

CAR and DRIVER ROAD RESEARCH REPORT

Studebaker Avanti

*Not just another sporty-looking sedan,
it's a genuine high-performance GT car*



At the end of a long day's journey, when driver fatigue has set in, the Studebaker Avanti is still a thrilling car to drive.

It is a very powerful and enjoyable car, particularly in the supercharged version which we tested, and has safety features to match, such as disc brakes, seat belts front and rear, and a thoroughly padded interior. Both steering and handling characteristics make it far safer than the average American car in terms of accident avoidance.

We drove the Avanti on all kinds of roads, varying from dirt to smooth concrete, from the Pennsylvania Turnpike to twisty mountain roads, and on Lime Rock race track, under all weather conditions from brilliant sunshine to heavy rain, over a total distance of more than 1,500 miles.

Before describing its handling characteristics, we want to point out that its road behavior is highly dependent on tire pressures. We were dissatisfied with the 30 psi front and rear recommended for sustained high-speed driving. With this pressure the front and rear ends almost gave an impression of belonging to different cars.

With 36 psi front and 32 psi rear the car was transformed into a well-balanced automobile, giving the driver a feeling of being at the wheel of a real thoroughbred, with a pedigree listing rally winners rather than relatively normal American-size sedans.

Driving the car on the track proved a pleasant experience. The steering, fairly direct at $3\frac{1}{2}$ turns lock to lock, with no power assistance, was not feather-light but highly precise, with negligible play. The response was immediate, and the heavy front anti-roll bar contributes considerably to keeping the inside rear wheel on the ground.

With the selected tire pressures,

the rear wheels naturally adopted a higher creep angle than the front ones, and the rear end would actually begin an outward drift before lifting a wheel.

The result is an essentially stable car, with initial understeer, a wide neutral field, and final oversteer. A safer car of this size is hard to find—it will not plow helplessly if entering a turn too fast, and the tail does not suddenly swing out halfway around a bend, but gives ample warning before it gently lets go.

You can fling it abruptly around sharp turns, and it will go where it is pointed, whether power is on or off. We went through a number of downhill hairpins and came out of each with still greater respect for the Avanti.

This kind of rough driving is somewhat hampered by the wide armrest on the door, as it tends to block your elbow on a sharp left turn. It would be sensible to do away with the left armrest altogether, and install a door pull of the fold-away or recessed type on the door panel instead.

The seats are closer to genuine bucket seats than most of the bucket-type seats currently available. The seat bottom is perfect for most people, but the backrest, while giving excellent support just above the hips, retains the same profile at shoulder height. This does not allow as restful a position as we would wish for, and there was, moreover, no adjustment for tilting the backrest. Reclining seats are rapidly becoming a prerequisite for Grand Touring cars, and we feel that they would improve the Avanti out of all proportion to the added cost.

The pedals are placed directly in front of the driver, with plenty of legroom left of the clutch, and the

steering column is parallel to the center line of the car. The ability to face in the direction you are traveling, without the slightest deviation, is an advantage which some other manufacturers have been underestimating, and Studebaker is to be complimented.

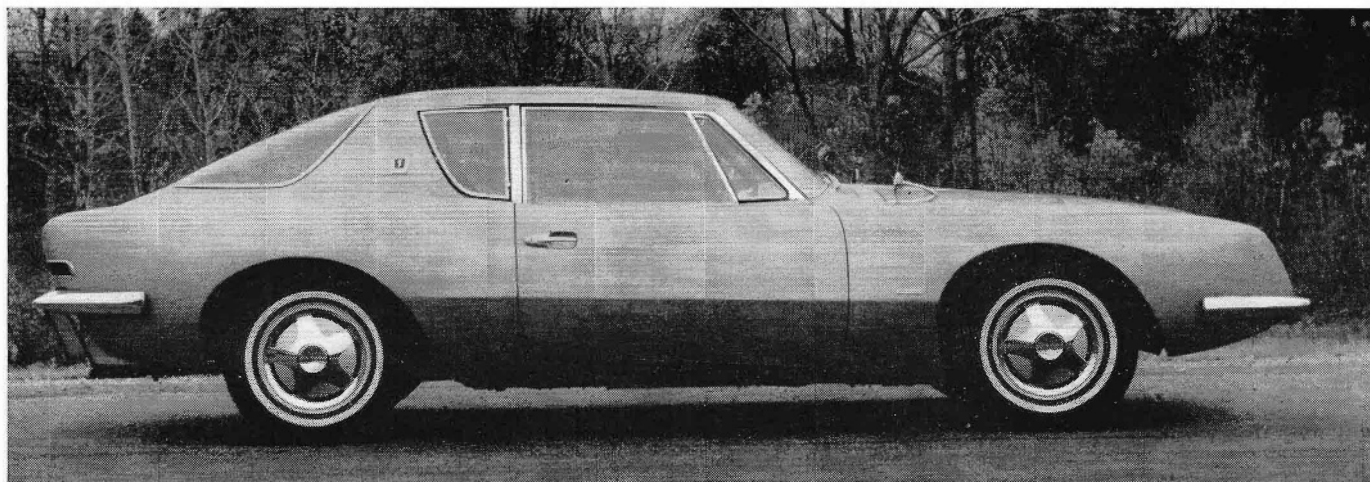
The instrument panel is made up of large circular dials, which we have become accustomed to on all recent Studebakers. The speedometer proved unduly optimistic but the other gauges were accurate, as far as we could establish.

