

SCI

ROAD TEST:

the Dodge D-500



Barrelling alone, the D500 might be any Dodge just off the showroom floor. Its power and speed become apparent when car is placed in the company of sportier cars toolled overseas.

...A match in all ways for anything you buy in its price range and as a performer it is practically unique.

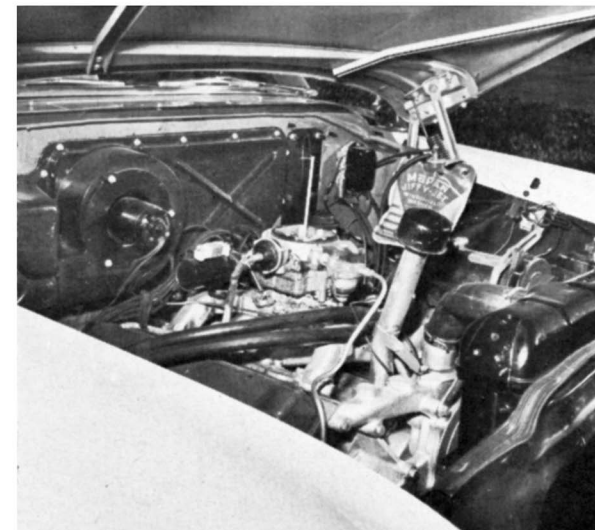
THE DODGE D500 is so fast that its 120 mph speedometer isn't big enough. Its performance is so unprecedented that after five days of living with the car I still found it thoroughly awesome and more than slightly incredible. The D500 is charging at full thrust long after most cars are running on the dregs of their torque. When you can accelerate from zero to a true 60 in 9.6 seconds, from 60 to 70 in 2.6, from 70 to 80 in 4.1 and from 80 to 90 in 4.7, you know you're riding in a ring-tailed bearcat. And when

you can do it in a car with the frontal area and drag of a big Detroit sedan, with a weight, including driver, of over two tons, it sort of makes you pause and wonder.

One completely disarming aspect of the car is the fact that it doesn't look like a sports car, a jet plane, or like somebody's Fiberglas dream of the future. It looks just like any other Dodge. But for about \$175 more than a bread-and-butter Dodge you can get not just a power kit, but a special, high-performance engine and a chassis that's specifically

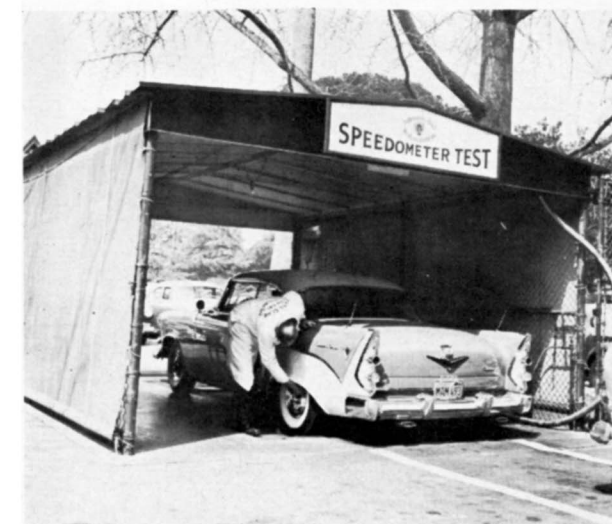
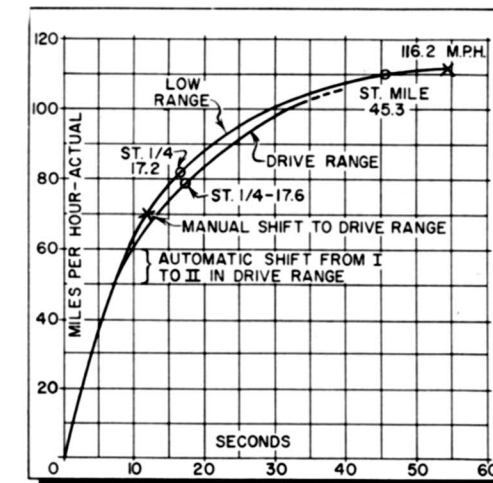
designed to cope with the forces that this engine generates. You can cloak the D500 combination in *any* of the current Dodge body styles, and the only visible difference between it and a standard stocker is a small emblem, a pair of crossed checkered flags.

