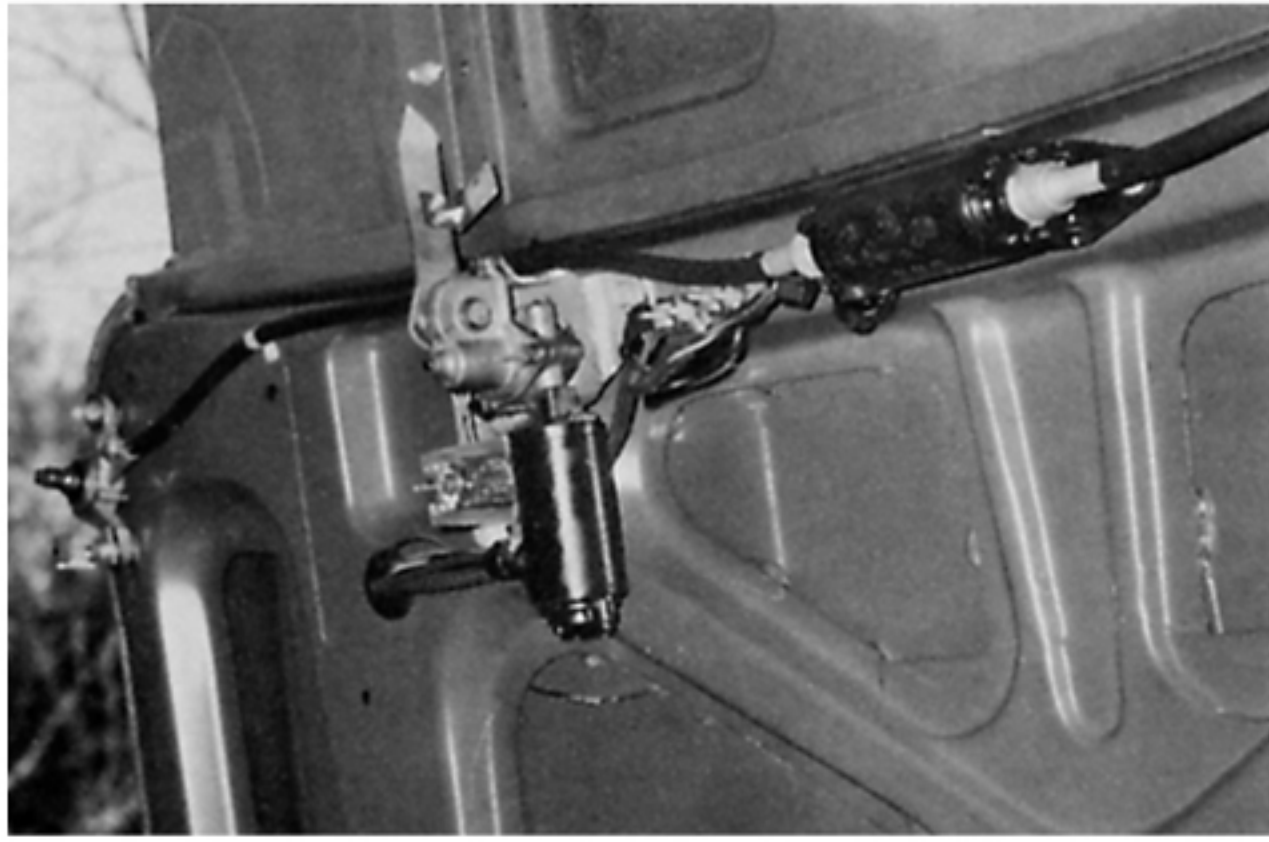


TOP DOWN — The right hinge "down" switch is located next to the spare tire.

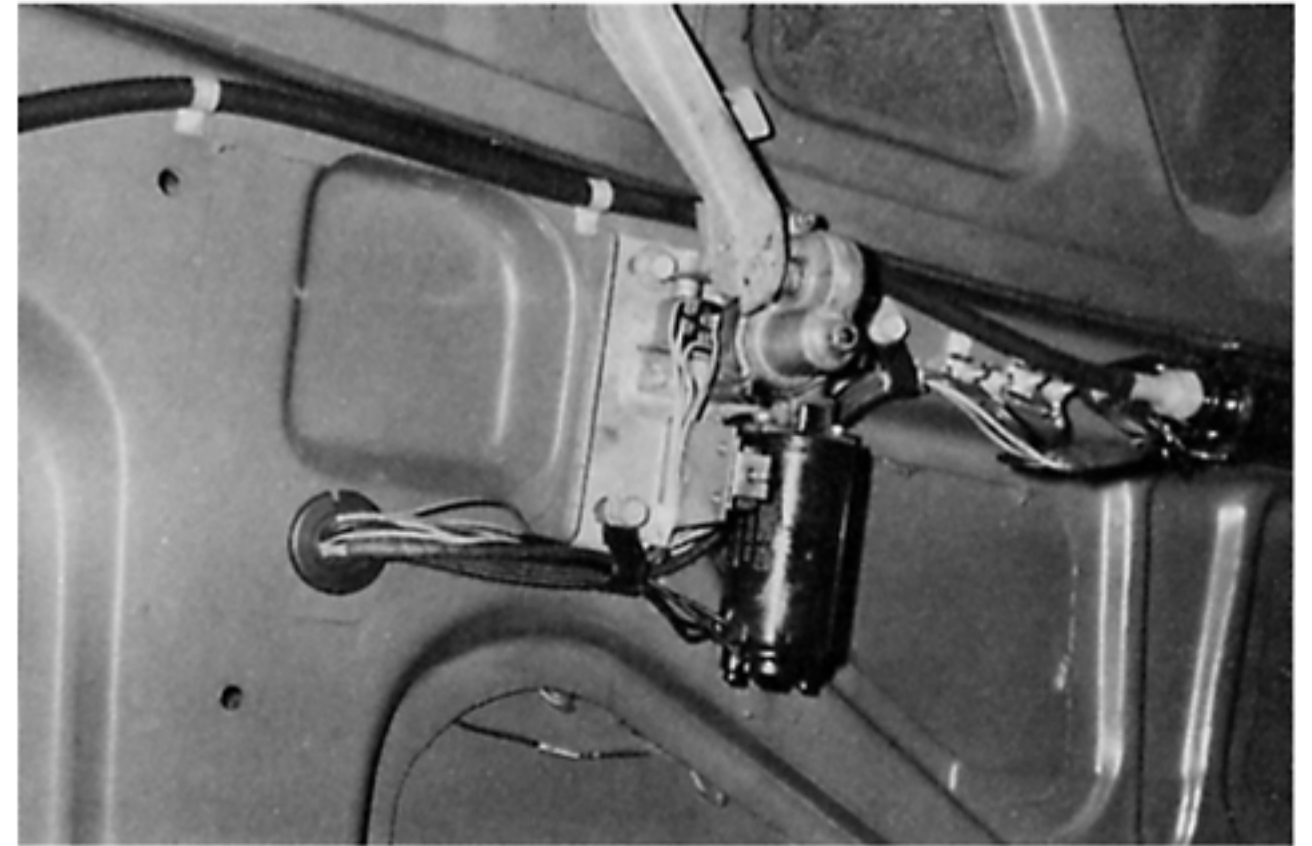
photos by Frank Taylor



RIGHT HINGE — The right rear deck hinge and deck "open" switch (R) are seen here. See figure II in this article.



PACKAGE TRAY — The center (left) package tray motor and control switches are located here. At the far left can be seen the locking screw mechanism.



PLUNGER SWITCHES — The "up" (V), and "down" (S) tray switches can be seen next to the package tray motor (U) and drive gear assembly.

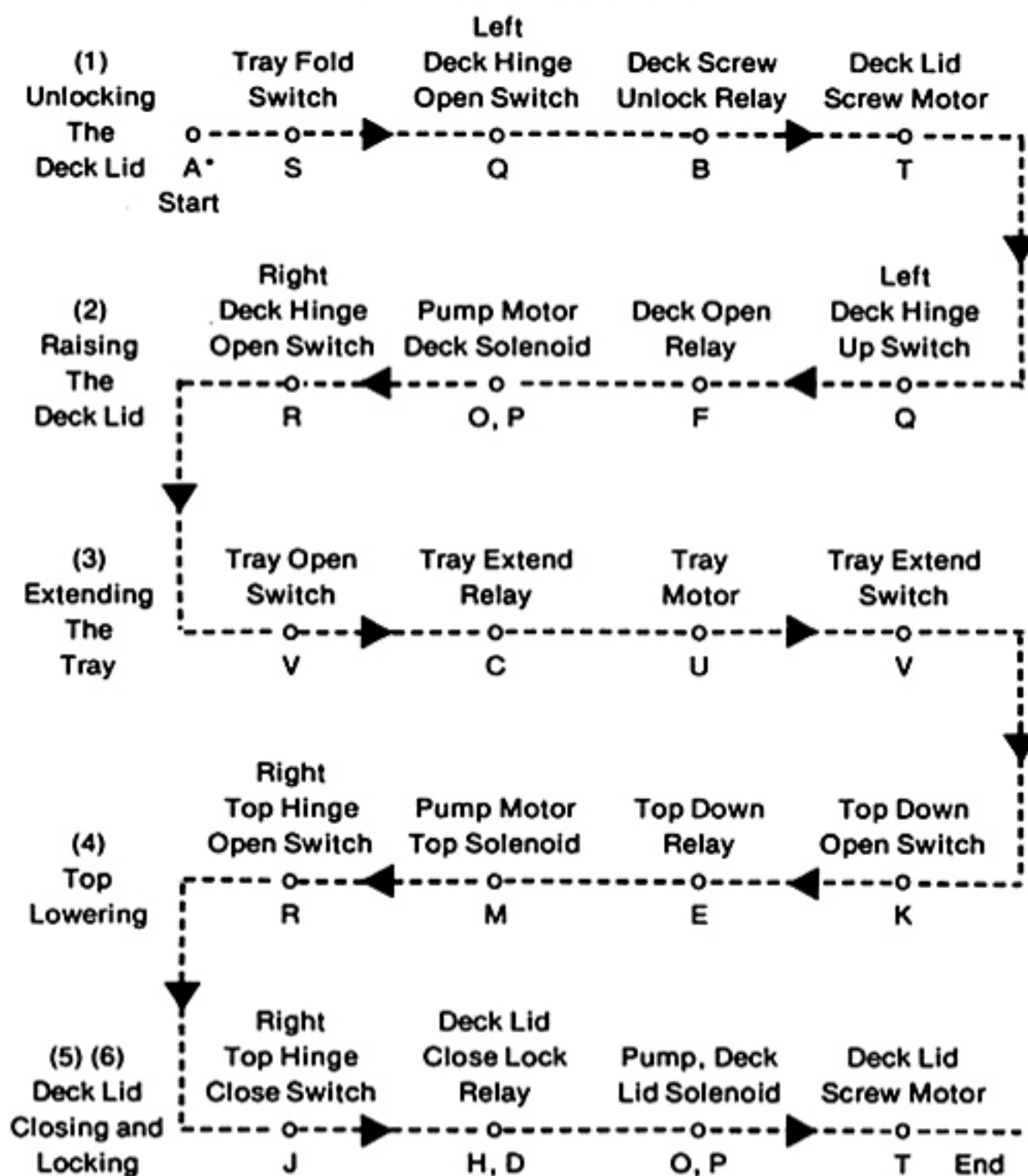
HOW TO TRACE THE ELECTRICAL CIRCUIT

Figure I

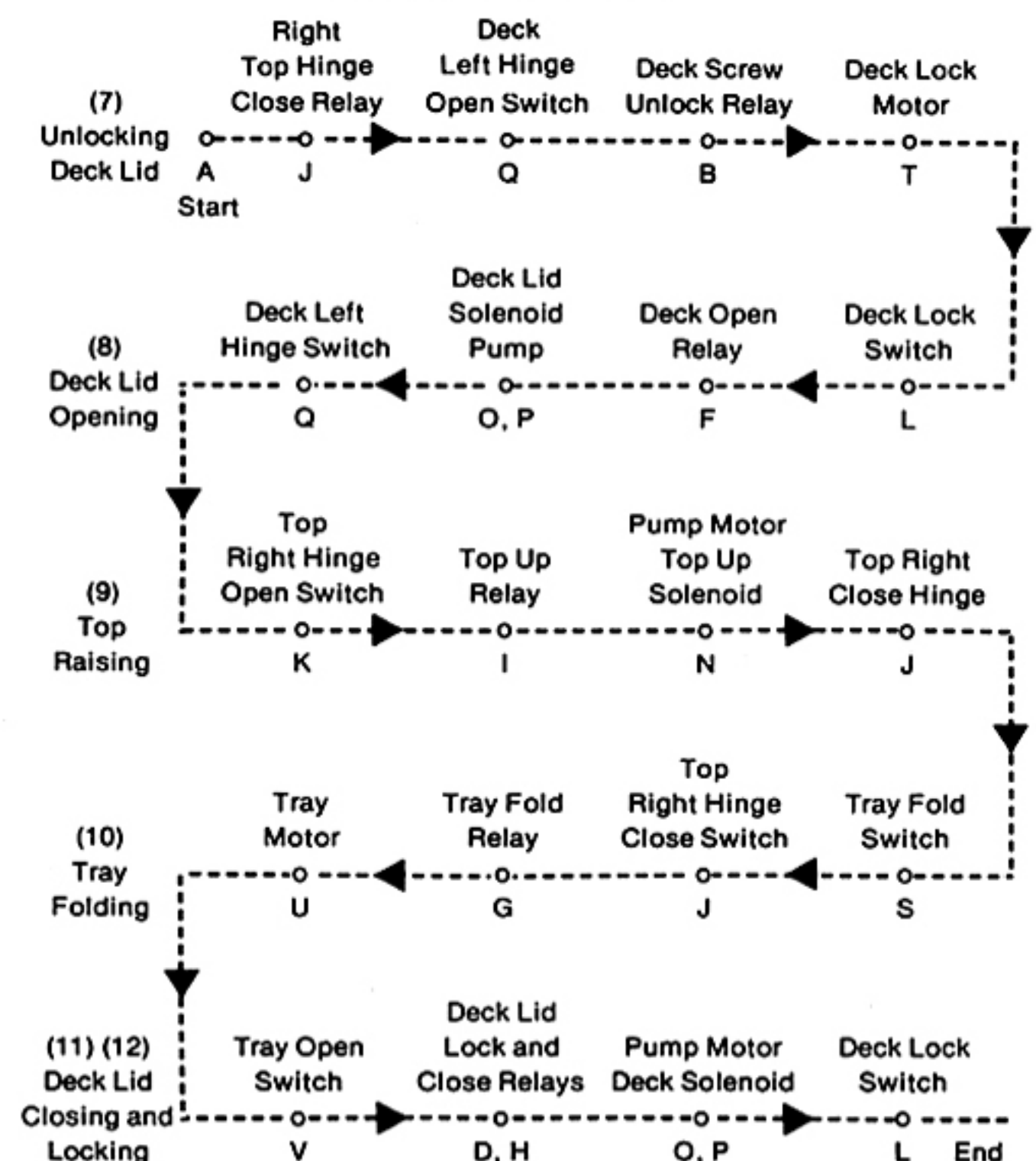
To test the circuit, use a multimeter or a circuit tester such as a pen-light. Refer to the shop manual for your model for the accurate location of switches, relays, solenoids, motors, and wiring for your particular model. The following diagram is a generalized route the current follows from the moment you press the top switch to lower the top to the moment you release it after the top has been raised:

*Refer to Figure II for identification and location of alphabet letters below circuit components.

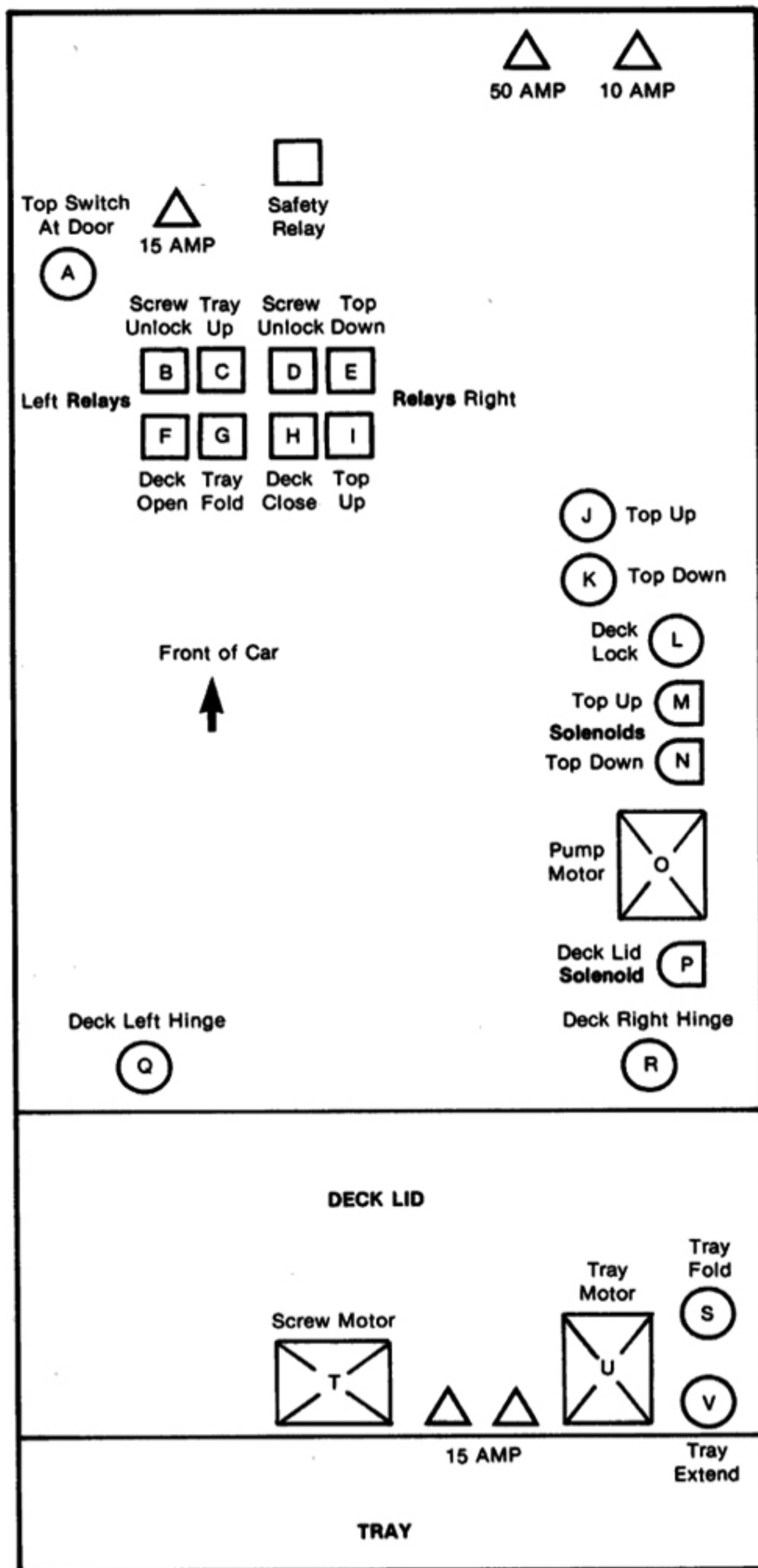
TO LOWER TOP



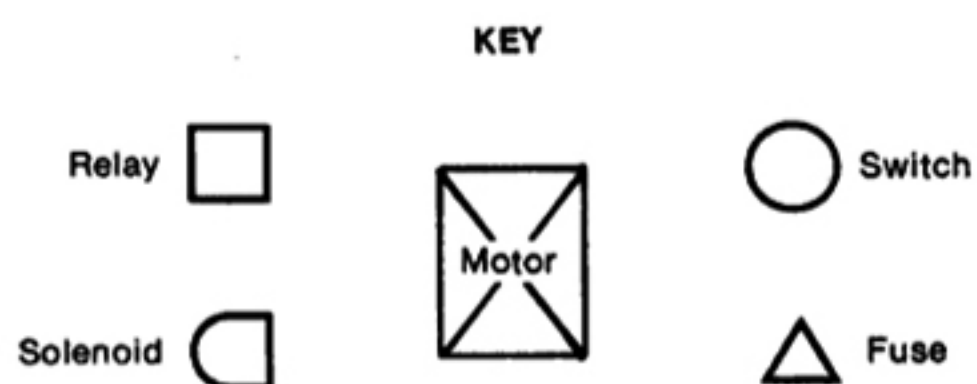
TO RAISE TOP



Component Location, Name, and Alphabet Letter Figure II



TOP VIEW OF CAR



THE CIRCUIT PROTECTORS

There are a 50-amp and 10-amp fuse at the starter solenoid, and a safety relay under the dash, just above the steering column at the firewall. There are two 15-amp fuses on top of the deck lid, near the screw motor. These protectors open when excessive current is drawn through the circuit, to keep expensive parts from burning out.

HOW TO OPERATE THE TOP SWITCH

The top will work only in the "Park" or "Neutral" positions, with key turned to "ACC" or "Start." You may have to move the transmission selector lever back and forth until contact is made at the neutral switch at the bottom of the steering column. And you have to maintain firm pressure on the top switch while the top is operating up and down.

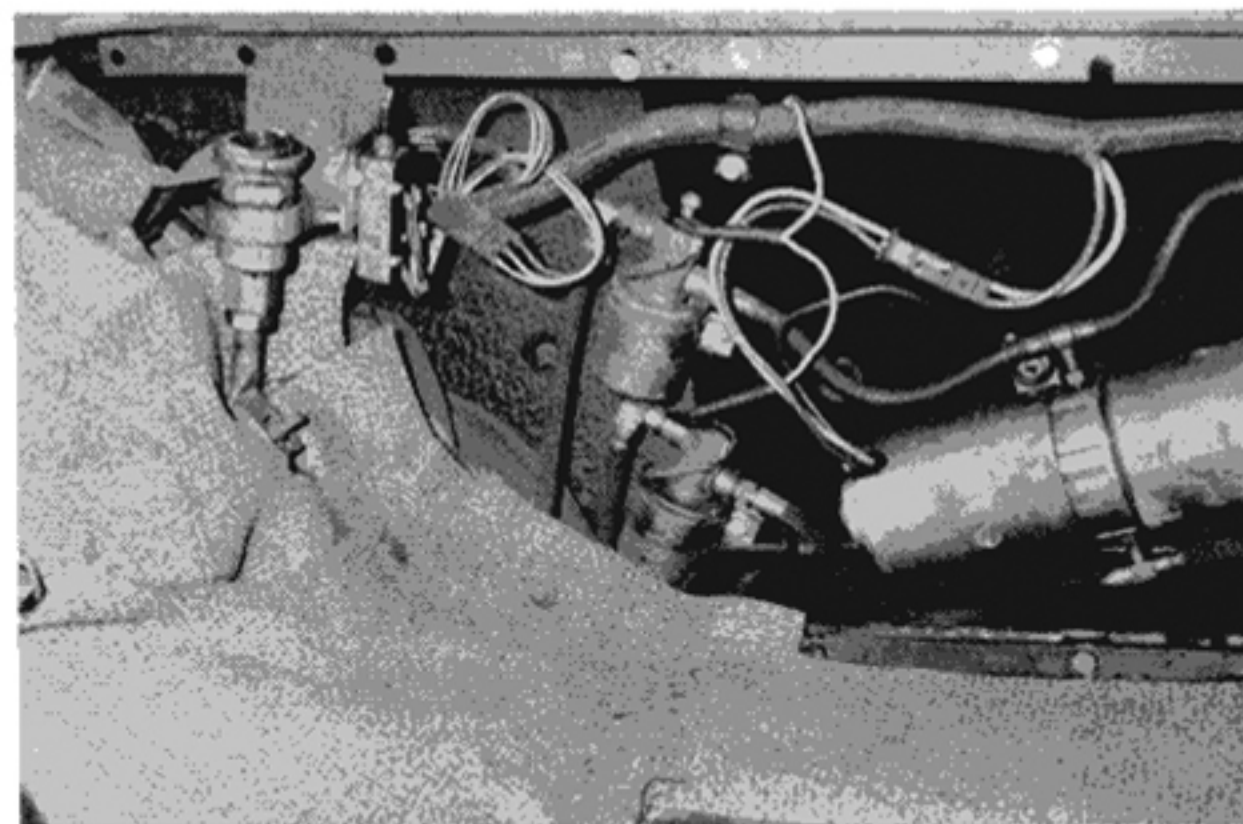
MECHANICAL CHECKS TO MAKE

Be sure all joints are well lubricated. Light oil will do. Otherwise, excessive friction overloads the pump, causing the pump to stall. Also be sure linkage, hinges, etc., are in proper alignment, or the top movement will be jerky. Hinges, screws, and arms are set to allow these parts to move forward and back, up and down, and left and right.

Set all plunger-type switches at .060 of an inch gap or clearance for best results. Otherwise the switches will open too early, too late, or not at all.

HYDRAULIC CHECKS TO MAKE

Be sure all hose fittings are tight, hoses are good and not cracked or leaking, and cylinders, pump and solenoids don't leak. In time, a leak will show itself by soiling and discoloring the trunk mat, and by a gradual worsening of the top's movement as the system loses its fluid.



IMPORTANT COMPONENTS — Extreme left (top) deck switch, (L), the two units in the center are top solenoids. The upper left unit, (M), is for "up" motion, and just below is the "down" motion solenoid. On the far right is the hydraulic motor/reservoir (O).

Electrical Wiring Diagram

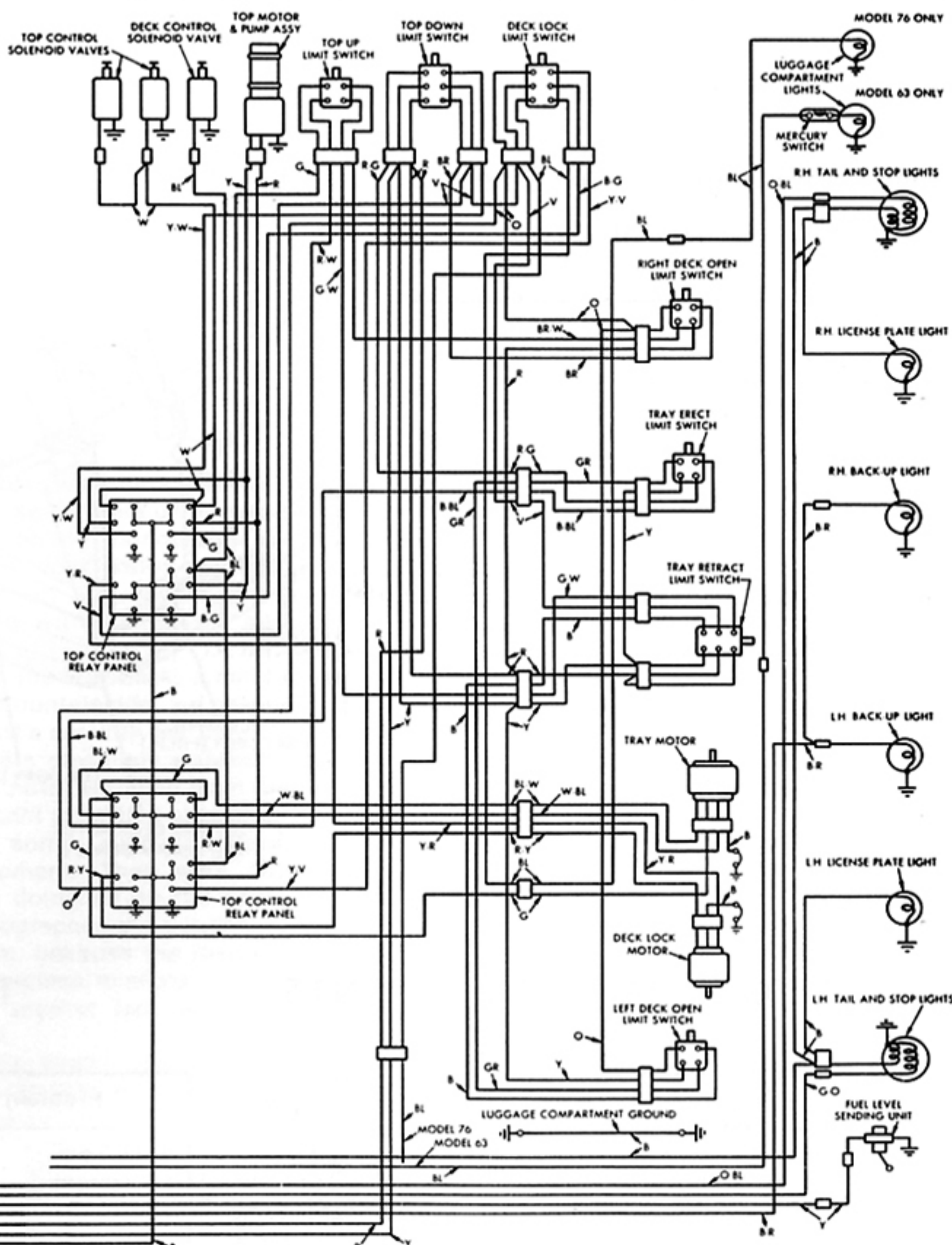


TOP SWITCH — The top right hinge "up" (K) switch is seen next to the ram shaft.



RELAY BANK — The left side relay bank is located here. Found immediately behind the back seat in the trunk, the relays are, from the top left row, (B) (C) (F) (G).

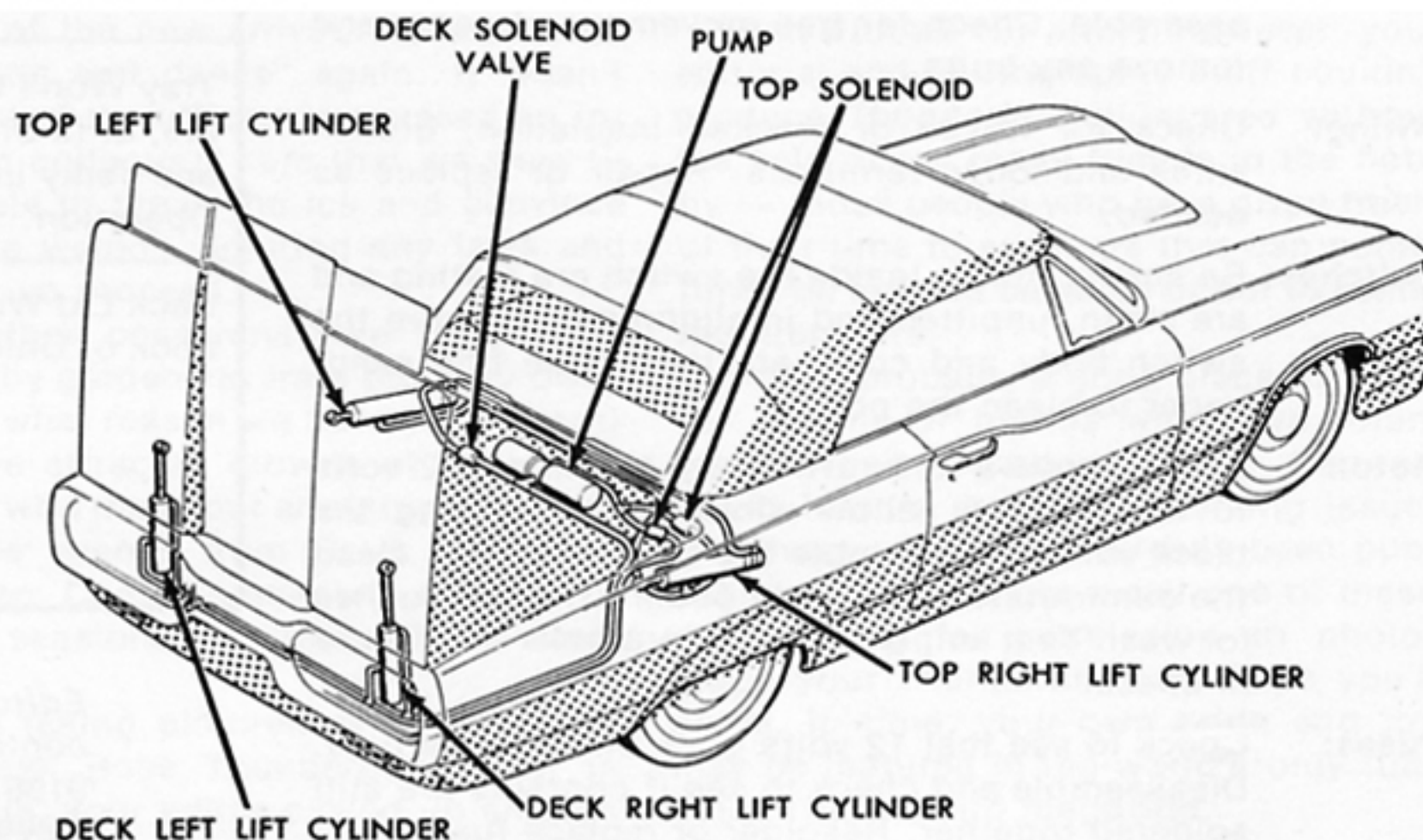
ON
GO
Y
B
R
Y
B



COLOR KEY					
B — BLACK	BL B — BLUE BLACK STRIPE	G — GREEN	O — ORANGE	R G — RED GREEN STRIPE	Y — YELLOW
B BL — BLACK BLUE STRIPE	BL R — BLUE RED STRIPE	GB — GREEN BLACK STRIPE	OB — ORANGE BLUE STRIPE	R W — RED WHITE STRIPE	Y B — YELLOW BLACK STRIPE
B G — BLACK GREEN STRIPE	BL W — BLUE WHITE STRIPE	GBL — GREEN BLUE STRIPE	O Y — ORANGE YELLOW STRIPE	R Y — RED YELLOW STRIPE	Y BL — YELLOW BLUE STRIPE
B R — BLACK RED STRIPE	BL Y — BLUE YELLOW STRIPE	GO — GREEN ORANGE STRIPE	P — PINK	V — VIOLET	Y R — YELLOW RED STRIPE
B W — BLACK WHITE STRIPE	BR — BROWN	GW — GREEN WHITE STRIPE	R — RED	W — WHITE	Y V — YELLOW VIOLET STRIPE
B Y — BLACK YELLOW STRIPE	BR O — BROWN ORANGE STRIPE	GY — GREEN YELLOW STRIPE	R B — RED BLACK STRIPE	W BL — WHITE BLUE STRIPE	Y W — YELLOW WHITE STRIPE
BL — BLUE	BR W — BROWN WHITE STRIPE	GR — GREY	R BL — RED BLUE STRIPE	W R — WHITE RED STRIPE	

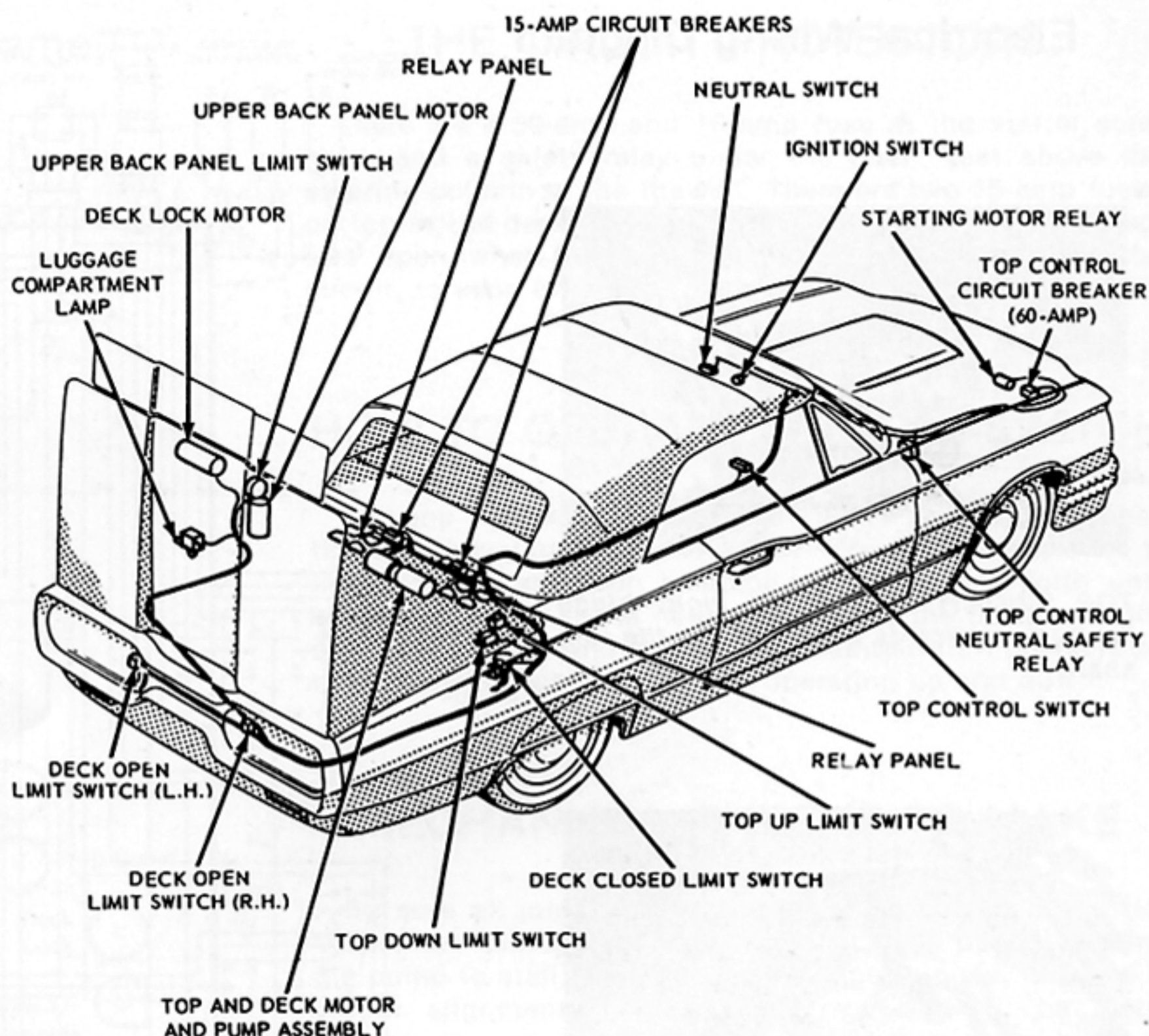


TOP FUSE — Not mentioned in the article is this safety fuse for the top which is located next to the starter solenoid in the engine compartment.



Motor Current Draw Specs Figure III

Pump Motor — Normal	32-48 amps.
— by-passing	58 amps.
Tray Motor — Normal	30-35 amps.
— no load	18-21 amps.
— stalled	100 amps.
Lock Motor — Normal	18-22 amps.
— no load	15-18 amps.
— stalled	50 amps.
Solenoids — each	10 amps.



HOW TO REPAIR COMPONENTS

Relays: Unsolder the ground strap on the cover, bend back the crimped edges, and remove the cover. Clean the points using fine sandpaper. Test the relay by grounding the #5 terminal as marked on top, and hooking up 12 volts to the #3 and the #4 terminals. A double "click" should be heard. With a penlight tester or multimeter you should get a light and 12 volts at #1 and #2. If not, replace the relay. The deck lid lock and unlock relays have only two terminals instead of three, because they begin and end the circuit.

Pump: Disassemble and clean the pump in solvent. Check the "O" ring for flatness and replace it if it is cracked, flat, or broken. Lubricate internal parts with same fluid used in the system and assemble. Check for free movement of gears and remove any burrs.

Wiring: Check for frayed or cracked insulation, broken wires and loose terminals. Repair or replace as needed.

Switches: Be sure contacts inside the switch are mating and are clean, unpitted and in alignment. Be sure the switch body and cover are tight. Use fine sandpaper to clean the points.

Motor: Check forward and reverse by attaching 12 volts to the red and yellow wires and grounding the black wire. Disassemble the top motor and clean the commutator with silver polish. Check brushes for wear. Test amperage using ammeter and figure III specs.

Fuses: Check to see that 12 volts goes through the fuse. Disassemble and check to see if contacts are still soldered together. Resolder or replace fuse.

TROUBLE-SHOOTING

Problem	Solution
Slow Top Movement	Low fluid level. Pitted relay points. Leak in system (hole in hose, leaky pump or cylinders). Linkage binding or out of alignment. Ruptured "O" rings in pump. Weak battery. Poor ground.
Deck Lid Won't Open or Close	Pump not working. Relays bad. Tray fold switch open. Low fluid level in pump. Deck lid solenoid inoperable.
Top Won't Raise or Lower	Pump not working. Relays bad. Tray extend switch bad. Bad left hinge switch. Insufficient pump fluid.
Tray Won't Operate, or Is Uneven and Jerky in Operation.	Bad relays. 15-amp circuit breakers open. Burned-out tray motor. Excessive binding of linkage arms.
Deck Lid Won't Lock or Unlock	Bad relays. Tray fold switch open. Neutral switch at bottom of steering column bad or maladjusted. Main 50-amp circuit breaker open. Transmission selector lever not in "Neutral" or "Park" position. Switch at door console is faulty. Burned-out deck motor.

Editor's Note: For more information, contact the author directly at (213) 786-9106, or write: 15363 Victory Blvd., Van Nuys, California 91406.

1962 THUNDERBIRD ROADSTER NOTES

This is a collectors Thunderbird that is rapidly gaining popularity

People who drive and collect the 1962-63 Thunderbird Roadsters are very devoted to their cars, and Don McCain, owner of the 1962 Thunderbird we are featuring in this issue, is no exception. McCain bought one of the roadsters when they were still new, and still has a deep affection for them.

As a matter of fact, the roadster he owned previously was quite a famous one — it was used on the TV series, "77 Sunset Strip," a program that was seen by millions of viewers around the world. Re-runs of that program are still being shown, so it is possible to see the car if one happens to watch the right segment.

That particular roadster was red with a black interior, and McCain liked it very much, but he wasn't collecting Thunderbirds then and it was traded off. When he used it as a trade-in on a 1966 Cadillac, it was still in perfect condition, but the dealer, Bob Spreen Cadillac, of Downey, California, wasn't very impressed with four-year-old Thunderbirds, and the dealer quickly wholesaled it off and McCain lost track of it.

Years later, McCain decided that he wanted another roadster, and mentioned this to his friends. One day, one of the friends gave him a "hot tip" and McCain bought the 1962 white roadster we're featuring — as much for nostalgia as for fun. Having kept the car about a year, he decided to sell it, and that is when *Thunderbird Illustrated* discovered it parked at the Movie World Cars of the Stars Auction last November. That, incidentally, was the same auction at which auctioneer Don Britt sold a 1957 "F" series Thunderbird for \$11,500.

McCain didn't sell his car at the Movie World affair, but he did allow us to photograph it a short time later. Just before this issue went to press, we called McCain to check on his Thunderbird. "I sold it last week," he explained, "to one

of the BIG, BIG, BIGGIES of Hollywood. He is so big I don't want to say who it was."

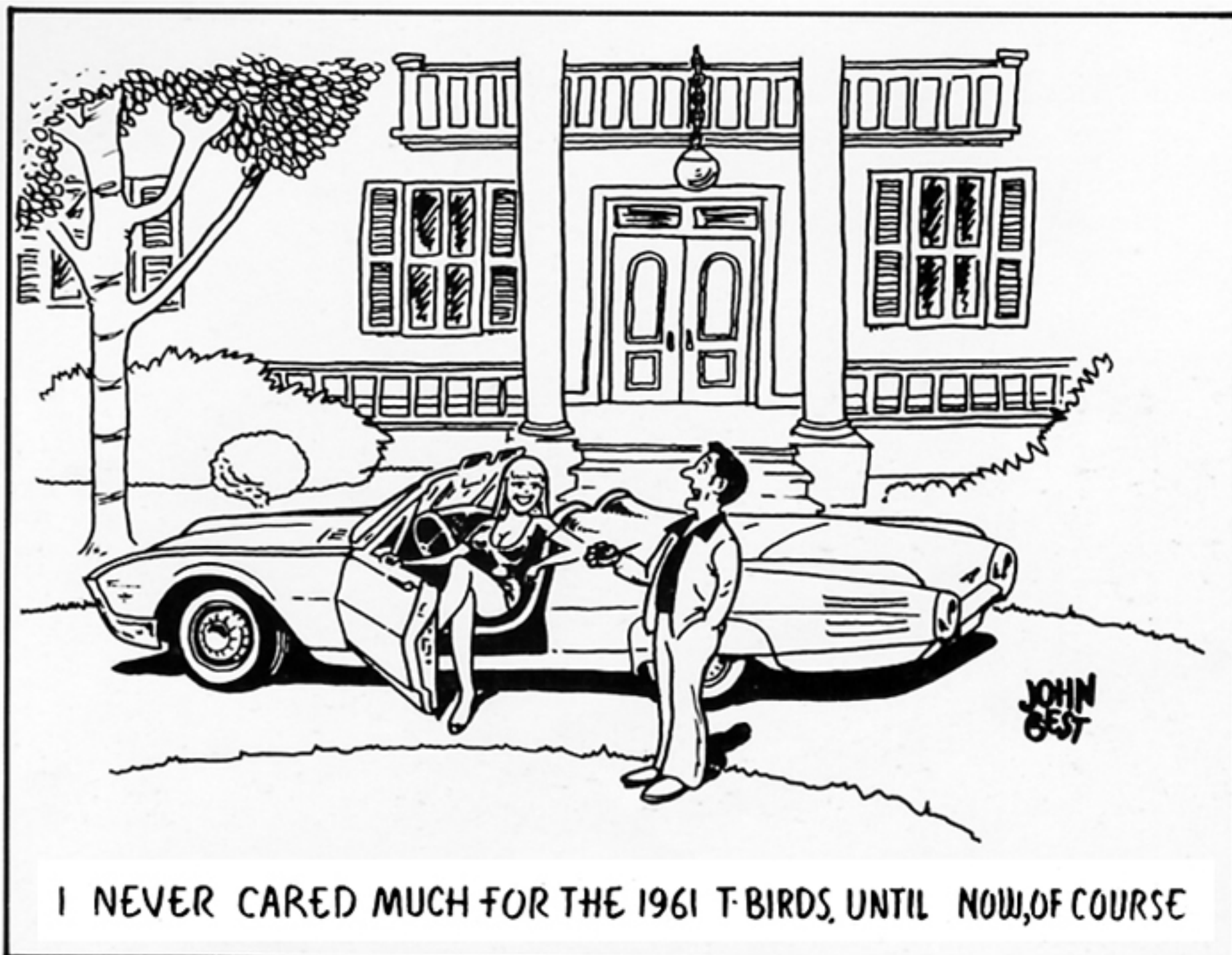
For those readers who might be interested, your Editor-In-Chief called one of his Hollywood informants, and the new owner of the McCain Thunderbird is Jim Burton, lead guitarist for Elvis Presley. Burton is an automobile collector of long standing, having just sold two vintage Corvettes prior to his purchase of the Thunderbird roadster. How about *that*, Chevy fans?

For anyone thinking about buying a roadster, here is a tip. McCain told us that his original car, even with its glamour past as a TV "star," brought only \$1,100 in 1966. "People weren't collect-

ing them at the time," McCain smiled, "but now they are." His recent sale of this issue's 1962 roadster, minus a "glamour" past, brought more than \$3,000. How much more, McCain won't say.

We have seen several lately in the hands of collectors, and almost without exception they want from \$2,000 to \$3,000 for their cars. So — a word to the wise. The 1962-63 roadsters are becoming good investments from the collector's point of view.

Watch for more on these interesting cars in future issues of *Thunderbird Illustrated*. We have our ear to the ground, and we'll run updates about the roadsters when fresh information is available.



THE RISE AND FALL OF THE THUNDERBIRD CONVERTIBLE

The 1966 convertible was the last gasp of the "rag top" in the Thunderbird line and the prelude to abandonment of convertibles in all Ford Motor Company products.

This is a collectors' car that is rapidly gaining importance among Thunderbird enthusiasts.

In the beginning of the automobile's history, all cars were convertibles, or close to it. And until the early 1970's, these were the mainstay output of automobile factories to appeal to the customer who liked something different and "sporty," and could afford to pay extra to get it.

From 1925 to 1969, every automobile factory in America, and the majority in foreign countries, had at least one convertible in its inventory. The first Thunderbirds were all convertibles, and until 1966, when production of the Thunderbird convertible ended, there was always a "rag top" Thun-

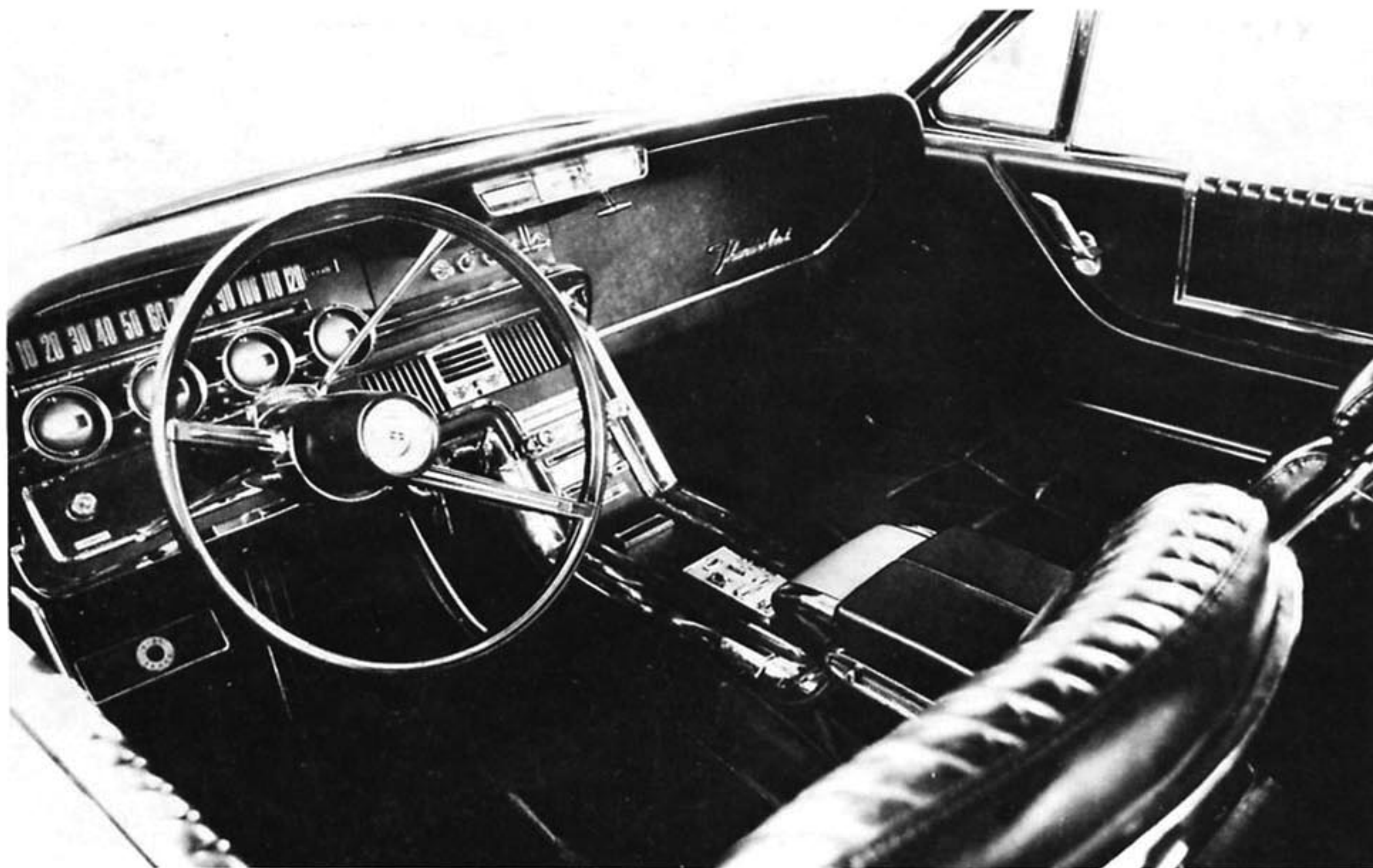
derbird with the unique and dependable Ford mechanism to raise and lower it. There was one exception. On the 1955-57 cars, the owner was supposed to raise and lower the top by the famed "arm strong" method.

There were several things that distinguished the 1964 Thunderbird which are worthy of comment here. Styling was the biggest change. Much of the 1961-63 imprint could be seen on the 1964 — and for good reason. It was still the basic unit body construction of the 1961-63 period. New sheet metal was hung on the sub-body, but under

it all, there lurked a "hold-over" body unit.

The major styling changes were expansion of the sheet metal around the dual headlights and the addition of huge, rectangular tail lights — replacing the clean, round lights that some thought looked like the exhaust pipe of a jet airplane when seen at night.

Sculptured styling on the sides replaced the smooth, rounded-slab appearance of the previous years. The "projectile" look that emerged under the hand of Alex Tremulis was squared off and the steep, sloping hood line was raised.



Some critics have likened the rear seats of the 1964-66 Thunderbirds to those of a fancy cocktail lounge — which they did resemble.

In short, the 1964 Thunderbird had *personality*. With the exterior revision, it was decided also to improve and modernize the interior. Thin-shell bucket seats, optional headrests, a higher console between the front seats, and nice touches, like the speedometer numbers lighting up as the speed increased, gave the automobile the flavor of an upholstered cocktail lounge. Another favorite was the "wrap-around" rear seats, which offered excellent lateral support for passengers in the back.

The interesting thing about the front-end styling was the integration of the grill and bumper into one hefty unit. The rear bumper

was also an integrated part of the tail lamp fixtures. Three body styles were offered in the first lineup of 1964. They were convertible, hardtop coupe, and landau coupe.

In addition to attractiveness, the thin-shell front seats, introduced in 1964, gave a little more leg room for those persons condemned to ride in the rear — and no modifications were needed to the interior dimensions, something that saved the factory extra expense.

Another feature that made smokers (and non-smokers) of 1964 breathe easier was the vent on both coupes that allowed smoke or interior air to be exhausted. The air was

drawn in over the hood, and then exhausted through a similar vent below the rear window. Convertibles did not have this feature.

During the 1960's it was thought that smaller wheels gave softer rides, lowered the overall height of the car, and generally made things simpler. The 1950's saw the demise of the 16-inch wheel, which was in turn replaced by the 15-inch wheel. Next came the 14-inch, and in some cases a 13-inch wheel was installed on certain American cars. Ford started to reverse the trend in 1964 by replacing the 14-inch wheels of the 1963 cars with 15-inch wheels.

Ford introduced disc brakes and hub-centered wheels as part of its engineering improvements for the Thunderbird.

Another engineering innovation of the 1964 Thunderbird was the use of hub-centered wheels. These were centered for perfect trueness, and it didn't take long for other automakers to follow suit in copying this Ford "first." Those collectors who are planning to purchase or restore a 1964 Thunderbird should keep this wheel size difference in mind.

It was quickly realized by engineers who studied the larger wheel size that several advantages were accrued which spelled definite advances in braking efficiency. The 15-inch wheel allowed better air circulation and ventilation, extended the life of the linings, and made the cars better able to withstand brake fade.

Power for the 1964 models was the previously-proven 390-cubic-inch, 300-horsepower V-8. The major difference over previous years was an increase by $\frac{1}{4}$ inch in the diameter of the center main. This gave the engine more rigidity and longer life. The three-speed automatic transmission of previous years was also retained, and it was offered as standard equipment.

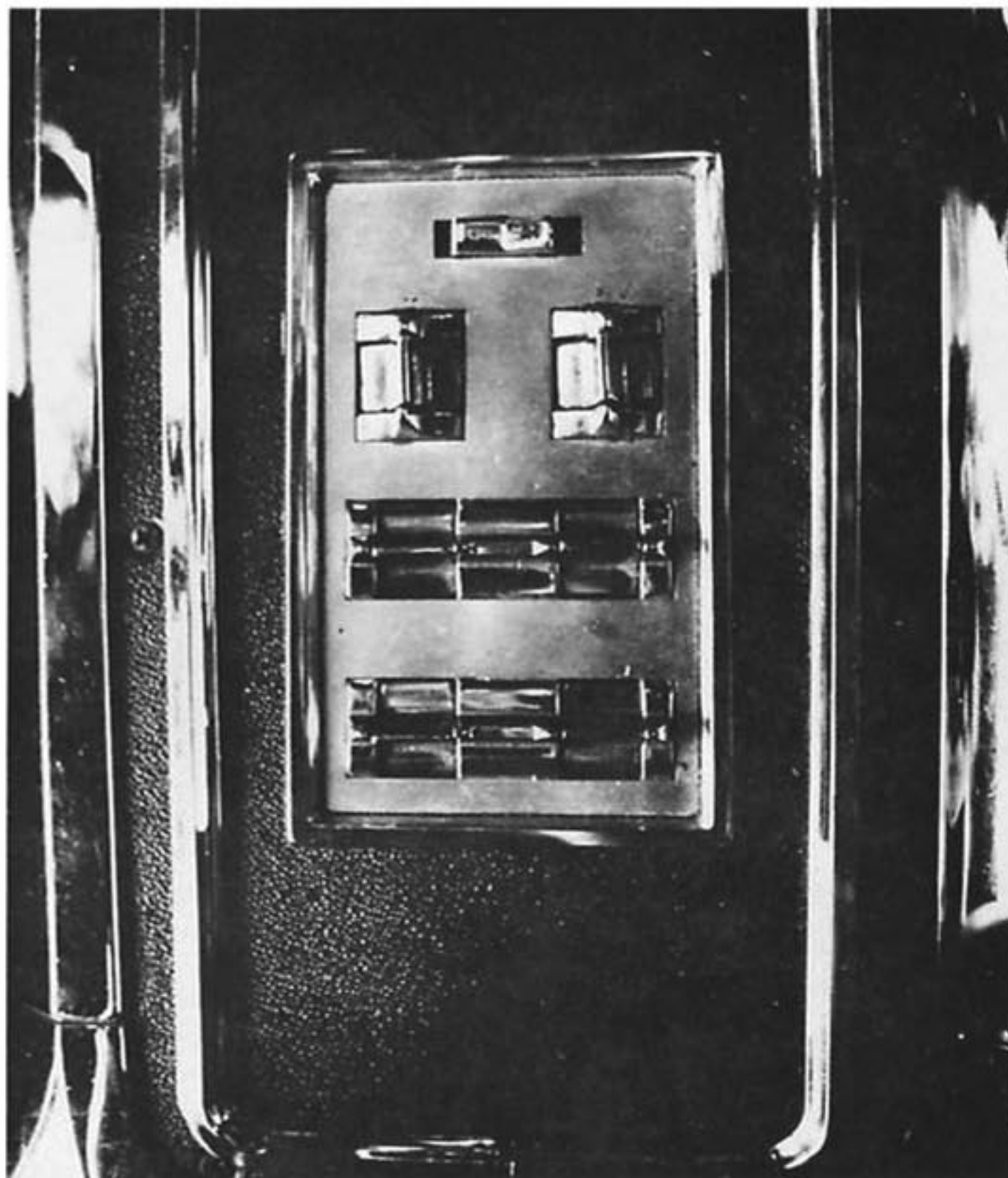
Engine performance could be improved with transistorized ignition, if the purchaser was willing to pay extra for it. Other optional

equipment on the 1964 Thunderbird included vacuum door locks, an automatic "door ajar" warning light, a safety flasher system that allowed the operator to flash all his turn signals simultaneously in case he was disabled on the road, genuine leather seat bolsters and inserts, and chrome wire wheels.

In the pattern of all post-1958 Thunder-

birds, the doors were extra wide to allow easy entrance and exit from the rear seats. But if the car was parked at a slight tilt upward, it was all but impossible to push them open on the high side. The retractable-top mechanism was the same as other years.

As 1964 wore on, and 1965 approached, no drastic changes were made in the 1964 designs. Instead, the 1965 models were



CONSOLE CONTROLS — The power windows and seats are controlled from this neat console of switches placed between the front bucket seats. These are very convenient, but when packages, clothing and other things which tend to be laid on flat places like this are placed on the console, the electrical system sometimes suffers.

←
SPACE AGE — The cockpit of the 1966 Thunderbird was both dramatic and handsome, but a nightmare for mechanics to work on when something malfunctioned. The steering wheel is a "tilt-away" unit.

given front, rear and side trim redesigning — just enough to make them different from the 1964 cars. The Landau Coupe was still the top offering, and a vinyl-covered roof and simulated wood interior trim set it off. Big and husky power-assisted front disc brakes were standard, and these helped drag the car down from high speeds with improved safety and less fade.

With the advent of the 1965 models, it was possible to lock the car doors without a key, (something GM had been doing for years) and the key blanks used were serrated on both sides so that the key could be inserted easily, either side up. A nice convenience, but hardly earth-shattering in its contribution to the progress of the automobile.

The small warning light for seat belts (remember those?) turned off automatically when the seat belts on the driver's side were pulled out and fastened. The 15-inch tires and wheels of the 1964 Thunderbirds were retained, and low-profile tires were used as standard equipment. Several power accessories were offered in 1965, and a reclining passenger seat was offered. The same engine, the dependable and powerful 390-cubic-inch V-8, rated at 300 horsepower, was the only engine offering.

Probably the most unique and outstanding feature of the 1965 cars was the redesign of the tail light lens and the addition of sequential blinkers within the unit. These caused much comment and argument at the time of introduction, but soon became a Thunderbird trademark that was imitated by other manufacturers in short order.

Other changes were the addition of a phony vent behind the front wheel, a different hood emblem, and tail lights with vertical hatchings instead of the Thunderbird emblem that was embossed on the 1964 units. (Our personal preference leaned toward the 1965 tail light design.)

In 1966, further external changes were made to the now-two-year-old body style. An "egg crate" grill was installed, and for the first time, the emblem (also changed) was mounted in the center of it. The phony air vents of the 1964-65 cars were dropped, and new hubcaps appeared.

The roof line was changed, and the small quarter panel window was eliminated, making the top on the Landau Coupe and hardtop look thicker when viewed from the side. The bumper guards that had once helped slightly to prevent front end damage were dropped. The result was a cleaner-looking front on the 1966 Thunderbird, but also a car more vulnerable to collision damage. In fact, the steel used in the bumper itself was actually too light, and more than one Thunderbird has suffered from having a warped bumper or corrugated blade surface. One thing in favor of the 1966 cars was the use of a cast grill — it is a great improvement over the plastic grills used today.

This was also the last year in which fender "skirts" were generally used by the factory. Skirts had appeared on the very first Thunderbird and had been continued, with mixed results, for a long period of time. Some "early bird" owners remove their skirts, but the 1958-60 cars actually look better with them in place.

The 1961-63 versions looked well either way, but the skirts on the 1964-66 Thunderbirds seem to have been the best looking, in the opinion of many stylists who have commented on the use of fender skirts for this product line. Stylists also reduced the size and shape of the hood scoop on the 1966 cars, moving it further back on the hood in the process.

Sequential tail lights were retained, and as in the 1965 cars, these doubled as brake lights and safety flashers. The interior appointments of the 1966 automobile remained basically the same. The convertible model

was now doomed, and by mid-season, dealers knew it. Those buyers who wanted a "rag top" were advised to make their purchases early, while the convertibles were still in production.

In the author's opinion, the 1966 convertible was the ultimate extension of the cloth top on a Thunderbird. The mechanism devised for the 1961 models was still in use, but had been purged of its early "bugs," and now functioned smoothly. The clever use of a "flip-up" rear deck was an engineering masterpiece, even though a considerable amount of trunk space was consumed by the hydraulic rams, hinges and other paraphernalia needed to make the top and rear deck work.

It might be noted here that the basic top, including the rear deck, had been used by Ford engineers in the famous retractable-hardtop Skyliners of 1957-59. After the demise of the retractable project, the engineering breakthroughs achieved were used to make the Thunderbird convertible tops work better with less fuss.

Those who may be a bit fearful of getting a Thunderbird rag top with the "disappearing top" (fearing problems with malfunctioning) can rest at ease. While the mechanism is not perfect, it comes as close to that goal as any device we know about. We might also mention that the trouble-shooting tips by Rick Holloway in the Winter issue of *Thunderbird Illustrated* will be very helpful to those who either own or plan to purchase a Thunderbird with this feature.

The 1966 Thunderbird retained the 113-inch wheelbase, and weighed in at 4,500 pounds. Because of the use of unit construction in the body, the convertibles do not have the squeaks and rattles that most convertibles develop with old age, which is a plus factor for the Ford engineers.

Another holdover from 1964 was the turn signal indicators. These were mounted on the front fenders and provided a mixed blessing for the owners of Thunderbirds.



PLEATED UPHOLSTERY — The upholstery in the 1966 Thunderbird was pleated carefully for attractive design appearance, but the fabric will rip and tear along these pleats when the material starts to get hard or heavy use.



SEQUENTIAL TAIL LIGHTS — FORD'S TREND-SETTING IDEA

Since its introduction in 1955, Ford's Thunderbird has been a test vehicle for many innovations that were later adopted on the entire Ford Motor Company line of products and eventually imitated throughout the industry. An example of this was the sequential tail light system used on the 1966 Thunderbird.

Dropping the familiar oval tail lights in 1964, the factory continued to expand the "square" styling treatment of the rear of the Thunderbirds until the 1966 models featured wall-to-wall tail lights, but the sequential turn signals were retained. Starting with 1958 models, Ford stylists had concentrated on making the rear view of a Thunderbird dramatic with tail lights that got larger with each new generation of automobiles.

Probably the most notable thing about the styling changes between 1958 and 1966 was the clever, and actually safer, sequential tail light system. Today, this type of system is a common sight on many automobiles not manufactured by the Ford Motor Company.

Another widely-copied Ford engineering innovation of this same era was a high-speed fan they called Flex-Fan. The unit was made from lightweight, flexible materials that allowed it to deflect as much as 1 1/4 inches at high speed, drawing less horsepower and reducing the weight load on the water pump by almost one-half. This seems to show that Ford really does have "a better idea!"

We'll have more on the sequential tail lights in a later issue.



FAMOUS LIGHTS — This sequence shows the three positions of turn signal lights on the 1966 car during a left-hand turn sequence.

They reminded the operator his lights were functioning as they blinked in sequence with the turn signal, but they were also hard to work around on cleaning day, and plenty of fingernails have been sacrificed during the wax and polish operation on these projecting fixtures.

The "tilt-away" steering wheel not only worked, it was a worthwhile accessory and aided, as it was supposed to do, the entrance and exit of the driver. We noted on one test car that we drove that the "tilt-away" steering wheel had become worn, and it took quite a bit of hard pushing to make the column snap into place properly so the car could be started.

In the cockpit of the 1966 models, the same dazzling array of gauges, switches, warning lights and other accoutrements

stared back at the operator. This effect was enjoyed by some, but anyone who has ever had to work on these trappings of the space-age automobile knows they can drive even an experienced mechanic "up the wall."

