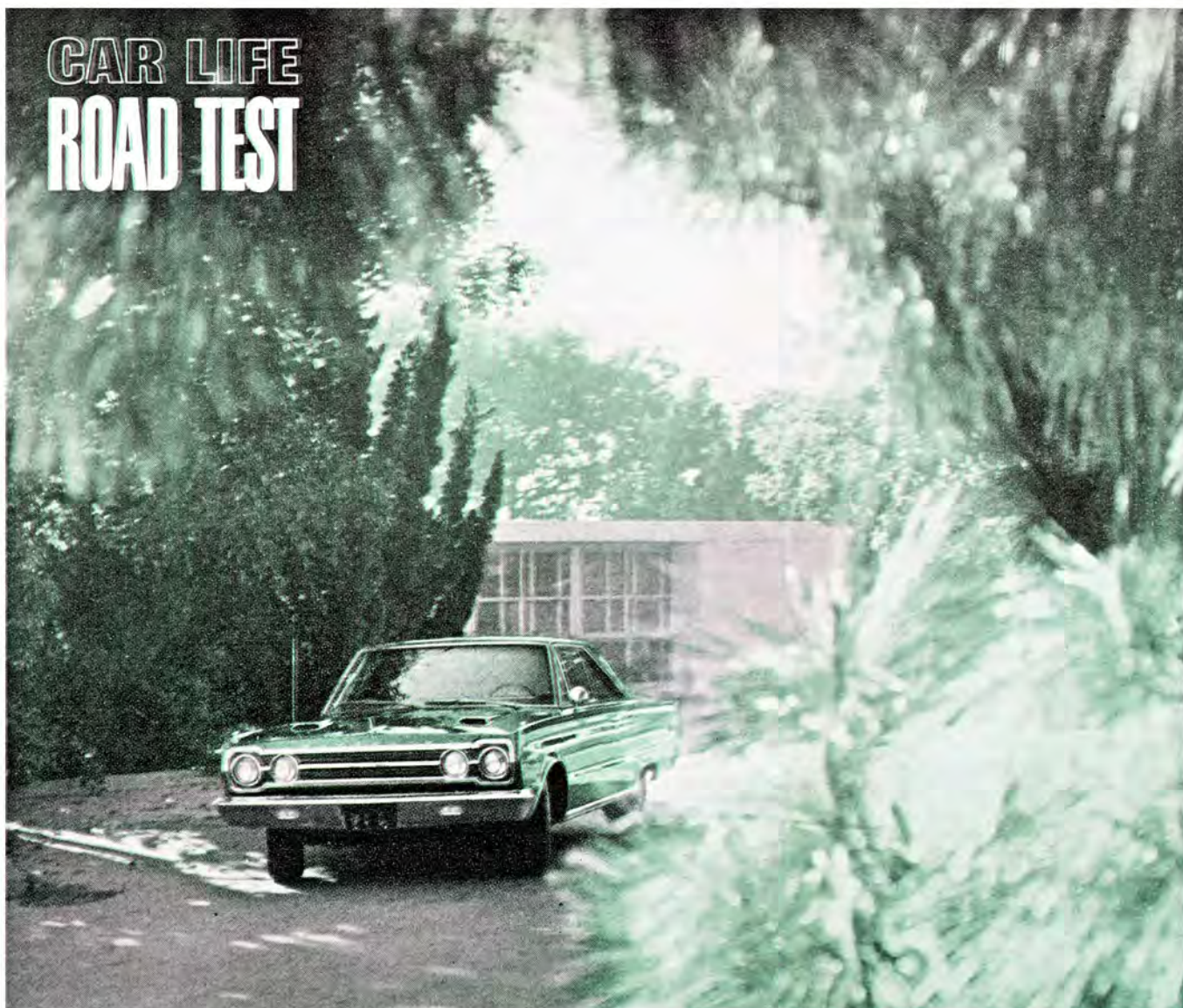


CAR LIFE ROAD TEST



PLYMOUTH GTX

A Supercar Bargain with 440-cu. in. Muscles

AN EXAMINATION of the specifications for the Plymouth GTX reveals, at the outset, what should be an ideal vehicle for the sophisticated, sometimes car enthusiast. Muscular 440-cu. in. V-8 engine, taut-shifting and controllable automatic transmission, unitized and firmly sprung 116-in. chassis and hardtop coupe body with all-vinyl upholstery and bucket seat interior add up to the very archetype of today's Supercar fleet.

