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1961 Special has a different shape, but "portholes" and sculptured panels mark it as indisputably Buick

A Brand New Baby from Buick: The Special

The Special is back and this time Buick has really made it something "special." Not only is this an all new car but it, and its GM companion cars, the Olds F-85 and the Pontiac Tempest, belong in a new and different category.

Compared to the Buick LeSabre, with its wheelbase of 123 inches and over-all length of 17 feet 9 inches, the Special's 112-inch wheelbase and 15-feet-8-inches over-all length would seem to classify it as a compact car. It's smaller too, than the "low-priced" cars like Chevy, which has a 17-feet-5-inch over-all length and 119-inch wheelbase.

Approached from the compact angle, however, we find that the Special is markedly less compact than say Studebaker's Lark which is over a foot shorter.

Semantics notwithstanding—it matters little whether you call the Special a "big" small car, or a "small" big car—it is a bona-fide six-passenger automobile with space inside where the passengers can use it.

The Special has crisp roofline, high windows which make it look taller than its 53-inch over-all height

Special station wagon comes in four-door, six-passenger model only. Tailgate is hinged at top and counterbalanced to swing up-out-of-the-way for easy loading. Chrome-plated roof rack is optional at extra cost

The Special has a brand-new unit construction body in four-door sedan and four-door station-wagon models. Layout is conventional — engine is front mounted, water-cooled and directly connected to the transmission, which in turn, powers a conventional "solid," unsprung rear axle.

However, within this conventional outline the Special is loaded with engineering innovations.

The all-aluminum engine, for example, is a 215-cubic-inch displacement V-8 rated at 155 horsepower developed at 4400 rpm. Compression ratio is a relatively modest 8.8 to 1 permitting use of "regular" grades of gasoline. In spite of use of iron cylinder bores or "sleeves" cast into the aluminum block, the stripped engine (minus generator, starter, fan, exhaust manifolds, etc.) weighs only 318 pounds.

This engine is of short-stroke design with a bore of 3.5 inches and stroke of 2.8 inches.

Combustion chambers are typically Buick in design with centrally located spark plugs and valves set high on the "inside" or intake side of the heads. Identification of the engine is easy because it has the narrow, uptilted valve rocker covers that have marked the Buick V-8 since it first appeared.

The aluminum V-8 has an intake manifold with cast-in water passages that collect the hot water from the cylinder heads and convey it to the radiator top tank. On the way the coolant serves to heat the intake manifold for more efficient operation in cold weather. This eliminates the need for any exhaust crossover passage and thermostat valve to heat the fuel mixture.

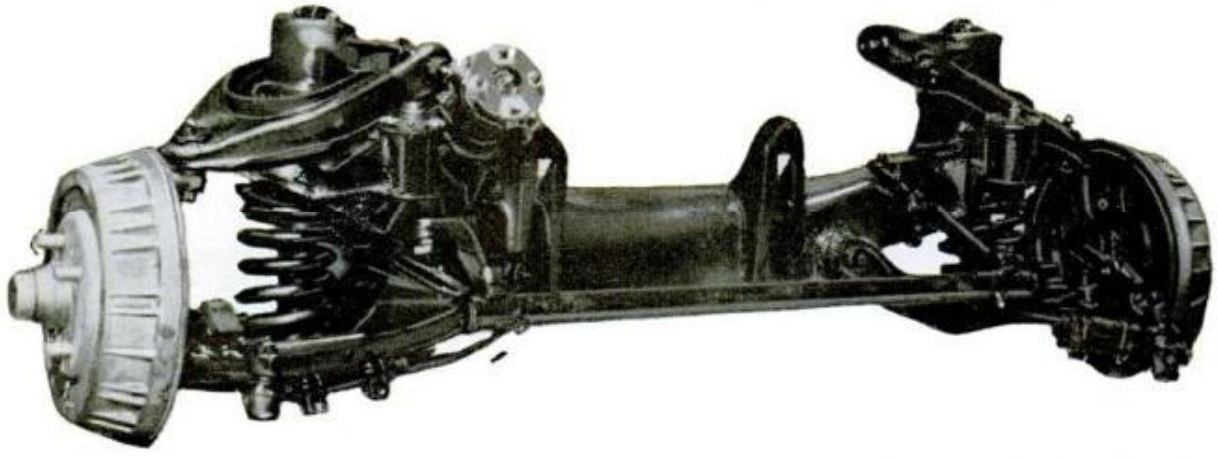
Carburetor is a single, dual-throat model with automatic choke. The exhaust line is also single with a "Y" to each of the four-port manifolds.

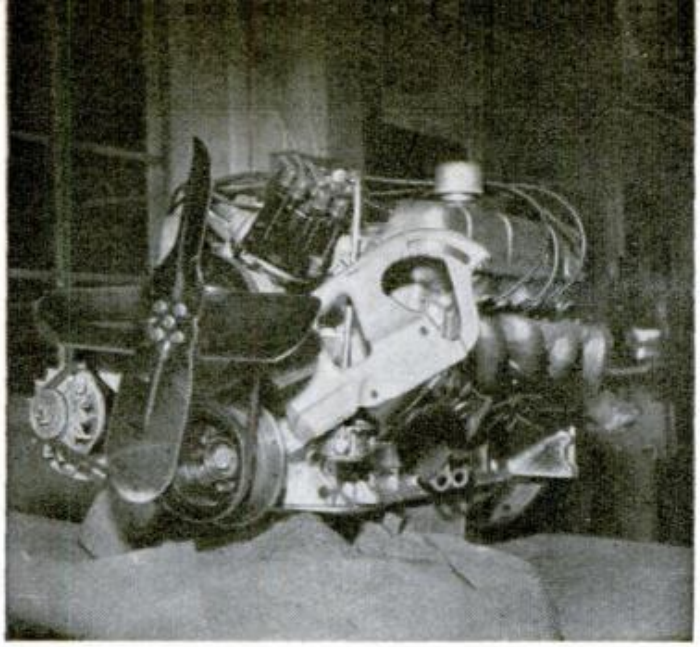
This is "the" engine. There are no options or power packs at this time or are they contemplated in the near future. Engine specifications are the same for both three-speed manual and automatic transmissions.