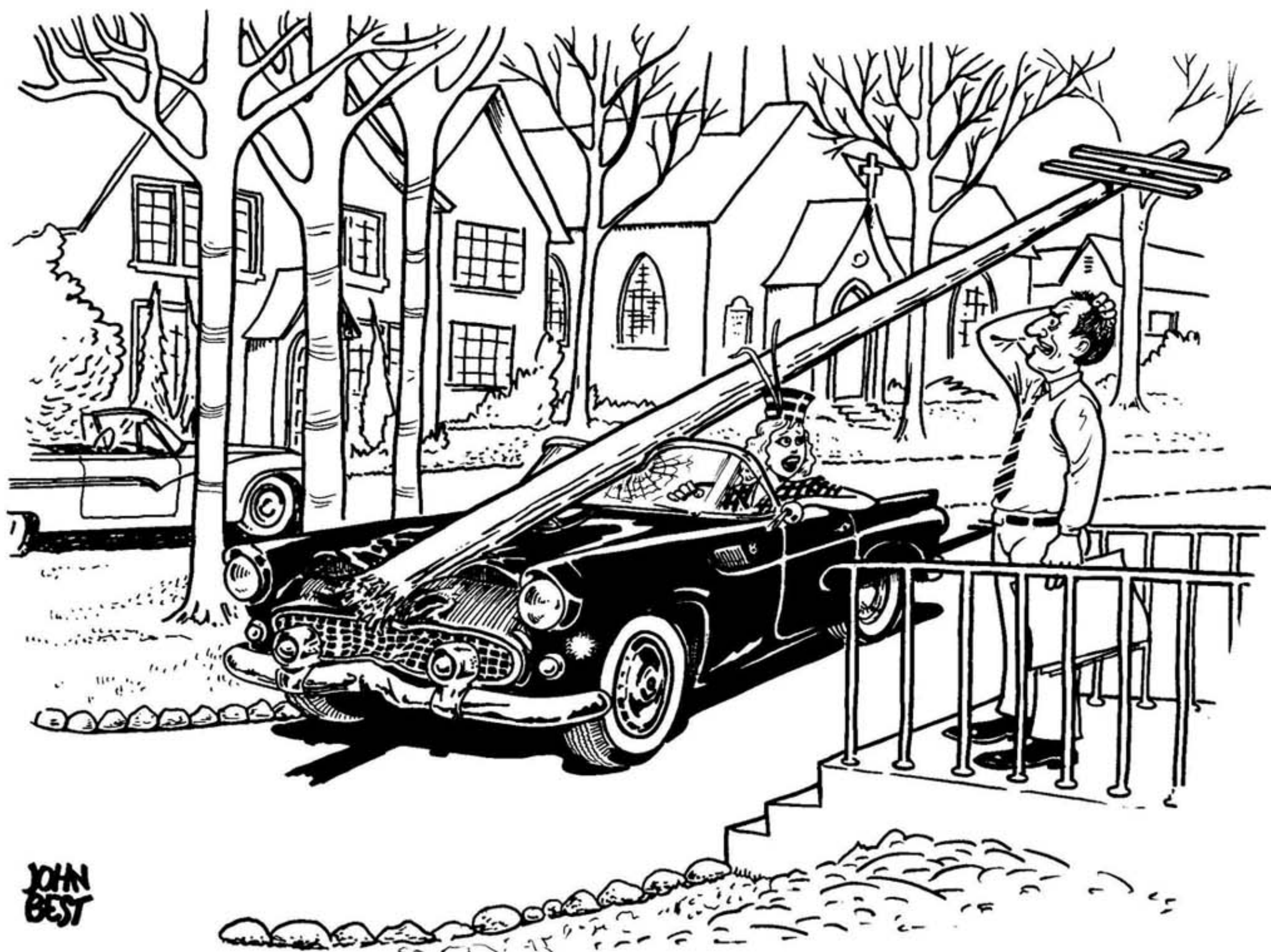
With the bigger engine options, the 1966 Thunderbird could move. It still leaves the average smog-controlled automobile of 1975 in its dust, (including the Thunderbird) and its cornering ability is excellent. Just don't get overconfident and try too much fancy maneuvering, as it could be upsetting (no pun intended!).

Fuel consumption for the 1966 Thunderbird with the standard engine was not exceptional. About 11.6 was a good overall average, with one recorded run dropping down to 6.8! The 20.5-gallon gas tank was large enough to give the 1966 models a nice

cruising range, but with today's gas prices, it is an expensive automobile to run.

We predict that the higher cost of gas will see the demise of more and more of the four-passenger Thunderbirds, even before collectors get their hands on them. Right now, the cars that need any type of major overhaul usually go to the junkyard rather than the repair shop. As the price of gas continues to climb, so will the ratio of discarded four-passenger Thunderbirds.

This economic factor is something to think about. Those collectors who are smart will start picking up clean four-passenger Thunderbirds for future price appreciation, especially the 1966 variety with the convertible top. Like the carrier pigeon of the last century, when these "Birds" are gone, there won't be any more to replace them.



"I WAS AFRAID YOU MIGHT NOTICE IT."

ALEX TREMULIS AND HIS 200 MPH 1956 THUNDERBIRD

"We decided to name the car the *Mexico* because we thought it would make a good name for the car, in case the Pan-American Road Races were ever revived."

Alex Tremulis is a startling kind of man. His head literally bursts with projects that boggle the minds of lesser designers and automobile "dream merchants." Ever since his early beginnings as an employee of the Auburn-Cord-Duesenberg empire, Tremulis has been churning out automobile designs and concepts so daring he has become the "guru" of advanced automobile thinking for generations. He is a legend of the 20th century, for the Tucker automobile and a two-wheel car, among other accomplishments.

This is one reason no one should be startled to learn that his genius once produced an aerodynamic design for the 1956 Thunderbird chassis that was capable of 200-plus m.p.h. *Thunderbird Illustrated* made a special pilgrimage to the shrine of Tremulis' theoretical learning, and stayed almost a full day with him and his lovely wife, soaking up his enthusiasm and listening to the incredible story of how the 200 m.p.h. Thunderbird came into being on his drawing board.

As this story unfolds, it should be remembered that Ford was very careful not to attempt to sell the 1955 Thunderbird as a sports car, but rather as a *personal car* which denoted luxury and refinement, not guts and hell-raising performance, even though it had performance in great abundance.

Thinking back over his career with the 200 m.p.h. project, Tremulis told *Thunderbird Illustrated*: "I think the thing that triggered it off was when Henry Ford the Second walked into my office one day and said, 'Boy, were we ever embarrassed at Daytona!' That was when they had the famous Daytona Speed Week, and stock cars would run the measured mile. Frankly, one of our Thunderbirds, in front of all the cameras, suddenly stood on its nose, went upside-down for about 1,500 feet, and came to a stop. Fortunately, the car had the hardtop on, and the driver walked off without any injuries," Tremulis explained.

"Henry Ford was a bit embarrassed and said, 'Alex, My God! What caused this?' So I told him, 'We know one thing from wind tunnel tests. Our car (Thunderbird), being a "notch back" with the top on, develops some 600 pounds of lift over the rear wheels at 100 m.p.h. That lift is a function of the square, so it could have actually been gen-

erating forces on the order of 1,200 to 1,300 pounds of lift over the rear wheels at 130 m.p.h. — and maybe that is all the weight there was on the rear wheels!"

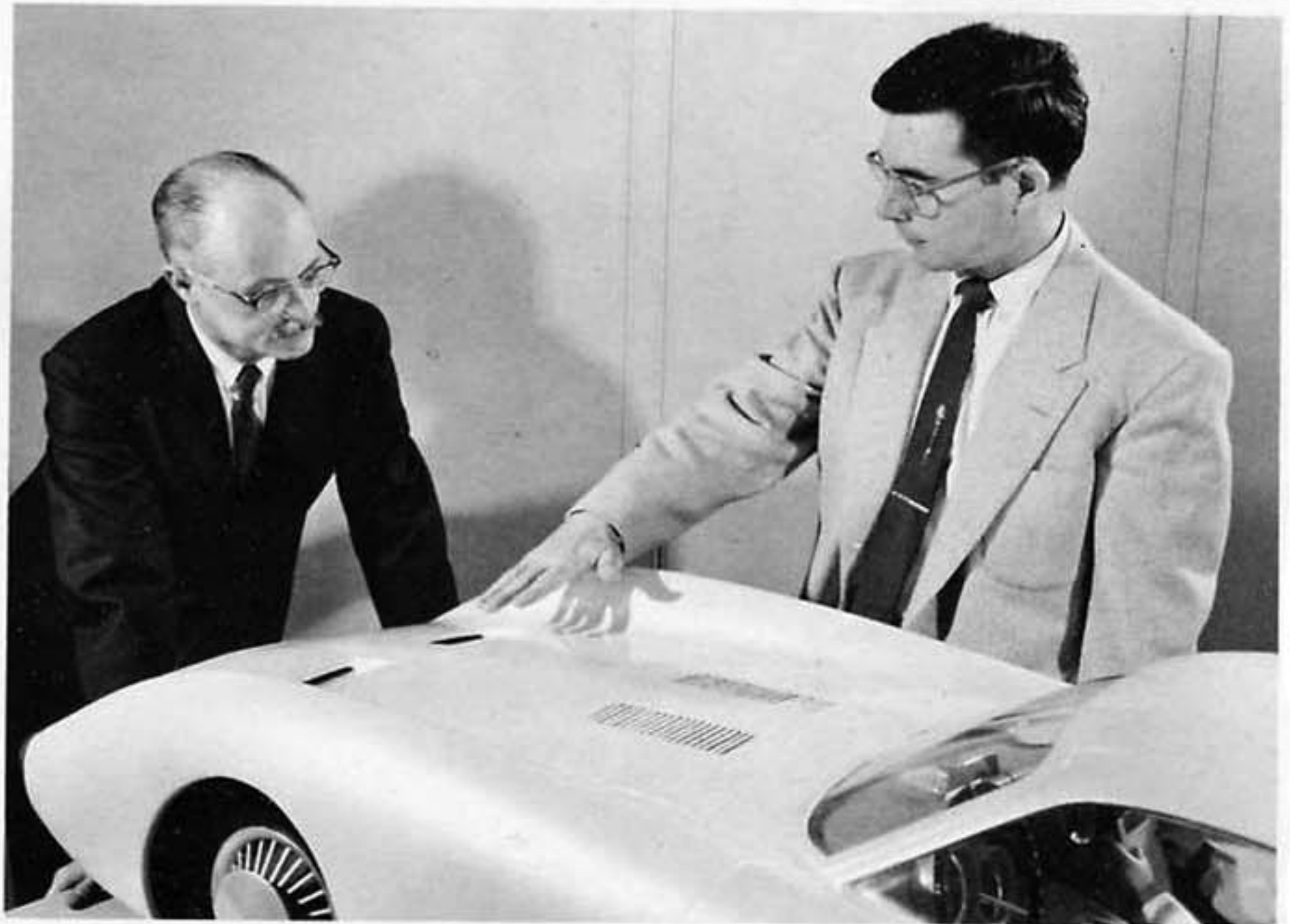
"Because Daytona was a very rough course, just a deviation, hitting a bump, changing the front pitch angle one-and-a-half or two degrees, could have conceivably developed aerodynamic lift, neutralizing the weight resting on the rear wheels, and causing the flip very easily.

"He said, 'My God! What can we do about it?' I told him that all we had to do was design a 'zero lift' automobile. I said that I'd like to work out a clay model, do some exploration and see what happened. 'If it looks good, we'll put it in a wind tunnel and see what we can do. Besides, I think it would be a very good exercise in the event they ever revive the Pan American Road Races. We would have a high performance Thunderbird that could cross swords with the Lancias, Ferraris and Mercedes-Benz 300 SLs.' Ford

gave his approval, and operation "Ford Mexico" was launched."

In referring to the Pan American or Mexican Road Races, Tremulis was talking about the victories Lincoln had earned in the grueling course over high mountain passes, across blistering deserts, through villages, farms and even cities, from Ciudad Juarez on the Texas border to a tiny town in Mexico — almost to Guatemala. In this competition, Bill Stroppe, a well-known race mechanic and supervisor of racing projects, had built up Lincoln sedans that met the best machinery ever put on four wheels at that time, and won, in many cases, hands down over exotic and expensive European sports cars and special factory entries.

Tremulis, with his eye on the future, saw a chance for Thunderbird to gain similar glory if the race were ever re-run. An example of the kind of performance the semi-stock Lincolns turned in can be gleaned from the fact the cars came in first, second, third and



JOURNALISTIC CONFERENCE — Tremulis (left) discusses his Ford Mexico design with journalist Ken Fermoy at the Ford Motor Company advanced styling department in 1956.

fourth in 1952 and 1953. In 1954 they returned for another victory, but this was the last year of the races. Too many people had been killed!

"The *Mexico* was an ultra-streamlined sport aerodynamic coupe designed to use T-Bird component parts. The car was intended to be used as the dedication car for the new Ford high speed track. Speeds approaching 200 MPH on the straightaway were expected. In order to insure absolute safety under maximum performance conditions, a 3/8ths wind tunnel model was built for test purposes. The 1955 T-Bird, in stock form, required some 98 HP at 100 MPH to overcome wind and tractive resistance. Close to 800 HP would be necessary to force the stock coachwork through the air at 200 MPH.

"The *Mexico* was tested in the wind tunnel at the University of Maryland. The model was tested with and without a flush underpan. The results constituted an aerodynamic break-through. Results were astounding. In full aerodynamic form, the underpan completely eliminated any semblance of high aerodynamic lift. Without the underpan, maximum speed — determined by the loss of traction at the rear wheels due to aerodynamic lift — restricted the car's maximum speed to 162 MPH. However, with the flush bottom, performance was extrapolated to 400 MPH with the car still maintaining trac-

tion and directional stability.

"An interesting side note — 1660 HP at the rear wheels would have forced the car to a speed of 400 MPH. However, it is quite obvious that it would have been impossible to install so large an engine in so small a car. Its potential performance is merely a by-product of its efficient aerodynamic form. Lift reduction was due in part to the extreme upsweep of the underpan in conjunction with the small bubble-type canopy.

"Tests indicated that the *Mexico* could attain 200 MPH with but 240 HP at the wheels and 240 MPH with 400 HP. This car could have conceivably set a world's record for two-passenger sports cars with today's high performance engines. Unfortunately, this aerodynamic philosophy was sadly misunderstood by the styling management at that time. Arguments were presented that suggested that aerodynamic perfection would eliminate the stylist from the profession.

"This unfortunate philosophy set the art back many years. It is unfortunate that in spite of overwhelming evidence, we still have stylists in high places who refuse to accept these basic laws of nature. At any rate, the wind tunnel report was completely ignored, reduced to the status of a Chinese white paper, and has since gathered dust."

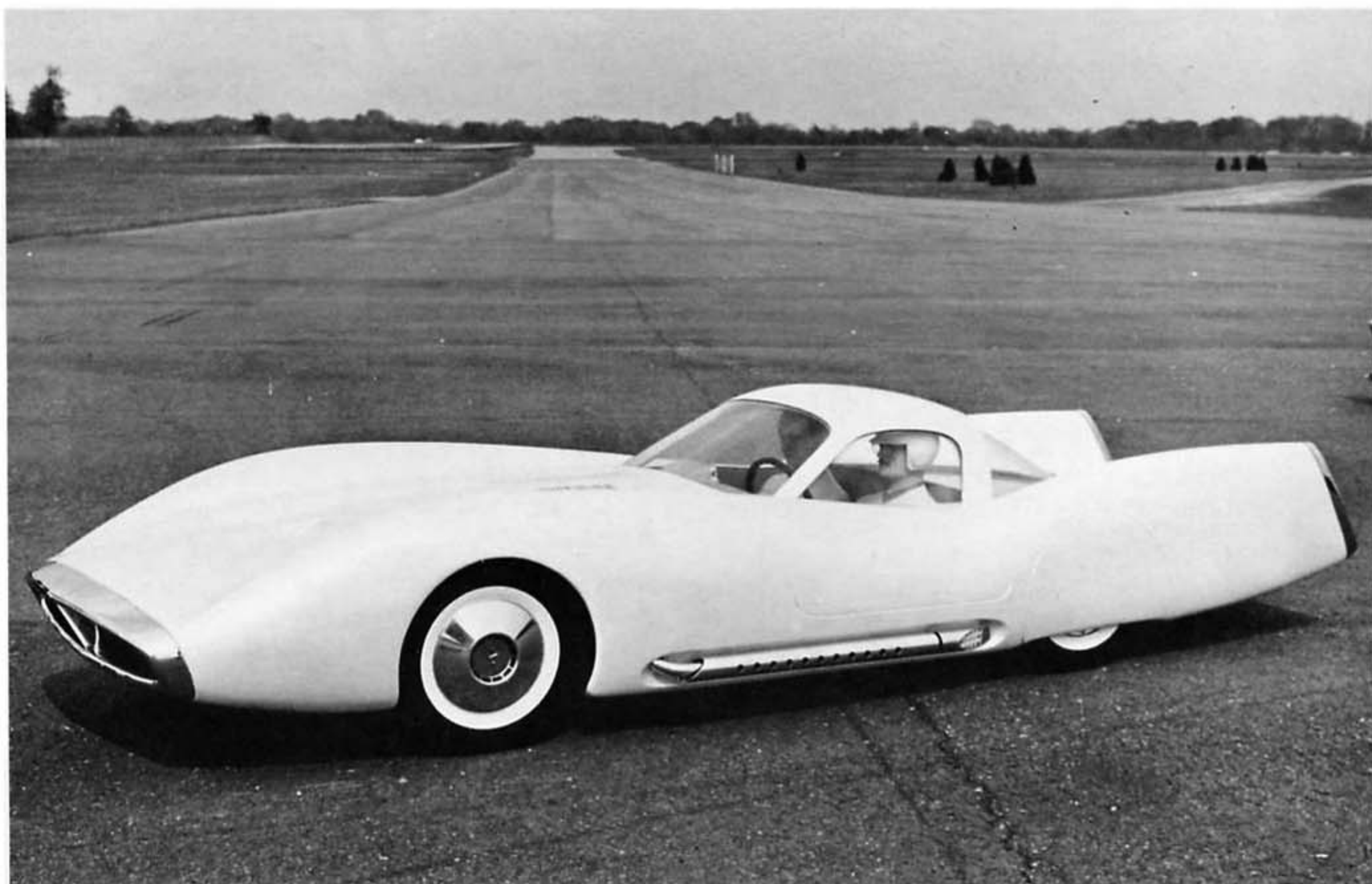
Still, for a man of Tremulis' inclination and racing experience, it was a challenge to

work out — on a drawing board, then in clay model form — new body lines for a Thunderbird that could succeed in such a wild "no holds barred" competition on the rough (and sometimes non-existent) roads of rural Mexico.

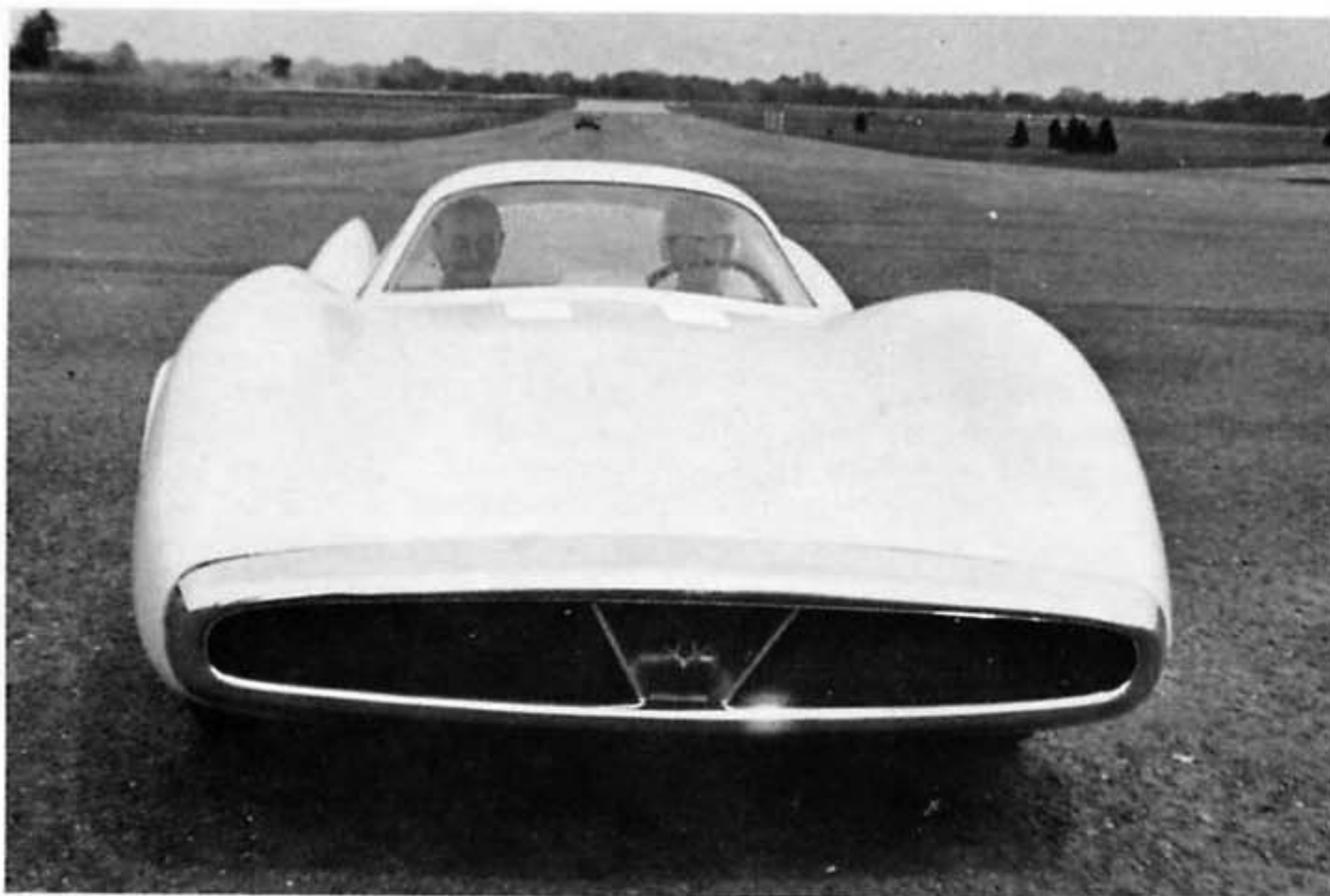
Tremulis approached the problem with some facts in his corner that gave him an edge with a wind tunnel-developed and tested design. There was only a difference of five or six miles an hour average top speed between an "all out" Lancia, (one that the factory poured thousands of dollars into, giving it the benefit of decades of racing experience, as well as "secret" technology) and a 1952 Lincoln sedan meant for taking the family for a Sunday afternoon jaunt with six people and a crying baby.

"So that little six-mile-per-hour top speed edge simply says Lincoln was turning in a fantastic performance," Tremulis said. "Of course, those were not ordinary Lincolns, they were race-prepared by the best man in the business, there is no question about it. So my theory was simple. The Thunderbird chassis, because it had never had the racing refinement of generations, or even a couple of seasons, could never be expected to do battle with Lancia, Ferrari and Mercedes-Benz on the winding, twisting road race curves.

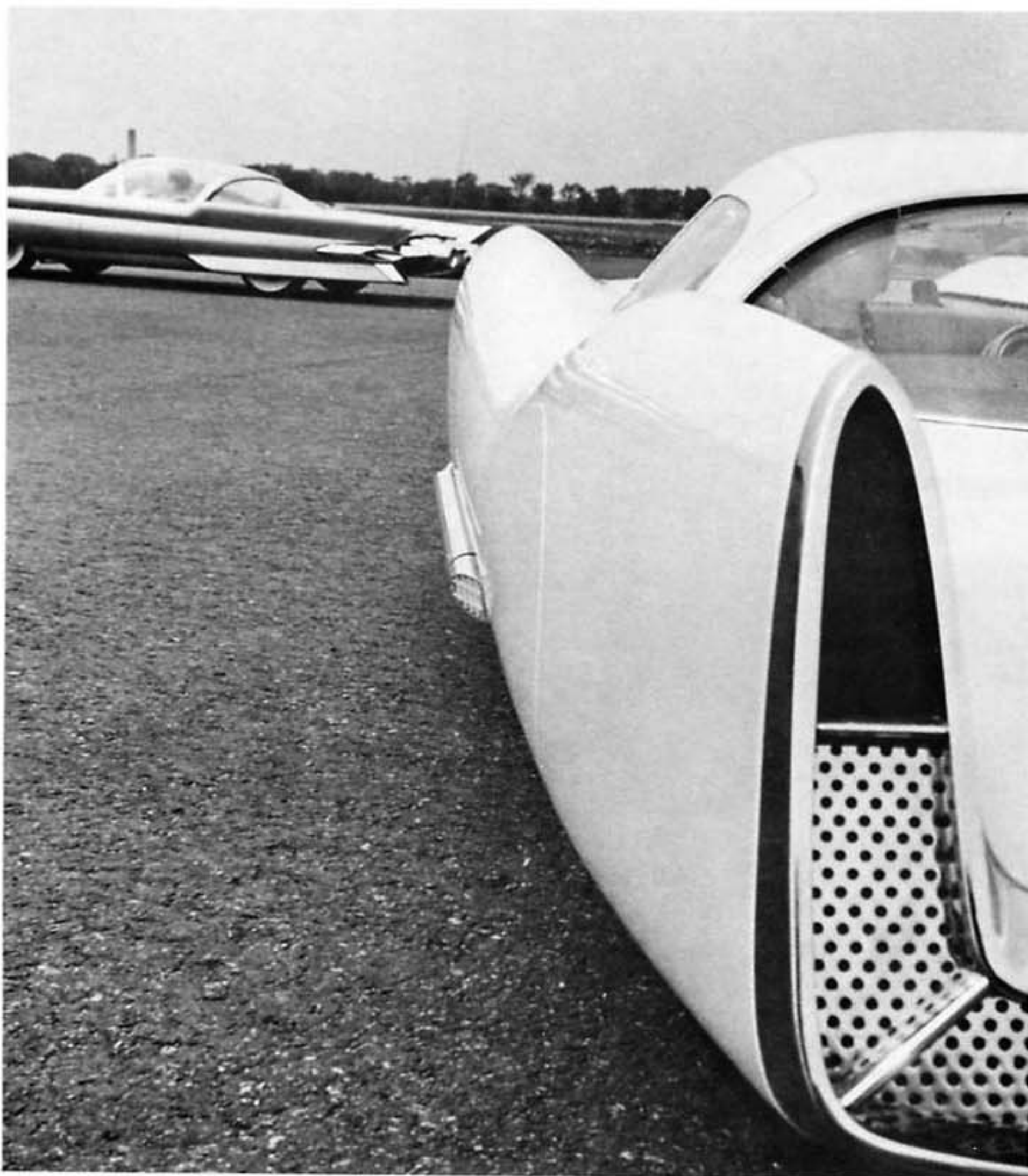
"But the race could be won, if we could



EXPENSIVE MODEL — This 3/8 scale fiberglass model of the Ford *Mexico* was valued at \$25,000 — and was made in record time by Tremulis for demonstration purposes. Note the 3/8 scale model of Tremulis at the wheel with his boss, Charles L. Waterhouse, in the passenger seat.



SLEEK FRONT — The nose section of the Ford Mexico is super clean and devoid of ornamentation except for the chrome grill bar and small "vee" emblem in the center. No other decoration was needed, the design speaks for itself.



FUTURE DESIGNS — The rear fender of the Ford Mexico incorporates the taillight and a stainless steel motif that doubles as a light bumper. Note the futuristic Lincoln in the background.

THUNDERBIRD ILLUSTRATED

develop a car that would reach or exceed 200 miles-per-hour for 120 miles on the last leg of the course. The top speed of a Lancia, or even a Mercedes-Benz, was only about 165 miles an hour, so, on total elapsed time, we could win the race.

"To achieve this goal, I set up a five-day crash program to develop a model, and after the model was okayed, we decided to go ahead into a 3/8th-scale fiberglass model. This would be a beautiful display model and also kill two birds with one stone. We could rent a wind tunnel and see what the aerodynamic reaction was. The model turned out to be quite earth-shaking in the sense that we had developed an automobile that — as far as aerodynamic drag was concerned — only used 25 horsepower at 100 miles-per-hour, plus another 15 horsepower for rolling resistance and mechanical losses.

"This gave us a car that, at 100 miles-per-hour, only required 40 horsepower!! Projecting our speeds to 200 miles-per-hour, we found that we could reach that speed with just 300 horsepower at the wheels.

"Carrying that to the stock, existing Thunderbird, our estimates were that it would take 720 horsepower to force it through the air at 200 miles-per-hour. The projected performance capability of our Mercury Marauder engine in those days looked as though we could get 400 horsepower — more than enough for the aerodynamic body — but it was hopeless to consider getting 720 horsepower out of it to power a stock Thunderbird at 200 miles-per-hour.

"But, using the new body design and the 400-horsepower Mercury Marauder engine, it looked like we could get 240 miles-per-hour out of it. We then decided to name the car the 'Mexico,' because we thought it would make one hell of a good name for the car, in case the Pan American Road Races were ever revived. My Mexico underwent extensive tests in the wind tunnel.

"One of the secrets of the design was the underpan. We took tests with and without the underpan and found that the underpan on this particular car reduced the horsepower very drastically. Its unique feature — the real secret of the underpan — was that its bottom had a very high sweep as it terminated at the rear bumper. This allowed air to increase in velocity, speeding the air flow underneath the car, with the result that, theoretically, we developed a "zero lift" capability.

"Because the velocity underneath the car roughly equaled the velocity on top of the car, it acted like a symmetrical airfoil section operating at a zero angle of attack. We were delighted when we got our readings of ridiculously low lift coefficients over the front and the rear, which for all practical purposes you could just about write off as zero.

"The rear end lift was something like 54 pounds of lift, compared with the 600 pounds we'd had to contend with on the stock Thunderbird. Most cars develop aerodynamic lift over the rear wheels — something like 300 pounds for a sedan. Fastback cars have a tendency to develop a little more. Some cars develop as much as 1,000 pounds of lift over

"I really think that if the Mexican road race had been revived, Henry Ford II would have said, 'We go all out with operation Mexico.' If we had ever built that car, it could have been a most magnificent automobile to drive because of its sheer straight line capability."

The *Mexico* reached 3/8th scale size, which was approximately seven feet long. "We were sort of restricted in advanced styling to smaller scale models. Our department was on the second floor and a 6,000-pound clay model (the weight of a full-size styling exercise in clay) might have crashed through to the first floor."

Tremulis was able, because of his enormous energy and talent, to create fabulous designs in clay and on paper, especially if he was fired up on the project. It generally takes two or three men a month or more to rough out a 3/8ths scale clay model, but when Tremulis was given the "green light" to proceed, his model was ready in five days — and he did most of the technical work himself!

"Because the scale of the Ford *Mexico* was 3/8ths, we only used about 600-700 pounds of clay, but that was still a lot of material to have to handle with hand tools. Charlie Waterhouse asked me one day how come it had taken me and my staff four months to create *La Tosca*, a small car I had designed, in a 3/8ths size scale model. It had a sliding plexiglass canopy and some other innovations which attracted a lot of attention.

"I said, 'Charlie, I'm trying to keep everybody happy, I'm trying to make something that is feasible, that the men at body engineering can work with — panels that can be stamped, fender wheel houses that the stone-pecking committee will sprinkle Holy Water on. I'm trying to keep from stone-bruising the entire side of the car. Under those conditions, four months is nothing on one job. It turned out to be a very successful model, but I had to change the design nine or ten times until I finally arrived at something. I was trying something very dramatic with canted fenders, and that created all

sorts of odd illusions.'

"Then I told him, 'If I were designing a car only to please myself, I could do it in five days, no snap.'" Waterhouse obviously didn't believe Tremulis, and decided the stylist was boasting. "The day I see you doing a model in five days, I'll take your whole staff out to a steak dinner," he snorted.

Picking up the glove, Tremulis told his chief, "I'll come in tomorrow (Saturday) and design the car."

"When are you going to have the templates?" Waterhouse wanted to know.

"Oh," Tremulis said in an off-hand way, "I'll have those made on Sunday, I'll make them myself. I don't need many because I know what I'm doing. We'll start clay on Monday, and by Friday night, we'll have the thing all "slicked" ready to go down for casting.

Smiling, Waterhouse told his styling chief, "This I have got to see."

"So, the first thing he did was make a sign, 'X minus Five,' and I started to work. Each day, the sign was changed to read: 'X-minus four,' 'X-minus three,' 'X-minus two,' 'X-minus one,' and by the deadline we had the car."

"It turned out to be one of the most beautiful cars I think I have ever done. I didn't deliberately design it to be a beautiful automobile. If it was a beautiful automobile, it was only because it obeyed the laws of aerodynamics. It was honest, it had sheer integrity and function. If there was any beauty, it was the by-product of function. That is what makes design. Function dictates form. That is what makes airplanes beautiful. I never saw a horrible-looking airplane in my life — unless it was a big, ugly cargo ship. If it looks good, it is good."

In those days, the head of the department was Charles Waterhouse. He was a member of the family that had once built the now-legendary Waterhouse custom bodies for automobiles like Deussenberg, Peerless, Marmon and many other ultra-luxury marques. According to Tremulis, Waterhouse was an illustrious body engineer and a wonderful

man to have directing the efforts of advanced styling at the Ford Motor Company.

"In those days, styling was pretty much dominated by engineering. Waterhouse had a great deal of respect for stylists because of his own background with custom body building and design. I think the time he spent with me at advanced styling really gave him an insight into what stylists really were. People at that time thought stylists were 'pretty picture boys.' We were thought to be able to draw pretty pictures, but how were you supposed to translate those pictures into sheet metal? That was the predominant attitude.

"You might say that engineers and stylists were as compatible as cobras and mon-gooses. But under Charlie Waterhouse, this was not true. He did a very fine job of guiding a group of strong-willed, so-called "prima donnas" who were supposed to draw fancy pictures of automobiles for the Ford Motor Company.

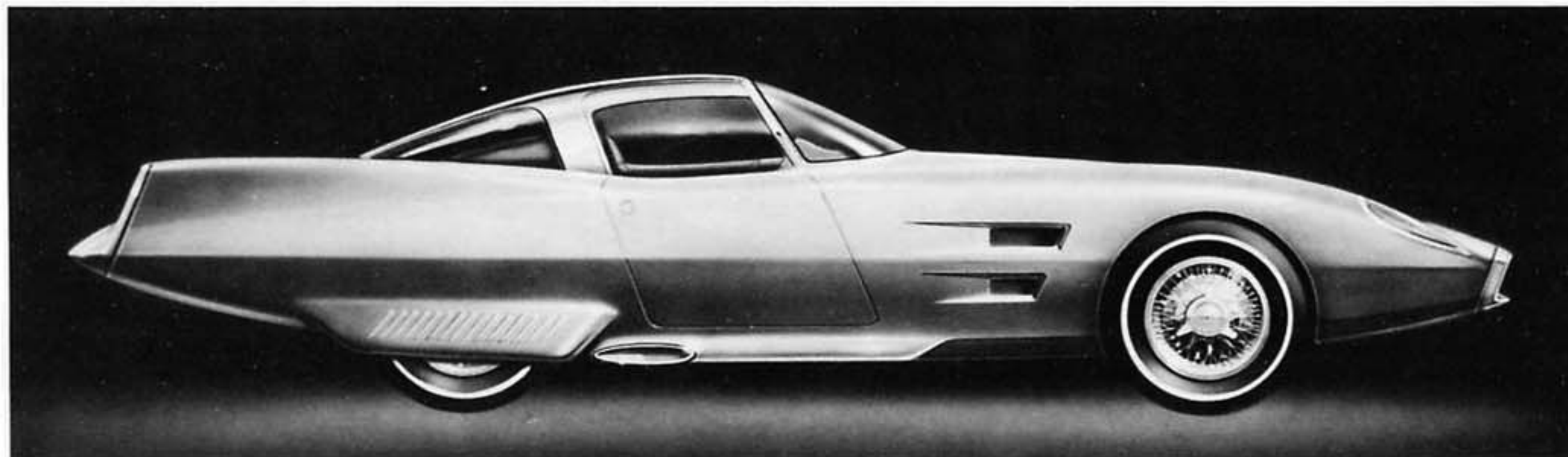
"Later on, we were supposedly "liberated" by George Walker, who became the vice president of styling. But I felt that Waterhouse had already accepted us as artists and designers and little "liberation" was necessary. It was under Walker that the 1955-57 Thunderbird was born, and it was a masterpiece. I cursed the day that I sold my 1957 Thunderbird some ten years ago. I would love to have that car right now!

"Something that few people remember today is the fact that in 1959 the Ford Motor Company went back to Daytona, this time with the 1959 Thunderbird. They built up five cars. They had three-speed transmissions with overdrive, heavy duty brakes, special spring rates and shocks. I remember people looking at me strangely when I shifted gears with a column shift — in those days, we used automatic shift in all production Thunderbirds.

"These cars might have been a dramatic revelation to people if they had been run, but at the last minute, someone in management decided that the Thunderbird shouldn't be subjected to the racing image, but should retain the classic, elegant mystique Ford had been building for it over the years.

**Tremulis notes that 55-56 Thunderbird front bumper and notch-back styling caused an unnecessary amount of air turbulence despite its small size. This streamline defect was improved on the 1957 models.*

***GT 40 — Ford factory-sponsored Grand Prix cars.*



PROPOSED THUNDERBIRD — This was a Tremulis design for the 1960 Thunderbird, which incorporated the Ford *Mexico* front end and a portion of the rear fenders. Could Corvette stylists have taken "inspiration" from this design?

the rear wheels, depending on the styling configuration.

"The coefficient of drag, when we broke it down, was .21. A flat plate area of one square foot has a coefficient drag of one. Consequently, .21 would really mean that it is roughly 21% of flat plate area. Most cars we are building today are in the area of .50, so it had less than half the drag of the typical automobile.

"I would guess the stock Thunderbirds, which were pretty fast automobiles, had minimum frontal area, because they were very low compared to sedans. They had a drag coefficient of .60*, or 60% of that of a flat plate area. It is very simple to determine the horsepower required if you have two factors, one the C.D., and the other the frontal area. You multiply those two and you get the equivalent flat plate area. Then we know that a square foot of frontal area at 100 miles-per-hour at sea level has a drag of 25 pounds resistance. We also know that it takes 6.6 horsepower to push one square foot of flat plate area through the air. Imagine, if you will, a small square held upright and then moved at a certain speed. This is how you determine the resistance of a flat plate area.

"As the years went by, and the Ford GT program came into being, I remember having a lot of phone calls from people wanting to know how come the Ford *Mexico* would run some 20 to 25 miles-per-hour faster than the new, very powerful GT 40s**, even though the *Mexico* had the engine in the front and the GT 40 cars had the engine in the rear to minimize the frontal area.

"It isn't a question of whether the car has an engine in the front or in the rear. It is really immaterial. It just happened that in the Ford *Mexico* we had a divorced cooling system. We also minimized a tremendous amount of drag caused by air that normally enters an air intake scoop and can't find a place to go. It is expected to "leak" out the cracks where there are no louvers to assist it.

"Also, when an engine compartment is literally flooded with air, it blocks the incoming air to a point where air flow is restricted, and if you can develop in an engine compartment a situation where the radiator core exhausts air as fast as it is taking it in, you can get by with much smaller radiator cores.

"I think a good classic example is the 'Gull Wing' Mercedes-Benz 300 SL, with its wastegates on the side. It 'breathes' like a shark, and I've always admired the shark. The shark looks like a functional animal, with water coming through his open mouth and being exhausted at the side. Shark gills remind me of the 300 SL. I have heard that tests indicate there is a difference of 12 miles an hour if you block the wastegates on the side. They are functional. I look at automobiles today with dummy wastegates on the side, and I think of these as classic examples of "speedlining," not streamlining. They look fast, but they don't impress me.

"We were quite elated by the performance of the *Mexico* in the wind tunnel,

especially in our "yaw" test, which was conducted in 35 miles-per-hour winds. The test showed deviations, even at a speed of 200 miles-per-hour, of just two and one-half feet. A conventional Thunderbird making a lane change at that speed in the normal driver reaction time of 1/5th of a second would have moved somewhere on the order of 10 to 12 feet sideways — right into a head-on collision, because the car would have been in the other driver's lane."

Looking back 20 years, Tremulis remarked on his achievement with the Ford *Mexico*, and concluded that the design still looks modern. In fact, it very closely resembles the current Corvette *Sting Ray* automobiles. Grinning, the designer told *Thunderbird Illustrated*: "We proved one thing. We designed a car that could go safely at speeds of more than 200 miles-per-hour, and we still had an automobile that looked good. It has survived the test of time. Subconsciously, the designers at Chevrolet might have been influenced by the Ford *Mexico* of 20 years ago, but I can't say that for a fact.

"I wasn't trying to create the most beautiful car in the world, I was only trying to take the standard Thunderbird chassis with a more powerful engine, dress it with a correctly-styled aerodynamic body, and achieve 200 miles-per-hour. The results were what we had hoped, and the car did indeed turn out to be beautiful, but beauty was a by-product, not the objective.

"I see race cars dragging enormous "wings" through the air, trying to do 210 miles-per-hour down the backstretch at Indianapolis, and using a thousand horsepower to do it! I am not very impressed by that kind of fierce, furious horsepower. When you break it down, the Ford *Mexico* required only 40 horsepower at 100 miles-per-hour, yet here these race cars are using 150 to attain the same speed!

"In my opinion, they shouldn't be using more than 50 to 60 horsepower at 100 miles-per-hour. The big battle at Indianapolis is to win that race with a fuel consumption of one and a half miles-per-gallon. They force so much power from 155 cubic inches with high supercharge boosts that are really grenades. If they used a little intelligent streamlining, imagine how much longer an engine could live if they could be happy with 800 horsepower instead of a thousand. Proper streamlined body design could provide that kind of edge in racing."

The Tremulis-designed Ford *Mexico* had other functional design features that allowed it to travel at high rates of speed without erasing the safety margins. One of these features was the small stabilizers or "fins" that the designer placed on the rear of the fenders.

While these were not intended to be styling "tail fins," the fenders did sweep up high, and they acted like a tail fin might. That is what gave the automobile directional stability at high speeds. Speed, to Tremulis, is simply an abstract term. That is probably one of the reasons he was able to tackle the problem of the Ford *Mexico* without thinking

of the seemingly-impossible nature of the task he had outlined for himself.

"I do not think 150 or 200 miles an hour is really fast. When you think about it, 200 miles-per-hour is really only 300 feet-per-second. In an automobile that has directional stability, I look at 200 miles-per-hour as just a number. I always looked at the Ford *Mexico* as a safe, fast car. Its real success, at least on paper in the wind tunnel report, was that it had better directional stability at 200 miles-per-hour than the conventional Thunderbird at 100 miles-per-hour. That was an achievement of great import."

Tremulis was also a Thunderbird owner and driver in those "early bird" days. He had several, but two that he used extensively were 1955 and 1957 models. As a youth, Tremulis had made long trips with Ab Jenkins, the famed Mormon endurance-driving champion, and the experience of driving over cross-country roads at high speeds with Jenkins helped him gain a taste for fast driving he still enjoys today.

With the advent of the Thunderbird, Tremulis found a car that could at least come close to his desires for high speeds, and he drove the cars "flat out" most of the time, especially when he was taking long trips. "I always loved the Thunderbird. I think it was one of the finest cars I ever really owned, and all the many trips that I took out to the Salt Flats for the Bonneville speed trials, or to the West Coast, were made in my little Thunderbird."

"We made many, many, long distance, non-stop trips in those cars. We would drive in one jump from the Salt Flats to Detroit, or from Denver, Colorado to Ann Arbor, Michigan. These were typical trips in the Thunderbirds I owned."

Tremulis had one Thunderbird with an automatic transmission, but his favorite unit was the three-speed with overdrive. Remarking on the overdrive, he told *Thunderbird Illustrated*, "It gave you a phenomenal choice of ratios. I was always amazed at the economy of these cars. Our cruising speeds were always very high, (read over 100 miles-per-hour) and we made some very fast times because of it. It was nothing to drive 800 to 900 miles a day in one of my Thunderbirds.

"Even at these speeds, economy was absolutely unbelievable! When you see 4,000 r.p.m.'s. on the tachometer of my 1955, going down a nice mountain grade, *in overdrive*, racing a Buick, and I still get exceptional mileage, you know it's a wonderful car. When I drive, it is with my tachometer. When we raced the Buick that time, I was watching the tachometer and my wife was watching the speedometer."

"The speedometer is bouncing at 150 miles-per-hour," she told her husband, to which he replied, "Well, we aren't going that fast. We are only doing an honest 135 miles-per-hour because we are going downhill!" Tremulis thought the car handled beautifully, and it wasn't until he saw the wind tunnel results of the Ford *Mexico* that he realized how much more that chassis was capable of!

TREMULIS COMMENTS ON THE FORD MEXICO

I have prepared a chart of the performance capabilities of a stock 1955 T-BIRD versus the modified aerodynamic coachwork of the *MEXICO*. The stock T-Bird had C/D (coefficient of drag) of .60 and a frontal area of approximately 17.5 sq. ft. Multiplying the two factors together we reduce the factor to an equivalent flat plate area of 10.4 sq. ft. The *Mexico* at 16.4 sq. ft. of frontal area at a wind-tunneled C/D of .21 reduced the equivalent flat plate area to 3.4 sq. ft. The Mercedes 300 SL Gullwing, one of the best streamlined coupes at that time, with a C/D of .32, presented a flat plate area of 5.1 sq. ft., approximately one-half the aerodynamic drag of the stock T-Bird, while the *Mexico* presented only 1/3rd the flat plate area of the T-Bird. While air drag in pounds of resistance is a function of the square, horsepower required to overcome wind resistance is a function of the cube. Simply stated, 1 sq. ft. of flat plate area at 100 MPH presents a resistance of 25 lbs and at 200 MPH presents a resistance of 100 lbs drag, or 4 times the drag, because by doubling the speed, the body hits twice as many particles of air and hits each particle of air twice as hard — therefore $2 \times 2 = 4$.

Now, as for horsepower required to overcome resistance, the horsepower required becomes a function of the cube. In other words, that single square foot of flat plate area, that required 6.6 HP at 100 MPH, now requires $2 \times 2 \times 2$, or 8 times the HP — 52.8 — to merely double the velocity. The other factor is rolling resistance, which has been calculated at HP required at 35 PSI. Bonneville racing tires would reduce the HP requirements by 50%.

It is obvious from the comparison chart that any reduction in coefficient of drag drastically reduces the HP required to move the vehicle, with a resulting reduction of fuel consumed, a crisis that plagues all motor cars today. One of the questions most often asked me after I left the Ford Motor Company was: "How come the *Mexico* is 20 MPH faster than our GT-40 at the same HP with the engine in front?" The *Mexico* had divorced cooling. Air never entered the engine compartment. It was completely divorced and exhaust coolant air was ducted out the top and bottom of the nose section through wastegates. Air velocity under the underpan was accelerated with the result that a zero lift condition was created. As an example, lift generation over the rear wheels was only 54 lbs with the underpan at 100 MPH. Without the underpan, the lift at the rear wheels would have been 400 lbs lift, and at 200 MPH lift generation would have

resulted in a disastrous 1600 lbs; whereas in underpanned form, 216 lbs. lift was negligible. Whereas a velocity extrapolated to 400 MPH would become the speed at which the *Mexico* would lose rear wheel traction and become directionally unstable. In the case of the GT-40 a drag-consuming front spoiler, augmented by a rear spoiler, both horsepower-consuming, were necessary to keep the vehicle from becoming airborne. On the long Mullsanne Straight, assuming an average speed of 200 MPH for 72 seconds versus the GT-40's 180 MPH for 80 seconds, the *Mexico* would have gained 8 seconds per lap or 240 feet — a gain of 16 miles over a 24-hour period, assuming 360 laps were run. As for HP required at 200 MPH, the *Mexico* required but 276 HP versus the GT-40's 382 HP, representing a saving of 106 HP. Assuming both cars cracked the throttle open at 200 MPH, with only 18 HP available for acceleration, the GT-40 would be through. The *Mexico* would still have 125 HP left for acceleration and would pull away at 4.6 MPH/SEC thus gaining 6.7 ft. per second. On the slow 'esses' the GT-40, with greater rear engine weight, would pass the *Mexico* at slow speeds through the corners. On the fast bends, the *Mexico* could straighten up all the 'esses,' thus making any pass-

ing impossible. Who knows, it might have made an interesting race. If the GT-40 had inherited the aerodynamic C/D of the *Mexico*, as it rightfully should have, then several millions of dollars could have been saved and years of frustration in lowering the C/D from .36 to .33 would have been eliminated.

Being inquisitive by nature, I just looked at the 71 HP Rabbit VW that says it goes 93 MPH. Supposing we dropped a Rabbit engine in the T-Bird and the *Mexico*, thereby saving at least 500 lbs of rolling resistance on both cars. Then, allowing a 20% reduction in HP for the transmission, cooling and frictional losses, we would deliver 57 HP at the wheels. The T-Bird would top out at 77 MPH and the *Mexico*, after several miles of acceleration, would eventually arrive at 115 MPH. Somewhere in Dearborn, the wind tunnel report has been gathering dust for some 20 years. Please, somebody, dust it off and read it. Who knows — The future may yet catch up to the past!! Stopping the torture of innocent air may be the only way left for us to solve our fuel energy crisis by still using our smaller existing 'INFERNAL' COMBUSTION ENGINES to get there the fastest with the leastest. Leastest, in this case, being horsepower.

AERODYNAMIC DRAG CHARACTERISTICS — 1955 T-BIRD VERSUS THE MEXICO

MPH	1955 T-BIRD C/D = .60 10.4 SQ FT FLAT PLATE AREA 3500 LBS*			MEXICO — T-BIRD C/D = .21 3.4 SQ FT FLAT PLATE AREA 3000 LBS*		
	AIR DRAG HP	ROLLING RESISTANCE	TOTAL HP	AIR DRAG HP	ROLLING RESISTANCE	TOTAL HP
100	68.6	24.5	93	22.5	21	43.5
110	96.7	28	124	31.6	24	55.6
120	114.4	35	149	37.4	30	67.4
130	156.0	42	198	51.0	36	86.0
140	187.2	49	236	61.2	42	103.0
150	239.0	54	293	78.0	46	124.0
160	295.0	63	358	96.0	54	150.0
170	353.0	73	426	115.0	63	178.0
180	416.0	84	500	136.0	72	208.0
190	478.0	96	574	156.0	84	240.0
200	551.2	112	663	180.0	96	276.0
210	634.0	117	751	207.0	105	312.0
220	759.0	154	913	248.0	132	380.0
230	863.0	192	1055	282.0	165	447.0
240	998.0	210	1208	326.0	180	506.0

TIRE PRESSURE — 35 PSI

NOTE:

GT-40 = $.33 \times 16.5 = 5.4$ at 200 MPH

286 HP plus 96 RR = 382

*All weight is based on one passenger and a full tank of gas.

"The Ford factory built up five 1959 Thunderbirds with three-speed transmissions and overdrive, heavy-duty brakes, special spring rates and shocks. I was lucky enough to be able to buy one of them, and it was amazing what a good suspension did for that car."

"I believe they destroyed four of the cars, but I was lucky enough to be able to buy one of the five automobiles. It was a tremendous car. It is amazing what a good suspension can do for a car. That 1959 Thunderbird was given a lot of hard miles and it came back for more."

"In one whirlwind trip, my wife and I set out to see all the mountain ranges from Boise, Idaho, to the Grand Tetons and on to California. We actually covered 8,000 miles in 11 days! That was the trip on which we blew out five tires at speeds of more than 100 miles-per-hour. Two that I remember were at 115 miles-per-hour! We were awfully hard on tires."

"But I had to expect something like that, cruising at over 100 miles-per-hour all day long, day in and day out. We carried 35 to 38 pounds of pressure or the tires would never have stood it as well as they did. With the regular pressure of 24 pounds, they would

have been 'dead' in less than 50 miles."

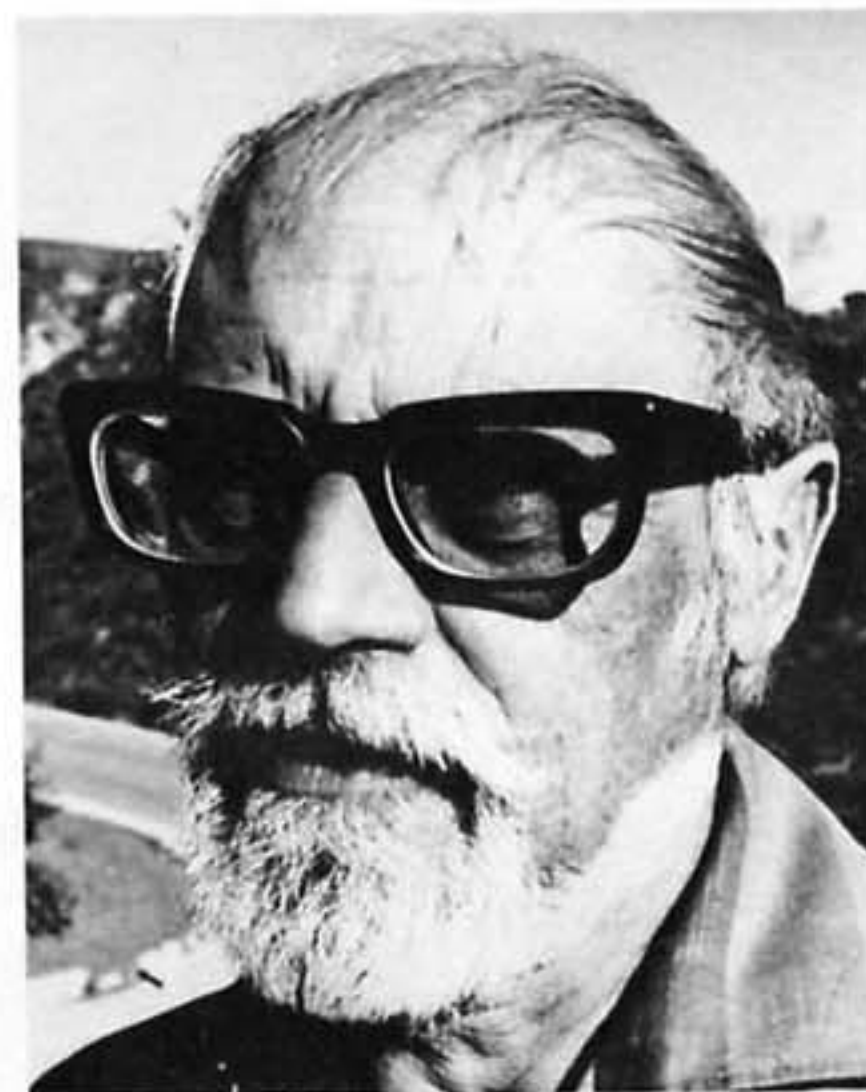
"We could never have made that trip in safety, especially blowing all those tires, without the suspension modifications that were on the car. The overdrive transmission also permitted extremely high cruising speeds at extremely low r.p.m.'s. At 100 miles-per-hour it was turning only a little over 3,000 r.p.m.'s. and you just felt that the car could go on for the rest of its life, cruising at high speed."

"The 1959 Thunderbird was a huge box, but the engine pushed it along at 120-122 with the top up, or about 110-115 with the top down. The car was always faster with the top up."

"We had a lot of fun on that trip through the mountains, because the car had a good rate of acceleration. We found one spot, way up in the mountains at about 10,000 feet, and we had to go back and forth to make sure that I would have enough

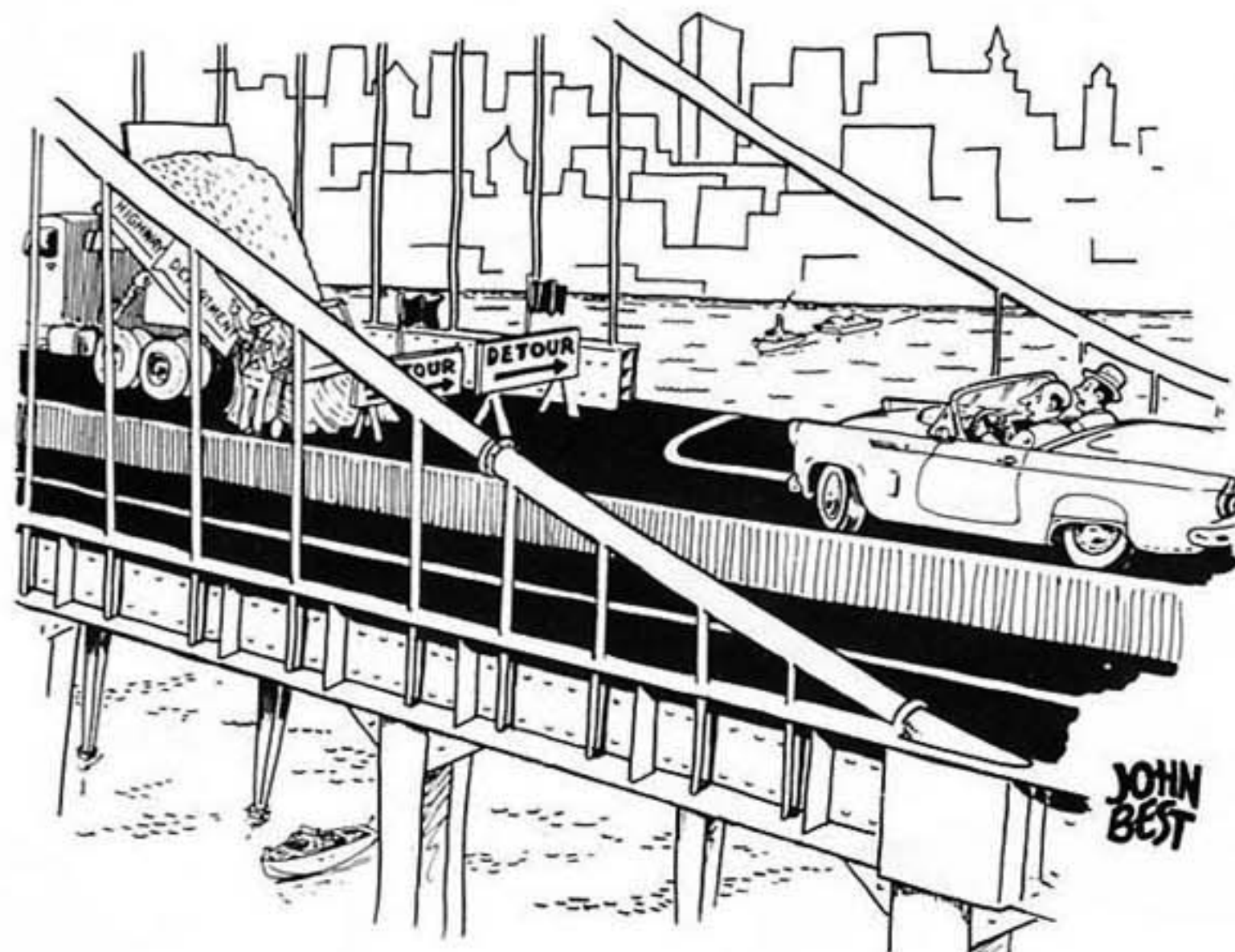
straight-away. I think that at that spot it took us 52-53 seconds to go from zero to 100 miles-per-hour. We were doing the same thing at sea level, if I recall correctly, in 32 seconds. Of course, at 10,000 feet we were probably losing 35 horsepower just because of the altitude."

"As much as I liked that 1959 Thunderbird, I don't think they made a *Thunderbird* after 1957. We went through the 1958, 1959



AUTOMOBILE DESIGNER — Tremulis is still hard at work on design projects that explore the very limits of future automobile concepts and styling, a quest that takes him far beyond the year 2000.

EDITOR'S NOTE: We wish to gratefully acknowledge the assistance of Alex Tremulis who graciously gave freely of his time for this exclusive interview and who opened his personal archives. A special thanks also goes to the staff of the Ford Archives, Dearborn, Michigan, who assisted in the preparation of this feature and photos.



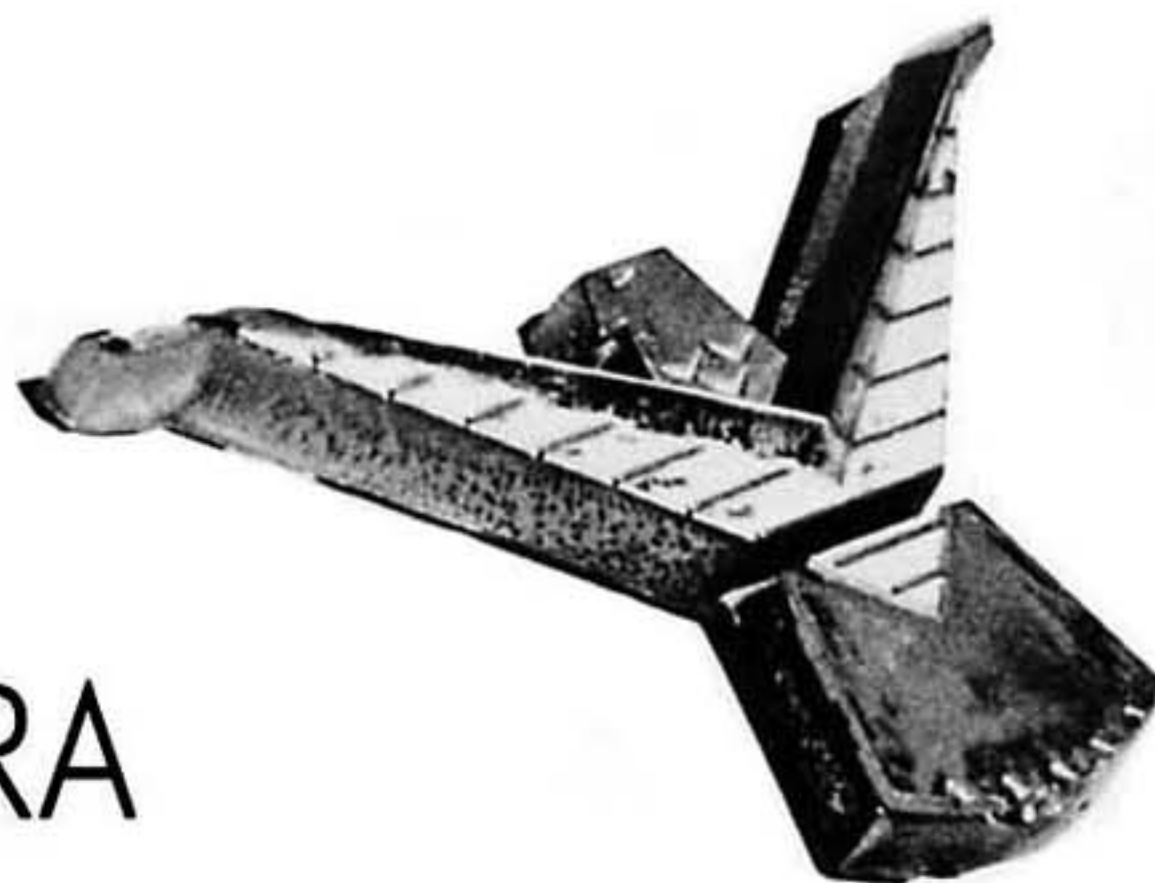
NOTHING HAS GONE RIGHT FOR ME TODAY.

and the 1960's, with the extra passenger room, and then the 1961 Thunderbird in which we cleaned up the design and got rid of the square, box-like look. But these were not the Thunderbirds that I really loved. These were Thunderbirds that had grown fat with luxury and elegance."

As one's eye caresses the smooth, almost glowing lines of the Ford Mexico, and realizes this design is now 20 years old, it is possible to catch a glimpse of the man whose advanced thinking has shaped the automobile world for so long. No one will be able to say in years to come that the Ford Mexico is "dated," or even a bit "tired." Its classic styling is as fresh as the man who made it in five days."

It was many years before anyone was able to push a "Thunderbird" past the 200 miles-per-hour mark, and then it was a Thunderbird in name only — the sole original portion of the specially-modified car being the body shell. *Thunderbird Illustrated* still wonders what it might have been like to watch the Alex Tremulis Ford Mexico fly down a straightaway at more than 250 miles-per-hour. That, my friend, is *moving!*

THE END OF THE SQUARE BIRD ERA



By the time the 1960 Thunderbird had reached the dealers' show rooms, the Ford Motor Company was already deep into its replacement, the 1961 Thunderbird with the so-called "projectile" look. The 1960 car was given the "least changed" award by several automobile journalists, and it deserved the literary dig. Major differences between the 1959 and 1960 were almost non-existent.

"Changes" were limited mostly to taking something off or putting something else on, and this was hardly the kind of salesmanship with styling calculated to move cars out of dealers' show rooms. To compensate in some way, Ford styling and engineering came up with a fresh idea — one that was to create a whole new cult of collectors — the Sun Roof Thunderbird.

To understand the place of the 1960 Thunderbird in the luxury car market, it is necessary to do a brief survey of the cars it was competing against that year, and evaluate it in that reference frame. There were three distinct luxury cars in the price range of the Thunderbird (fully equipped). They were Cadillac, Imperial, and the Ford Motor Company's own offering, the Lincoln.

While the Thunderbird was small in size, it was big in price. Its horsepower also closely matched that of the "big three" of the luxury car market. The engine options for 1960 were a 300-horsepower, 352-cubic-inch V-8 and a 350-horsepower, 430-cubic-inch V-8.

The Lincoln for 1960 had a 430-cubic-inch V-8 putting out 315 horsepower instead of the 350 of 1959. Imperial used a 413-cubic-inch motor developing 350 horsepower, while Cadillac boasted a pair of engines, a 390-cubic-inch with 325 horsepower and a 345 hp. motor of the same displacement.

Other comparison figures are as follows:

Thunderbird (hardtop)	Lincoln (sedan)	Imperial (Custom)	Cadillac ("62")
Wheelbase 113.0	Wheelbase 131.0	Wheelbase 129.0	Wheelbase 130.0
Length 205.4	Length 227.2	Length 226.3	Length 225.0
Width 77.0	Width 80.3	Width 80.1	Width 79.9
Height 52.5	Height 56.7	Height 56.7	Height 56.2
Shipping Weight 3799	Shipping Weight 5016	Shipping Weight 4700	Shipping Weight 4805
Headroom front 34.5	Headroom front 34.9	Headroom front 34.5	Headroom front 34.2
rear 33.3	rear 33.7	rear 33.8	rear 33.4
Legroom front 43.4	Legroom front 44.0	Legroom front 46.3	Legroom front 46.1
rear 38.0	rear 44.9	rear 42.9	rear 45.3
Hiproom front 59.6	Hiproom front 60.2	Hiproom front 61.0	Hiproom front 65.0
rear 48.7	rear 65.2	rear 60.2	rear 64.9
Kneeroom rear 26.2	Kneeroom rear 35.2	Kneeroom rear 31.8	Kneeroom rear 31.4
Trunk volume 20.5	Trunk volume 29.2	Trunk volume 31.8	Trunk volume 16.4 (usable space)

Price-wise, Thunderbird sold in the range of \$3755 to \$4222; Lincoln ran from \$5253 to \$10,230 (seems hard to believe); Cadillac had a price spread of \$4892 to \$9748; and Imperial selling prices were \$4922 to \$9748. These figures published by the factories are a bit misleading, but as indicators they tell quite a bit.

