'58 DODGE ON TRIAL

A Motor Trend Research Report

by James E. Potter

What must a car have to be selected by one of the nation's most mileage-traveling highway patrols? How does a CHP Dodge compare with a stock D-500 in performance, ride, handling?

CALIFORNIA HIGHWAY PATROL required a high-performance car with adequate high-speed braking, minimum fade.

WHEN A MAJOR STATE HIGHWAY PATROL selects a car for their kind of rugged driving, that's news worthy of special interest to every potential purchaser of a new car. We drove the car that the California Highway Patrol finally selected, a specially-equipped Dodge Custom Coronet two-door sedan with D-500 engine. We also tested a stock Dodge Custom Royal D-500 four-door hardtop that the public normally would buy. How do these two cars compare in specifications, performance, ride and handling—and what does it mean to you as a new car buyer?

In the first place, the California Highway Patrol uses over 800 vehicles in their department, making it one of the largest governmental fleet auto users. When they buy their equipment, they purchase 200 to 300 cars at a time. Such mass purchasing methods demand that errors in judgment be kept to a minimum. A mistake in the final selection obviously would cost the taxpayers plenty of money should a switch to a different make of car be necessary because of the failure of the selected vehicle to meet the everyday driving requirements of the patrol.

The California Highway Patrol recently conducted an exhaustive series of tests at the Riverside International Motor Raceway, 70 miles east of Los Angeles, to determine which make of car best met their requirements. Certain specifications, established by the patrol through years of experience on California's varying types of highways, were submitted to interested automobile manufacturers. As a result, five cars—a Dodge, Mercury, Buick, Pontiac and Oldsmobile—were put through the paces by CHP personnel, under the personal direction of B. R. Caldwell, commissioner of the CHP, and assisted by Inspector Adrian Dillon of Sacramento.

Let's examine the basic specifications of any car to be used by the California Highway Patrol: They were to be two-door sedans on a chassis of not less than 122 inches, with head- and legroom that would be comfortable for anyone up to six feet, six inches in height. Suspension, shock absorbers, stabilizers or sway bars were to be of a heavy-duty type. An automatic transmission embodying the latest design and engineering advancements was required, along with a conventional differential with a ratio designed to give the best overall performance. The fuel distribution system had to be such as to permit sustained high-speed operation, prevent vapor lock, and have adequate filtration. A hydraulic brake system was required to be of a design and size that would permit safe and adequate high-speed braking with a minimum of fade during repeated applications, contain heavy-duty brake fluid, and have all components of the system 100 per cent free of defects. Unladen weight of the vehicle was to be not less than 3800 pounds, and steering was required to be safe and adequate for all speeds the vehicle was capable of attaining, and not hampered by snow pack under the front fenders. Heavy-duty nylon tires mounted on 15-inch wheels were also requested. Power for the CHP cars was to be supplied by an overhead-valve V8 engine of not less than 350 cubic inches with a compression ratio of not less than 10 to 1. The carburetor was to be a single unit; it could be a multiple-barrel design (even twin four-barrel as an option) equipped with automatic choke and engineered to insure adequate fuel supply to the engine in all maneuvers at all speeds.

Those were the basic requirements, not too far different in most respects from many of the stock high-performance cars already available to the public. Major differences were in the request for 15-inch wheels and heavy-duty tires and for a stiffer suspension system. Reason for the bigger wheels and tires is that a car so equipped has more square inches of tire surface touching the pavement with each complete cycle of wheel movement, thus giving better tractive power, increased braking power, and increased load rating. Another off-the-record reason is that the CHP has a long-term tire replacement contract with one of the tire manufacturers for 15-inch tires. Then, too, the CHP's experience with 15-inch tires and wheels has been highly satisfactory over the years.

The heavy-duty suspension request is fairly obvious. Police patrol cars must be highly roadable machines, capable of high-speed cornering and instant maneuverability. Sloppy handling often accompanies a soft springy ride, characteristics which not only are unnecessary in patrol work but can be downright dangerous in a pinch. That's why stiffer shocks, an extra rear spring leaf, and heavier torsion bars were installed on the Dodge destined for the CHP tests.

The California Highway Patrol tests were divided into three basic categories: acceleration, roadability, and braking. As you undoubtedly know, these classifications are included as a part of all automobile testing programs conducted by MOTOR TREND. Some of the CHP tests, however, differ in detail to better evaluate a car for the special demands made on it for police work.