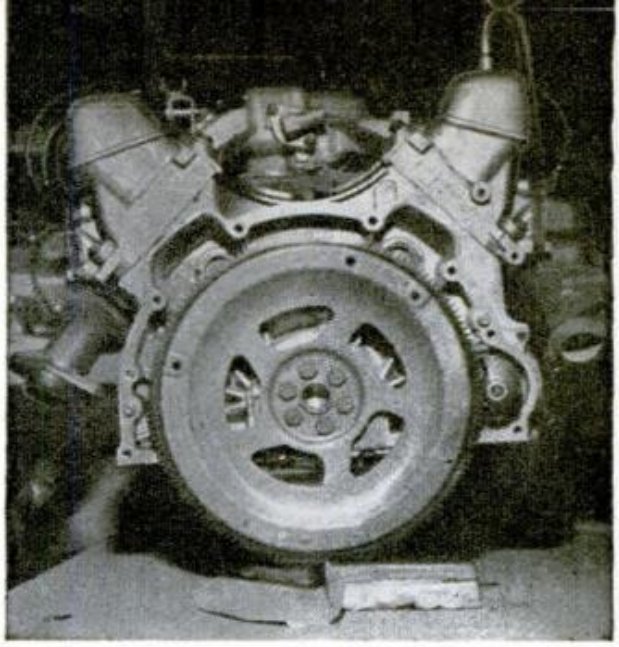
The automatic, incidentally, is an all-new unit combining two-speed planetary gearing with a 2.4-to-1 ratio torque converter.

This transmission is unique in that after

Complete "package" front suspension for Buick Special is built around heavy, stamped crossmember. It includes springs, upper and lower arms, steering gear and linkage, shock absorbers and rubber mounts







Two views of Buick Special's 215-cubic-inch displacement aluminum V-8. Front, at left, shows accessible distributor and spark plugs. Rear view, at right, shows unique angular valve rocker covers

the planetary gearset has shifted from "Low" to "Drive," the engine's input torque is split—with 36.6 percent going through a mechanical path (converter clutch to output shaft) and 63.4 percent through the hydraulic path of the converter itself.

As a result the transmission is a "semi-direct" connection between the engine and rear wheels and greater efficiency (i.e., less hydraulic slippage) and gasoline mileage is the result.

The Special's suspension and drive line is a radical departure from traditional Buick practice and embodies several features new to U.S. cars.

Front suspension is coil spring independent with ball-joint spindles. Upper and lower "A" frames, springs, shock absorbers, steering gear and linkage are all mounted on a single, heavy stamped-steel crossmember.

This crossmember in turn is mounted to the unit body structure on three rubber pads or "pucks." This helps to further isolate the body from harsh surface vibration. The steering column connects to the steering gear by means of a fabric coupling to prevent vibration from traveling up to the wheel.

The Special has a two-piece driveshaft that enables the body designers to minimize the tunnel in the floor to such an extent that it does not cause any discomfort or inconvenience to center-seat passengers.

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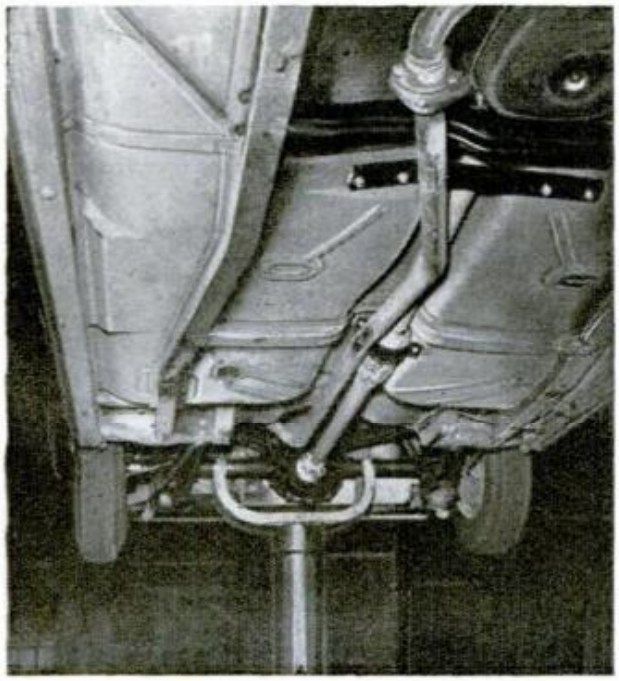
Underside of Buick Special's unit body and frame below left, is strengthened by built-in "frame rails" as well as outer body sills. Trunk, below right, is average in accessibility, has fair amount of room



Clean, sculptured lines of Olds F-85 have little or no chrome. The 13-inch wheels make car look larger

Olds F-85: Another Rocket Hits the Road

General Motors is doing its level corporate best to make sure that no compact-car buyer will have a chance to walk up or down his town's automobile row without running into a showroom containing a GM compact or smaller-size car. Perhaps it's only fitting that America's largest automaker should now have twice as many new compacts as any of its competitors.