Using these figures, Thunderbird was lower-priced than the big three at its highest selling price. In the case of Cadillac, Thunderbird was only \$670 less! Considering the size differences, the Cadillac full-sized automobile was quite a bargain.

On the other end of the scale, Falcon, with a 109.5-inch wheelbase, only three inches shorter than the Thunderbird, had a trunk volume of 23.7 (almost three feet more) and was only two inches narrower in hiproom. Overall width was only seven inches narrower than the Thunderbird, and in the kneeroom department, the Falcon actually had one full inch more room!

Even on the basis of practical comparison of the two cars, I doubt that any buyer who could have afforded a Thunderbird in 1960 would have switched to a Falcon.

Now that we have read the published figures of the factory, here are some facts from "square bird" enthusiast C.W. "Chick" Hiller on the invoice cost of his 1960 automobile:

Hardtop base price: \$3755. Options were as follows: Cruise-O-Matic, \$242.00; Master-Guide Power Steering, \$75.30; Power Brakes, \$43.20; Power Lift Windows, \$102.10; Power Front Seat, (driver's side only) \$92.10; Central Console Radio, \$112.80; Magicaire Heater, \$82.90; Selectaire Conditioner, \$465.80; Sliding Sun Roof, \$212.40; I-Rest Tinted Glass, \$37.90; Outside Rearview Mirror, \$5.10; Rear Fender Shields, \$26.60; Aquamatic Windshield Washers, \$13.70; Seat Belts, Safety Package, \$22.80; Backup Lights, \$9.50; White Sidewall Tires, Nylon, 8:00 x 14 — 4 ply, \$54.00; Dealer Preparation and Conditioning, \$50.00; Sunray Wheel Covers, \$16.60; Undercoating, \$12.80. Added to this was transportation of \$18.50/\$183.00. Total price was \$5634.10, plus tax!

Nor were these all the options available. It was possible to add such things as Leather Seat Trim, \$106.20; Full Power Seats, \$184.20; the optional Thunderbird 430 engine at an additional \$177.00; Seven-Blade Fan and Clutch, \$25.80; Equa-Lock Differential, \$34.00; 70-Ampere Battery, \$7.60; and so on. It would not have been difficult at all to drive out of the dealer's showroom with a price tag of more than \$6,000 — no matter what the factory-published prices were! And it would have been a rare dealer indeed who couldn't add some options of his own if the customer had a thick enough checkbook.

The 1960 Thunderbird was the first American car to offer a sliding sun roof as an option, although several European cars (including Volkswagen) had had them for several years. The optional sun roof didn't make much of a dent in the overall sales structure of Ford in 1960, as production



AIR "SPOILER" — Those Thunderbirds with a Sun Roof use this accessory air "spoiler" to interrupt the air flow passing over the opening when the panel is in the open position. Note that the "spoiler" attaches to the regular chrome windshield trim.



ANOTHER VIEW — When seen from the right rear, the air spoiler looks like this. Note the gutter in the forward edge of the Sun Roof to trap moisture.



CLOSED POSITION — The Sun Roof in the closed position looks like this.



OPEN POSITION — Viewed from the front, the Sun Roof panel can be seen to slide under the existing roof metal. The panel can be locked in any position of its travel — as far open as the driver prefers.



OWNER DEMONSTRATES — James Miller demonstrates the convenience of the Sun Roof control when operated from the driver's seat. Note perforated headliner material.

STYLING TRIM — The rear fender of the 1960 Thunderbirds used this distinctive styling trim.



figures show. Still, the 1960 was rapidly becoming the second-fastest-selling automobile the factory produced.

Like its big brother, Lincoln, the Thunderbird was unit-produced and this added silence to the other advantages (read: reduced production costs for the factory) engineers claimed for the new construction method.

None of the 1960 luxury cars we are considering here had drastic styling changes in 1960, but of the four, Thunderbird had the fewest of all. The roof and rear window of the Lincoln were new, as was the grill; the Imperial had several major "face lift" sheet metal changes that altered its appearance considerably; Cadillac restyled its rear "fins"; but Thunderbird limited its changes to a new cross-hatch grill with a gaudy chrome decoration that resembled tooth braces, three hashmarks on the rear fender, and the removal of the chrome spear point on the side sculpturing. One can see why the Ford executives were reluctant to tamper with success, but it is hardly to their credit that the 1960 Thunderbird looks the way it does.

Faced with the lack of change, it was decided by Ford to offer the sun roof as an attention-getting feature that would bring people into the dealers' showrooms where the sale of a standard Thunderbird or a Ford could be concluded. Viewed in that light, the sun roof concept certainly was worth the effort.

Here is a breakdown of the production figures showing the number of 1960 Thunderbirds built, which engine each unit had, and the number of sun roof cars produced:

1960 Thunderbird Hard Top		
352 cubic inch engine		74,547
430 cubic inch engine		3,900
1960 Thunderbird Convertible		
352 cubic inch engine		10,606
430 cubic inch engine		1,254
1960 THUNDERBIRD SUN ROOF		
352 cubic inch engine		2,159
430 cubic inch engine		377





OPPOSITE PAGE — A high angle view of the sun roof reveals the careful workmanship and the accessory "spoiler" or "wind-breaker bar" as the factory described the additional chrome accessory fastened to the forward edge of the roof, just ahead of the gutter. ABOVE — Unlike the "early birds" that were notoriously short on trunk space, the 1958-60 automobiles had a deep, roomy interior trimmed with Burtex, a standard factory material. LEFT — The 1960 sun roof automobile owned by the Millers is attractively finished in handsome red, a sharp contrast to the white interior. While many other color options were available, this was one of the most popular in 1960. This interior is still original.

Thus, of the 92,843 total production of 1960 Thunderbirds, only 2,536 units, or about 2.75 per cent, were sun roof cars. That is a rare automobile statistic indeed. For those collectors who have the sun roof cars, CONGRATULATIONS! For those who don't, start looking!

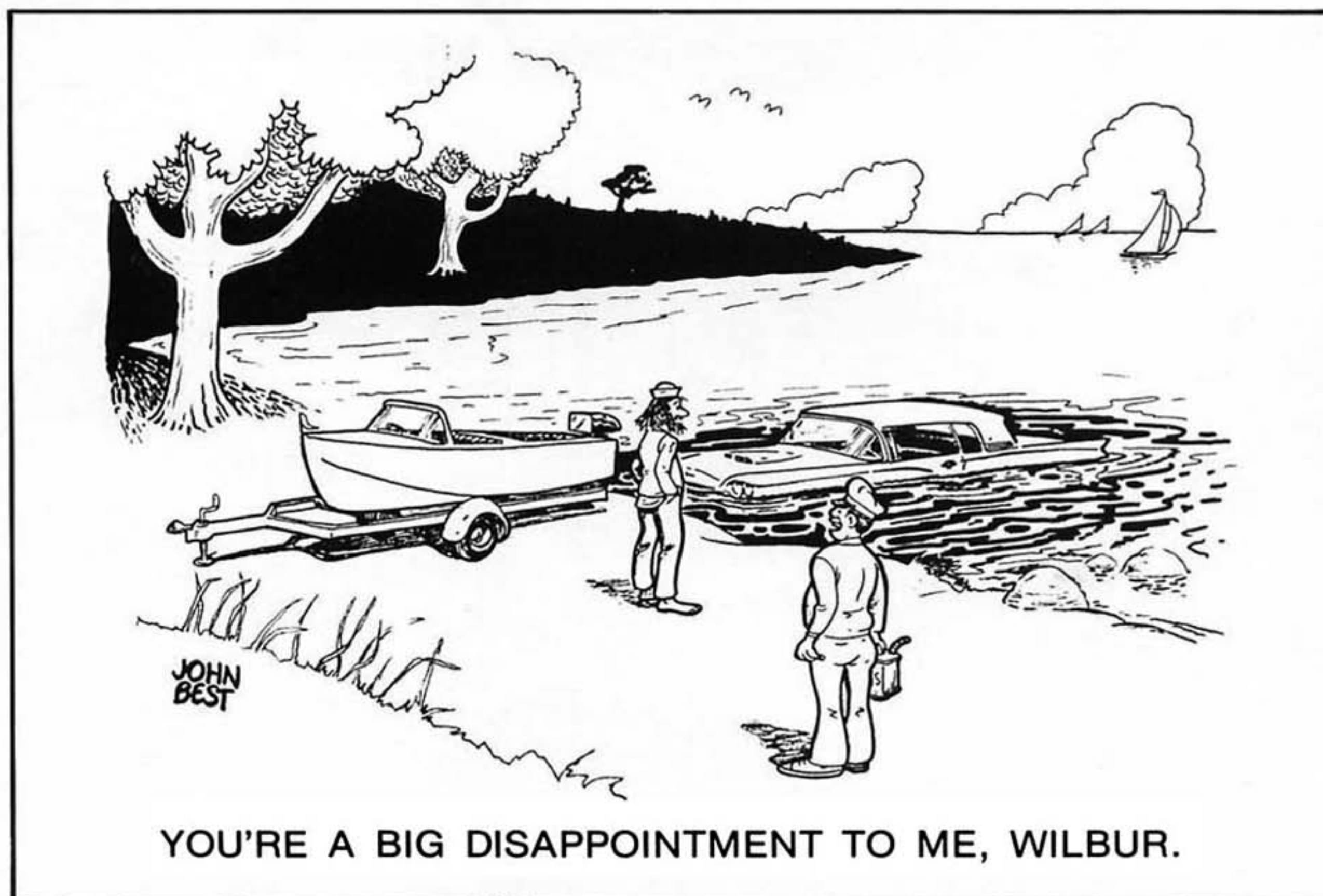
Now, what about the automobiles that still exist? The Vintage Thunderbird Club of America, which supplied the following figures, has been trying to keep track of those sun roof cars that are known, and this is how it reckons the current 1960 sun roof population. At this date, there are only 35 *known examples of the automobile!*

It is clear, from any point of reference, sun roof Thunderbirds are rare! The author estimates that as many as 500 may eventually be found, but that is certainly a high figure, and it may take collectors years to scour all the junkyards, comb all the classified ads and track down thousands of leads before finding one of these very rare "square birds."

There are still (the authors estimate) about 450 of these all-but-forgotten Thunderbirds reposing in junkyards, being driven daily or sitting on some car lot, probably on the back row. Keep your eyes open, because this kind of Thunderbird "gold" is where you find it. The Editor-In-Chief of *Thunderbird Illustrated* would like to know of any 1960 Thunderbirds with the optional sun roof, listed or unlisted with the Vintage Thunderbird Club of America. If you have such a car, or know of someone with one, please send us the details. We would be most interested in building our file on this very collectable automobile.



FRONT VIEW — The hood emblem and a portion of the grill detail can be seen here in the 1960 Thunderbird Sun Roof.



STAINLESS IS FOREVER

The ultimate metal for any automobile is stainless steel —
so it seems to follow the ultimate collector's car is this 1960 Thunderbird!



ENCHANTING BEAUTY — The polished metal surface of the stainless steel Thunderbird would put any regularly-painted surface to shame — and certainly attracts more attention than a conventionally-finished body surface.

Without question, the rarest "square bird" in history is the 1960 Thunderbird whose body was made from stainless steel by the Budd Company, Allegheny Ludlum Steel Corporation, and the Ford Motor Company in 1960. Because this is a one-of-a-kind vehicle, it is the rarest Thunderbird of all time, as well.

But even though thousands of man-hours went into the conception and execution of this remarkable automobile, it wasn't the intention of the corporations involved to create the "rarest" Thunderbird in history — they entered the project with the intention of showing the consumer the timeless qualities of stainless steel.

July 11, 2000 A.D., has been fixed in advance as the date history and the automobile industry will once again look at the 1960 Thunderbird and inspect its gleaming metal surfaces that have never been painted, polished or preserved, to evaluate the lasting qualities of stainless steel.

The year 2000 will be a celebration for the Allegheny Ludlum Steel Corporation's dra-

matic achievement in metal, a celebration of the timeless styling of the 1960 Thunderbird. Rolling back the pages of history, *Thunderbird Illustrated* will now take our readers on a trip into the past — a trip to the Wixom, Michigan, factory of the Ford Motor Company, where this most elegant of all Thunderbirds was built on Monday, July 11, 1960.

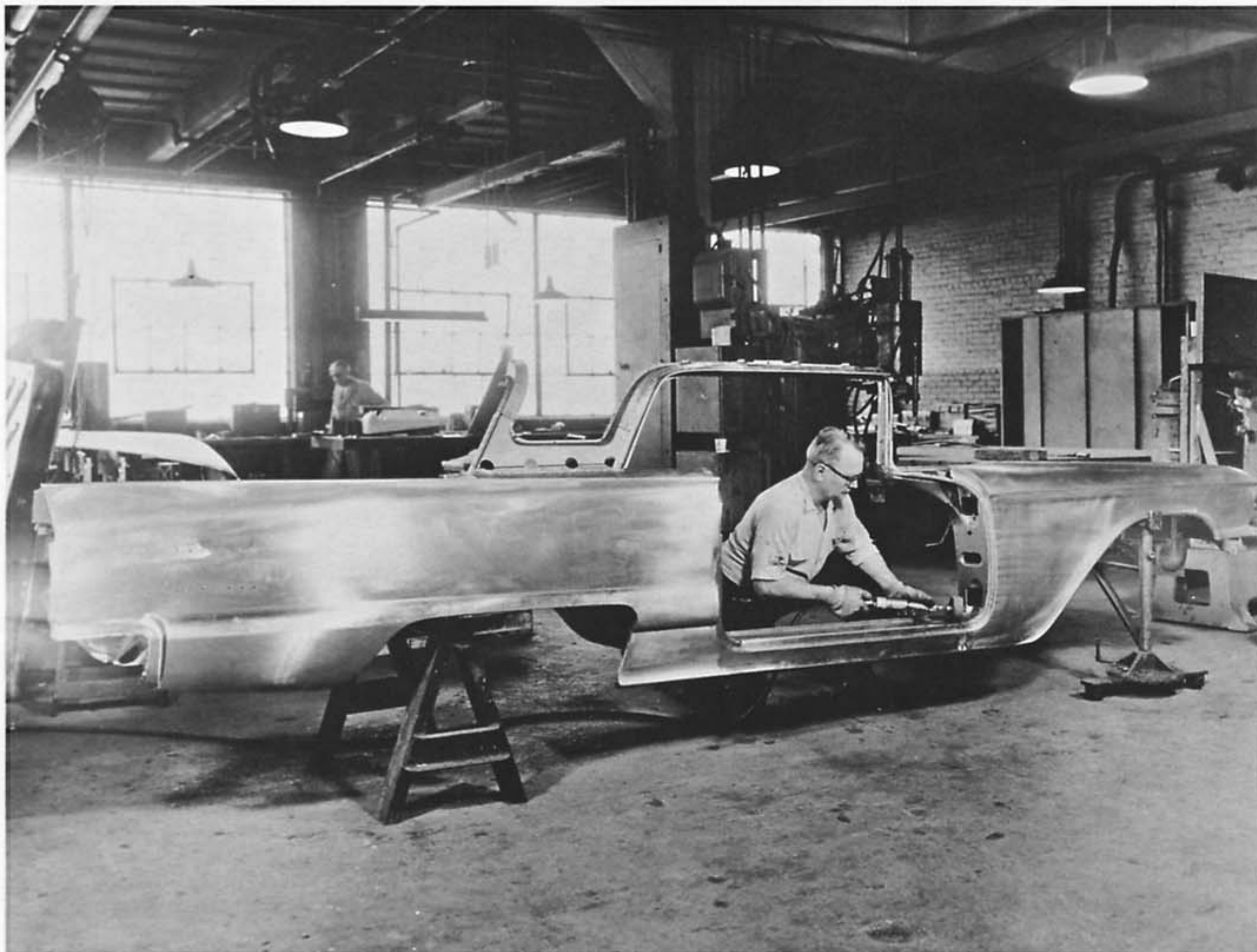
As the assembly line moved forward that day, workers scattered throughout the massive factory found excuses to go down the line and watch the assembly of a very unusual Ford product. The chassis was the same as all other 1960 Thunderbirds built on that eventful day, but the gleaming body that had been prepared was like no other Thunderbird before or since.

Weeks before, at the Budd Company, one of the nation's foremost body builders and body-stamping corporations, engineers had carefully considered the possible difficulties of constructing, from regular body dies, the body for the all-stainless steel automobile. The factory which had made the bodies for the first "early bird" Thunderbirds was an

old master at fabricating and joining stainless steels, and its executives jumped at the chance to show what could be done with the exotic metal and their body dies.

Production was nearing an end for the 1960 Thunderbirds, so it was decided that the last items to be run through would be the stainless steel panels for the Allegheny Ludlum display car. A very practical reason for waiting until the end of a production run was the fact that stainless steel is very hard on the dies with which standard sheet metal parts are stamped.

Not only is stainless steel very durable and resistant to rust, corrosion and other factors that normally affect metal construction of all kinds, it is also quite hard, and more difficult to manage when it is being stamped under pressure. No one at Ford or the Budd Company wanted to take a chance on having the production dies damaged by the harder metal, so the most practical solution was to wait until their normal use was past, then punch out the one-off Thunderbird body parts.



UNDER CONSTRUCTION — Workmen at the Budd Company plant in Detroit make final welds and adjustments to the stainless steel body panels before the automobile is put on the assembly line for final assembly and detailing.



BODY FABRICATION — Even though the body parts were stamped on standard Thunderbird dies, the actual assembly of the automobile was done by hand to make sure the finished automobile would look flawless when it was put on exhibit.



ETERNAL BIRD — With its gleaming body panels, the 1960 Thunderbird shown here (against a backdrop of yachts on the Atlantic seaboard) will be as timeless as the durable metal from which it is made.



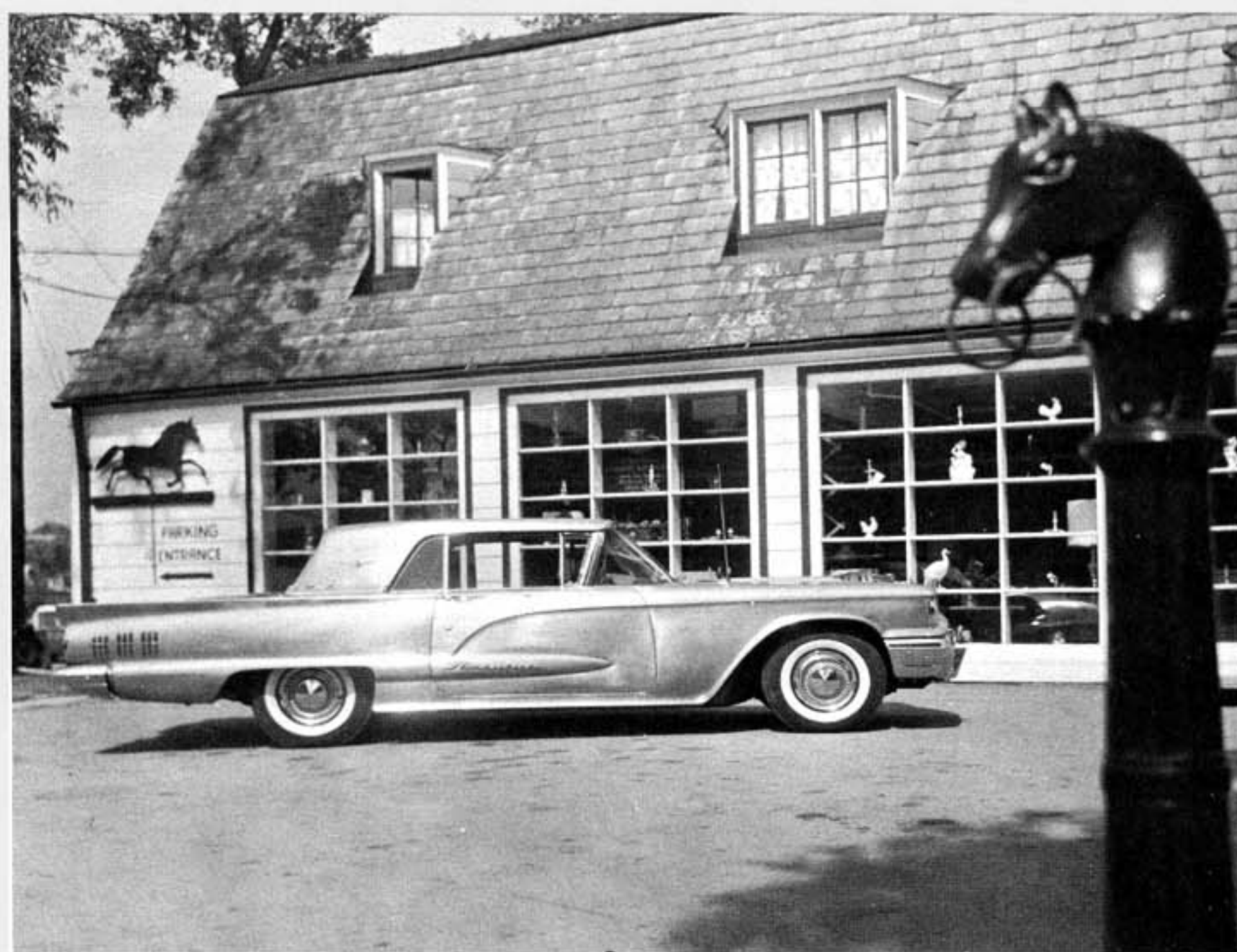
MODERN SETTING — This publicity still was taken in 1960, shortly after the automobile was finished. Too bad the lady won't look as good as the Thunderbird in another 50 years!



CENTER OF ATTENTION — The Thunderbird is the center of attention whenever it is driven on the street or displayed. Curious citizens gather to inspect this most unusual of collector "square birds" early in its show career.



ANOTHER VIEW — Set against a modern building, the stainless steel Thunderbird makes an impressive picture. Note the "hot spots," or glare, off the rear quarter panels — a possible hazard for other motorists.



HISTORIC SETTING — Parked in a Colonial period setting, the Thunderbird still retains its "magic" beauty.



RICH LEATHER — Now a luxury material that is almost never seen in an automobile, top grain leather was used in the stainless steel car along with stainless interior trim to give the car an elegant, durable finish.



MIRROR FINISH — A model looks at her reflection in the hood of the stainless steel "square bird." Note the burnished textures of the metal — a satin finish that would rival any other type of automobile surface preparation.

To create this, or any other 1960 Thunderbird, more than 1000 dies were used to manufacture 300 different parts. Steel for the body is Type 302 stainless steel with the trim finished in standard Type 430 metal. Stainless steel lends itself to luxurious finishes, and can be polished to mirror-brightness. This was done on the Allegheny Ludlum project, and the trim parts were also finished in the same manner.

One interesting fact that many historians have forgotten is this: Many parts of the 1960 Thunderbird were already made of stainless steel. Trim parts and wheel covers were already stamped from the durable metal, so no further changes were needed. These parts were installed on the special Thunderbird direct from factory stock bins. It should also be noted that in the 1950-60 period, factory-built automobiles used extensive amounts of stainless steel on regular production cars. Windshield moldings, insignia, wheel discs, rocker panel trim, window frames, and even interior trim was fabricated from the tough, durable metal for years of trouble-free wear and use. In more recent times, manufacturers have limited the use of stainless steel because of its higher cost, and the consumer has been the loser.

Parts on this Thunderbird that are not standard on any other car, but which would certainly make the motorist's life easier, are the stainless steel muffler and tailpipe, stainless steel bumpers, and grill. Not only would the owner of a car equipped with a stainless steel muffler and tailpipe have a lifetime of trouble-free service, he and the passengers in his automobile would be free from the worries of carbon monoxide poisoning.

With stainless steel bumpers on cars, less damage would occur in low speed collisions, and the occupants at the time of such an accident would be secure in a body protected by extra-strong bumpers and a far higher level of structural strength and quality. We may never see stainless steel car bodies like that of the unique Thunderbird, but it seems that automobile manufacturers may be remiss in not providing lifetime stainless steel bumpers and exhaust systems.

Allegheny Ludlum officials predict that in time, stainless steel grills, bumpers and exhaust parts will become standard equipment on the automobiles of enlightened manufacturers. In our day and age, there is certainly no need to prove the ability of stainless steel to outwear almost any other metal. For more than 35 years, America's automobiles have used stainless steel.

Until now, it has been employed mainly for decorative trim and other related parts, but its uses may be expanded in the decades ahead if the emphasis of automobile manufacturers turns from quantity to quality.

One other interesting point that is now an accepted fact is this: If the unique 1960 Thunderbird were driven for any length of time, the running gear would require considerable repair and maintenance, while the body would last more than 100 years without undue effort in terms of upkeep.

Interest in an all-stainless steel body went back to 1936, when a project similar to the 1960 Thunderbird was undertaken. At that time, a 1936 Ford was built from the timeless metal and used for display purposes. That automobile will have its 40th anniversary in 1976, and still looks as bright and new as it did when it was first built. Under

the hood, however, things are different. The motor in the old Ford veteran has been replaced three times and numerous repairs have been made to the running gear, but the body is still in top shape.

After an accident to the car, a body and fender shop was asked to put a new sheet of stainless steel on the door panel to repair it. The job was finally done, but the repair shop made the comment that it was the toughest assignment they had ever been given. The point here is a simple one. Stainless steel is strong and tough, but it can be hard to work as well!

All the convenience options of the Thunderbird were planned for the special 1960 model which would become an ambassador for the metal in shows, conventions, fairs and other functions at which large groups of people gather. A 300-horsepower engine with a top rpm rating of 4600 was installed, giving the car a stock performance rating. Dimensions of the body were as follows: Overall length, 205.4 inches; overall width, 77 inches; height, 52.4 inches; and wheel-base, 113 inches. Weight is 3957 pounds, the same as a standard Thunderbird.

Stainless steel is an unusual metal, one that is particularly suited to uses in automobiles. Anyone who has seen the blight of body cancer bubble the paint of his automobile, eventually eating away the metal itself, has probably yearned for an automobile whose quality would endure beyond the ten or fifteen years an average body will last. Since no painting, undercoating or waxing is needed, the owner's life would be far less complicated if his automobile had a stainless steel skin!

Stainless steel is actually a child of the 20th century. The secret of stainless steel's ability to withstand the usual corrosion and decay is contained in the fact that it is actually a family of metals rather than just one. At the turn of the century, scientists discovered that the addition of a sufficient amount of chromium to ferretic (iron-based) metals improved their resistance to ordinary corrosion and made them almost totally resistant to atmospheric corrosion.

The new metal was also found to have highly resistant qualities in severely corrosive industrial environments. While industry was quick to see the wisdom of using this new metal, the automobile manufacturers of the nation still preferred brass for most of their trim and simple castings, leaving to the owner of their products the problem of keeping the brass polished.

As the sophistication of stainless steel increased, scientists learned that the addition of other alloying ingredients would improve its value. Today, stainless steel is a metal our modern society can hardly do without. It is found in electric dishwashers, clothes washers, eating utensils, restaurant equipment, water purifiers, and hundreds of thousands of other applications.

But, to date, the most imaginative use of the metal has been in automobile construction. As the editor of *Thunderbird Illustrated* continued to study the behind-the-scenes development of the 1960 Thunderbird for



STAINLESS FAMILY — The three stainless steel automobiles constructed by Allegheny Ludlum Steel are shown with then-chairman of the finance committee, E.J. Hanley and Roger S. Ahlbrandt, board chairman. The 1936 Ford is the first such experiment, with the 1967 Lincoln Continental the final effort.

this issue, he was struck by the extreme practicality of stainless steel when it is used on automobiles. Further research has revealed that, not only is the metal better than steel, it makes the automobiles themselves better.

Today, Americans are faced with automobiles that use more plastic and fiberglass than metal of any sort. Plastic grills are commonplace, even on a Cadillac El Dorado costing more than \$11,000! It is small wonder that automobile enthusiasts have turned from the frequently-shoddy automobiles of the present to the well-built (by comparison) automobiles of the past.

In the *first* experiment with a stainless steel automobile, steel engineers and metallurgists were curious to see how long the metal would function in an automobile body without fatigue or breaking under stress. Six stainless steel-bodied 1936 Fords were built. Two were kept by Allegheny Ludlum Steel. One was delivered to Dr. Jerome Vlk, a pioneer in the development of stainless steel for dental purposes. A Cleveland museum has another of the cars on exhibit, and a fifth one was used to attract attention during World War II to assist in drives to collect scrap for use in war materiel and equipment. The sixth car disappeared from sight, and no one at the present time is quite sure what

happened to it. The car used for scrap drives eventually went into one, and was made into an ingot!

But, in 1960, stainless steel was an accepted metal for automobile construction. In 1936, it wasn't. Just six years before, in 1930, it had first been used in an automobile. Thirty years later, it was more common than fiberglass is today, but many new applications had been found for it other than in automobile manufacture. It was hoped that by building another, more up-to-date, vehicle from the metal, then displaying it at auto shows and other gatherings, public clamour would convince automobile manufacturers they should expand their use of stainless steel.

Even though it didn't stimulate a vast upsurge of demand for stainless steel, the car was seen by millions of people, and it still continues to make the rounds of selected exhibits. The public relations department of Allegheny Ludlum Steel pointed out that the company is no longer accepting invitations from groups or automobile clubs because of budget limitations, and asked that requests *not* be made for an appearance of the 1960 Thunderbird or their other stainless steel automobiles.

Now that the 40th anniversary of the first stainless steel automobiles is about to be

celebrated, many have wondered how long a stainless steel body will actually last. No one yet has any predictions, but it seems fair to guess that a full century will be a short-term age. It is entirely possible that with a little attention every few decades, a stainless steel automobile body might last more than 200 years or even longer.

There aren't any bets being placed at Allegheny Ludlum Steel Corporation, and even if there were, no one currently alive would live to collect on them! A couple of brave souls we have encountered said that once the first stainless steel car had worn out, they would make a bet as to the length of time the 1960 Thunderbird would last. As you probably guessed, both our "gamblers" were bankers.

We at *Thunderbird Illustrated* feel that many Thunderbirds have become timeless styling classics, so why *not* have a body for a Thunderbird that will last for centuries? Then, in future generations, people will get a first-hand look at what it was that collectors of this century were so enthusiastic about. But even *without* a stainless steel body, owning almost any Thunderbird is great fun, as more and more people discover every passing year.

WHEN THUNDERBIRD RULED DAYTONA

By Frank Taylor

Once, factory-sponsored "stock" cars challenged each other on the flat sands of Daytona Beach — not for money, but for records and publicity. Some of the "secrets" of winning in the 1950's are revealed here.



FAMILY MEMORIES — Clayton and his wife Chris look over some of the mementos of the racing mechanic's glory days, days when he helped make Thunderbirds go faster than they ever had before.

DAYTONA! As the scroll of racing history and record-breaking speed attempts is unrolled, the startling and sometimes tragic 70-year history of Daytona Beach, Florida, is revealed to speed enthusiasts. Almost from the inception of the automobile in America, men have come to this flat expanse of white sand to test themselves and their machines against the perverse fortunes that seem to smile upon this part of North America.

It started in 1906, when the Stanley Brothers came to Daytona to prove the potential of their steam-powered automobiles. Placing Frank Marriott in a crudely-streamlined vehicle they dubbed "Woggle Bug," the delighted inventors watched their driver push the machine to the then-incredible speed of 127.66 mph. The attendant publicity rocketed the fame of the Stanley Steamer; and, the following year, the trio returned with an improved version of their "Woggle Bug," intending to push the land speed record to more than 200 mph if it was humanly possible.

HISTORIC MOMENT (next page) — The camera of race mechanic Whitey Clayton froze this historic moment on film as the 1956 Thunderbird prepared to blaze a new chapter in Daytona history. Note the other 1956 automobiles in the picture, including a (beep!) Jaguar! Whitey Clayton Photo



During the 1907 speed trials, fate struck a cruel blow. While traveling at a speed in excess of 150 mph, the machine went out of control, flipped, and landed in a tangled wreck in the surf. Marriott escaped serious injury, but the Stanley twins abandoned record-breaking attempts, and never again came to Daytona with their own race car.

Several decades later, Frank Lockhart, a California daredevil driver, came to Daytona full of hope and determination to claim the World Land Speed Record with a specially-built Stutz using two Miller engines. Like Marriott before him, Lockhart flipped into the surf, but was not as lucky as his predecessor. He was killed in the accident and never owned the title of "fastest man on earth." That was in 1928.

In both these cases, the speed records attempted were factory-sponsored,

and this set a tradition. In the mid-1950's, Corvette beat the Ford Motor Company into production with its "hot" sports-type automobile, and, as a result, claimed much publicity for the Chevrolet Division of General Motors. This rankled the top brass at Ford, and it was decided to put the new Thunderbird on the line to see if the records held by Corvette could be wrested from it.

To achieve this end, it was decided to hire an outside firm headed by former race driver Peter DePalo. DePalo was instructed to "knock the checkered flags out of the Chevrolet advertisements."*

*Almost each week Chevrolet Division would run newspaper and magazine ads with small checkered flags indicating a win somewhere in the nation by a Chevrolet-sponsored or powered automobile.

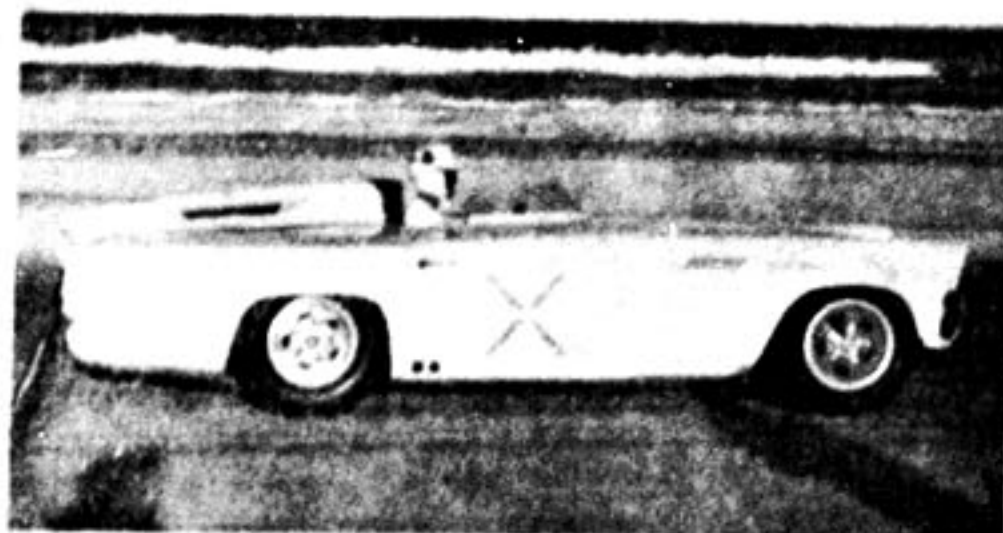
DePalo at this crucial time was Dwight "Whitey" Clayton, a master metal worker and speed expert.

Special Ford sedans were prepared in the Long Beach, California, shops of DePalo for the 1956 Daytona Season, but only engines were prepared for the Thunderbird the team planned to run. Using every trick they knew, Clayton and the other mechanics toiled long hours, sometimes 18 hours a day, to get the automobiles ready for the runs. Once at the beach, the team set up headquarters at the Fish Carburetor Company shops, and plunged into the grueling schedule of trying to prepare a car that would win, and win big, when it crossed the timing lights.

Another contender at Daytona that year was racing driver and builder Bill Stroppe, also of Long Beach. In 1956 Stroppe was "setting-up" Mercury

A Corvette challenger once "forgot" about a six-cylinder engine block in the trunk that gave the vehicle a traction advantage on the loose sand. Officials discovered the "oversight" and disqualified the automobile.

Eames Pushes '57 T-Bird To 160 mph In 'Jet' Ride



DAVID EAMES, LONG BEACH, CALIF.
Driving '57 Ford Thunderbird, 160 mph, fastest yet in acceleration



ART CHRISTIAN, CAMPBELL, CALIF.
'57 Mercury Marauder, 111.17, second fastest average



DAVID EAMES, LONG BEACH, CALIF.
'57 Ford Thunderbird, 160 mph, fastest yet in acceleration



DAVID EAMES, LONG BEACH, CALIF.
'57 Ford Thunderbird, 160 mph, fastest yet in acceleration



DAVID EAMES, LONG BEACH, CALIF.
'57 Ford Thunderbird, 160 mph, fastest yet in acceleration

New Record Set In Acceleration

By BERNARD KAHN

David Eames gave a 1957 Ford Thunderbird a "jet" ride yesterday in winning the standing start acceleration competition for experimental cars. The Long Beach, Calif., driver started from a standstill and, in 10 seconds, was blazing an estimated 160 mph at the timing lights.

DAYTONA BEACH MORNING JOURNAL

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18 Held Hostage As Convicts Riot In Utah State Prison

LOCAL NEWS

Zone Hassle Goes To Referee

By BOTTLE ENDS
The Baltimore attorney who prepared the city's zoning ordinance will be asked to settle a controversy over the purpose and authority of the Board of Zoning Appeals.



Says U.S. One Guard Holds Spy Stabbed In School Stomach

WASHINGTON, Feb. 7 (AP)—A Soviet spy was stabbed in the stomach by a U.S. guard at a school here today, according to a report from the U.S. State Department.

automobiles in much the same way that DePalo was. Thunderbird was to have stiff competition in the form of Stroppe-prepared Mercury automobiles at Daytona. When the dust had cleared, Mercury swept the Daytona Speed Week events in its class, but Thunderbird had also set records that left officials open-mouthed!

One thing that Clayton remembers vividly was going to a dealer in Daytona and picking up a new 1956 Thunderbird to be prepared right at the Fish Carbu-retor buildings in Daytona. To prepare the engine for the Thunderbird, a stock motor had been "blueprinted" in Long Beach for installation in the Florida automobile. The term "blueprinted" means that all the tolerances of the factory-built engine were brought back as close as humanly possible to the original factory specifications and blue-prints. This increases the horsepower, and also assures a stronger, more reli-able engine when it is wound to the fullest in performance runs.

Heintzelman Ford in Daytona pro-vided the basic automobile, and the Clayton crew set to work revising it for the upcoming speed trials. Thinking back on the experience some 20 years later, Clayton smiled: "I had a hard time adjusting to the idea of taking a hack-

saw blade to a brand new automobile, but that is what I did. I took that new Thunderbird and cut it all up so that we could wring as much speed advantage as possible from it.

"First we stripped everything we didn't need off the car. We started with the bumpers. Then we took the wind-shield off, pulled the factory upholstery out and put in a bucket seat, changed the exhaust system to dual pipes (no mufflers), removed all the window glass, electric controls for the seat, the win-dows, windshield wipers, heater, radio, and most of the electrical system, but we left the engine compartment stock.

"To give the motor some extra power, we used a dual-carburetor setup — a stock item brought out for Daytona. We also moved the rear axle forward about one inch to get more weight on the rear wheels. Bonneville tires were installed on regular Ford rims, with aluminum wheel discs for better streamlining. These were held on the rim with small screws. I made a small windshield to cut the wind in front of the driver, as well.

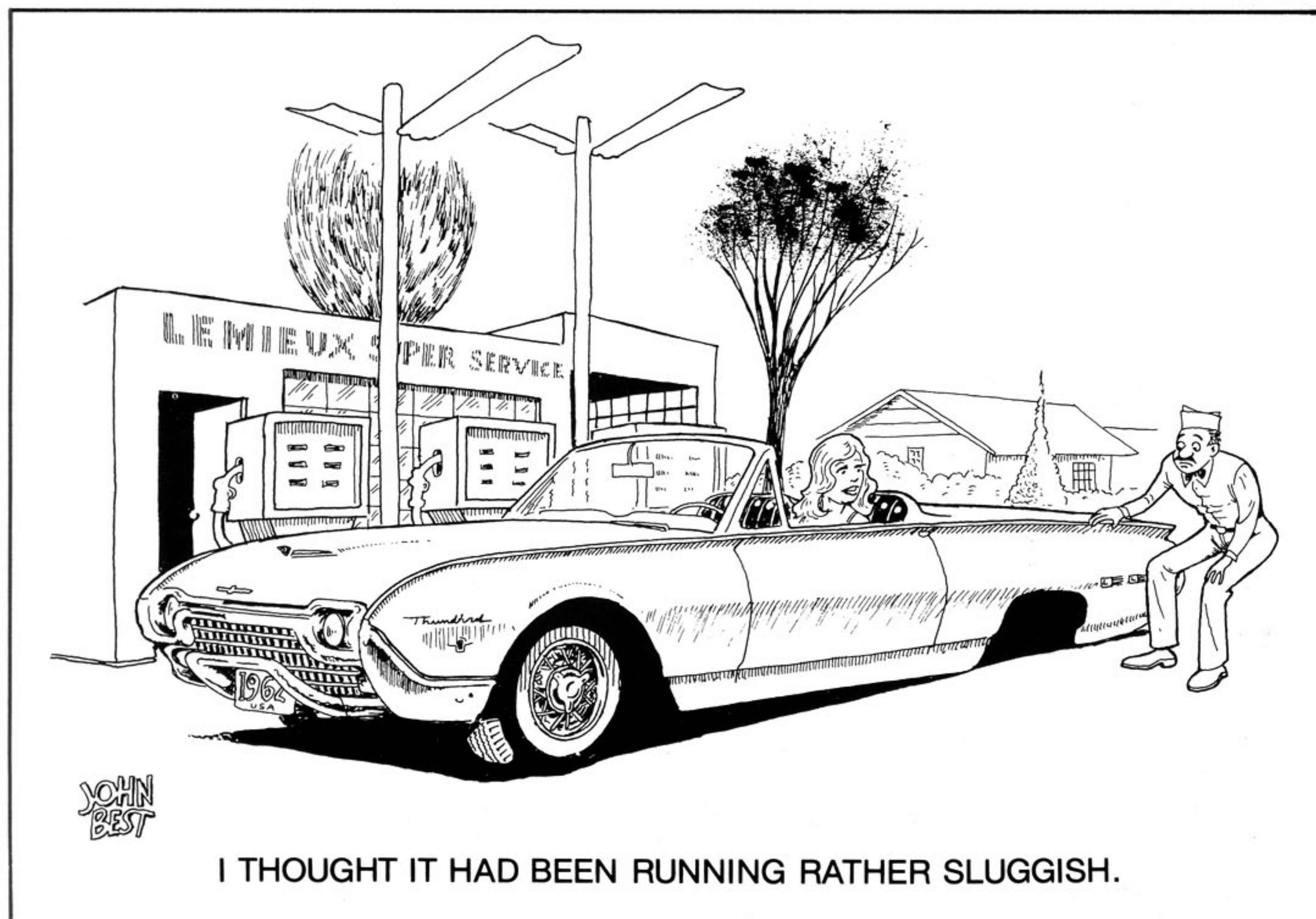
"In preparing the engine, at least ten different manifolds had leaks, and we kept trying different ones until perfect ones could be found. The steering was stock, and the rear end was also stock,

but we used a 3.1 gear ratio. The basic wiring was complete, so we left that stock, but we wanted to cover the head-lamps so that they were less wind-resistant."

Clayton discovered that it was a real problem to find something ready-made that would go over the headlamps as streamlining pods. "I spent half a day in Daytona stores looking for two alumi-num mixing bowls that would cover the headlights properly. Eventually, I found what I wanted, but it was a tedious chore!"

To cover the cockpit and make it more streamlined, Clayton made an aluminum panel that screwed over the entire thing. For this, .064 gauge ma-terial was used. Tires presented another problem for the racing team mechanics. Tires with treads dig into sand, and if the tires have too much weight on them, the same thing happens. It took a great deal of effort to discover the proper combination, which turned out to be smooth, treadless Bonneville-type tires.

While Clayton and his friends were busy working out the problems that Daytona sand presented to them, an already-experienced pro at running cars, "Smokey" Yunick, sent spies to check on DePalo's men. Each time the Thunderbirds were taken out, binocu-





FAMOUS DRIVER — Chuck Daigh pauses for a quick picture at the Fish Carburetor plant at Daytona, the team workshop for the record-breaking try in 1956.

lars would sprout along the route as *very interested parties* kept an eye out for any clues that might tip off their potential rivals' performance.

"We did the same thing," Whitey grinned, "but we felt we already knew enough about Yunick to know he was going to be a tough man to beat with his Corvettes."

But getting the Thunderbird ready was only one part of Clayton's assignment. He also had to take care of four sedans and two convertibles that had been prepared in the shops of Peter DePalo Engineering.

These were powered by two four-barrel carburetors. The figure released was 230 horsepower, but Clayton said the engines actually developed much more than that figure. The 230 horsepower was painted on the hoods and sides of the full-size sedans.

To get off the line a little faster, and give his car better traction on the loose sand, Yunick once "forgot" a six-cylinder engine block in the trunk of a Corvette. When the officials discovered the "oversight," they disqualified the car. At other times, the Corvettes were checked by officials who found the fan belts gone! Rules called for all fan belts to be in place and functioning on a generator. Yunick would have the generator and belt, but one little trick he employed was to loosen the fan belt so

that under high rpm's, it would fly off — giving him another slight edge.

"Yunick knew more tricks than we did," Clayton smiled, "but we had a better car, and we beat him anyway!" In fact, the 1956 Thunderbird was so hot at Daytona that DePalo's cars were able to sweep the boards in their class — even setting acceleration records that stood for a considerable length of time. In many areas, the DePalo Thunderbirds even beat the bigger Mercury cars, something that didn't make Bill Stroppe happy! They gained enough points to win the Manufacturer's Trophy during the 1956 Speed Week.

For 1957, it was decided that the DePalo team should go all-out with a special Thunderbird that would sweep the tracks at Daytona — perhaps even running up some world records, and, if nothing else, earn as much publicity for the Ford Motor Company as the 1956 Thunderbird had done. This would be the last year of the small, two-passenger version, and if any records were to be set, it would have to be now. Instead of waiting until the team reached Daytona, DePalo got two early-production 1957 Thunderbirds, and went to work at his Long Beach plant.

These cars were to be remarkable for many things, and certainly no effort was spared to get every possible ounce of performance from the two cars that

were built. Now, for the first time, the full behind-the-scenes story of the construction of these remarkable Thunderbirds can be told. Clayton was intimately connected with their many facets of modification, and drawing on his excellent memory, he recalled for *Thunderbird Illustrated* in this exclusive interview what went into each automobile.

"We were ordered that year by Ford to build the fastest thing on the beach, and we set out to do just that. We took the 'F' model cars, (these came mounted with a supercharger and could be purchased from the dealer in limited numbers) and began extensive modifications, but only those modifications that were allowed under the rules at Daytona.

"Our crew at DePalo Engineering was very experienced, and we had some of the top men in automobile racing. Chuck Daigh was directly under DePalo, then came Leroy Slick, Dick Troutman, Harold Mauck, Jay Lightfoot, Hal Martinson and myself. Later on we added other men to the staff as we needed them. Martinson died while working on a Thunderbird — he had a heart attack while leaning over the engine compartment.

"As the cars arrived at the Long Beach shop, they were completely disassembled, doors were removed, and all wiring was taken out until only the

bare body was left. I put a man to work drilling holes for lightness. His task was to drill a hole anywhere it would not affect the strength of the car, to reduce the body weight to the absolute minimum.

"I wouldn't let him drill holes where it would show, as the factory had instructed us not to alter the external appearance of the Thunderbirds. They wanted the public to recognize them as "stock" automobiles. The holes were drilled in places like the inner panels, under the hood, the doors and the trunk. You name it, he drilled it. That one job took *two full weeks*.

"I made a new hood out of one solid sheet of aluminum, and replaced the steel door panels with aluminum. This saved a considerable amount of weight, so we — Dick Troutman and I — made the trunk lid out of aluminum, too. One of the toughest parts of the job was forming the aluminum around the door handles. We did a beautiful job, but that was one place that called for all my skill with metals.

"To do it, we made the metal shape around the door handles separately and then welded it into the door. The headlight doors were hand-formed. For a pattern, we used the original potmetal ones. The headrests and the panels that covered the cockpit were aluminum, and we made those, too. The bucket seat in each car was also made from aluminum.

"When we were through with the body, it was as light as we could make it, and still have it look pretty much like the stock car. The chassis got the same kind of treatment. We removed the heavy "X" member, which saved about 150 pounds. With that gone, we were able to install Jaguar transmissions in both cars. The reason we selected the Jaguar "tranny" was the fact that it had four speeds and was compact and strong. I can't say it was very light. That gear-box was filled from corner to corner with metal. It was strong enough to handle the kind of V-8 power we wanted to bolt to it, but it was heavy. To give the chassis strength again, we welded tubing cross-members between the frame members.

"The "A" arms were "boxed-in" for more strength on the lower section. Normally, we wouldn't have done this, but Ford planned to enter the Thunderbirds at Sebring in open competition against Corvettes, Ferraris and other sports cars, and this type of chassis modification was necessary for that. The cars were never entered, but they could have been put on any track and would have done very well, I think.

"We expected to leave the generator off the car, but then we learned that one had to be on the car and working, so we mounted the generator to the floorboards and used a belt to connect it to the driveshaft of the car, using a "V"

pulley. This wasn't the normal position, but it worked fine — as long as the car was moving in gear.

"We took the steel floorboards out and put in aluminum replacements, and in case of trouble, we removed the stock rear end and put in a Halibrand "quick change" rear end. The gears in this could be changed in 15 minutes or less if we decided that a new ratio was needed.

"We numbered the cars #98 and #99. In #98, we placed a 312-cubic-inch motor with a "blower" (supercharger) and fuel injection. In car #99 we put the 430-cubic-inch Lincoln motor with twin carburetors. A hydraulic clutch was used in #99, which caused us plenty of trouble later. Under hard acceleration, the hydraulic clutch didn't work fast enough and the engine over-wound. No one knew exactly how many rpm's it turned up, but the ring gear peeled off the flywheel and cut through the floorboards and cowl. It looked like a big fishhook.

"Even though the motor should have blown up from the excessive revolutions, it held together and nothing happened to it. That has to say something about the quality of the factory engine when it is properly set up to run according to the original specifications and blueprints."

Another modification that Clayton made to the car was the addition of an aluminum firewall between the driver and the fuel tank. In case of accident, this would have blocked the driver from direct exposure to a fire resulting from a ruptured or exploding fuel tank. Another idea that seemed worth following up while the cars were still in Long Beach was the addition of a full belly pan. Clayton and Troutman made these, as well, and they covered the lower por-

tions of the car, giving both Thunderbirds extra streamlining at high speeds. These were also made out of aluminum.

Once the cars were on the course, it was found that the belly pans were no advantage. Both drivers who used them reported that the cars became "touchy" on the sand — the front end started to lift off the ground. What seemed to be happening was that the belly pan became a "wing" that provided lift to the front of the car. With much high-speed driving, it was conceivable that the Thunderbirds would have flipped over. Another problem encountered with the belly pan was a lack of cooling. After consultation with the drivers, it was decided to remove the pans; and none of the high speed tests from then on used them.

The 1956 Thunderbirds had used stock wheels, but in the effort to wring performance from the cars, the 1957 versions used Halibrand "quick-change" mag wheels. These run truer than a stamped steel wheel, weigh less, and are stronger. Today, mag wheels are installed as options by the factory on many passenger cars, but in 1957 they were strictly a racing item, and a much-needed one at that.

To add a little extra horsepower and attain higher rpms, the motor was built up as a "dry sump" system. This meant that the oil was pumped, as needed, from a reservoir mounted in the right door directly to the oil pump. This made it possible to eliminate several quarts of oil sloshing around in the crankcase. This crankcase oil contributes to vibration and definitely hinders optimum engine performance.

Special oil pumps were made, driven off the timing gear shaft, so that more pressure could be obtained to insure proper lubrication at the excessive



BIRD AT SPEED — Daigh is seen here in an acceleration run with his car — which he won easily.



FAMOUS CARS — The Thunderbirds for 1957 are seen here. Car 98 placed 2nd to Carroll Shelby in a Ferrari. Car 99 had a heating problem and did not compete. Seen in this picture are Marvin Panch, Curtis Turner and Chuck Daigh.

rpm's the motors were expected to turn over.

To save the weight of hood hinges, Clayton removed the stock hinges and installed "hairpin" locks in their place. To streamline the headlights, clear plastic covers were used. These were an accessory item that Clayton bought from a supplier. The front bumper was removed, and "nerf" bars were installed in its place. The rear bumper was also removed and the belly pan extended all the way up to the lip on the body where the bumper originally ended.

A small, "wrap-around" windshield was used, and this Clayton made and installed himself. Both cars were Colonial White with red lettering. As a final touch, a local California artist, Gordon Smith, was asked to paint the Thunderbird emblems on the headrests of both cars. Today, Smith is one of the top artists at Disneyland in California.

The exhaust pipes were put through the rocker panel on the right side of the car, and both of the dual pipes were run without mufflers. The reason for venting the exhaust pipes on this side was simple. If a miss developed, or the engine ran rough, it was easier for the crew to hear it when both pipes vented on the same side.

The number of man-hours that went into the cars was staggering. Even though they were finished in three months, (at a cost of about \$10,000 per month) a phenomenal record, it was only at the personal expense of men like Clayton. Their work schedules ran 18 hours a day, seven days a week.

Still following instructions from the factory, all the normal trim items were left on, such as the metal side trim, emblems, and so on. Ford wanted the public to be sure to recognize the Thunderbird automobile in publicity pictures. One of the few external things removed was the front turn-signal lamps.

For all their efforts in weight reduction, little was shaved off the stock Thunderbird entry of 1956, however.

The fuel-injected '57 Thunderbird weighed in at 2800 pounds, only 200 pounds lighter than the '56 Thunderbird entry! Still, shaving 200 pounds off an already stripped-down chassis is a remarkable feat, and shows the skill that Clayton and his crew brought to the job. At speeds above 150 mph, every extra pound counts against the total performance of the automobile. The pounds that Clayton shaved off the Thunderbirds certainly made a material contribution to the overall speed and record-breaking potential of the vehicles.

As sometimes happens, bad luck plagued the footsteps of the Thunderbird team. The big engine in #99 failed to reach the potential expected of it, and the smaller motor outperformed it. Under the guidance of Chuck Daigh, the fuel-injected, supercharged automobile tore down the speedway course at 205 mph. Then, on the second and final run, (the contestants were only allowed two runs) the engine quit half-way to the timing traps. Because of this mishap, an official time was not recorded, but the unofficial time for #98 was still in excess of 200 mph! Daigh was the first man in history to drive a Thunderbird at a speed in excess of 200 mph — quite a feat in 1957 with a stock body that had the streamlining effect of a brick!

Dan Eames, the other driver, was also dogged with bad luck, and never recorded a time even close to what DePalo and the other members of the team felt the Thunderbird should do on the top speed runs. But there was a bright lining to the clouds. In acceleration, both cars did much better, turning a time of 98.065 for the course, the fastest any car had ever run up to that time at Daytona in an acceleration test.

Daigh came in third in this event with a speed of 93.312. Bill Stroppe had a chance to prove his mettle that day, with an acceleration speed of 93.482 in the famous Mercury Mermaid he had built. The previous recordholder was a 4.9 Ferrari that did a top speed of 96.2

mph for the acceleration test on a standing mile. Considering this, Clayton and his friends felt they had done a good job — even if the fates seemed to combine against them in the 1957 Daytona Speed Week events.

But Clayton had a surprise when he returned to Long Beach. Calling his men in one day, DePalo broke the news that Ford was through with big time, factory-sponsored racing as they had known it. "In a year and a half we had 'knocked the checkered flags out of the Chevrolet advertising' and Ford decided to drop the project. We were all given two weeks' pay and some of the men had an offer to stay on at the Long Beach plant and work for \$2 an hour to wind things up," Clayton remembered.

"I went with the Mercury automobiles the factory had sold to the drivers for \$1 each and spent most of my summer in Milwaukee and the midwest keeping those cars running for the stock car races. My time at Daytona had been exciting and had been a lot of hard work, but it was now behind me and I was going to have to find some other automobile team to devote my time to."

The next and final association Clayton made was with Bill Stroppe.

Clayton, until his recent retirement from Bill Stroppe and Associates, was never out of work a single day after the 1957 Daytona Speed Week. There were always racing machines requiring his talents and experience. He worked with Stroppe for more than 18 years, building bigger, faster racing cars.

EDITOR'S NOTE:

The author is grateful to Clayton and his wife Chris for their generous use of their time in helping to prepare this article for Thunderbird Illustrated.

The color photo on page 23 was taken by Clayton while at Daytona in 1956 and, with special permission from him, is reproduced for the enjoyment of our readers.

THUNDERBIRD SPORT ROADSTERS — THE GRAND EXPERIMENT

The cult of Thunderbird Sport Roadster collectors grows with each passing year — and there are sound reasons for finding and preserving these unusual Thunderbirds before more of them are lost to the junkman's cutting torch



SLEEK LINES — Viewed from the rear, the Thunderbird with a Sports Roadster tonneau cover makes an impressive-looking automobile — even though it is more than ten years old.

It was a grand experiment, and one that wasn't fully appreciated until more than a decade had passed, but it is not too late to find and collect one of these noble attempts by Ford to bring back the fun of the two-seat Thunderbird while building larger, roomier four-seat bodies. From 1962 until 1964, the regular Thunderbird lineup of models included the now-almost-extinct, but still desirable, Thunderbird Sport Roadsters.

Hardly a week goes by without a mention in the *Thunderbird Illustrated* mailbag about these unique and special automobiles, and every time the editorial content of this publication includes information and photos, the pace of mail is stepped up. Today, the cult of Sport Roadster collectors is stronger than ever, and their ranks seem to be increasing almost monthly as more of the rare automobiles are found and restoration projects started.

There were many unusual features about the Sport Roadsters that set them apart from the general Thunderbird automobiles, and it is these differences that make collecting the cars so much fun, and for some collectors, profitable. In his travels, your editor-in-chief has visited the homes of many collectors and inspected the various Sport Roadsters of all years.

The rarest are those few produced on special order in 1964. Records of these automobiles are incomplete, but it appears from our researches that less than 50 were made, and only one example is known to us. Enthusiasts seek out the very early 1962 models and the 1963 products, as they are the most plentiful and easiest to identify.

This article will give you a general overview of the Sport Roadsters as a whole, with some of their main characteristics, rather than an exhaustive study. In a later issue, *Thunderbird Illustrated* will show our readers how to identify an authentic roadster from a counterfeit, because there are more and more of these making their appearance since the advent of fiberglass tonneau cover replicas.

The Thunderbird Sport Roadsters actually were born in the waning days of 1959 when it was decided to revamp the then-current "square bird." One of the men in the advanced styling department at Ford, Alex Tremulis, was urging that the new Thunderbird design take on the aspect of a projectile — since moon shots and space exploration were big subjects of the day.

His point of view won many adherents, and it was decided to go back to the original Thunderbird tail light configuration — one single lamp on each side of the car, much like the 1957 vehicles — but, in keeping with the early 1960s' trend to large lamps, the new units were to be larger. The familiar "ears" that appeared on the 1957 cars as muted "fins" had been retained on the 1958-60 cars, and this tradition was to be continued on the 1961-63 Thunderbirds.

Tremulis was to call his styling influence on the 1961-63 cars "swimming against the tide," since more and more automobiles had a square, box-like look during this era of automobile production. The recessed headlamps, gently sloping hood and general clean design of the 1961-63 cars gave them a top speed advantage of several miles per hour over previous Thunderbirds — despite some increased weight.

The origin of the idea for the Sports Roadster seems to be lost in the clouds of time that swirl around historical records, but on October 5, 1961, the Ford Motor Company made an official announcement that read as follows:

Thunderbird for 1962 retains its traditional classic styling, incorporates more than 100 engineering improvements, and offers two special new models: A two-seat sports roadster, and a vinyl-covered hardtop Landau coupe.

The new sports roadster features a molded fiberglass tonneau cover with padded head rests which transforms the four-seat convertible into a two-seat car.

Special features of the new roadster include:

—Wire wheels with chrome-plated spokes and rims and

simulated knock-off hub caps. Narrow-band whitewall tires will be an optional feature.

—A special emblem mounted on the front fenders below the Thunderbird name script and on the tonneau cover extension between the front seat backs. The emblem is a gull-wing bird (Note that it isn't described as a Thunderbird!) superimposed on a red, white and blue crest.

—An assist bar, provided for the comfort of the passenger during cornering. It will be hung from the underside of the instrument panel.

There was really very little on the Sports Roadster that made it dramatic except for the tonneau cover, which later studies revealed most owners didn't use more than 30% of the time! When one gets right down to the bare facts, the Sports Roadster was little more than a fiberglass headrest and a set of wire wheels, yet the overall effect on the public was dramatic.

People remembered the Sports Roadster long after styling details of the other 1962 Thunderbirds were forgotten — a tribute to the effect of showmanship and salesmanship on the American public.

In order to understand the other features of the 1962 Thunderbird, let's review them here. The Thunderbird line, as previously mentioned, had four models, more than had ever been offered since the Thunderbird was introduced in 1955. Besides the roadster and Landau, there were a regular hardtop and a convertible. The convertible naturally formed the basis of the Sports Roadster.

Then, Ford Motor Company vice president and Ford Division General Manager Lee A. Iacocca told a waiting America: "... totally new engineering features make the 1962 Thunderbird the most advanced, yet most practical, car in the industry." The public had a chance to gauge this statement against reality when the automobiles were introduced into dealer showrooms across the nation on October 12, 1961.

The Landau was a "dressed up" hardtop, and its "features" were superficial. They consisted of the vinyl-covered roof, available in white or black colors, with a chrome "S" bar on the side of the rear roof panels. So much for styling advances.

Here is a quote from sales literature of the period that describes the face-lift modifications that were made on the 1961 automobiles for 1962.

"The fashionable styling of the Thunderbird is enhanced in 1962 by a new, square-block design grill that gives the car an appearance of power and motion.

Additional new exterior features of the 1962 Thunderbird include a rear quarter ornamentation consisting of three rectangular, ribbed ornaments mounted horizontally, and new tail lights which combine the stop lights, tail lights and parking lights in one.

The car's classic yet functional interior design is revealed when the doors are opened to their full width of more than four feet, permitting effortless entry to front and rear seats.

The new Thunderbird again has the unique individual bucket seats in front, divided by an attractive and useful console, and simulated bucket-type rear seats. For greater convenience of the driver and passengers, the temperature and optional air conditioning controls have been moved to the console.

The rayon carpeting this year has been improved for better wear and longer life by the addition of nylon, and the front compartment heel pads now are made of sturdy vinyl, rather than rubber, to stand up under hard use much longer.

The unique swing-away steering wheel, which has been ordered by nearly 77 per cent of Thunderbird buyers since it was made available on the 1961 model, is



SPORTS COCKPIT — The passenger cockpit, when isolated with a Sports Roadster tonneau cover, gives the appearance of a two-passenger automobile.

standard equipment for 1962.

Improvements in lighting and instrument pointer visibility also add convenience and safety to the 1962 Thunderbird."

The engineering features spoken of earlier were significant, in some cases, and unlike face-lifting styling changes, actually were improvements, not just "fluff" for the public relations department to talk about.

One of the main features of the 1961-63 automobiles was the unitized body with its double protection against rust and corrosion. The underbody and superstructure were fabricated from zinc-clad stock, and during the manufacturing process, the body was dipped in a zinc bath to seal the automobile further against the corrosive factors of the elements.

Quality, (at least for an assembly-line product,) was excellent. The body received three coats of primer, followed by two finish coats of a hard, durable enamel that the factory claimed would never need waxing. Suffice it to say that the paint finish was a very good one.

A heavy undercoating was found to deaden the "normal road rumble" automobiles are subject to. It was also a third layer of protection against water, slush, salt, and other hazards that tend to demolish the steel on automobiles in a few years if they are not carefully protected.

While the author has personally inspected Thunderbird Roadsters that suffered from the pains of severe body rust, the extra care taken by the factory evidently helped, as the body cancer is far less than on automobiles that left the factory without this protection.

When body corrosion does develop, it is usually on the joint, just under the lip of the hood on the right and left sides, where the tires throw highway fluids during inclement weather. It is a good idea to check this area out thoroughly when contemplating the purchase of a Thunderbird of this era as a collector's vehicle. Several good looking examples we have seen recently had serious body rust at the previously-mentioned locations, and their value was greatly lowered as a result.

Other, lesser, features on the engineering side included an aluminized muffler with stainless steel interior parts, such as the resonators. The Thunderbird engine, with its short-stroke, low friction, 390-cubic-inch engine, used an advanced induction system intake manifold which gave the car exceptionally flexible performance — especially when the weight of the car is considered.

A 30,000-mile* oil filter was used, and the carburetion was changed, with 15 improvements over the previous year. The oil filter change meant that owners could expect to travel up to 6,000 miles without an oil change.

The factory-installed long-life coolant eliminated the need for regular fall and spring cooling system changes, and anti-freeze only needed changing once every two years or 30,000 miles. With the factory coolant, the engine would operate down to 35 degrees below zero.

A larger master cylinder reduced brake pedal effort, and at the same time increased braking power, and a new lining was used on the brake shoes. Disc brakes were just a few years away, but the older method of shoe and drum was still highly effective.

More than 45 pounds of insulation and sound-deadening materials were used on each Thunderbird in 1962. These materials included aluminum insulation, thick fiber and mastic felt, undercoating and fiberglass added under the hood, wheelhouses, dash, instrument panel, passenger and trunk floors, roof panels and rails, package tray and quarter panels.

During the restoration process, the collector should be careful to save all such materials that might be removed (except undercoating, of course) for re-installation to keep

the automobile original and factory-equipped.

Because of the variance in customer preferences, the 1962 Thunderbirds now purchased by collectors are likely to have several different combinations of accessories already installed. So that the enthusiast will be informed as to what was available on the 1962 automobiles, here is a summary:

The previously-mentioned 390-cubic-inch engine, dual-range automatic transmission, power steering, power brakes, back-up lights, undercoating, padded instrument panel, sun visors, electric windshield wipers and interior courtesy lights were all standard.

Options and prices were as follows:

Engine - 340-horsepower High Performance (three two-barrel carbs.)	\$242.10
Air Conditioning, SelectAire	\$415.10
Battery, Heavy Duty 70 amp.	\$ 7.60
Door Locks, Automatic vacuum	\$ 34.10
Fender Shields Rear (not available with wire wheels)	\$ 26.60
Glass, Tinted with Banded Windshield	\$ 43.00
Leather Seat Bolsters and Inserts	\$106.20
Paint, Two-Tone	\$ 25.80
Power Seats, Four-Way Driver	\$ 92.10
Passenger	\$ 92.10
Power Windows	\$106.20
Radio, AM-FM Push Button and Antenna	\$ 83.70
Seat Belts, Front	\$ 16.80
Speaker — Reverberating	
For Rear Seat on Landau and Hardtop	\$ 15.50
Speed Control System — Automatic	\$ 80.50
Tires, White Sidewall	
(5) 8.00 X 14 four-ply Rayon	\$ 42.10
(5) 8.00 X 14 four-ply Nylon	\$ 70.40
Windshield Washers	\$ 13.70
Wire Wheels, Chrome	\$373.30
DeLuxe Wheel Covers (knock-off hubs)	\$ 15.60

None of the above figures include transportation, local taxes, license fees, or charges for dealer-installed accessories. The top-of-the-line Thunderbird in 1962 was the "Convertible Sport Roadster" which carried a manufacturer's suggested retail price tag, exclusive of options, of \$5,563.00. The regular convertible was \$4,912.00, while the Hardtop was \$4,445.00 and the Hardtop Landau \$4,548.00.

