



HANDLING QUALITIES of the sport sedan were markedly influenced by the fulltime power steering which imparts a deceptive ease to all maneuvers, whether they be mere parking or sharp bends at speed. The feeling is genuine in action at the curb or in moderate traffic where behavior is docile enough to please the most discriminating. The characteristics at a faster pace are those expected in a heavier standard passenger

vehicle which leans in tight corners. Nevertheless, the benefits of increased attention to suspension by engineers are apparent and are a substantial improvement over, say, two years ago. While the car is stable at higher speeds, the loose feeling in the wheel is so light it takes some driver adjustment. Yet it unquestionably contributes to the overall comfortable ride in the softly-sprung car.

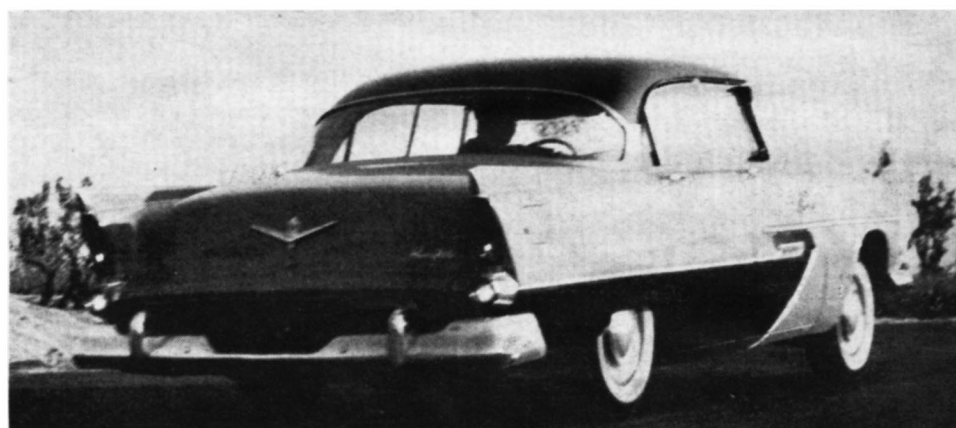
ROAD TEST—

PLYMOUTH four-door hard top

Styling and advanced features are the strong points—and here they've been wrapped up in the body type new to the low-priced class

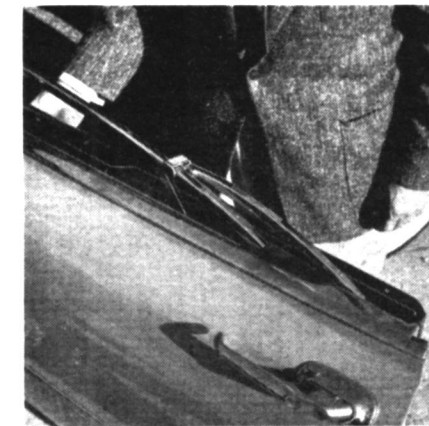
BIG CHANGES have been made in the 1956 Plymouth and the car used in this test was the newest of the new. Not only were there such intriguing features as the redesigned V-8 of 187 horsepower (also available in a 200-hp version when equipped with a power kit) and pushbutton transmission selector, but the body was the pillarless four-door hardtop

which Plymouth prefers to call a sport sedan. Other notable items in the layout included the more familiar PowerFlite automatic gearbox, power steering and brakes, plus electric window lifts and seat. Mechanical details are described and evaluated on the following pages; this is the place to look at the package and what it can do.



ACCELERATION, TOP SPEED AND ECONOMY, when compared with the 1955 model, reflect the change in engines. The following acceleration times average about one second less than last year: 0-30 mph in 4.5 seconds, 0-45 in 7.5, and 0-60 mph in 12.1. On the other hand, top speed was on about a par, the best run being 97 mph. Gas mileage, fortunately, was up a good 10 per cent, checking out at 22 mpg at 30 mph, 19.1 at 45, and 17 mpg at 60. The pushbutton transmission permits