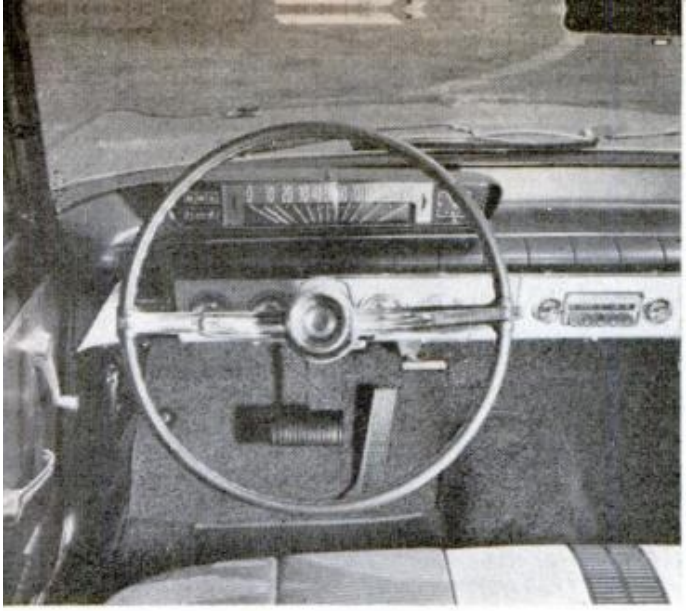
For those who want a smaller compact at lowest cost there is the Corvair. For a larger, more powerful car at just a few dollars above the Corvair there will be Pontiac's lively Tempest. A couple of hundred dollars up the scale comes the difficult choice between a well-matched and attractive pair, the Olds F-85 and the Buick Special.

Here are four cars in what we strongly suspect will be three different price ranges all within the budget of anyone who can afford a Chevy Bel Air with average equipment.

Choice between the F-85 and the Buick Special will be a real teaser for most interested buyers because the two cars are very nearly identical in body size and chassis yet offer enough differences in engine, styling and automatic transmissions to make the choice more than just a coin flip.

The F-85 comes within a fraction of an inch here and there of equalling all dimensions and within a few pounds of equalling the Buick's weight. Both cars have 112-inch wheelbases and over-all lengths of 188 inches.

Here is a direct comparison of the space in passenger compartments and ease of entry between the Olds F-85, left, and the "big" Olds Super 88, at right. Only difference is slightly less legroom in smaller car



Olds F-85 instrument panel is neat, simple, readable and attractive. Forward vision is excellent

High-swinging lid provides good access to F-85's trunk which is roomy, and has fully useable space

Like the Special, the F-85 has the same unit construction four-door sedan and wagon bodies with front-mounted water-cooled aluminum V-8 engines of 155 horsepower.

Suspension systems too, are similar except for shock absorber calibration. The F-85—a name that sounds as if it were stolen from the Air Force—has four coil springs. Up front, the independent suspension is mounted on a single large pressed-steel cross member which in turn is isolated from the body frame by three rubber spool mountings arranged in a broad-based triangle.

Similarly the rear axle is attached to the frame by four links, all rubber bushed.

The drive shaft is a two-piece job, like the Special's with a constant-velocity double universal joint between the two sections and a midship ball bearing mounted in a rubber sleeve insulator.

Although sharing the same bodies and appearing quite similar, no one should have trouble telling the F-85 from either of its sister cars—the Buick Special or the Pontiac Tempest—as all three have different front fender and rear quarter panels as well as different hoods, grilles, deck lids and bumpers.

Careful inspection will reveal however that all door panels are identical, it's just the individual treatment of the quarter panels that makes them appear different.

With equal interior dimensions the F-85 has the same comfortable seating package for six passengers as the Special. Luggage compartments, too, are vitrually identical in dimension and layout.

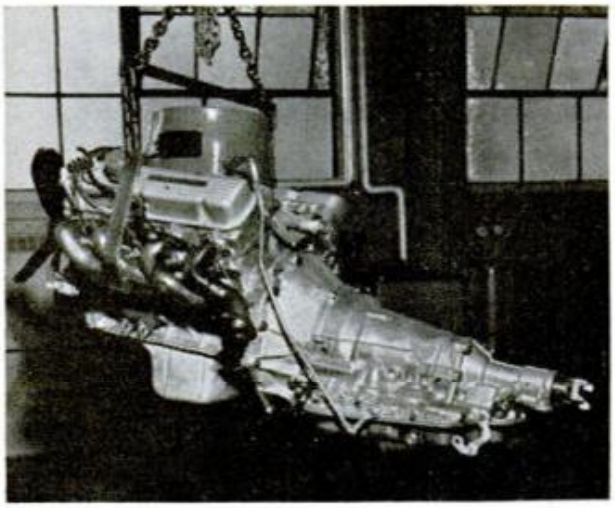
Although based on the same iron-sleeved aluminum cylinder blocks, the Olds F-85 engine has cylinder heads as well as manifolds, valves and pistons of its own design.

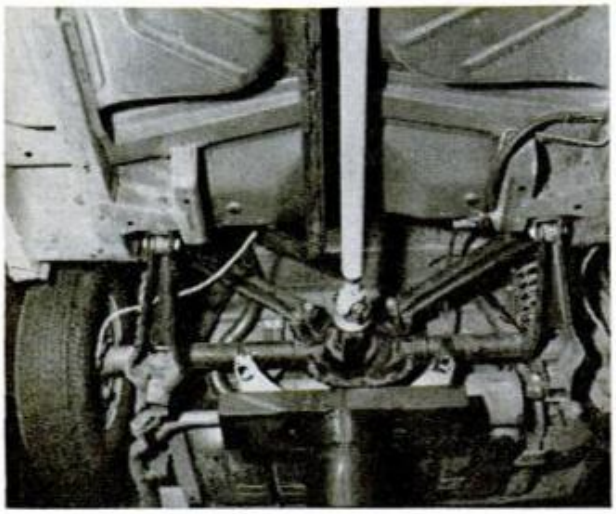
Like the Buick Special's engine. the F-85's power plant has a water-heated, in-

Tapered rear deck of F-85 is smooth and uncluttered and shows the sculptured contours of the car's body

Broad hood swings up to reveal F-85's engine which has "most serviced" items easy to reach

Six-passenger, four-door wagon is just same height as sedan, has total of 75 cubic feet of load space. Engine and transmission, left, is almost all aluminum





take manifold. A unique feature of the Olds engine however, is the air-cleaner cover that covers not only the polyurethane plastic filter element but the entire carburetor as well.