The flags were earned. What the D500 is kissin' cousin to is the only-slightly-hotter D500-1 which knocked over 306 AAA records on the Bonneville Salt last fall. It covered 31,224 miles at an average of 92.86 mph, including pit stops. It beat Porsche's world record of 94.66 mph for 72 hours with an average of 106.23. It shattered Jaguar's 100.65 mph record for 10,000 miles with a new high of 105.43. It set new world's records for everything up to and including nine days of continuous driving. Chief test driver Danny Eames masterminded the session on the Salt, and at Daytona last March Eames rode again. This time his D500-1 set a new standing-mile record of 81.786 and led in the flying mile with a solid 130.577 mph over rough sand.



Power for the new D500 is supplied by stock looking Dodge 315 cu. in. engine. Modifications include double-rocker heads—high domed pistons.

The source of this speed and stamina is the standard Dodge 315 cu. in. engine, with some major modifications. In place of the single-rocker heads with unmachined "poly-spherical" combustion chambers, the hot Dodges use Chrysler's well-known double-rocker heads with machined hemispherical combustion chambers. Other special D500 items used on the standard short block are solid valve lifters, three-piece pushrods, high-domed pistons and a dual breaker-point distributor. The D500 runs a semi-race cam with 252-degree duration; the D500-1 runs a hotter, 280-degree stick. D500 carburetion is by a single four-throat Carter; the D500-1 uses a pair of them along with a low restriction, paper-type cleaner. The D500's exhaust gases get out through a pair of 1 3/4-inch pipes. These are big, but the D500-1's duals have an OD



Special equipment of Auto Club of So. Cal. checks out speedometer up to 65 mph. Higher speeds were obtained by stopwatch over 1/4 mile.

of 2 1/2 inches. There are a number of subtle distinctions between the two hot engines, including differences in port areas, valve diameters, and valve spring pressures. They all add up to a rated bhp of 260 for the D500 and 275 for the D500-1, as opposed to 230 bhp for the standard Dodge V8 with power pack.

What the D500 does with its one horsepower for each 15 lbs. of ready-to-go weight is fairly shattering. You can wind the needle right off the speedometer scale in about six-tenths of a mile. The scale ends at 120 mph, and in a full mile you can put the needle where 130 would be. This is an actual 115, and the car at this speed continues to accelerate very nicely. I ran out of room before I could find terminal velocity, but it's my careful guess that with about 2.5 miles of

DODGE D500

Test car: Dodge D500 Custom Royal sedan with torque converter automatic transmission.

Test conditions: Temperature 65° F. sea level.

PERFORMANCE

TOP SPEED:

Two-way average115.4 mph
Fastest one-way run....116.2 mph

ACCELERATION:

From zero to	Drive Range	Low Range
30	3.4 secs.	3.5 secs.
40	5.1	5.4
50	7.0	7.0
60	10.1	9.6
70	13.6	12.2
80	17.7	16.3
90	22.6	21.0
Standing ¼-mile	17.6	17.2
Standing mile	45.3 - 79.4 mph average	

SPEED RANGES IN GEARS:

Low Range 80 mph, plus
Drive Range shifts at 55 - 60 mph
Kickdown limit 70 mph, approx.

BRAKING POWER AND FADE

(10 successive emergency stops from 50 mph, just short of locking wheels):

Stop	Braking Power in G's
1	.70
2	.65
3	.65
4	.60
5	.55

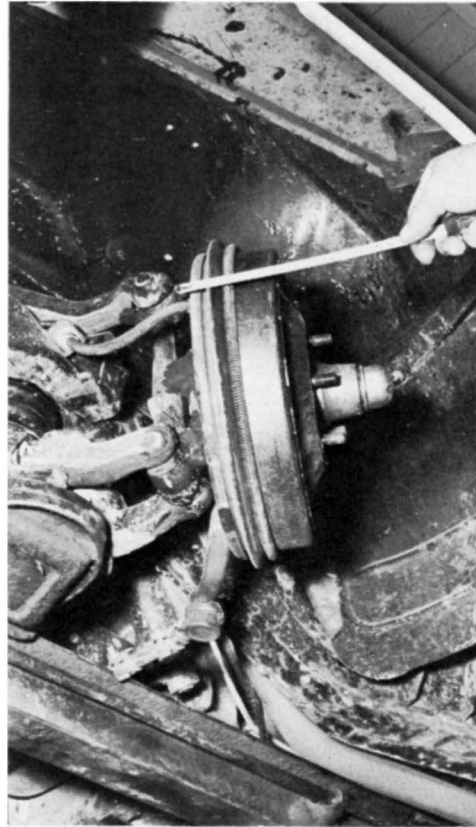
SPECIFICATIONS

POWER UNIT:

