AVANTIS, a pair

One of our test cars was a standard street job, but the other was Andy Granatelli's record-busting blown R-3

MT Road Test

by Jim Wright, *Technical Editor*

Hot Avanti was set up for Bonneville record attempt; also had beefed suspension and heavy-duty equipment. Both cars handled well, but the R-3 tracked like a cat, with very little lean.

BIGGEST ATTENTION-GETTER we've tested so far this year — that's the Avanti. It should be, though, because it's one of the most original cars of 1963. Avanti styling hasn't borrowed from anything else, and regardless of whether you like it or not, it's certainly different. We think the Loewy design represents one of the freshest concepts in a long time.

Much of the interest Avanti arouses in people is due to the fact that not too many of them have been seen on the streets. Although the car's been out close to a year, the number produced and sold falls somewhere between 700 and 1000. This figure could (and should) be much higher, because Studebaker isn't having any trouble selling them. Producing them has been something else.

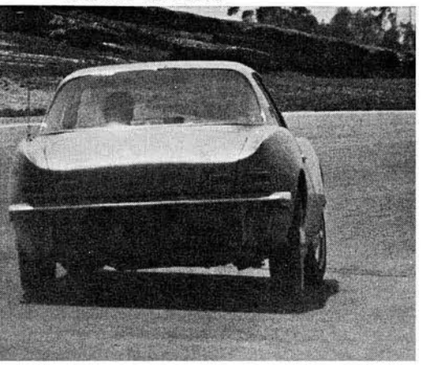
Originally it was thought that the Molded Fiber Glass Company of Ashtabula, Ohio, would be able to supply body shells at a rate equal to the demand. But because of their contractual obligations to GM (they also build the Corvette shell), early production of the Avanti body lagged. When the sales order backlog reached 2500, Studebaker decided to put in a fiberglass production line at South Bend, hoping that this output coupled with the MFG output would solve the supply problem. And it should, because with both lines in full swing, Avanti production can reach 1500 units a month.

While it's unfortunate that production got off to a slow start, all wasn't lost. The time lag gave Studebaker plenty of opportunity to do a first-rate job on their body molds. As a result, the Avanti body is no doubt the smoothest mass-produced glass body ever seen. Inspected from any angle and under any lighting, the shell is free from the dips, hollows, ripples, and flats that are too often associated with a fiberglass body.

To get a good idea of what was available in the Avanti line, we chose two cars for our test. The first was set up to represent what we think will be the average seller. This model was equipped with power steering, power brakes (standard with discs), air conditioning, the 289-cubic-inch, single-four-barrel-carbureted engine, automatic transmission, and 3.31-to-1 rear axle. This would be more or less the all-out luxury model for those interested in a personal car offering good performance and no sacrifice in convenience.

The second car we tested was one of Andy Granatelli's

PHOTOS BY BOB D'OLIVO



(ABOVE) *Both Avantis cornered well, showed little body lean but some understeer due to front-end weight bias. Power was always available for good control. Cars use independent front coils with five-leaf springs and radius rods on the rear axles.*

(TOP, RIGHT) *During panic stops, Avantis showed considerable nose dive, but excellent power-assisted front discs, finned rear drum brakes brought cars to straight-line, safe stops. We brought cars down from as high as 125 mph, with only slight fade.*

(BELOW) *Attention-getting fiberglass bodies are among the best finished we've seen. Car uses 100 molded parts, and 36 more items are punched or sheared from flat fiberglass-reinforced plastic sheet, bonded together in the normal way with polyester resin.*

personal models, equipped with a prototypal, supercharged, 304.5-cubic-inch R-3 engine, automatic transmission, and 4.09-to-1 Twin-Traction rear axle. Heavy-duty suspension is also a part of the R-3 package. Except for the standard power disc brakes, this hot one had no special comfort equipment.