This setup is intended to provide a flow of fresh, cool air around the carburetor body at all times during warm weather and prevents percolation and vapor lock. In cold weather this same arrangement aids in warmup and helps prevent carburetor icing.

The automatic transmission used on the F-85 is a brand new version of the Hydra-Matic that Oldsmobile pioneered over 20 years ago. This transmission has the same fluid coupling as current Hydra-Matics except that there is an inner torque multiplying turbine member in the fluid coupling.

Olds calls this device the Accel-A-Rotor. It provides torque multiplication only in starting, i.e., "Low" gear. This gives a starting or stall ratio of 3.64 to 1.

As the car speeds up from a standstill the fluid multiplier phases out of operation and the ratio is reduced to 3.03 to 1, where-

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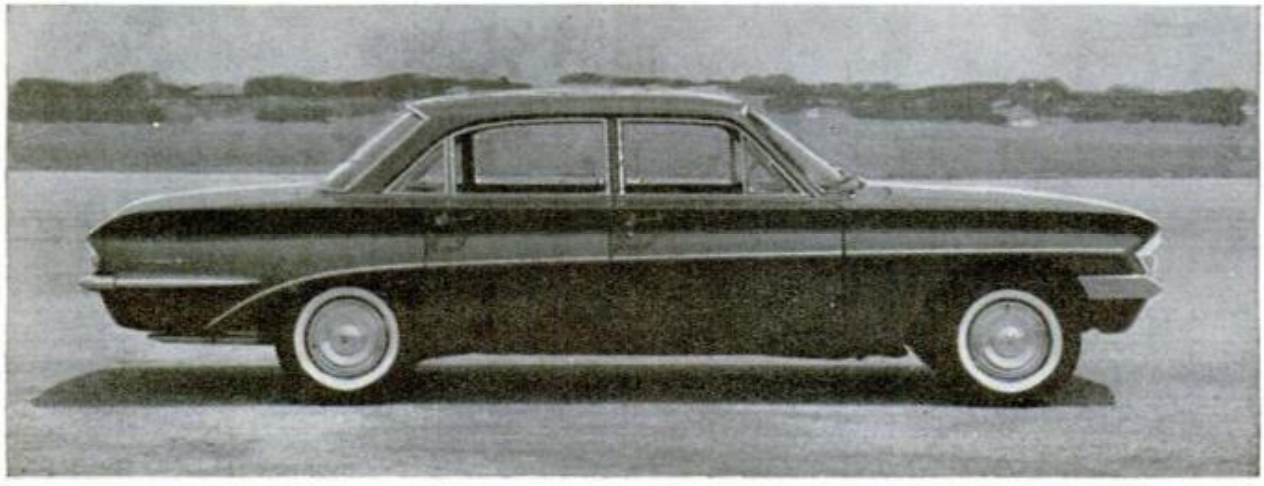
worm's eye view of F-85's rear suspension reveals four links connecting axle to chassis. Side view of F-85, below, shows well balanced proportions



Side view of 1961 Buick Electra sedan shows clean, sculptured lines, familiar "portholes," wider rear door

Big Buicks Have New Bodies, Frames, Suspension for '61

The big Buicks, LeSabre, Invicta and Electra have been changed in every respect except the engine, transmission and basic details of the front suspension. Their ride and handling, ease of entry, and interior comfort have been improved so much as to make them vastly different cars.

Perhaps the most precedent-shattering change is the elimination of the torque tube —a Buick engineering trademark dating back to the first World War.

In doing away with this heavy tube which connected the rear axle to the transmission, Buick engineers have been able to remove some of the jounce-creating unsprung weight and switch to a thin, two-piece drive shaft with a double, constant-velocity universal joint.

This in turn has permitted a lower driveline and smaller tunnel under the floor and seats. Buick has also switched to a cruciform or "X" frame with the midship universal joint mounted in the hollow center of the "X" member.

This new frame has enabled the body designers to make the floor lower and flatter. Seating positions are high and comfortable and there's more than enough headroom, yet the cars are not overly high —an inch lower than the '60 models in fact.

Rear suspension retains coil springs, but positions the axle with a linkage that's unique with Buick. In this new system two trailing links support the springs and take driving torque, a track bar positions the axle laterally and a short, upper link between differential and frame controls axle "windup."

Engines remain unchanged, with a 364-cubic-inch, 250-horsepower V-8 used on the LeSabre and a 401-cubic-inch, 325-horsepower version on the Invicta and Electra models.

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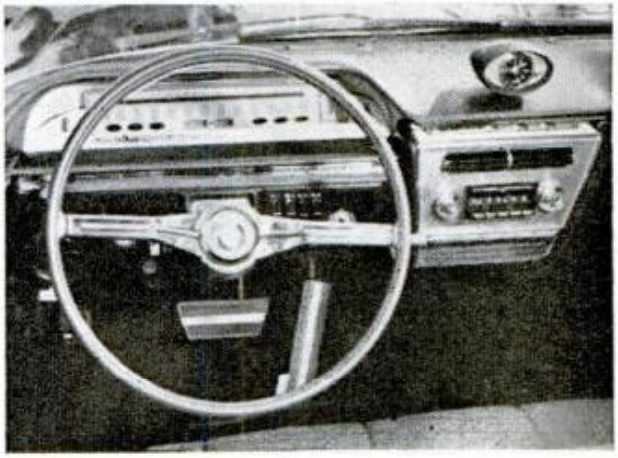
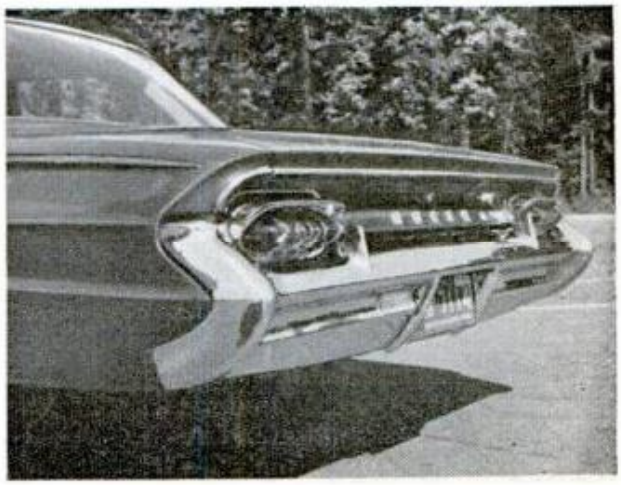