For instance, in the acceleration runs, each car was to be rated against speeds attained in a quarter-mile from a standing start, in a quarter-mile from a flying start of 50 mph, top speed in ¾-mile from a standing start, and top speed from a standing start at the end of a one-mile run. Three runs were made for each part of this test by three different drivers in each of the five test cars; a simple arithmetical average of each vehicle's time was computed from these results. Although it is not permissible to release figures on each of the cars, here are the CHP's minimum requirements together with an overall average of all the five cars tested:

	CHP Minimum Requirements	Test Car Averages
¼-mile, standing start	75 mph	82.26 mph
¼-mile, 50-mph flying start	80 mph	87.65 mph
Top speed, ¾-mile, standing start	100 mph	111.94 mph

In the braking tests, the cars were checked for stopping distance, ability to stop in a straight line, and fade resistance. In the stopping-distance test, a series of three panic stops from 60 mph were made to determine the shortest distance possible in which a car can be stopped. Stopping in a straight line consisted of measuring the angle of deviation from line of travel to the stopped position of the vehicle in the three panic stops. The fade

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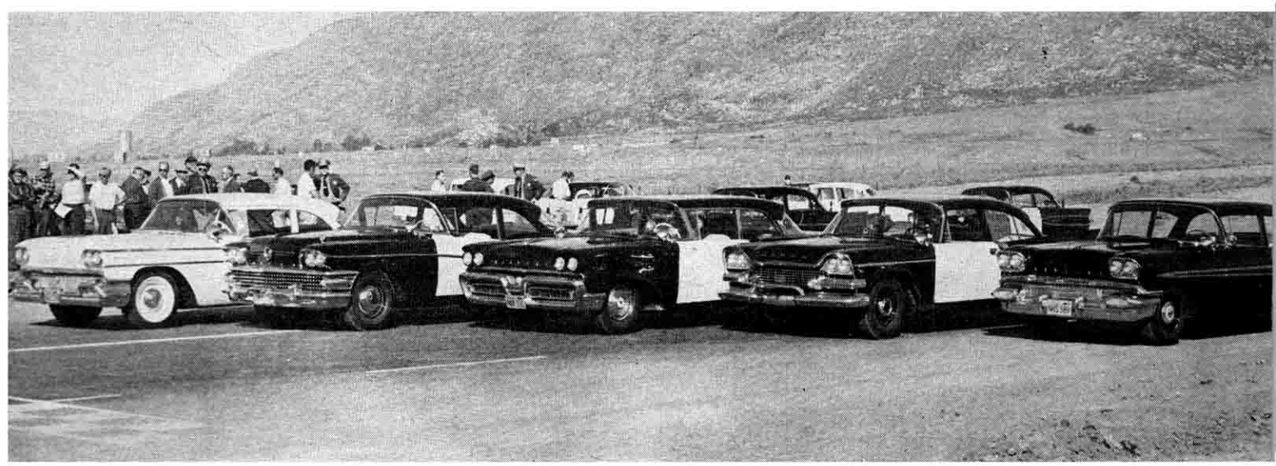
CHP PHOTOS BY LES NEHAMKIN, OTHERS BY JIM POTTER & BOB D'OLIVO



IMPORTANT CHP TESTS involved five two-door sedans (left to right: Oldsmobile, Buick, Mercury, Dodge, Pontiac) considered for use by the patrol. A heavy-duty suspension system and automatic transmission, a V8 engine of not less than 350 cubic inches, heavy-duty nylon tires on 15-inch wheels, were part of rigid requirements.

test consisted of a series of sudden stops in rapid succession from 60 mph. Stops were to be made as quickly as possible *without* sliding the wheels and continued until at least 10 stops were made, or the brakes had faded to a point where additional pedal pressure failed to give greater deceleration (or to lock up the wheels).

These brake tests obviously were tough and exhaustive, designed to bring out any deficiencies in the braking systems of the five cars, and that is just what it did to some of the cars tested. Again, although detail figures of each of the cars cannot be published in this report, suffice it to say that the Dodge had the shortest panic stopping distance. Even so, it had one 30-degree angle of deviation on one panic stop, while two of the other cars had definitely dangerous angles of deviation. The Dodge rear end chattered twice during the panic stops. All cars averaged only six or seven hard stops before fading was apparent.

