



MILES

Behind the Wheel

A bunch of fives

5-series BMWs geared up for 1980 — and the extra-special M 535i with the biggest engine available



Above right: Clear distinguishing mark from the front is the deep full width front spoiler

Right: The M535i's boot spoiler is moulded in soft plastic

UNTIL NOW there has been one obvious omission in the BMW range, a sporting family saloon, a "Q-car" if you like. The BMW M 535i is that car; a compact four-door family car, "as fast as the 635 Coupé, but with better acceleration", according to the recently departed Motorsport director Jochen Neerpasch. Certainly a car that will live up to the 5-series image, which also gets a fillip with the immediate introduction of two types of five speed gearbox; one with sports ratios and the other with a true overdrive top.

But first the M 535i. Primary assembly takes place at BMW's Dingolfing plant. Final tuning, setting the cars up, and marketing of the 1,200 intended yearly production (the first of British quota of 200 will arrive in September) will be done through the Motorsport division — hence the pre-fix M. The car itself follows a classic formula. Take the biggest engine in production, then find the smallest and lightest car shell it will fit into.

The engine and five-speed Getrag gearbox are identical to those fitted in the 635CSi and 735i, only in this case the gearbox is fitted (like the 635CSi) with a direct rather than overdrive top. On Bosch

L-Jetronic fuel injection and a 9.3 to 1 compression ratio, power and torque are 218 bhp at 5,200 rpm and 228 lb ft at 4,000 rpm. Any acceleration gains that the 535i may have over the 635CSi (there are none in top speed which is quoted as 136 mph-plus) are solely due to its 150 lb lighter weight.

Outside the M 535i is plainly, though not too ostentatiously, recognizable by its moulded boot spoiler, and deep full width air dam. Inside, the changes are equally restrained. There is a BMW Motorsport steering wheel, and a pair of Recaro seats.

Modifications to the suspension and braking are also moderate. Spring rates remain like the 528i. The car is lowered, and uses tautly though not uncomfortably set Bilstein gas-filled dampers. A larger diameter front anti roll bar is fitted. Disc diameters are unchanged from the 528i's but for the M 535i are vented all round instead of on the front only. On a 3.07 to 1 final drive, overall gearing is 23.5 mph per 1,000 rpm which means the M 535i strays well over peak power, like the 635 CSi, to achieve its maximum. A limited slip unit is fitted.

Finally, the 535i comes with



6½J 14in dia. BBS/Mahle cast alloy wheels shod with 195/70 VR 14 Michelin XWX tyres.

Barring any dramatic currency fluctuations, the M535i will sell in this country for £13,745.

The five-speed transmission

Like many European manufacturers, BMW have tended to slightly undergear their cars to achieve good top gear performance. Perhaps

criticism of this policy by journals such as *Autocar* had something to do with BMW's introduction of an optional five-speed overdrive gearbox. The more likely spur was having to meet US CAFE (Corporate Average Fuel Economy) requirements in the near future. The overdrive transmission is available on all models. In effect, BMW have simply added an indirect 0.81 to 1 ratio to the existing four speeders, to raise gearing in top by an average of 23.5 per cent. Specified as an

SPECIFICATION

ENGINE	
Head/block	Alloy/cast iron
Cylinders	6
Main bearings	7
Cooling	Water
Fan	Viscous
Bore, mm (in.)	93.4 (3.68)
Stroke, mm (in.)	84.0 (3.31)
Capacity, cc (in ³)	3,453 (210.7)
Valve gear	Ohc
Camshaft drive	Chain
Compression ratio	9.3 to 1
Ignition	Electronic
Fuel injection	Bosche L-Jetronic
Max power	218 bhp (DIN) at 5,200 rpm
Max torque	224 lb ft at 4,000rpm

TRANSMISSION		
Type	Five speed all synchromesh	
Clutch	Hydraulic diaphragm	
Gear	Ratio	mph / 1000rpm
Top	1.000 to 1	23.5
4th	1.263 to 1	18.6
3rd	1.776 to 1	13.3
2nd	2.403 to 1	9.8
1st	3.717 to 1	6.3