Interior color combinations were selected to harmonize in a flow of colors from the instrument panel to the doors, seats, floor and console. Seven basic colors were available: Blue, turquoise, beige, black, red, silver mink, and chestnut. Seat cushions, insets and bolsters were offered in seven all-vinyl combinations, five vinyl and bedford cord fabrics, and seven all-leather. A handsome combination, by any standard.

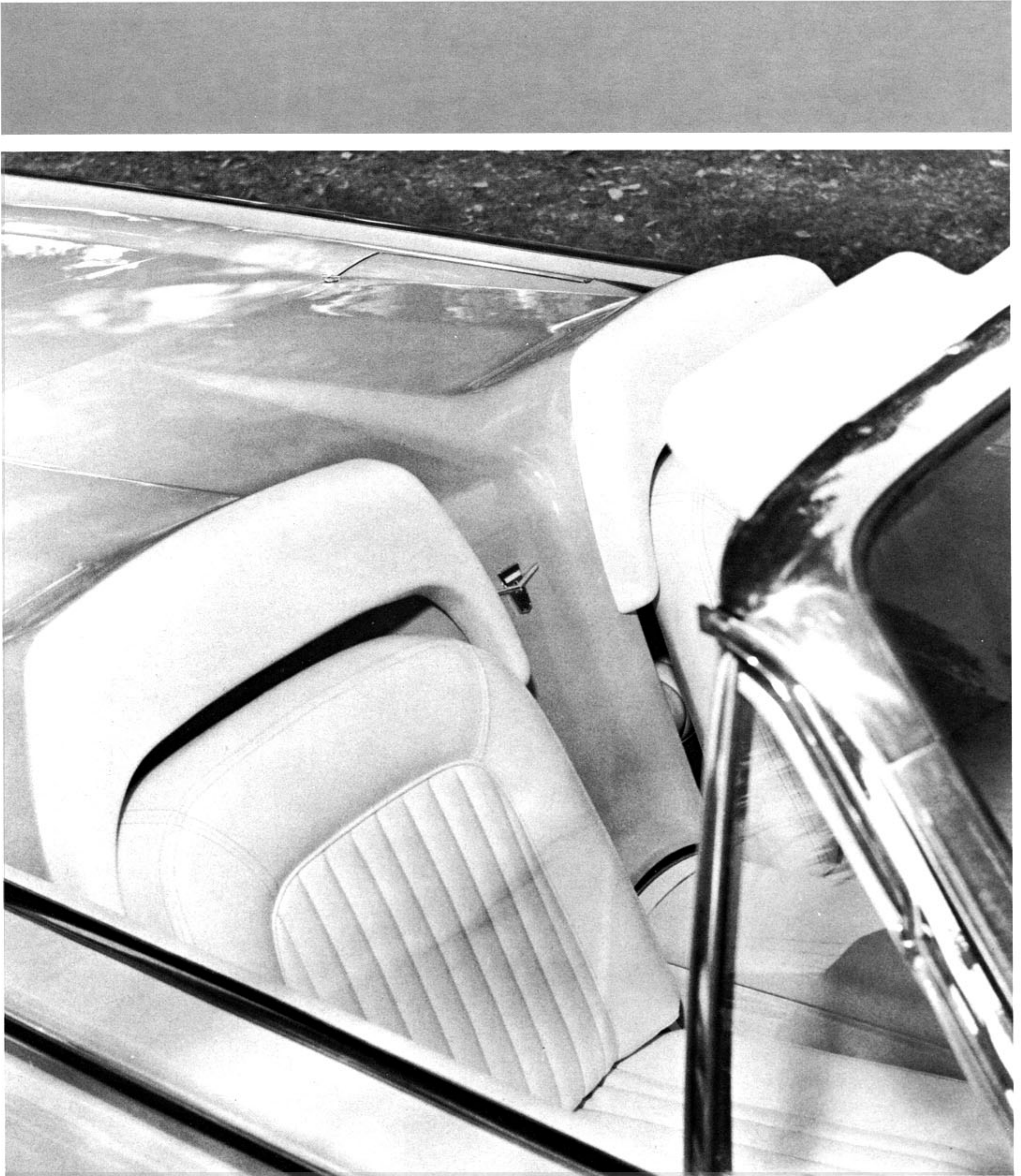
A review of some 1962 Sport Roadster invoices reveals figures which will be of interest to roadster historians. One, for a 1962 "Convertible - Sport Roadster," delivered in the closing days of 1961, lists the following:

Suggested Retail Price — \$5,439.00. Added to the car were the following accessories: 800 X 14 WSW tires, \$42.10; Power Lift Windows, \$106.20; Power Seats, Passenger and Driver, \$184.20; selectAire Conditioner, \$415.10; Push Button Radio, \$83.70; Tinted Glass, \$43.00; Windshield Washers, \$13.70; Outside Mirror, \$5.10; and Heavy Duty Battery, \$7.60. This package, plus \$217.10 for eight gallons of gas, antifreeze and transportation — and the dealer's own extra charges — came to \$6,556.80.

Without going into an exhaustive survey of other invoices, it can be said that the general delivered price of a Sport Roadster was at least \$6,000, and we have heard of one that is said to have cost slightly more than \$7,000.

Exterior colors for 1962 were as follows: Raven Black, Skymist Blue, Acapulco Blue, Caspian Blue, Cascade Green, Tucson Yellow, Heritage Burgundy, Chestnut, Rangoon Red, (the most popular color for Sport Roadsters) Sandshell Beige, Fieldstone Tan, Sahara Rose, Chalfonte Blue, Patrician

*This was listed in the factory press releases for 1962.



HEAD RESTS — The head rests of the removable tonneau cover are not as soft as they look, but do add to the overall comfort of the automobile for passengers.



RESTORED TRUNK — John Clement, of Fullerton, removed all the top mechanisms, wiring and other components so that the interior of the trunk could be painted to match the exterior — one of the acid tests of a first-class restoration.



FAMOUS FRONT — The once-controversial Thunderbird front end now is eagerly sought by collectors, specially the authentic Sport Roadster models. This is the fairly rare factory color, Tucson Yellow. Note Kelsey-Hayes chrome wire wheels.

EDITOR'S NOTE:

While this 1962 Thunderbird convertible has all the trimmings of a Sport Roadster, (i.e. the chrome wire wheels, assist bar, tonneau cover and special emblems) it is not an authentic factory version. In a future issue of Thunderbird Illustrated we will describe the methods of identifying factory-constructed Sport Roadster automobiles and those that have been adapted to this popular configuration.

Even though the Clement automobile is not totally authentic, it is still a remarkable Thunderbird, and one that is now valued at more than \$5,000 by its owner and other experts on the subject of Sport Roadsters. For anyone who might want to make his existing 1962-64 Thunderbird convertible into a replica Sport Roadster, we are planning to run a special feature in a future issue.



MODERN INTERIOR — The 1962 Thunderbird cockpit represented the most advanced styling treatment Ford had dared to install in a car up to the year 1962. While most people admired it, few could afford this kind of luxury.

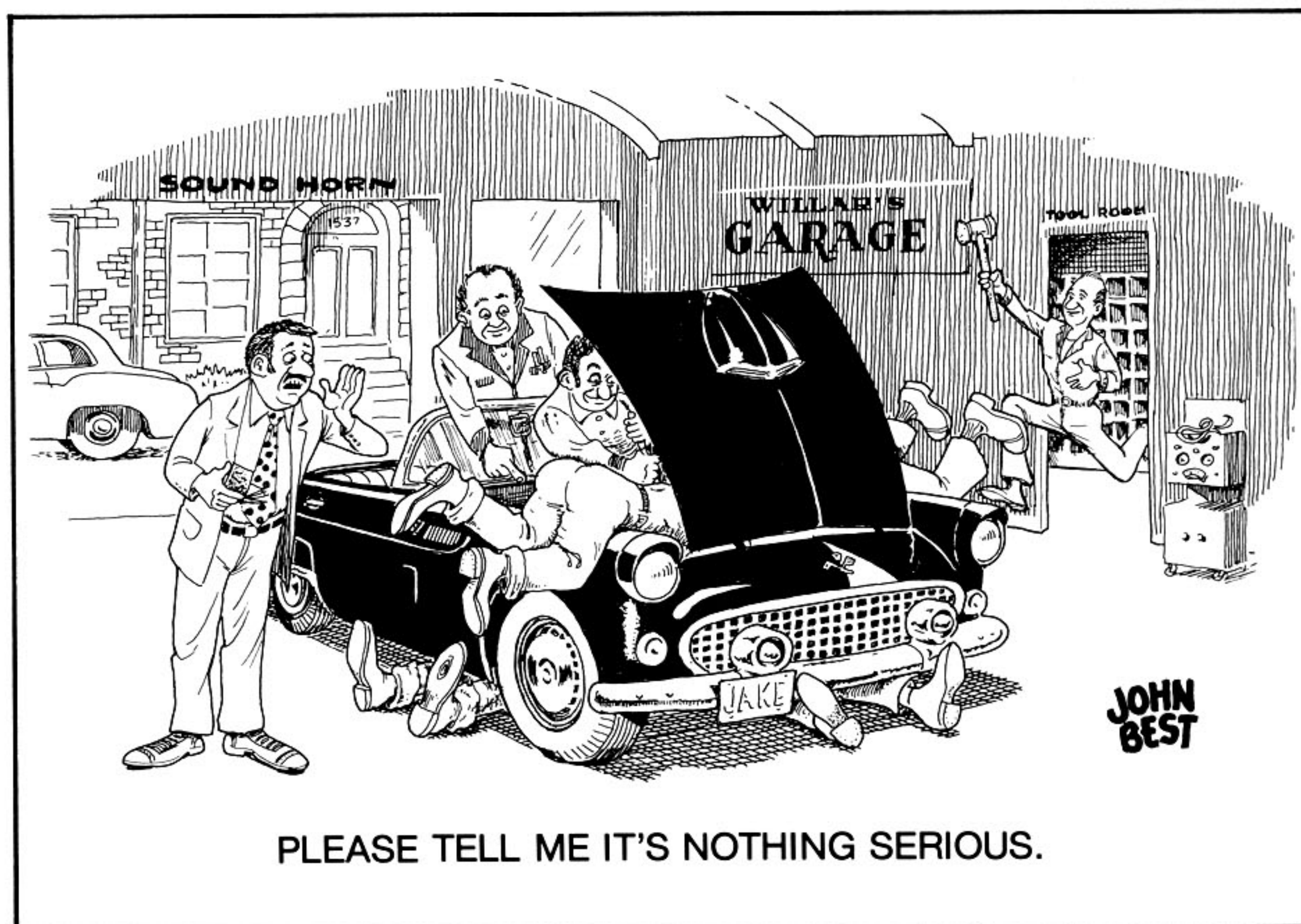


ROOMY FRONT — The front-seat passenger enjoyed exceptional leg room, but the hapless individuals consigned to the rear seat found they had about as much room for their legs as a bookmark in a closed book.

1962 SPORT ROADSTER

Jack Jordan





PLEASE TELL ME IT'S NOTHING SERIOUS.

Green, Deep Sand Blue. These colors were generally used in two-tone combinations, as the regular convertibles came only in solid colors with a black lining. Colors available for tops were Black, White, or Blue.

A typical color selection for the 1962 Sports Roadster was Rangoon Red, with one of three Black, Silver Blue or two Red interiors. The top, in this case, would have been Black or White. The factory offered several textured materials with the various interiors, so the prospective customer had many inducements to spend money to please his individual taste.

For 1963, the Thunderbird was basically unchanged. The prices of the previous year remained constant, and the accessory list of standard equipment was virtually the same. Here is a rundown on standard equipment for 1963 Thunderbirds.

- 300-horsepower, 390-cubic-inch engine
- Cruise-O-Matic Transmission
- Power Brakes
- Power Steering
- Movable Steering Column
- Padded Instrument Panel and Visors
- Electric Windshield Wipers
- Electric Clock
- Radio — AM Push-Button and Antenna
- Full Wheel Covers
- Undercoating
- Back-Up Lights
- Parking Brake Warning Light
- Glove Box and Ash Tray Lights
- Courtesy Light
- Luggage Compartment Light

Mirror — Remote Control

Wire Wheels for Sports Roadster.

In a later issue, we will look at the 1964 Sport Roadster and some of the interesting things about this particular limited issue. We hope to make a color feature of it. Unlike the "early birds," the 1962-64 Sport Roadsters have not yet had a great deal of historical research done on them, but the time is fast approaching when this situation will change.

Your editor has been working on this aspect of the Thunderbird family tree for nearly a year, doing investigative research, and conducting interviews and personal inspections. Our body of knowledge is accumulating rapidly. In subsequent articles, we will do features on the tri-carburetor and other factory-developed innovations, which should make the individual Sport Roadster research we have conducted even more interesting.

The Sport Roadster was a grand experiment that has already endured longer than most factory officials expected, and it is one that promises to endure long into the future. These low-production automobiles are another milestone in the long and exciting historical road the Thunderbird has traveled since 1955. We expect interesting revelations as the dusty pages of past events are examined, and you can expect to read about them in *Thunderbird Illustrated*, the world's most complete publication on the subject of this remarkable marque.

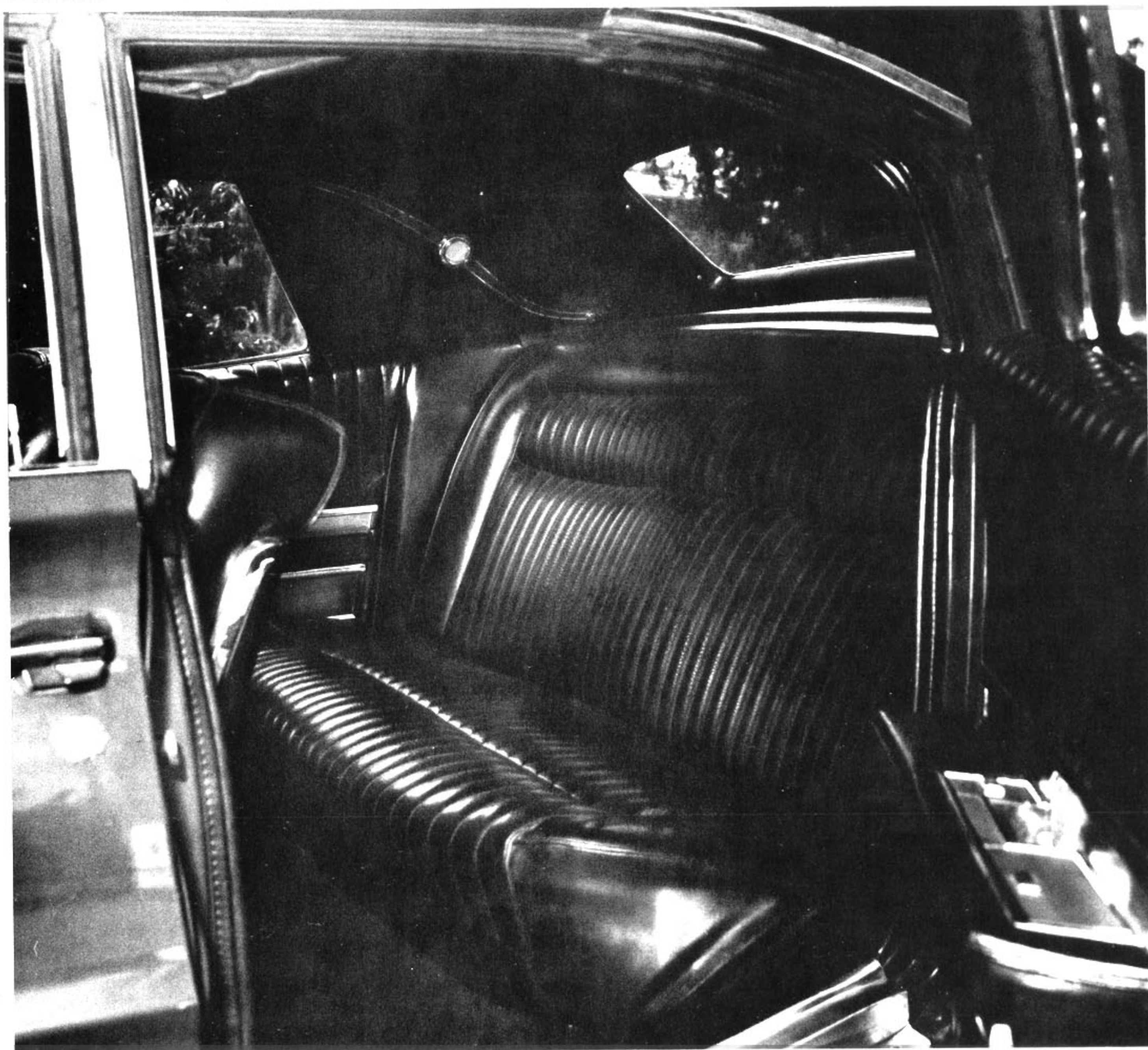
EDITOR'S NOTE:

The 1962 Thunderbird Sport Roadster seen in black and white with this feature belongs to John Clement of Fullerton, California.

Adding two extra doors didn't help Thunderbird sales, but the four-door models are now becoming collectors' items, and are rapidly gaining in value.

THE FOUR-DOOR THUNDERBIRDS

REAR SEAT — A black vinyl material was used in the upholstery of the 1968 automobile, with a simulated close-stitch pattern.





AIRCRAFT FRONT — The front end of the 1968 Thunderbird four-door often is likened to the nose of a jet aircraft. The headlights of the automobile are hidden behind the corner panels.

For centuries, man's enclosed transportation was the two-door. Sedan chairs, carriages, stage coaches, all used the two-door body style. In the case of a coach or carriage, passengers sat facing each other, so there wasn't much point in having extra doors. They weren't necessary.

Then came the automobile. At first, automobiles had either no doors at all, or they had only back doors, and these, as a general rule, were simply small half-doors which served very little purpose other than as ornamental additions to the graceful coachwork of the body.

By 1915, the automobile had pretty well grown up, especially where the enclosed sedan body was concerned. Builders still didn't know exactly how to get people in and out of the glass fish bowls they were creating. The Dodge Brothers, for instance, made only one door — so everyone entered and exited through that aperture. The builders of the sedate Detroit Electrics did the same thing, but their cars weren't expected to carry six

people, so it wasn't as complicated to get in and out in a hurry.

The famous Model T also featured a one-door sedan, which was called the "center door." Getting in and out of this particular body style was a bit of a chore. But soon the automobile factories realized that four doors were the way to go. People liked the comfort and convenience of enclosed transportation, if they didn't have to be contortionists to get in and out.

By the 1920s, the four-door sedan was one of the most popular body styles in America. As the years went by, the four-door continued to gain in popularity. By the 1940s, it was the most popular body style manufactured. Then came the hardtop, and the process appeared for a time to reverse itself. People went back to the two-door body style so that they could enjoy a pillarless view and more attractive styling.

The classic Thunderbird of the 1955-57 era reflected this trend, and when the two-passenger became a four-passen-

ger, the doors remained as they had been on the smaller cars. There were still two, but now they were long enough to form part of a bridge girder. The doors were heavy, and if the car was parked on a tilt and one tried to open a door on the "up" side, it took real effort.

Still, Ford decided that it was best not to change success. The two-door cars were selling, they were cheaper to build, and there seemed to be little reason to rock a popular boat. Women continued to complain about the heavy doors, and the factory shrugged its shoulders — until 1967. In that year, the two-door body style was expanded to a four-door, the first Thunderbird to have this feature.

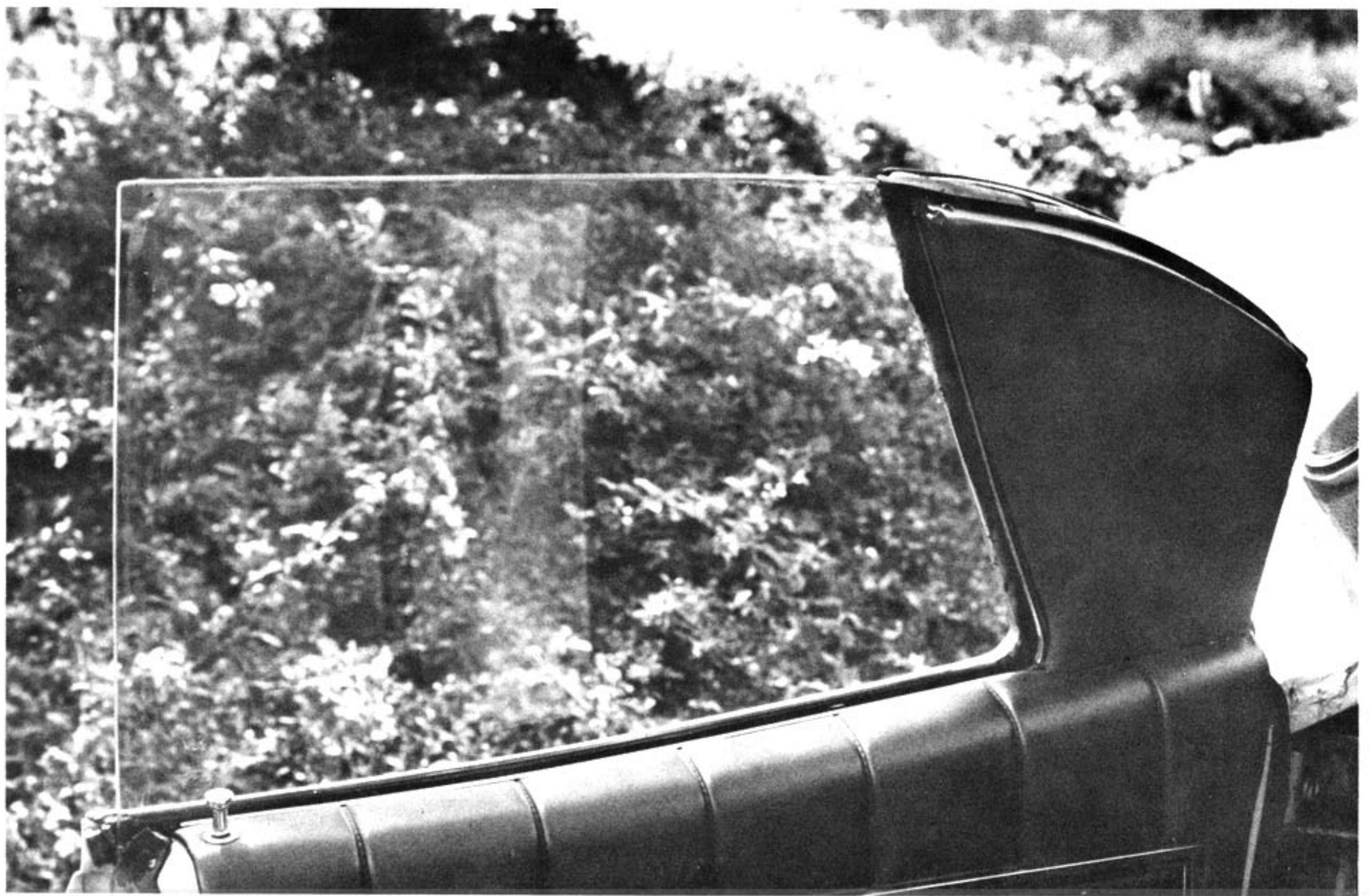
The popular convertible had been dropped the previous year. The money saved was used partially to create the fresh styling approach to the old problem of getting in and out of the Thunderbird — especially if you had to sit in the back seat.

In the years since the inception of the Ford "personal car," the ideal had been room for four people, (the usual group

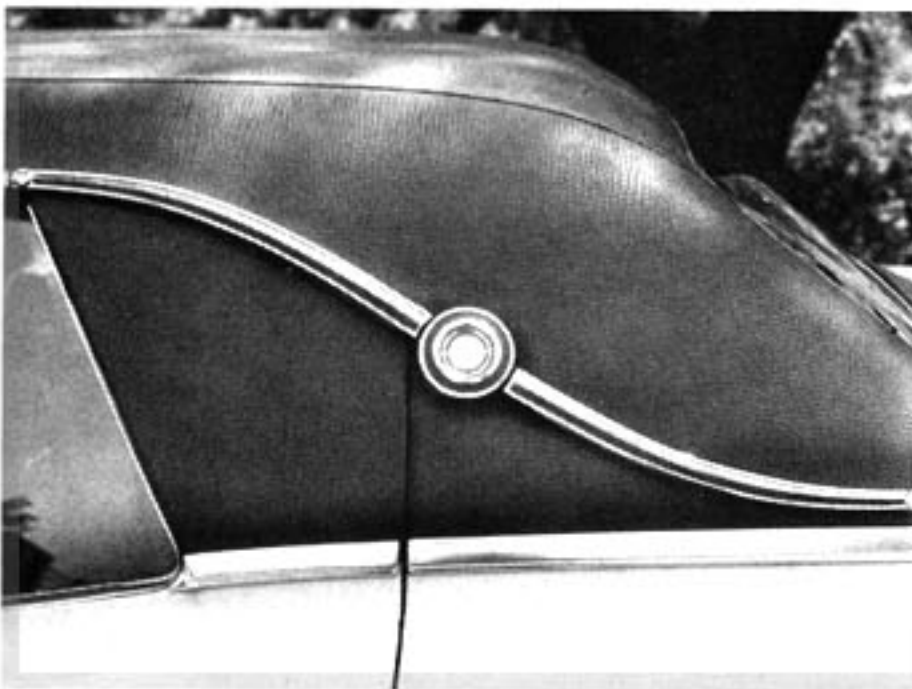
1970 THUNDERBIRD

John Watson





DISTINCTIVE DOOR — The rear edge of the door is padded as shown here on the 1970 cars, so that the roof line will not be interrupted visually.



LANDAU ARM — The ornamental landau arm on the 1970 models looked like this. Note the slot in the padded top for the window edge.



MATCHING HANDLES — The doors of the 1970 models meet in the center, with the handles opposite each other.

that went to a country club function in the east) with a two-door body. Louis Caruso, the "father" of the Thunderbird, had asked for four-passenger seating capacity shortly after driving the first completed 1955 automobile.

Since the body dies for the classic two-passenger Thunderbird were committed to a run of three years, the designers had three years to obsolete the classic body styling and replace it with the four-passenger 1958 "square bird."

From the standpoint of financial success, the 1958-60 Thunderbird was a triumph. Its styling has held up a little less

well, and its size was against it, but it now has a devoted following and a closely-knit group of enthusiasts who are bent on creating a following as large as the first Thunderbird attracts. But like its predecessors, the square bird was very difficult for rear-seat passengers to enter, and leg room was minimal.

The external features of the design were expanded for 1961 to 1963, but the interior measurements were the same because the inner body of the previous car was retained. From 1964 to 1966, the rear seat passengers got a little break, but it was still hard to enter the car, and

worse yet to get out!

Taking the basic 1967 body, engineers at Ford were able to make a four-door model out of the two-door body. This made entry to the rear of the automobile much simpler, but the rear doors were short and didn't open as far as one might wish, so the problem was only partly cured.

After examining the sales figures, (the four-door wasn't as popular as had been expected) Ford made a policy decision and lopped the four-door off. The company would concentrate production on the two-door and write off the heavy in-



LAVISH INTERIOR — The interior of the 1970 four-door resembles the control panel of a space capsule, so lavish is the ornamentation.

vestment in tooling, design studies, etc., that had gone into the new Thunderbird body.

Not only had the car not been popular, it was costing far too much money per unit to manufacture, and this hurt the overall profit figures of the Thunderbird Division. When profits dip, you can expect a quick, ruthless reaction from the front office. The offender is slashed from production — FAST!

Remember the Edsel? After a \$250 million dollar investment, the entire project was scrapped. The XT-Bird of the Budd Company met a similar fate, as did the

Falcon and many another. Detroit has no time for sentiment. When the four-door Thunderbird didn't make a profit, and in fact, appeared to be holding the other models in the production line down, SLASH!

While production figures on the four-door were not available at the time of this writing, (we will run some interesting photos and data on this car at a later time) enough is known about the car to list it as a coming collectible. Smart enthusiasts are now starting to seek them out and add them to their collections as cars of exceptional interest—and good investments for

the long-term owner. *Thunderbird Illustrated* found one in Orange County, California, for \$1,250 — a figure the seller considered low. There are several post-“square bird” Thunderbirds that are coming attractions for special interest enthusiasts. Included in this list is any convertible through 1966, when the last one was produced, and of course any *authentic* roadster.

The four-door Thunderbird was not really appreciated at the time, but age has a way of making most things look better — and this is one Thunderbird we predict will soon be highly coveted by collectors.



1968 THUNDERBIRD

A ROADSTER, OR NOT A ROADSTER?

The question may not be fully answered, but this feature by a noted authority gives a few answers

By Richard Holloway

In October of 1963, Ford Motor Company introduced the 1964 Thunderbird line of luxury automobiles. There were four models: Hardtop, model number 83, a two-door, five-passenger; Landau, model number 87, a two-door, five-passenger vinyl-roofed hardtop with two "S" bars on the side of the roof; Convertible, model number 85, a two-door, five-passenger; and Sport Roadster, model number 85, a two-door, two-passenger (or five-passenger with the tonneau cover removed) convertible.

The 1964 Sport Roadster was a continuation of the 1963 Sport Roadster, but with several differences. First, the 1964 Roadster had no assist bar on the dash. Although one was planned for the car, it never made it into production (see Figure 1). Second, the 1964 Roadster had no front fender emblems like those on the 1962 and 1963 Roadsters (see Figure 2), although these were also planned for the car. Third, the 1964 Roadsters were all "85" models, the same number designation as the convertible (see Figure 9) and, in effect, were technically convertibles with an accessory tonneau. However, the first five hundred or so early 1962 Roadsters were also "85" models—until February of 1962, when Ford changed the number designation to model "89". These first 1962s were called Sport Roadsters, or words to that effect, on the factory invoices. At least 55 of the over 100 1964 Roadsters sold were also called Sport Roadsters on the factory invoices. The difference was that on the 1962 and 1963 Roadster invoices, the tonneau, the five Kelsey Hayes wire wheels, the assist bar, and the three fender emblems were included in the base price of approximately \$5500 for the Roadster (see Figure 3); while all the 1964 Roadster invoices itemized the tonneau and wire wheels below a much lower base price (see Figure 4). This lower 1964 base price of about \$4900 is the base price of a convertible, and is about \$600 less than a 1963 Roadster.



The very early 1962 Roadsters that were built before the factory designated the model "89" and the body type as "76B" also had itemizing, but the tonneau, the assist bar and emblems were grouped under one broad category called a "Sport Roadster Package" (see Figure 5). As on the 1964 Roadster invoices, the early 1962 Roadster invoices list the car as a "convertible" and the base price is about \$4900, the base price of a convertible. Since the Roadster base price was \$5500, the difference of \$600 (retail) was the cost of the tonneau and wire wheels.

Fourth, the 1964 Roadster had no emblem on the tonneau cover between the headrests like the 1963 Roadster. And fifth, the 1964 Roadster tonneau had much longer headrests, extending nearly the full length of the

tonneau to the rear (see Figure 6). The 1962 and 1963 Roadster tonneau headrests merely covered the thickness of the front seat back rest (about five inches) and do not extend rearward at all (see Figure 7).

Since the 1964 Thunderbird was available in 14- and 15-inch wheel sizes, the 14-inch Kelsey Hayes chromed wire wheels were held over on the 1964 models. They were not available on the 1965 Thunderbird, because the new front disc-brake set up interfered with the Kelsey wheel and prevented it from mounting up to the hub.

The black-centered spinners used on the late 1963 Roadsters (and other 1963 Thunderbird models equipped with the Kelsey wire wheel) were used on the 1964 Thunderbird Roadster. These have a gold spread





RESTRICTED SEATS -- With the tonneau cover in place, the adjustable seat cannot be raised to its full height. Note the absence of an emblem on the tonneau area between the front bucket seats. The head rests are two-piece, molded vinyl with minimum padding. 1962-3 Roadsters used an emblem between the head rests.

EXTENDED HEAD RESTS -- The 1964-66 Thunderbird head rests extended nearly to the rear edge of the tonneau cover, and were bordered with a concave $\frac{1}{2}$ -inch-wide stainless steel trim molding. Note the depth of the tonneau lower edges at the door pillar. This makes access to the rear seat storage space difficult.

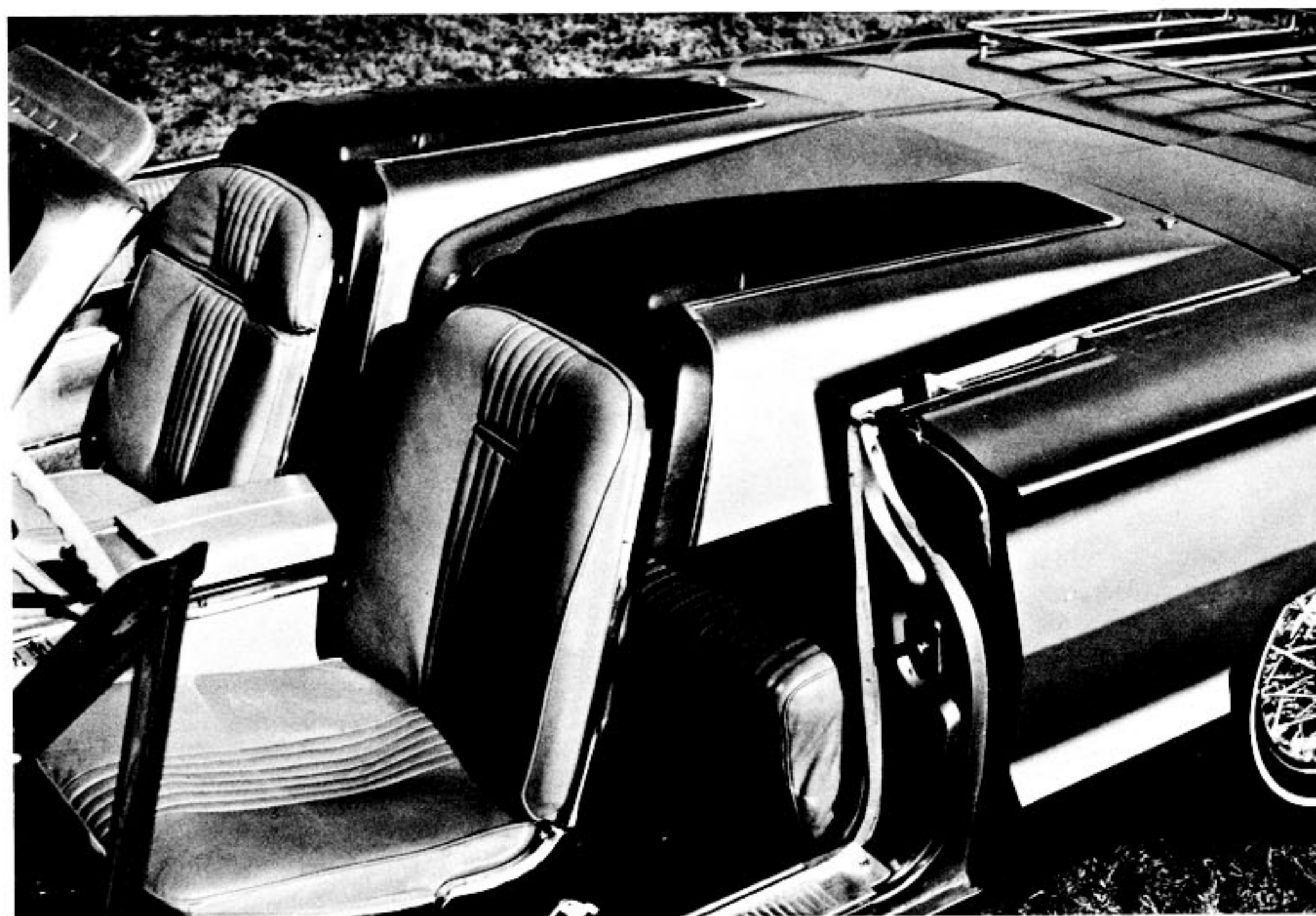


eagle and the words "Thunderbird" twice, surrounding the spread eagle.

The 1964 Roadster tonneau used the same hold-down hardware (see Figures 6 and 7) with the two wing nuts in the rear corners of the tonneau and the footman loop and clamp in front center of the tonneau.

The 1964 Roadster tonneau had a long side flap coming down at the door, similar to that on the 1962 Roadster in the first month or so of production. This flap is at the side between the front seat back rest and the rear pillar of the front door, making access to the rear seat storage area more difficult than on the 1963 Roadster.

The 1964 Roadster top could be lowered and raised without removal of the tonneau cover like the tops on the 1962 and 1963



FENDER SKIRT — The wire wheels of the 1964 roadsters were obscured when the fender skirts were in place. Note the difference between this photo and the one on page 23.

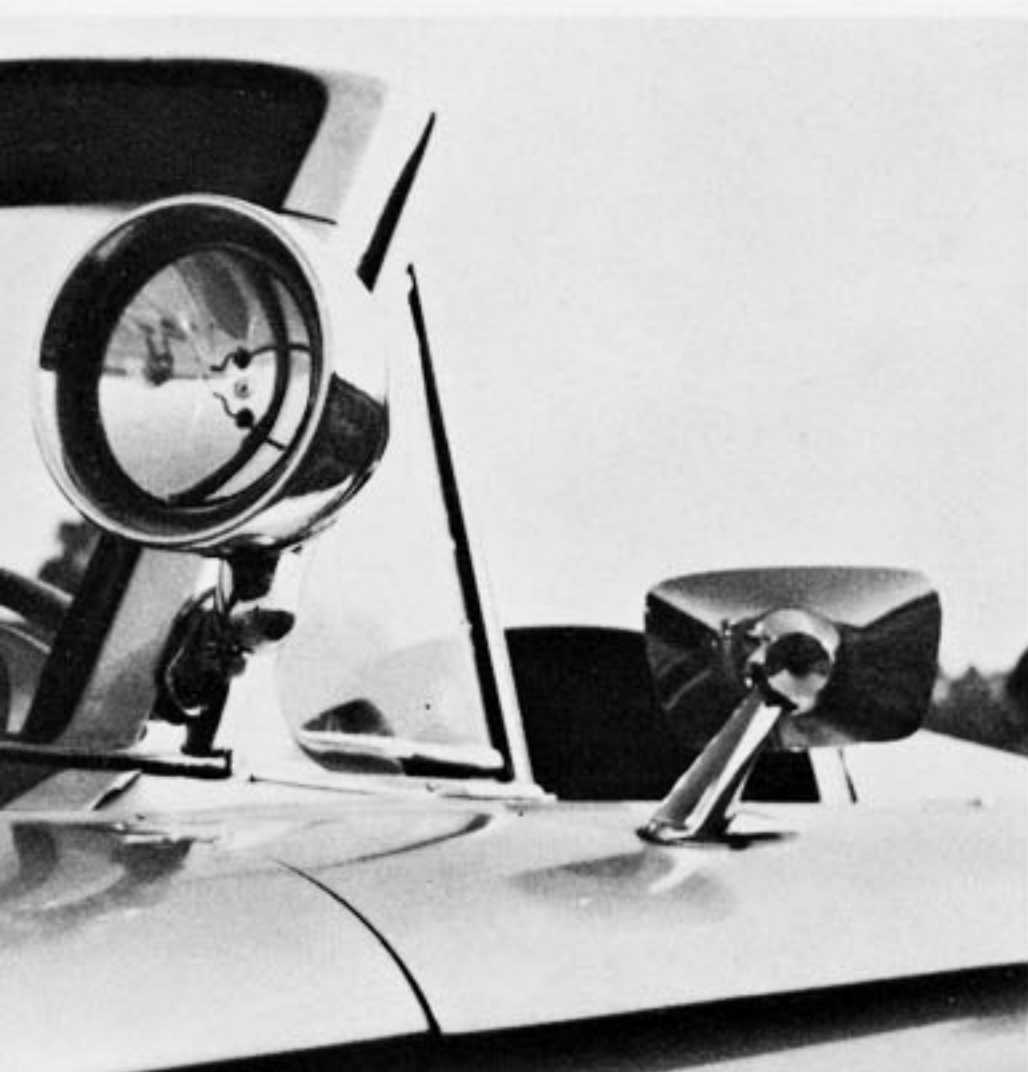
Roadsters. And the 1964 Roadster's tonneau has a long gentle sloping effect to the headrests (see Figure 6), whereas the 1962 and 1963 Roadster tonneau headrest is steep and abrupt by comparison (see Figure 7).

In addition to the 1962 and 1963 Roadsters being designated "89" models,¹ they were also Body Type 76B, and the 1962 and 1963 convertibles were Body Type 76A (see Figure 9). All the 1964 Roadsters are Body Type 76A on the door data plate-the same number designation used for the 1964 Thunderbird convertible. Ford reserved the "B" designation under "Body Type" for the top-of-the-line models with special interiors (see Figure 10) on all its cars (Fairlane, Falcon etc.). Since the 1964 Roadster was top-of-the-line, and the interior was obviously special (it had as extra equipment the tonneau and fastening nuts and clamp), it should have been designated 76B. And it should have been designated model "89." But since the 1964 Roadster varied from the 1964 convertible only in tonneau cover and attaching nuts, Ford probably did not think it warranted being called another model.

The 1962 and 1963 Roadsters were more varied from the 1962 and 1963 convertibles, because in addition to having a tonneau cover and attaching hardware, the Roadster also had an assist bar and special fender emblems not found on the 1962 and 1963 Hardtop, Landau, or convertible². Hence, Ford had to designate the 1962 and 1963 Roadsters as different models.

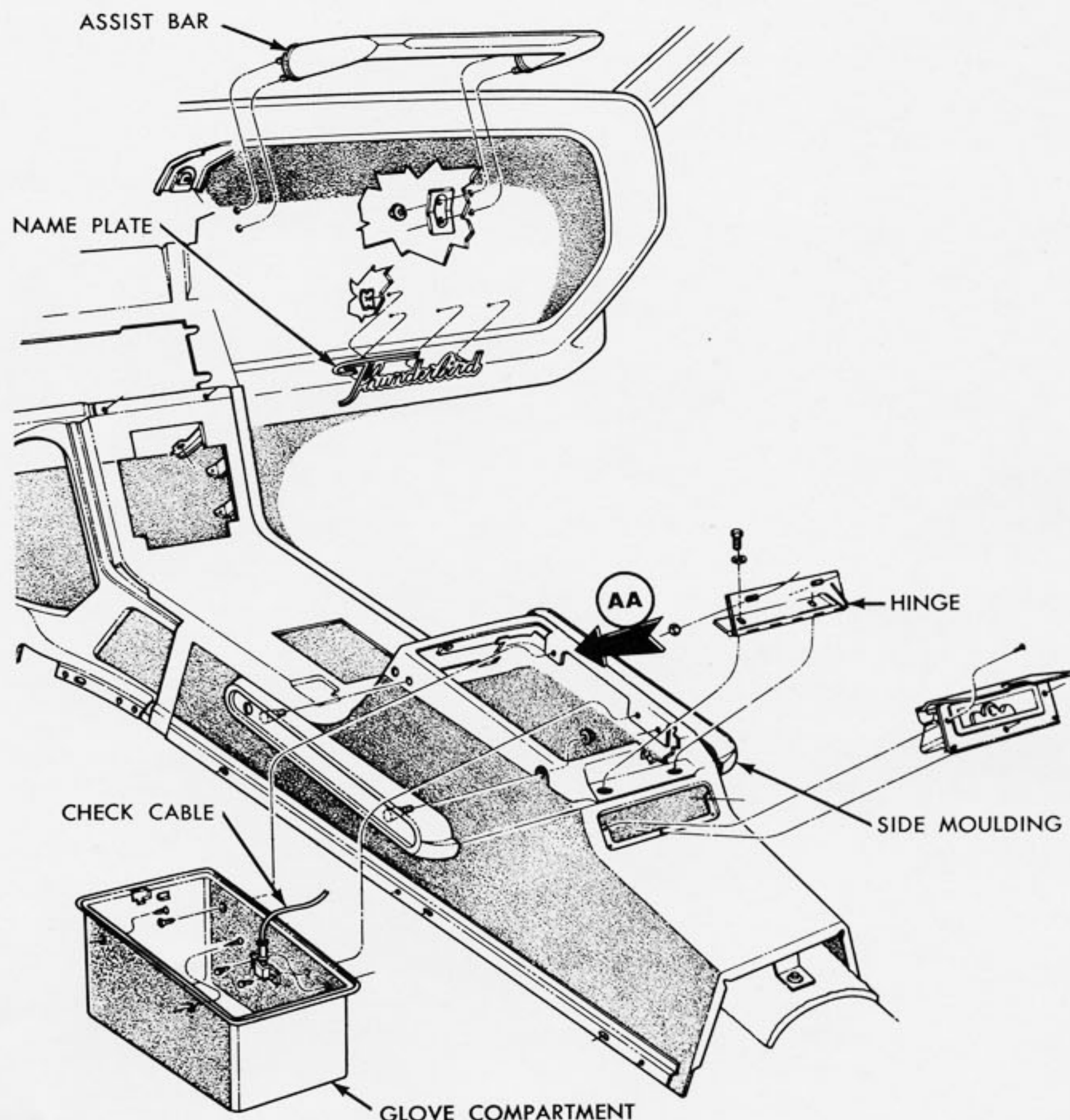
¹ "1963 Ford Thunderbird Shop Manual." First Printing September 1962 Ford Motor Company, Dearborn, Michigan page 4
"Kelly Blue Book" January-February 1967 Western Edition, 1411 W. Olympic, Los Angeles, Ca. 90015-page 94.

² Occasionally some convertibles were equipped with assist bars, fender emblems, and even footman loops and rear tonneau attaching holes.



RARE OPTION -- The factory-installed spotlight is a rare option, seldom seen on 1964 Thunderbirds. Outside rear view mirrors were usually standard, and were operated by remote control from inside.

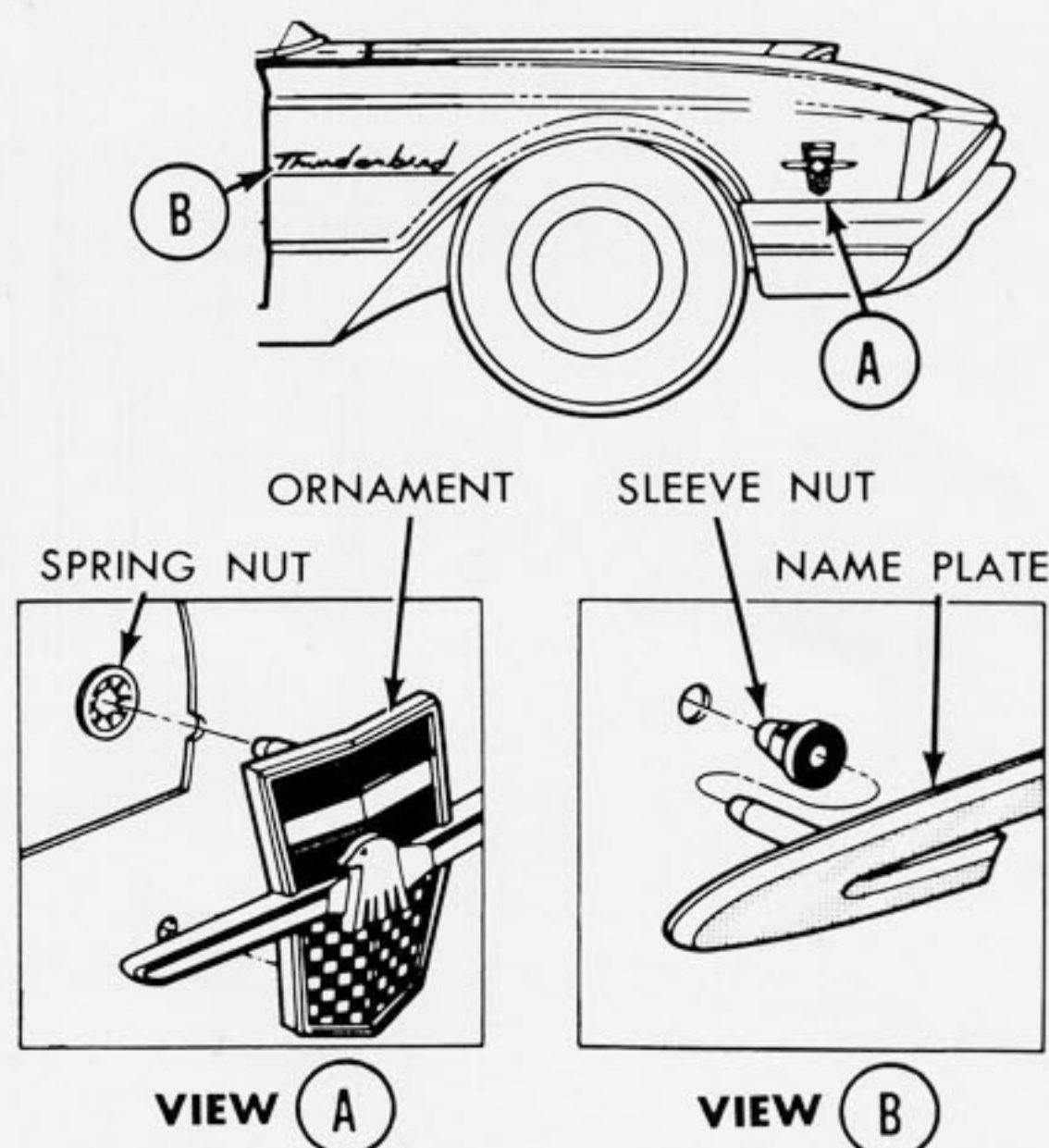
FIGURE 1



-Console and Finish Mouldings

This is what the 1964 Roadster dash assist bar was to look like. It never made it into production. This is from the "1964 Thunderbird Shop Manual" group 18, page 6.

FIGURE 2



This is how the 1964 Roadster fender emblem was to look. It was never made. Notice how the emblem is curved at the back to match the curved contour of the front fender. The 1963 Roadster emblem was flat. This illustration is from the "1964 Ford Thunderbird Shop Manual" group 17, page 18.

FIGURE 3

FORD DIVISION OF FORD MOTOR COMPANY 154373

DESCRIPTION	SUGGESTED RETAIL PRICE	MEMO D & D	AMOUNT
CONVERTIBLE - SPORT ROADSTER	5439 00	399 00	3841 58
RAVEN BLACK			
800X14 WSW	42 10	2 60	29 98
POWER LIFT WINDOWS	106 20	7 50	75 00
POWER SEAT DRIVER	92 10	6 50	65 00
PUSH BUTTON RADIO	112 80	8 00	79 60
TINTED GLASS	43 00	3 10	30 30
SAFETY BELTS	16 80	1 20	11 80
OUTSIDE MIRROR	5 10	40	3 57
HEAVY DUTY BATTERY	7 60	60	5 27
			300 52 *
SCHEDULE B	183 00	183 00	611 90 *
8 GAS AND ANTIFREEZE			4754 00
FORD DEALER ADVERTISING FUND	5 00		6 20
			20 00
3 TOTAL	6052 70		4780 20

SOLD TO: H A RISZANTZ FORD
120 W FOOTHILL BLVD
GLENORA CALIF

SHIP TO (IF OTHER THAN ABOVE):

APR 4 P.M.

IN CALIF RK 901051

DATE SHIPPED: RC 17 16-00-00

FIN. CODE: 9

CAR INITIAL AND NUMBER:

SEALS:

INVOICE AND UNIT SERIAL NO.: 2Y89Z 154373

ASSEMBLY PLANT: WIXOM, MICHIGAN

TYPE ORDER: 2

INVOICE DATE: C 23 62

ITEM NUMBER: 719993

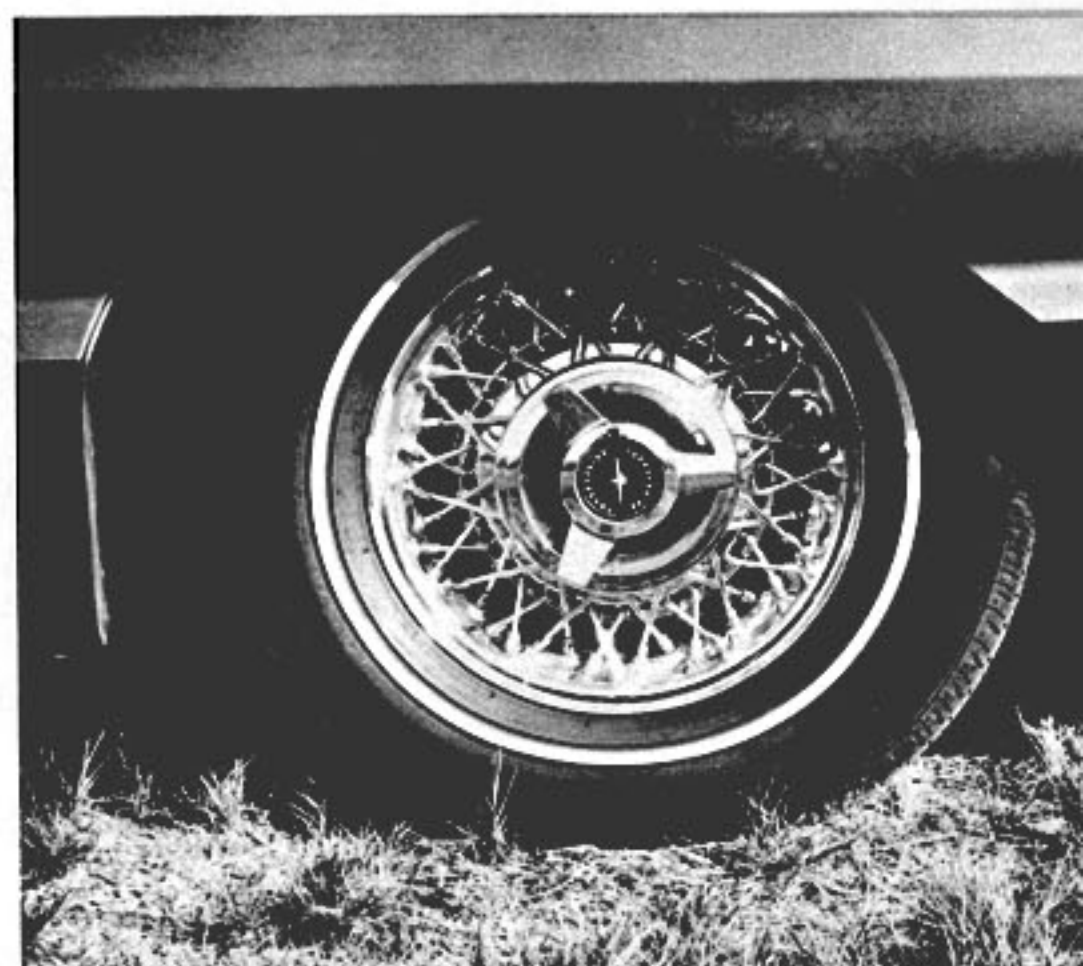
TRIM: 56

DEALER NO.: E067

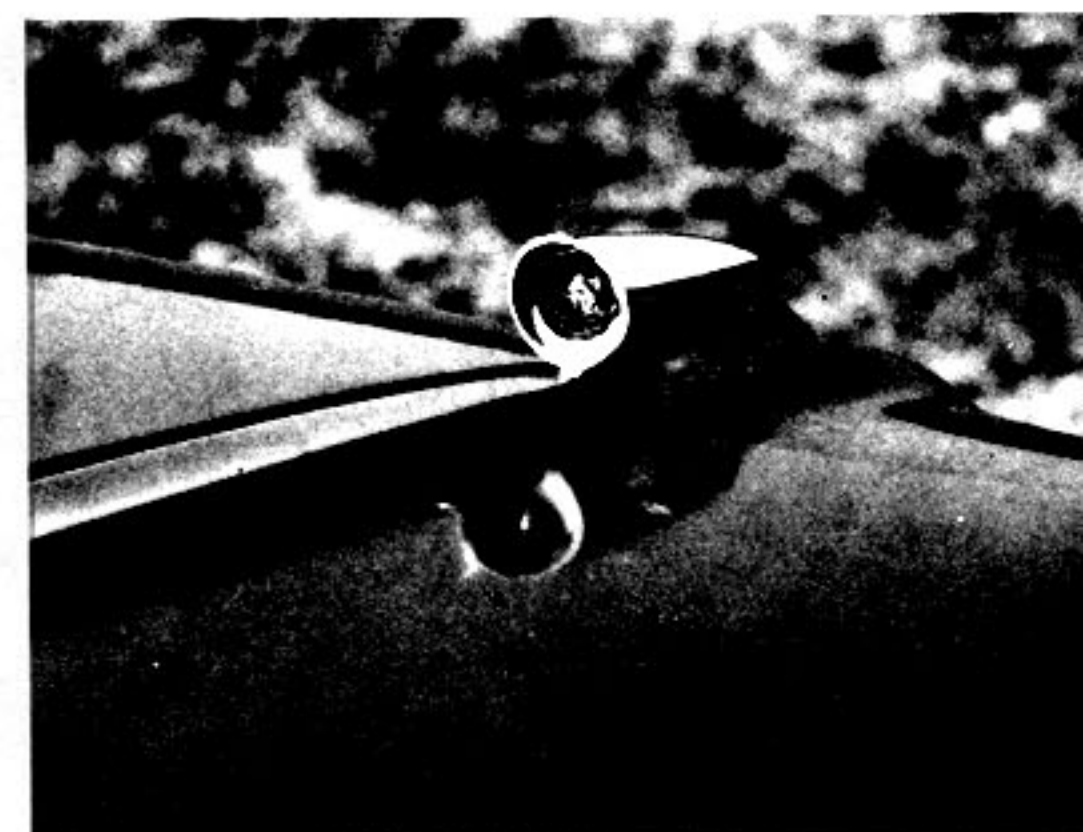
THIS INVOICE TO BE USED FOR THE BILLING AND SHIPPING OF VEHICLES ONLY

GATE RELEASE AND ACCOUNTING

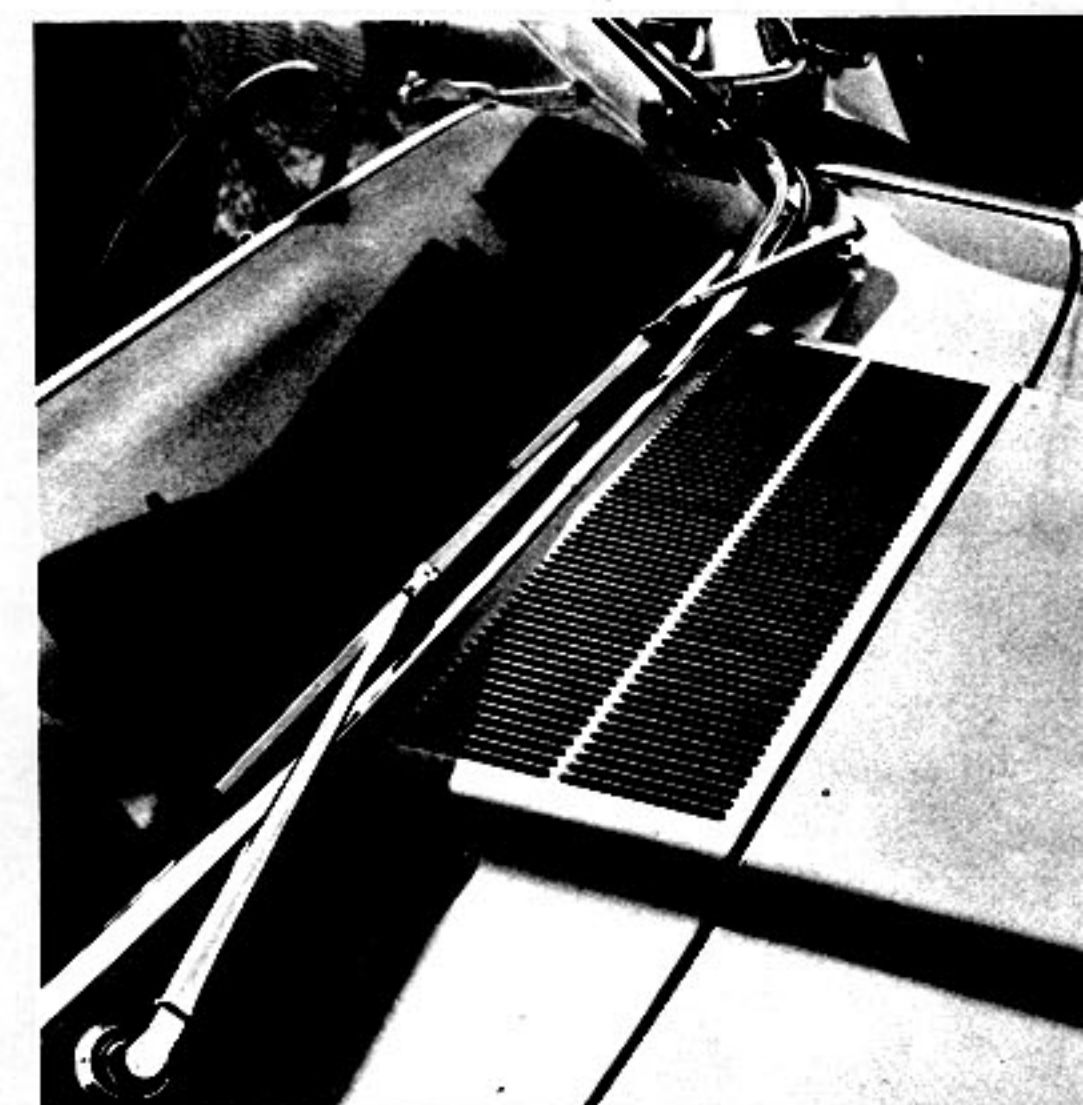
This is a typical 1962 Roadster invoice. Notice that the model designation is 89 and not 85. Also there is no itemization of the tonneau and wire wheels, but instead these items are included in the base price. The body type is clearly shown as "Sport Roadster".



NO SKIRTS -- No skirts were used on those automobiles equipped with the 14-inch Kelsey-Hayes wire wheels, as the "knock-off" hubs would not clear them when the body flexed in driving. The 1964 hubcap has a black center, the Thunderbird emblem, and the words "Thunderbird" spelled out twice.



TURN INDICATORS -- The driver of a 1964 Thunderbird could see if his turn signals were operating properly -- without looking at the signal indicator on the dash.



VENT OPENING -- On the 1964 automobiles, the hood scoop continues directly to the windshield. The upper part of the dash was painted black, although the general interior color scheme might have been red, gold, etc.

FIGURE 4

FORD DIVISION OF FORD MOTOR COMPANY 170378

DESCRIPTION	SUGGESTED RETAIL PRICE	MEMO D & D	AMOUNT
CONVERTIBLE 8 CYL	4953 00	366 00	3493 07
PRAIRIE BRONZE			
LEATHER BOLSTER & INSERTS	106 20	7 50	75 00
TONNEAU COVER	269 00	19 00	190 00
800X14 WSW TIRES	42 10	2 60	29 98
SAFETY CONVENIENCE CTRL PL	45 10	3 20	31 80
POWER LIFT WINDOWS	106 20	7 50	75 00
POWER SEAT DRIVER & PASSENGER	184 10	13 00	130 00
RECLINING SEAT & HEADREST	38 60	2 80	27 20
SELETAIRE CONDITIONER	415 10	29 40	293 10
REAR SEAT SPEAKER	15 50	1 10	10 90
TINTED GLASS	43 00	3 10	30 30
CLOSED EMISSION SYSTEM	5 30	40	3 70
TRANSISTORIZED IGNITION	51 50	3 70	36 50
HEAVY DUTY BATTERY	7 60	60	5 27
WIRE WHEELS	373 10	26 80	251 20
COOLANT ANTIFREEZE			1201 75 *
SCHEDULE B	183 00	183 00	669 70 *
8 GACS GAS			5364 52
FORD DEALER ADVERTISING FUND			2 40
			20 00
3 TOTAL	6838 40		5386 92

SOLD TO: MCTAGGART MOTORS
2001 BLOSSOM ST
DOW PALOS CALIF

SHIP TO (IF OTHER THAN ABOVE):

APR 20 P.M.

IN CALIF RK 900009

DATE SHIPPED: RC 27

FIN. CODE: 12

CAR INITIAL AND NUMBER:

SEALS:

INVOICE AND UNIT SERIAL NO.: 4Y85Z 170378

ASSEMBLY PLANT: WIXOM, MICHIGAN

L.C. T.O.: 1

INVOICE DATE: 4 10 64

ITEM NUMBER: 725292

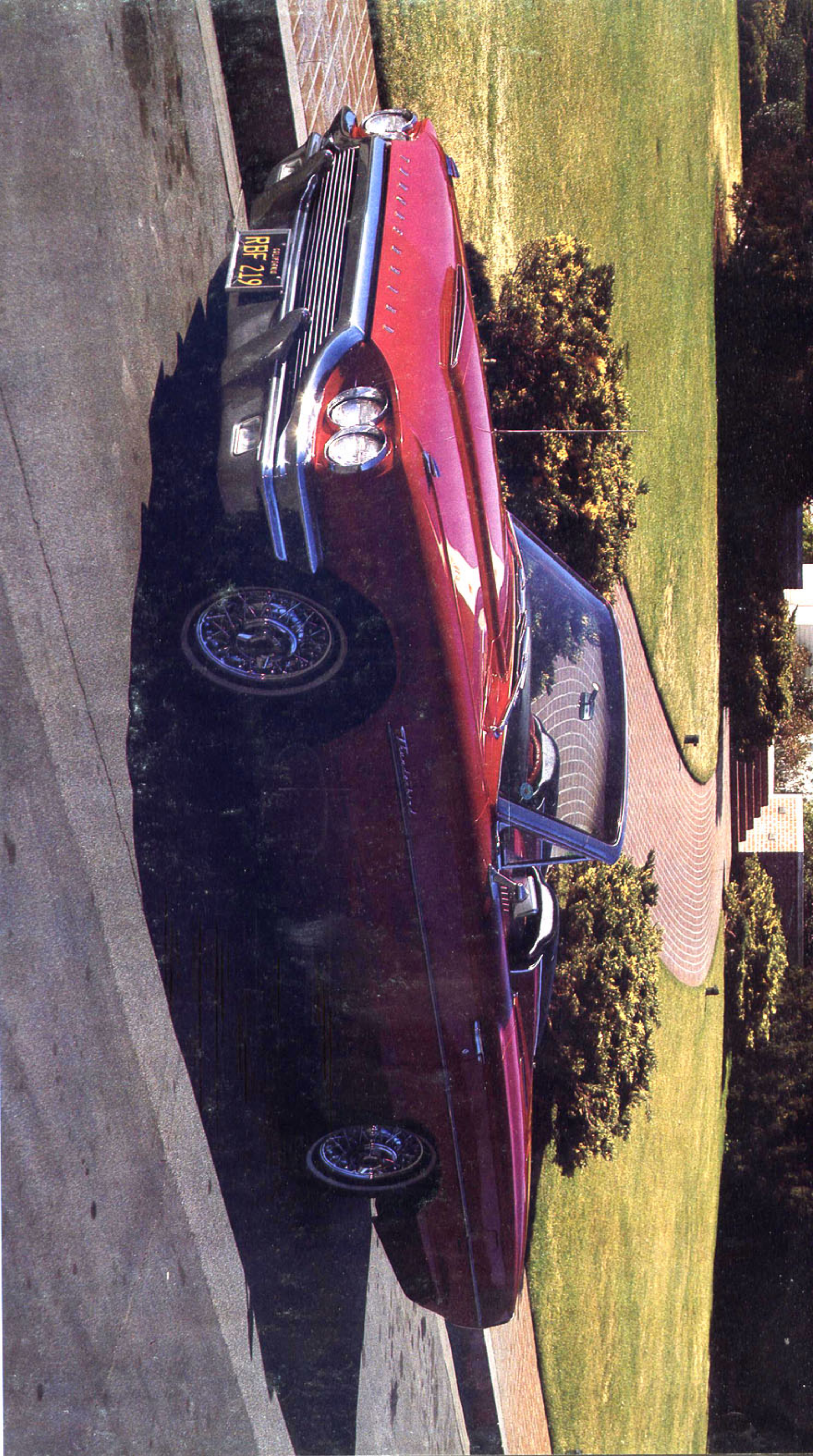
TRIM: 89

DEALER NO.: D443

THIS INVOICE TO BE USED FOR THE BILLING AND SHIPPING OF VEHICLES ONLY

GATE RELEASE AND ACCOUNTING

This is the invoice of a 1964 Roadster. Notice that the body type is "convertible", and the model number is 85, the same number assigned to the 1964 convertible. Also notice that the tonneau and wire wheels are itemized separately below the lower base price (this is the base price of a 1964 Thunderbird convertible).