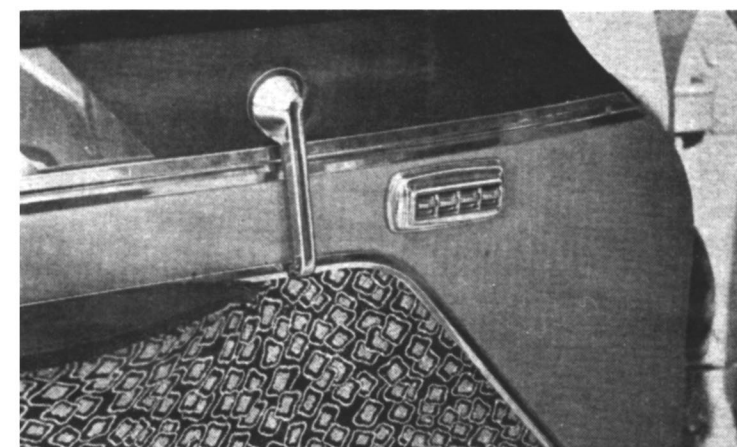
gear changes as precise as any automatic, but starts in low provided no better acceleration than when drive was used all the way. Previous tests of other Chrysler Corporation cars have applauded the button system, but it's worth repeating again: the device is the ideal arrangement for effortless control. Speedometer error was normal: indicated 30, 45 and 60 mph being actual 29, 43 and 56 mph, respectively. For high-speed results of the Plymouth Fury, see Special Reports.



FOUR-DOOR HARDTOPS, a sure bet to replace the conventional sedan, must have been one of the knottiest problems since the invention of the zipper. Beefing up the frame and installing the stout half-pillar were obvious steps—but working out the rear window arrangement was something that took more than genius at the slide rule. As illustrated in the series of photos, the glass carries its own rubber strips, yet must slide

down and fold inward within the narrow limits of the sill. The system is not bug-proof. Particular attention was paid to door fit in the test car and no faults were found. All closed tightly and securely and there were no abnormal rattles, squeaks or creaking noises. Passengers are as secure from wind or rain as in any of the two-door hardtops. The benefits, of course, include improved vision, the sporty look and higher resale value.

INTERIOR of the Plymouth is richly finished and colorful enough to match much higher priced cars. Quality control obviously is on the upgrade, but a couple of items could stand improvement. One is the electric lift controls mounted on the inside panel of the front door. These occasionally are nudged by the driver's knee which inadvertently raises or lowers the windows. The other is the curious insistence on locating some of the dash controls on the far side from the driver. Last year the ammeter and oil pressure occupied this position; this year it is the heater switches. Gives a balanced look, but inconvenient when driving alone. Other instrumentation is highly satisfactory and the dash has a centrally-located glove compartment and plenty of room for the "Hi-Fi" record player.

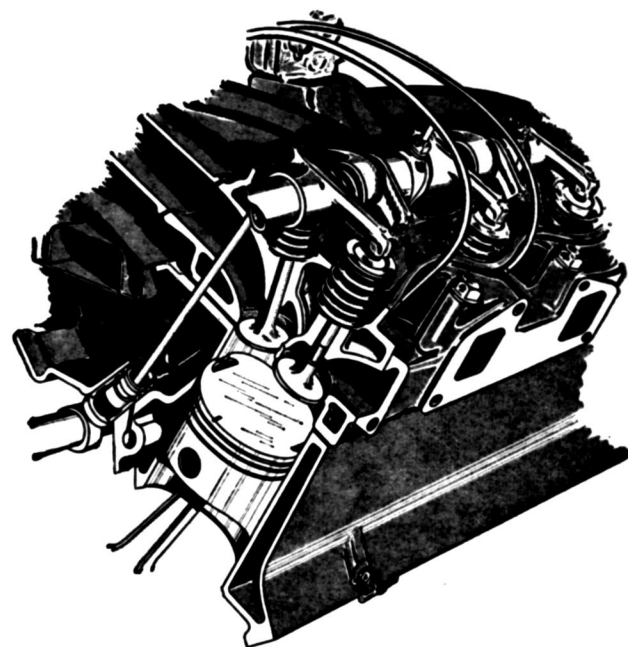


STYLING of the 1956 Plymouth is as bright as a new silver dollar. Where conservative design made it a kind of wallflower in the 1952-54 era, the radical changes of 1955 gave it a completely new personality. For 1956 it is a year—and maybe even more—ahead of its rival makes, which were

clearly beaten to the punch in the tail-fin department. This probably has dollars-and-cents value that'll pay off at trade-in time. In the case of the test car, the four-door hardtop treatment catches the eye like nothing else will. Only weak spot is the grille which is undistinguished.

1956 PLYMOUTH

technical analysis



Plymouth's "polyspherical" combustion chamber configuration can be understood by careful study of this cut-away view of the '56 270 cubic inch version of their V-8.