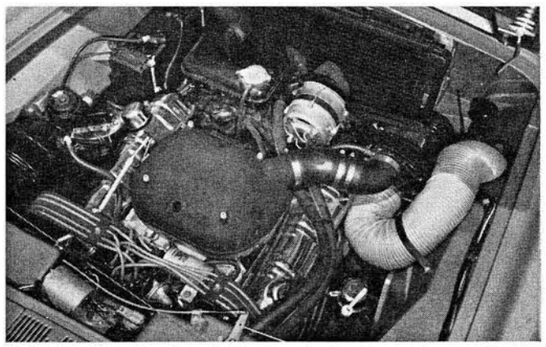
One of the first questions anyone asked us was, "How does it go?" Both of them went pretty well. The mild one, with its 225-hp engine, didn't offer anything spectacular, but its overall performance rating would be very high. In the standing quarter-mile, it did a respectable 78 mph, with a 17.5-second ET. Fractional times for 0-30, 0-45, and 0-60 mph took 4.3, 7.0, and 10.7 seconds. Several high-speed runs down the Riverside Raceway backstretch topped out at 115 mph. The tachometer was reading 4800 rpm at this speed and was still gradually climbing. With more room to wind out, the mild version should be capable of an honest 120 mph with the 3.31 gearing.

The R-3 option provided the kind of acceleration that's more in keeping with the Avanti's far-out styling. This engine's very conservatively rated (by the factory) at 305 hp at 5200 rpm, with 320 pounds-feet of torque at 4000 rpm. A much wilder cam (288 degrees' duration and 56 degrees' overlap against 260 and 41 for other Stude cams) is used, and the engine's pistons and lower end are beefed accordingly to withstand the increased output that the centrifugal supercharger affords. Compression ratio is 9.75 to 1 to compensate for the six psi boost that the blower gives.

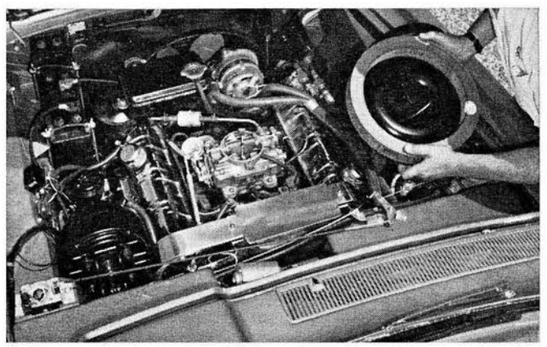
This one gave us some very quick 102-mph, 14.3-second ET trips through the quarter-mile. The automatic slips a bit coming off the line (as evidenced by the 0-30-mph time compared to the 0-45- and 0-60-mph times of 3.0, 4.7, and 6.7 seconds respectively). But once it gets hooked up, it does a good job and 1-2 and 2-3 shifts are quick and positive. We hit a top speed of 125 mph at 6700 rpm. Here again we could've gone faster given more room, because the engine showed a willingness to wind easily to 7500 rpm.

Other than the extremely loud straight-through mufflers on our hotter test car, it was supposed to be as factory stock as any showroom model. In fact, it's a car that Granatelli hopes to run soon for several of the international Class C records now held by Pontiac. This is the main reason that the R-3 engine size has been increased from its original 299 cubic inches to 304.5. At the latter figure, it's within half an inch of the class limit.

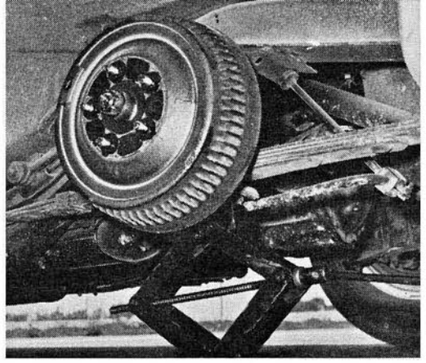
We've also driven both the hot and mild versions equipped with manual four-speed transmissions and found them a shade faster on ET. Quarter-mile and top-end speeds are about the same, but you can get there a bit faster with the manual box due to the initial slippage in the automatic. For all-around driving we'd recommend the automatic. It's the Power-shift option and can be controlled almost as closely as a manual. That is, starting out in 1 will give you first



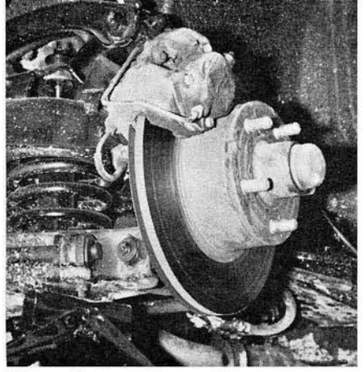
Using cast-iron heads and block and aluminum pistons, the R-3 engine gets six pounds of boost from centrifugal blower and gives one horse from each of its 305 inches of displacement.