On the roadability tests, each of the five vehicles was driven five times around the 3.3-mile, 11-turn race course by each of the five patrolmen test drivers. Cars were checked for cornering and other road handling characteristics, and for general performance. Driver and passenger opinions were considered in each vehicle's final ratings.

The importance of these CHP tests was indicated by the presence of factory technical representatives, who recorded and photographed the results of all tests. At the conclusion, they promptly returned to Detroit where the data will be studied by the respective engineering, design and test centers of all manufacturers represented. From this, improvements undoubtedly will be incorporated in future cars to make them better and safer. Certainly, each manufacturer will study his particular car in relation to the high standard set by the Dodge, the car that was finally selected over all others for use by the California Highway Patrol.

We promised you a complete comparison report between the CHP Dodge and a stock D-500-equipped model—and here it is. Incidentally, since both the CHP Dodge and stock model are practically alike, we'll discuss our findings and reactions to the two cars under the various categories only when differences occur. Information on what other models are available, options, and the like, can be found at the end of this report.

THE FIRST FEEL

EXIT AND ENTRY The CHP Dodge has slightly more ground clearance because of its six-ply tires and 15-inch wheels, so you don't have to stoop quite so low to get into this normally 56.8-inch-high car. We discovered that entering the car in a crowded parking lot can create a problem; with the door only slightly open there's danger of catching a sleeve or chin on the fairly sharp-pointed windwing. We did it. You can pop your knee on the extended emergency brake handle if you're not careful, especially with the seat adjusted to the far forward position. It was a simple matter to eliminate this hazard, though, on the stock Dodge, for it was equipped with a six-way power seat which was easily moved to the aft position by pushing the control buttons on the left side of the seat. One item that we noticed immediately was the fact that you can operate the power windows without the ignition switch being turned on—an unsafe feature when children are left alone in the car.

INSTRUMENTS AND CONTROLS Unchanged from last year, dials and controls are grouped attractively in front of the driver, are well lighted and easy to read, except for the horizontal-type red-line speedometer, which to us remains in the gimmick class. As you increase speed, red rectangles are filled with each five-mph increment. Trying to read an accurate speed indication on this kind of speedometer requires far too much concentration.

Despite the large door of the glove compartment and use of a clip for "road maps," space is very small. Its location, at far right of the dash, makes a long reach for the driver. The small finger grip under the glove compartment door button, makes door opening quite easy—an excellent idea that would be welcomed on other cars.

The location of the transmission pushbuttons to the left of the steering column on the dash has aroused considerable debate. On the credit side, they are out of the way of children's inquisitive hands, and there is no lever to contribute to the protruding hazards in case of an accident. On the other hand, a lever and quadrant setup is usually easier to see and more convenient to operate. Largely, the question of buttons or lever is a matter of personal preference.

STARTING Turn the ignition switch to ON, push the N (neutral) button, and the Dodge starts immediately, either with the engine cold or after hours of testing with the engine hot. Pushing the N button eliminates the extra step, on some Chrysler cars, of turning the ignition switch to start. Even after we killed the engine following flooding at a traffic light, starting presented no problem.

DRIVING IN TOWN

DRIVING POSITION One of the first impressions you get of the Dodge is that it is extremely easy to get used to; the comfortable feel behind the wheel has a lot to do with this. Despite long hours in the worst kind of freeway traffic, we never got tired. The steering wheel position is just right, not too far forward nor too far back so that your arms get heavy from stretching, or cramped from being pulled tight against your chest. Seats felt firm, and the seatbacks offered good support. The California Highway Patrol Dodge was equipped with safety belts, an added relaxer that has its advantages, especially for police patrol kind of driving.

GENERAL FEEL The stock Dodge had a ride that was soft yet firm enough to give you an indication of how the car would handle. Prior to Torsion-Aire suspension, Chrysler cars were soft riding all right, but wallowing, nose diving and squatting were their characteristics. Not so, today. The CHP Dodge had a much firmer ride due to its tied-down shocks, its extra-long and extra-leaf rear springs, its 15-inch wheels and six-ply heavy-duty nylon tires. There was a definite difference in feel between the two cars. Because of the stiffer suspension, I had more confidence in going around turns at a faster clip in the CHP Dodge. Although lean is practically negligible anyway even in the stock Dodge, there seemed to be none whatsoever in the CHP car. Forward and side vision are excellent, but those rear fender fins viewed through the newly located rear-view mirror—now left of center on top of the dash—still give the illusion that another car is right next to you.

