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BMW 320i

*Everything about it says
sports sedan*



THE BMW NAME is synonymous with sporting sedans and the 320i is the U.S. successor to the 2002, a 2-door model that began as the 1600 in 1967. Despite a base price that had risen to more than \$6500, the 2002 was a brisk seller even in its final days. It was out-of-date in some important areas, particularly ventilation, but its reputation for reliability combined with ride, sporty performance and handling were hard to beat. It was the ideal car for the practical enthusiast who refused to give up the joy of driving simply because his automotive requirements dictated room for more than two people and a generous trunk.

In Europe the new 3 Series can be ordered with three different engines—1573, 1766 or 1990 cc, the latter with either a 2-barrel carburetor or fuel injection—but in the U.S. only the injected 2-liter is offered. A 2002 model with fuel injection, the 2002tii, was sold in the U.S. from 1971–1974 but fell victim to 1975 emission regulations. For the 320i, BMW chose the more emission-oriented Bosch K-Jetronic continuous injection instead of the Kugelfischer timed system used on the 2002tii. In Europe this engine produces 125 bhp at 5800 rpm, but the U.S. output drops

to 110 (105 bhp in California) at 5800 rpm and the compression ratio is 1.2 points lower. But some clever engineering means no catalytic converter is required, only air injection and exhaust-gas recirculation plus a thermal reactor for California cars.

In the past, fuel injection meant horsepower. These days that's all changed. Today's injected engines feature modest increases in performance and generally less complex emission controls leading to fewer tuning problems and overall superior driveability when compared to engines with carburetors. So it's no surprise that the heavier 320i accelerates less briskly than its 200 lb lighter and more powerful injected predecessor. Up to around 5000 rpm the engine retains much of its previous character—rather noisy but mechanically smooth and virile sounding—but it approaches its 6400-rpm redline rather unenthusiastically.

Still, the 320i got to 60 mph in 12 sec and covered the quarter mile in 18.7 sec, and for a 2-liter car weighing 2605 lb that's anything but slow. And its fuel economy—21.5 mpg in our usual mileage course—is quite respectable.

Transmission and gearing are the same as in the 2002. The gearbox is a real delight with wonderfully smooth and light synchronizer action and an absence of the throwout bearing noise that's been characteristic of BMWs, including the last 530i we tested. Our one complaint concerns the transmission gearing. The spacing between 1st and 2nd is too wide. Even running the engine up to redline in 1st gear doesn't help; it still falls off the power curve when you upshift to 2nd.

Although the 320i is a bit longer, lower and wider than its predecessor, the extra length and width have been put to good use. There's about an inch more rear legroom and a generally less cramped feel to the front and rear passenger compartments.

While the exterior design of the 320i is not the sort that leaves the staff mumbling in adoration, we all like its basic lines. It is an

efficient design, just the sort expected from BMW and a logical extension of the same thinking that gave us the 2002, the 3.0 and more recently the 530i sedans. Granted it lacks the flare of some sedans, perhaps, but the 320i is, as the Art Director put it, "a clean, industrial design." Anyone who cares to deride the new BMW for that has yet to appreciate the roominess of both the passenger and trunk compartments. In U.S. trim the 320i is 6.2 in. longer than its European counterpart. Most of this results from extending the front bumper beyond the V-shape downward sloping nose because the rear bumper is very well integrated into the body structure.

Everything about the interior tells you the 320i is a car that was designed by people who enjoy driving. The front seats are firm in the usual German manner. When you first sit down, you might think they're too hard but drive for several hours and you'll appreciate the support they provide. The wrap-around seat backs are appreciated, too, as they hold the body firmly in place during spirited cornering.