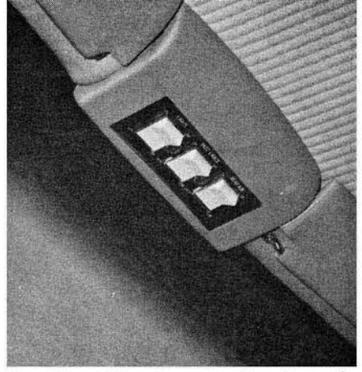
Unblown 289-incher is rated at 225 hp at 4500 rpm. It uses 10.25-to-1 compression ratio and offers 0.77 hp per cubic inch, with smoother operation, better gas mileage than hot one.



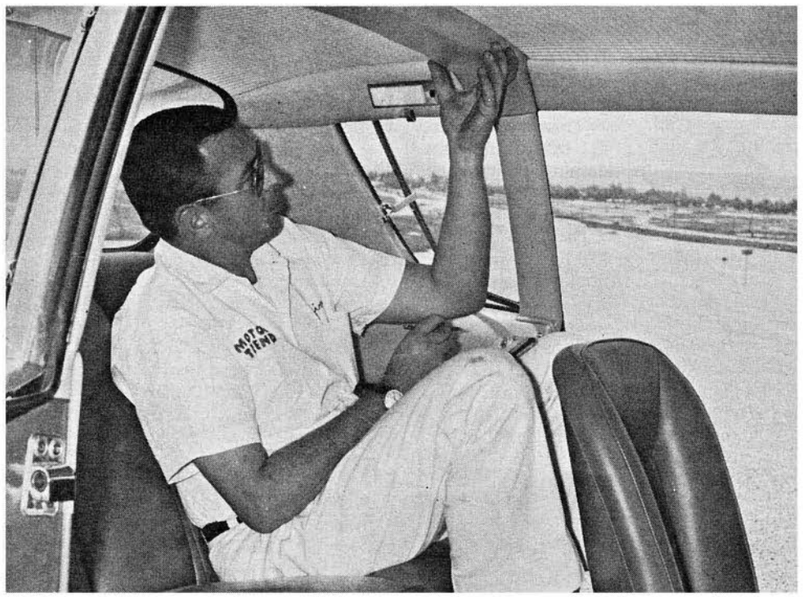
Avanti rear-wheel brakes are husky 11-inch, cast-iron, finned drums. Rear suspension features radius rods, anti-roll bar, and five-leaf semi-elliptic springs. Adjustable Gabriel shocks are used all around.

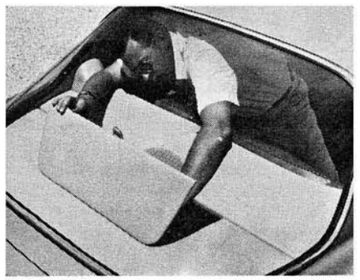


Most of Avantis' stopping power came from these big 11½-inch-diameter grey-iron discs. Front suspension layout uses tubular shocks inside independent front coils, with control arms, anti-roll bar.



Something different on the Avanti are the overhead airplane two-way switches for headlights, instrument lights, and heater. Padded sun visors fold flush on overhead panel. Headliner is attractive, cleanable.

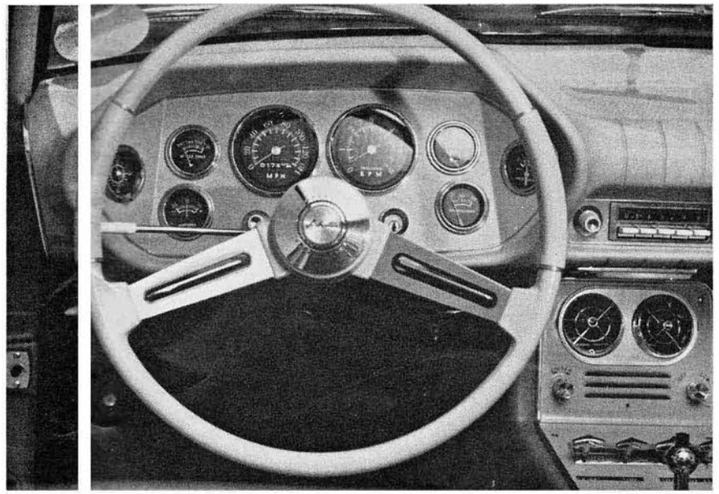




(ABOVE) *Luggage can be reached without getting out of car – through lid behind rear seat. Vision out back isn't too good.*

