



AUDI'S NEW FIVE: LIGHTWEIGHT LUXURY

*The 100GL5i shatters preconceptions
about size, space, luxury and performance*

BY RON WAKEFIELD European Editor

AN ALL-NEW AUDI is on the way, the world's first production car with a 5-cylinder gasoline engine, and with it the northern Bavarian carmaker is laying down a serious challenge to Mercedes.

This is the car that has been rumored as the new Audi 120, but despite its being a definitely "up-market" car the name 100 has been retained. Not much else from the old 100 has been kept, since the body and front suspension are completely new, only one engine option has been retained in its previous form and the rear suspension has been rearranged.

5-Cylinder Engine

FOR THE European market there are three engine options: the 1588-cc overhead-cam four also used in the Fox and all VWs currently exported to the States; the 1984-cc ohc of the Porsche 924, with carburetor instead of fuel injection; and the new five. Like the Mercedes diesel five, this one is a 1-cylinder extension of an existing engine; it's based on the 1588-cc four. With the same 79.5-mm bore as the four and a stroke lengthened from 80.0 to 86.4 mm, the five displaces a modest 2144 cc, and with K-Jetronic fuel injection and a 9.3:1 compression ratio it develops 136 bhp DIN at 5700 rpm. It is the only engine that will be offered in America, where the compression ratio will be reduced to 8.2:1 and the output to 108 bhp SAE net in conforming it to U.S. emission regulations. Other than the fact that it's a five, it's a perfectly normal,

modern inline sohc engine with belt-driven overhead cam. The 1984-cc four, by the way, may not be available in America but it will later be *built* in America. Once American Motors takes over production of short blocks for this engine they will be delivered back to Audi and Porsche for installation in cars!

As in previous Audis the engine is ahead of the transaxle and slanted to the right, with the radiator and electric cooling fan on the left to save space. The 4-speed manual transmission which was beefed up last year for use in the 924, has new ratios. A 3-speed Audi-VW automatic transmission is optional.

Body: Safety, Comfort & Light Weight

THE NEW 100 body was designed in the period when the U.S. was threatening to increase its crash-test requirement from 30 to 40 mph, something Audi engineers have tried to do without unduly increasing weight. Their method involves the theory of the longitudinal collapse of a square-section beam, two of which form the basis of the front end's energy absorption in a frontal crash.

The front-end styling, which visually conveys this thinking with its mild safety-car look, also figures into favorable aerodynamics for the new 100. Audi engineers claim that in their tunnel the new 100 is roughly comparable to the NSU Ro80 and Citroën CX with a C_x of 0.39. At the other end, the rear has been shortened (altogether the U.S. version is only 2.3 in. longer than the old 100), but the old 100's already large

trunk has been made larger. This was accomplished by putting the fuel tank ahead of the rear axle under the seat instead of behind it, and in turn this was possible because the Panhard rod is now transverse instead of angled.

Inside, there's about 1 in. more length and 2 in. more in width for the passengers. The interior decor is fresh and handsome, with the basic color a rich dark brown with contrasting panels that are keyed to the body color. The dash features a vast array of air outlets, large and legible instruments and virtually all-stalk controls. The only disturbing note here is a strip of fake wood in the GL interior, out of character with the otherwise contemporary look.

Air conditioning is fully integrated for the first time and will be installed at the factory, which as all too many owners of air-conditioned imports know can eliminate a lot of potential problems. I was told the system is as effective as that of the Cadillac Seville though it is not fully automatic.

Suspension & Brakes: Evolutionary

Front suspension has been brought into line with the 80/Fox line, with MacPherson struts instead of the old 100's double A-arms. The new 100's system is "pure" MacPherson, with the anti-roll bar helping locate the wheels instead of serving just as an anti-roll bar as in the Fox. A front subframe for suspension and engine has been introduced, just the opposite of what has been happening at Mercedes-Benz, and the Audi people claim the same thing the Mercedes folks are claiming: improved steering precision. At Audi, however, the improvement is attributed to the MacPherson suspension and they can also point to better noise-vibration isolation whereas

control of the axle laterally and allows softer springing without loss of handling.