Type V-8
Valve arrangement overhead, vee-inclined, hemispherical combustion chambers
Maximum bhp, ft-lb.. 260 @ 4800
Maximum torque,
lb-ft 330 @ 3000
Bore x strokes, ins. 3.63 x 3.80
Displacement,
cu. ins. 315
Compression ratio 9.25 to one
Carburetion by single four-throat Carter
Ignition by dual breaker-point distributor (12V)
Exhaust system dual 1¼ inches pipes

CHASSIS:

Suspension, front coil springs, unequal-length A-arms
Suspension, rear six-leaf semi-elliptic springs
Shock absorbers telescopic, double-acting
Steering type worm & three-tooth needle-bearing roller
Steering wheel turns.. five from lock to lock
Steering turning
diameter 42 ft.
Brakes hydraulic center-plane type, two leading shoes at front, 2.5 x 12-inch drums. Independent mechanical parking brake at rear of transmission.
Brake lining area 251 sq. ins.
Tire size std. 7.10 x 15. Optional 7.60 x 15 (test car)



Front detail shows $\frac{13}{16}$ inch anti-roll bar; heavy, short coil spring, and efficient center-plane brake.

space to unwind in, the D500 would clock between 123 and 126 mph.

Still, unless you're a hopeless leadfoot there's no problem to pattering along in the D500 in the most mild-mannered fashion. The car lends itself nicely to being driven in a decorous or even stately manner, but the fierce acceleration is there when you want it. Mash the throttle in Low Range and you peel plenty of rubber. Put it to the floor in Drive and the rear wheels squeak for a split second and then the horses break into full gallop. It's quite a charge for the emotional battery when the high part of the engine's torque curve comes in, at about 50 mph. There are few cars in the world that you can't run away from in a D500. This has to be a factor in the California Highway Patrol's recent wholesale conversion to special Dodge.

However, under all the back-slammig dig the D500 is capable of, it does not perform the rear-axle acrobatics typical of most generously-powered Detroit cars with Hotchkiss drive. Detroit loves the open drive shaft and is happy to let axle-torque twist the rear leaf springs into tortured esses during acceleration and braking. Manufacturers of drive



Instrument panel layout is easy to read with speedometer located in driver's line of vision. Note wide brake pedal, to be operated with either foot.



On standard test bend used in many of SCI's road tests, the D500 inscribed its autograph in black rubber two feet over white line at 60 mph.



At 55 mph car stayed in groove, but required constant pull on steering wheel to keep it in rounded course. Weight added considerably to centrifugal action.

shaft universal joints have met the challenge heroically, but the twisting nevertheless remains and reduces the car's braking and takeoff potential by causing the driving wheels to hop. This is why radius rods and torque tubes were born.

But the D500 achieves their effect without resorting to their complications. It has thick, wide rear spring leaves, six of them on each side, and they are mounted asymmetrically on the axle, which lies well forward of the mid-point of the springs. This arrangement cuts essing during acceleration to a minimum, and even when braking forces are many times greater than the accelerating forces there is none of the dangerous wheel hop characteristic of nearly all Hotchkiss setups. The rear springs are two inches lower than standard Dodge practice, and they lie perfectly flat when the car's weight is on them.

The heavy-duty approach to running-gear design is repeated throughout the D500 chassis. The front suspension elements are unusually massive. The short coil springs are made from $\frac{3}{4}$ -inch bars and have a husky rate of 581 to 619 psi. The shock absorbers are export-type Oriflows. Externally they look standard and they have the standard one-inch

piston. But the valving is the same as that used in Dodge police cars and taxis. The anti-roll bar at the front end has a beefy $1\frac{3}{16}$ inch diameter.

With all this attention to rugged chassis detail, how does the D500 corner? Very fast—for two tons of spacious, stylish iron. It tracked through our sharp test curve at an indicated 55 mph in fine shape. But at 60 mph its limitations became clear. Unfortunately, a little more than 56 percent of the car's static weight rests on its front wheels, and this, in a high-performance machine, is a little less than ideal.