Many fine cars have been built requiring the specialized knowledge of the automotive enthusiast to appreciate them. Unfortunately, most of these machines also required the annual income of an Indian potentate to enjoy them through actual ownership. This year's Plymouth promises to make great strides towards changing all that.

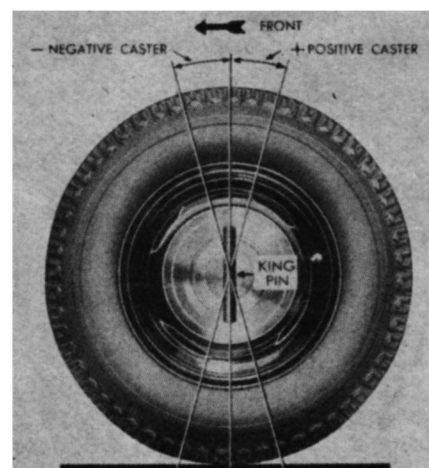
SUPERFICIALLY resembling its 1955 predecessor, the 1956 ohv V-8 carries the likeness even further by retaining the combustion chamber design that Plymouth calls "polyspherical" and the rest of the industry calls compromise. But if getting most of the efficiency of the highly-touted hemispherical design without any more complication than required by more conventional layouts is compromise, then perhaps some other manufacturers may wish that they had originated this particular concession to practicality.

Regardless of the reasons for adoption, the polyspherical combustion chamber gets the job done: High compression on regular gas, with even-burning characteristics that are essential for smooth running. But aside from the chamber design, the 277-cubic-inch engine is all-new.

Chief difference of interest to the average car-buyer is that the hydraulic tappets are longer used in this model. To him, this will mean that heavy duty, high-detergent oils will no longer be a compulsory. But solid tappets will mean that the top 20 per cent of through-the-

gears performance will not be chopped off by lifter pump-up.

Performance should be this Hy-Fire's middle name—200 horsepower when equipped with the Power-Pak—consisting mainly of a four-throat carburetor and dual exhausts; in standard form the output is 187 hp. Impressive though they may be, these horsepower figures are overshadowed by the torque ratings of 272 and 265 foot/pounds, with and without the Power-Pak, respectively. Approaching one foot/pound of torque per cubic inch of piston displacement can be far more appreciated in everyday driving than attaining the one horsepower per cubic inch figure that seems

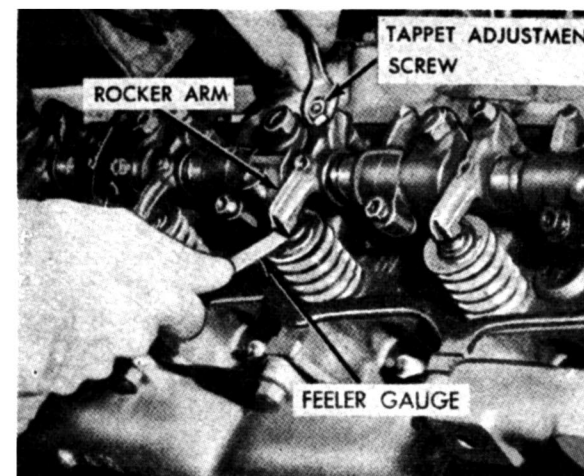


Effect of negative caster factory specified for Plymouths equipped with manual steering is explained in the article.

to have become the ambition of all Detroit. When this respectable torque output of the new Plymouth is compared with its desirably low peak-torque output figure of just 2400, then it is easily seen that some engineering dreams have come true.

For those with more practicality than poetry in their souls, the tired-and-true Powerflow Six is still available; the middle-of-the-roaders will be accommodated by the 270-cubic-inch Hy-Fire V-8, a slightly bored-out ($\frac{1}{16}$ of an inch) version of last year's highly successful engine which still retains the hydraulic tappets. The new engine's larger bore ($3\frac{3}{4}$ to $3\frac{1}{2}$) and shorter stroke ($3\frac{1}{2}$ to $3\frac{1}{4}$) plus its bigger valves ($\frac{1}{8}$ -inch larger intakes, $\frac{3}{16}$ -inch larger exhausts) definitely establish it as the superior choice for output in the upper range, over the engine that was rated as "one of the most difficult to improve upon" just 12 short months ago.