1964 THUNDERBIRD ROADSTER (replica)

Richard Thomason/Red

EDITOR'S NOTE:

This 1964 Thunderbird "roadster" is a good example of the rise of replica Thunderbirds that have been cropping up in recent years. Richard Thomason, the owner of the automobile, bought it as a convertible, located a set of wire wheels, and PRESTO! with the addition of an after-market tonneau cover purchased from a firm in Florida, he had a very handsome replica.

Thunderbird Standard Equipment

Thunderbird comes fully equipped for your driving pleasure.

Among the most notable items: 300-hp Thunderbird 390 V-8
☐ Cruise-O-Matic Drive ☐ Automatic Parking Brake Release
☐ Power Steering ☐ Power Brakes ☐ Silent-Flo Ventilation System (Hardtops) ☐ Swing-Away Steering Wheel ☐ "Floating" Day/Night (inside) and Remote-Control (outside) Mirrors
☐ Individually Adjustable Shell Front Seats ☐ Retractable Front Seat Belts with Reminder Light ☐ Front Center Arm Rest (atop console) ☐ Rear Center Folding Arm Rest ☐ Padded Instrument Panel and Visors ☐ Crank-Adjusted Vent Windows ☐ All-Transistor AM Radio ☐ MagicAir Heater-Defroster ☐ Electric Clock ☐ Courtesy Lights ☐ Dual-Lens Door Lights (except Hardtop) ☐ Glove Box Light ☐ Trunk Light ☐ Backup Lights
☐ Lighted Ignition ☐ Variable-Speed Hydraulic Wipers (18-in. blades) and Electric Washers ☐ Complete Undercoating.

Thunderbird Options

Additionally, there are many options with which you can tailor your Thunderbird to your taste. SPORTS TONNEAU and WIRE WHEELS for the Convertible. Available in 8 colors, the molded fiberglass tonneau has built-in front headrests, provides a sleek, protective cover for the entire rear compartment. Yet it is quickly removable when you want room for four. Convertible top operable, of course, at all times. Wire wheels are 14-in. size, heavily chromed with simulated knock-off hubs; also available on other models. POWER WINDOWS and POWER SEATS are separate options which together can make your Thunderbird nearly 100% automatic. SELECTAIRE CONDITIONER even gives you control over the weather in your Thunderbird. Cooling for summer, heating for winter; precise controls to "adjust" the climate exactly to your preference. Also for your consideration: "Concert Hall" Tone AM/FM Radio ☐ Rear Radio Speakers (regular or StudioSonic) ☐ Automatic Speed Control ☐ Sports Tachometer ☐ White Sidewall Tires ☐ Full Wheel Covers with Simulated Knock-Off Hubs ☐ Tinted Glass ☐ Rear Fender Shields (except with wire wheels) ☐ Spotlight ☐ Leather Upholstery ☐ plus others.

Thunderbird Specifications

Colors & Upholsteries—New more brilliant, richer Diamond Lustre Enamel in 19 single tones (all models), 19 two-tones (Hardtop). Color-keyed trim selections: 4 cloth/vinyl, 9 all-vinyl, 5 genuine leather and vinyl (optional). Your Ford Dealer will be most happy to show you exact samples of Thunderbird colors and trims.

Maintenance—In addition to 100,000-mile (or 3-year, whichever comes first) major chassis lubrication interval, Thunderbird offers the convenience of twice-a-year (or every 6,000-mile) oil changes and minor lubrications.

Engine—300-hp Thunderbird 4V/390 V-8. Displ. 390 cu. in.; 4.05" bore x 3.78" stroke; 10.1 to 1 comp. ratio; 4-barrel/automatic choke carburetor; premium fuel; dual exhaust system. Thunderbird V-8 engine features include: aluminized/stainless steel mufflers; 36,000-mile fuel filter; 36,000-mile dry-type air cleaner; 6,000-mile (or 6-month) Full-Flow oil filter; aluminized valves; hydraulic lifters; 190° thermostat; 36,000-mile/2-year coolant-antifreeze (available—installed in production); 12-volt electrical system; 42-amp. alternator; 65 amp-hr battery.

Front Suspension—Angle-Poised ball joints; wide-base coil springs. Rubber-insulated struts permit wheel "recession." Torsion-bar stabilizer. Lubrication interval: ball joints 100,000 miles or 3 years.

Rear Suspension—Extra-long, variable-rate leaf springs with rear axle located forward of center. Springs rubber-cushioned at front, at tension-type shackles and at axle.

Brakes—Self-adjusting power brakes. Front drums are cross-ribbed. Rear drums are cross-ribbed and flared for fade resistance. Lining area 238 sq. in.

Transmission—Cruise-O-Matic Drive. Two selective ranges: "Drive" position (green dot) starting in low for normal driving—or alternate "Drive" position (white dot) starting in intermediate for more sure-footed acceleration on slippery surfaces.

Drive—Hotchkiss. Semi-floating hypoid rear axle; straddle-mounted drive pinion. Permanently lubricated wheel bearings. Axle ratio 3.00 to 1.

Steering—Integral-type power steering. Swing-Away

wheel. Steering linkage lubricated for life. Over-all ratio 20.37 to 1. Turning diameter 40.2 ft.

Wheels and Tires—True-center wheels on precision-machined hubs. Tyrex cord precision-built tires, 8.15 x 15 on 5½" safety rims. Optional: 8.00 x 14 with wire wheels.

Dimensions—113.2" wheelbase, 61" front, 60" rear treads; 205.4" length; 77.1" width; 52.5" (Hardtop), 52.6" (Landau), 53.3" (Convertible) design-load height.

Prices—Some items illustrated or referred to as options, optional or available are at extra cost. For the price of the Thunderbird with the equipment you desire, see your Ford Dealer.

Comparative information in this catalog was obtained from authoritative sources, but is not guaranteed. The specifications were in effect at the time of approval for printing. The Ford Division of Ford Motor Company reserves the right to discontinue models at any time, or change prices, specifications or design, without notice and without incurring obligation.

FIGURE 5

FORD DIVISION OF FORD MOTOR COMPANY 107475

DESCRIPTION	REMOVAL	AMOUNT
THUNDERBIRD CONVERTIBLE 8 CYL	343 00	3226 34
RANGON RED		
SPORTS ROADSTER PACKAGE	45 40	453 60
STEERING COLUMN MOVABLE	1 80	17 70
800X14 WSW	2 60	29 98
POWER LIFT WINDOWS	7 50	75 00
POWER SEAT DRIVER & PASSENGER	13 00	130 00
MAGICAIRE HEATER	5 90	58 50
PUSH BUTTON RADIO	8 00	79 60
TINTED GLASS	3 10	30 30
WINDSHIELD WASHERS	1 00	9 60
OUTSIDE MIRROR	40	3 57
HEAVY DUTY BATTERY	60	5 27
		893 12 *
	183 00	615 30 *
		4734 76
		6 04
		20 00
		4760 80

4246

3

8 GAS AND ANTIFREEZE
FORD DEALER ADVERTISING FUND
*TENTATIVE PRICE NOTICE ON
REVERSE SIDE APPLICABLE*

SOLD TO
GEORGE GAUDIN FORD SLS
6221 GRAND AVE
BUENA PARK CALIF

SHIP TO (IF OTHER THAN ABOVE)

INVOICE AND UNIT SERIAL NO.
2Y85Z 107475

ASSEMBLY PLANT
WIXOM, MICHIGAN

TYPE ORDER
1

INVOICE DATE
J 18 61

ITEM NUMBER
710965

TRIM
56

DEALER NO.
E089

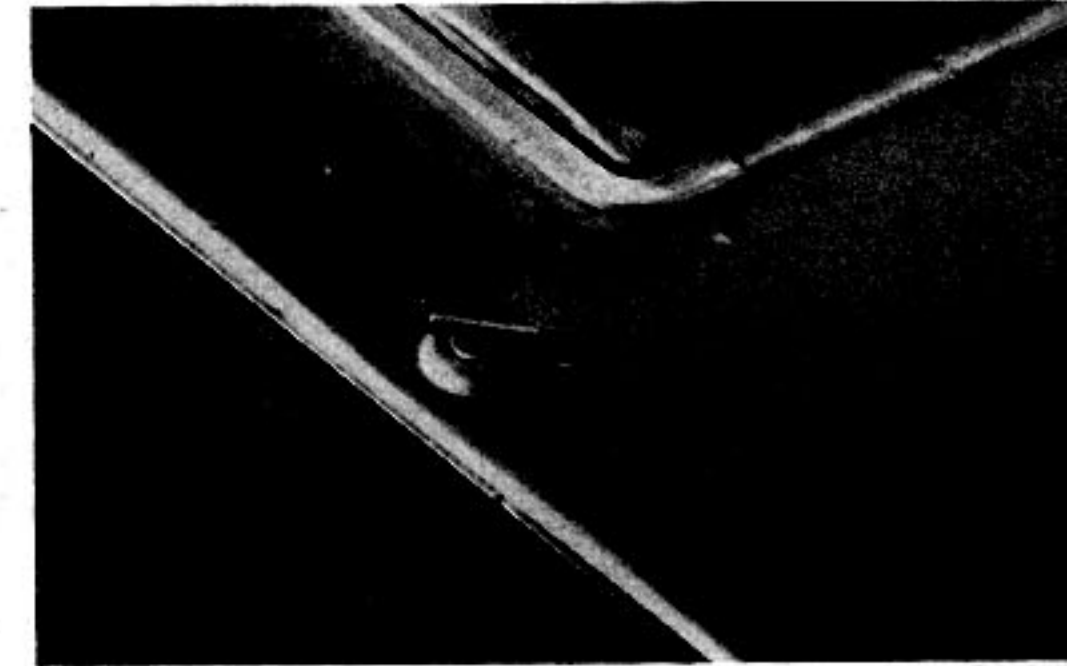
HOW SHIPPED
FINANCE COMPANY AND/OR BANK
BANK OF AMERICA 8158

DATE SHIPPED
RC 17

CAR INITIAL AND NUMBER

THIS INVOICE TO BE USED FOR THE BILLING AND SHIPPING OF VEHICLES ONLY
DATE RELEASE AND ACCOUNTING

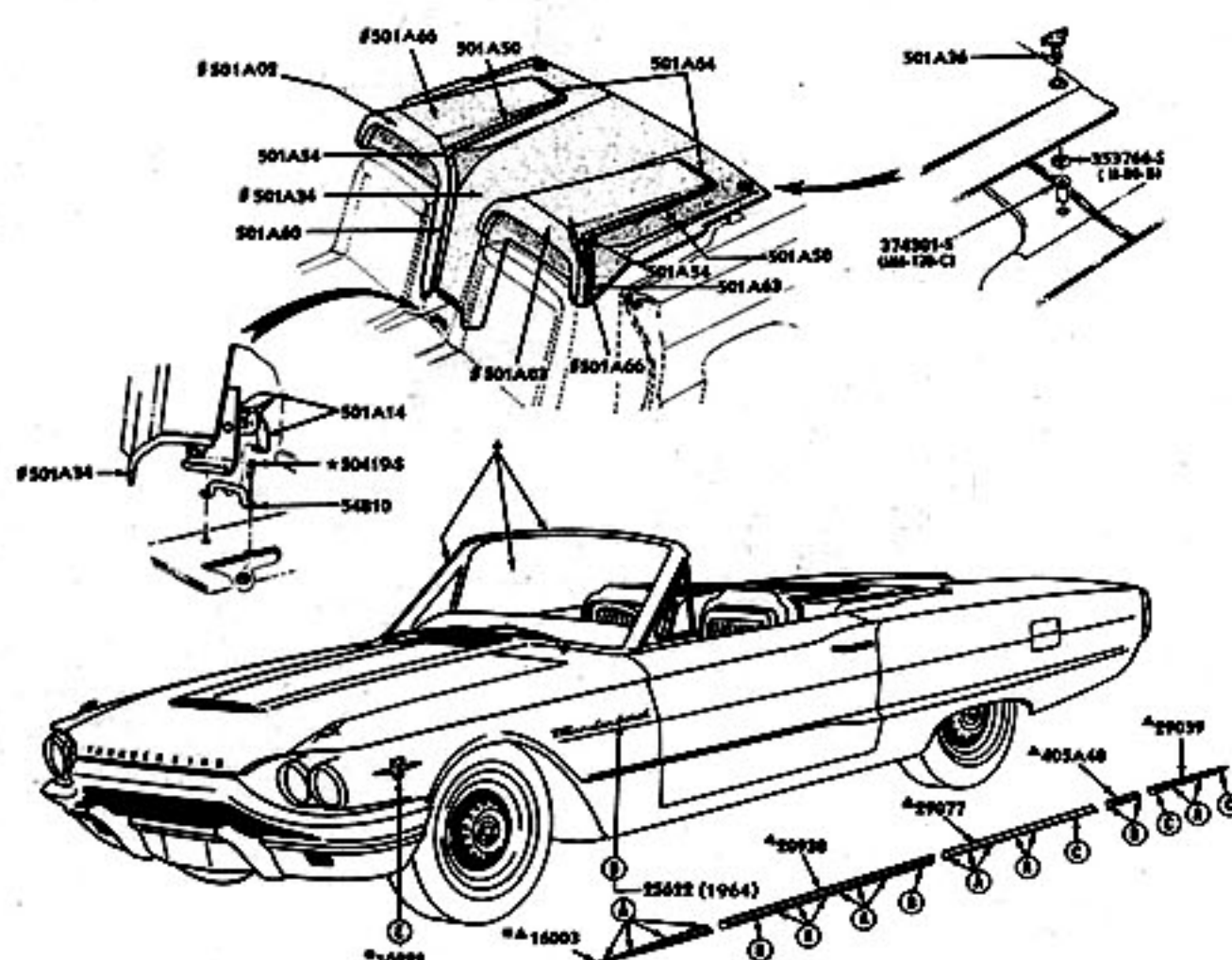
Also, Ford literature for the 1964 model year (see Figure 11) shows the 1964 tonneau as an accessory,³ whereas 1962 and 1963 Thunderbird literature does not. This was because the 1962 and 1963 tonneau fitted under the top weatherstrip at the side or quarter area, necessitating special factory fitting. The 1964 tonneau lay inside the top quarter area weatherstrip and needed no special fitting. A 1964 tonneau cover could easily be placed in a 1964 convertible. Hence the 1962 and 1963 tonneau cover was not sold as an accessory for the 1962 and 1963 convertibles, (in 1962 and 1963, Roadsters and convertibles usually had different quarter weatherstripping) but as a replacement for Roadster owners who lost or damaged their original tonneaus.



WING NUTS -- The wing nut in the center was used to hold the tonneau cover in place, and is the same hardware used on the 1962-3 units. Note that the center panel (package tray) has been raised about three-eighths of an inch to meet the rear of the tonneau cover. Other panels had a "drop" where the two parts joined. This is a much nicer finish.

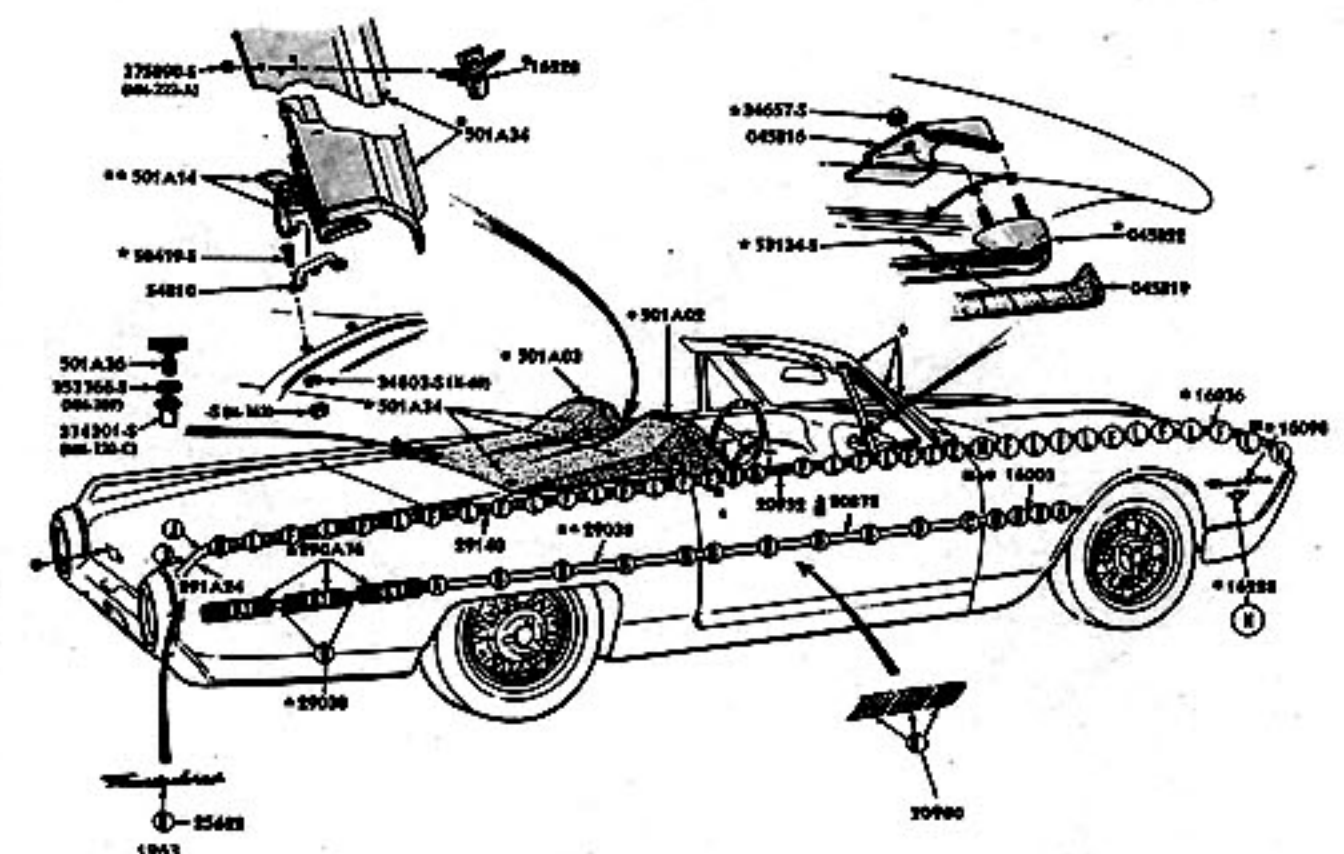
This is an early 1962 Roadster Invoice. Notice how the tonneau, assist bar, fender emblems and related hardware are itemized separately under "Sports Roadster Package" (compare to Figure 3). The car is shown as a convertible (compare to Figure 4). The body type is 85 and not 89 as most Roadsters are.

FIGURE 6



From "1960-1964 Ford Car Illustrations Catalog" copyright 1969
Ford Motor Company, Dearborn, Michigan. Form AF7682, page 899.

FIGURE 7



From "1960-1964 Ford Car Illustrations Catalog" copyright 1969
Ford Motor Company, Dearborn, Michigan. Form AF7682, page 897.



THUNDERBIRD COCKPIT — The interior of the 1964 Thunderbird was richly appointed, as this view shows. The rounded plate to the right of the console is not original; it is a cover for an air conditioner duct that was installed by a previous owner.

FIGURE 9				
	September 1961 to January 1962	February 1962 to August 1963	September 1963 to August 1964	
Body Type	76A	76B	76A	
Model Number	85	89	85	

The 1962 to 1964 Roadster number and letter designations are shown above. The only Roadsters assigned their own special numbers were those built between February of 1962 and August of 1963 (and some of these even had regular convertible code numbers). As you can see, the very first and very last Roadsters had regular convertible number -(85)- and letter-(76A)- designations. Thus Ford had gone full circle on its number and letter designations for the Thunderbird Roadster.

"The (1962 Roadster) tonneau is not adaptable to the standard (1962) Thunderbird convertible nor is the unit sold as an option."⁴ This quote is from MOTOR TREND magazine, according to information Ford Motor Company supplied them.

Many licensing agencies, like the California Department of Motor Vehicles, show the 1964 Roadster as a convertible (designated CNV) under BODY TYPE on their pink slips and registration cards (see Figure 12) But all 1962 Roadsters built after January 1962 were listed under BODY TYPE on the pink slips as RDSTHBD (Roadster-Thunderbird). And all 1963 Roadsters were listed under body type as RDS 89 in California. Thus some state licensing departments called 1964 Roadsters convertibles!

Even toy and model companies of the era used the designation of Sport Roadster. One example is Palmer Plastics manufactured a 1964 Thunderbird kit in 1/32 scale in plastic and they called it a "Sport Roadster" on the cover of the box and inside on the assembly sheets.

Whether you chose to believe or not to believe that Ford built a 1964 Thunderbird Sport Roadster, evidence probably favors the former. At first glance the 1964 Roadster with tonneau cover in place is not a convertible but "an automobile with an open body having (only) one cross seat".⁵ This is Webster's definition of a roadster.

³Buyers' Digest of New Car Facts for 1964, copyright 1964 by Ford Division, Ford Motor Company, volume 6 page 77.

⁴Motor Trend Magazine, December 1961, volume 13 #12 page 35.

⁵Merriam Webster Pocket Dictionary, 95th printing, June 1963 page 296.

Because of somewhat cloudy status of the 1964-66 Thunderbird Roadsters, many people feel this type of automobile is a genuine roadster, which, according to experts of the

FIGURE 10

BODY (Note: Symbols correspond to the vehicle code on the warranty plate symbols)

Falcon

54A	Fordor
54B	Futura Fordor
59A	Tudor Wagon
59B	Tudor Wagon Deluxe
62A	Tudor
62B	Tudor Futura
62C	Futura Tudor
63B	Tudor Hardtop Futura
63C	Futura Tudor Hardtop
66A	Tudor Ranchero
66B	Tudor Deluxe Ranchero
71A	Fordor Wagon
71B	Fordor Wagon Deluxe
71C	Fordor Squire Wagon
71D	Fordor Squire Deluxe
76A	Tudor Convertible
76B	Futura Tudor Convertible
78A	Tudor Sedan Delivery
78B	Tudor Sedan Delivery Deluxe

Galaxie

54A	Fordor
54B	Fordor
54E	Fordor
62A	Tudor
62B	Tudor
62E	Tudor
65A	Tudor Hardtop
65B	500 XL Tudor Hardtop
71A	Squire 9 Pass Wagon
71B	Fordor 6 Pass Wagon
71C	Fordor 9 Pass Wagon
71E	Squire 6 Pass
75A	Fordor Hardtop
75C	500 XL Fordor Hardtop
76A	Tudor Convertible
76B	500 XL Tudor Convertible

Fairlane

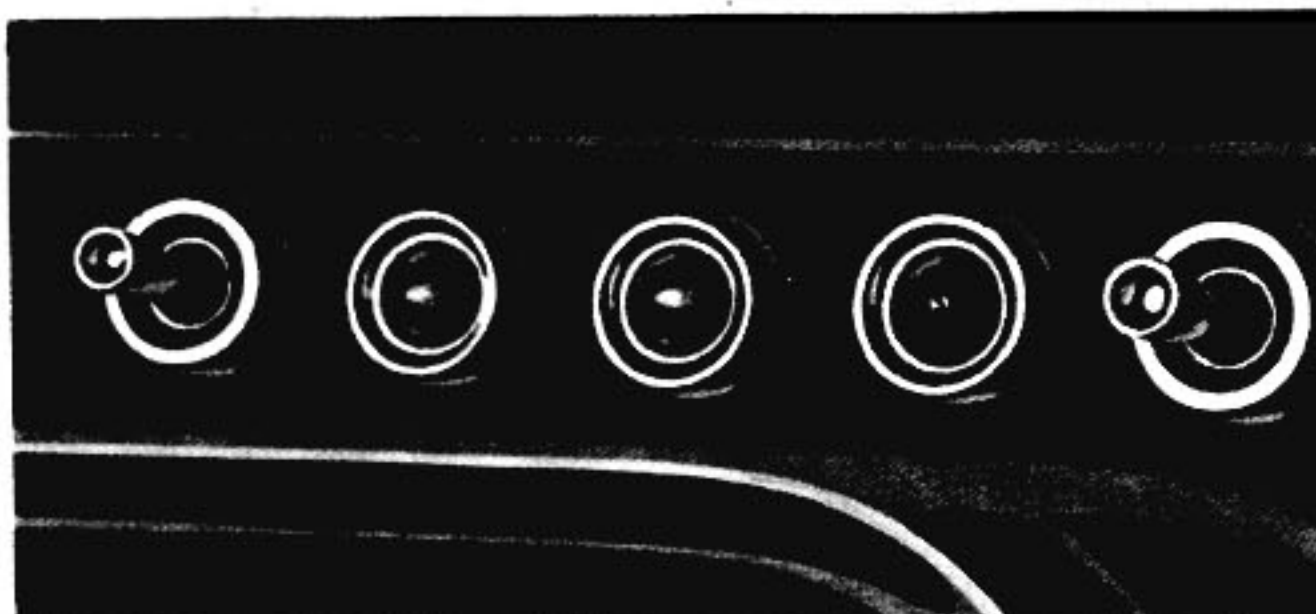
54A	Fordor
54B	Fordor 500
62A	Tudor
62B	Tudor 500
65A	Tudor Hardtop 500
65B	Tudor Hardtop S/Coupe
71B	Fordor Custom Wagon
71D	Fordor Ranch Wagon
71E	Fordor Squire

Thunderbird

63A	Tudor Hardtop
63B	Tudor Landau
76A	Tudor Convertible
76B	Tudor Sports Roadster

Above is the Ford Motor Company numbering system. Notice that standard models are designated by the letter "A" and deluxe models by the letter "B".

FIGURE 11 POPULAR THUNDERBIRD OPTIONS

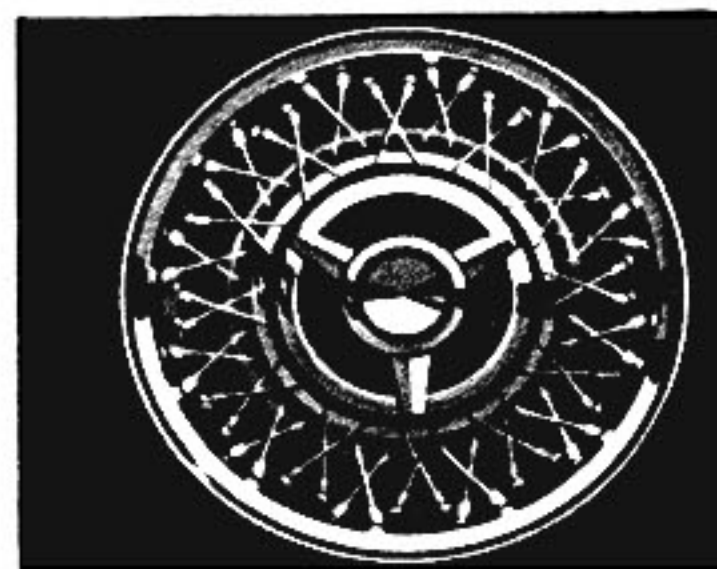
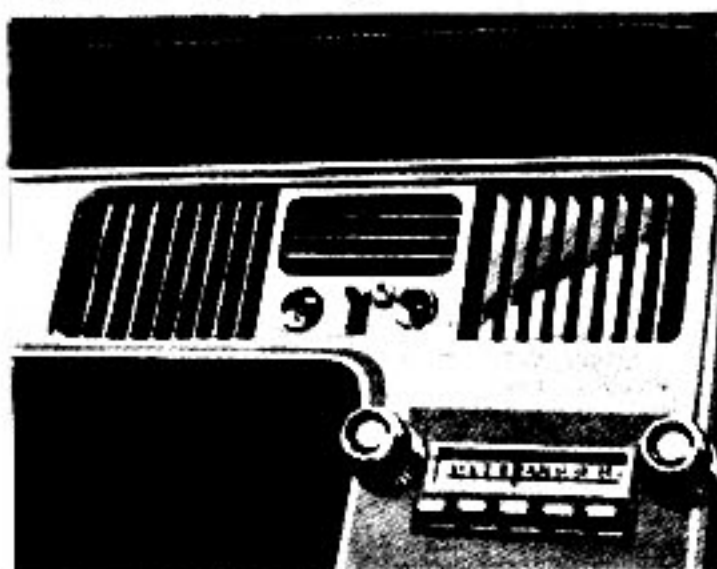


Safety and Convenience Control Panel. Switch at left locks both doors. Switch at right actuates emergency flashing of both parking and stop lights. Red warning lights indicate (1) door ajar; (2) low fuel level; and (3) emergency flashing system operating.

Select-Aire Conditioner with Heater. Here is complete climate control in one central unit. During cold weather, Select-Aire provides heating and defrosting. During warm weather, it comforts with cooling ventilation, dehumidifying and depollenizing.

Wire Wheels. These are the real thing, not just snap-on covers. They're entirely chrome-plated and have a simulated "knock-off" race-type hub. Price includes 8.00 x 14 white sidewall rayon tires. Available on all models. These are attractive sporty additions.

Tonneau Cover. Makes a roadster out of a convertible. It's of lightweight, molded fiberglass. Goes on and off quickly, easily. Provides considerable extra stowage space underneath. Convertible top may be raised or lowered with the tonneau cover in place.



various Thunderbird Roadster groups, is not true. There are also several things about the replica covers manufactured in Florida which are not original, so they are quite easy to spot, once the tell-tale signs are known.

The moulding used on the head rests is not correct and where the original headrests were made from one piece without a seam, the replica headrests have two seams. Those persons who are in doubt as to what is and what isn't a factory original roadster of this period should check the factory invoice. These are still available through enthusiasts and will state clearly if the automobile came with the accessory wire wheels and tonneau covers.



FANCY REAR— The back of the 1964 Thunderbirds look like a rolling Christmas tree. Note the luggage carrier and back-up lights, two optional accessories the automobile was delivered with.

The 1964 Roadster was carried into the 1965 and 1966 Thunderbird models since Ford changes Thunderbird body styles only once every three years. That is, the tonneau cover remained the same in 1964, 1965, and 1966, because the interior contour remained the same. Only slight inside trim and outside moulding changes (grille, tail-lights, and script location varied, too) marked the differences between the 1964, 1965, and 1966 models. Very few 1965 and 1966 Roadsters were sold by dealers that were assembled by the factory.

The 1965 and 1966 Roadsters came with no wire wheels because the fourteen inch Kelsey wire wheel would not fit the front disc brake set up. And like the 1964 Roadster the 1965 and 1966 Roadsters had the tonneau cover itemized separately on the factory invoices if shipped from the Wixom assembly plant.

The 1964 Roadster tonneau was available separately through many Ford dealers for about \$270 (the headrests were over \$60 each) until 1974, when the factory discontinued stocking them. Presently, there are two different people making reproduction 1964 tonneaus, one in Pennsylvania and the other in Florida. These are fairly close to the original but are not exact, having additional seams in the headrests or convex moulding around the headrest at the rear, while the original was one piece and concave respectively.

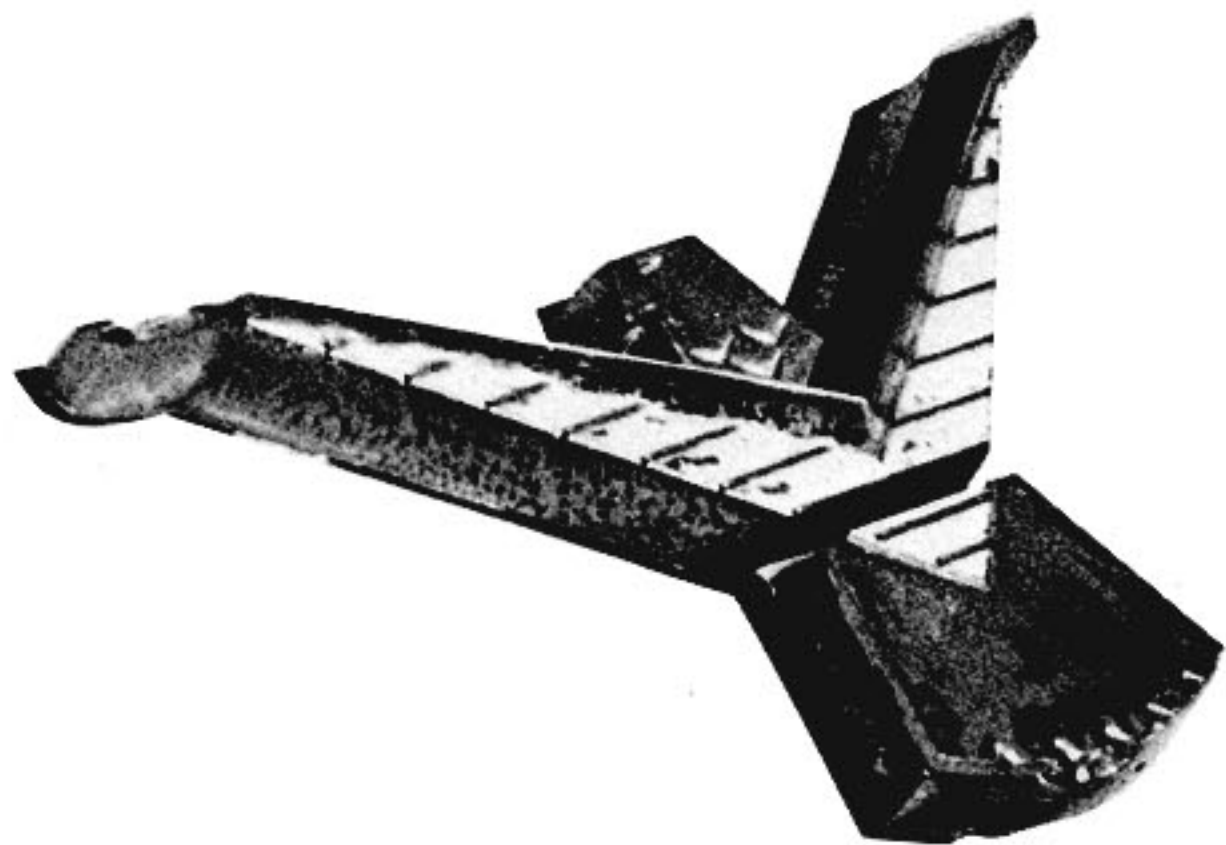
FIGURE 12

3A170CPC11

DATE: 03/05/74 TIME: 11:39
REG :73 LIC#:170CPC YRMD:64 MAKE:FORD BTO :CV VIN#:4Y85Z150567
R/O :APPLETON JERRY LEE, 131 E 4TH CITY:LONG BEACH C.C.:19
ZIP#:90812
SOLD:00/00/64 ISSD:04/11/73 L0CD:5
TYPE:11 SM0G:5 VEH :12 BODY:0 CLAS:BE FEE :0022
END

Above is a typical California Department of Motor Vehicles printout for a 1964 Thunderbird Roadster. Information on this printout is taken directly from the registration papers (pink slip and card). Notice under BTO (body type) that the car is called a convertible (CV), and that the model number is 85 (contained in the serial number or VIN number). The Class is BE. This is a new car billing code. This class is for about a \$4900 car (this was the price of a new 1964 Thunderbird convertible). The 1962 and 1963 Roadsters with code numbers of 89 model and 76B body type were in the BJ class, meaning a \$5500 car.

KING OF THE SQU



This king of "square bird" collectors doesn't want any classic models; he is too busy with the Thunderbird he describes as the "best ever built!"

Dressed in casual western clothes with blue cowboy boots and big chunks of Arizona turquoise on his fingers, belt buckle and watch strap, Jim Dottling doesn't look like the kind of king we have come to expect--but in the world of "square bird" automobiles, he is a king indeed. No one can match him in the sheer size of his 1958-60 Thunderbird collection.

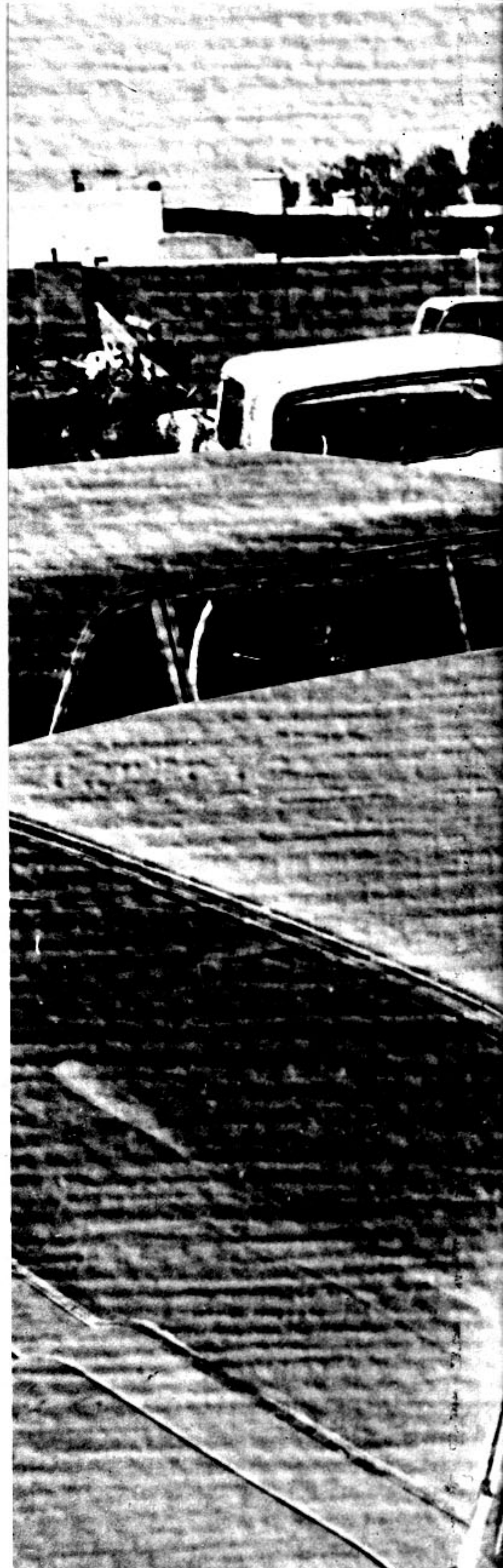
The four-passenger Thunderbird arrived on the American scene with a great flurry of publicity and hoopla in 1957, just as the popularity of the two-passenger Ford Thunderbird was reaching its zenith. Most devoted "classic" Thunderbird enthusiasts were turned off by the somewhat hulking, squared-off, four-passenger automobiles.

There were few similarities between the two automobiles. Both had two doors, V-8 engines, and were offered as hard-tops or convertibles, but beyond that, they were as closely related as a horse and an elephant. Some 18 years after their birth, the square birds still enjoy a love-hate relationship with the automobile collectors of America.

The classic Thunderbird enthusiasts still sneer at the big Thunderbirds, (and that usually goes for the 1961-75 models too) and insist on the "purity" of the smaller, and, they say, more attractive, 1955-57 versions. On the other hand, those whose affections are tied to the four-passenger cars sniff at the suggestion they should own smaller cars.

Yet, each group is collecting automobiles that have quality and significance far above the average automobiles of the 1955-60 era of American car production. Each Thunderbird has worthy virtues that set it apart from the run-of-the-mill modes of transportation offered in dealer showrooms of the period. It should also be noted that both groups of collectors are growing rapidly, with the classic enthusiasts in the forefront, (approximately 10,000 members throughout the world) while the still-young hobby of owning and restoring square birds has less than 1,000 members world-wide.

Dottling entered the square bird era in 1968, and with varied success, maintained a collection of square birds, Cadillacs, Continentals and other cars



THUNDERBIRD ILLUSTRATED

ARE BIRDS

KING'S THRONE -- Jim Doitling, the uncrowned "King of Square Birds," sits on the throne of an unrestored 1960 Thunderbird with a sun roof—a very rare model that he expects to bring more than \$2,000 in "as is" condition.



RARE MODEL—This 1959 Thunderbird has the factory "chrome package" on it. Note that the headlight doors and hood scoop are chrome. Not seen, but also chromed, are the taillight wells and splash plates around the windshield wipers.



that interested him for several years, switching to the square bird completely in 1971. Since then, there has been no stopping him. He certainly has the largest restored collection of these automobiles *Thunderbird Illustrated* has yet found, and is probably one of the most enthusiastic experts in the nation.

Dottling's suburban home in Scottsdale blends into its desert setting, and, except for the presence of three square birds in the front yard, looks little different from its neighbors—until one steps into the back yard. Spread out in orderly rows are 28 square bird automobiles in various states of repair. Near the front gate is a 1960 sun roof—certainly the rarest of the square bird automobiles. When note was taken of it, Dottling grinned. "I have owned 18 sun roof square birds, and this is the latest one. I bought it in Los Angeles and paid only \$300 because of the heavy rust. I do expect to put it back on the road as a restored car—when I have the time."

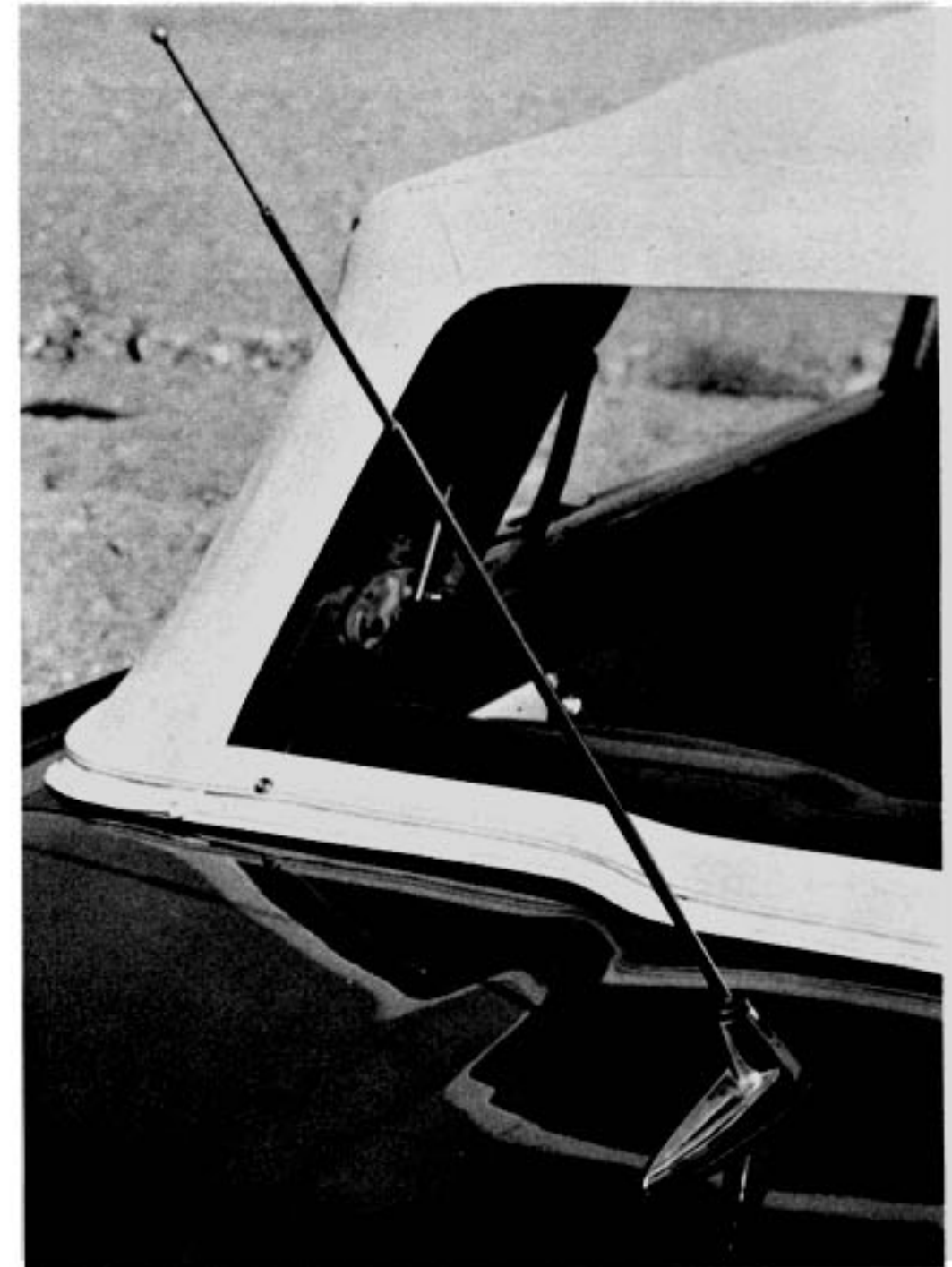
Other body styles, such as the convertible, also a sought-after model, are interspersed with the hardtop Thunderbirds. Because of the secluded location behind high fences, few people would know this vast array of collectors' cars

was quietly resting in the Arizona sun behind the Dottling residence.

Off to one side is a low structure offering covered storage for a number of restored square birds, including those of friends. Here eight 1958-60 models are parked next to a 1954 Cadillac El Dorado Dottling has retained since it was almost new. It was difficult to select the automobiles to be photographed in the day's session, so varied were the colors and models, but eventually we decided on a red 1959 convertible that the collector had barely finished restoring.

For everyday transportation, the enthusiast drives a somewhat battered, but sound, 1960 hardtop with air conditioning. This was our scout car as we searched for a suitable location for photography.

As one might guess, Editor Frank Taylor was interested in the motivation behind such a large collection of unusual automobiles, and the reasons Dottling spends so much time and money increasing, refining and improving the inventory! Unlike many collectors, Dottling doesn't have tunnel vision. He can appreciate almost any automobile that is unusual or unique. This probably explains why he has owned such diverse machines as a 1955 Mer-



FANCY ANTENNA—This was a rarely-ordered factory accessory radio antenna that has become almost impossible to find today. It is one of the "goodies" Dottling installed on his 1959 automobile.

cedes-Benz cabriolet, a 1932 Plymouth PB roadster, a 1966 Lincoln four-door convertible, and a 1941 Buick four-door convertible. "I like fine automobiles," he admits, "but when I bought my first 1960 Thunderbird, I was hooked. I had bought my wife a 1968 Cadillac and thought it was the ultimate luxury car. Then a chance came to buy a very clean 1960 square bird. It was going to be a second car. Instead, my wife fell in love with it and stopped driving the Cadillac. Pretty soon I was driving it as much as she was, and we soon sold the Cadillac and we were hunting for other Thunderbirds."

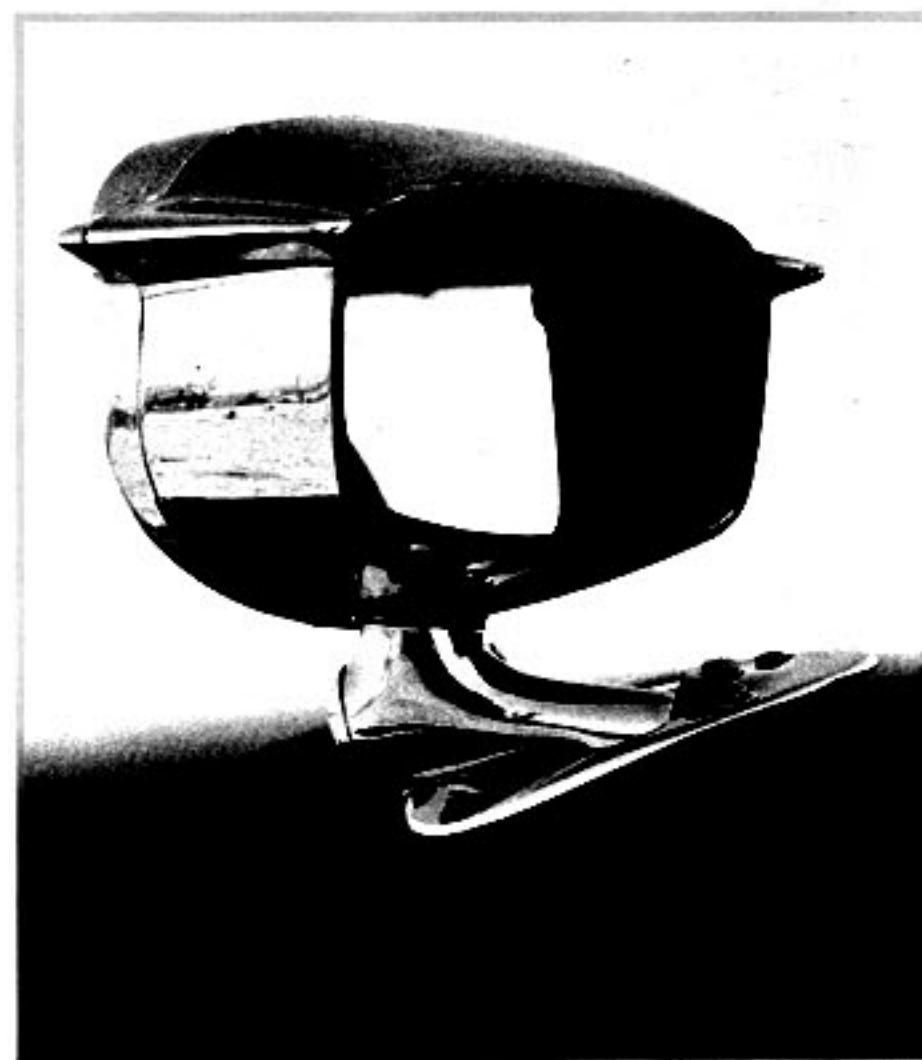
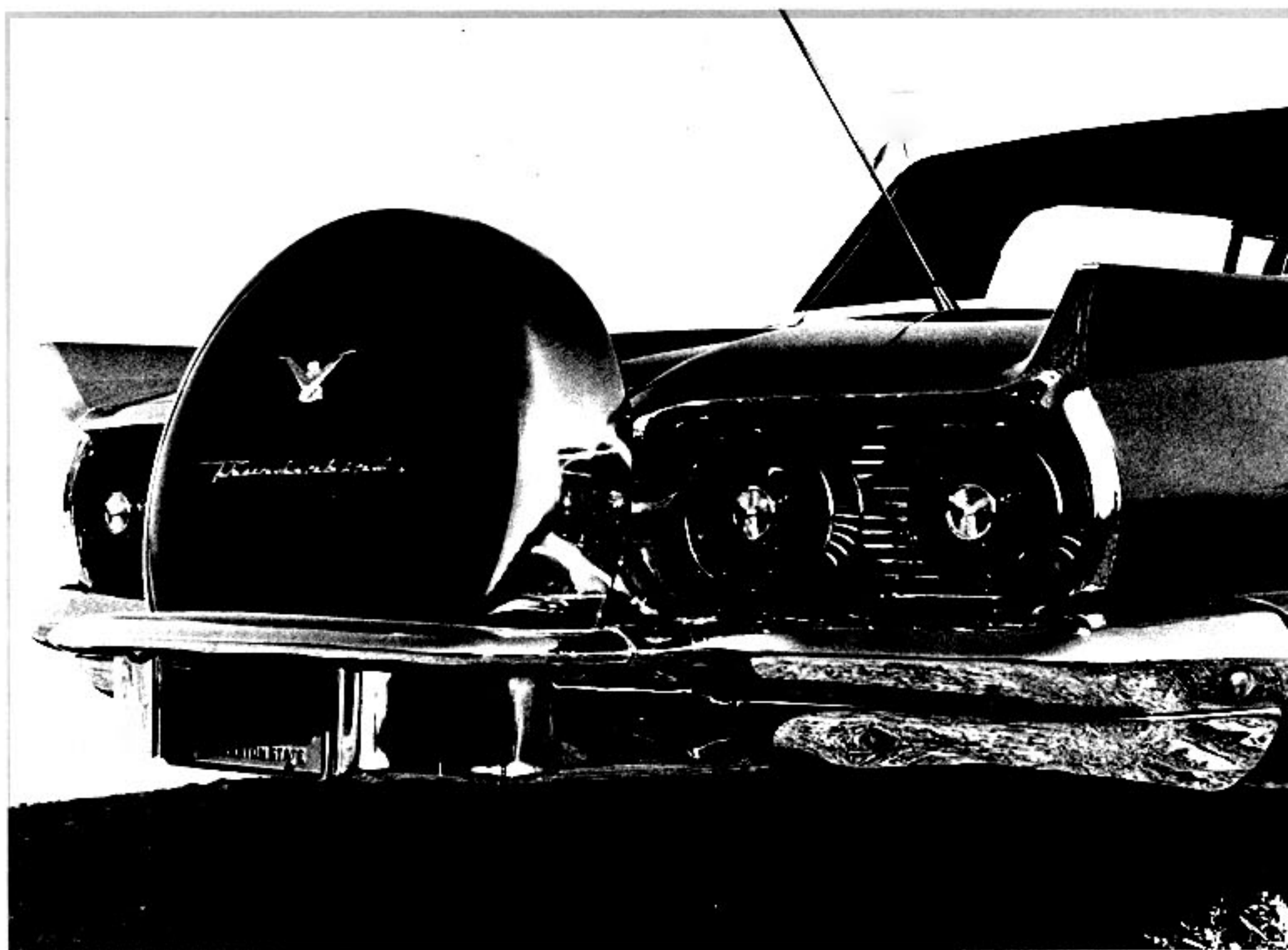
Dottling pointed out that he sold that first square bird and then repurchased it three times. In his opinion it was the best of all the square birds he has owned. "It was a very sharp and smooth car," he remembers. "I might not have become this interested in square birds in general if that one had not been so nice."

A refugee from the pavements of Long Island, Dottling brought his Cadillac and his then-shrunken collection of square birds (he sold most of them before coming west) to Phoenix, and suddenly discovered he was in a paradise of Thunderbirds. "Here in Arizona there is no rust to speak of, the chrome stays good and people bought lots of the square birds," Dottling smiles, "so I found more square birds right here in Phoenix than I had ever thought existed when I was back east." Since then, he has continued to buy the cars for his ever-growing collection.

Dottling says he can install factory air conditioning and make a hardtop into a convertible or a sun roof. "I have made a number of cars that I wanted, but couldn't find," he admits. "Like the sun roof I have. The rest of the car is shot, but I will cut the top off and weld it to a hardtop body and you won't be able to tell I have done it. When it comes to the square birds, (here he paused for full effect) I know almost everything."

In looking over the restoration he has done on the 1959 Thunderbird convertible seen in this issue, one has to agree with his personal assessment. Dottling does know his square birds—and he can put an automobile together in such a way as to make it nearly perfect. He also seems to be exceptionally lucky at finding the highly-coveted and rare accessory parts for his restorations. One classic example was the brand-new, factory-original continental kit seen on his 1959 car. "I found that in the carton and put it on the car. Everything on this car is factory-original new old stock, and a lot of it was almost impossible to find, but there it is on my car."

From the original "Ford" script headlight sealed beams to the rear deck antenna and accessory sport caps, the Dottling Thunderbird is a masterpiece of



restoration, and would be fit competition for many of the prize-winning two-passenger Thunderbirds that have been featured in the past issues of *Thunderbird Illustrated*. In short, it is one fine automobile—a prize example of the square bird Thunderbird.

While many square bird parts can still be purchased over the counter from a dealer, the collector is first to admit that some particular parts and accessories just cannot be located anywhere.

In his opinion, the rarest items right now, and hence the most valuable, are the continental kits, especially the factory-original models. The "other" kits, those made by outside manufacturers, but which were not authorized by the factory, are just as rare. Dottling has one of these off-brand units on a car, but naturally prizes the factory-original one on his 1959 convertible.

The previously-mentioned kit cost him

VALUABLE ACCESSORY—This Continental Kit was taken from the factory box by Dottling, and is one of the most perfect such additions in existence. Note the chrome around the tail-lights. This was part of the "chrome package."

ALSO RARE—This combination spotlight and rear view mirror is also very rare and is installed on the Dottling convertible.

\$400, and he feels that was a bargain. "How much should you pay for a brand new kit?" he asks, "I answer that question by saying—where can you find a new kit, or even a used one? What you will pay for it depends on who has it and how much you want to own it."

Right now, Dottling wouldn't sell his unauthorized kit for \$600, and the other one isn't for sale at all. Dottling has a New Original Stock spotlight on his 1959 convertible, and he values this at \$75. Leather options are also rare, and he hopes eventually to find one in near-new condition that can be installed in his 1959 convertible. If that turns out to be a false hope, he then hopes to have an interior custom-made to factory specifications. One way or another, he expects to have real leather in his square bird!

Probably the rarest option Dottling knows about is the overdrive transmission that was installed on a few standard-shift models. The enthusiast has the overdrive unit—but not a car. Pricing such things as the rare rear deck antenna can be risky, but Dottling says a NOS is worth a minimum of \$50. The sport hubcaps with red, white and blue inserts are valued by him at \$30 each in NOS condition—if you can find them.

The exterior chrome package can be

duplicated with a little expense, but Dottling found a complete NOS unit for his 1959 convertible. The 430 engine is also rare, especially if the car was also equipped with air conditioning, and there are other items that make the square bird collector hunt if he wants a complete full-dress restoration.

Today, the square bird club knows of only 53 sun roof models in existence, and Dottling has owned at least 18 of them. Does he expect to find more? "Sure," he nodded, "but probably only in a junkyard. Even finding one like I did in running condition (barely) in Los Angeles is something unusual now. There may be others around, but they are well hidden—right now at least."

Taylor noted four sun roof cars while at the Dottling residence, one of which belonged to another collector. That is probably more sun roof square birds than are gathered in any one other place in the world at a given time—exclusive of a car show. Still, there are plenty of square bird enthusiasts who would like to get their hands on one!

Part of the mystique that Dottling enjoys about his square bird cars is their dependability and relative economy. On a recent trip to St. Louis with his square bird sun roof, he averaged 20 or more miles per gallon with the stock 352 engine, and still had lots of "punch" when he wanted to pass someone on the highway. He says that the 430 power plant will deliver the same kind of performance in a gas mileage test, (missing the 20 mpg mark by only a slight margin) and at the same time, touch an honest 140 mph on flat roads. "I have driven a number of 352 Thunderbirds flat out," he said, "and each one of them stopped at 119 mph. The 430, though, has the extra push to hit 140 without any trouble." He admits that while he would have proven the 140 mph thesis a few years ago with a demonstration, he won't do it now. "The older you get, (he is 36) the more cautious you are," he laughs.

A well-maintained 430 engine will go about 150,000 miles without a major overhaul and, at the same time, it is "clean," according to Dottling. "The smaller motors seem to drip oil and leak at various points, but the 430, even when it is old, won't do that. It seems to have been better-engineered or something."

When he talks about his collection, Dottling admits that it is a very personal thing. "I don't seek publicity, and I won't show my cars in places where people don't appreciate them. I wouldn't put one in a dealer's show room, or even go to a general automobile show with them." The only people who see my cars are those who come here and look me up or see them at a square bird meet," he says.

"I will show my cars to collectors who know what they are," Dottling continued, "but no one else. In fact, I have hardly



driven the 1959 convertible since it was restored. Going to our picture location was as far as it has ever been driven. In other words, I will show my cars nationally, but not locally."

What makes the square bird so special to Dottling? "Well, I look at the automobile as a type of prediction in metal. The El Dorado, the Toronado, the Buick Riviera, all of them got the idea from the success of the square bird Thunderbird. Even the Seville today is a copy of the concept established by the four-pas-

senger Thunderbirds of 1958-60, at least in my opinion."

But there are still other attractions about the cars for Dottling, "All of my cars have air conditioning, and this is essential in a place like Phoenix. I won't drive a car that doesn't have air conditioning. The square birds have a fine air conditioning unit, there is plenty of room, they don't squeak or rattle, even when they get more than 100,000 miles on them, because of the unit body construction, and they deliver good gas

A Thunderbird is a promise...

of sweet, spirited performance...of uncommon elegance and comfort...of exclusive details...of sound basic value for the years to come

Start with the distinctive Thunderbird silhouette—the shape that looks like stopped motion. The smart, unaffected design that promises sports-car roadability and handling ease with luxury-car comfort... the great basic design that makes Thunderbird an automotive classic.

Open the door. Here is space. The entrance is four feet wide. You enter and leave effortlessly.

Step in—to serene beauty. The elegant Thunderbird atmosphere is deliberately composed—it is a blend of appointments, fabrics and colors matched to your taste. Thunderbird seats are individually contoured in formed foam rubber... uncommon comfort—even on the longest trips.

Drive the Thunderbird.

Now you'll learn why it has become most everyone's "someday" car. Nothing you have experienced can compare with commanding the power of the world's most wanted car. There are two Thunderbird engines: the Thunderbird 352 Special V-8 or the optional Thunderbird 430 Special V-8.

Touch the accelerator. Your Thunderbird

moves boldly into action—with the swift responsiveness of a polo pony.

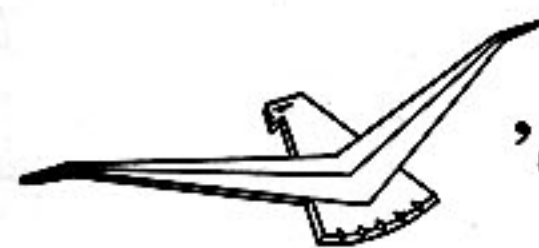
The road, the humdrum traffic, quickly fade behind you... now you're in Thunderbird country—and there's no other country like it in the world.

For 1960 the Thunderbird thrill is available in three versions: 1. The convertible, with the fully automatic top that disappears completely leaving only the long, lean line of Thunderbird beauty; 2. the hardtop with optional sliding Sun Roof—the all-metal panel that weatherproofs tightly at a touch; and 3. the classic hardtop.

Whichever Thunderbird you choose, you'll have the added satisfaction of having made a blue-chip investment, for the Thunderbird appeal is timeless. As collector's items, their resale price remains high—year after year. Your 1960 model is no exception.

Yet with all of its classic distinction, your Thunderbird is the one luxury car that is not really a luxury. It costs less than you might expect. Make an appointment with your Ford dealer. Your "someday" car—the Thunderbird—could be yours tomorrow.

FORD DIVISION, Ford Motor Company.



'60 THUNDERBIRD
THE WORLD'S MOST WANTED CAR.

mileage. They are also pretty "hot" in the performance department, especially in this day of choked-off, smog-controlled automobiles.

"Also they are good for a family man. You can get everyone into the car without a lot of crowding, and they look good to me. Besides, they are coming up fast in value. A sharp, well-restored sun roof model will bring a minimum of \$4,500, and I think they will climb to \$6,000 and more in a couple of years.

"I wouldn't sell my 1959 convertible

for \$10,000. 1959 was probably the best square bird year, and with all the NOS parts on it, it is the most original restoration done by anyone, at least in my opinion." Certainly *Thunderbird Illustrated* has to echo one statement of Dottling's. His convertible is the best square bird restoration we have yet seen. It would win prizes in any open automobile judging contest.

Dottling pulled his prize 1959 square bird out of a junkyard and did all the work himself, except for a few things like

a custom-fitted top, upholstery and paint. What does it cost to restore a square bird? After a long pause, Dottling told *Thunderbird Illustrated*, "You will have a full \$4,000, plus labor, if you go for a trophy winner. Otherwise, you can put one in beautiful condition for less than \$3,000. With a two-passenger Thunderbird today, \$3,000 is what it would take to get you into an automobile needed for restoration. Then add your \$3,500 to \$5,000 restoration costs on to that figure.

"The low cost and overall lower prices of parts are what I think made the square bird so attractive, plus the size and comfort."

Is Dottling going to get a classic Thunderbird and add it to his collection? Not very soon. "I have had chances to buy the little classics, but for some reason, I didn't do it. Right now I collect only square birds, but you can't collect everything. At least I can't. Around my house we have wonderful neighbors who don't say anything about my collection, and I want to keep our relationship that way. Friendly!"

The craze for collecting square birds is growing all the time, and this will help the prices and value of the cars go up.

"The day is coming when a sun roof will bring more than \$10,000. I bought one for \$1,500. It was sold a week later for \$2,000 without touching it. Now after some repairs and restoration, the owner won't take less than \$3,000, and before long, when it is all finished, he will have a car worth \$6,000 or more.

"That type of climb in your investment dollar is impossible to match in bank or savings and loan situation. It is hard to do in the two-passenger Thunderbird situation, but the square birds, because of the lower initial investment and growing popularity, can do it the fastest."

So far, the most he has paid for a square bird was \$1,500, and when they are running and in good general condition, the least he has been able to pick one up for recently has been \$795. That was on a car lot.

In advising a novice, starting out with a square bird in mind, Dottling has several suggestions that might help to overcome potential pitfalls.

- (1) Decide what body style you want. Naturally, the hardtop will be the lowest-priced. Generally they have the best interiors and need the smallest amount of restoration, due to the fact that the steel top has protected the upholstery from the weather.
- (2) If you decide to get a convertible, find one in the best shape you can afford. A convertible is expensive to repair, the interior is likely to need a complete restoration, and the top nearly

"minute-saver service"



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Yes, Avis has your car waiting for you with your name on it . . . a new Ford or other fine car of your choice.



AND YOU'RE OFF!

Pleasure-bound with no delays, no red tape. Ask for "minute-saver service" . . . there's no extra charge!

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Hotel, Air, Rail, and other accredited charge cards are honored. Avis Inc., 18 Irvington Street, Boston 16, Massachusetts.

- (5) If you settle on a convertible, try to get a 1958 or 1959 model. These had semi-automatic tops and are trouble-free. The 1960 models had fully-automatic tops and can cause a lot of trouble. If you do buy a 1960 convertible, make sure that all the parts are there, and, if you can, try to buy one that is working.
- (6) Engine condition is not that important to Dottling, because he can overhaul one himself, but if the collector can't do the engine repairs himself, he should plan \$600 to \$700 in engine repair expense to put the engine in good condition so that it will be dependable and trouble-free.
- (7) The transmission, rear end and other chassis parts are the next source of potential trouble to be inspected. A complete rear end and transmission job could cost the collector roughly \$350 more. If these are in good repair, then you can figure you are ahead of the game.
- (8) Interiors are next in line, in terms of overall expense. Some collectors have been able to find cars with acceptable interiors; others have redone them. The cost here can be as high as \$500-600 depending on how far the collector wants to go.

always needs replacing. When you are finished, a convertible will be worth more, but it costs more to buy and to rebuild.