Final drive gear Ratio	Hypoid bevel 3.07 to 1
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SUSPENSION	
Front—location	MacPherson strut
springs	Coil
dampers	Telescopic
anti-roll bar	Yes

Rear—location	Independent semi trailing arm
springs	Coil
dampers	Telescopic
anti-roll bar	Yes

STEERING	
Type	ZF ball and nut
Power assistance	ZF hydraulic
Turns lock to lock	3.5

BRAKES	
Circuits	Twin, split front/rear
Front	11.0 in. dia. ventilated disc
Rear	10.7 in. dia. ventilated disc
Servo	Vacuum

WHEELS	
Type	Alloy
Rim Width	6½ in.
Tyres—make	Michelin
—type	Radial ply
—size	195/70VR14

DIMENSIONS	
Wheelbase	103.9 in. (2,639 mm)
Track front	56.0 in. (1,422 mm)
rear	57.9 in. (1,473 mm)
Overall length	182.0 in. (4,623 mm)
width	66.6 in. (1,692 mm)
Kerb weight (manufacturers figures)	3,149 lb (1,430 kg)

SERVICE DATA	
Fuel tank	15.5 Imp. galls (70 litres)

PERFORMANCE (Mfrs figures)	
Maximum speed (approx.)	136 mph
0-60 mph	7.5 sec

option, it costs £266 extra on the 3- and 5-series and £336 more on the 7-series. The advantages are, of course, typical overdrive ones: smoother and quieter running, less engine stress, and better economy, due to wider throttle settings (therefore lower pumping losses) for any given power setting. The 5-series cars are also available with the 635CSi's five-speed close ratio "sports" gearbox with a direct top. For the sporting models the logic is clear, but less so for the bread-and-butter cars where with so much flexibility, sports ratios hardly seem worth having. Change patterns are offset first on the "sports" transmission and the more satisfactory and very convenient for right-hand-drive offset fifth on the overdrive gearbox.

BMW claim constant speed fuel consumption savings of around 30 per cent. For

example, at 75 mph the overdrive 528i is doing nearly 30 mpg instead of around 22 mpg, while the 520 actually manages better than 30 mpg at this speed.

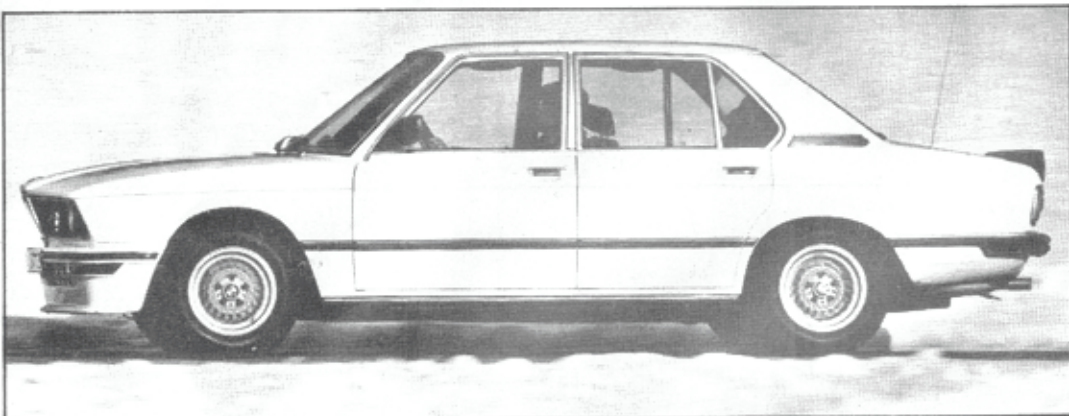
From now on 5-series cars will have an electrically operated driver's door mirror, rear seat belts, a digital clock (within the heater fan switch ring) and ventilation ducting to the rear seat passengers as standard.