Brakes are essentially as before, with outboard discs at the front and drums at the rear. For the U.S., vented front discs will be standard for the simple reason that Americans expect longer brake pad life than Europeans. This completes a cycle of improvements to the 100's front brakes that began six years ago when Americans discovered they needed new pads every 6000 miles. Since then they've been enlarged, then moved outboard and now ventilated.

In many respects, this new Audi 100 is the "big" family car of the future. Thanks to the space-saving arrangement of mechanicals, it is exceptionally roomy for its size (already an Audi characteristic), and the careful design for crash safety has made it safer but not heavier, just 2700 lb for a car that's fully comparable with its heavier European competition and middle-size American cars in comfort and space. The light weight in combination with good aerodynamics and the injected 5-cyl engine should give it exceptional fuel economy too. Things that especially concern Americans, like good air conditioning and a stylish interior, have been looked after much better than before. It remains only to see if the price can be made as attractive as the car—this is the problem area of the German cars today.

North American introduction of the 5-cyl 100 is scheduled for next summer. In the meantime the current 100LS will continue to be available, obviously at a lower price than the new car will command when it appears. Which of the three versions of the new 100—normal, L and GL—will be available in America is not yet decided, but I'd bet on the GL, the most

PHOTOS BY MANFRED HOLZNER



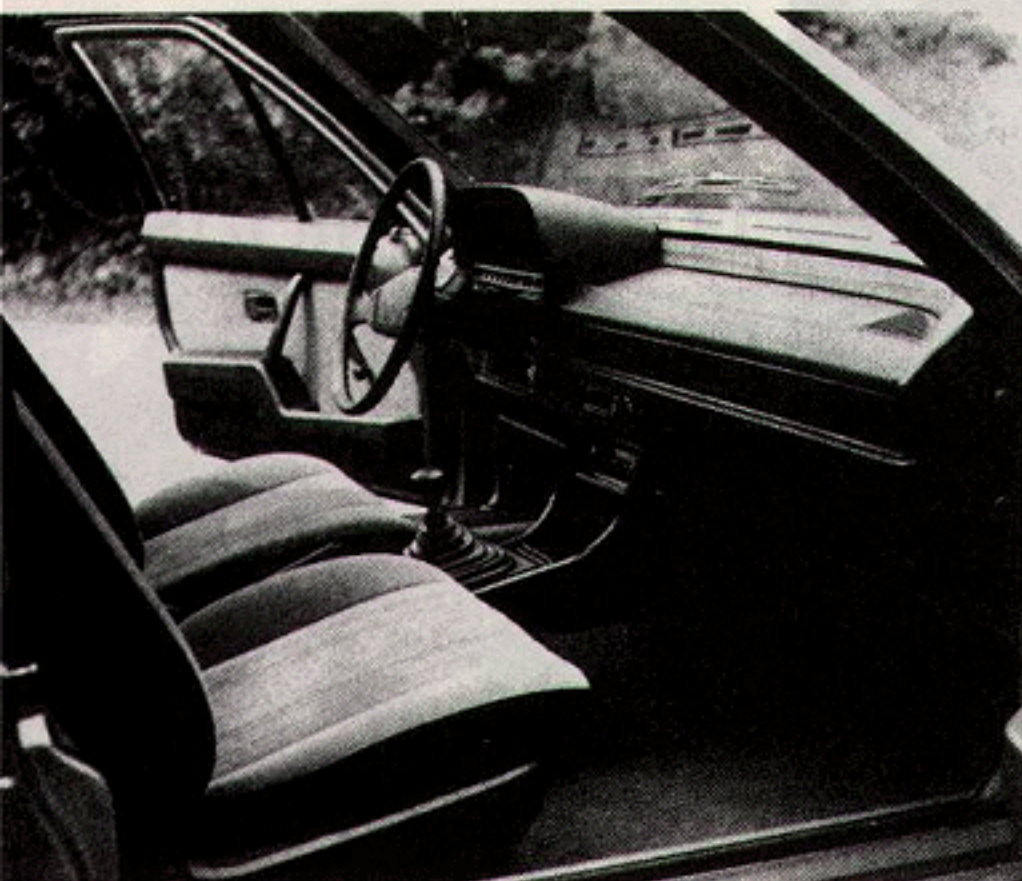
Mercedes has had to compromise on this. Steering is essentially unchanged with ZF rack-and-pinion and optional integral power steering.