Supercars, by *CAR LIFE* definition,

are those which scale less than 12 lb. curb weight per rated horsepower. In general, they are a very specialized sort of automobile aimed at enticing the enthusiast buyer. They all include engines of 300-plus bhp, chassis of the intermediate or smaller category, and suspension characteristics somewhat altered from those of standard similar models. In particular, these cars achieve exceptional performance (mostly accelerative) through overwhelming power.

Much can be said for the virtues of big engines, particularly those which are mildly tuned. Without resorting to frenetic valve timing, multiple carburetion or extreme ignition, they can, through the brute strength of numerous cubic inches, propel an automobile at extremely interesting velocities. The mild tuning permits them to lug about town without incurring problems of fouled plugs, overheating and frequent gear-changing. Turnpike-legal speeds are achieved without obtrusive noise

and vibration from a high-revving engine. And, more importantly to both manufacturer and buyer, the mild, large-displacement engine usually is easier and cheaper to build than a more highly tuned smaller displacement unit.

These virtues must have been exceptionally clear to Chrysler-Plymouth product planners when they laid out those specifications for their 1967 Supercar representative. Their major item of development was the big engine; other components were already at hand, awaiting assemblage into the specific package. Even the package had some precedent: Plymouth's Satellite hardtop and convertible were de luxe versions of the Belvedere standard car line, dressed up to fit them to the burgeoning public taste for plushly outfitted automobiles.

FOR THE basic engine, the planners had only to reach into the Chrysler bin where the 440-cu. in. V-8 was being used to power the larger corporate products. Some warming-up was called for, and carefully accomplished, to better suit the engine to the intended customer. However, the concept of a mildly tuned, slow turning, big-muscle engine was retained.

The 440 was a new displacement option for Plymouth, Chrysler and Dodge passenger cars in the '66 model year, though not a completely new engine. An extension of the corporation's "B" series, it follows displacement steps of 361, 383, 413 and 426 cu. in. Of these, only the 383 and 440 now are being produced. The 426 forms the basis for the hemispherical head street/racing engine series. The 383 and 440 are similar in design, but the 440 (and 426) utilizes a decked block, i.e., a block with additional cylinder height to accommodate a longer stroke. Interestingly, the 383 and basic 440 cylinder heads are interchangeable, though obviously the hemispherical heads are not; however, the hemi-head engine could be enlarged to 440 cu. in. with a 0.07-in. cut by the boring bar.

The 426 has the bore of the 383, with the longer stroke, while the 440 has the longer stroke, plus a larger bore.

In format, the 440 is a 90° V-8 of highly conventional design. The bore/stroke ratio is oversquare, the combustion chamber wedge-shaped and the block is deep-skirted and heavily bulk-headed for rigidity and durability. The fully counterbalanced, drop-forged crankshaft runs in five main bearings. The camshaft is driven by duplex chain off the crankshaft nose (which has a nylon-coated aluminum sprocket) and rotates in lead-base, babbitt-on-steel bearings to operate hydraulic lifters. Pushrods to overhead rocker arms on

parallel rocker shafts activate the inclined valves.

Durability and reliability keynote the basic design.

In application to the various car lines, the 440 actually has three separate stages of tune with the two most powerful stages being virtually identical. Only exhaust system and air cleaner differences separate the version used in the GTX (and Dodge R/T and Charger) from that used in the Plymouth Fury, Dodge Polara and Monaco, and Chrysler lines; both are rated at 375 bhp at 4600 rpm, where the basic 440 (available only in Fury, Polara and Chrysler) has only 350 bhp at 4400 rpm. Incidentally, the HP 440 engine is called "Super Commando 440" for Plymouth installation, "Magnum 440" for Dodges, and "440 TNT" for Chryslers.