Power steering and the 3.5 turns lock-to-lock on the stock Dodge made parking an easy chore. We didn't miss this assist on the CHP Dodge under normal driving conditions probably because of its higher steering gear ratio and 5.2 turns lock-to-lock, but we wouldn't be without power steering on our car, mainly because of the quick steering during parking maneuvers.

BRAKES We had a chance to check both power-assisted and conventional-type brakes on the stock Dodge and CHP Dodge, respectively. Only major difference was in the available pedal travel; conventional type had about six inches, while the optional power pedal had 4½. Of course, less foot pressure was required on the power brakes, but the amount of effort needed to operate the conventional brakes certainly isn't objectionable. The total-

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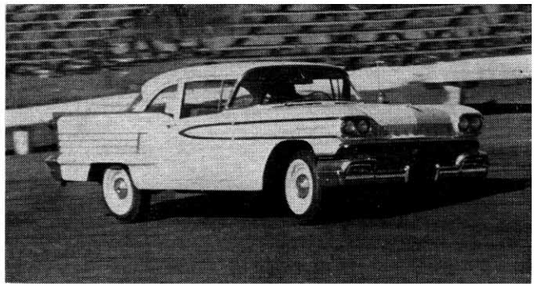
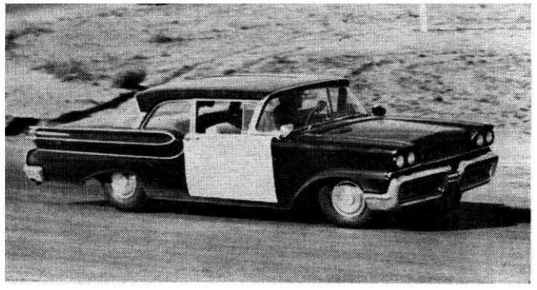


ALL CARS were tested for cornering and other road-handling characteristics. Olds had definite lean around Turn Six at Riverside International Motor Raceway.

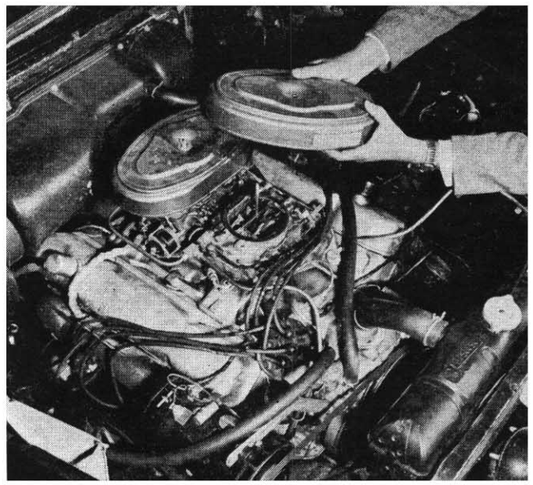
ACCELERATION TESTS included ¼-mile from standing start, ¼-mile from flying start of 50 mph, top speed in ¾-mile from standing start, and one-mile top speed run.



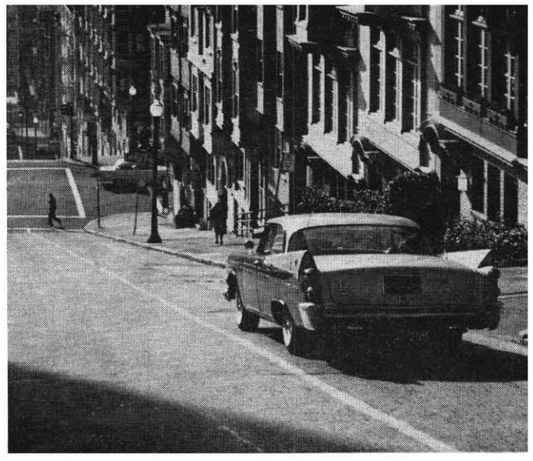
FIVE CHP TEST DRIVERS carefully evaluated each of the five cars tested. This '58 Mercury sedan is shown at high speed in a tight turn at the new Riverside track.

ONLY DANGEROUS INCIDENT during two-day tests occurred when this Buick sedan, traveling in excess of 110 mph, lost a front wheel; car came to halt in straight line.

MOTOR TREND welcomed the opportunity to put one of California Highway Patrol's Dodge D-500s through the paces. Fifth wheel is attached for acceleration runs.