- (3) If you decide on a sun roof model, be prepared to pay upwards of \$1,500, but expect a car in fairly good shape, and one with the best possible chance for a high investment return. In this case, spending more will usually net you more when you sell.
- (4) General condition of the car is important. Use a magnet to find any places that Bondo or body plastic has been used, and take that into consideration before buying the automobile. The job might be a good one, or it might be an attempt to hide serious body rust. On a square bird, body rust is expensive to fix properly because of the unit construction.

SPECIFICATIONS FOR THE JAMES DOTTLING 1959 THUNDERBIRD CONVERTIBLE

430 V-8 Engine
SelectAire Conditioning
Exterior Chrome Package
Factory Accessory Spotlight
Accessory Rear Deck Antenna
Sport Accessory Hubcaps
Twin Power Seats

Heavy-Duty Transmission
Undercoating
Factory Original Floor Mats
Factory Installed Continental Kit
Radio
Heater
Hand Crank Windows

Also adding to the overall authenticity of the restoration are original Ford Script sealed beam lamps, Ford Script window glass, a new dash, wide white-wall tires, and enamel body finish that duplicates the original factory product.



1959 THUNDERBIRD

James Dooling/Red

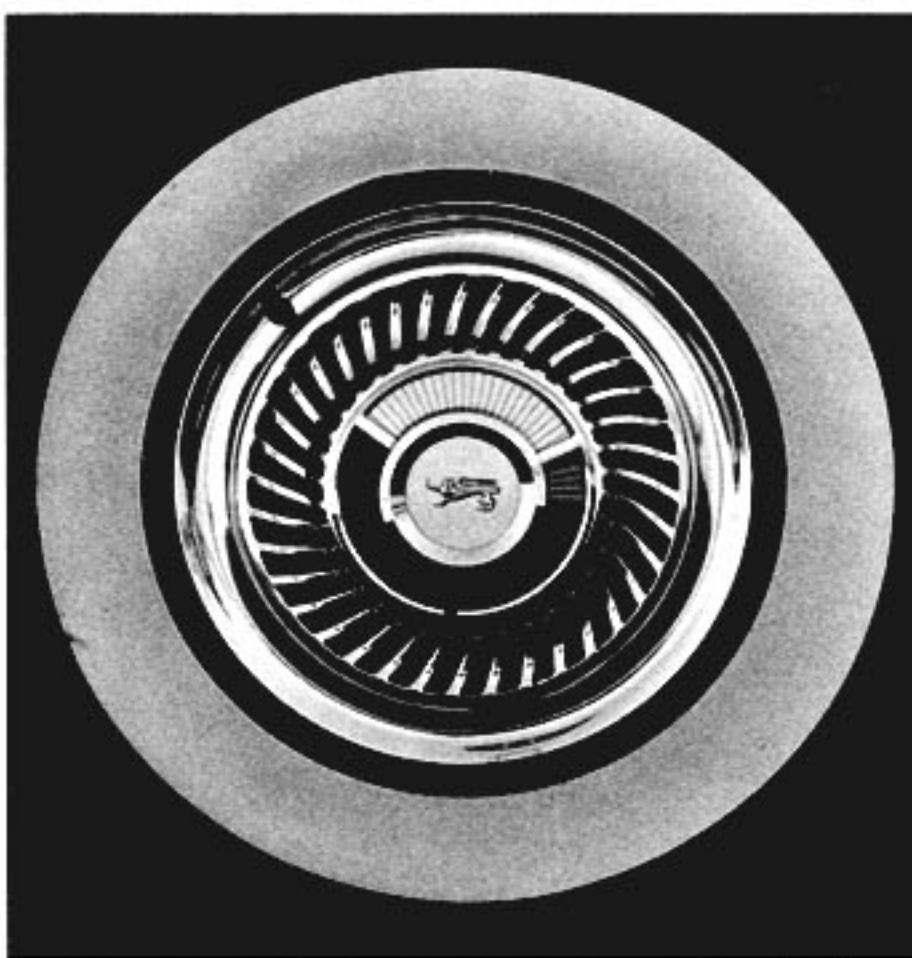
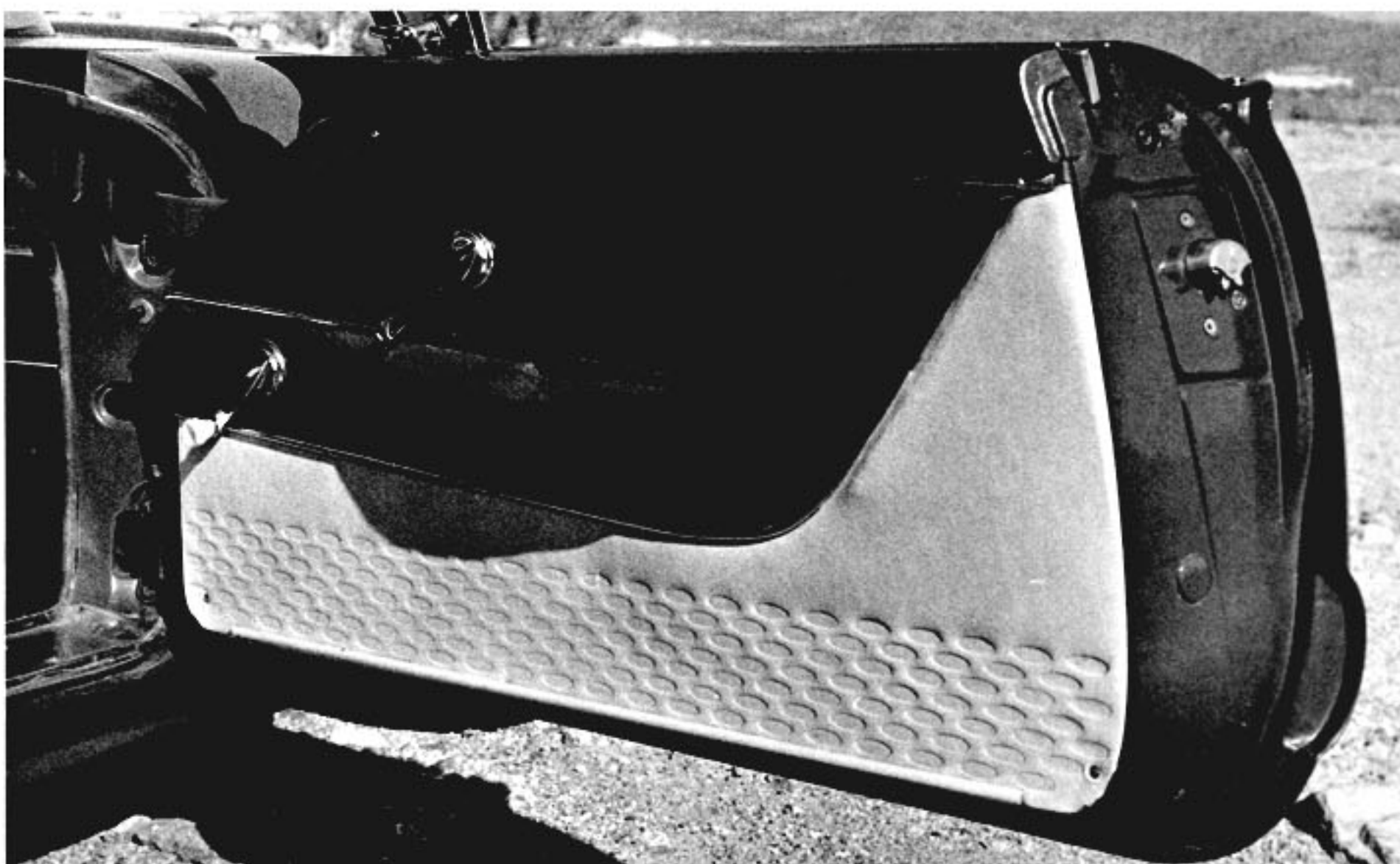
LUXURY DOOR -- The 1959 Thunderbird doors were massive and well-appointed, as the door on Dottling's automobile indicates.

- (9) Don't over-spend on the initial purchase of a square bird. Some cars that are original are worth \$3,000, but most are not. A top price currently, in Dottling's opinion, would be \$1,500. "You can't make hard and fast rules here," he warns, "because you might have a chance to buy a sun roof in nice shape for \$2,000 and it would be worth it. But that same price for the average hardtop would be too high."
- (10) Don't expect to make a quick "killing" on the resale of a square bird. There is a ready market for the cars, but the location of the car, the type of local market, and many other factors will determine whether it can be sold quickly for a fast profit or should be considered a purely collector's automobile and held for future value increases.

Another advantage Dottling sees for the square birds is the relative simplicity of their electrical wiring. "Some of the Thunderbirds past 1966 are pretty hairy to work on," he comments, "so I prefer the cars that give me the smallest amount of potential trouble. Taken in the proper context, the square bird is a modern automobile with plenty of comfort features, but one that is still distinctive when seen on the road, and one that is worth collecting. Plenty of other 1958-60 cars aren't worth having."

Except for occasional water pump failures on some models with air conditioning, Dottling claims that none of the square birds have any real mechanical faults, other than the fully-automatic convertible tops. "They are sound automobiles, in my opinion, and currently are good bargains for beginning or advanced collectors."

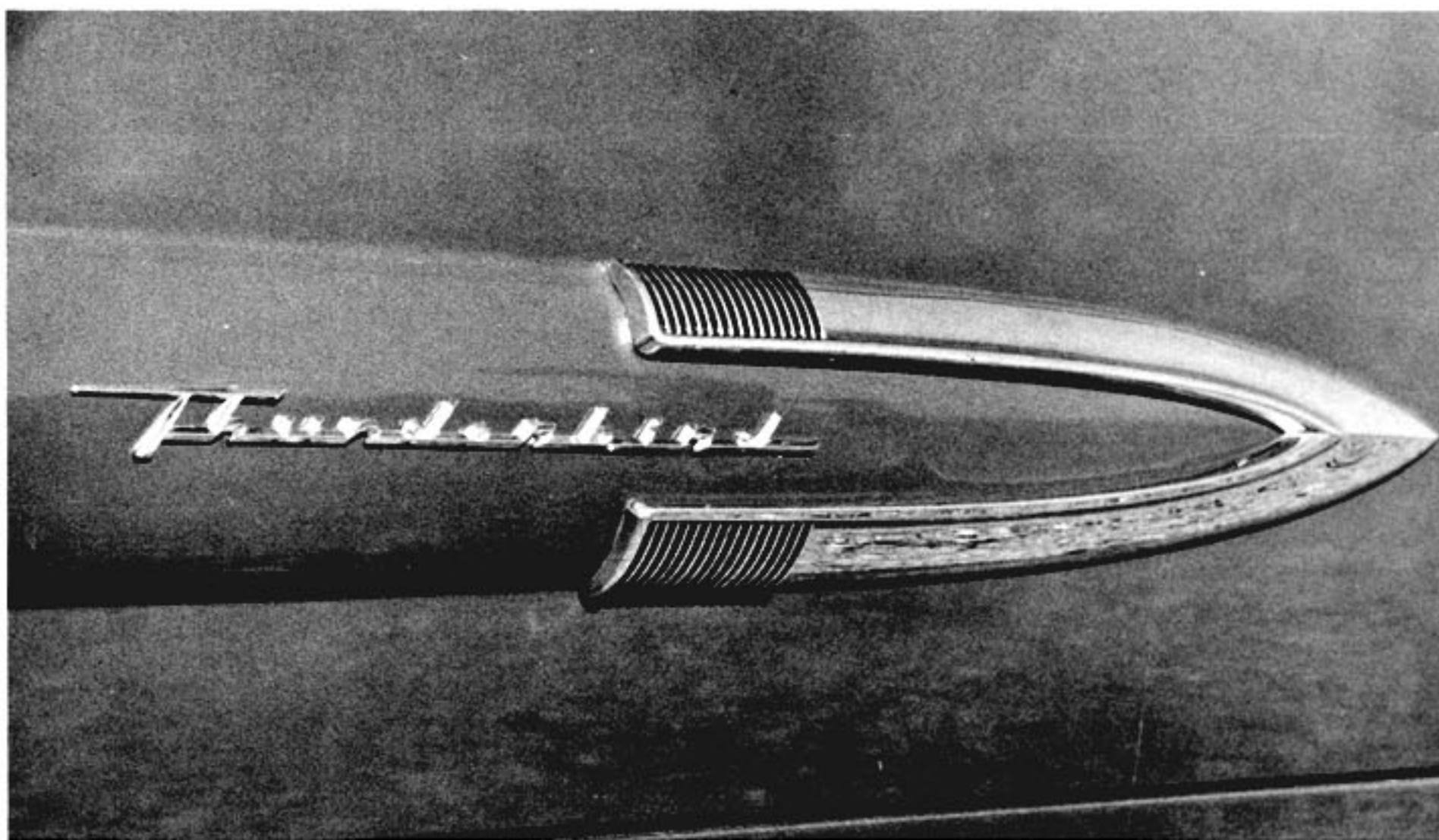
Is he going to keep adding to his personal collection of square birds? Probably not. "I don't want to own every square bird ever made," he points out, "and I have some of the rarest models anyone could want, so I will probably not add too many more to my private collection. Instead, I am looking for some other Thunderbirds that interest me. I would like a 1963 roadster, but one that is perfect, and it must have air conditioning. I would also like to have a 1966 town coupe, also in perfect condition with air conditioning. Beyond that, I haven't thought about it very much."



BEAUTIFUL CAPS -- This was a special sport accessory hub cap available on the 1959 models, and one that is highly prized by enthusiasts. The inserts are red, white and blue.



POWER SEAT -- This is a right-mounted electric switch for the power seats, something that is almost never seen today by collectors—but Dottling has it on his car!



SIDE TRIM -- This "spear" was used on the side of the 1959 Thunderbirds only.



SPARE PARTS -- Dottling uses some of his "spare" Square Birds as parts depots, as this trunk photo will testify.

MORE PARTS -- Need a grill? The "King of Square Birds" has plenty to choose from.

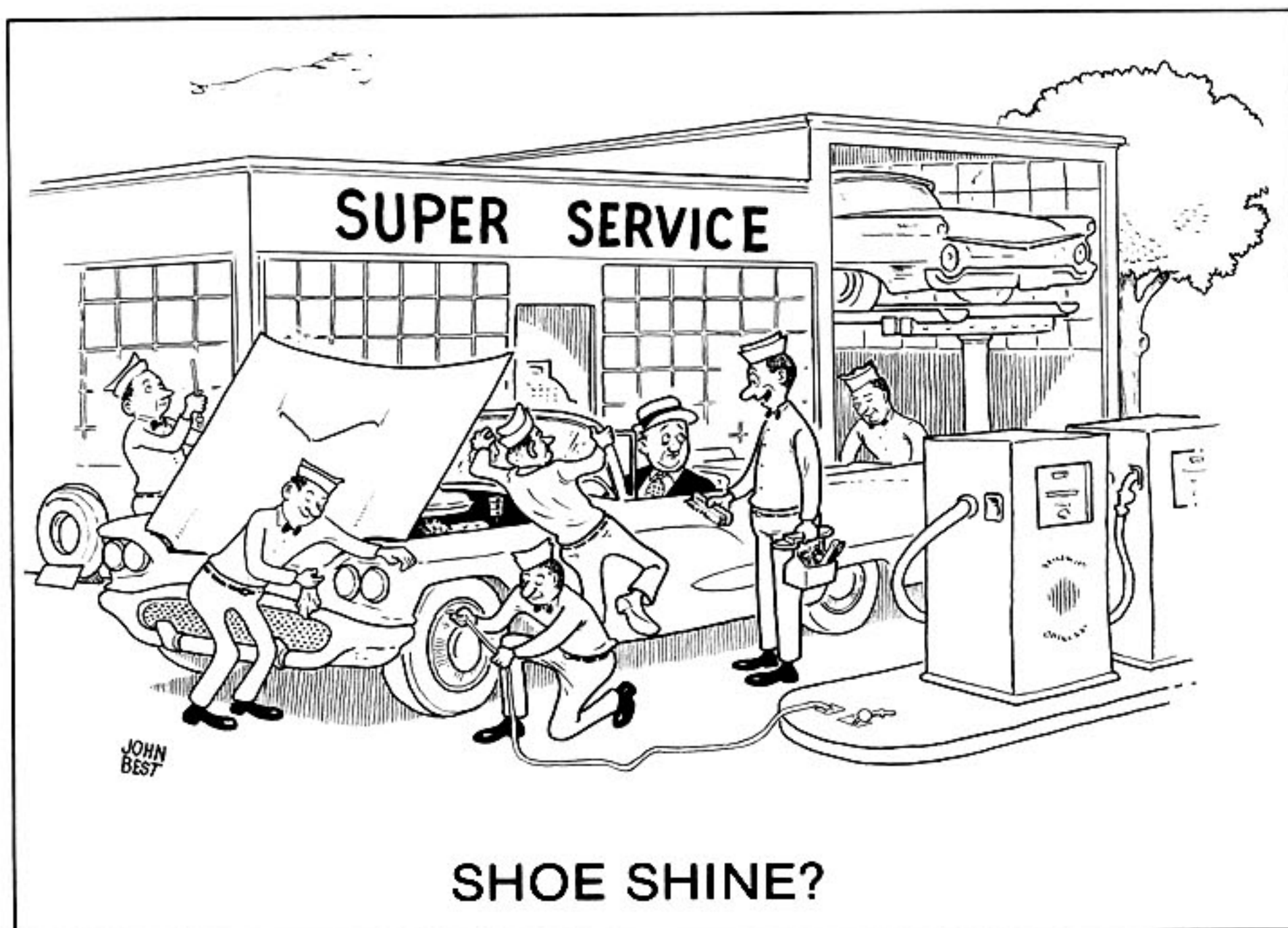


BEFORE RESTORATION -- Dottling claims his 1959 Thunderbird looked as bad as this one when he started. This automobile is currently awaiting restoration.

There is another collector in Redwood City, California, who has a very large collection of square birds, but few if any of his automobiles are in restored condition, according to Dottling, so he still feels he has the largest active collection of the cars in the world, and certainly the most restored square birds.

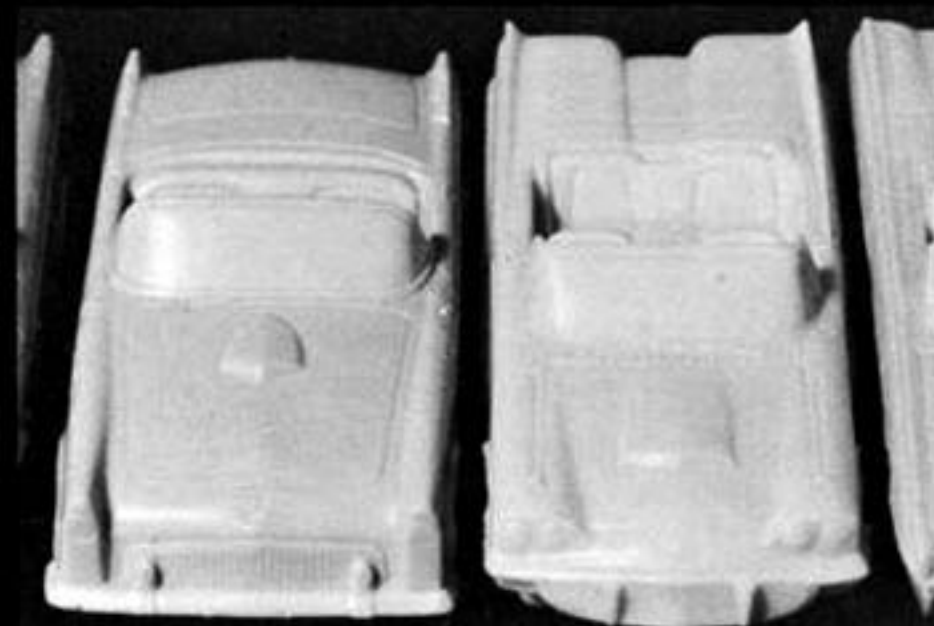
Wouldn't he rather have a collection of classic Thunderbirds? "NO!" According to the king of square birds, "I have the finest Thunderbirds ever built, and the two-passenger cars really hold little attraction for me."

That, my friends, was spoken like a true king of square birds. After all, without variety, where would the old car hobby be?

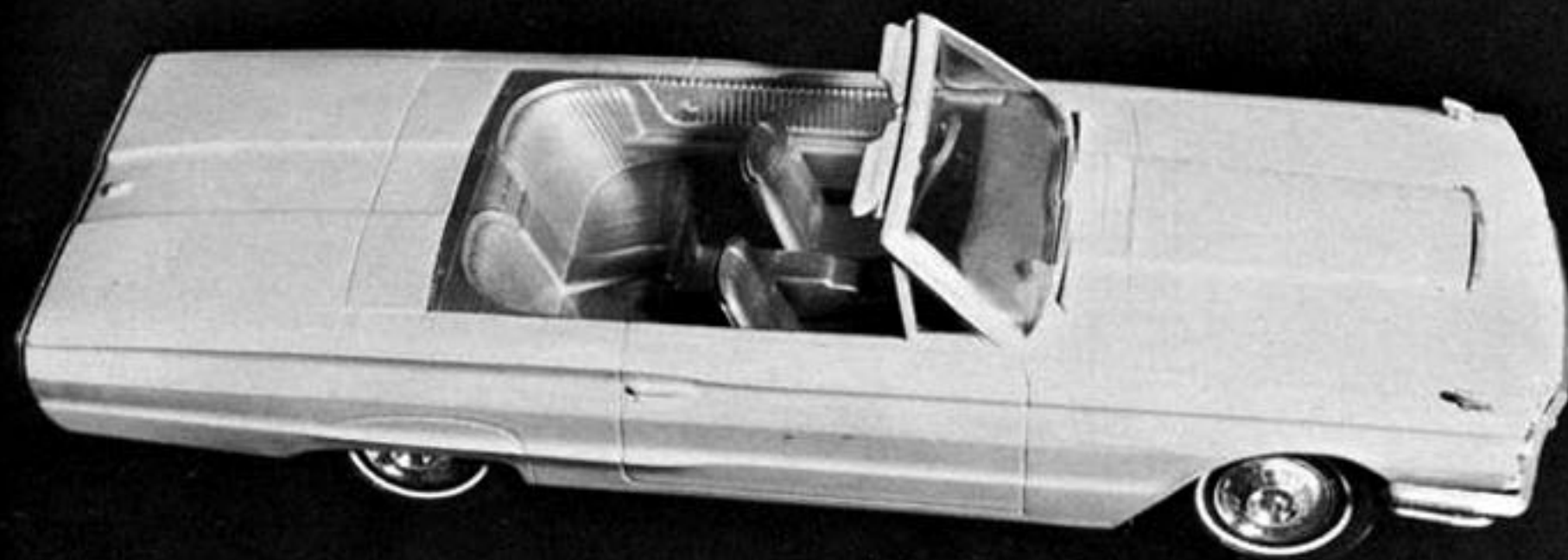


SHOE SHINE?

SELLING BIG THUNDERBIRDS WITH LITTLE ONES



Once automobile dealers gave potential customers miniature models to encourage the sale of the full-size cars—now these inexpensive models have become very expensive collectors' items.



BEAUTIFUL THUNDERBIRD — The AMT 1964 Thunderbird Convertible was very popular, and is shown here in Arcadia Blue, a standard Ford Thunderbird color that year.

Almost from the first day a Thunderbird rolled off the Ford assembly lines, manufacturers of miniature models have been hard at work duplicating them as promotional sales tools for dealers and salesmen. As most of these were lost or thrown away within a few months of issue, the supplies have diminished until, today, many of the little models that cost a few cents each to make a decade ago are selling for figures in excess of \$25.

Even though Thunderbird promotional models haven't yet reached this apex of value, many experts in the field feel that they will soon make dramatic jumps in price. Thunderbird automobile collectors are currently in the best position to take advantage of the potential price increases. They frequently have one or more of the models already, and see them at swap meets and other club functions, where they are often offered for sale or trade.

We know of one Thunderbird owner who was given a promotional plastic model of his car by the dealer, and because of this association, values it very highly, even though it has minimal value to a collector. He is currently trying to find all of the promotional models offered by the factory for the model year of his car, and only lacks one or two of having a complete set.

Another enthusiast is extremely interested in Roadsters, so he has collected all the plastic Roadster models made from the years 1962-63. No other Thunderbird model interests him, only the Roadsters.

Very often the only difference between one model and another is the color, nothing else. So in order to have a complete collection, one must find out how many colors were available and if the models were offered in closed and open body styles, then narrow the search to these variations.

Other collectors are striving to own *all* of the Thunderbird promotional models made from 1954 to the present, and in so doing, they learn a great deal from research and talking to other collectors about the various kinds, types, and even the factories that produced them. All of this makes the collection of miniature automobiles a fascinating departure from simply owning full-sized automobiles.

Who made Thunderbird models? The answer to this question is varied, and even today, all the data associated with the tiny Thunderbirds isn't known; but each year, more facts are added to the growing body of knowledge, which increases collector interest in the subject of miniature car models and promotional cars, and this in turn increases the value.

This article does not attempt to detail every last Thunderbird toy made, but more to chronicle the history of the marque so far as its promotional efforts were concerned.

Promotional models were distributed chiefly by three main manufacturers, the Aluminum Model Toys Corporation of Bir-

mingham, Michigan, the F & F Mold & Die Works of Dayton, Ohio, and the Powercar Company of Mystic, Connecticut.

We'll begin with the F & F Mold series, since there seem to be some questions about years and models that haven't been answered previously in features of this type.

THE F & F MOLD SERIES:

The F & F Mold models are three inches long (or approximately 1/56 scale) and were distributed exclusively along with breakfast cereal. They are accurate replicas, cast in authentic Ford colors, and were usually offered as a set with other Fords.

1954 — F & F Mold made the very first Thunderbird miniature. It was released in early 1954 and carried the notable Fairlane side trim of the full-size cars. This molding is similar to that used on Ford's 1955 Fairlane series of cars, hence the name. It begins atop the front fender, dips to a "V" just behind the front wheel opening, and continues down the side of the car, ending at the top of the tail light. This Thunderbird was molded in six of Ford's 1954 spring colors: Sierra Brown, Goldenrod Yellow, Glacier Blue, Cameo Coral, Torch Red, and Highland Green. Value when new: 5 cents. Value today (mint): \$45.

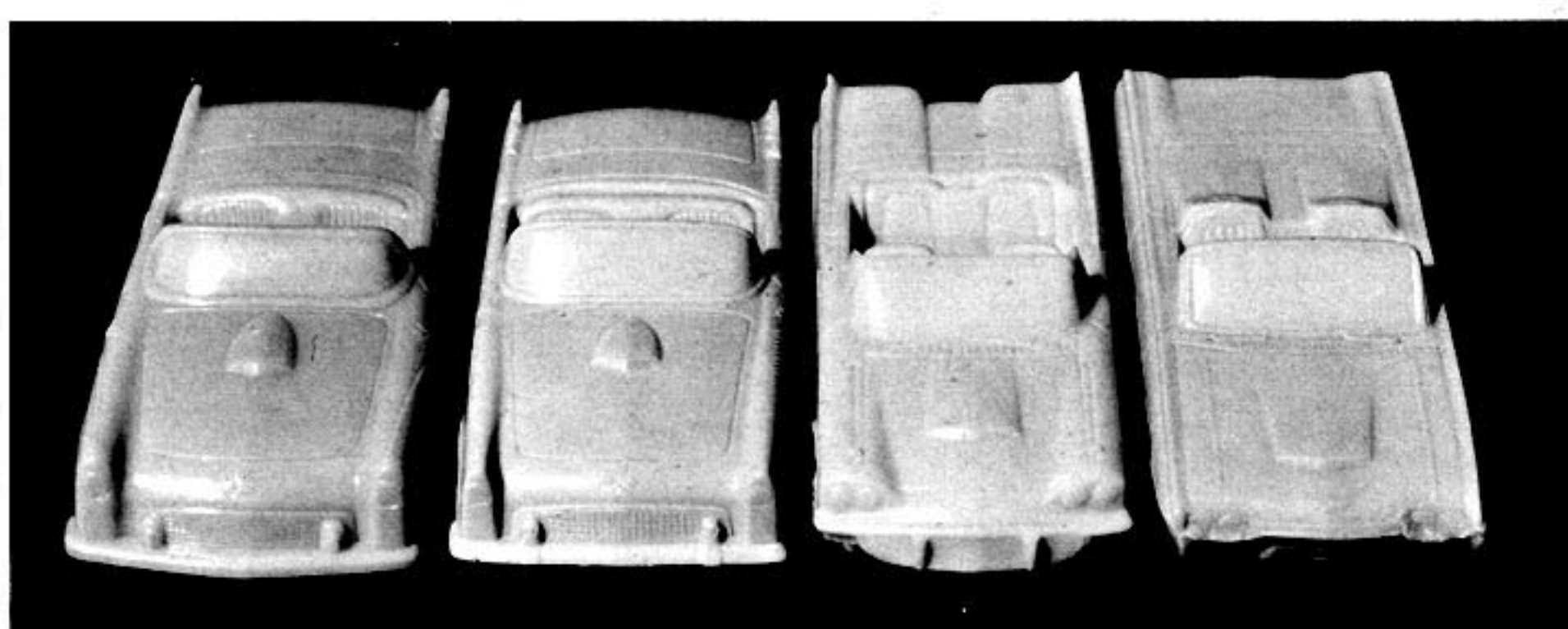
1955 — This model, oddly enough, was retooled, and much of the quality of proportion was lost, resulting in a thinner, boxier replica. 1955 colors included Goldenrod Yellow, Torch Red, Sea Sprite Green, Buckskin Brown, and Aquatone Blue. Artwork on the front of the package depicted a Hardtop, while the model was usually a Convertible. This 1955 model was held over and reoffered in 1956. There were no other Thunderbirds with breakfast again until 1959.

1959 — This one came in Hardtop and Convertible in Raven Black, Brandywine Red, Cordovan, Flamingo, Starlight Blue and Glacier Green. The 1959 is remembered for having the most perfect proportions of all F & F Mold cars.

1961-62 — Much controversy exists as to the correct year model. The car was commissioned in the spring/summer of 1961 for release as a 1962 model. Aside from the 1961 hood (which was also used on early production Thunderbird cars) the F & F car is completely 1962, but came in the 1961 colors, Palm Springs Rose, Mint Green, Starlight Blue, Monte Carlo Red, and Desert Gold. Like the 1961 Sports Roadster prototypes, the F & F Roadsters had Roadster emblems above both sides of the headrests, and carried full fender skirts.

THE A.M.T. SERIES:

The Aluminum Model Toys (A.M.T.) cars are best known for their annual replicas in genuine colors. A.M.T. usually made three types of models: 1) Dealer's Models; 2) Flywheel Models; 3) Kit Models. The dealer models are fully assembled and painted at the factory and sold only to the auto manufacturers. Flywheel models are nearly identical, except for a friction-type ("Flywheel") motor, and were sold to the



MINIATURE STABLE — As seen from the left, these plastic Thunderbirds were included in boxes of Post cereals from 1954 to 1962. The first model is a 1955 Thunderbird with the Fairlane chrome strip on the side, which appeared in 1954 cereal boxes. Next to it is the modified 1955 Thunderbird with correct side trim, a 1959 Thunderbird convertible, and a 1962 Thunderbird Sports Roadster. All of these were made by F & F Mold & Die Works Company of Dayton, Ohio.



ANOTHER AMT — AMT Corporation of Birmingham, Michigan made several 1964 Thunderbirds in kit form for kids and miniature collectors. This one is the convertible with a removable, raised soft top.

public in toy and hobby stores. Kit models are unpainted, unassembled models sold also in toy and hobby stores. All A.M.T. cars are 1/25 actual size, or approximately seven to eight inches in length.

1955 — Released in the winter of 1954, this model came in Torch Red, Thunderbird Blue, Ivory, Waterfall Blue, Neptune Green, and Raven Black. The model was a Convertible, and often had interior trim which was not consistent with body color. It was available with white-plastic or chrome-plastic wire wheels, or the standard Ford wheel covers.

1956 — Early models have 1956 Buick steering wheels. Colors included Raven Black, Fiesta Red, Buckskin Tan, Peacock Blue, Colonial White, Thunderbird Green, Meadowmist Green, and Diamond Blue. Wheels available included chrome-wires, chrome-Ford, and white-Ford.

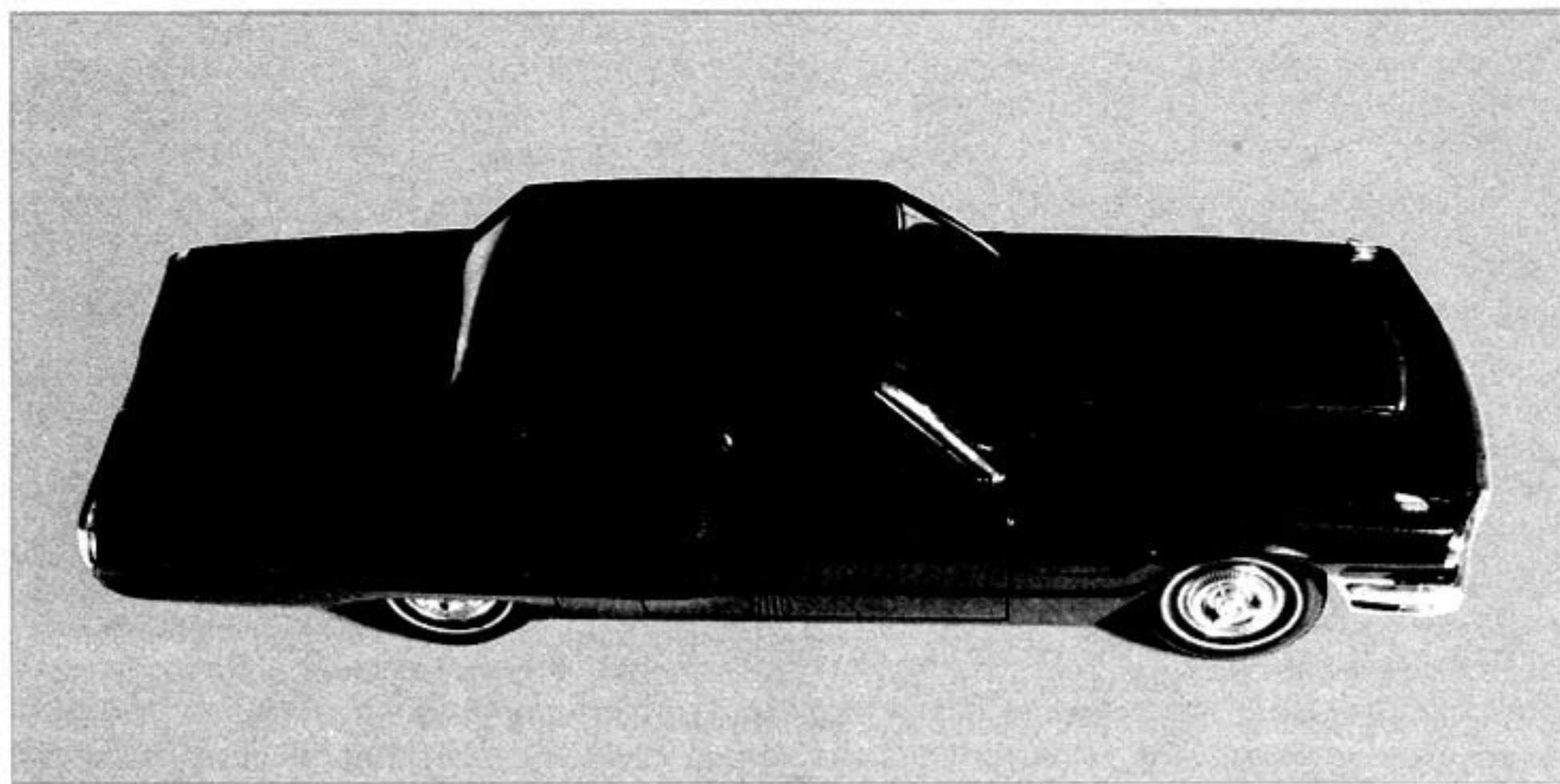
1957 — This AMT model went through three stages before the final car was complete. Version #1 has 1956 front fenders, 1956 Buick steering wheel, no "Thunderbird" script on the front fenders, no skirts, and no "1957" on the rear license plate. Version #2 is identical, except for the inscription of a rather small, phony-looking fender skirt on the otherwise smooth, blank

quarter panel. Version #3 sustained the most improvements, including perfected skirts, a reshaped front end, and the correct interior. This final version also utilized the new, flatter metal chassis, and had "1957" added to the rear license plate. It was this version of the car mold that was used for the numerous kit re-issues during the following ten years.

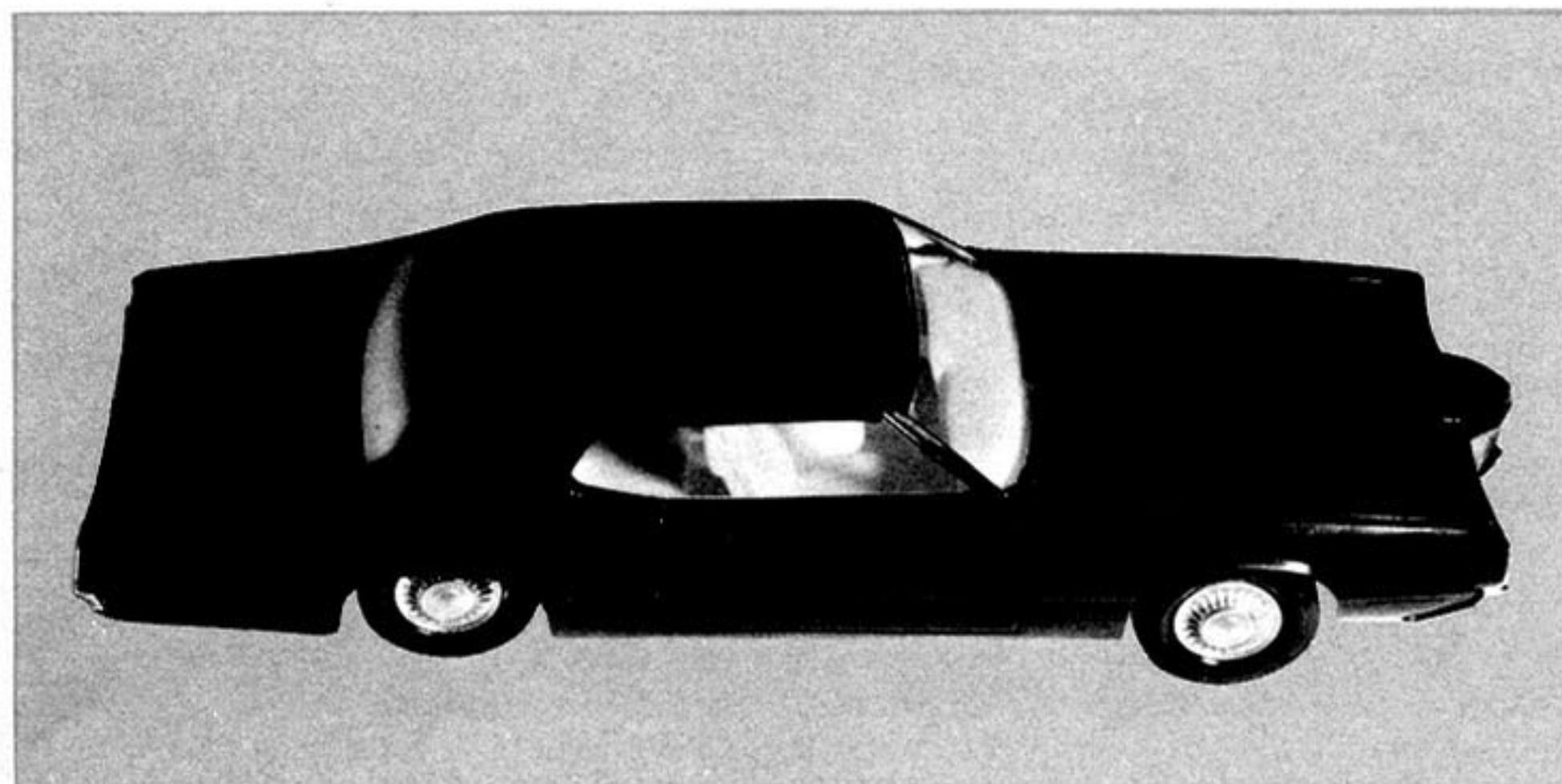
1958 — The full-size car was a midyear introduction, and the AMT Hardtop model is very scarce. No Convertible was made by AMT, but in 1964, Monogram hit the kit market with a handsome kit, which could be built either as a Hardtop or a Convertible. This kit had a glossy black finish and clear-red tail lights. (A similar Monogram kit has recently been re-issued, and comes in red plastic.)

1959 — Hardtops and Convertibles were offered in dealer model, "flywheel," and kit versions.

1960 — Both Hardtops and Convertibles were offered in all versions. The kit version was the first to offer an opening hood and detailed engine. Early dealer models have huge oversized fender ornaments. (Contrary to popular speculation, there was NO Sunroof by AMT.) All 1958 through 1960 Thunderbird dealer models can be identified



LATER MODEL — The Thunderbird for 1965 in the AMT inventory was this hardtop without Landau arms. The color on this dealer's promotional model was Vintage Burgundy. Unlike other AMT kits, this one was assembled.



LAST EFFORT — This was the last dealer's model from AMT Corp. This was the 1971 hardtop which was offered in 1970 to dealers who wanted to show customers what their new Thunderbirds would look like. There was also a model kit of this Thunderbird that could be assembled.

by the painted dash insert. This painting wasn't done on the other models.

1961 — AMT changed over to non-warpage Cylolac plastic at mid-year. 1961 saw the introduction of a detailed chassis with sales features inscribed on the bottom. Hardtop and Convertible models continued in all types.

1962 — Body styles included the Hardtop, Convertible, and Sports Roadster. Hardtops and Sports Roadsters were available in kit form also. Special Issue Sports Roadsters were made with a rare two-piece wire wheel (others had wheel covers). This same car was also made as a pen-and-pencil desk trophy for topflight salesmen.

1963 — This was a confusing year, because two Hardtops were made. One was a regular hardtop, and the other was a "Roadster Hardtop," so named because it used the Roadster body under the Hardtop roof die. This car had no skirts and had Roadster emblems on the front fenders. The Flywheel series came as a Sports Roadster or Convertible in a non-factory light blue, light green, light yellow, light beige, red, and white.

1964 — Hardtop and Convertible dealer models were made in Brittany Blue, Rangoon Red, Wimbledon White, Silver Mink, Florentine Green, and Pagoda Green. The Flywheel model was a hardtop in non-factory white. In mid-year, a special issue Radio model was offered to buyers of Emberglo Thunderbird hardtops. The model was Emberglo with a Philco radio inside. 1964 Kit models came in a Hardtop and a Convertible, which also had a tonneau option.

1965 — A.M.T. made Hardtop and Convertible dealer models in Vintage Burgundy, Rangoon Red, Wimbledon White, Raven Black, and Patrician Green. The Flywheel was a Convertible in non-factory yellow. The early kit convertible had a 1964 hood and carried the tonneau cover option from 1964.

1966 — The dealer model came as a Landau only, and the kit model was a Convertible. Colors for dealer models included Arcadian Blue, Candyapple Red, Antique Bronze, Vintage Burgundy, Tahoe Turquoise, and Wimbledon White. The kit which was re-issued in 1975 is a Convertible

with attachable Town Landau roof. The flywheel model is bright red.

1967 — Winding down the years of diversity, only three colors were made in a two-door Hardtop model — Frost Turquoise, Candyapple Red, and Wimbledon White. All dealer models had flywheel motors. The flywheel version came in 1964 Florentine Green. The kit was available as a two-door hardtop.

1968 — Initially, no 1/25 dealer model was offered, but instead there was a 1/43 scale dealer model in Diamond Blue, completely assembled in a clear plastic display case. At midyear, a 1/25 dealer model was offered in Diamond Blue, Candyapple Red, and Wimbledon White. The flywheel version was issued in 1964 Florentine Green. Kits were available in the two-door Hardtop style.

1969 — Dealer models were painted in Royal Maroon. This was the final year for the flywheel version, which came in 1969 Buick Olive Beige, and actually had no flywheel motor.

1970 — The dealer model came in Ivy Bronze Metallic, with blackwall tires. Kits were available.

1971 — The dealer model came in Green Fire Metallic with blackwall tires. A kit was also available. This was the last 1/25 Thunderbird model.

THE POWERCAR SERIES:

The Powercar Models have fiberglass bodies with tubular steel frames and vinyl interiors. They measure approximately six feet in length, and are painted in factory colors. Included in the series:

1955 "Thunderbird Junior" — introduced in late 1954.

1956 "Thunderbird Junior" — (two models) one with no spare tire mount, the other with 1955 back-up lights.

1957 "Thunderbird Junior" — parking lights removed from previous models.

1960 "Thunderbird Junior" — Body dimensions much improved.

1961 "Thunderbird Junior" — Windshield added.

1964 "Thunderbird Junior" — Available gas-powered or battery-operated.

1966 "Thunderbird Junior" — Available gas-powered or battery-operated.

Armed with this information, the collector will soon find that there are scores of Thunderbird promotion models and cars available for those who will conduct even a modest search for them. When one least expects it, these miniature automobiles appear for sale. When a collection depth has been acquired, the surplus can be traded off. Like their big brothers, miniature Thunderbirds are rising rapidly in value, and the astute collector will not overlook the possibility of widening his horizons to include them.



LOCK YOUR THUNDERBIRD!



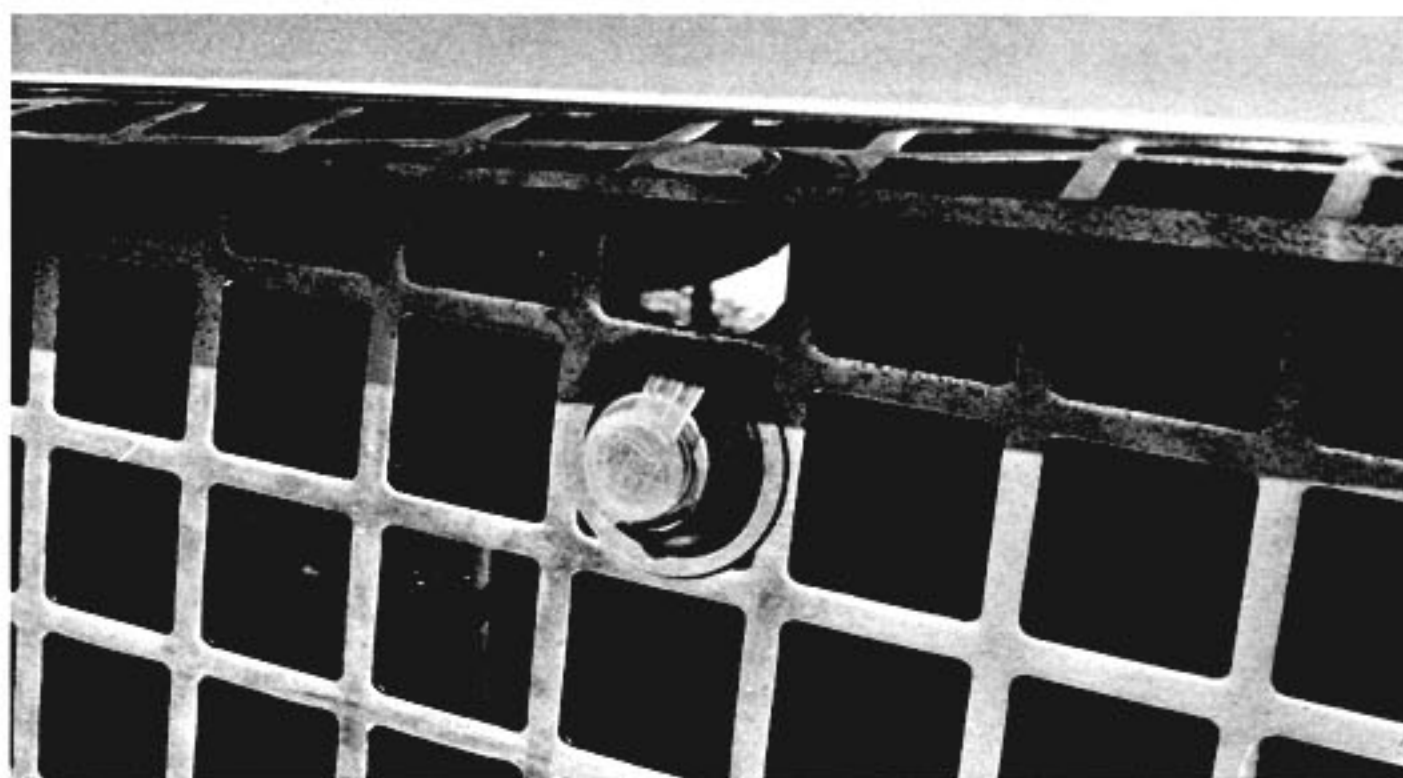
SAVES SKIRTS — Jack Jordan of Phoenix, Arizona, demonstrates how he drills holes in the fender skirt and the lip of the fender, then bolts his skirts in place — which saves them from being easily unsnapped and taken. Note that Jordan uses a bolt and nut with his system — and a lock washer.

A collector in Long Beach, California, recently had a 1955 hardtop stolen out of his garage — next to his bedroom window — and the thief was never caught, nor was the top found. An enthusiast in New Jersey had four rear windows stolen off his 1957 Thunderbird in less than a year — and now he can't find a replacement at all!

An immaculate 1956 Thunderbird was taken from an owner's driveway in Kansas City, Missouri, in broad daylight, and it was never recovered. Complaints of stolen Thunderbird skirts, wire wheels and even complete engines have reached torrential proportions among Thunderbird collectors across the nation, and no one is quite sure what to do about it, or what can be done by police to recover stolen parts.

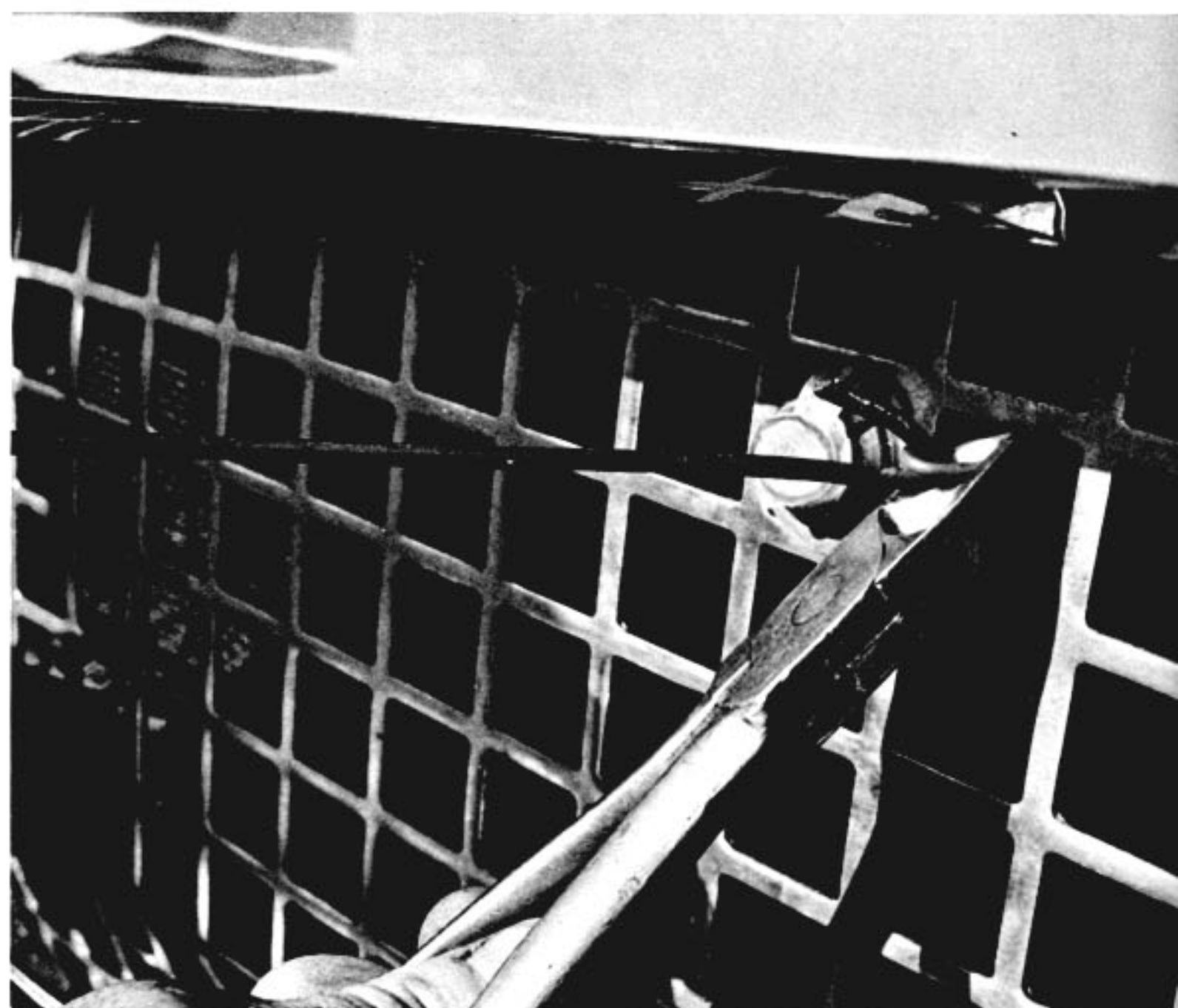
After an exhaustive survey of owners and enthusiasts, *Thunderbird Illustrated* has come across some recommendations, helpful hints and security data that we felt would be of assistance to our readers. If, from reading this, just one owner is spared the agony of a stolen Thunderbird, or from having a restored automobile stripped, all our efforts will have been amply rewarded.

In studying the problems of Thunderbird security, there are a number of things to be considered. One of the best forms of protection is an enclosed storage area. Ideally, it should be one that will hold not only the automobile itself, but spare parts and perhaps a place to work on the car as well.



POOR PLACEMENT — The "key" for many alarm systems is located in the grill of a Thunderbird, where it is convenient, but also vulnerable to disconnection by a criminal.

SIMPLE METHOD — A thief can hook the alarm wire with a bent wire, snip it off, and then work at his leisure — if the alarm "key" is placed in the grill. Owners should be aware of this and move the "key" to a new location.



TRANSMISSION LOCK — This simple, yet effective, lock snaps into the automatic shift selector slot and prevents the lever from being moved.

Those collectors who live in a city and have only a carport in which to store their automobiles have a serious handicap starting off. It is obvious that a Thunderbird kept under these conditions is an easy prey for the "rip-off" artists who stalk classic automobile enthusiasts. Open storage, or even semi-open storage, is an open invitation to a thief. The same holds true for automobiles kept in fenced enclosures.

So, the first order of business for the collector concerned about the safety of his cars is to establish the basic security needed for a collection. This should also include a thorough safety check of the facility now in use, be it a garage, carport or storage yard.

On a visit to a collector's home, we noticed two cans of gasoline with loose lids stored near some inflammable papers and rags in the same building as his restored Thunderbirds. This type of carelessness is an open invitation to fire, and possible loss of an extremely valuable "full house" of 1955-57 two-passenger Thunderbirds, without the threat of having the cars stolen!

Another enthusiast we know of has a modern shop and work area, but hasn't gotten around to putting door and window locks on the building, nor installing any type of alarm system! There is also easy access to the property from an alley, and his house sits about 60 feet from the garage/shop complex. Clearly, this man has a potential problem.

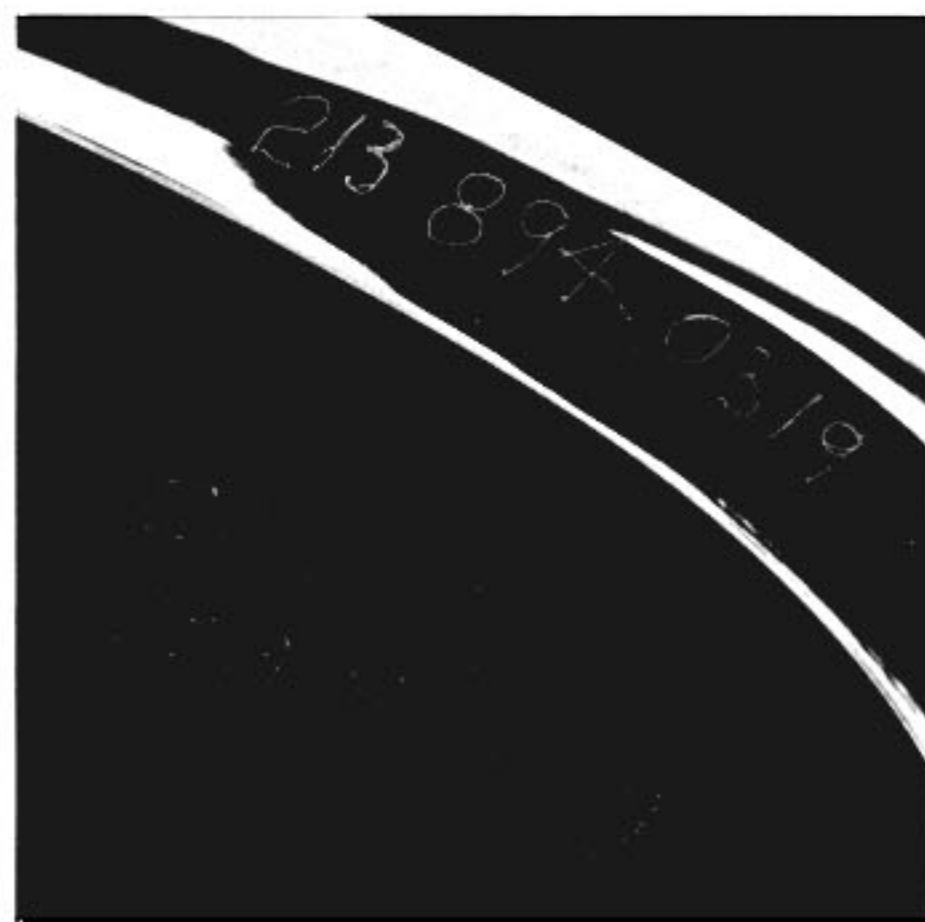
Other collectors leave their automobiles in plain view of passing traffic on busy streets, so that thieves know ex-



actly where to come in the nocturnal hours. Experienced police recommend out-of-sight storage as an owner's first line of defense against robbery. What can't be seen, can't be coveted, as the old saying goes.

Ideally, in large metropolitan areas where theft of automobiles is rampant, a closed storage area with a sophisticated alarm system, and perhaps even a guard dog, is perfect for the total protection of a collection — but few owners can afford this type of security, or even want to be bothered with it.

It is surprising how many collectors with lovely automobiles won't bother to take even simple precautions against theft or vandalism of their Thunderbirds. People seem to be careless, and, as a result of sloppy attitudes toward their automobiles, lose them frequently. We have even seen Thunderbirds in public



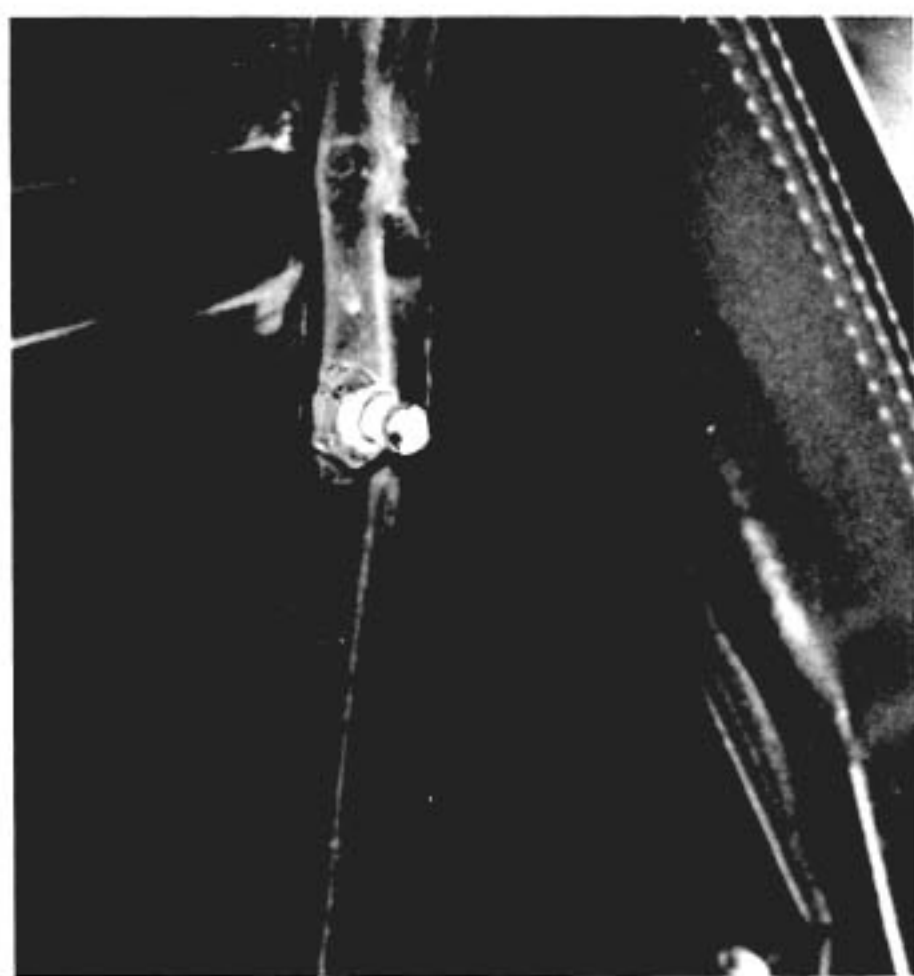
SAFETY IDENTIFICATION — One collector engraved his name and telephone number into the molding and glass of his Thunderbird, thereby effectively reducing its value to a criminal who might decide to sell it.

parking lots with keys in them!

Thunderbird Roadsters in cities such as Detroit, Los Angeles, New York, and Miami are especially preyed upon by car rings because of the highly valuable wire wheels, which are easy to dispose of at high prices. Smaller Thunderbirds with the roadster wire wheels on them are also stolen — just to get the wheels.

Because of this, owners of these automobiles should be extra careful about the way they are stored and used. One woman of our acquaintance, who had purchased a 1963 Sports Roadster new, had the automobile stolen twice in a period of four months from the parking lot of the school where she was employed. The lot had an electric gate, a day-time guard, and the car was locked — but it was stolen anyway, not once but twice!

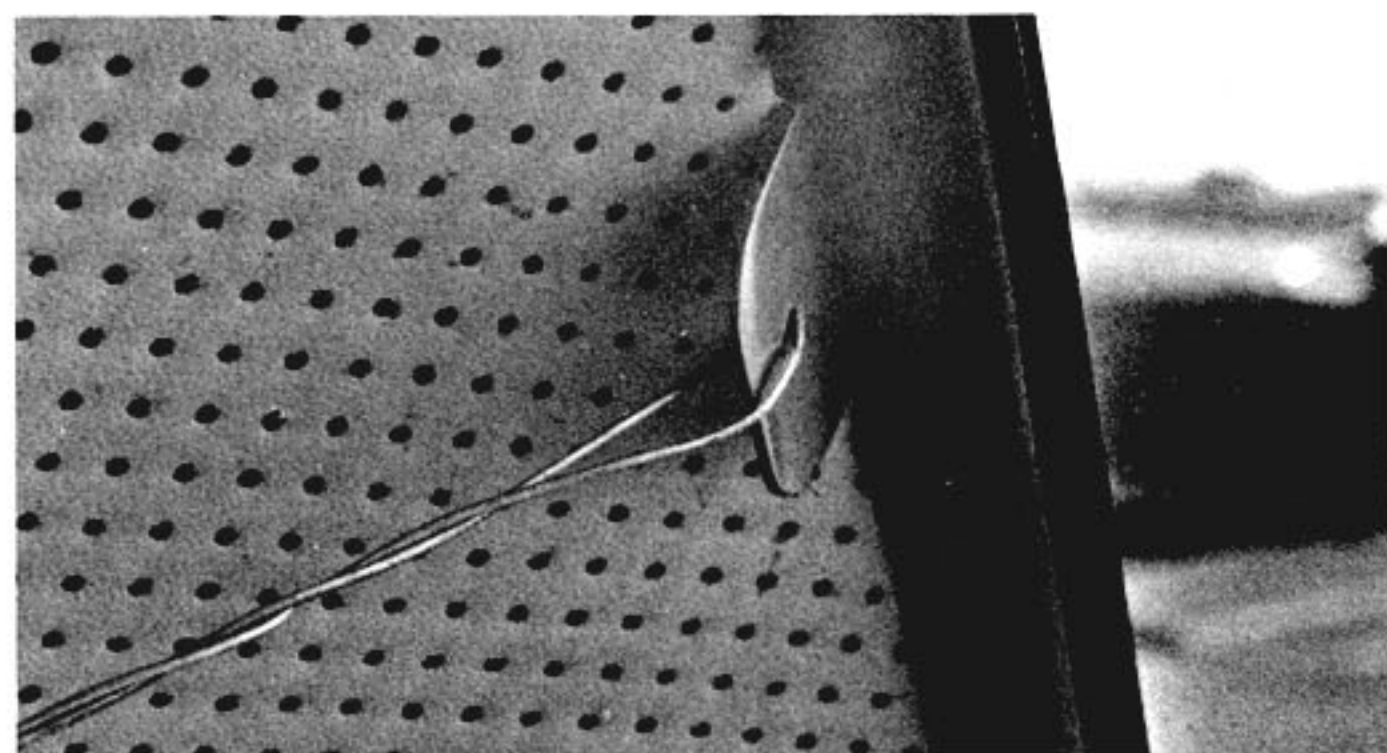
A set of Sport Roadster wire wheels is



WRONG LOCATION — One of the switches of this burglar alarm was incorrectly placed on the door jamb, at a point where it is too easy to locate and by-pass by a determined car thief, as you can see in the accompanying photo.



EFFECTIVE MEASURE — This view shows how the wire is attached from the window molding to the top latch — an effective preventive measure against losing the back window easily.



EXTRA TAB — A small metal tab is welded to this window molding, then a wire is attached to it so that it is extremely difficult to remove the rear window.

now valued at \$1,200 and up, which is certainly a high enough figure to tempt a criminal into stealing them. Because of careless owner attitudes, it sometimes seems as if the thieves of this world place a higher value on Thunderbirds than their rightful owners do!

We know of a famous actress who had an expensive burglar alarm installed on her automobile, but kept forgetting to turn it on. One night in particular, she failed to set the alarm, and left the car out of its locked garage. The next morning, it was gone.