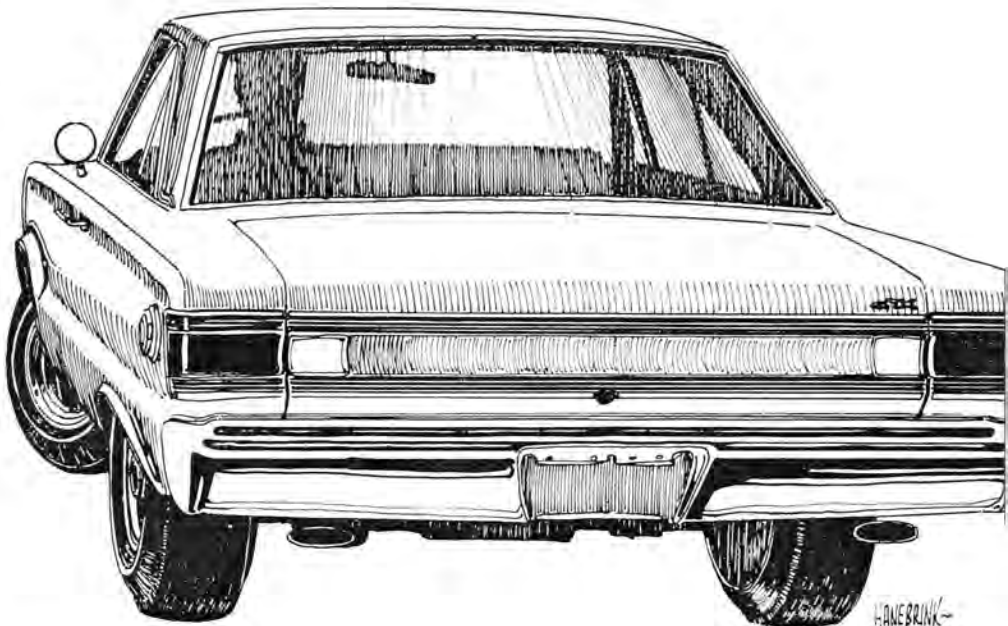
Differences between the basic and HP versions of the 440 are concentrated in the improvement of the breathing abilities for increased volumetric efficiency. Both engines have 10.1:1 compression, identical 2.08-in. intake valves and similar 4-barrel carburetion. Revised camshaft and valve train, exhaust manifold and low-restriction intake air cleaner all contribute to the extra 25 bhp. The cam profiles are hotter than those for the basic 440, designed for higher lift, longer duration and greater overlap. A brief comparison of the cam/valve specifications shows:

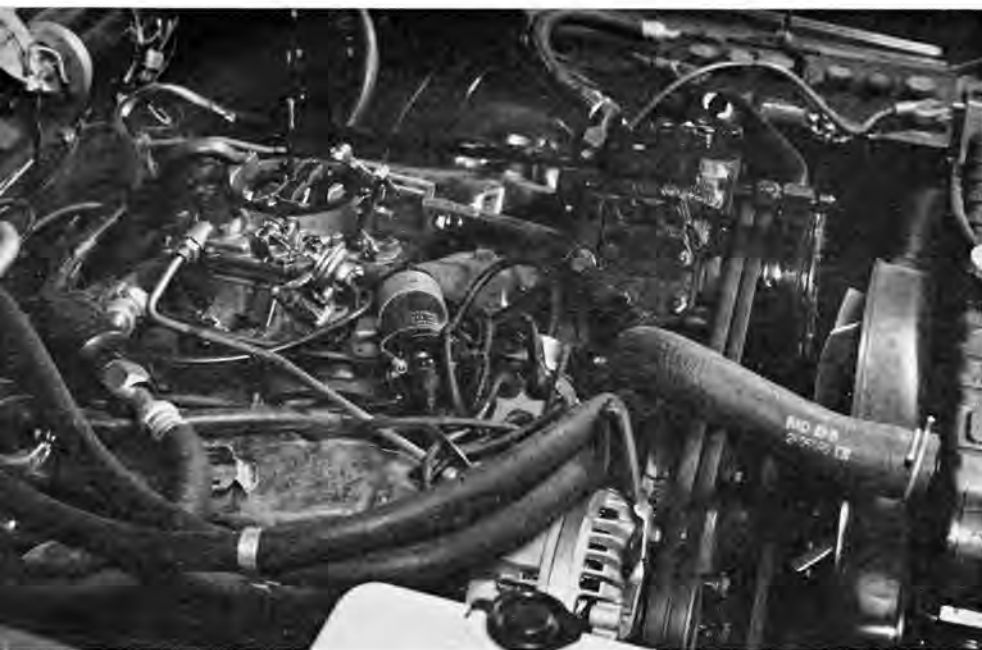
	HP 440	Basic 440
Intake opens, deg. BTDC	19	16
Intake closes, deg. ABDC	69	60
Intake duration, deg.	268	256
Intake lift, in.	0.450	0.425
Exhaust opens, deg. BBDC	77	64
Exhaust closes, deg. ATDC	27	16
Exhaust duration, deg.	284	260
Exhaust lift, in.	0.465	0.437
Valve opening overlap, deg.	46	32

Chrysler-Plymouth engineers found during 440 series development work that the engine was particularly responsive to increases in exhaust valve duration and lift. The specifications reflect those increases with a definitely longer duration exhaust profile. The exhaust valve is larger, too, 1.76 in. vs. 1.60 in. in the basic 440. Stiffer valve springs with surge dampers are used to raise valve float 200 rpm above that of the basic 440 and to accommodate the higher accelerations of the warmer camshaft. Valve springs have load specifications of 105 lb. at 1.86 in. height, and 246 lb. at 1.36 in. The surge dampers are concentric flat coils which interfere with the spring's inner diameter to prevent unwanted motion.