At the rear, the unusual Audi torsion-crank axle is continued with improvements. This is a dead axle suspended on stamped, bendable trailing arms and sprung by coil springs, with a Panhard rod to stabilize it laterally. The axle itself is its own anti-roll bar: it is U-shaped in cross section and is twisted when the two wheels don't move up and down together. Rearrangement of the Panhard rod to a straight-across position, aside from allowing the new fuel-tank location, gives more precise


luxurious of the three. Farther down the road, there will be other variations on the new 100, like a fastback sedan called the Avant, a coupe to replace the current 100S fastback (never sold in America), a diesel model and perhaps even a Wankel-engine version to succeed the aging Ro80. But for now the 5-cyl 100 is the news.

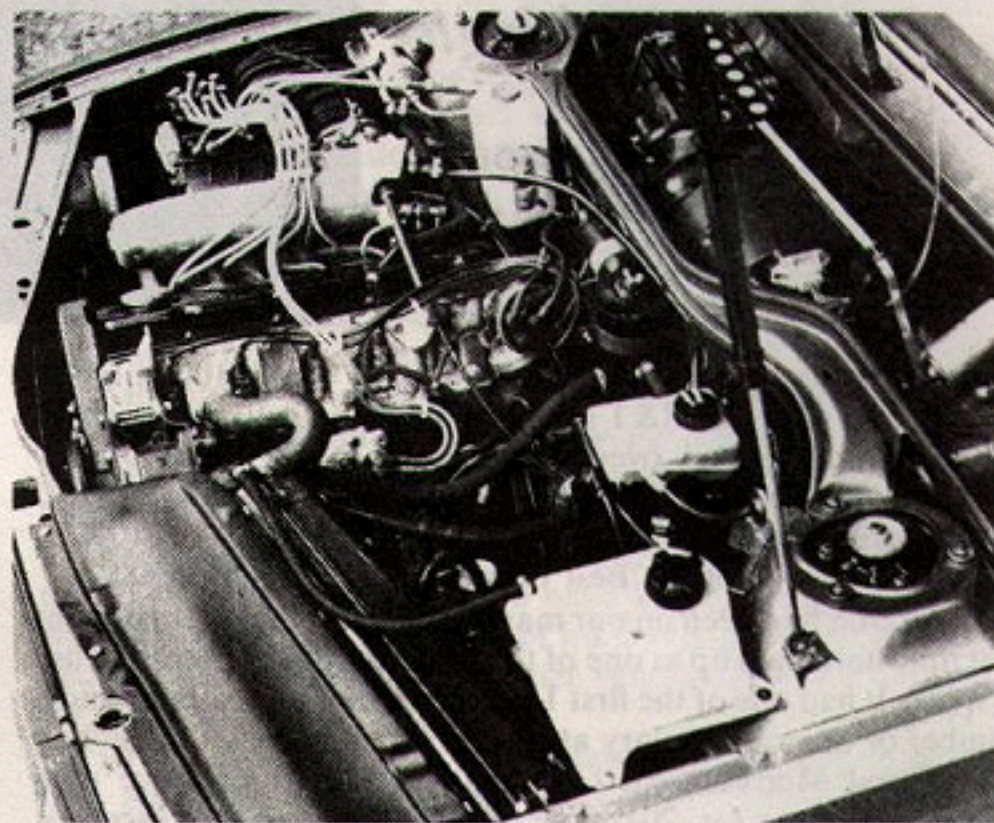
Driving Impressions

FROM THE moment you climb behind the wheel of the 100GL5i (as the 5-cyl injected version is called) you know it's a step up from the ritziest of the old series. That rather austere look



The chassis is dramatically improved. Certain awkward motions of the old 100's ride seem to be completely gone and the ride in general is pretty much in the Mercedes class. The full-time power steering is excellent, whether it be in parking, hard cornering or straight-line cruising on the *Autobahn*. And you always learn from Audi just how little a front-wheel-drive car can understeer when the chassis engineers set their minds to it, as well as how little "fwd effect" needs to be felt in the steering.