Instrument panel retains adjustable mirror-image speedometer introduced in 1960. Control setup is new

Grille, hood and headlamp arrangements are changed, yet over-all appearance, above, is typically Buick



Rear deck lid is wide and flat. Gone is the "gull-wing"-look of '59-'60 Buicks. Trunk is much larger

Although Lancer shares body and fender sheet metal with Plymouth's Valiant, it manages to have an identity of its own, thanks to a longer hood and "V" grille, top, and trunk lid without dummy spare, above

Now Dodge Gets a Compact All Its Own—The Lancer

As a follow up to the successful introduction of Valiant, Dodge Division has brought out a similar compact called the Lancer. This car is available in four-door sedan, four-door station wagon and two-door hardtop.

Lancer shares the basic unit body and chassis with the '61 Valiant, has the same torsion bar independent front suspension, semi-elliptic rear suspension, engine and transmissions.

Wheelbase of 106.5 inches is identical to Valiant's but overall length of 188 inches is four inches greater, due principally to Lancer's extended "V" grille and front sheet metal. ★ ★ ★

A new body style for Lancer—also shared with Valiant—is sporty looking two-door hardtop, below

Fairlane above is plainest, lowest priced '61 Ford. Door handles are countersunk into the body panels

Ford Gets a Conservative Restyling Job for 1961

The success of the squarish, conservative and highly successful 1959 Ford line a little less than two years ago has had a definite influence on the styling of the '61 Ford.

This new Ford is the 1960 body shell with new sheet metal below the window line which adds up to a plainer, more conservative car than the swooping, flat-backed '60.

The hood line has been raised to make room for a more conventional concave grille. At the rear end, overhang has been shortened so that the over-all length is 3.7 inches less than on '60 models.

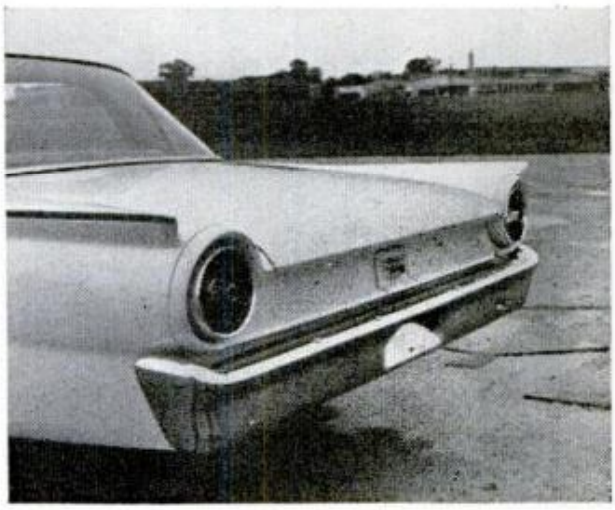
The tricky, narrow, depressed center section of the trunk and rear window has been replaced by a conventional, flat trunk lid that's 10 inches wider for easier access.

The modest, low fins used on '57 and '59 Fords are back, as are the big, "bullseye" tail lamps that seem to have become a Ford trademark.

All lubrication points on the front suspension and steering linkage are prelubricated at the factory with a special molybdenum-disulfide grease and sealed with screwed plugs.

These plugs are to be replaced "after an extended period" with conventional grease fittings and the lubricant replenished. Unofficially, as *PM* goes to press, this "extended period" is reported to be 30,000 miles, a long ride between grease jobs!

The simple, mechanical, self-adjusting device pioneered on Mercury brakes is now standard on all Ford models. Engines remain 226-cubic-inch displacement six plus 292, and 352-cubic-inch V-8s. Also a "super" 390-cubic-inch V-8 has been added as a "power package" option. ★ ★ ★



Rear end of '61 Ford shows clean uncluttered lines, familiar, big "bullseye" taillamps and wider deck lid

Beefier new bumper, more prominent headlamps and a simple, mesh-type grille mark front of '61 Ford

Total change of appearance from the '60 model is the result of new grille, hood, fenders, rear quarter panels and rear deck. Fury model, below left, no longer carries dummy tire cover on rear deck lid

Plymouth Is Sleek, Finless

The 1961 Plymouth retains its basic unit-construction body shell with front stub frame, while changing all exterior sheet metal except for the roof, glass and doors.

Hood and rear deck are flat and rounded off with the only trim a raised, bright metal highlight in the center of the rear deck.

Windshield has been simplified by the elimination of the compound curve at the top. Biggest engineering change is adoption of alternator used on 1960 Valiant.

Valiant's handsome new two-door hardtop, above, shows the small trim changes on sculptured knife edges of front and rear fenders. Grille was changed from '60 by painting center of squares black

Valiant Gets a Hardtop

Valiant has slight styling changes with some detailed improvements such as cable-controlled ventilator doors. Biggest change is addition of a two-door hardtop model.