To make a car wanted by those with a more than average knowledge and appreciation of fine-things automotive, you must have more than just an excellent power plant. Plymouth engineers have done their best in the braking, suspension and steering departments as well. To keep the car within the price range for which it was designed, a few niceties that would be appreciated by only a minority were necessarily foregone. To the majority the car has the best handling and steering characteristics one can expect from the conventional layout of coil springs with A-frames in front,



Adjustable rocker arms provide for the necessary valve-gear lash on 277 cubic inch models—no more hydraulic lifters.

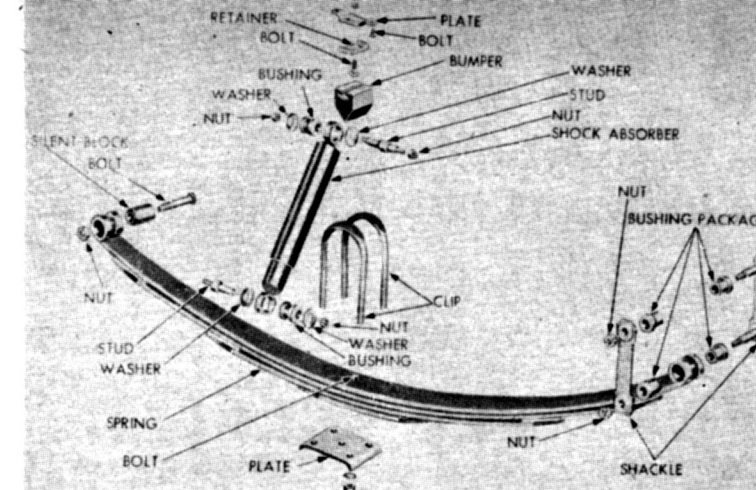
semi-elliptic springs in the rear, and the nose-heavy attitude that has become characteristic of cars since the stylists won the last four or five rounds in the Engineer versus Stylist bout.

One startling note, on paper at least, that doesn't seem to matter in fact, is the factory specified setting of 0 to 2 degrees of negative caster angle for the kingpins. Inclining the kingpins toward the rear of the car (positive caster) has always been a traditional way of insuring that the car would go where its master directed. Common practice among competition car owners has been curing an evil-handling track car of its wandering ways by bending in a few more degrees of positive caster right out on the track, without benefit of instruments. Plymouth, along with a few other manufacturers, has gone the other way these last couple of years by setting-up the front end with from no positive caster at all, to less than nothing—two degrees of negative caster!

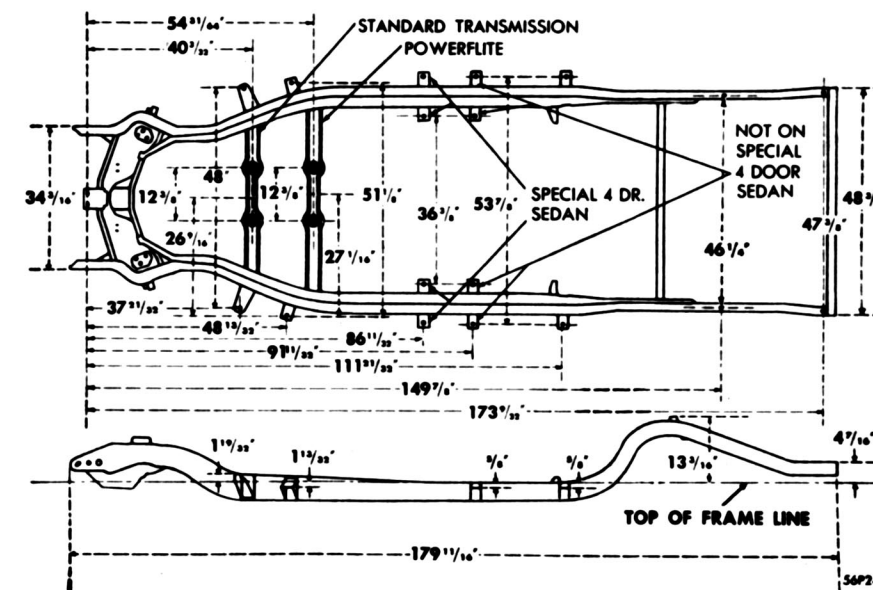
The desirable feature of this arrangement is that no longer are you actually lifting the car a little when you turn the steering wheel. The difference this can make in parking can be appreciated; now the weight of the car is working with you instead of against you.