When the Avanti was announced last April, we mentioned that it was the first car to employ aircraft-type switches above the windshield. There are six buttons arranged in pairs: headlights, instrument lights, and fan control. Their operation offers no particular advantage over dashboard switches, and they also prevent the rear-view mirror from being logically mounted centrally on the top edge of the windshield. Instead, the small mirror is mounted Thunderbird-fashion close to the lower edge, giving a restricted view through the rear window and blocking the driver's view of the right front fender.

Rear seats are slightly higher than the front ones, and the body still offers plenty of headroom. The rear seat contours are similar to the front seats, but somehow seem perfectly suitable for accommodating passengers as opposed to the driver.

With front coil springs and rear semi-elliptics adapted from the Lark's, the springing is soft enough to provide a comfortable ride in all seats over all normal surfaces. Over large undulations in the surface, the front springs will permit some up-and-down motion in a manner reminiscent of a 1935 Buick while the rear ones do not react appreciably.

In spite of the two trailing radius



The wedge styling motif sets the car apart and is firmly based on practical aerodynamics and valid reasons of space utilization.

With only four seats and limited trunk capacity, it still has a broad appeal

rods, the rear axle is not anchored with sufficient firmness. A limited-slip differential (optional) is almost a must on the Avanti, as axle tramp is easily provoked on acceleration, even on a dry surface, and almost inevitable during acceleration on a wet surface, or if there is sand, or a bump which hits the right rear wheel. This looseness in the rear axle can also be felt when cornering on a rough surface, but does not in fact pose a problem in that situation. With a less powerful engine, the phenomenon of axle tramp would be far less noticeable. But so much of the appeal, and quite frankly the charm, of this car is due to its very high performance that one cannot overlook a suspension inadequacy of this nature.

Studebaker will not release torque and bhp figures for the Avanti. The reason for this is probably to be found in their coming short of the 300 bhp of the Thunderbird and the 340 bhp of the Buick Riviera, rather than in any desire on Studebaker's part to avoid stressing power and performance in accordance with the almost-defunct AMA resolution.

Studebaker's experience with V-8 engines goes back to 1951, and six years later the company brought out a redesigned unit of lighter construction. This was intended for the Commander series, but was also used with a supercharger on the 1957 Golden Hawk after the abortive attempt with the huge old Packard V-8.

After five years of steady development this engine became the basis for the Avanti. In going after really high performance, the Studebaker engineers gained a lot of valuable experience in a very brief space of time, and when Avanti production started last summer, the engine was completely reliable. The Paxton blower delivers a maximum boost of 4½ psi, through the Carter four-barrel carburetor. The intake valve has a diameter of 1.654 inches, and the exhaust valve 1.531 inches, but while the intake cams only have .375-inch lift, the exhaust cam lobes are .400-inch. The intake opens 17° BTC and closes 63° ABC. The exhaust opens 56° BBC and closes 24° ATC, giving 41° valve overlap. The exhaust gas passes through two straight-through glass wool pack mufflers and exits via two-inch tail

pipes, one on each side. The exhaust is quite noisy on hard acceleration and even more obtrusive on the over-run, but at steady speeds it is as silent as any other Studebaker.