It only takes one moment of neglect to set the stage for a car theft. Even an amateur car stripper can remove the back window assembly, the fender skirts, and then take the whole hardtop from a classic Thunderbird in less than five minutes. One police investigator I spoke to made a very telling comment

about stripped automobiles. He said: "Most of the owners say something like, 'I was only going to be gone for a few minutes.'"

With used rear window glass and mouldings now costing \$600 for a 1955-57 hardtop, it behooves the owners of these cars to take special precautions against theft. We have inspected an alarm system that used a tiny micro switch hidden under the rubber moulding of the rear window. When the rear window unit is disturbed in any manner, the micro switch is set off, sounding an alarm.

Another owner, who had suffered the loss of two windows in a period of six months, welded metal tabs to the rim of the moulding, then used extra-strength wire to fasten this tab to the locking mechanism of the hardtop. He also engraved his telephone number on the glass and the moulding on the outside, along with his last name. The thefts have since stopped.

There is a special device which fits on the hydraulic system of an automobile that is very effective. When the device

is on, the brake pedal can be depressed in the normal manner — once. When the brakes are applied, they remain locked, thanks to a one-way valve which will not let the pressure off the lines.

When this unit is used, the automobile is usually found a short distance from the place it was stolen — often in the middle of the street — with the brakes still firmly locked and the automobile immobile. These security systems cost about \$50, and can be installed in a few hours on any automobile using hydraulic brakes.

According to our researches, the device most owners rely on is the electric burglar alarm. These range in price from \$3.95 for a very cheap one to more than \$200 for a unit that will send silent alarm signals to a special receiver carried on the owner's person.

The burglar alarm relies on surprise for its effectiveness. A loud piercing sound — the wail of a siren or blowing of the horn — is usually enough to stop a car thief. Certainly, most criminals will abandon a vehicle that is emitting loud noises from an alarm system.

TOP LOCK — This lock is used to prevent the theft of convertible hardtops on the classic Thunderbirds, but must also be used in connection with another lock underneath, or a determined thief could steal the top and lock together!

Here, the problem is not purchasing and installing a good burglar alarm; it is preventing the potential burglar from disconnecting it or rendering it useless in some other way. After our studies of the many types of burglar alarms, *Thunderbird Illustrated* found that many alarm systems now in use on cars are almost worthless — because of improper installation.

The majority of alarms use a "trigger" device that starts the noise-sending unit. The trigger may be a button in the door jamb, a hidden micro switch, or a device that reacts to motion of the automobile (such as someone trying to remove the hardtop).

When a burglar alarm is used, the idea is to install the "key" in such a way that it is convenient for the owner to use, but difficult for the potential criminal to negate or disconnect. In the photos that accompany this article, there are a number of examples of improperly-placed burglar alarm triggers so that the reader will have some idea of the pitfalls involved.

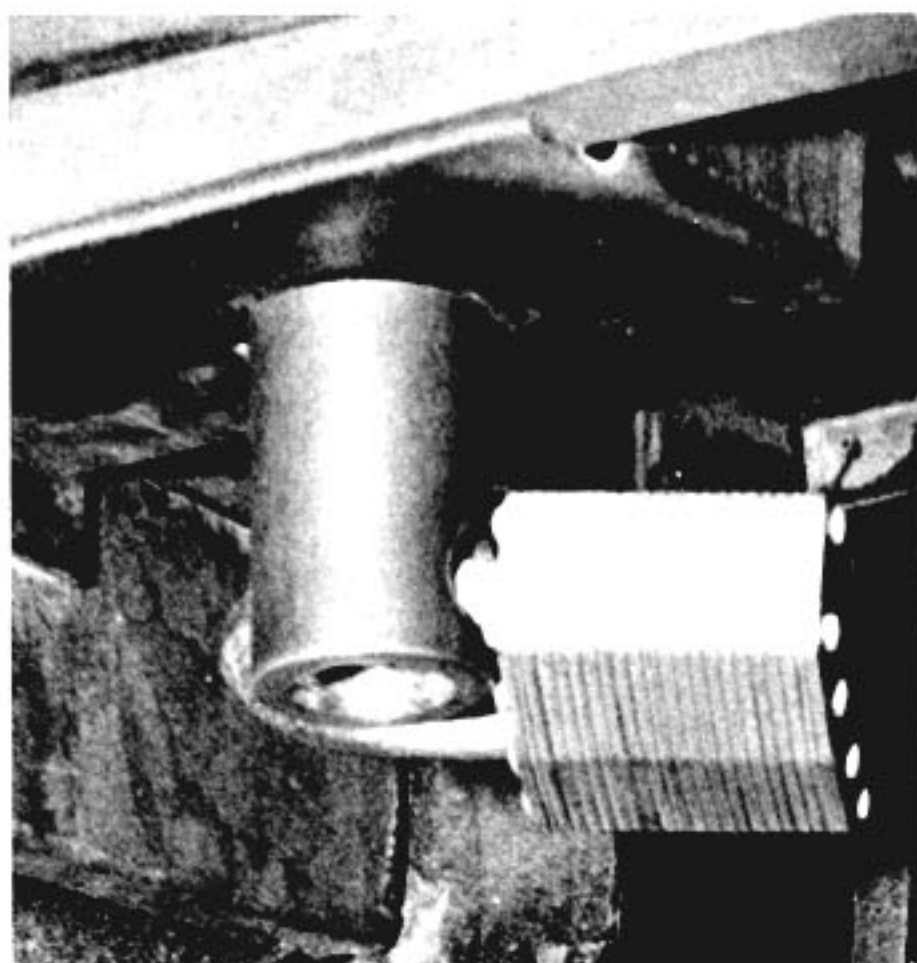
All of the units we investigated are powered by the storage batteries on the automobile, so care must be taken that the battery cannot be reached independently of the locked body panels — or the car could still be stolen without the alarm being set off.

Here is an example. A 1957 Thunderbird with a very good alarm system was left parked in front of the owner's house (a mistake in judgment to start with) with the system turned on. A determined rip-off artist still stole the car without setting off the alarm. How?

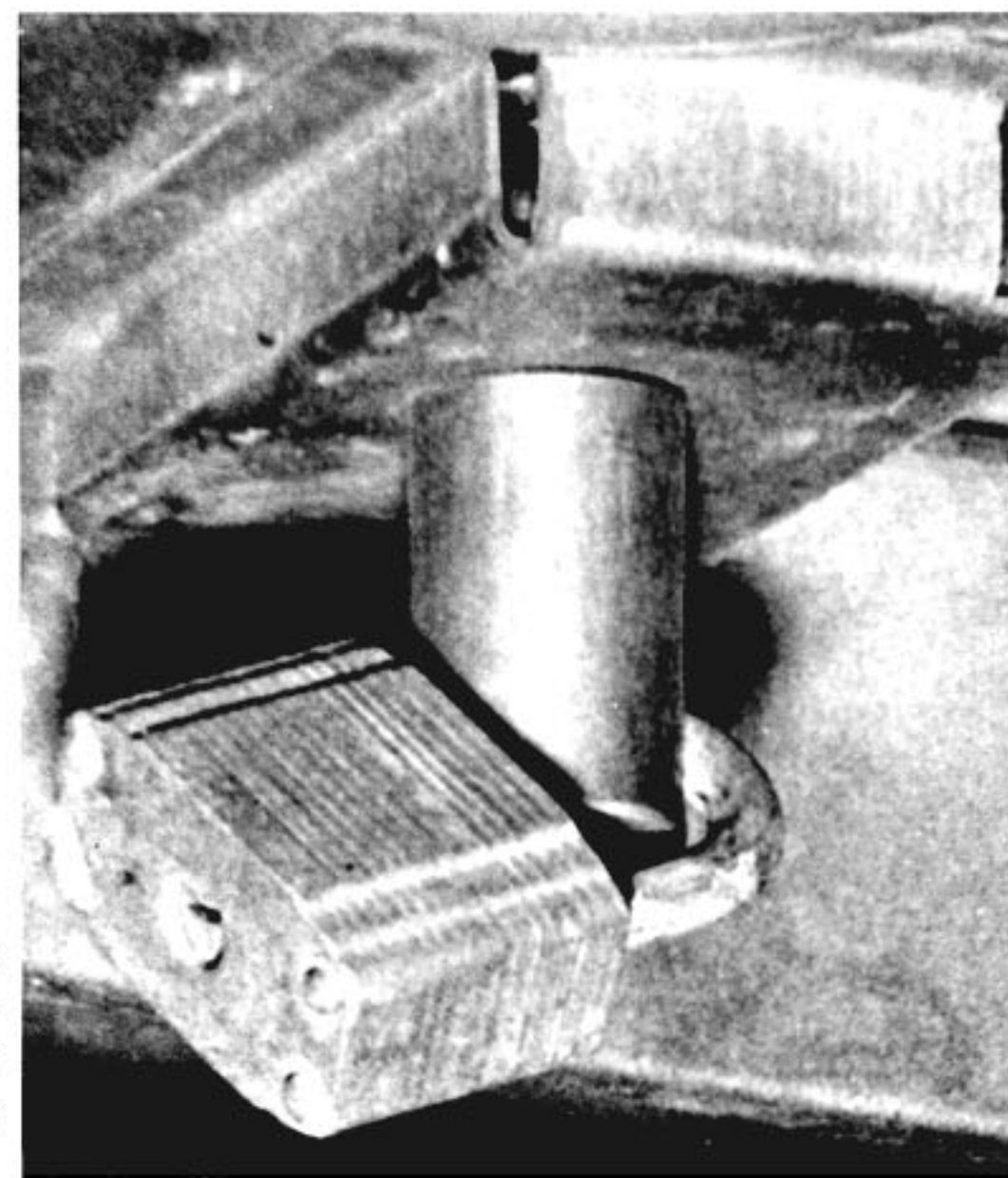
By crawling under the automobile, the thief used cable cutters to reach past the exhaust manifold on the left side and cut the main battery cable. Robbed of its electrical current, the Thunderbird was then easy prey for the crook, who took what he wanted at leisure, and with no fear of the alarm signaling his handiwork.

A burglar alarm is not a fool-proof device. It can be nullified, and a professional thief might be able to circumvent it, but all things considered, it is probably the single most effective method of protecting a valuable collector's car, as long as a little common sense is also applied to the storage and driving of the vehicle.

Don't be lulled into a false sense of security by an alarm system. Make sure that the one installed is effective, and that reasonable precautions have been taken to make sure it will not be discon-



EXTRA LOCKS — These photos show two locks that were installed under the standard top locks. Thus, it is now impossible to remove the top without literally tearing off the brackets!



nected or by-passed, should an attempt be made to steal the automobile.

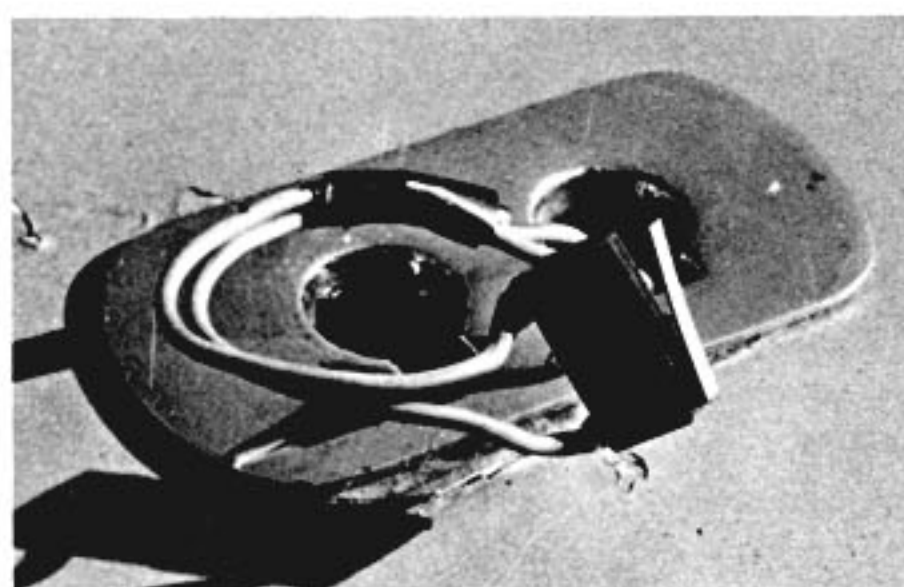
A few words should be said here about vibration alarms. These can be so sensitive that even the vibration of a passing truck will set them off — sometimes in the middle of the night — annoying the neighbors and the owner! The expensive silent device mentioned earlier in this article is one solution to the loud ringing of an alarm.

The crook never knows the car alarm has been set off, and the owner can summon the police promptly — without fear of personal encounter with the criminal trying to steal the automobile. The limit for this system, however, is

1,500 feet. The sending unit won't project beyond that point.

Now, here is an interesting point. Should an owner, upon hearing the alarm sounding on his vehicle, rush out and try to intervene? There is no simple answer to this question. Perhaps by the time the owner reaches the car, the suspect has already fled. But it also might follow that, rattled by the noise and armed with a weapon, the suspect might shoot at the first person to come running in response to the alarm.

Getting shot — and perhaps killed — over an automobile is hardly worth the risk. Wiser heads have often said it is better to let the car be stolen and collect



MICRO SWITCH — This little switch is hidden under the weatherstripping of the rear window. When the glass is tampered with, it sets off a warning alarm.

ONE TYPE — This is one type of burglar alarm used on collectors' cars. While it may spoil the appearance of an original engine compartment, it may also save the automobile from being stolen.

the insurance later than try to stop the proceedings and be injured if the police do not arrive in time. We are not going to make any statements pro or con on this issue, but certainly an owner should consider the potential consequences of personal intervention.

Returning to the problem of alarms, it goes without saying that it is better to have an alarm, and have it working, than to have none at all. It also is a proven fact, according to police statistics, that an automobile that has at least two locking systems (i.e., standard door and ignition, *plus* a transmission lock or a brake lock) is stolen one out of 50 times, whereas a car without these double-lock systems is stolen an average of one out of 20.

Figures like these offer plenty of food for thought. The following list will also help the owner of a collector's Thunderbird give his automobile an extra measure of protection — the fine edge that just might save it from being stolen or stripped at some time in the future.

[1] ALWAYS lock your automobile, even if you are going to be gone for only a few minutes. If you have a transmission and top lock, be sure to USE THEM! Don't take a chance.

[2] Always set the burglar alarm, and test it occasionally to make sure that it works, just in case a malfunction has developed in the system.

[3] Try to keep your Thunderbird locked in a secure storage area as much as possible, and keep it out of sight when it is not being used. Leaving a car in the driveway or in front of the house is an open invitation to trouble.

[4] If you must leave your automobile in a public parking lot, try to park it where there is a lot of heavy foot and vehicular traffic, not in some far-off corner. At night, always park it under a street light or in a well-lighted place, NEVER in a dark isolated location.

[5] DON'T keep an extra set of ignition keys hidden in the car, or leave keys under a sun visor or the seat. Even "hidden" keys in magnetized containers are risky — and should be avoided.

[6] Be sure to put your social security number or name somewhere on the hardtop of your car (also on the rear window moulding and glass) and on the inside of your wire wheels for future identification if the parts are stolen. Otherwise, positive iden-

tification may be impossible or difficult, and you may not receive your parts back — even if they are found.

[8] Use common sense at all times. Don't allow a stranger to "test-drive" your automobile alone if you are selling it. Don't leave your automobile unattended in strange neighborhoods, or for long periods of time.

[9] If your car is stripped or tampered with, don't touch it. Call the police immediately. Let them "dust" the car for fingerprints, etc. This will give them an opportunity to develop clues and possibly get the stolen parts back sooner.

[10] Last of all, carry plenty of insurance with a reliable company — a policy that will pay for the replacement of all stock parts in case of theft or vandalism — with a company that will not treat your collector's automobile as if it were just another automobile.

The final thing to consider in this survey of car thefts is a simple one. What does an owner do when he has been victimized in a theft of his car or parts? One of the main reasons for the heavy traffic in stolen parts is the current high value of 1955-57 Thunderbird rear window assemblies, wire wheels, fender skirts and other "goodies."

If a criminal has some of these parts in his possession, he is assured of a high cash return for his trouble, provided that he can sell them without danger of exposure. All too often, collectors are so anxious to replace stolen parts on their automobiles that they will buy from anyone offering them, even from persons who obviously are not collectors and have no legitimate reason for owning such scarce merchandise.

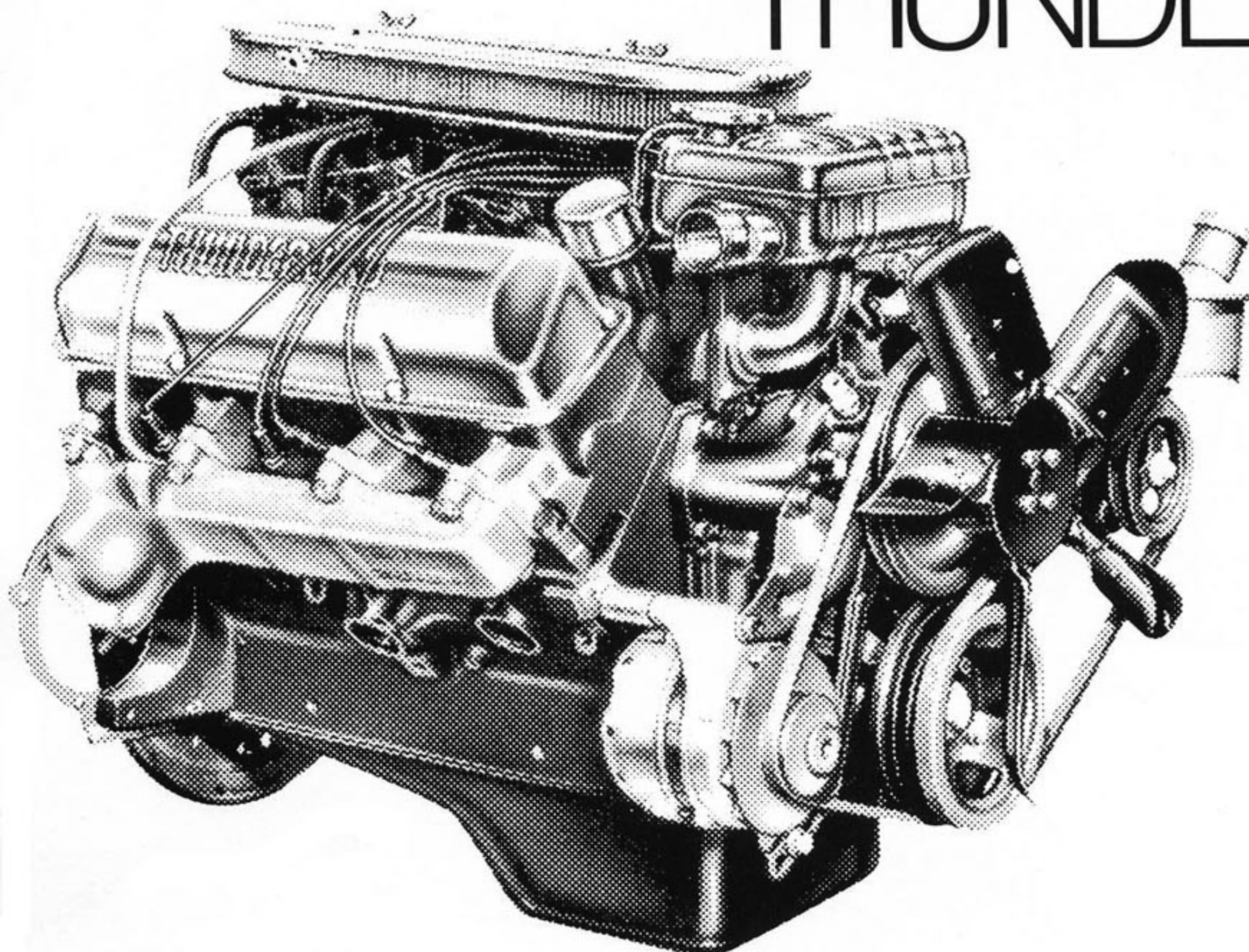
Instead of jumping at the chance to buy "low-cost" used parts from a person that you suspect might have obtained them illegally, call the police and have the offered items inspected and verified. *Know who you are dealing with!* Reputable dealers still sell used parts, but, more and more, they are dropping them. The potential hassles that can result from this type of merchandising are not considered worth the trouble.

If you buy parts from a private individual, insist on a receipt, some type of identification, such as a driver's license, and write down the license number of the suspect's automobile. If any problem arises later, this data will prove to be very helpful.

Don't be an unwitting "fence" for stolen merchandise. By stamping out the profits to be made from stealing Thunderbird parts, Thunderbird collectors will be protecting themselves and friends from future woes.

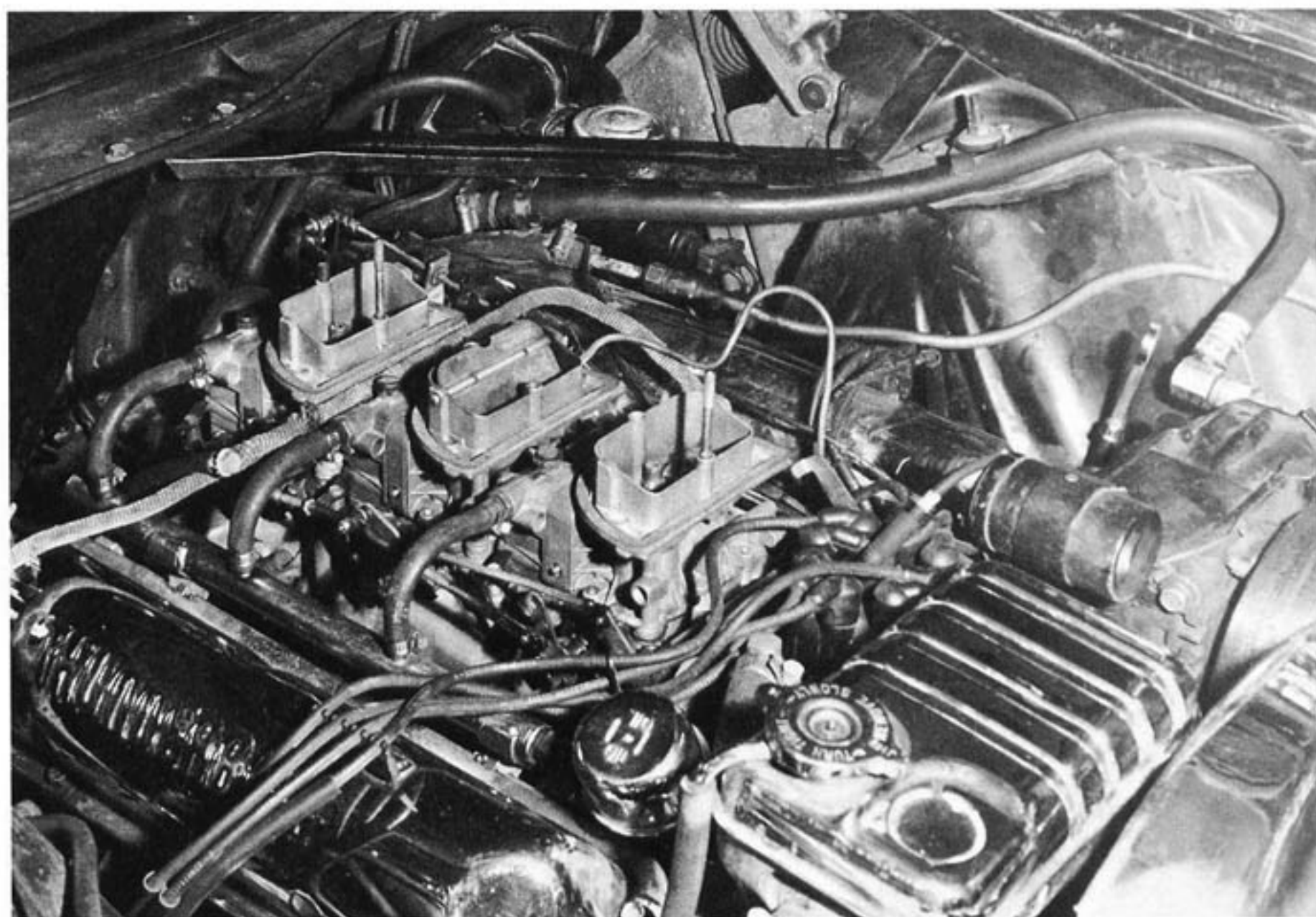
Lock your Thunderbird — the automobile you save might be your own!

THE 1962 AND 1963 HIGH PERFORMANCE "M" SERIES THUNDERBIRD



In the more than 20 years the Thunderbird car has been built (1955-1976) there were only three years in which Ford offered a factory-installed multiple-carburetion engine. In 1957, Ford offered a dual four barrel (8V) Holley set-up (the so-called "E" series) on the 312 engine. And in 1962 and 1963, a triple two barrel (6V) Holley set-up was made available (the so-called "M" series) on the 390 engine.

Beginning in January, 1962, or about half-way through the production model year of 1962, Thunderbirds became available with a special 340 horsepower six barrel (6V) high performance engine (Ford called it a "390 SPORTS V-8"). Thunderbird literature as early as October, 1961, lists this option at \$242.10. However, actual production didn't begin until midway through the model year. Sales were so bad (probably less than 300 were built and sold for all Ford Motor Company cars during the 1962 and 1963 model years) that the "M" series was discontinued in De-

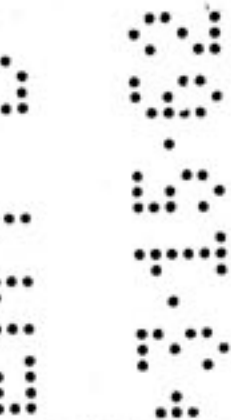


The 390 6V high performance engine with the air cleaner assembly off looks like a maze of wires, tubes and lines.

FORD DIVISION OF FORD MOTOR COMPANY

150502

DESCRIPTION	SUGGESTED RETAIL PRICE	MEMO D & D	AMOUNT
CONVERTIBLE - SPORT ROADSTER	5439 00	399 00	3841 58
RAVEN BLACK			
390 6V ENGINE	242 10	17 10	171 00
800X14 WSW	42 10	2 60	29 98
POWER LIFT WINDOWS	106 20	7 50	75 00
POWER SEAT DRIVER	92 10	6 50	65 00
SELECTAIRE CONDITIONER	415 10	29 40	293 10
PUSH BUTTON RADIO	112 80	8 00	79 60
TINTED GLASS	43 00	3 10	30 30
OUTSIDE MIRROR	5 10	40	3 57
HEAVY DUTY BATTERY	7 60	60	5 27
			752 82 *



D & D SCHEDULE B

8 GAS AND ANTIFREEZE 9980 ** 5 00
FORD DEALER ADVERTISING FUND 3

*** SUB TOTAL OPTIONS AND ACCESSORIES D & D SCHEDULE A & B

*** SUBTOTAL/ANTI-FREEZE CHARGE ONLY

SOLD TO GALPIN MOTORS INC

SAN FERNANDO CALIF

SHIP TO (IF OTHER THAN ABOVE)

15 AM MAR 13

INVOICE AND UNIT SERIAL NO. 2Y89M 150502

ASSEMBLY PLANT WIXOM, MICHIGAN

TYPE ORDER 5

INVOICE DATE C 07 62

ITEM NUMBER 719350

TRIM 56

DEALER NO. C040

ALL ARTICLES INCLUDED IN THIS INVOICE ARE ACCEPTED FOR TRANSPORTATION BY THE CARRIER AND ARE IMMEDIATELY SUBJECT TO THE TERMS OF THE BILL OF LADING, CUSTOMARILY USED BY THE PARTIES FOR SIMILAR SHIPMENTS.

THIS INVOICE TO BE USED FOR THE BILLING AND SHIPPING OF VEHICLES ONLY
GATE RELEASE AND ACCOUNTING

3 TOTAL 6693 10

TOTAL FOR VEHICLE 5251 60

TOTAL FOR VEHICLE AND DEALER CHARGES 5277 80

FINANCE COMPANY AND/OR BANK BK OF AMER

DATE SHIPPED RC 17

FIN. CODE 10

CAR INITIAL AND NUMBER

SEALS

1962 THUNDERBIRD PRICES October 12, 1961

	Suggested List	Schedule "A" D&D	Suggested Retail Delivered	Other
THUNDERBIRD				
Hardtop	\$3,950.00	\$321.00	\$4,321.00*	
Hardtop - Landau	4,022.00	326.00	4,398.00*	
Convertible	4,384.00	354.00	4,788.00*	
Convertible - Sports Roadster	4,990.00	399.00	5,439.00*	

FACTORY INSTALLED OPTIONAL EQUIPMENT AND ACCESSORIES	Suggested List	Schedule "A" D&D	Suggested Retail Delivered
Engine--340 HP 390" 6V High Performance	225.00	17.10	242.10
Air Conditioner, Select-Aire	385.70	29.40	415.10
(Not available with 390" 6V Engine)			
Battery, Heavy Duty--70 Amp	7.00	.60	7.60
Fender Shields, Rear (not available with wire wheels)	24.70	1.90	26.60
Glass, Tinted w/ Banded Windshield	39.90	3.10	43.00
Leather Seat Bolsters and Inserts	98.70	7.50	106.20
Mirror, Outside Rear View	4.70	.40	5.10
Paint, Two Tone	23.90	1.90	25.80
Power Seats, 4-Way			
Driver	85.60	6.50	92.10
Passenger	85.60	6.50	92.10
Power Windows	98.70	7.50	106.20
Radio, Push Button and Antenna	104.80	8.00	112.80
Seat Belts, Front	15.60	1.20	16.80
Tires, White Sidewall			
(S) 8.00 x 14 4-p.r. Rayon	39.50	2.60	42.10
(S) 8.00 x 14 4-p.r. Nylon	65.80	4.60	70.40
Windshield Washers	12.70	1.00	13.70
Wire Wheels, Chrome	346.90	26.40	373.30
Magic-Aire Heater - Delete Option - Via PAO Procedure	(77.00)	(5.90)	(82.90)

The crankcase ventilation system is available only to California dealers, on a no-charge basis, and must be ordered on the FD-1841T Car Order Form.

STANDARD EQUIPMENT

300 HP 390" 4V Engine	Full Wheel Covers
Cruise-O-Matic Transmission	Undercoating
Power Brakes	Backup Lights
Power Steering	Parking Brake Warning Light
Movable Steering Column	Glove Box and Ash Tray Lights
Padded Instrument Panel and Visors	Courtesy Light
Electric Windshield Wipers	Luggage Compartment Light
Electric Clock	

* Includes Magic-Aire heater and manufacturer's suggested dealer preparation and conditioning charge of \$50 in addition to Schedule "A" D&D.

FORD DIVISION OF FORD MOTOR COMPANY

154373

DESCRIPTION	SUGGESTED RETAIL PRICE	MEMO D & D	AMOUNT
CONVERTIBLE - SPORT ROADSTER	5439 00	399 00	3841 58
RAVEN BLACK			
800X14 WSW	42 10	2 60	29 98
POWER LIFT WINDOWS	106 20	7 50	75 00
POWER SEAT DRIVER	92 10	6 50	65 00
PUSH BUTTON RADIO	112 80	8 00	79 60
TINTED GLASS	43 00	3 10	30 30
SAFETY BELTS	16 80	1 20	11 80
OUTSIDE MIRROR	5 10	40	3 57
HEAVY DUTY BATTERY	7 60	60	5 27
			300 52 *



D & D SCHEDULE B

8 GAS AND ANTIFREEZE 9980 ** 5 00
FORD DEALER ADVERTISING FUND 3

*** SUB TOTAL OPTIONS AND ACCESSORIES D & D SCHEDULE A & B

*** SUBTOTAL/ANTI-FREEZE CHARGE ONLY

SOLD TO H A RISZANTZ FORD

120 W FOOTHILL BLVD

GLENDORA CALIF

SHIP TO (IF OTHER THAN ABOVE)

APR 4 P.M.

INVOICE AND UNIT SERIAL NO. 2Y89Z 154373

ASSEMBLY PLANT WIXOM, MICHIGAN

TYPE ORDER 2

INVOICE DATE C 23 62

ITEM NUMBER 719993

TRIM 56

DEALER NO. E067

ALL ARTICLES INCLUDED IN THIS INVOICE ARE ACCEPTED FOR TRANSPORTATION BY THE CARRIER AND ARE IMMEDIATELY SUBJECT TO THE TERMS OF THE BILL OF LADING, CUSTOMARILY USED BY THE PARTIES FOR SIMILAR SHIPMENTS.

THIS INVOICE TO BE USED FOR THE BILLING AND SHIPPING OF VEHICLES ONLY
GATE RELEASE AND ACCOUNTING

3 TOTAL 6052 70

TOTAL FOR VEHICLE 4780 20

FINANCE COMPANY AND/OR BANK UN CALIF BK

DATE SHIPPED RC 17

FIN. CODE 9

CAR INITIAL AND NUMBER

SEALS

1963 THUNDERBIRD PRICES September 28, 1962

	Schedule "A" D&D	Suggested List	Suggested Retail Delivered
THUNDERBIRD MODELS			
Hardtop	\$330.00	\$4,065.00	\$4,445.00*
Hardtop - Landau	337.00	4,161.00	4,548.00*
Convertible	363.00	4,499.00	4,912.00*
Convertible - Sports Roadster	408.00	5,105.00	5,563.00*

FACTORY INSTALLED OPTIONAL EQUIPMENT AND ACCESSORY PRICES	Suggested List	Schedule "A" D&D	Suggested Retail Delivered
Engine--340 HP 390" 6V High Performance	225.00	17.10	242.10
Air Conditioner, Select-Aire	385.70	29.40	415.10
Battery, Heavy Duty--70 Amp	7.00	.60	7.60
Door Locks--Automatic Vacuum	2.50	.20	2.70
Fender Shields, Rear (Not available with wire wheels)	24.70	1.90	26.60
Glass, Tinted with Banded Windshield	39.90	3.10	43.00
Leather Seat Bolsters and Inserts	98.70	7.50	106.20
Paint, Two Tone	23.90	1.90	25.80
Power Seats, 4-Way			
Driver	85.60	6.50	92.10
Passenger	85.60	6.50	92.10
Power Windows	98.70	7.50	106.20
Radio, AM-FM, Push Button and Antenna	104.80	8.00	112.80
Seat Belts, Front	15.60	1.20	16.80
Speaker, Rear Seat - on Landau and Hardtop	1.10	14.40	15.50
Speed Control System--Automatic	5.70	74.80	80.50
Tires, White Sidewall			
(S) 8.00 x 14 4-p.r. Rayon	39.50	2.60	42.10
(S) 8.00 x 14 4-p.r. Nylon	65.80	4.60	70.40
Windshield Washers	12.70	1.00	13.70
Wire Wheels, Chrome	346.90	26.40	373.30
Wheel Covers, Deluxe (knock-off hubs)	1.10	14.50	15.60

STANDARD EQUIPMENT

300 HP 390" 4V Engine	Full Wheel Covers
Cruise-O-Matic Transmission	Undercoating
Power Brakes	Backup Lights
Power Steering	Parking Brake Warning Light
Movable Steering Column	Glove Box and Ash Tray Lights
Padded Instrument Panel and Visors	Courtesy Light
Electric Windshield Wipers	Luggage Compartment Light
Electric Clock	Mirror--Remote Control
Radio--AM Push-Button and Antenna	Wire Wheels for Sports Roadster

* Includes Magic-Aire heater and manufacturer's suggested dealer preparation and conditioning charge of \$50 in addition to Schedule "A" D&D.

1963 THUNDERBIRD ROADSTER



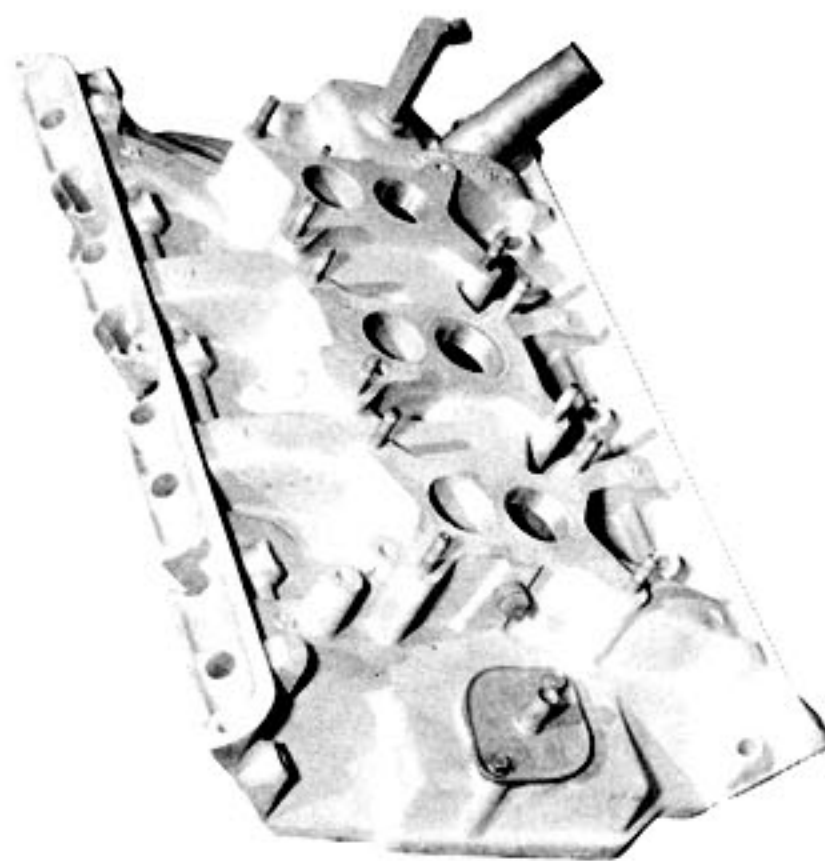
ember of 1962. Therefore, all "M" series Thunderbirds were built during the year 1962 only, although some were 1963 models built in late 1962. Thus the 6V Thunderbird engine was available only for ten months or so, in the last six months of the 1962 model year and the first four months of the 1963 model year. The 6V engine was available on all models (hardtop, convertible, landau, and sports roadster). In 1962, 120 "M" series Sports Roadsters were built, and in 1963, only 37 "M" series Sports Roadsters were built. As is usually true of Thunderbird convertibles, California got a higher percentage of these "M" series Sports Roadsters, receiving eighteen 1962s and seven 1963s.

The "M" series engine consisted of three Holley two barrel (2V) carburetors mounted backwards on an aluminum intake manifold in order to get all three carburetors on the manifold without interfering with the distributor and its cap at the front of the manifold. Had the carburetors been placed facing forward in the usual manner, the fuel bowl—which extends out from the main body several inches—would have interfered with the distributor cap.

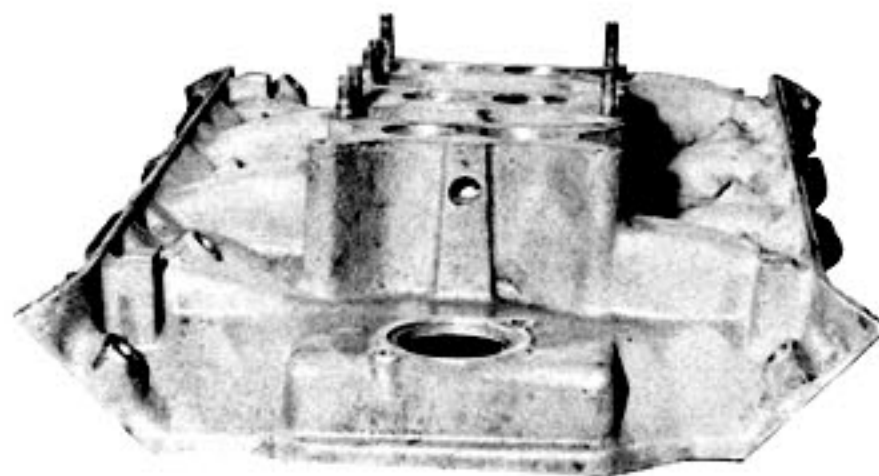
Mounting the carburetors backward meant the accelerator linkage along the left side of the engine had to be routed to the right side of the engine since now the throttle arms were on the right side. Thus the linkage runs along the left side from the firewall to the front of the intake manifold, cuts across between the front carburetor and distributor to the right side of the engine, and then runs along the entire right side of the intake manifold, nearly to the firewall again. Thus the carburetors are nearly surrounded with linkage except behind the rear carburetor.

This unusually long 6V carburetor control linkage set-up uses several helper springs—more than are found on the 4V systems—to make the throttle pedal easier to depress. Yet the 6V throttle pedal still is stiffer and requires more exertion to depress than the 4V throttle pedal. The 390 6V and 406 6V use a 3/4-inch fuel log to feed the three carburetors. Feed holes are spaced five inches apart, and fed by a 5/16-inch fuel line from the pump.

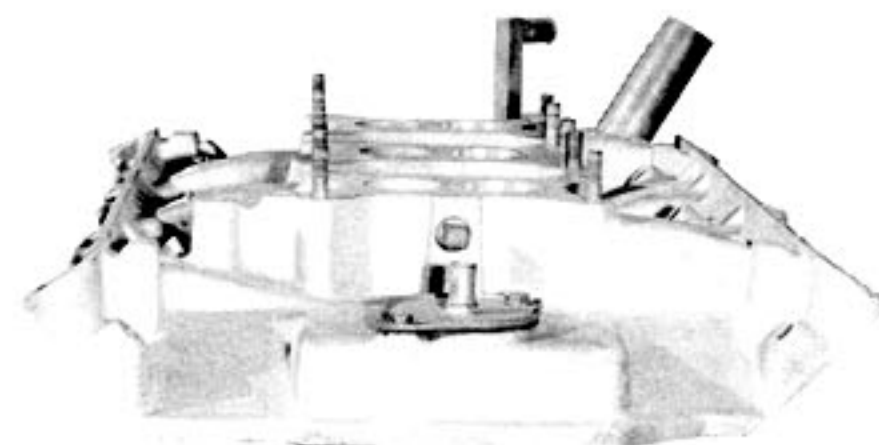
The "M" series Thunderbirds were distinguished from 4V or "Z" series Thunderbirds by a "M" in the serial number on the data plate and invoices. For example, a typical 1962 Sports Roadster "M" series data plate reads 2Y89M150502, meaning 2 for 1962, Y for Wixom assembly plant, 89 for Sports Roadster body type, "M" for 390 6V high performance engine and 150502 meaning the 50,502nd 1962 Thunderbird built that year. However, 4V Thunderbirds have a "Z" on the data plate and invoices, describing the 390 4V engine instead of the "M." Well over



Pictured above is the 390 6V intake manifold. Notice the hole under the center carburetor for the PCV pick-up. The outlet in the center below the rear carburetor is for the power brake booster and reserve tank pick-up. Also notice the two round mounts with holes in them at the left of the rear carburetor. These mounts are used to attach the 6V swivel. Small diameter hex pipe at front is the water outlet for the heater.



One can clearly see the much higher carburetor mounting bases on the 406 6V intake manifold. Note that there are no swivel mounts on the left of the rear carburetor. These are distinguishing features of the 406 6V from the 390 6V intake manifold.



The general profile of the 390 6V intake manifold is flat. The manifold weighs only 28 pounds (compared to 80 pounds for the cast iron 4V manifold) because it is made of aluminum. This also helps to dissipate heat better.

99% of all 1962 and 1963 Thunderbirds were designated "Z" models, making the "M" series models very rare and desirable. In fact, the "M" series production was so low that most people and most Thunderbird owners (even original owners) have never heard of the car.

Most of the "M" series Thunderbirds were Sports Roadsters, and most of these came with factory air conditioning, although an early 1962 Ford sales brochure proclaimed that air conditioning was available on all models except those equipped with the 390 6V high performance engine. A year later, Ford changed its mind and the 1963 sales literature omits the "air conditioning not available on the 390 6V" clause.

Apart from the "M" in the serial number appearing on the data plate at the door pillar (1962 and early 1963) or the door rear edge (most 1963), it also appears on the firewall ledge at the right near the windshield washer nozzle and over the right headlights. There is no way of telling an "M" series from a "Z" series from the outside, except when the hood is opened and the engine and its carburetors can be seen. There is no special emblem on the front fenders or doors describing the type of engine as there is on the 1962 and 1963 Ford cars, on which "390" or "406" (6V) appears on the front fenders.

The Ford 406 (cubic inch) 6V with 405 horsepower is considerably more powerful than the Thunderbird 390 6V putting out 405 horsepower. Many people confuse the two because they look the same. The former is a three-quarter race engine, and the latter is about a quarter race engine. Although both engines have similar parts such as cylinder heads, they differ in many ways (compression, exhaust manifolds, cams, lifters, etc.).

The aluminum intake manifolds are different. The Thunderbird manifold is flat across the top, has a vacuum line pick-up hole under the center carburetor on the left side and raised mounts at the left of the rear carburetor which are part of the casting to mount the Thunderbird accelerator swivel. The 406 manifold is "stepped-up" towards the rear, has no vacuum pick-up hole under the center carburetor and no mounts for the accelerator swivel.

Although the medium-riser 406 manifold will usually fit under a Thunderbird hood, sometimes it will rub. Ford engines slope downward at the rear, whereas Thunderbird engines are almost horizontal to the ground. Thus, the low-riser Thunderbird manifold had to be lower in the rear to give road clearance because the Thunderbird was built lower to the ground and was lower in height than the Ford car.

The "M" series Thunderbird air cleaner covers were oval and made of

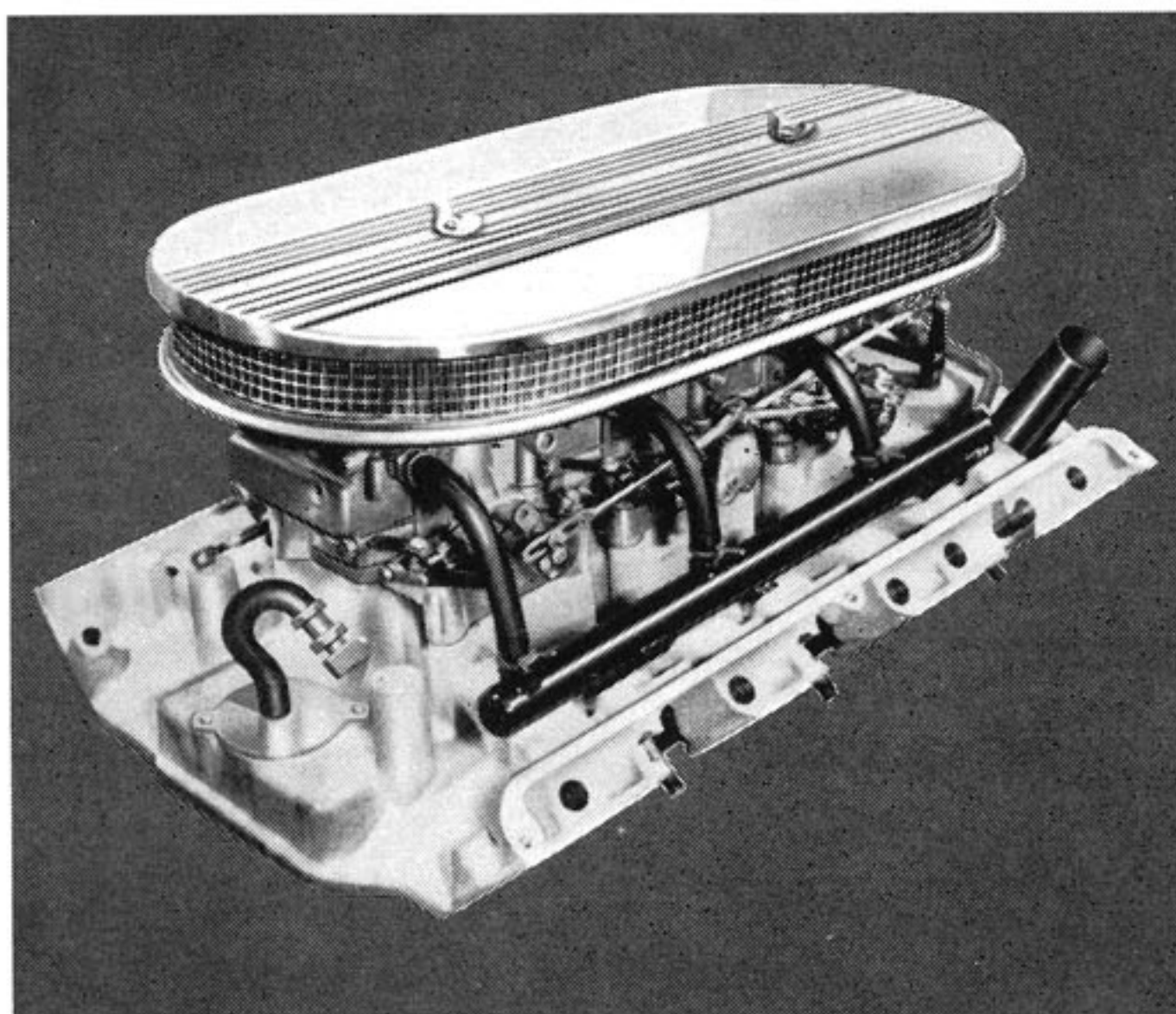


cast polished aluminum with ribs running from front to rear and a Thunderbird emblem at the front. The cover on the 406 was the same except that it had no emblem. This emblem is a spread eagle (actually an American condor) chromed, with green wings. And, of course, the 4V air cleaner is pressed steel and round. Most "M" series Thunderbirds

came with a factory chrome "dress-up kit," consisting of chromed valve covers, radiator surge tank, oil dip stick, master brake cylinder cap, oil filler cap, radiator filler cap, throttle linkage (at left side only), power steering reservoir cover, fuel log, and related bolts, nuts, and screws. (Occasionally, Ford shipped out an "M" series Thun-

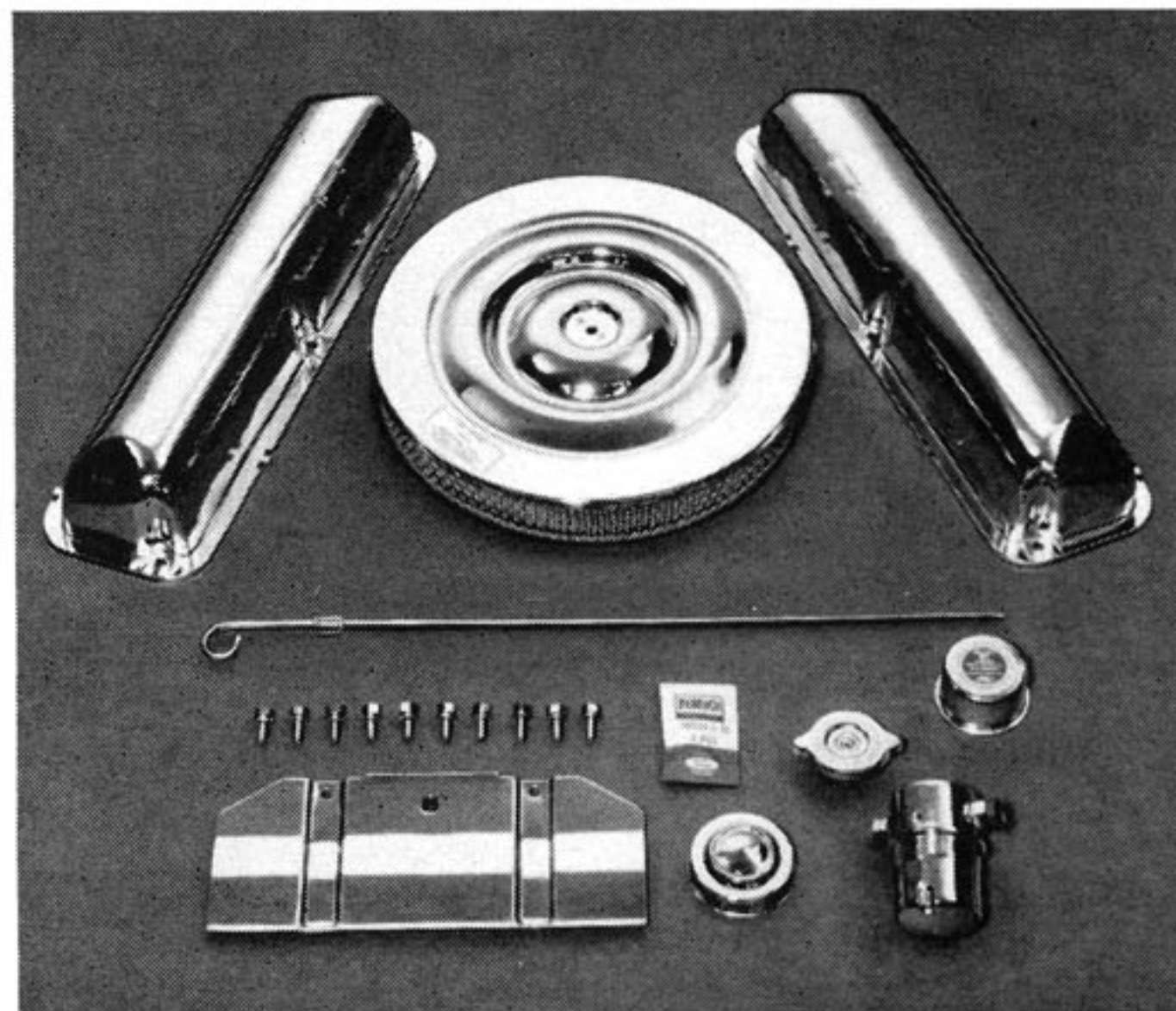
Both the 390 6V and the 406 6V intake manifolds have an oil baffle at the bottom to keep oil from preheating in the intake passages and becoming baked onto the bottom of the intake, creating hot carbon spots that would cause uneven heating and therefore uneven vaporization in the cylinders. The round piece below the baffle is the PCV system outlet hole. It has a round filtering screen.

The 390 6V engine installed in the 1962 and 1963 Thunderbird. Notice the fuel log along the right side of the three Holley two barrels, the Thunderbird emblem at the front of the finned aluminum air cleaner cover, and the extensive use of chrome on the valve covers, radiator surge tank, oil filler cap, radiator filler cap, oil dip stick, fuel log, and master brake cylinder reservoir cap. The unit was an extra option for \$242.10. Probably fewer than 300 were built.



High Performance Kit

Specially designed to give 390, 406 and 427 C.I.D. Ford blocks more power and performance, this kit features three 2-venturi carburetors on a precision-cast aluminum intake manifold—plus special air cleaner. Mechanically operated linkage lets you "run on one" for economy, cut in the other two for maximum "go."



Engine Dress-up Kit

You can give your 352, 390 or 427 engine compartment a sparkling "show" appearance with this kit. The kit includes gleaming valve covers, air cleaner cover and oil breather cap, brake master cylinder cover, dip stick, radiator cap, fuel filter and fan guard shroud. All of the components are in stylish satin-chrome finish.

Ford shipped out an "M" series Thunderbird with less than these nine parts, or more than these nine parts chromed.) A dress-up kit was also available on the 406 Ford, but at extra cost, whereas on the Thunderbird "M" series model it was standard equipment. Thus, the 406 dress-up engine chrome kit was an optional accessory.

The carburetor venturi size is one and 1/8 inch for the center carburetor and one and 3/16 inch (larger) diameter for the end carburetors on both the 390 6V and 406 6V. The jet size is also larger for the end carburetors than for the center carburetor—60 and 57, respectively. Only the center carburetor has a power valve, although all three carburetors have accelerating pumps.

The accelerator pedal operates the center carburetor alone until about a two-third pedal height is reached. At this point, the rear carburetor cuts in first and then the front carburetor through progressive linkage. The rear carburetor cuts in before the front car-

the cruise-o-matic transmission. The latter two were not available on the Ford 406 6V car and thus an additional hole was not needed. The Thunderbird high performance car was not for *all-out* performance, but catered to convenience features like power brakes, automatic transmission and power steering; whereas the Ford 406 6V was a "super" high performance car that was built for all-out racing (and indeed, many of these cars were raced at stock car races on weekends). Accessories like power brakes and power steering would have lessened the car's overall performance, and therefore were not available on the 406 6V Ford cars.

The "M" series Thunderbird and 406 6V ("G" series) Ford engines idle off all three carburetors, each feeding different cylinders. The end carburetors can be blocked off and the engine will run on the center carburetor, but this reduces performance substantially.

The 390 6V Thunderbird accelerator swivel is a 390 4V Thunderbird swivel narrowed (it is about half the width), and

one part of the swivel is placed inside of the other. Therefore, the 6V and 4V swivel are located in the same position and place on the engine and all down-shift and throttle linkage is the same on the 4V and 6V cars. Because of the difference in intake manifolds of the 4V and 6V cars at the rear, the throttle return spring lower mounting bracket is turned 90 degrees inward in order to place proper tension upon the return spring. The "M" series and "Z" series use the same lower arm bracket.

The accelerator rod at the left side of the engine on the 390 6V Thunderbird is very irregular, as accelerator rods are usually straight (the 406 6V rod is very straight). The 6V Thunderbird rod is not only bent to the left and to the right but is bent up and down as it zig-zags around the center carburetor hot air chamber, then down under the hot air pick-up tube and the distributor vacuum pick-up tube and the dash pot, then in again to connect up with the crossover rod at the front carburetor.

To aid in cold starting, the center

COMPARING THUNDERBIRD 4V AND 6V SPECIFICATIONS

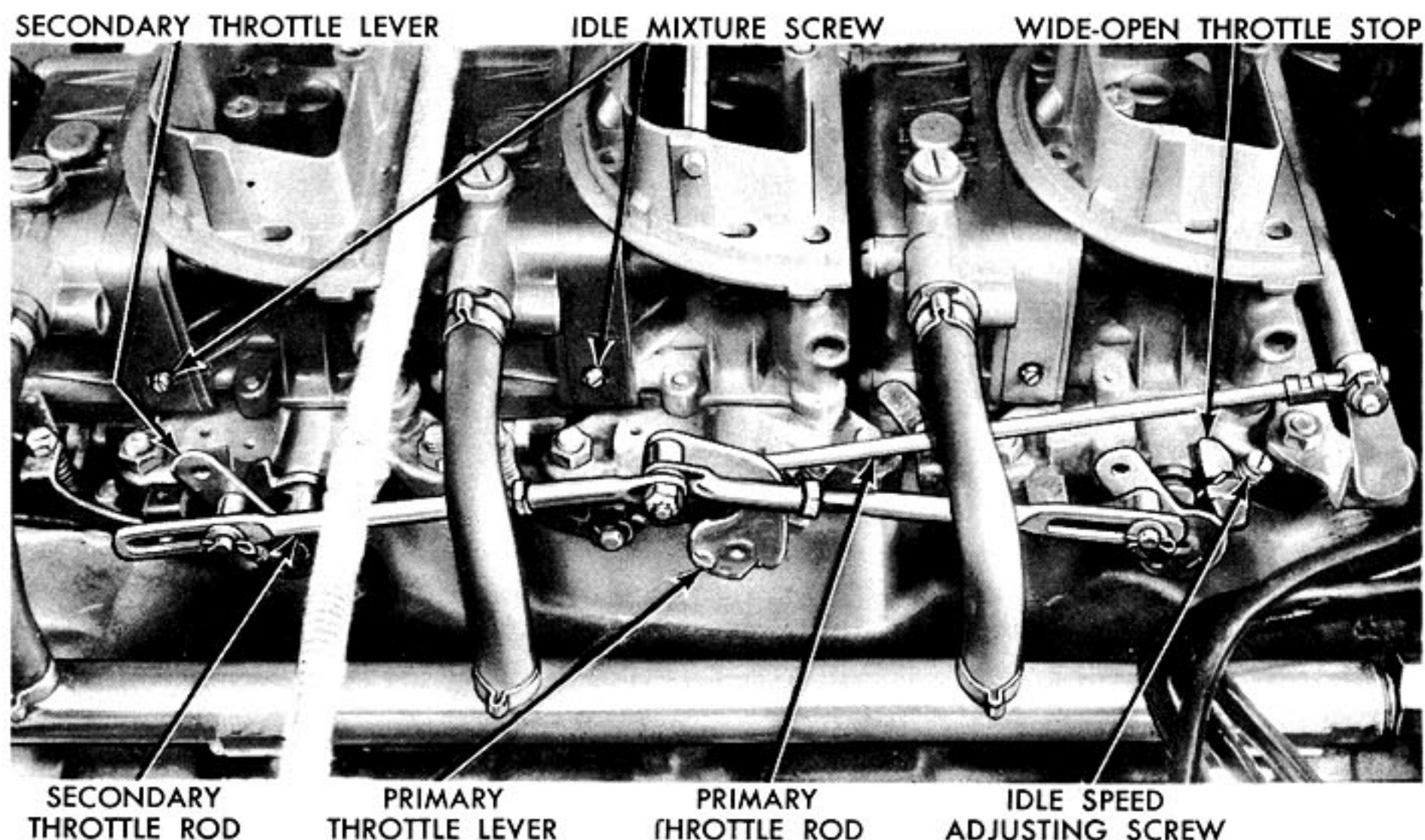
390 4V		390 6V
300	horsepower	340
9.6:1	compression	10.5:1
73-76	head chamber volume (in cubic centimeters)	64-67
hydraulic	lifters	hydraulic (slow bleed)
cruise-o-matic	transmission	cruise-o-matic (beefed up)
4.05 x 3.78	bore and stroke	4.05 x 3.78
427	maximum torque	430
2800	and at what RPM	3200

COMPARING 390 6V and 406 6V

THUNDERBIRD		FORD
340	horsepower	405
10.5:1	compression	11.5:1
64-67	head chamber volume (in cubic centimeters)	64-67
Hydraulic (slow bleed)	lifters	solid
cruise-o-matic	transmission	3 or 4 speed
4.05 x 3.78	bore and stroke	4.13 x 3.78
430	maximum torque	448
3200	and at what RPM	5800

buretor to keep too much fuel and air from pouring in all at once. And, also to prevent an oversupply of fuel at full throttle, only the center carburetor has a power valve. Both the 390 6V and 406 6V idle off all three carburetors at once.

Since the 390 6V center carburetor has a carburetor behind it, and most accelerating is through it, the positive crankcase ventilation system (PCV) cannot go on the 390 6V in the usual place and is therefore routed from the rear along the left side of the manifold where it enters under the left side of the center carburetor. The 406 6V has no hole under the center carburetor, but instead, the PCV system is routed under the rear carburetor. On the 390 6V Thunderbird there is also a vacuum pick-up hole under the rear carburetor, but this is used to operate the power brake booster and vacuum modulator of

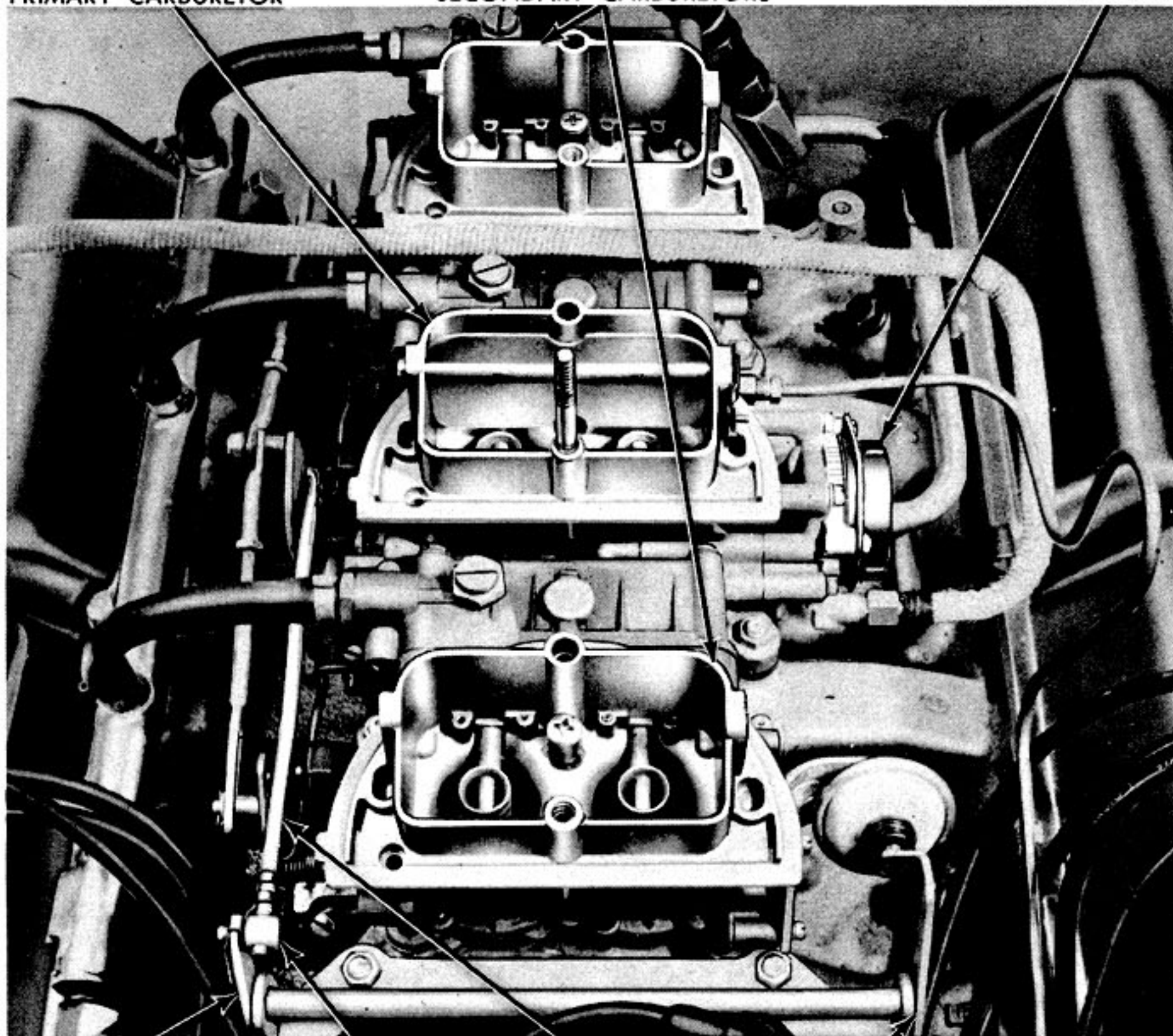


390 6-V Carburetor Throttle Linkage Installation

PRIMARY CARBURETOR

SECONDARY CARBURETORS

AUTOMATIC CHOKE



BELLCRANK LEVER

TRUNNION

PRIMARY
THROTTLE RODACCELERATOR-TO-BELLCRANK
ROD CONNECTION

390 6-V Carburetor Installation

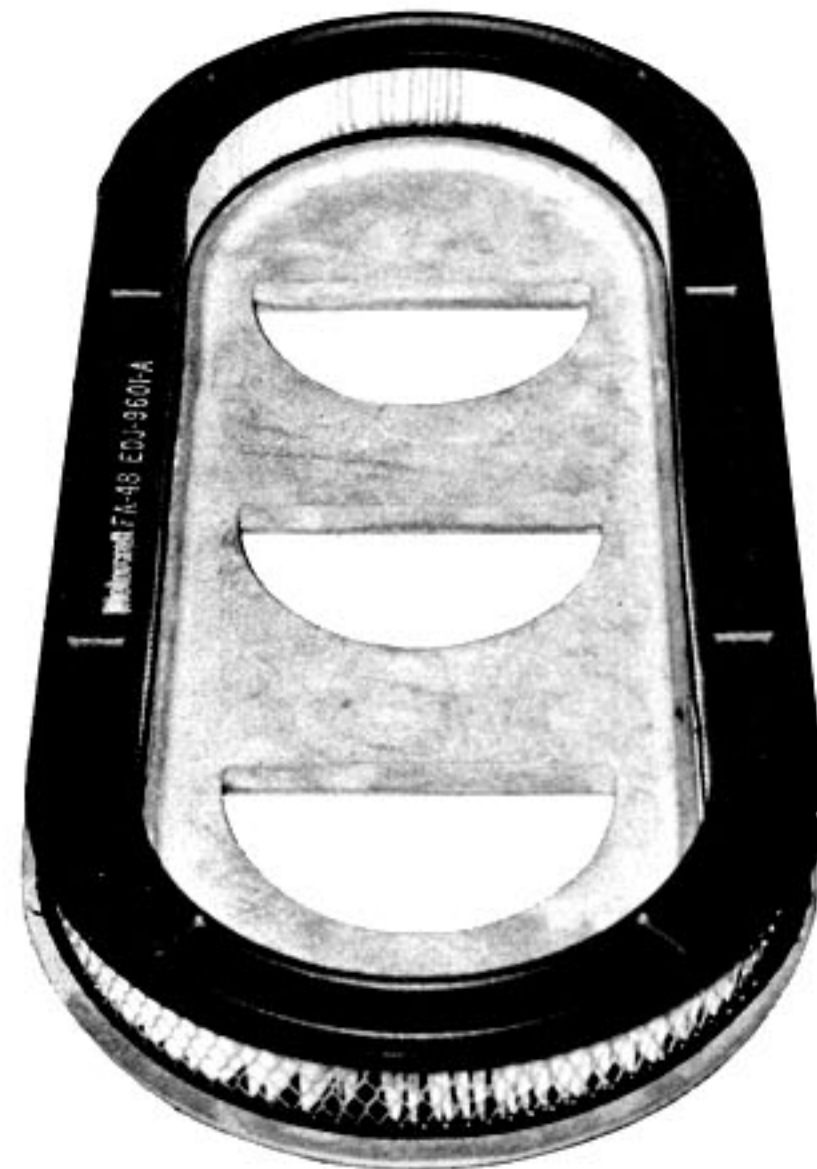
carburetor on the 390 6V and 406 6V has a choke plate and hot air pick-up tube which on the Thunderbird and Ford 406 is connected to the left side of the center carburetor. On the 406, the pick-up tube crosses over the accelerator rod and left valve cover and terminates in the left exhaust manifold. On the Thunderbird 390 6V, the hot air pick-up tube runs to the rear carburetor where it crosses between the center and rear carburetors, crosses over the progressive linkage along the right side of the engine, crosses over the right valve cover and terminates in the right exhaust manifold. Therefore, the 406 6V uses the left exhaust manifold as a heat source and the Thunderbird 390 6V uses the right exhaust manifold as a heat source. The front and rear carburetors on both the 390 6V and 406 6V have no choke butterflies and do not even have the holes drilled for choke plate rods. This is one way to tell right away if the end carburetors are original, since regular Holley two barrel carburetors will fit both the 390 6V and 406 6V manifolds but are drilled for choke plates. All that is changed is that the front flange is cut off like the high performance Holley two barrel carburetors (used on the 390 6V and 406 6V cars) so that the two barrel carburetor used on the 352 2V, 390 2V and others will not fit the 6V manifold.