The dash layout is handsome and logical with eminently legible instruments set into a glare-reducing crinkle black panel and bathed in easy-on-the-eyes soft red lighting at night. The 4-spoke padded steering wheel is comfortable to grip and easy to see over and twin steering-column stalks handle directionals, high-low beams and flasher light functions plus windshield wipers (including an interval setting) and washers. The brake and throttle are perfectly positioned for heel and toeing. For maps and other odds and ends there are pockets in both doors, a large center bin plus a glove box that's so big one of the office wags called it a glove closet and suggested we add its capacity to that of the trunk.

Despite the 320i's more stylish appearance nothing has been lost in the area of outward vision. It's excellent in every direction; if you get blindsided by the highway patrol in this car you deserve to get caught. The seating position is such that you can tell where all the corners are, making for easy parking and confidence in placing the car accurately on twisty narrow roads.

Ventilation isn't a strong point of the 2002. It has vent wings but none of the dash vents found in contemporary cars. At best it is a noisy, unsatisfactory system. The 320i dispenses with vent wings but has four flow-through outlets atop the dash. It's a great improvement over the previous design but needs a few modifications before it can compete with the best current designs. The outboard vents don't adjust and most of the air coming out of them blows on the side windows. The two center fresh-air outlets



PHOTOS BY JOE RUSZ

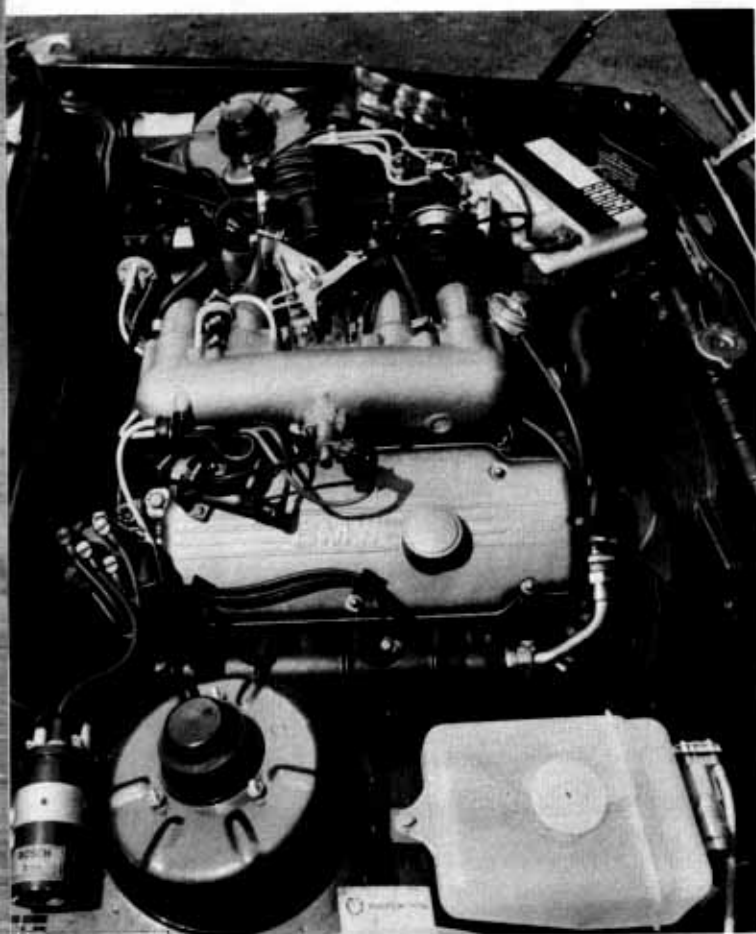
adjust side to side and up and down but even in their extreme downward position they direct all the air at face level. Some air flow lower on the body would be appreciated.

Our test car was equipped with a clever 2-way sunroof. Crank one direction and the rear of the panel lifts up; crank in the other direction and the roof rolls back in the normal fashion. In either case, cracking the roof increases fresh air flow appreciably. But there is some loss in front and rear headroom with the sunroof and this might be a consideration for tall persons.