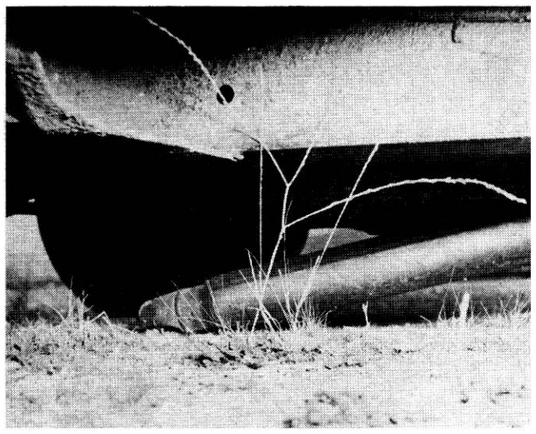


TWO FOUR-BARREL CARBURETORS are part of high-performance equipment on the CHP Custom Coronet. Comparison between it and stock Custom Royal, with one four-barrel carb, gave CHP car edge in passing speed range.



PUSHBUTTON used for going down steep grades such as this typical San Francisco street was D1. When stopped, Dodge was held firmly on hill by the emergency brake.

DURING TEST of emergency brake at a steady speed of 30 mph, rear wheels bounced to a stop as indicated by rubber left on pavement at San Fernando Dragstrip. The brake, mounted on the driveshaft on the Dodge as on all Chrysler Corp. cars, obviously is a parking brake only.



THIS IS WHAT HAPPENED when emergency brake was pulled at 30 mph to stop car. Bolts attaching driveshaft to universal joint at rear axle were sheared off, resulting in a chattering, wheel-bouncing stop. MOTOR TREND recommends you do not use hand brake to stop Chrysler Corp. cars.

DYNAMOMETER TESTS of stock Dodge D-500 revealed that 361-cubic-inch V8, equipped with one four-barrel carb, put out reading of 115 road hp @ 3000 rpm and 72 miles per hour.

'58 DODGE continued

contact, self-centering brakes gave a good performance on both cars, with near-panic stops made in a straight line.

In our brake-fade tests from 60 mph to 20 mph at 15 feet per second per second deceleration, first sign of fade was evident on the fifth stop; it became progressively worse until the brakes were completely gone on the eighth try. Saving the brakes in mountain driving can be accomplished by using the "1" (first gear) transmission button, but our test car shuddered until it reached the speed where the gear took hold. Second gear—"2"—isn't much of a brake on steep grades, but it did downshift more smoothly.

Although the hand brake is not intended as an "emergency" brake, MOTOR TREND gave it a test to see exactly what would happen. With the car travelling at a steady speed of 30 mph, the brake seized, causing the driveshaft to be sheared from the rear axle at the rear universal joint. Under the circumstances, we recommend that you do *not* use the hand brake for anything other than holding the car in a parked position. This it does well, even on a steep grade.

TRANSMISSION Both of the cars were equipped with the three-speed TorqueFlite transmission. Up until a couple of years ago, automatics were frowned upon by the California Highway Patrol, but this situation is now changed and all CHP cars now being ordered have automatic transmissions. The reason: no clutches to burn out; no winding up of engines beyond their capacities. These problems encountered with stick shifts are of course eliminated, yet acceleration demands of police patrol cars are met with the refined automatics now going into today's cars. Dodge, we think, has one of the best.

AT THE DRAGSTRIP

A direct comparison between the stock Dodge equipped with a single four-barrel carburetor and the CHP car equipped with twin four-barrels gives only a slight edge to the latter on the dragstrip. Putting the three-speed TorqueFlite transmission in DRIVE and leaving it there gave us just as good elapsed times as trying to manually upshift the automatic through first and second. Under full-throttle, upshifts were made from first to second at 45 mph, from second to third at about 76. Surprisingly, in the low-speed ranges, acceleration of these 361-cubic-inchers was almost identical to the 325-cubic-inch engine of last year, but in the passing speeds, the bigger powerplants chopped more than full seconds off the elapsed time.

TORSION BAR SUSPENSION SYSTEM, standard equipment on all Dodges, stood up well on grueling rough-road tests. Car remained level, as illustrated in this photo, while suspension took up the shock of obviously bouncing wheels.