To take advantage of the greater gasflow potential of the camshaft and valve train, induction and exhaust systems were opened and cleaned up. Two types of air cleaners are used: An unsilenced version on the GTX, a silenced model for Fury and Chrysler. Both are low-restriction double snorkel (inlet) cleaners, where the basic 440 has a single snorkel cleaner. Chrysler-Plymouth says the restriction of the unsilenced GTX model is only 0.5 in. (water) at 200 cu. ft./min. airflow; the silenced twin snorkel cleaner pulls 0.75 in. and the single snorkel 3.5 in. at 200 cfm.

A SINGLE 4-barrel carburetor is used, atop a revamped intake manifold. The Carter AFB unit has 1.69-in. primary and secondary barrels with mechanically actuated secondary throttle valves. AFBs used with Cleaner Air Package engines have 1.44-in. primaries and vacuum-operated secondary valves, to help lessen low speed





SCOTT MALCOLM PHOTOS

PLYMOUTH GTX

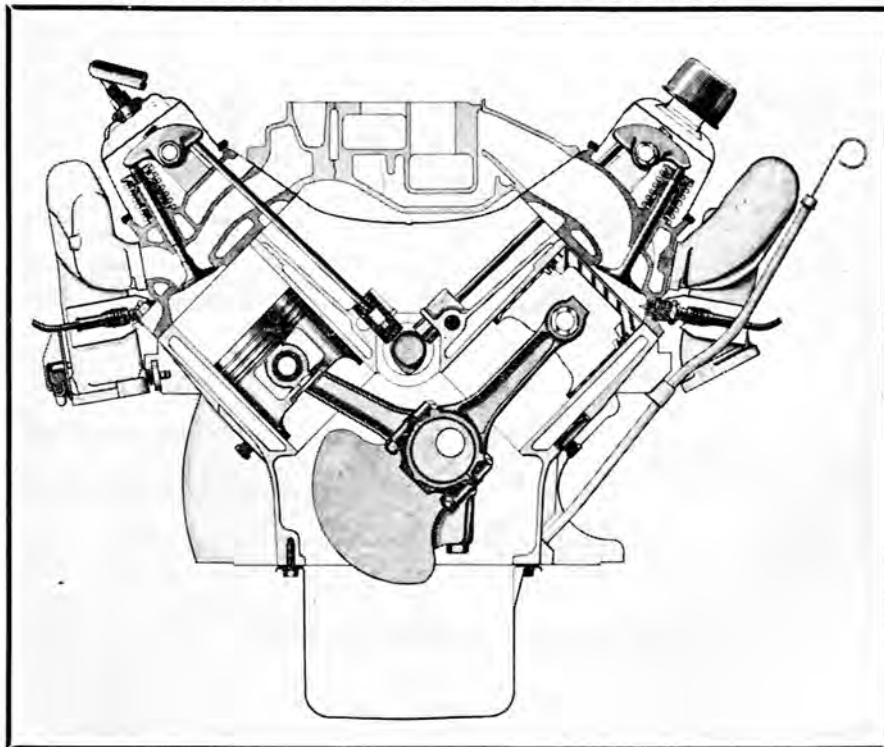
hydrocarbon emission. Chrysler-Plymouth says the non-CAP carburetor flows air at 2400 lb./hour at 1 in. Hg., but does not publish the flow rate for the CAP equipment (on the test car). Intake manifold runners have 2.3-sq. in. cross-sections and valve port shapes have been revised and enlarged from the 1966 versions.

Exhaust valve throat counterbore angle has been reduced from 25° to 15° to improve flow past the valve. The

exhaust manifolds are low-restriction designs with free-flow passages and 2.38-in. outlets. The GTX muffler system is dual with 2.5-in. headpipes and 2.25-in. tailpipes. No resonators are used and the exhaust note is distinctly audible, though well within legal requirement.

Several other refinements have been made to the 440 for its GTX/High Performance role. The ignition systems utilize a double-breaker distributor rather than the single breaker of the basic 440. The oil pan incorporates a windage tray (from mid-model year

BIG ENGINE fills GTX underhood area with potential power. Careful attention to exhaust and intake flow, plus 440-cu. in. displacement, help deliver the 375 bhp.



on, as a running change) to prevent crankshaft rotation from whipping up oil mist which can cause excessive oil consumption. Connecting rod bearings are the tri-metal type with steel back, copper-lead intermediate layer and high lead overplate.

These features aid in accommodation of relatively high loadings which are encountered in HP operations.