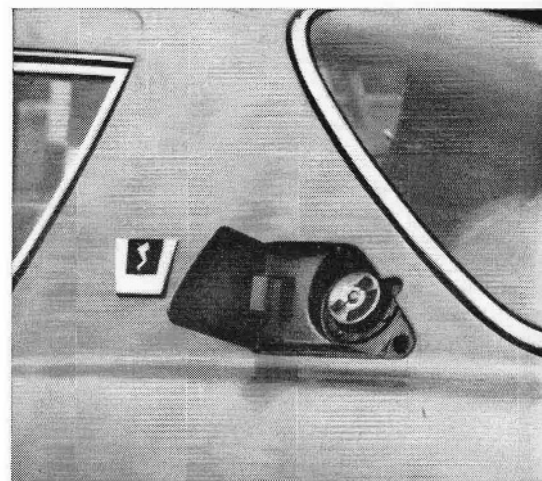
The clutch has an excellent grip and is pleasant to use, although the pedal travel seemed rather long. The gearbox is a four-speed all-synchromesh Warner T10-A with a pleasant floor-mounted gear lever. Combined with a 3.73-to-one rear axle, it runs out of rpm too early, and we wished we had had the 3.31 final drive (available with the three-speed T-86). The engine has enough torque to start in top gear when idling (on level ground), and a lower final drive ratio would also reduce the engine and transmission noise level. We were disappointed in the wide spacing between third and top, and wonder if Borg-Warner's contract with Chevrolet prohibits delivery of Corvette ratios to others.

The Bendix-built Dunlop disc brakes (with power booster) give the Avanti an advantage over all other American cars just as Jaguar, the first sports-racing car to use discs, outclassed all others at Le Mans in 1953. Some modern drum brakes may have equal stopping power, but do not have the endurance of the discs.

Whatever you may feel about the lines and esthetic appeal of the Avanti, it is a very sensible design with good aerodynamic properties and remarkable directional stability. The flush-fitting windows contribute a sizable drag reduction and help keep wind noise low, and the long hood helps put the center of pressure back to a closer proximity with the center of gravity.

Body finish is first-class—the fiberglass structure first goes through dry-sanding, then gets a prime coat of acrylic lacquer followed by baking, wet sanding, and its first color coating. After baking, it gets a fresh color coating, and a solvent flash before the third color coating and final baking. The whole body weighs 550 pounds, about 200 pounds less than a steel body would.

Not only the enthusiast but also a large number of high-mileage motorists will find the Avanti an extremely desirable car. For Studebaker it is a great companion for the Hawk GT and to us it represents a unique combination of space, speed and safety. **C/D**



Fuel filler cap is neatly concealed under a flap just above the body's shoulder line.



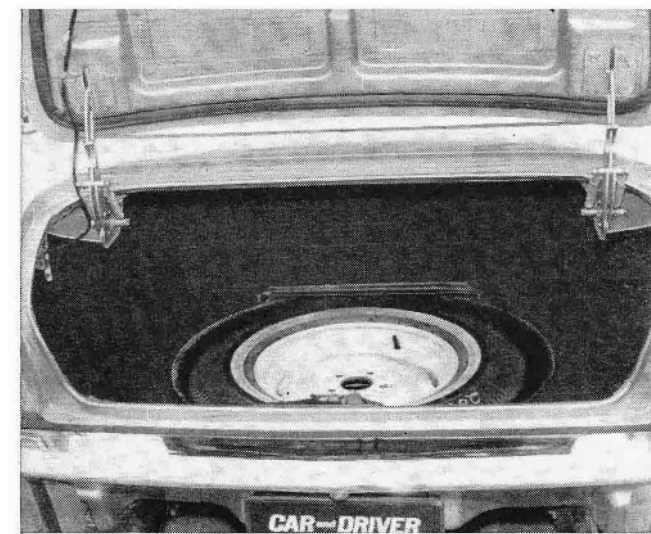
Front overhang is considerable but the driver quickly gets used to the extra length. Big V-8 rests on the cross member.



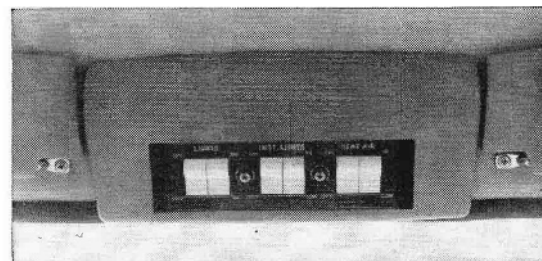
The whole body surface is remarkably free from excrescences of any kind, and yet all practical requirements are there.