Since the "M" series Thunderbird engine is high performance, it uses

different spark plugs gapped the same as 390 4V engines. The 390 6V engine uses BF 32 Autolite spark plugs (the 390 4V uses BF 42) a colder plug to compensate for the higher combustion chamber temperatures due to the higher compression. And the 390 6V car must therefore be driven harder than the "Z" series Thunderbird to keep deposits in the combustion chamber cleaned out and also circulate new fresh fuel into the secondary carburetors. Otherwise, the fuel in the secondary carburetors begins to break down, lowering the octane level and causing poor idling and starting, and "pinging" under a load condition.

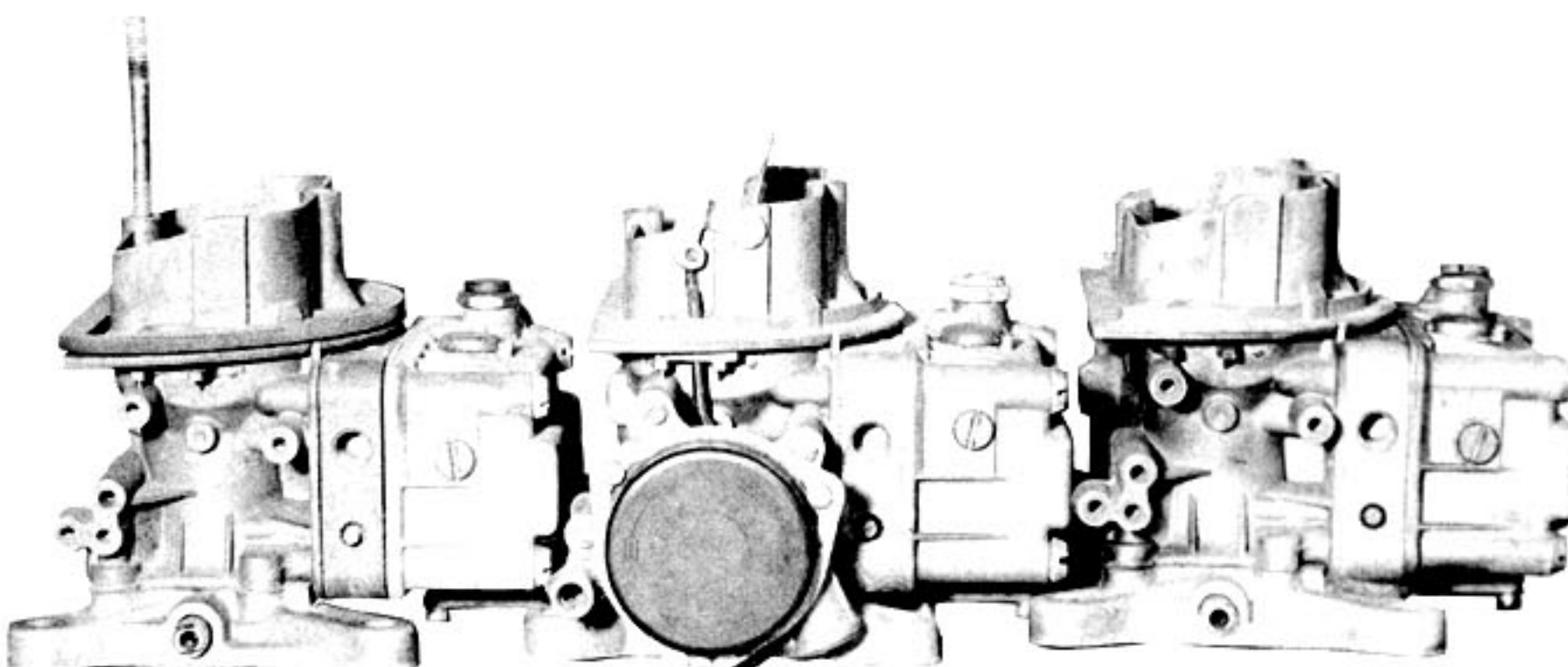
The air cleaner cover used on the 390 6V and 406 6V is the non-baffle type. That is, there are no sides—just a top and bottom to allow a minimum of air flow restriction into the carburetors.

However, under rapid acceleration, the carburetor air system tends to be quite loud. Never run the "M" model without the air cleaner cover, as the design of the engine lends itself to occasional backfiring and an underhood fire is a possibility. Also, the accelerating pump cover at the bottom of each carburetor fuel bowl tends to leak after several carburetor overhauls due to the screw threads being stripped. Gas then drips slowly and intermittently into the intake valleys, and can be ignited if it sloshes onto a hot exhaust manifold. These two hazards have caused many an "M"



This is the air cleaner element used to filter the 390 6V and 406 6V. Notice the three crescent-shaped holes in the bottom aluminum cover and the absence of sides on the cover. This results in less air restriction for greater performance but louder engine noise. Element size is about 10" x 21".

Notice that the fuel bowl sight holes are lower on the secondary carburetors (end carburetors). Also that the end carburetors are not drilled for a choke plate. These Holley high performance two-barrels resemble the single two-barrel ordinary model except that the front overhang skirt has been deleted.



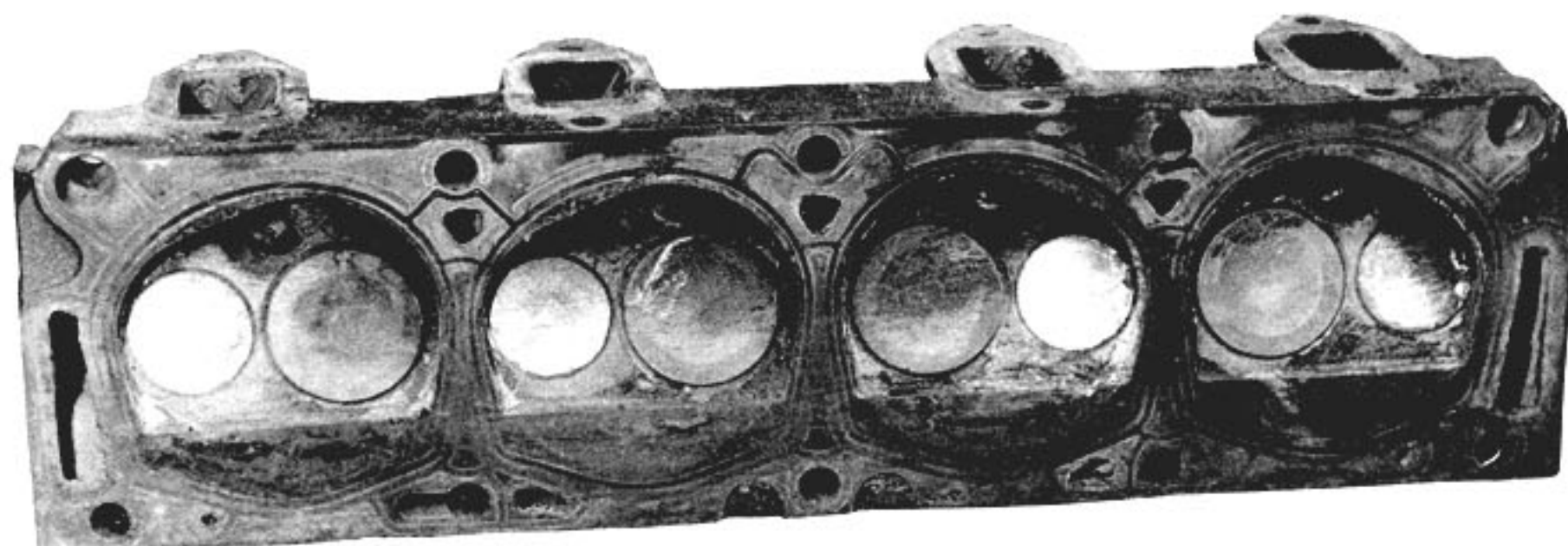
series owner to remove the three carburetors and put a 4V manifold on the car. And this means that many "M" models around today are complete except for the tri-power carburetion set-up.

The "M" series Thunderbird has a slightly retarded centrifugal advance (about a 2 degree curve to minimize fuel "ping"). Even though 100+ octane fuel is used, the high compression (10.5:1) causes combustion chamber gases to burn too fast before the piston is in the proper position. The "M" series distributor is the dual advance type (vacuum and centrifugal) whereas the 406 6V uses a single advance (centrifugal only) system to keep the engine at maximum retard but has two points to lessen the effects of point bounce at high RPM. The 390 4V and 390 6V distributors have the usual single point.

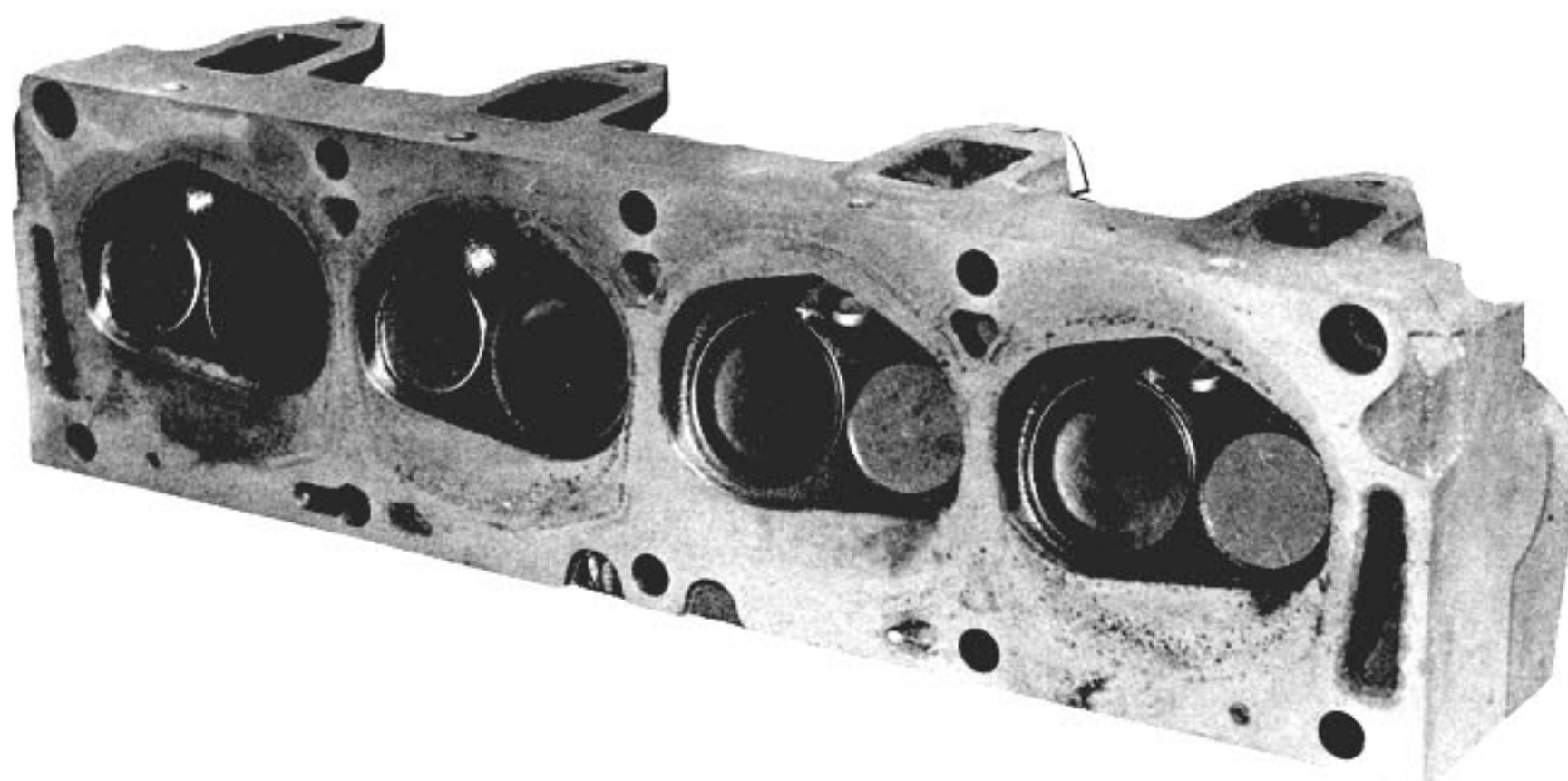
The vacuum pick-up for the distributor of the 390 6V is from the left side of the center carburetor at the metering block. Although the front and rear carburetors have distributor pick-up holes at the metering block, these secondary carburetors have no holes at the base plate to allow manifold vacuum to be drawn up below the throttle plates. These metering block holes should be plugged with 1/4" pipe plugs. If the secondary carburetors are not plugged, no leaning of the air-fuel ratio will occur because the base plates have no vacuum pick-up holes.

All 1962 and 1963 "M" series Thunderbirds came standard with oversized dual exhaust pipes (actually a 1961 Thunderbird dual exhaust system) with no resonators (to improve performance by lessening back-pressure). The 390 6V exhaust pipe was two inches in diameter; the 390 4V for 1962 was about one and three quarters inches. The 1962 and 1963 high performance cars had heat valves at the right exhaust manifold (like the 1961 Thunderbird 4V with dual exhaust), while 1962 and 1963 Thunderbird 4V cars had no exhaust heat control valve.

The "M" series Thunderbird differed from the "Z" series by having a different cylinder head, valves and valve springs (low volume), oil pump (high volume), cam (higher lift), lifter (slow bleed), intake manifold, carburetor, exhaust pipe (larger), distributor (retarded slightly), finish on the valve covers, surge tank, etc. (chromed), fuel pump (high capacity), and air cleaner cover (oval and aluminum). These engine differences set the "M" series model apart from the standard "Z" model, and gave the "M" series Thunderbird car a responsive and lively performance not found on the "Z" series (4V) Thunderbird. Since the weight of the car was about 4,300 pounds, more horsepower was needed to move the car around with ease.



This is what a stock 1962 and 1963 Thunderbird 390 cylinder head looks like.



This is a high compression cylinder head used on 390 6V Thunderbirds in 1962 and 1963. Notice the wedge-shaped chamber for better fuel vapor burning. Valve size is the same as the stock 390 head, but the valves are special for the 6V engine.

Thunderbird Distributor Centrifugal Advance Curves			Tri-Power Carburetor Numbers		
390 4V	RPM	390 6V	390 6V		406 6V
0	325	0	3563	FRONT	3434
1 1/4-2 1/4	425	1 1/4-2 1/4	3559	CENTER	3440
5-6	550	5-6	3563	REAR	3434
7 1/2-8 1/2	700	7 1/2-8 1/2			
13-14 1/2	2000	11 1/4-12 3/4			
	DISTRIBUTOR		2499	Metering Block	
C2SF12127-A	TYPE	C2SF12127-B	2497	FRONT	2437
			2498	CENTER	2436
				REAR	2437

To complement the 340 horsepower high performance engine, Thunderbird "M" models came with a slightly beefed-up cruise-o-matic transmission. The 390 6V Thunderbird used a modified 4V cruise-o-matic with slight changes in the valve body and clutch area, resulting in quicker and firmer shifts to enhance performance and minimize slippage. Also available for the 6V high performance Thunderbird was a "B and M" console shifter, making the car a stick-shift. These were installed by "B and M," not Ford. They were available only on high performance Thunderbirds, and were not installed on 4V models. The high performance transmission used by Ford on the "M" series

model was built by Borg Warner. The torque converter was the same for both the 4V and 6V engines. No higher stall speeds were needed, as the 6V gave only 40 more horsepower.

The 6V 390 Thunderbird used the same exhaust manifolds as the 390 4V. But the 406 6V Ford had huge exhaust manifolds with each cylinder port getting its own exhaust piping.

The suspension used on the 4V and 6V Thunderbirds was the same, whereas the 406 6V differed from the other Fords of 1962 and 1963. More leaf springs were used. Heavy-duty shocks, universal joints and brakes, and special 15" wheels and wheel covers were used to keep the car on the ground and to

BIRTH OF A GIANT

For many, the 1958-60 Thunderbird is a love affair; some others can't stand to look at it. Between these extremes is a fine collector's Thunderbird.

Opinions about the 1958-60 "Square Birds," those 1958-60 automobiles which replaced the popular two-passenger Thunderbirds of the 1955-57 era, are generally divided into two different camps. Many collectors love them and consider the automobiles to be the best looking of all Thunderbirds, while others feel they were good automobiles, but just can't stand to look at them.

When viewed in the proper historical perspective, it becomes apparent the Square Birds were excellent automobiles that combined engineering excellence, a new unit-construction design, and high sales appeal for their era. Today they are valuable collectors' cars that have jumped up in value the past few years—and are continuing to attract new devotees.

In the automobile industry, as elsewhere, there is a great tendency to seek success based on previous successful designs. This, after all, is understandable. Why not capitalize on a design the public has shown it wants? Even before the 1955-57 Thunderbird was started, it was understood that the two-passenger design would have to grow larger, and plans were laid in 1955 and 1956 to do just that.

Purists have argued that the original body style for two persons should have been retained and the four-passenger model introduced to complement it, not supplant it. Since this did not happen, it has become idle speculation that bears no fruit. Both machines have particular merit in their own special spheres of accomplishment and time has proven them to be outstanding.

When Ford's management gave the approving nod to create a new Thunderbird, it was at first thought the existing automobile could simply be lengthened with a wider quarter panel and a second back seat. But after a 1957 Thunderbird was lengthened in this manner, the unanimous opinion was to "forget it."

The lithe, clean look of the original Thunderbird was ruined by this "cobbled" approach to extending the body and frame in this fashion, and management wisely felt that an entirely new automobile should be created—starting, as the artists are wont to say, with a clean sheet of paper.

There have been very few periods in automobile history when stylists have been given as free a hand as they were when the 1958 Thunderbird was proposed. There was no existing chassis or engine to design around. This time, engine and chassis would be subservient to the body styling and construction. The "early birds" had been styled to fit a certain image, in that they were required to use the taillights and headlights of the full-size cars and look like scaled-down versions of the regular Ford line.

No such restrictions were placed on the 1958 Thunderbirds. Designers were told to create an automobile that everyone would want to own, and they set to work with a will to accomplish the task. Starting with such simple but demanding ground rules, the stylists had great enthusiasm for the project they were working on—and it shows in the end result.

Since construction of the new car was to be unitized, the design approach to the project was considerably different from the traditional frame and body methods used on the early birds. But where there were limitations, there were also opportunities, since the interior of the automobile could be larger, and the floor pan "sunken" if desired. This additional freedom was put to good use by the Ford stylists and engineers, as will be seen shortly.

Ford, however, decided to use the traditional as well as the unit construction process, rather than put all its "eggs in one basket" as the Chrysler management decided to do, much to that company's later sorrow. The new

Thunderbird was regarded so highly by management that the unit construction bodies were designed for it and the big Lincoln. Other models followed the "safer" and lower-cost proven frame-body route. In all areas of concern, the new Square Birds were given every advantage.

As an example, the floor pan of the new Thunderbird was flat, with the exception of the drive train tunnel, but it appears to be "sunken" or deep dished. This effect was achieved by adding six-inch deep side rails to the outside edges of the floor pan. Below, eight cross members added extra strength that kept the entire unit from flexing under stress.

Fastened to the front was the fire-wall with the steel girder-like cross member that formed the dash shell and supported the windshield frame. Incidentally, the windshield frame gave added stiffening to the front body section. At the rear, the quarter panels supported the rear portion of the body, with the center panel that the bumpers were attached to. The quarter panels were stressed for strength, and the sculptured lines of the body panels added natural stiffening as well as a handsome appearance.

Because the body was unit-constructed, the need for a conventional frame was eliminated, but the torque box (the subframe members that were attached to the firewall area and extended past the engine) solved the problem. Joined to all this was the roof panel which, like the other parts, was given added stiffening in the form of inner panel metal welded at various stress points.

The entire body shell was constructed by the Budd Company (who had also built the 1955-57 Thunderbird bodies) and delivered to the Wixom, Michigan, assembly line "in white" (primed, ready for assembly). More than 8,000 welds were used to hold the complete unit together, and the result was a silent.

virtually squeak-free automobile.

Completing the safety package were the bumper/grille combination and the massive rear bumpers. It would be hard to imagine a better example of unit construction than the 1958-60 Thunderbirds, especially considering the fact that this was virtually Ford's first experiment with this type of construction.

Why "square styling?" This was the result of the evolution of the so-called "envelope body," which had made its appearance after World War II. Not only Ford, but most manufacturers, had already embarked on the era of square styling, so the 1958 was only an extension of this trend.

Square, massive, heavy styling was the hallmark of the 1950s. The 1958 Lincoln automobiles were among the largest cars ever built, and the square, sharp styling treatment with canted headlights and squared-off roof lines was typical of the period insofar as design trends were concerned. Chrysler tended toward rounded, Italian-inspired styling, but both Ford and GM opted for the concept of "American Square," and the two top-of-the-line Ford products, Lincoln and Thunderbird, reflected the school of square design thinking.

If they might be compared with anything, the 1955-57 Thunderbirds were inclined toward the European concept of styling and design, while the 1958-60 Thunderbirds were automobiles that were "home grown" in their approach to automobile styling. There is no identity problem when it comes to recognizing a Square Bird as an American automobile. The two most striking features of the 1958-60 Thunderbirds were the front grille/bumper combination and the pod-like styling of the rear deck, both of which can be traced almost directly to the so called "jet age" of the period.

Aircraft design and even boat design have always had a strong influence on the American automobile—sometimes with disastrous effect—but most often a happy influence. The now-famous Lincoln Continental of the 1940s used a grille that suggested the prow of a boat slicing through the water. The immortal Cadillac rear fenders of 1948, commonly known as "fish tails," showed a definite aquatic effect on automobile thinking, and fins went wild from then on!

Hood scoops have been a popular styling treatment over the years, and these are often traced back to aircraft designs as are many of the grilles that have been used by GM, Ford and Chrysler. The Square Bird grille/bumper combination is no exception to this rule. It has a definite aircraft appearance and connotation, (some critics have claimed the grille also reminds them of a pregnant guppy) and fits into the jet-age phil-

osophy of the period among automobile stylists.

The controversial rear deck treatment was inspired by the then-current Starfighter jet planes whose fuselage configurations looked much like the rear of the Square Bird. At night the effect of a jet aircraft streaking through the skies is further heightened by the massive red taillights used during all three years of production.

The taillights of Ford products during the 1950s conformed to a simple compass-drawn shape—the ordinary, but dramatic "O" shape. The 1957 Thunderbird seemed to have carried this theme the farthest, and with the best effect, blending into the gentle lines of the fin that was added for the final year of Early Bird construction. A small fin was desired by management and the stylists as well, as was the round taillight, but how could the two ideas be meshed into a new and fresh look?

As we previously mentioned, the jet pod syndrome of the rear deck was already accepted by all concerned, so why not simply make the round form of the original taillight design into a wide oval, then *inset* taillights that were round in shape? The famous "tuning fork" shape was thus created, and gradually, over the years, modified to the now familiar lines seen on the Square Birds.

The entire 1958-60 Thunderbird project, from the starting gun to the first machine off the assembly line, was only two and one-half years in length. A budget of more than 30 million dollars was set, and the stylists were told to go ahead full bore. As they did so, they created an elegant, yet sporty automobile that was at home on the golf course or at a formal entertainment, yet still had the look of luxury and class that Ford was trying to infuse into its product line.

Henry Ford I and his Tin Lizzie were to be forgotten. The public was now supposed to throng to the showrooms of Ford dealers to see and buy the new automobile. Like its predecessor, the new Thunderbird was to be a fresh jewel in the Ford Motor Company's styling crown.

Even though \$30 million sounds like (and is) a huge amount of money, it really doesn't go that far when it is being spent on the creation of a new automobile. Most of the money was allocated for the body and interior, leaving the remainder for the chassis and engine components. Fortunately, in a company as large as Ford, there are plenty of chassis and engine combinations to choose from, so the selection of the big Lincoln engine for the Square Birds came as no surprise to anyone. In time, the massive 430-cubic-inch Lincoln motor became an

option that few people selected, but the smaller engines still shoved the new car through the air with spectacular efficiency and speed.

The transmission, rear end, front suspension, and even the steering were shared with other Ford products, so engineers and stylists more or less "went shopping" among their sister divisions for the parts needed to fit the new automobile as the need arose. Said one engineer in a recent interview, "We fit the car together like a giant jigsaw puzzle from current inventory in the company. This cut costs drastically, and because so many of the component parts of an automobile, any automobile, are so flexible, it works exceptionally well. Ford isn't the only one who does it, by the way, GM has been doing it for generations, and so has Chrysler. At Ford, we did less of it than anyone else, but it is effective and works fine."

To come up with the original form and shape of the new Thunderbird, the Advanced Styling Department, as well as those people given direct charge of the automobile's concept and development, set to work to make renderings of concept and personal expression for evaluation by the committee which made the final decisions as to what would be acceptable and what would be dropped.

To many, this is the main task of automobile stylists, those highly talented people who are thought to sit in their offices all day dreaming up wild, sometimes freaky automobile concepts. In actual truth, the designers and staff artists are asked to present their best ideas for possible automobile designs and concepts, and these are then winnowed, often by the heads of the various departments. They ask for modifications, changes and composites. These are then checked by the head of the styling department, who continues the process. In time, the best of all this effort is presented to management committees who then ask for completed renderings of those designs that attract them.

When a general design on paper has been settled on, the laborious process of making a clay model—or, in the case of the Square Bird project, several clay models—starts. The models are formed on a wooden armature, resting on a steel plate. Here, it is possible to see in finished form what the proposed automobile body will look like.

As the clay models approach the finished stages, they are painted, and tinfoil is put on the bright parts to simulate chrome, aluminum and stainless steel trim for added realism in the decision-making process that involves stylists, designers, engineers and, ultimately, management. Thousands of

1959 THUNDERBIRD



man-hours go into the construction of a clay model, but the three-dimensional qualities of such construction far outweigh the heavy time and labor expense involved.

It was in the clay model stage that the "tuning fork" concept of the rear deck was modified and refined to the finished form it took in sheet metal. From the front, the automobile had a strong masculine look, and a similar feeling had to be engendered for the rear of the automobile in order to balance the total design. Both the front and the rear of the automobile were protected by good-looking and very strong bumpers that formed a complete integrated design.

Instructions were given to the stylists to follow the lead of the Early Birds in using sculptured styling rather than "bolt-on" trim to create the effect of beauty and elegance desired by the committee directing the stylists' efforts. This was followed on the sides of the automobile, and great restraint can be seen in the evolution of the design through the three years of production. Generally it is all but impossible for an automobile factory to keep from adding chrome trim to an aging body, and at Ford there was a strong temptation to follow the old pattern. The most obvious result was the addition of heavy chrome trim to the grille on the 1960 models. Extra taillights were used in 1960 to fill the rear "pods" a little better, and chrome "spear tips" were used in various ways on the side of the body, but generally, little else was done to the automobile in the brightwork area.

Not that the car didn't have plenty to start with in the first place. When one considers the amount of chrome used on the grille/bumper combination alone, it exceeded in total area all the chrome used on the 1955-57 models from front to rear! For those customers who wanted *more* chrome, however, a special factory "chrome package" could be purchased to brighten up the headlight bezels, "eyebrows" around the rear taillights and the hood scoop.

Still, in terms of then-current ideas on the subject of brightwork, the 1958 Thunderbird was highly restrained. Consider the 1958 Oldsmobiles and Buicks, each of which boasted more than 60 pounds of front, side and rear chrome trim! At least the Square Birds weren't guilty of *that* excess!

Much of the trim used on the automobiles was stainless steel, a factor that has contributed much to the durability of the machines through the passing decades, and helped them maintain their beauty. The sculptured effect of the sides, hood and rear deck added to the overall strength of the unit body—as well as giving it a distinct appearance unlike all previous Thunderbirds, or even those which followed.

One portion of the automobile that deserves comment on its own is the hubcap design. The wheel covers were not only restrained in appearance, they still look smart and clean almost 20 years after they first appeared. Stamped from stainless steel, they have only a gold lion emblem surrounded by a small red, white and blue design on the extra-cost optional caps, or a simple painted black trim on the standard versions. On the accessory caps, the design is a plastic insert; the regular caps are stamped as one unit.

There were numerous production problems associated with the 1958-60 Thunderbirds because of the elaborate "deep draw" stampings needed and the expansive front grille/bumper combination. The latter seemed like an impossible achievement prior to the actual construction of the automobile, as the design department insisted that the entire part be stamped from one piece of metal—rather than from two pieces, then bolted together, as was the common practice of the times.

Ford contacted its various suppliers in the industry with the request that the new grille/bumper combination be punched out as a unit, but almost every supplier said the task was impossible. Eventually, after much hunting, a firm was found who could, and would, stamp the units out, and the problem was solved. But this single incident only serves to illustrate the high importance that Ford placed on the ideas of the stylists during the 1958-60 Thunderbird gestation period.

Under ordinary circumstances, the grille/bumper would have been manufactured in two parts and no one would have worried very much about the objections of the styling division. But one of the highest priorities of the Square Bird project was to create an automobile that was, in word and deed, an elegant, luxurious and superb personal automobile for four persons—not one that was visually flawed by cost-cutting production measures. How much of the original \$30 million budget went into the grille/bumper unit is difficult to say today, but probably it took quite a big bite!

In retrospect, it seems like a sound decision, for on a component that large, a bolted-together seam would have definitely detracted from the overall effect of the automobile's front end.

During the still-fluid design state, there were a few adventures into the realm of the future, as stylists tried to figure out ways to fit the somewhat futuristic and gaudy roof line of the Mercury automobiles to the Thunderbird. At least one was made in clay, but the results proved again that it was better to understate the roof line than to try to dramatize it with a fancy approach. The straightforward lines of the hardtop

roofs with a neat band of chrome around the bottom were to set an industry precedent.

In fact, Brooks Stevens, the internationally-known automobile stylist who revamped the Studebaker Hawk line, admitted that the general lines of the Thunderbird roof found their way on to his 1963 Studebaker Gran Turismo Hawk! Other automobiles also "borrowed" the lines to one degree or another down through the years, showing once again that the 1958-60 Thunderbirds created a styling influence all their own among the field of competitors they faced.

Because of the unit construction, the body of the Square Bird was low for such a big automobile, yet it was not so low that it was difficult to get into. Getting out was a bit of a problem, especially for those persons who tended to be tall or inclined to be heavy. Once in, however, the effect of riding in the automobile was electric. Surrounded by thick bands of steel, the occupants felt secure (and actually they were probably more secure than passengers in any late 1950s automobile except the unit-bodied Lincoln) and, with the windows rolled up, they were insulated from the outside world. Only the faint hum of the transmission and engine occasionally intruded at certain speeds.

Visibility, except at the rear sides, was boundless. The wide expanses of glass that the stylists provided made the passengers feel as though they might be in the cabin of an expensive cabin cruiser, rather than in an automobile!

The dash followed the same theme as the rear deck, with two widely separated "pods" or hoods that shaded the instrument and glove box sections with a vinyl-covered safety dash that was one of the deepest used in any automobile in the 1958-60 period. The deeply-recessed instruments were both a luxury touch and effective in terms of being easy to see under all driving conditions.

As we mentioned before, the entire interior of the automobile was new, and designed especially for the Thunderbird. Originally, the product committee had decreed that the big Ford and the 1955-57 Thunderbird should share such parts as the speedometer, taillights, and steering wheel. It was not so with the Square Birds. Few external things were shared with other divisions. Most similarities were found in the unseen parts of the chassis.

Of all the Ford products in 1958-60, the Thunderbird was the lowest, and to most observers, the most original-looking of the 1958 season. This came about by design, not accident. The interior dimensions of the new automobile were such that they almost duplicated the Lincoln in every respect except the

trunk space, and, of course, under the hood, but the motors were shared during the three-year production run.

The 312-cubic-inch motor and the C-4 Select Shift transmission were new for 1958. They soon came to be shared with other division products, but the new Thunderbird had the first chance to use them. Again, we can see from this the high importance that Ford officials placed on the new Thunderbird, regardless of costs or other considerations.

In the 1950s, the idea of dual exhausts was still largely in the pale of the hot rod enthusiast, but Ford engineers realized the value of the idea, and the new Square Birds were given a dual-exhaust system with a cross-over pipe that helped to cut down the "rumble" and "pop" common with twin pipes. This contributed a great deal to the economy achieved by the engineering department. It also gave the engine a few percentiles of increased performance through the elimination of back pressure. It should be noted that Ford stylists didn't follow the previous mold of ducting the exhaust pipes through rear bumper outlets. Instead, they simply ducted them under the rear fenders where the ends of the pipes could not be seen.

While the influence of the original Thunderbird is occasionally felt in the larger Square Birds, this influence is one of a frame of mind rather than actual repetition or slavish styling devotion. The automobiles were alike in concept and emotional qualities, but totally different in appearance and styling treatment.

To explain what we mean, here are a few examples:

The original Thunderbird was intended to be a dramatic departure from previous Ford products and to appeal to the customer who could afford any type of automobile that he chose. The second generation of Thunderbirds followed this mold exactly. The Square Birds were both striking in looks and expensive to buy.

The first Thunderbird was intended as a "personal" automobile—one that would seem to be sporty, but restrained, and give the overall Ford image a lift. The second Thunderbird overcame the limitations of the two-passenger models by expanding the car to hold four people, but it was still low and sporty-looking, and it continued to boost the Ford quality image.

The first Thunderbird, in keeping with its image of a sports-type automobile, had stunning performance for its time. The new replacement for it was also a powerful performer whose handling characteristics weren't half bad for such a large and heavy automobile.

When customers complained about the lack of trunk space in their two-

passenger Thunderbirds, the rear deck panels of the 1957 models were revised for more room. In the 1958-60 Thunderbirds, the trunk was deep enough to house a small elephant with ease.

Both cars were low and had handsome silhouettes, and both were instantly recognizable as being "new" automobiles in all respects. Taken as a whole, the Thunderbird concept of the mid-1950s was carried through to the end of the decade with great care, yet both automobiles are distinct and unique, and appeal to largely different groups of owners.

Was the new automobile a success? You bet! Like its predecessor, the 1958 Thunderbird was not expected to show a profit—it was to be an investment in the Ford image, with profits coming second. No one was quite sure if customers would pay the high cost of the new automobile, or if they would just come into the showrooms and look it over, then decide to buy another Ford product that was lower-priced or more appealing to the practical senses.

What happened was a complete surprise! In 1958, both export and import models accounted for 37,892 units sold, a very impressive figure for such an expensive automobile. By the time the 1959 models were introduced, the idea of giving the Ford stylists an almost free hand in designing the car from a "fresh sheet of paper" had been vindicated. The new Thunderbird was a financial success as well as an esthetic success.

The trend toward stylized automobiles was firmly established with the introduction of the 1958 Thunderbirds. Stylists tended (at Ford, at least) to go to extremes from time to time, as the gaudy and overdone 1957 Mercury attests. Today, this machine looks like someone's bad nightmare, and its styling precepts are both dated and overdone. The new Thunderbird might have suffered the same fate had some of the stylists' ideas been incorporated in it.

Fortunately, cooler heads prevailed, and the automobile emerged as an understatement, rather than as a styling exercise of the design department at Ford. The previously-mentioned roof line was an example. "Don't clutter the car with flashy, wild roof lines, keep it simple," the committee urged. And the stylists complied, fortunately for the new automobile.

In 1959, Chevrolet seemed so impressed with the idea of an exotic rear deck treatment similar to the Thunderbird that it introduced its "eyebrow" taillights and "deep dish" rear deck. While both Thunderbird and Chevy designs now appear excessive, the Thunderbird looks the best of the pair to most critics.

It should also be mentioned that Chevrolet changed the 1959 styling in

1960 to more closely conform with traditional styling. Thunderbird did not—and the sales of the 1960 Thunderbirds continued to climb. For 1960, more taillights were added to the rear of the Thunderbird so that *six units* graced the rear of the automobile. Had the design not been acceptable to the public, the rear would have been revamped—just as the Chevrolet was.

In the years since the Square Birds were first introduced, they have continued to be in demand, mostly by collectors who now want the automobiles in all body styles with the convertibles and sun roof models being the most popular.

Far from being the "mistake" some industry insiders have charged, the four-passenger Thunderbird has become a mainstay of the Ford product line, and instead of reverting back to the smaller models, each generation of the Thunderbird has gotten larger and more elegant—and at the same time, Thunderbird sales have increased as the years rolled by.

It is true that not everyone liked the automobile then, and only a small number of collectors seem to appreciate it now, but as the years go by, more and more people have been "turned on" to the idea of owning one of the 1958-60 Thunderbirds as a collector's item and as an investment in the future. Some 20 years after the fact, many of the styling features of the Thunderbird that seemed so novel and bold have become shopworn, mainly because they were repeated so often on other Ford products and by the competitors of the Thunderbird in the open market place.

Of all the generations of Thunderbirds that have been born since the first ones were introduced in 1954, the Square Birds seem to have won the largest niche in the hearts of collectors, next to the smaller Early Birds. The idea of owning one of these cars is spreading across the country and into foreign lands as enthusiasts recognize the unique qualities of the four-passenger cars and seek them out.

Taking a retrospective view of the 1958-60 Thunderbird, one must conclude that it was an automobile that perfectly suited its era and now is equally well-suited for collectors, thanks to its fairly low initial purchase price and comparative rarity. The Square Bird can still be found in the under-\$1,000 price range, with restored ones in the \$3,500 bracket. This price range makes it possible for the average person to get into the marque for a very reasonable cost.

Of all the Thunderbirds, the Square Birds are the most unique in terms of size, styling, power and identity. In all the world, there is nothing else quite like them!

1959 THUNDERBIRD RACING CAR

Ron Baldwin/Tucson, Arizona

POWER HOUSE—Despite its somewhat rugged looks, the 1959 Thunderbird used by Ron Baldwin in his quest for hardtop victories will easily top 115 mph in a few seconds and hold that speed in comparative safety for as long as necessary.



A THUNDERBIRD THAT GOES FASTER THAN IT WAS SUPPOSED TO!

Thunderbird #10T may not be the most beautiful square bird in the world, but under its wrinkled exterior beats a heart of thundering power—which just might make it the fastest 1959 Thunderbird in the world.

The Thunderbird's V-8 engine under full stress screams through the dual exhaust pipes as the heavy racing tires bite into the dirt. There are almost no gauges inside and owner/driver Ron Baldwin doesn't know exactly how fast his pounding machine is going, but it is well over 90 mph as he struggles to guide it through the pack of high-performance hardtop racers vying for position going into the turns ahead.

Throwing his weight against the wheel, Baldwin tries for an opening near the rail, and mashes down the throttle to beat a competitor who has spotted the same opportunity to take the lap a few seconds faster than anyone else. The two automobiles rasp fenders and spin out, throwing clods of earth as they

careen across the track out of control. The results are only a few bent fenders and damaged pride, and next weekend, there will be another chance for these weekend gladiators to try to beat each other across the finish line.

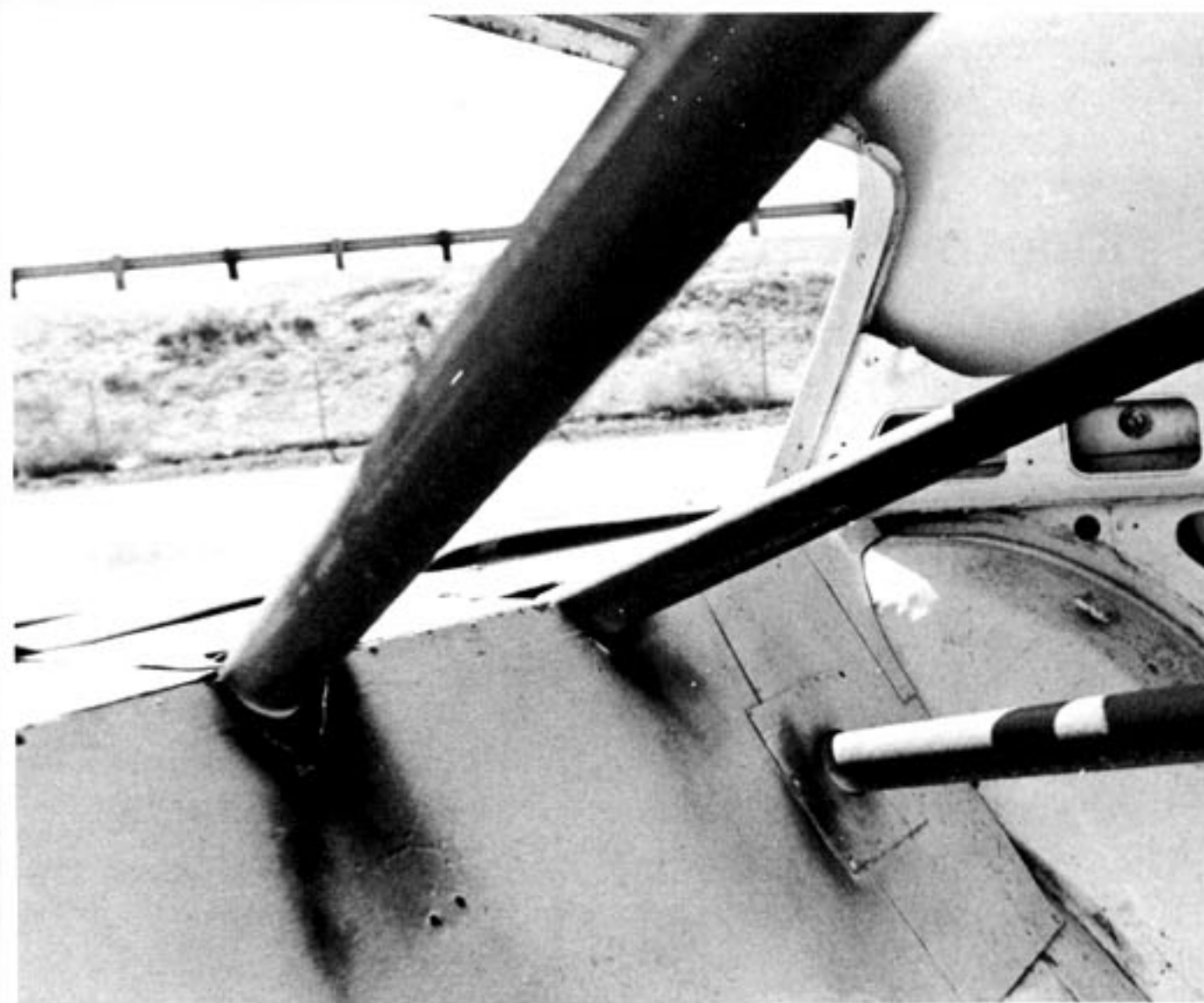
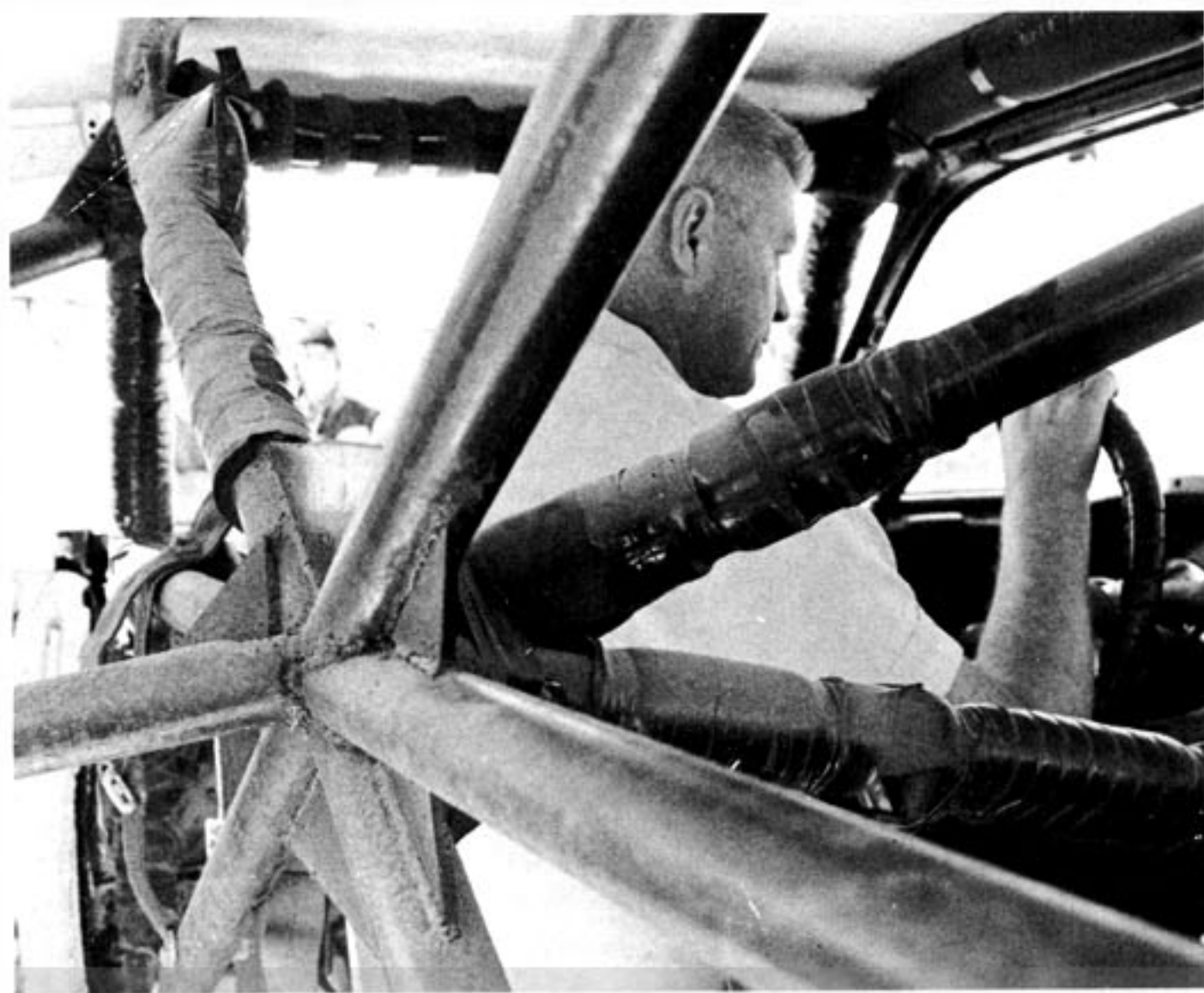
The sport of driving and building hardtop racers is one that took root in the first years after World War II. Since then, it has grown in popularity until it has become one of the best crowd-drawing events in rural America—and in some of the larger cities, too. Especially in the south, these rough and ready automobiles and their drivers pull huge crowds of spectators who cheer them on in metal-grinding events that resemble Friday afternoon on a Los Angeles freeway.

While the art of driving and surviving with a hardtop racer is best described as an extremely chancy affair, there are very few fatalities in the sport. The automobiles used are set up by amateur experts who are wise in the ways of high speed collisions and their effects, and have taken precautions against them.

Thunderbird Illustrated caught up with Baldwin and his pit crew at a small town in central Arizona called Picacho. They were on their way to the automobile's first race after an extensive remodeling job that had cost \$2,000 and more than a year of hard work almost every evening and all the weekends they could spare. The automobile still had the familiar lines of a Thunderbird, but there were few refinements or



SAFETY PRECAUTIONS—Note the heavy roll bar "cage" with thick foam rubber padding taped over it. Note also the bar that goes over the steering column, and the taped steering wheel, plus the deep bucket seat.



SPECIAL BRACES—Behind Baldwin's head is a series of heavy roll bars that will prevent the automobile from collapsing in case of an accident. Note also the gutted interior that has been stripped to reduce weight.

concessions to beauty. Number 10T is a working race machine—and nothing else.

Inside, a symmetrical cage of tube steel criss-crosses the gutted interior, bracing the body and driver against sudden "G" forces and the ever-present danger of being thrown through the air at more than 100 miles per hour in a high-speed accident. The tubing is

mostly four-inch, and it is anchored to a special tube sub-frame that has been welded under the sheet metal of the body.

There are a number of refinements that catch the eye. When the trunk lid is removed, the gas tank can be seen under a maze of cross-welded bracing and some overlapping steel bands that will keep it from being torn loose or

ruptured in the event of a rear-end collision. Located at the rear are an electric fuel pump, new mounting brackets for the shock absorbers, and a filler pipe inside the trunk.

The engine is a 1969 Torino V-8 that has been punched out to the maximum limits of 404 cubic inches—just within the prescribed bounds of the event rules. According to Baldwin, the auto-



HOOD SNAPS—This hood snap is home-made, but works fine. By removing a similar snap at each corner of the hood, the entire hood can be removed in seconds for quick access.

mobile weighs in at 3869 pounds, and is capable of speeds well in excess of 115 mph, but the automobile doesn't have a speedometer, so no accurate speed measurements are made.

Not everything on the Thunderbird is original equipment. The automobile uses Chevrolet one-ton truck suspension parts, mainly so that the team could use eight-lug Chevrolet wheels. This particular selection was made since Chevrolet truck parts are easily available and still fairly low-cost.

Because all of the tracks that the men race on are half-mile, they use a 5.14 rear end in a hybrid Ford station wagon rear end housing with Chevrolet ring gears and pinion inside it. Mounted to this is a set of heavy-duty leaf springs,

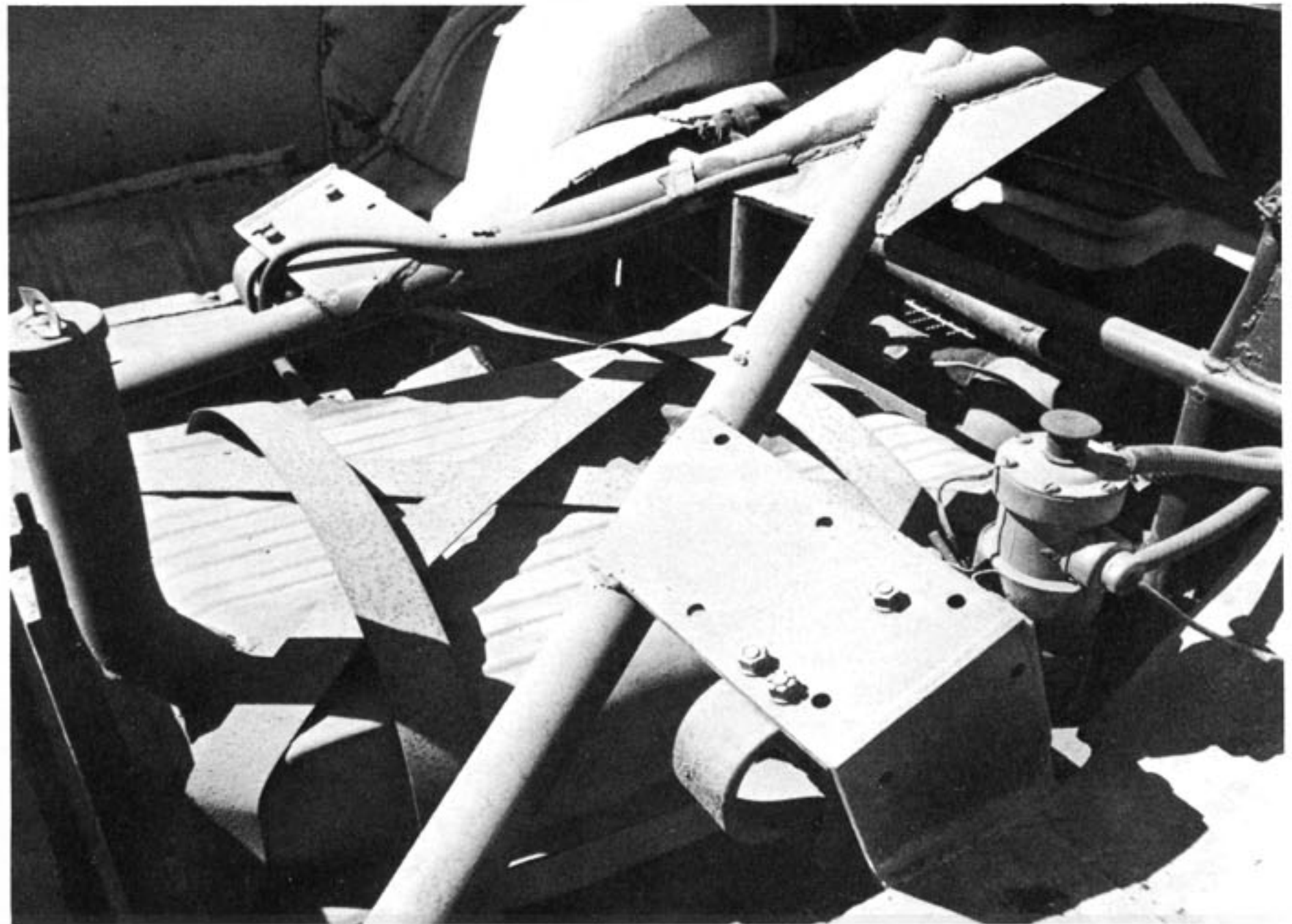
with extra-heavy-duty shocks to support them under severe strain.

With all this power and modern suspension under the Thunderbird, races are mostly contests to see who can stay on the track and keep from blowing up his engine. On the turns, the automobiles turn 45-50 mph, but on the straightaway, they touch 100 mph—if they are lucky.

The consistent winners in hardtop racing are usually the men who can break out of the pack first on a curve, streak down the straightaway, and then get favorable position for the next turn. Between the extremes of wide-open running and slamming down for sharp turns, the automobiles take terrible punishment, and much of the time be-



WINDOW FASTENER—The windshield rubber molding has been removed and four snaps like this have replaced it. In case of inside pressure, the glass will fly out to prevent injuries to the driver.



GAS TANK—Nestled under the heavy strapping is the gas tank. Note that the trunk floor has been removed. The flat metal welded to the tube frame holds the new Chevrolet spring shackles. The electric fuel pump is at the lower right in front of the spring hangers.



WINDSHIELD WIPER—This long cable, operated from inside by the driver, operates a device that keeps the windshield clean under difficult dust or mud conditions on the track.



FENDER REPAIR—A new section was added to the rear of the Thunderbird with screws and Bondo filler. It may not be neat, but it works fine!

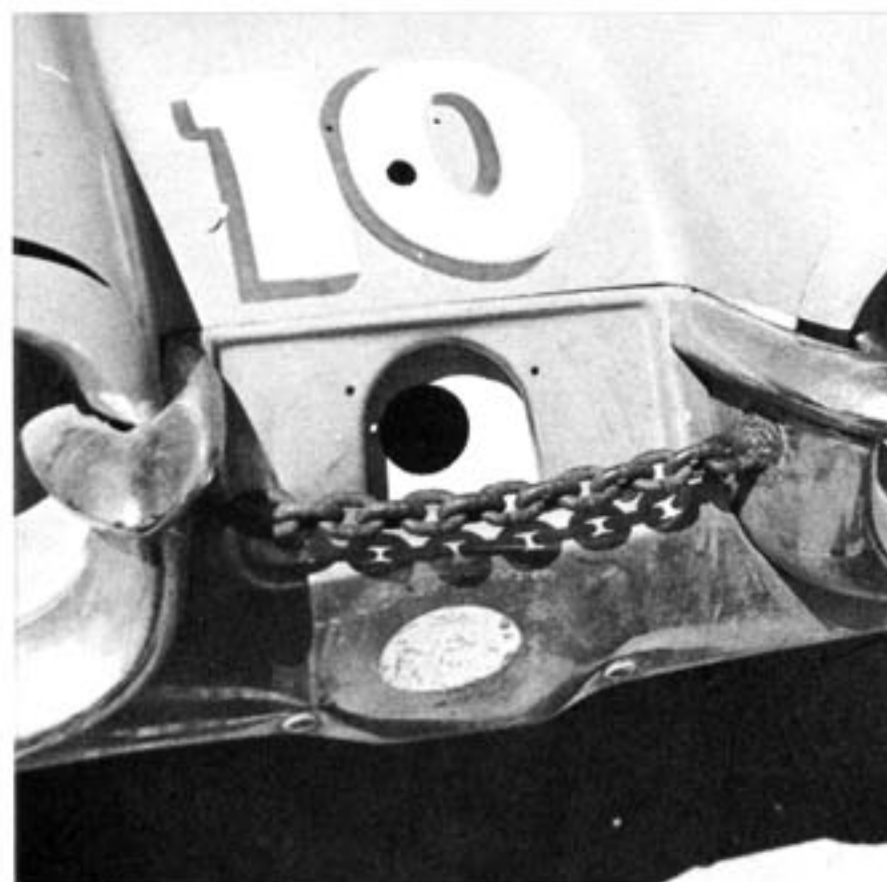
tween races is spent getting them back together again, ready for the next round of competition.

Only on Friday nights do the men who work with Baldwin take off and do something else. "Anything else," one grins, "anything or any place else—it doesn't matter!" Once race day starts, the group meets for final count-down preparations, tires are checked, the engine tuned up if it needs it, and other last minute modifications are made so that everything that can be done is done prior to the running of the first event.

The cash outlay on the automobile is an ongoing thing, and the original \$2,000 modification cost, exclusive of the purchase price of the automobile, was just a starter. The wheels and tires added another \$500, at least—and naturally, as tires wear out, they have to be changed and replaced. "I don't even look at the bills anymore," Baldwin smiles, "it would hurt too much if I did."

Even though the automobile has been mashed in countless bouts at the track, it is always repaired and painted before the next round because, as one of Baldwin's friends explained, "We take pride in the car and want it to look sharp all the time." The "beauty wrinkles" in the body are something the crew is proud of, and they aren't anxious to remove all of them. "They are what might be described as battle scars," one crewman laughs, "and besides, we aren't that good at body work, so we leave a few of them in to remind us not to be so cocky when the car goes out on the track."

The windshield is fastened with clamps so that in case of an accident, it will fly off with the slightest pressure.



TOW HOOK-UP—In the event the Thunderbird has to be towed from the track in a hurry, the chain has been welded between the rear bumper guards as a convenient hook-up.

There is no other glass in the automobile. For added safety, the doors are welded shut—which makes entering and leaving a bit of a contortion act for Baldwin, who is six-foot plus.

The tubing where Baldwin might hit himself in an accident is wrapped with heavy foam rubber as a precaution, even though he wears a crash helmet and is strapped securely in a special bucket seat. "Centrifugal force does strange things," Baldwin says, "and you have no control over it, so we try not to take any chances. I like to race and I don't want to race somebody to the cemetery, just the finish line."

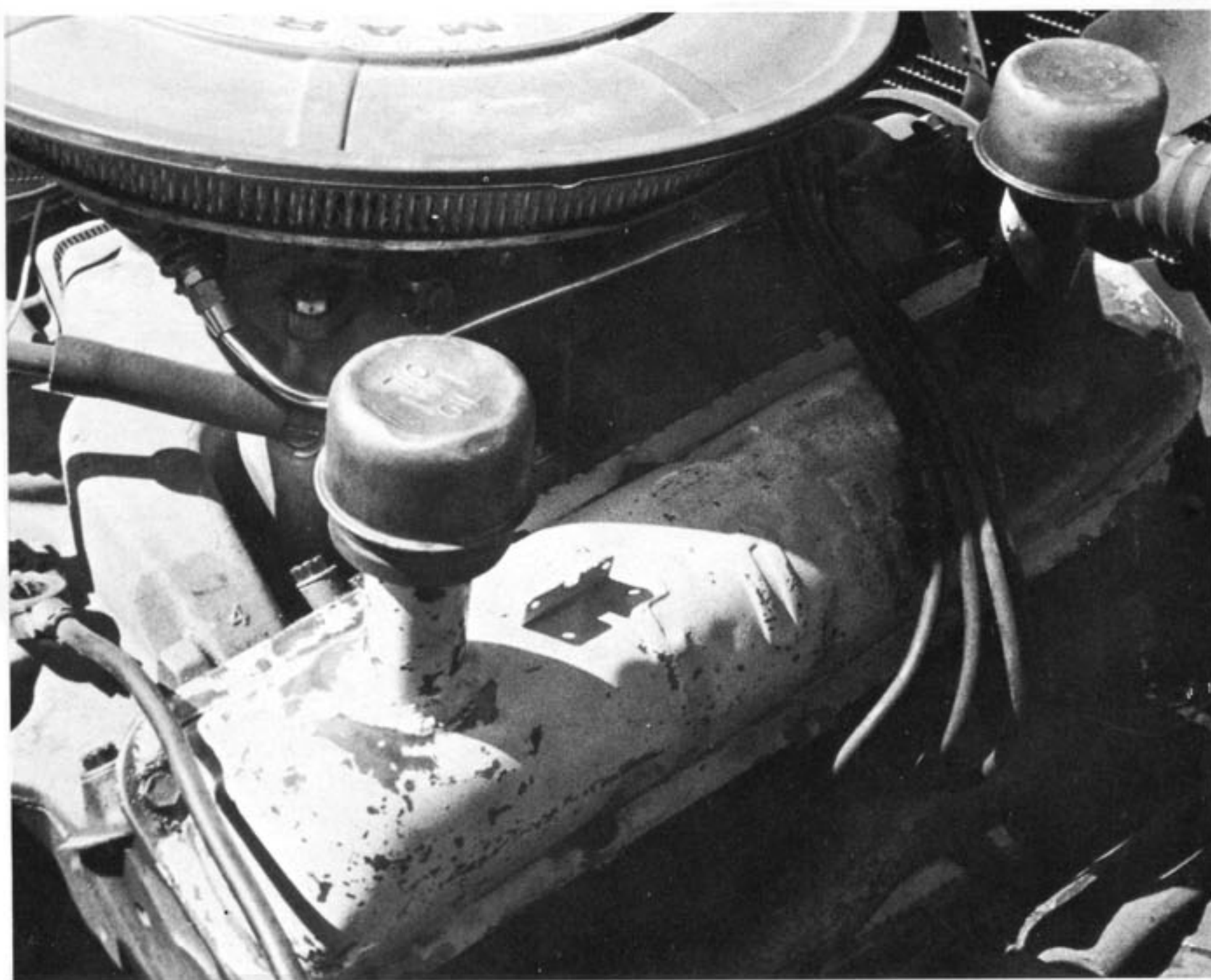
For fast servicing, the hood and the rear deck are held in place with quick-release fasteners, and both units can be removed quickly in case of need. The hinges are not used. Things under the hood won't win any beauty contests, but the automobile's power-plant is stretched to the point that it can produce something in excess of 300



EXPENSIVE TIRES—The McCreary racing tires used by the Thunderbird are expensive, but offer extra safety margins on the track under all types of strain and stress.



NEW FRAME—Because the original Thunderbird used a unit-constructed body, Baldwin and his friends added a tube frame which can be seen here with a line taped to it.



DUAL BREATHERS—Two crankcase breather caps have been welded to the rocker arm covers to reduce crankcase pressures under heavy acceleration and deceleration.

horsepower, roughly 60 more than it had when it left the factory.

What motivates the men who race hardtops? Not money. The prize if a car places first isn't likely to be much more than \$250, and more likely—depending on the gate attendance and other factors—more like \$50, or nothing. Why do it? Baldwin grins, "It is good clean fun and it has plenty of excitement packed into it. When I'm out there with my car, I forget about everything except the cars in front, on the sides and behind me. They are all that I am aware of for the duration of the race, and that's when I get the fun out of my sport." Most races last less than half an hour, so it is a pretty expensive occupation, and Baldwin and his friends admit it is an avocation that drains their pocketbooks with great regularity.

None of them will change their pattern of hard work, money and more hard work. "When that car goes out on the track, part of us goes with it," admits one of the men who help Baldwin free of charge, "and when it wins, if it does, we are going to have a fine party with the proceeds!"

Old Number 10 may not win any beauty prizes, but it won't really have to. If it just wins a few races, Baldwin and his friends will be happy.

TIGHT SQUEEZE—Baldwin demonstrates how he enters his Thunderbird for a race.