Adapting the Belvedere chassis for the GTX required considerable refinement of underpinnings to withstand the additional pressures of 440 cu. in. Rear axles, for example, have 9.75-in. ring gears when the 4-speed manual transmission is ordered; TorqueFlite models have only 8.75-in. gears. The driveshaft was increased to 3 in. diameter, where standard Belvederes have 2.75-in. shafts. Shift governors on the automatic transmissions have raised upshift speeds to better match them to the higher rpm engine; the optional, manual 4-speed (ratios of 2.65 first, 1.90 second, 1.39 third, 1.00 fourth) has coarse-pitch gears and requires an 11-in. clutch with a 6-roller pressure plate.

Suspension is firmer for the GTX, with heavy-duty torsion bars, ball joints, rear leaf springs (six instead of five leaves) and the front anti-roll stabilizer bar (0.94 in. diameter) that is optional equipment for other Plymouths. The torsion bars are 0.92 in. diameter (normal Plymouth bars are 0.88 in.) and produce a ride rate (at the wheel) of 118 lb./in. where the standard models have 102 lb./in. The extra leaves in the rear springs give the GTX a ride rate of 159 vs. 115 lb./in. for other Belvederes.

Additionally, the shock absorbers are recalibrated for firmer damping of jounce-rebound movement.

The GTX wheel and tire equipment also is upgraded from standard, with 14 x 5.5K wheels borrowed from the station wagon models instead of the normal 5-in. rims of the sedans. The GTX normally is delivered with 7.75-14 nylon, low cord angle red-stripe HP tires.

BRAKES FOR the GTX are borrowed from the Chrysler line; i.e. 11-in. drums with duo-servo shoes, power assisted if desired. These drums, with 3-in. shoes in front and 2.5-in. shoes at the rear, have a swept area of 380.1 sq. in. Shoe clearance setting is manual, rather than automatic by a self-adjusting mechanism. These brakes should be adequate for most average driving needs, though the enthusiastic type of driver probably will prefer the added safety margin of Chrysler's optional, excellent disc/drum combination. This system, with power assist mandatory, replaces the 11-in. drum with 11.07-in., radially vented rotors

at the front wheels, and with 10 x 2.5-in. drums at the rear. The front brakes have 4-piston calipers, two pistons powering 6.96-in. long pads on each side of the rotor. Though the disc/drum system increases total swept area to only 387.8 sq. in., the faster-cooling discs have greater resistance to fade and considerably less sensitivity to ambient conditions.

In applying the standard 2-stop test to the GTX's disc/drum system, *CAR LIFE* found the first deceleration only mediocre. Subsequent stops were in the 25-27 ft./sec./sec. range—clearly above average. One all-on stop from 100 mph, at the conclusion of the normal series, produced only 20ft./sec./sec. deceleration, and such a distressing lack of vacuum boost—it ran out as the car decelerated through the 50 mph range—that both feet were required on the brake pedal.