Here's how it behaves. When cornering at moderate speeds you find that in addition to being on the nose-heavy side, the D500 has a marked amount of understeer, and you have to tug on the steering wheel to pull it around a turn. This, instead of tracking through the turn in response to a single setting of the front wheels. It's generally agreed that understeer is much more desirable than the opposite condition, although both require that the driver work a little harder and be a little more alert than with a neutral-steering machine.

(Continued on page 64.)

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D-500

(Continued from page 51)

Next, you take the D500 through the same turn fast. As you bear down on the throttle the more lightly-loaded rear tires slide outward a bit. You've been pulling the front end *into* the turn but now you must quickly correct for the rear-end slip and steer away from the turn, in order to stay on course.

Now you want to find out just what the machine will do, so you sail into the groove really *on it*. You push the car hard, keep the rear tires gnawing on the pavement — and the front end washes out. The front tires start sliding out toward a straight-line trajectory and you cramp the steering wheel harder to keep from running off the other side of the road. You lose the groove because the front end, a pendulum responding to centrifugal force, just won't stay in it.

The general heaviness of the D500 doesn't help either. Tire wear is fierce under the side-loading of two tons being swung hard through a tight arc. The loading on the tire casings, wheel spindles, rims, and so on, is the same. The D500 will hold its own on super-highway big-radius bends with just about any machine. But it shouldn't be called upon to compete with light, fast, short-wheelbase cars on snaky roads. The driver of a D500 should always have a respectful awareness of its tonnage and weight distribution.

If I seem to belabor the point it's because an unduly optimistic D500 road test in another magazine states that the car is a match for every cornering situation, including the setting up of four-wheel drifts. Please don't try it. My test corner has big, black tire marks to prove that beyond a certain speed the front tires don't go where they're aimed. The D500 is a good cornering car, better than most American cars in this respect. But avoid poking it into turns with a heavy foot.

It's a little surprising that with all the D500's speed, its steering specification without power assist calls for a full five turns from lock to lock. This is slow steering by any standards, and it was complicated on my test car by being loosely adjusted. There was nearly 1/4 turn of perfectly free play in the steering box and this, with its leisurely response, aroused in me an immediate craving for something else. When you're hurtling along at 165 feet per second, as the D500 did with ease, it's pleasant to be able to hew to a given groove.

This was impossible in the Dodge at high speed. The car covered far too much ground before corrections applied to the steering wheel were responded by the road wheels.

Obviously the D500 needs faster steering, and there are some remedies available. The low-friction steering box has ample adjustment for getting zero backlash. Furthermore, with or without power steering you can slap a power-steering pitman arm into the linkage and reduce the lock-to-lock turns to about 4 1/8.

Far more suited to the D500's speed than the stock steering are the brakes. Here the Chrysler Corporation has really scored. Everyone in Detroit is now building cars specifically designed to go. Chrysler deserves some sort of citation for giving their hot cars stopping power proportional to the going power.

The D500's brakes are superb. Instead of having the conventional 11 x 2 dimensions, they are 12 inches in diameter and 2 1/2 wide. The increase in braking power is tremendous. It rates with safety belts and positive-locking doors as a top benefit in the "safety campaign" Detroit was selling until it found that consumers didn't care. As important as the large friction area of these brakes is their structure. They are Chrysler center-plane brakes, with two leading shoes at the front. All the shoes are ingeniously designed to conform to all degrees of brake drum distortion. The parking brake is fully independent, a massive well-machined drum mounted aft of the transmission. It is mechanically actuated, uses expanding shoes and matches the excellence of the service brake system.

The Power-Flite torque converter transmission that the Dodge I tested was equipped with was a delight to use. Ratio changes are pushbutton controlled and effortlessly achieved. The automatic shift from first to second in Drive Range is almost instantaneous. Under hard acceleration from standstill, response is nearly as quick as you'd get with a mechanical clutch.

However, this transmission pays the torque-converter price of being one too helpful on downgrades. Its blade angles are arranged precisely for greatest efficiency during acceleration torque. But the arrangement functions only half-well on coast torque. Hit the powerful brakes at 100 mph and the gearbox thrashes. Punch the Reverse button at 10 mph in forward motion and there's another hydraulic fuss. Idling in Neutral, the freely-spinning planetary gears emit a steady whine, although they're silent when there's any load on them.