On the road

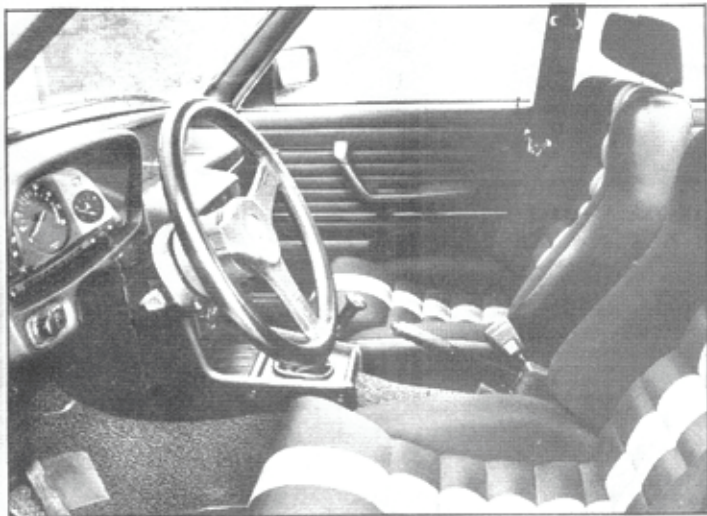
Quite why BMW have not offered an overdrive transmission before is a mystery. On relaxed cruising and refinement grounds alone, the gearbox is worth every extra penny. Fourth (the old direct top) now becomes an excellent cross country and town driving gear. Select fifth on the motorway and all BMW's top end cruising fussiness dies away. The endearingly smooth

2-litre 520 engine was turning over at a relaxed 4,400 rpm at 100 mph, while the effect was perhaps even more impressive on the higher geared 528i, with the revs dropping to a mere 3,900 rpm. These were quite natural cruising speeds on the *autobahnen*. In fact, with five speeds the 528i winds quite happily (and, save for wind noise, almost inaudibly) up to an indicated 130 mph, the engine pulling 5,000 rpm at this speed (800 rpm below peak power). Gear change quality is acceptable, though it lacks the mechanical precision and slickness of the best Japanese or Ford cars.

The M535i may look a little racer-like, but first impressions were that BMW Motorsport have struck just the right balance. It could have been a harsh car but is not. Engine noise is no worse than in the lesser models. There is only that



Left: From the side, the M535i's chunkily attractive lines recall the group 1 racers of two seasons ago



Left: Recaro seats (see text) and a smaller than standard flat sports steering wheel are fitted

BMW smooth willingness to rev. M 535i acceleration is vivid without being urgent, yet speed builds impressively. An indicated 130 mph arrives easily on any short straight stretches of *autobahn*. The suspension is an excellent compromise. Ride is taut, as one might expect, but not in any way uncomfortable over poor surfaces. There is none of that soft BMW "corkscrewing" ride over successive undulations. In really fast corners — perhaps something that will not concern British buyers — there is still a hint of typically BMW semi-trailing arm rear end nervousness, particularly if one lifts off in mid corner at and around the limit. Otherwise the car is a driver's delight. The eager BMW turn-in is there and with 3.5 turns from lock to lock the power steering is geared close to the ideal, considering the very positive initial steering response.

The Recaro seats are truly first class. Lateral and lumbar support are superb, and give an added sense of control. Some found the first to second gear dog-leg movement awkward, but in time such awkwardness fades — once on the move only the upper four matter. Above all there are those wonderfully enthusiastic and smooth noises from under the bonnet that make a sporting BMW.

OVERDRIVE TRANSMISSION

Type	Five speed all synchromesh				
Clutch	Single dry plate				
Gear	Ratio	mph / 1000 rpm			
		518	520	525	528i
Top	0.81 to 1	20.8	22.7	24.4	25.9
4th	1.00 to 1	16.8	18.4	19.8	20.9
3rd	1.40 to 1	12.0	13.2	14.2	15.0
2nd	2.20 to 1	7.7	8.4	9.0	9.5
1st	3.82 to 1	4.4	4.8	5.2	5.5
Final drive gear	Hypoid bevel				
Ratios		4.27 to 1	3.90 to 1	3.64 to 1	3.45 to 1

ECE / Government Official Fuel Consumption figures

	518	520	525	528i
Urban (manual)	18.7 / 22.4	18.5 / 22.2	16.4 / 19.8	13.7 / 16.5
Steady 56 mph (90 kph)	30.1 / 39.2	30.9 / 40.9	29.8 / 38.2	28.3 / 38.6
Steady 75 mph (120 kph)	22.2 / 29.4	23.0 / 30.7	22.6 / 29.1	22.2 / 29.7

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