(LEFT) *The rear passengers sit with knees high, have limited leg room when front seat is far back. Padded roll bar offers extra protection in event of a roll-over. New positive-locking door latches keep doors from flying open in event of an accident and make them a rigid structural member of car's fiberglass body.*

(RIGHT) *Amazingly large trunk, completely carpeted, is opened by a handle located under the car's rear seat. Spare tire lies in a recessed well under the trunk floor.*



(LEFT) *The new Avantis use real gauges for every engine function. Two-spoke wheel is easy to see over. There's no glare from the hooded instrument panel at any time. Air-conditioning unit cooled small coupe in a matter of minutes. Studes retain their "vanity," but it's smaller than before and now leaves some usable space for both large and small items in glove compartment.*

STUDEBAKER AVANTI

2-door, 4-passenger coupe (R-1)

R-3 figures in ( )
OPTIONS ON CAR TESTED: Automatic floor-shift, power steering, air conditioning, electric windows, radio, silent muffler, whitewalls
BASIC PRICE: $4445 (not available on R-3)
PRICE AS TESTED: $5483.23
ODOMETER READING AT START OF TEST: 461 miles
RECOMMENDED ENGINE RED LINE: 6000 rpm

PERFORMANCE

ACCELERATION (2 aboard)
0-30 mph..... 4.3 (3.0) secs.
0-45 mph..... 7.0 (4.7)
0-60 mph.....10.7 (6.7)
Standing start ¼-mile 17.5 (14.3) secs. and 78 (102) mph
Speeds in gears @ 6000 rpm
1st .....59 mph
2nd .....98 mph
3rd .....115 (top speed) @ 4800 rpm
(125 top speed @ 6700 rpm)

Speedometer Error on Test Car						
Car's speedometer reading	30	45	50	60	71	81
Weston electric speedometer	30	45	50	60	70	80

Observed miles per hour per 1000 rpm in top gear.....23.5 mph
Stopping Distances — from 30 mph, 34.5 ft.; from 60 mph, 124.5 ft.

SPECIFICATIONS FROM MANUFACTURER

Engine
Ohv V-8
Bore: 3-9/16 (3-21/32) ins.
Stroke: 3⅝ ins.
Displacement: 289 (304.5) cu. ins.
Compression ratio: 10.25:1 (9.75:1)
Horsepower: 225 @ 4500 rpm (305 @ 5200 rpm)
Torque: 305 lbs.-ft. @ 3000 rpm (320 @ 4000 rpm)
Horsepower per cu. in.: 0.77 (1.0)
Ignition: 12-volt coil

Gearbox
Power-shift 3-speed automatic; console-mounted lever

Driveshaft
One piece — open tube

Differential
Hypoid — semi-floating
Standard ratio: 3.31:1 (4.09:1)

Suspension
Front: Independent, coil springs with upper and lower control arms, direct-acting tubular shocks, and anti-roll bar
Rear: Rigid axle, with 5-leaf, semi-elliptic springs, direct-acting tubular shocks, radius rods, and anti-roll bar

Steering
Cam and single lever, roller stud, power assist
Turning diameter: 40 ft.
Turns: 3.5 lock to lock

Wheels and Tires
5-lug, 15 x 5K steel disc wheels
6.70 x 15 4-ply nylon tubeless tires

Brakes
Hydraulic; disc front, drum rear; integral power assist
Front: 11½-in.-dia. grey-iron disc
Rear: 11-in. dia. x 2 ins. wide finned cast-iron drum
Effective lining area: 105 sq. ins.