In almost every respect the 5-cyl Audi is an impressive car, all the more so when you're reminded that it's powered by just over 2 liters of theoretically unbalanced engine. 



AUDI 100GLSi SPECIFICATIONS (North American Version)

GENERAL

Curb weight, lb	2700
Wheelbase, in	105.7
Length	189.5
Width	69.6
Height	54.8
Fuel capacity, gal	15.9

ENGINE

Type	sohc inline 5
Bore x stroke, mm	79.5 x 86.4
Displacement, cc/cu in.	2144/131
Compression ratio	8.2:1
Bhp @ rpm, net	108 @ 5500
Torque @ rpm, lb-ft	(est) 125 @ 3200
Fuel injection	Bosch CIS

DRIVETRAIN

Transmission	4-speed manual or 3-speed automatic (ratios for manual given)
Gear ratios: 4th (0.980)	3.66:1
3rd (1.32)	5.15:1
2nd (2.15)	8.02:1
1st (3.65)	13.61:1
Final drive ratio	3.73:1

CHASSIS & BODY

Body/frame	unit steel
Brake system	vented discs front, drums rear; vacuum assisted
Wheels	steel disc, 14 x 5 1/2
Tires	radial, 185/70HR-14
Steering type	rack & pinion, power assist optional
Front suspension	MacPherson struts, lower lateral links & anti-roll bar; coil springs, tube shocks
Rear suspension	beam axle (doubling as anti-roll bar) on trailing arms & Panhard rod; coil springs, tube shocks

DIMENSIONAL COMPARISON Audi 100 & Its European Competitors (all specifications for U.S. versions)

	Audi 100GLSi	BMW 530i	Jaguar XJ6L	Mercedes 230	Volvo 264GL
Wheelbase, in	105.7	103.8	108.8	110.0	104.0
Length	189.5	189.9	190.7	190.0	192.6
Width	69.6	67.2	69.7	70.3	67.1
Height	54.8	56.0	54.1	56.6	56.5
Curb weight, lb	2700	3315	4114	3185	3115
Engine: cc	2144	2985	4235	2307	2673
cyl	5	6	6	4	6
bhp	108	176	162	93	125

of the old 100's interior, actually quite typical for German family sedans, is gone and a softer, more stylish feeling prevails.

The engine, of course, is the big point of interest. Our test Audi had the manual, but it was nice to find that it lacks almost any sign of the odd number of cylinders. There's an odd tone to its sound, clearly related to the way the Mercedes sounds, but I discovered no bothersome vibration or crudeness. For contrast I also took a run in the 2-liter four, and there's a world of difference between the two. The five could almost be a six. It revs freely to its 6400-rpm redline and, in European form, gets the sedan to 60 in less than 10 sec, according to Audi. At highway speeds—I tried constant tempos of 60, 75 and 90 mph—you hardly know it's there.

In the matter of controls there's little to find fault with either. Shifting is pretty much as before—notchy but precise—and the four steering-column stalks for lights, wipers, washers and so forth don't get in each other's way. The ventilation system pours out air without too much blower noise, and there's good outward vision in all directions though the multiplicity of panes in the doors prevents the 100 from having the open feeling of most new models. There's reason for this: Audi is offering vent wings as optional equipment in the front doors because certain areas (among them southern U.S. and South Africa) want them. The fixed rear portion of the rear door windows allows the forward portion to be rolled virtually all the way down.