This is a unique hardtop in that it uses the same roof and rear quarter as the four-door sedan, which enabled designers to combine roomy sedan seating with hardtop's coupe styling. There is also a two-door sedan model.

The '61 Comet is changed in appearance by the switch to a new grille made up of short horizontal bars. Also new are chrome chevrons on front fenders. Rear view, below, remains virtually unchanged

Comet Has Bigger Engine

Comet has been given a much-needed lift in the way of a healthy power increase. An optional version of the basic 144-cubic-inch displacement Comet engine has a longer piston stroke, displaces 170 cubic inches and develops 112 horsepower compared to the smaller engine's 90.

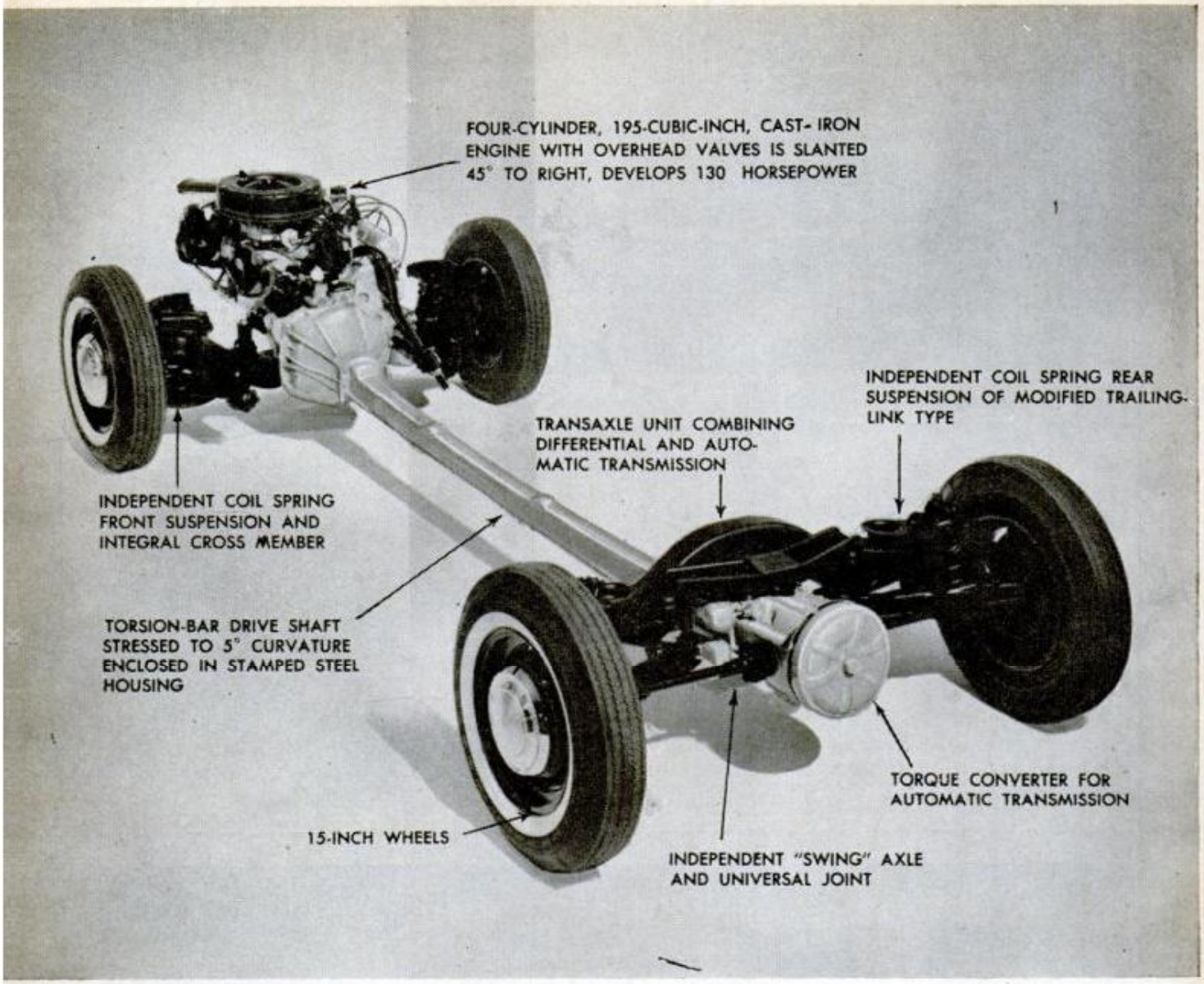
Either engine will be available in any of the two and four-door sedan and station wagon models.

Falcon's sculptured side panels are highlighted by stainless-steel trim strips, above, handsome new convex grille, below, which changes car's personality. Falcon continues use of single head lamps

Face-Lifted Falcon For '61

Ford's Falcon compact has been little changed for 1961. A new, more attractive grille has been added and the sculptured areas on the side panels on all models have been trimmed with a narrow bead of stainless steel.

A 170-cubic-inch displacement version of the Falcon six-cylinder engine developing 112 horsepower is available as an option to the 144-cubic-inch standard engine.



"Chassis" of Pontiac Tempest consists of engine, front suspension, drive shaft, transaxle, rear suspension

Pontiac Tempest: The Engineering Story

Public announcement date of the 1961 Pontiac Tempest automobile occurs after the publication date of this issue of *POPULAR MECHANICS*. However, as the release date for engine and chassis details of the new compact precedes the release of the full Tempest story by several weeks, we are able to bring you pictures and the complete story on the mechanical components of the car.

For an approximate idea of how the car itself will look, study the Buick Special and Olds F-85 (pages 97 through 102), as these cars share the same basic bodies—four-door sedan and four-door wagon—with the Tempest. Next month *PM* will show the Tempest in color and black-and-white photos.