The owner of a D500 can confi-

(Continued on page 66)

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(Continued from page 64)

dently drag for pink slips with all but a couple of U.S. production cars, but he'd better learn to feather the throttle when he's accelerating in Low Range. When you make a heavy-footed start in Low there is brief but unmistakable wheelspin, and you're better off settling for Drive. It's in the long haul that Low shines, regardless of the

Manual-shift transmission, optional on the D500, has a second gear ratio slightly higher (lower, numerically) than the kickdown of the automatic box, and is naturally preferable on all counts but driver convenience. Stick-shift permits you to exploit engine compression fully, and with the car's superb brakes, you can get terrific mountain and winding-road averages.

Chrysler is making a fantastic selection of gear ratios available for the D500, running through close gradations from 3.07 to 4.89 to one. The standard rear axle of the Powerflite D500 comes with a 3.73 to one, 8¼-inch ring gear, and optional ratios in this size range from 3.54 to 4.78. The heavy duty rear axle on the D500-1 uses an 8¾ inch ring gear, with ratios of 3.07 to 4.89 readily obtainable and a short-track 5.83 gear available on special order. This multitude of optional gears for both hot Dodges leaves no doubts concerning the seriousness of the company's attitude toward racing.

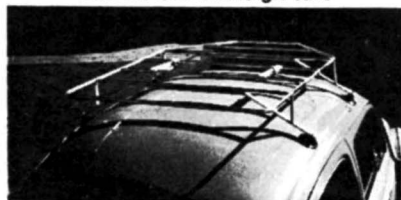
The D500 is a thoroughly comfortable car to drive. There is nothing harsh or bumpy about its ride. A notable chassis characteristic is that if you rock the steering wheel from right to left, the body does not pitch heavily back and forth on the springs, as

nearly all Detroit touring cars do. As in cornering, the body remains agreeably flat. There was only one bit of looseness in the chassis and this occurred at very low speeds, when, for example, applying the brakes to check transmission creep. Then the body took a hard, short pitch forward and rocked back. This, of course, is a trifle. Another is that engine idle with the 252-degree cam is a shade rough, but everything smooths out when you crack the throttle.

Dodge workmanship, finish, and detail appointments are of the best quality. The D500's resale value and therefore its value as an investment are closely competitive with comparable makes. The division's skillful and economical use of engine and chassis components available within the Chrysler Corporation makes the price of the D500 laughably low. The car is a match in all ways for anything you can buy in its price range and as a performer it is practically unique.

With the D500, Dodge has performed the remarkable feat of building a record-breaking competition car and a new type of production touring car at the same time. It is *not*, remember, a power kit conversion of a normal touring car. It's designed from the ground up as a high-performance road machine that can be used for commuting to work, for winning its class at the local drag strip, or for making a top showing in a tough rally or race. And if you've got to have even more performance at the cost of comfort and low speed response, you can get all the D500-1 options. —G.B.

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(Continued from page 65)

get. A full tooth on the distributor makes a change of over 10 degrees and this usually occurs when the most you need is a matter of two or three degrees. Swanson beat this problem of splitting the teeth by the use of an offset key on the crankshaft shaft, thus making it possible to pick up or drop a couple of degrees at a time. Dynamometer tests definitely proved that the laborious hand filing of offset keys was profitable.

Swanson's extensive experiments with the ignition characteristics of the Austin-Healey brought another interesting bit of information to light. He claims that it takes only two minor modifications. These changes involve only the advance control spring and spring toggles on the centrifugal weights of the automatic advance mechanism. Both of these parts are available from Lucas

The specifications sheet will show a more than suitable selection. Swanson suggests that the 4.125 or 4.1 be used for a car driven mostly in the city and at

3.66 for a highway car.

The handling of the stock Austin-Healey is sometimes harshly described. The substitution of Austin A-40 coil springs in the front reportedly works wonders and when combined with the Le Mans stabilizer bar and shock absorbers apparently leaves little to be desired. Increased torque makes it advisable to add an extra spring leaf at the rear or fit the commercially available Traction Master.

The American parts used by Swanson in the Austin-Healey are not just substitutes, they're better parts. This strange idea that American replacements suddenly become inferior when they're used in a foreign car may have been valid when foreign imports consisted mainly of Type 35 Bugattis, Hispano V-12's and Rolls-Royces, but things have changed since then. It seems silly to lock the door on a billion dollar parts house because it might not be maintaining the breed. #