Shock absorbers can alter the handling and ride characteristics of any car beyond recognition; take an expensive-to-make foreign car with independent suspension for each wheel, remove its shocks, and watch it go everywhere but

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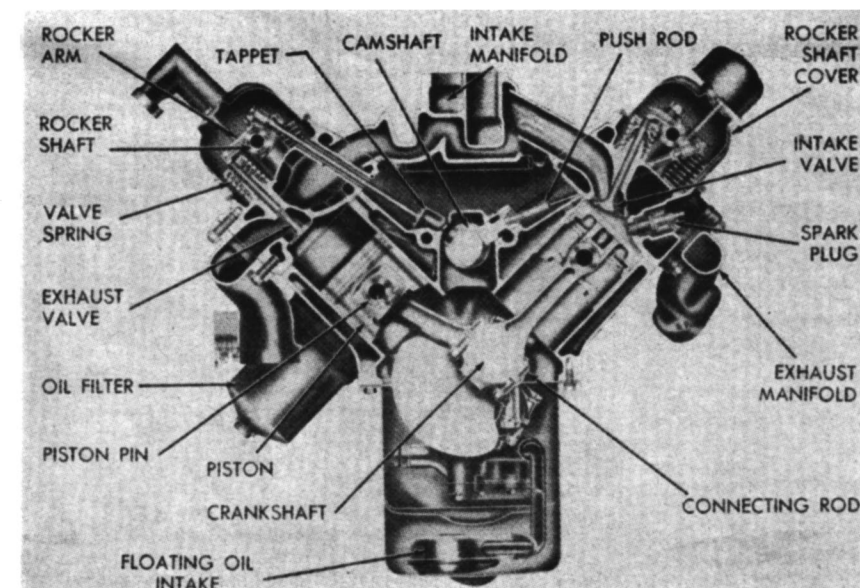


Conventional layout incorporating semi-elliptic leaf springs, direct acting shocks comprises the rear suspension of this year's Plymouth.



Unknown to many new-car buyers is the fact that their car's basic frame design may center around what they consider an option in transmission or body.

Cut-away of 277-cubic-inch version of Plymouth's two basic designs for '56 reveals the full-flow oil filter and better than average spark plug accessibility.





George Walker, Ford's styling boss, with car. The plastic canopy is retractable.

Ford's X-1000 dream

FORD not only announced a new dream car recently, but gave the public an opportunity to see how such a vehicle is created.

The car is the X-1000 and an exhibit at both the Chicago and Detroit auto shows traced its development, showing how an idea grows from the sketch stage to completion of detailed clay and fiber-glass models. The exhibit showed artists and clay modelers at work on the various steps necessary to bring the car to reality.

The X-1000 is a real car of the future. It was inspired by today's supersonic jet fighter planes and the influence is obvious. However, George W. Walker, Ford director of styling, claims that "a majority of its styling and engineering features already are feasible. In fact, several of the features of the car already are being considered for incorporation in our new cars."

Therefore, a careful look at the X-1000 might give some hints as to what to expect from Ford products in the future.

One of the first things to note is that the car has a retractable top. The bubble-type canopy over the passenger compartment slides back to make the car a convertible. Ford has been playing with this feature for several years and could be planning to spring it on production models soon.

Another interesting point about the

X-1000 is the fin treatment.

They are delta-shaped and rise out of chrome-outlined openings in the rear quarter panels—appearing to be floating almost unsupported.

The most important things about this car, however, is that it is designed so that the engine could be located at either front or rear and that "any of several possible new types of power plant" could be accommodated! This seems to be a coy way of saying that it has been tailored with some consideration to the possibility of using a gas turbine engine.

This is not unlikely, although it doesn't mean that Ford has such a power plant ready to go on a production basis. It might mean that the company is ready to spring an experimental turbine car, however.

A departure from normal practice in the X-1000 is the seating arrangement. It is a three-passenger model. The driver's seat is centered in front and the two passengers' seats are on either side behind it.

The jet plane influence shows up in the torpedo tail lights cantilever-mounted off the inboard surfaces of the tail fins.

The push-button transmission set-up used on the X-1000 may be an indication of how Ford plans to work this feature into future models. The push-button control is mounted in the center steering wheel. •



Clay modeler John Ebejer works with rendering as backdrop. Location of oil cooler on lower front fender edge and provision for an after-cooler with grille-work in rear deck lid of car is interesting and may be especially significant.