From an engineering standpoint Pontiac's Tempest is without doubt the most imaginative of all the 1961 automobiles. In fact, of all the cars built since the close of World War II, only Chevy's rear-engined, air-cooled Corvair could top it.

For example, the Tempest is the only car around with a front-mounted engine and the transmission in the rear. It has the first "transaxle"—transmission-differential combination—seen on an American car. (True, Corvair has the engine, transmission and differential in one unit, but this isn't a "pure" transaxle.)

The Tempest is also first in the U.S. to have independent suspension on all wheels combined with a forward engine location. It has the first four-cylinder engine to appear on a General Motors car since 1928. It has no universal joints on the drive shaft

and transmits power through a curved torsion bar. And, oh yes, its engine is slanted 45 degrees to the right!

The Tempest engineering story begins with the objective of Pontiac Division to produce a compact car of the same dimensions as the Buick Special and Olds F-85 to sell at several hundred dollars less. (As *PM* goes to press no prices have been announced for either the Tempest or other GM compacts.)

Inasmuch as the integral body-and-frame structure used on the Tempest is virtually identical to that of the F-85 Olds and the Buick Special, it is evident that cost cutting was impossible in that area.

The savings, then, must come in reduced tooling and production costs of the engine, suspension and drive line. Here's where Pontiac's ingenious engineering department went to town.

Chief engineer E. M. Estes and his associates started out with the premise that one half of a big engine already in production should be cheaper than tooling up for a brand-new, small-size V-8 of approximately the same displacement and horsepower. Accordingly, Pontiac made some special molds enabling the foundry to cast the right bank of the big Pontiac 389-cubic-inch V-8 without the left bank. This made for a somewhat lopsided four-cylinder engine, but permitted Pontiac engineers to machine it on the same production line used for the V-8, using the identical tools to drill the four-cylinder engine as are used to drill the right bank of the V-8.

As a matter of fact, fours and V-8s alternate on the production line and are handled automatically in any sequence. The four-cylinder engine, displacing 195 cubic inches, uses the same cylinder heads, valves, pistons, connecting rods and exhaust manifold as the V-8. Only the crank and camshafts, intake manifold, water pump, fan and carburetor are different. Result: A big, muscular four-cylinder engine at less than the cost of any new engine!

Further economies were gained by using basically the same front and rear coil-

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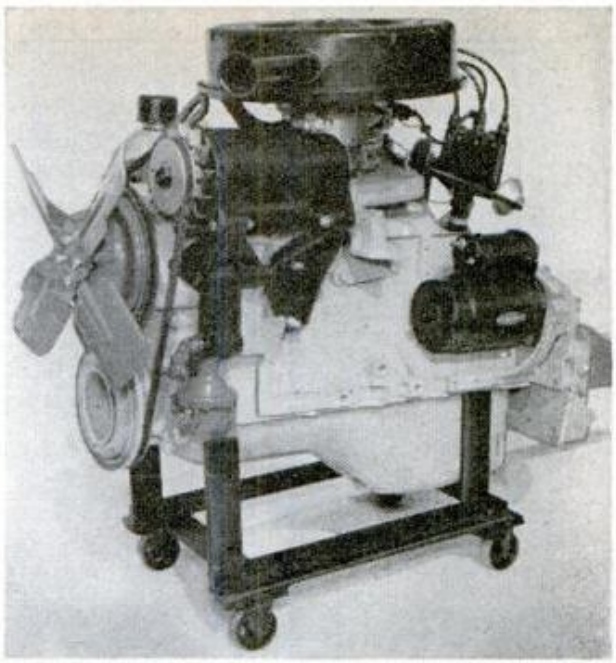
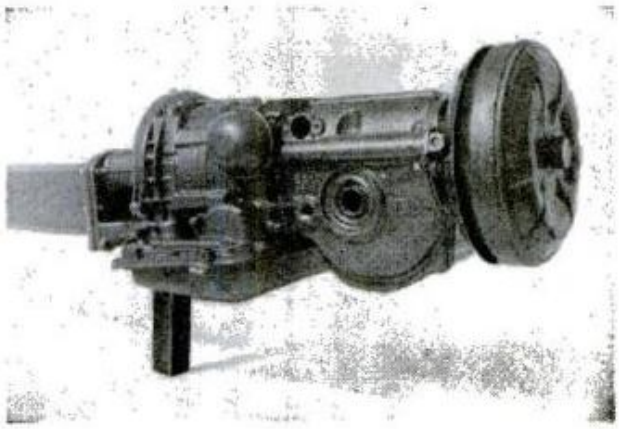


Left-hand side of Tempest's four-cylinder engine with water pump, generator, carburetor, intake manifold and distributor sitting above crankshaft as cylinder block is tilted 45 degrees to the right of center



Here's Tempest's transaxle minus axleshafts and universals. From left to right; transmission gearing, valve body, differential (hole shows where axle shaft fits), torque converter. Many parts are aluminum