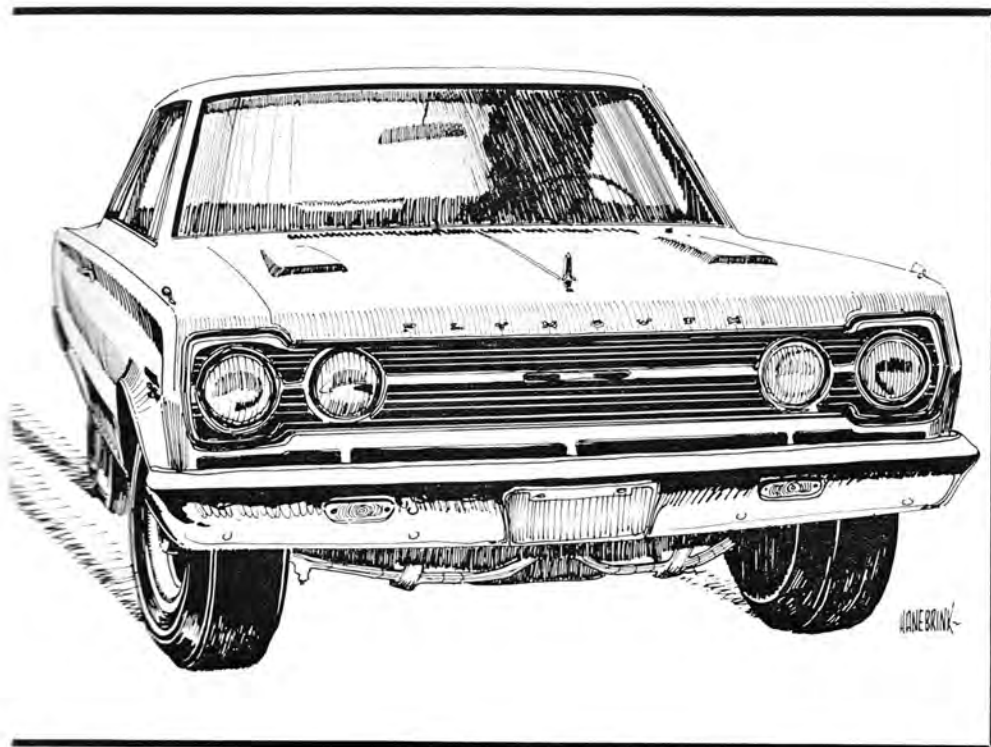
Acceleration required a far more

delicate touch on the throttle. With 375 bhp and 480 lb.-ft. of torque lurking beneath that innocent treadle, great care was required to achieve maximum-effort take-offs. Though adequate to most other needs, the tires were easily overwhelmed into useless wheel-spin by the combination of a 2.45:1 first gear, 2:1 torque converter and 3.23:1 axle (a breakaway multiplication of 15.8:1 for the amount of torque the engine was producing at that point). Feather-footed starts, with the car just trickling off, gave the best acceleration times, those recorded in the accompanying data panel. Transmission shift points were experimented with, utilizing 5000 rpm and manual shifts, and fully automatic upshifts as selected by the transmission's governor. The automatic shifts worked best with minimum time and slippage lost within the transmission. Additional improvements in acceleration time easily could be

effected with a good job of tuning the carburetor.

Substitution of dragslick type tires, with a stickier tread compound, and removal of what little exhaust muffler and air cleaner restriction remain, in all probability would add to overall top performance—and hence to the enthusiast's enjoyment of the automobile.

In driving the GTX, *CL* testers noted several disconcerting carburetion idiosyncrasies. At medium speed, 40-45 mph, the engine showed a predilection for "float," that is, to vascillate from one rpm level to another without a change in pressure on the throttle pedal. At 60-70 mph this developed into a definite surging effect. Under low-gear, full-throttle acceleration conditions, engine power delivery suddenly stumbled above 4500 rpm, as if the carburetor were suffering from either surge or starvation conditions. Carburetion work obviously





BUCKET SEAT interior is all-vinyl finished, with heavily embossed seats and panels. Automatic transmission shift lever is up on column, leaving floor area clear.

was needed.

In approaching the Plymouth GTX, the car enthusiast is likely to find a great deal to appreciate. Along with the outstanding mechanical features, the car has a tailored sort of no-nonsense styling which distinctly parts it from other, more rounded members of

Supercar ilk. Because of a minimum of exterior decoration, an aggressive, compactly muscular image emerges. This aspect is heightened by the view from the driver's bucket seat: Looking down that broad hood, between the window-dressing "scoops" and over the pointed, vertical hood ornament, the

driver feels sharply inspired with the brute masculinity of the vehicle.

He may also find a few things not to like, such as the full-circle horn ring on the steering wheel, a surfeit of embossment on the all-vinyl interior, and, if the test vehicle is an example, poor construction quality.

The horn ring was a minor inconvenience; it hindered clear viewing of an otherwise easy-to-read instrument panel. The embossing put off everyone who looked into the car. In effect, it transformed what should have appeared to be leather-like luxury into bargain-basement ostentation.

The big speedometer is flanked by a pair of gauges, with lights and wiper switches on the left and heater/air conditioner controls on the right. The ring, which must be peered over to view the gauges and controls, also seemed in thumbs' way whenever a great deal of steering arc was required.

Of far more serious consideration was the apparent quality of construction, though panel fit and painted surface conditions were quite acceptable. These were the defects *CL* found in what must be considered a new car, ready for delivery to a cash-in-hand customer:

—Creaking and groaning sounds were emitted from body joints in the

1967 PLYMOUTH GTX HARDTOP COUPE



DIMENSIONS

Wheelbase, in.....	116.0
Track, f/r, in.....	59.5/58.5
Overall length, in.....	200.5
width.....	76.4
height.....	54.0
Front seat hip room, in.....	2 x 22.1
shoulder room.....	58.0
head room.....	37.8
pedal-seatback, max.....	45.2
Rear seat hip room, in.....	59.4
shoulder room.....	58.0
leg room.....	35.0
head room.....	37.1
Door opening width, in.....	38.1
Floor to ground height, in.....	11.9
Ground clearance, in.....	6.4

PRICES

List, FOB factory.....	\$3178
Equipped as tested.....	3649
Options included: Power disc brakes, steering, windows; emission control, limited slip diff., tinted glass, remote control outside mirror radio.	