A responsive engine, crisp gearbox, well thought out controls and comfortable seats are just part of what makes all BMWs real drivers' machines. Driving characteristics—how it handles, steers, brakes and rides—are all of primary concern and in these areas, too, the 320i excels. Like its predecessor, the 320i is a relatively tall sedan and there is some body lean, but it has anti-roll bars front and rear and the roll never becomes unsettling to driver or passengers. Handling is typically BMW. There's neutral response until the car is pressed hard, then mild final oversteer associated with its semi-trailing arm independent rear suspension. In tight bends the BMW lifts its inside rear wheel, effectively limiting cornering speeds. Those who slalom the car or demand the ultimate in road response should order the optional limited-slip differential that costs around \$240.

The ride is superb and sets new standards for small sedans. The 320i has better balanced springing and more suspension travel than its predecessor and it handles rough surfaces even





better than the already outstanding 2002. Hitting a bump when cornering doesn't upset the balance or adhesion in the least. Big bumps or small, dips, culverts or chuckholes, the 320i takes them all in stride. There's none of the pitching found in the 2002 and the rearward canting of the front struts and offsetting of the springs relative to the struts results in reduced friction and increased compliance. With the 2002 small road irregularities such as tar strips and lane divider dots bring out the harshness of the steel-belted radials. Not so with the 320i, and a large portion of the credit has to go to the Michelin XVS tires. These 70-profile radials with asymmetric tread not only impart a silky smooth ride to the 320i but the tires' adhesion in cornering and braking on dry or damp pavement is little short of incredible.

In our brake tests we encountered a little more fade than expected; however, even after six 0.5g stops pedal effort had only increased to 40 lb. Panic stops were short and undramatic and the front locking we encountered near the end of our 60- and 80-mph stops was easy to modulate out.

The steering specifications—4.1 turns lock-to-lock and an overall ratio of 21.1:1—might lead you to think the 320i's steering is slow and dead feeling. And you'd be wrong. The 320i's rack-and-pinion design is as precise and as quick as you'd expect from a BMW with the added advantage of reduced effort compared to the previous car. There's excellent road feel without the hammering jolts that are transmitted through the steering wheel with some rack-and-pinion designs. Credit the hydraulic damper for soaking up most of the road shock and give the Michelin XVS tires credit for a good share of the road feel.

Everything considered, the 320i is a keen sports sedan. It retains all the beloved features of the 2002 and improves on what needed improving. The price is high, but these days it's difficult if not impossible to find a car with all the 320i's attributes—excellent road holding, compliant suspension, powerful brakes, precise steering, responsive engine and rattlefree body—for less money. It's no wonder BMWs are some of our favorite cars. ■



**ROAD TEST****BMW 320i**

SCALE: 1/8" DIVISIONS

PRICE

List price est \$8000
 Price as tested est \$9000
 Price as tested includes metallic paint (est \$250), sunroof (est \$275), alloy wheels (est \$325), dealer prep (est \$150)

IMPORTER

BMW of North America
 BMW Plaza
 Montvale, N.J. 07645

GENERAL

Curb weight, lb 2605
 Test weight 2980
 Weight distribution (with driver), front/rear, % 54/46
 Wheelbase, in. 100.9
 Track, front/rear 54.6/55.1
 Length 177.5
 Width 63.4
 Height 54.3
 Ground clearance 5.7
 Overhang, front/rear 33.8/42.8
 Usable trunk space, cu ft 12.6
 Fuel capacity, U.S. gal. 15.9

ENGINE

Type sohc inline 4
 Bore x stroke, mm 89.0 x 80.0
 Equivalent in. 3.50 x 3.15
 Displacement, cc/cu in. 1990/121
 Compression ratio 8.1:1
 Bhp @ rpm, net 110 @ 5800
 Equivalent mph 106
 Torque @ rpm, lb-ft 112 @ 3750
 Equivalent mph 68
 Fuel injection Bosch K-Jetronic
 Fuel requirement regular, 91 oct
 Exhaust-emission control equipment: air injection, exhaust-gas recirculation