PERFORMANCE

	'57 with 285-bhp engine and single 4-bbl carb (325 cu. in.)	'58 with 305-bhp engine and single 4-bbl carb (361 cu. in.)	CHP '58 with 320-bhp engine and two 4-bbl carbs (361 cu. in.)
From Standing Start			
0-45 mph	5.7	5.9	5.6
0-60 mph	9.4	9.5	9.3
¼-mile	17.2	17.7	17.3
and	79 mph	82 mph	84 mph
Passing Speeds			
30-50 mph	3.7	3.8	3.6
45-60 mph	3.7	3.7	3.4
50-80 mph	10.9	9.4	8.9

USING IT FOR TRIPS

ON STRAIGHT ROADS At speeds of 50 mph and up, on the test car there was a bad vibration in the steering wheel, apparently resulting from imbalance in the front wheels. Except for this, which was not present on the CHP Dodge we drove, the car had an easy, natural feel to it, making it a pleasure to drive.

IN TURNS Practically no lean was noticeable on the stiffer-sprung CHP car even on the sharpest turns, yet the stock Dodge didn't lean much either. The Dodge is one car in which you feel complete confidence while taking compound curves at a really fast clip. Driving the test car over a mountain road with occasional reverse-camber switchbacks confirmed our previous opinion that Chrysler's Torsion-Aire suspension system is the best on the road today.

ON ROUGH ROADS A loose pebbly road didn't seem to bother either car; control was maintained even at increased speeds, indicating that the steering is positive, although there was some vibration of the steering wheel. Taking dips fast presented no problem; wallowing doesn't exist any more on Chrysler cars.

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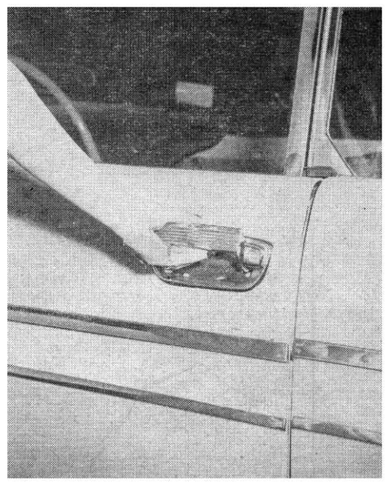


CATCHING a sleeve or chin on fairly sharp-pointed windwing (extreme left) is a definite possibility, especially on entering car in a crowded parking lot where door-opening is curtailed.

DOOR HANDLES on Dodge are considered safe, but some women object to the fingernail-breaking design.

ON HILLS There's plenty of power to take the steepest hill with ease, and you don't need to make a run for it, as slow-speed hill climbing can be done with the feeling that there's plenty of push in reserve should you need it.

HEATING AND VENTILATION The control lever for heat and ventilation is simple to position, and there's plenty of heat within a block or two after starting on a cold morning. With windwings one-quarter to one-half open, you get good circulation of air; there's some wind noise, of course, when travelling at high speeds. I still prefer the crank-type windwings to the hand-adjusted vents; the former stay where they're put regardless of outside wind or speed.

RIDE Again, we can't say enough for the Torsion-Aire suspension system; it gives a soft ride which is one of the smoothest of any production car. Pitch, roll or floating sensation simply aren't there. Riding in the CHP car, while not as soft, was smooth.

FUEL ECONOMY

'57 D-500	'58 Custom Royal D-500
Stop-and-Go Driving	
10.6 mpg for 94 miles	**10.9 mpg for 142 miles**
Highway Driving	
16.6 mpg for 275 miles	**13.1 to 14.3 mpg for 423 miles**
Overall Average	
13.6 mpg for 369 miles	**13.4 mpg for 565 miles**

SERVICING

ENGINE Oil filler, battery, voltage regulator, and distributor are up front on this engine, making servicing easy. The spark-plugs are not so handy, being located below the exhaust manifolds. Oil dipstick is low but readily accessible; the transmission dipstick is below the heater blower on the right side, and not so easy to reach. All in all, the engine compartment is pretty well laid out, with servicing easier than in many makes.

CONCLUSIONS

ITS BEST POINTS Top on my list of strong points for the Dodge are its extremely comfortable driving and seating positions, its flat smooth ride, its excellent handling and roadability. The brakes are better than most, except for the emergency hand brake. This latter device I would like to see changed so that it would serve as a real emergency brake. A PARK position on the gearbox I think would also be an improvement.

CHECK BEFORE BUYING General assembly of Dodge is good, but some cars in showrooms we visited had hoods, doors and rear deck lids that didn't fit quite as well as our test car. Basic price of the car is low enough by comparison with other makes, but be sure you're getting only the optional equipment you need or want. These items can boost the total price of your car tremendously.