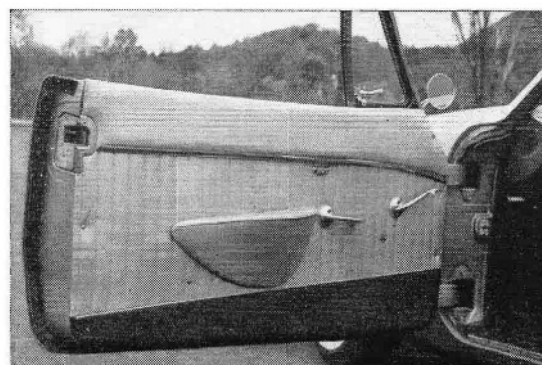
High-speed cornering produces very little body roll and the car remains in near-perfect balance on all smooth surfaces.



Trunk capacity is larger than the lid indicates, but still rather small. Jack and spare wheel live below trunk floor.



Overhead switches are interesting as a novelty but showed negligible advantage.



Doors are 46½ inches wide and will be in danger of sagging even on hefty hinges.



Cockpit incorporates many lessons from aviation, and areas you might come in contact with in accidents are all padded.

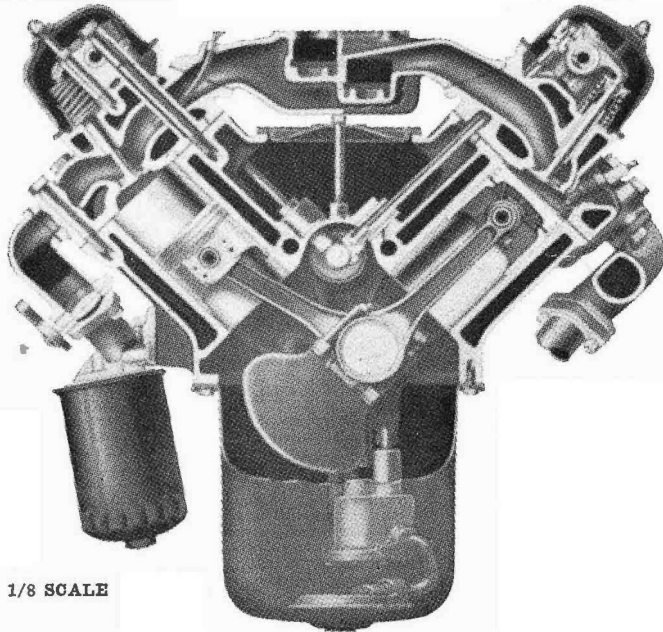


Passenger compartment is much roomier than suggested by the low and sleek body lines and even rear seats have seat belts.

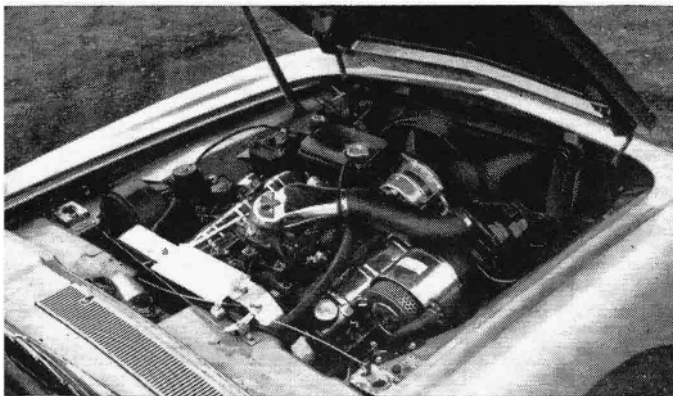
Road Research Report STUDEBAKER AVANTI

Manufacturer: Studebaker Corporation
635 South Main Street
South Bend 27, Indiana

Number of U.S. dealers: 4,000
Planned annual production: 12,000
Value of spare parts in U.S.: \$1,500,000



1/8 SCALE



PRICES:

Basic price \$4,445.00
Options fitted to test car:
Paxton supercharger 210.00
Warner T-10-A gearbox 188.30
Firestone "500" whitewall tires 47.91
Electric windshield washer 11.95
Radio and antenna 85.00
Seat belts front and rear 39.00
Price as tested 5,027.16

OPERATING SCHEDULE:

Fuel recommended Premium
Mileage 10-15 mpg
Range on 21-gallon tank 250-375 miles
Oil recommended SAE 10W-30 for service MS
Crankcase capacity 5 quarts
Change at intervals of 4,000 miles
Number of grease fittings 9
Lubrication interval 1,000 miles
Most frequent maintenance Lubricate clutch pedal linkage, hill-holder linkage and transmission shift rods—1,000 miles