CAPACITIES

No. of passengers.....	5
Luggage space, cu. ft.....	21.6
Fuel tank, gal.....	19.0
Crankcase (with filter), qt.....	5.0
Transmission/diff., pt.....	18.5/4.0
Radiator coolant, qt.....	18.0

CHASSIS/SUSPENSION

Frame type: unitized	
Front suspension type: Independent by s.l.a., torsion bar springs and telescopic shock absorbers; link-type stabilizer.	
ride rate at wheel, lb./in.....	118
anti-roll bar dia., in.....	0.94
Rear suspension type: Live axle on parallel, asymmetric leaf springs; telescopic shock absorbers.	
ride rate at wheel, lb./in.....	159
Steering system: Recirculating ball with integral power assist; parallel-gram linkage with trailing, parallel Pitman and idler arms, equal length tie rods; ball-joint steering spindles.	
gear ratio.....	15.7
overall ratio.....	18.8
turns, lock to lock.....	3.5
turning circle, ft. curb-curb.....	40.6
Curb weight, lb.....	3830
Test weight.....	4240
Weight distribution, % f/r.....	56.7/43.3

BRAKES

Type: Two-circuit hydraulic with caliper discs, front; duo-servo shoes in composite drums, rear.	
Front disc, dia. x width, in.....	11.04
Rear drum, dia. x width.....	10.0 x 2.5
total swept area, sq. in.....	387.8
Power assist: Integral, vacuum line psi @ 100 lb. pedal.....	1100

WHEELS/TIRES

Wheel size.....	14 x 5.5K
optional size available.....	none
bolt no./circle dia., in.....	5/4.5
Tires: Goodyear Power Cushion size.....	7.75-14
recommended inflation, psi.....	26
capacity rating, total lb.....	5320

ENGINE

Type, no. cyl.....	ohv, 90° V-8
Bore x stroke, in.....	4.32 x 3.75
Displacement, cu. in.....	439.487
Compression ratio.....	10.1
Rated bhp @ rpm.....	375 @ 4600
equivalent mph.....	108
Rated torque @ rpm.....	480 @ 3200
equivalent mph.....	76
Carburetion.....	Carter AFB, 1x4 barrel dia., pri./sec.....
1.44/1.69	
Valve operation: Hydraulic lifters, pushrods, overhead rockers.	
valve dia., int./exh.....	2.08/1.74
lift, int./exh.....	0.450/0.465
timing, deg.....	19-69, 77-27
duration, int./exh.....	266/284
opening overlap.....	46
Exhaust system: Dual, reverse-flow mufflers	
pipe dia., exh./tail.....	2.50/2.25
Lubrication pump type.....	rotary
normal press. @ rpm.....	45-65 @ 2000
Electrical supply.....	alternator
ampere rating.....	46 @ 12 V.
Battery, plates/amp. rating.....	78/70

DRIVE TRAIN

Transmission type: Automatic with torque converter and 3-speed planetary gearset.	
Gear ratio 3rd (1.00) overall.....	3.23
2nd (1.45).....	4.68
1st (2.45).....	7.92
1st x t.c. stall (2.00).....	15.8
Shift lever location.....	column
Differential type: Hypoid with torque-bias limited slip.	
axle ratio.....	3.23

left A-pillar/windshield header area whenever the body flexed.

—Power steering pump had a squealing, faulty shaft bearing; pump and fan drive belts were unnecessarily loose.

—Left door electric window lift would not work.

—Right door courtesy light switch would not break circuit.

—Clock light flickered on and off with vibrations and bumps.

—Right side wiper blade was bent out of line of proper windshield contact.

—Headlights were so far out of adjustment that high beams illuminated only 30 ft. in front of car.

—Front wheels definitely were out-of-balance despite presence of wheel weights on rims.

It should be kept in mind that subsequent dealer service, under terms of Chrysler's pioneering 5/50 warranty, would rectify most, if not all, of these ills. However, such annoyances would hardly be conducive to sale of the vehicle, or customer satisfaction with it after purchase, no matter how impressive its performance.