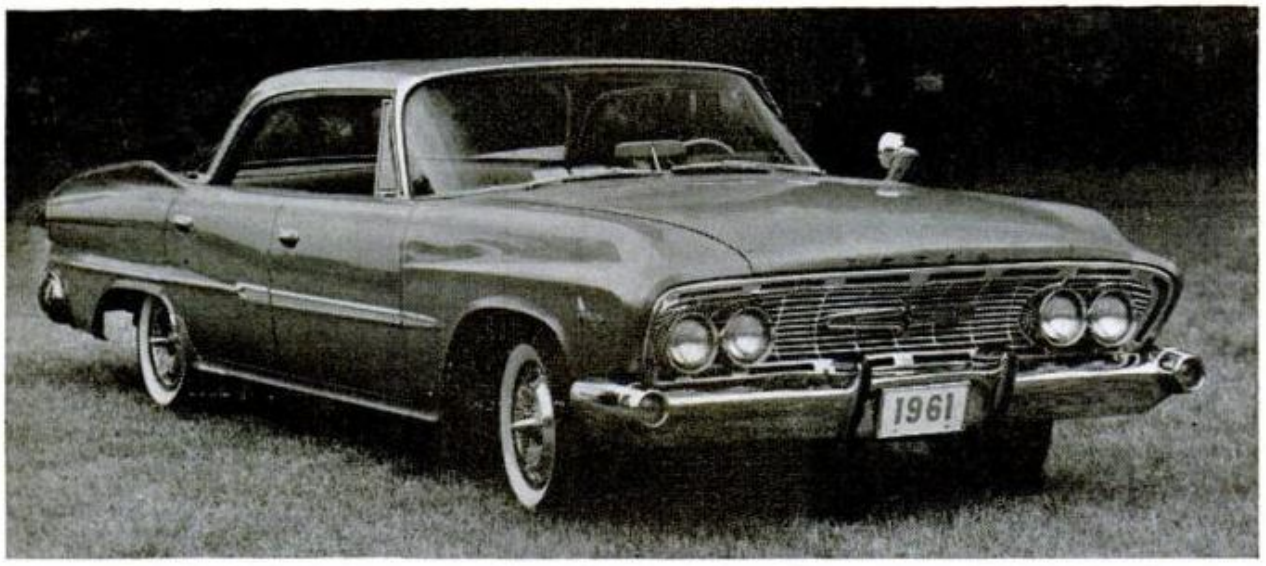
Tempest's power train with engine connected to transaxle by curved torsion bar shaft in tubular housing

A smooth, flat hood with a definite down curve and a wide, concave grille make a complete change in '61 Dart's appearance. Hood panel is adorned with dummy louvers near cowl opening

Dart Has a New Look

Dodge Division's Dart series became the automotive success story in its price class in 1960. However Dodge isn't resting on its laurels. Result, a complete restyling job on three series of Darts.

Only the door panels and glass areas remain unchanged. Under the hood there are numerous improvements, one being the use of the alternator in place of conventional d.c. generator.



Dodge can be told from Dart by ornamental medalion in grille, lower trim strip on side panels, and rocket tube tail lamps

Revamped '61 Dodge

The "big" 122-inch wheelbase Dodge Polara has been restyled from roof to rocker panels as has its 118-inch wheelbase companion car, the Dart.

The Polara has unique, rocket-tube tail lamps faired into the side of the fenders while the Dart's lamps are just above the rear bumper. Standard engine is a 361-cubic-inch V-8 of 265 horsepower.

Restyled Chrysler Adds an Economy Line—The Newport

For 1961, Chrysler Division has reshuffled its lineup, broadened its price range and restyled all its cars. Top series remains the New Yorker with its 126-inch wheelbase. The Saratoga, middle line of the 1960 Chryslers, has been discontinued.

The 122-inch-wheelbase Windsor continues in its position as a medium-priced car with four-door sedan, and two and four-door hardtops.

The Newport also on 122-inch wheelbase, and new for '61, comes in five body styles; sedan, two and four-door hardtops, convertible and a four-door hardtop wagon. New Yorker has same model lineup.

No prices have been released as *PM* goes to press, but it is expected that the Newport will sell in competition with lower-medium priced cars.

Engine in the Newport is a 361-cubic-inch V-8 of 265 horsepower designed to run on "regular" gasoline. Standard transmission on both Newport and Windsor will be a new three-speed manual with floor shift.

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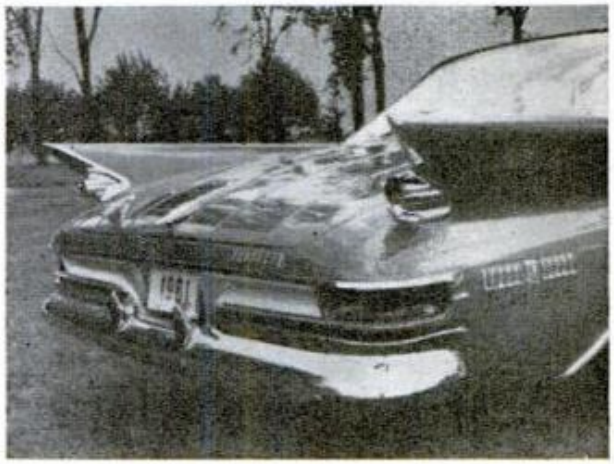
Chrysler New Yorker, above, has silhouette similar to 1960 model. Big change is on front end, below



Rear treatment of Chrysler for '61, right, brings the tail lamps down from the fins and molds them into the body. Newport, below, has plainer grille, different side trim, than the New Yorker or Windsor

Sleek DeSoto two-door hardtop, above, retains those sweeping, "Forward Look" fins that have become a Chrysler Corporation trademark. Grille, below, is now two-piece with aluminum mesh in upper section

DeSoto Keeps Its Fins

A brand new face for the '61 DeSoto comes in the form of a dual section grille and interestingly canted pairs of headlamps.

Basic body shell is same as on '60 models. DeSoto has two models, a two and a four-door hardtop in the 122-inch-wheelbase Fireflite series.

Appearance from the rear has been changed considerably by moving the tail-lamps from the trailing edge of the fins down into the body itself. Major mechanical change is the switch from d.c. generator to Chrysler Corporation's new alternator.

Big Imperial still has distinctive two-section roof paneling, shown above, but adds a totally different front-end treatment with thin-barred grille and chrome-plated pairs of free-standing headlamps

Imperial Gets Novel Front

The big luxurious Imperial continues with its separate body and frame construction and basically the same body shell used on the 1960 models.

Biggest change lies in the radical restyling of the front end where the two pairs of head lamps have been removed from the body sheet metal and now stand free as separate units in bullet-shaped housings on the bumper apron.