PLYMOUTH TECHNICAL ANALYSIS

(Continued from page 23)

straight, shaking its passengers into insensibility as it goes. Or better yet, take an average chassis design, engineered for mass production at low cost per unit, spend some serious engineering time on fitting just the right shocks, and you'll come up with a winning combination.

Plymouth's Oriflow shock absorbers perform with the best, and have an undeserved reputation as being among the worst. Ignorance on the part of otherwise intelligent mechanics is the reason for this paradox; few independent garagemen know that the resistance of Oriflow shock absorbers to movement varies with the rapidity, frequency and magnitude of the shock they are intended to damp-out. Thus testing by the time-honored method of jumping on the bumper, or by pull-test while mounted in a vise, is impossible with shocks of this design. But while acquiring an uncalled-for cussing in some quarters, Oriflows have made friends in many others, especially among those who don't care *what* it is that makes a car handle well, just so long as it *does*.

Two-inch wide brake shoes carrying bonded-on moulded asbestos linings transform the forward motion-energy of the car into heat through 10-inch drums on the rear, 11-inch up front. Wheel cylinders share the same 1½-inch diameter as the master cylinder. This provision for equal diameter pistons throughout the system gives a one-to-one ratio of braking effort, eased for the mere human driver by the leverage built into the pedal linkage, and vacuum boost, optional at extra cost.

Power steering, termed co-axial title stems from the location of the power's application; directly on the lower end of the steering column, rather than on steering linkage as in some other types of power assists. Operating pressure of the oil within the booster unit is in direct proportion to the turning load; direction given the unit must come through this same oil via an immersed plunger connected to the steering column shaft. Thus the feel of what he's up against is preserved for the driver's peace of mind, while his muscles get a break, too.

Getting the horsepower from its source to the scene of its application is done in this year's Plymouth in a most practical, if unexciting, manner. No jets, rockets or atomic confusion is used; just a conventional driveshaft with an open-type universal joint at each end, thus making up what is known as a Hotchkiss-type drive line. The hypoid rear-end transmits braking and acceleration torque reactions to the semi-elliptic rear leaf-springs, which dissipate the reaction by raising or lowering the rear

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end of the car, depending on whether you're stopping or starting. This must not be taken as a criticism since it is a common feature of nearly all cars.


Incidentally, the term hypoid, as applied to automobile rear-ends, is simply a fancy way of saying that the driveshaft pinion-gear meshes with the differential ring-gear at a point below the latter's axis of rotation. Gear ratios available on the V-8 Plymouths of 1956 are 3.73 with conventional transmission, 4.11 with overdrive and 3.54 with automatic.

Lovers of the open road will be glad to know that the optional overdrive provides an engine speed 30 per cent slower than conventional for any given cruising speed. Proponents of the lounge-lizard school will be equally happy to know that Powerflite (Plymouth's torque converter transmission) not only knocks the shift out of your driving but refrains from dampening the performance with its cushion of oil. This is due to torque multiplication augmented by a planetary (internal-external) gearset which comes into play when more acceleration is required than can be provided by the converter alone. Up to 4.47-to-1 total increase in ratio over direct is possible. This is achieved through a combination of the gearset's fixed ratio of 1.72-to-1 plus the converter's variable-ratio maximum value of 2.6-to-1.

But the real appreciation of Plymouth's options in transmissions will come to the do-it-yourself man who selects the stick shift. Ratios specified for 1956 closely approximate those found on the top three gears of four-speed racing transmissions: 2.50, 1.68 and 1.0. All that is missing is the axle-snapping "granma" bottom gear, totally unnecessary in the new Plymouth because of its engine's abundance of low-speed torque. Said torque is gently but firmly transmitted from the flywheel to the gearbox by a 10-inch diameter Borg and Beck single-plate dry disc clutch which uses the coil-spring type dampener long favored by lovers of high-powered machinery.

For those who would have all this, and keep a cool stool as well, air conditioning is another option. Actually a refrigeration system using compressed Freon 12 as the active ingredient, this unit coupled with the Plymouth fresh-air heater makes it possible for our erstwhile middle-class peasant to create his own environment, at last climate-wise—a privilege beyond the reach of royalty not too long ago!

But custom-made climate or not, Plymouth has shoved both feet in the door of the classless market—where people buy cars by preference rather than price—but still retains a basic price tag within the reach of any qualified new car buyer. •



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