ENGINE:

Displacement 289 cu in, 4,720 cc
Dimensions 8 cyl, 3.56-in bore, 3.62-in stroke
Valve gear Pushrod-operated overhead valves
Compression ratio 9.0 to one
Power (SAE) (see text)
Torque (see text)
Usable range of engine speeds 1,000-6,000 rpm
Carburetion: Single four-barrel Carter AFB 3507S carburetor and Paxton supercharger

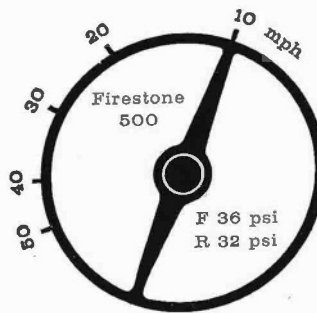
CHASSIS:

Wheelbase 109 in
Tread F 57.5 in, R 56.5 in
Length 192.5 in
Ground clearance 7.0 in
Suspension: F: Ind., wishbones and coil springs, anti-roll bar
R: Rigid axle, semi-elliptic leaf springs and radius rods, anti-roll bar
Steering Cam and twin roller
Turns, lock to lock 3 1/2
Turning circle diameter between curbs 37 ft
Tire size 6.70 x 15
Pressures recommended Normal F 24, R 20 psi
High-speed F 30, R 30 psi
Our recommendation F 36, R 32 psi
Brakes: Bendix 11.5-in disc front, 11-in drum rear, 377 sq in swept area
Curb weight (full tank) 3,500 lbs
Percentage on the driving wheels 41.5

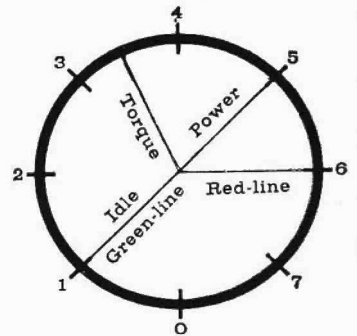
DRIVE TRAIN:

Clutch Borg & Beck semi-centrifugal with single driven plate

Gear	Synchro	Ratio	Step	Over-all	Mph per 1,000 rpm
Rev	No	2.54	—	9.48	—7.7
1st	Yes	2.54	32%	9.48	7.7
2nd	Yes	1.92	26%	7.11	10.4
3rd	Yes	1.51	51%	5.60	13.1
4th	Yes	1.00	—	3.73	19.6
Final drive ratio: 3.73 to one					

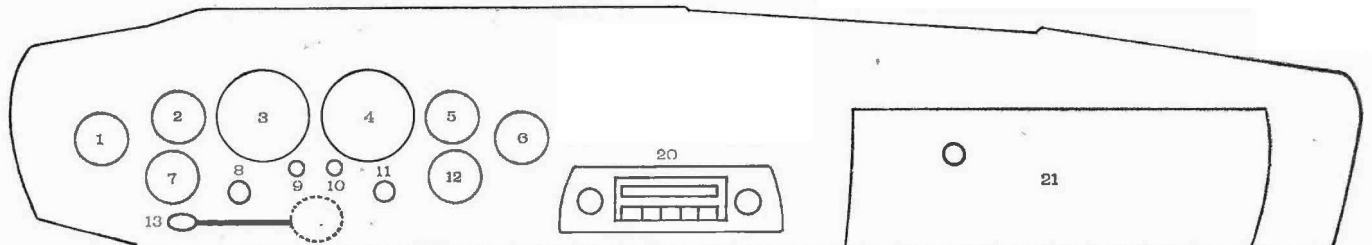


Steering Behavior
Wheel position to maintain 400-foot circle at speeds indicated



Engine flexibility
RPM in thousands

14 15 16 17 18 19



(1) Clock; (2) Water temperature gauge; (3) Speedometer; (4) Tachometer; (5) Fuel gauge; (6) Manifold pressure/vacuum gauge; (7) Ammeter; (8) Wiper switch; (9) Turn signal light (left); (10) Turn signal light (right); (11) Ignition key and starter; (12) Oil pressure gauge; (13) Turn signal lever; (14) Parking light switch; (15) Headlight switch; (16) Instrument light (on-off) switch; (17) Instrument light (full-low) switch; (18) Heater fan (on-off) switch; (19) Heater fan (high-and-low-speed) switch; (20) Radio; (21) Glove compartment and vanity