In most other respects, the GTX appears to be a bargain package. Its factory basic price is \$3178, which includes the biggest engine in the

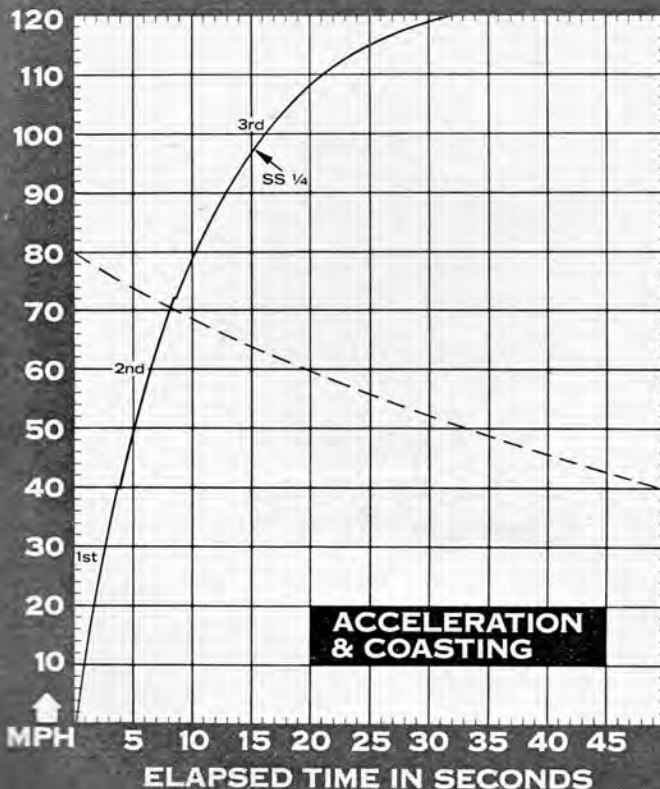


PLYMOUTH CREATES a broad, flat trunk area by placing spare tire in a well below the floor. Fuel tank fills from side panel, also fits under trunk floor.

smallest sedan chassis available today, either a TorqueFlite automatic or all-synchromesh 4-speed manual transmission, a bucket-seat-and-vinyl interior in a specially trimmed exterior, and a wealth of heavy-duty and HP equipment at no extra cost. The addition of power disc brakes, power steering and

a few modest accessories add little enough to the overall cost and make it into one of the most responsive, comfortable handling domestic 1967 automobiles *CAR LIFE* has driven. There is a great deal of virtue in a big engine, particularly one of Chrysler Corporation's big engines. ■

CAR LIFE ROAD TEST



CALCULATED DATA

Lb./bhp (test weight)	11.3
Cu. ft./ton mile	153
Mph/1000 rpm (high gear)	23.6
Engine revs/mile (60 mph)	2540
Piston travel, ft./mile	1590
Car Life wear index	40.3
Frontal area, sq. ft.	22.9
Box volume, cu. ft.	489

SPEEDOMETER ERROR

30 mph, actual	28.2
40 mph	37.9
50 mph	47.6
60 mph	58.0
70 mph	68.3
80 mph	78.3
90 mph	90.9

MAINTENANCE INTERVALS

Oil change, engine, miles	4000
trans./diff.	as req.
Oil filter change	8000
Air cleaner service, mo.	.6
Chassis lubrication, miles	36,000
Wheelbearing inspection	12,000
Universal joint service	none
Coolant change, mo.	12

TUNE-UP DATA

Spark plugs	Champion J-11Y
gap, in.	0.035
Spark setting, deg./idle rpm	12.5/650
cent. max. adv., deg./rpm	27/4800
vac. max. adv., deg./in. Hg.	20/16.0
Breaker gap, in.	0.014-0.019
cam dwell angle	28-32
arm tension, oz.	17-20
Tappet clearance, int./exh.	0/0
Fuel pump pressure, psi	3.5-5.0
Radiator cap relief press., psi	16.0

PERFORMANCE

Top speed (5000), mph	120
Shifts (rpm) @ mph, automatic	
3rd to 4th ()	
2nd to 3rd (4400)	72
1st to 2nd (4100)	40

ACCELERATION

0-30 mph, sec.	2.6
0-40 mph	3.8
0-50 mph	5.2
0-60 mph	6.6
0-70 mph	8.3
0-80 mph	10.4
0-90 mph	12.9
0-100 mph	16.4
Standing 1/4-mile, sec.	15.2
speed at end, mph	97
Passing, 30-70 mph, sec.	5.7

BRAKING

(Maximum deceleration rate achieved from 80 mph)	
1st stop, ft./sec./sec.	22
fade evident?	no
2nd stop, ft./sec./sec.	26
fade evident?	no

FUEL CONSUMPTION

Test conditions, mpg	12.3
Normal cond., mpg	12-15
Cruising range, miles	228-285

GRADABILITY

4th, % grade @ mph	
3rd	18 @ 82
2nd	26 @ 63
1st	37 @ 45

DRAG FACTOR

Total drag @ 60 mph, lb.	155
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