DRIVETRAIN

Transmission 4-sp manual
 Gear ratios: 4th (1.00) 3.64:1
 3rd (1.32) 4.80:1
 2nd (2.02) 7.35:1
 1st (3.76) 13.69:1
 Final drive ratio 3.64:1

ACCOMMODATION

Seating capacity, persons 5
 Seat width, f/r in. 2 x 21.0/49.0
 Head room, f/r 37.5/33.5
 Seat back adjustment, deg 45

CHASSIS & BODY

Layout front engine/rear drive
 Body/frame unit steel
 Brake system 10.0-in. vented discs front, 9.8 x 1.57-in. drums rear; vacuum assisted
 Swept area, sq in. 293
 Wheels cast alloy, 13 x 5 1/2
 Tires Michelin XVS, 185/70HR-13
 Steering type rack & pinion
 Overall ratio 21.1:1
 Turns, lock-to-lock 4.1
 Turning circle, ft 31.2
 Front suspension: MacPherson struts, lower lateral links, anti-roll bar as longitudinal links, coil springs, tube shocks
 Rear suspension: semi-trailing arms, coil springs, tube shocks, anti-roll bar

INSTRUMENTATION

Instruments: 120-mph speedo, 8000-rpm tach, 999,999 odo, 999.9 trip odo, coolant temp, fuel level, clock
 Warning lights: oil press., brake system, alternator, fuel level, rear-window heat, hazard, seatbelts, high beam, directionals

MAINTENANCE

Service intervals, mi:
 Oil change 6000
 Filter change 6000
 Chassis lube none
 Tuneup 12,500
 Warranty, mo/mi 12/unlimited

CALCULATED DATA

Lb/bhp (test weight) 27.1
 Mph/1000 rpm (4th gear) 18.2
 Engine revs/mi (60 mph) 3300
 Piston travel, ft/mi 1730
 R&T steering index 1.28
 Brake swept area, sq in./ton 197

RELIABILITY

From R&T Owner Surveys the average number of problem areas for all models surveyed is 12. An average of 7 of these problem areas is considered serious enough to constitute reliability areas that could keep the car off the road. As owners of earlier-model BMWs reported 9 problem areas and 3 reliability areas we expect the overall reliability of the BMW 320i to be better than average.

ROAD TEST RESULTS**ACCELERATION**

Time to distance, sec:
 0-100 ft 4.0
 0-500 ft 10.4
 0-1320 ft (1/4 mi) 18.7
 Speed at end of 1/4 mi, mph 73.5
 Time to speed, sec:
 0-30 mph 4.1
 0-40 mph 6.4
 0-50 mph 8.7
 0-60 mph 12.0
 0-70 mph 16.7
 0-80 mph 23.0
 0-90 mph 33.6

SPEEDS IN GEARS

4th gear (5700 rpm) 104
 3rd (6400) 90
 2nd (6400) 59
 1st (6400) 31

FUEL ECONOMY

Normal driving, mpg 21.5
 Cruising range, mi (1-gal. res) 320

HANDLING

Speed on 100-ft radius, mph 33.0
 Lateral acceleration, g 0.726
 Speed thru 700-ft slalom, mph 55.1

BRAKES

Minimum stopping distances, ft:
 From 60 mph 167
 From 80 mph 288
 Control in panic stop very good
 Pedal effort for 0.5g stop, lb 25
 Fade: percent increase in pedal effort to maintain 0.5g deceleration in 6 stops from 60 mph 60
 Parking: hold 30% grade? no
 Overall brake rating very good

INTERIOR NOISE

All noise readings in dBA:
 Idle in neutral 51
 Maximum, 1st gear 85
 Constant 30 mph 62
 50 mph 68
 70 mph 76
 90 mph 81

SPEEDOMETER ERROR

30 mph indicated is actually 30.0
 50 mph 50.0
 60 mph 60.0
 70 mph 70.0
 80 mph 80.0
 Odometer, 10.0 mi 10.0

ACCELERATION