Body and Frame
Separate ladder-type frame and fiberglass body
Wheelbase: 109.0 ins.
Track: front, 57.375 ins.; rear, 56.562 ins.
Overall length: 192.4375 ins.
Curb weight: 3480 lbs.

AVANTIS, A PAIR *continued*

gear only until you shift manually to 2 and then to D. D starts give second gear with an automatic shift to D at 5000 rpm at full throttle. As mentioned, the forced shifts are very positive, with little or no slippage.

The mild version gave us very good gas mileage under all conditions. Around town, the average varied from 12 to 14.5 mpg. Open-road cruising (65 to 80 mph) gave 15 to 17.5 mpg (using the air conditioner sacrificed one mpg at almost all speeds). For increased economy you can order the optional 3.07 rear axle.

The hotter R-3-equipped Avanti with 4.09 gears averaged between 8.5 and 12 mpg under the same conditions. A wider range of rear axle gears is available with the R-3 option and covers a spread of 2.53 on up to 5.38. Several of the more practical sets would be the 3.54 for a mixture of street and highway use, 2.87 or 3.07 where you're doing a lot of highway driving, and the 4.89 for the drags only.

Traction wasn't a problem in either of the automatic-shift test cars. The hot version used Firestone Butylaires at the rear (plus Twin-Traction rear axle), and there was very little wheelspin on hard, full-throttle starts. With the manual transmission, there's more tendency for the rear wheels to smoke, but the traction (or radius) rods incorporated in the rear suspension eliminate spring wind-up. All Avantis come from the factory with Gabriel Ajustomatic shocks all around. These give three easily obtained degrees of firmness and allow the owner to choose a setting he feels is best suited to his driving. The R-3 Avanti also had a shade stiffer springs all around, which are part of the R-3 option.

Both cars understeer quite heavily due to the 60/40 front/rear weight distribution. On slow to medium-fast short corners, this characteristic is pronounced enough to be annoying and is accompanied by a high level of tire squeal. On faster, wider turns, the front tires still protest too much, but the experienced driver will find there's usually enough power in reserve so he can use the throttle to put the rear of the car where it'll do the most good. The mild model, with softer suspension, leaned quite a bit in hard corners.

Factory specifications call for a shade of negative caster in the front suspension. This allows reduced steering effort but it also gives the Avanti several annoying traits. Its directional stability, while good, isn't so good as it should be for a car with the top-speed potential of this one. Also, a car with negative caster tends to heel over suddenly when pointed into a corner. This, coupled with the high (in the air) rear end of the Avanti, is magnified quite a bit. On the other hand, the Granatelli R-3 was set up for high-speed work and had several degrees' positive caster. As a result, it showed quite a bit more stability.

While the hot one didn't have power steering, it did have the optional quick-steering setup. This gives 3.5 turns lock to lock (same as power) and is a big improvement over the standard five-turn unit. Steering effort was still light enough so that the car could be parked with ease.

The Avanti's setup of Bendix-Dunlop discs in front and drums in the rear is the best we've come across on a domestic car. We made repeated maximum-effort stops from top speed with both cars (115 and 125 mph), and while we found a small degree of fade, the brakes always brought the Avantis to fast, swerve-free stops. They cool quickly and their effectiveness is high under all conditions. During the regular braking tests, our figure of 124.5 feet to stop from 60 mph is one of the quickest we've ever recorded with a car of this size. The only complaint we have is that anti-dive geometry isn't incorporated in the front suspension, and this allows excessive dive on hard stops.

The seats are true buckets and give excellent lateral support to the upper and lower body. We thought the seat backs a bit too vertical for their design. If they were raked back, they would've been even more comfortable. Fore and aft adjustment allows both short and tall drivers to find a suitable driving position.

All controls are within easy reach of the driver, with all instruments conveniently grouped so they can be read at a glance. The instrument panel is one of the most complete there is – there's a large, round, white-on-black gauge for every engine function.

The Avanti is a car that's impressive as well as fun to drive. It has plenty of eye appeal. It can be had in several degrees of tune, all of them with real Gran Turismo performance. Quality is equal to the asking price, and the resale value of an Avanti should hold up well because Studebaker is planning only continuous improvements instead of yearly changes for the sake of change. **/MT**