OTHER MODELS AND OPTIONS

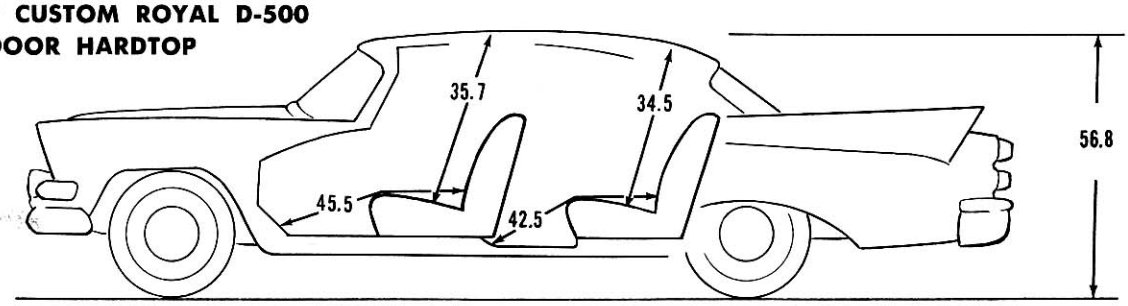
Besides the Custom Royal D-500, we drove a Coronet equipped with the smaller hemispherical-combustion-chambered 325-cubic-inch engine. Its ride and handling were the same, but acceleration didn't come up to the bigger-engined car.

For the economy-minded, there's a six-cylinder, 138-bhp Coronet. Stepping up, you can have a Custom Coronet or Royal equipped with the new 350-cubic-inch V8. This wedge-shaped combustion-chambered engine is increased to 361 cubic inches on the Custom Royal, and the powerplant is optional on the other V8 models. On the 325 engine, you can have either a single two-barrel (252 bhp) or a single four-barrel carburetor (265 bhp) with a compression ratio of 9.0 to 1. The 350 and 361 engines take either a single four-barrel or twin four-barrel carburetor, with 10 to 1 compression ratio and dual exhausts. Power ranges from 295 to 320 bhp. Fuel injection is available for the big engine, boosting the power up to 333 bhp.

The two-speed PowerFlite automatic transmission is available on Coronet models only, priced at $179.65. The three-speed TorqueFlite, at $220.15, is available on all V8 models. /MT

SPECIFICATIONS OF TEST CAR

DODGE CUSTOM ROYAL D-500
FOUR-DOOR HARDTOP



ENGINE: Ohv V8. Bore 4.12 in. Stroke 3.38 in. Stroke/bore ratio 0.82:1. Compression ratio 10:1. Displacement 361 cu. in. One 4-bbl carburetor. Advertised bhp 305 @ 4600 rpm. Bhp per cu. in. 0.84. Piston speed @ max. bhp 2591 ft. per min. Max. bmep 167.0 psi. Max. torque 400 lbs.-ft. @ 2800 rpm.

TRANSMISSION: TorqueFlite automatic three-speed transmission with torque converter; ratios 2.31:1, 1.55:1, 1.00:1.

CHASSIS: Front suspension—independent with torsion bars. Rear—outboard-mounted unsymmetrical semi-elliptical leaf springs. 8.00 x 14 tubeless tires. Power steering, rack and sector, 3.5 turns lock-to-lock, overall ratio 19.1:1. Rear axle—conventional differential, ratio 3.31:1.

DIMENSIONS: Wheelbase 122 in., overall length 213.8, overall height 56.8, overall width 78.3, front tread 60.9, rear tread 59.8, rear overhang 56.7. Weight with gas, oil and water 4190 lbs. (56% front, 44% rear) weight/bhp ratio 13.63:1.

PRICE: Factory-suggested retail price of test car equipped as described including federal tax but not state and local taxes, delivery charges or freight $3739.

ACCESSORIES: TorqueFlite $220, PowerFlite (Coronet only) $180, power steering $92, power brakes $38, six-way power seats $96, power windows $102, radio $97, heater and defroster $94, air conditioning (includes heater) $459, Sure-Grip differential (V8 only) $50, tinted glass $32, D-500 engine with single 4-bbl. carburetor $36 to $122 depending on model, D-500 engine with two 4-bbl. carburetors $177 to $264 depending on model, fuel injection (D-500 only) $552.