

RISING HUN



About ten miles after leaving the boredom of the Oxford bypass behind for the fast, twisting A420 to Swindon, it dawned on me that, despite any misgivings I may have had, the BMW was coping extremely well. Bend after 100mph bend came and went in a smooth flow. Once, with the toe of my boot just grazing the road, an irate approaching lorry driver steered deliberately into my path and was avoided with a quick change of line that left the steady steering of the K100 completely unruffled.

But there was still no sign of Colin. We'd decided to take a day trip down to Weston Super Mare to eye up the course for a beach race we were entered in and Colin, mounted on our long term GSX550 test bike, had caught me napping behind a queue of lorries just before Oxford and by the time I set off after him, the white and blue Suzuki was nowhere to be seen ...

... which is why I was boring down the Swindon road as if all the Hesketh owners in England were after me with murder in their hearts. Eventually, while I was sitting be-

mused at a set of traffic lights in Swindon town centre, the GSX came buzzing up alongside.

"That thing's bloody fast isn't it," said Screwloose, "I've been trying to catch you ever since I stopped for petrol."

Looks: well it's not so bad when you get used to it. There is certainly no chance that you could confuse a K series BMW with any other motorcycle that you are ever likely to see on the streets. A very deliberate move by BMW, I am sure. They wanted their new range to be every bit as visually distinctive as the opposed twins have become over the years. The more I rode and enjoyed the K100, the less objectionable I found its appearance, to the point where I decided that it was, indeed, almost as pleasant to look at as it was to ride.

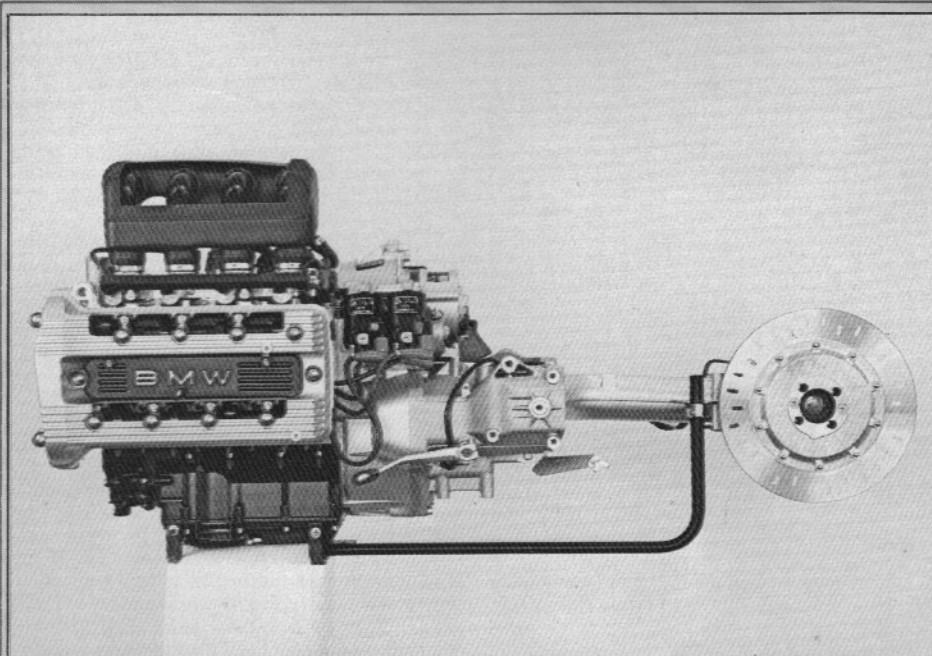
But I didn't learn to like the exhaust system. It was and will remain a large wart on the lefthand side of the K. It does look very much as if its design (or lack thereof) was dictated by the need to get production machines into the showroom. In the sys-

tem's favour, is the fact that it is crafted from stainless steel, and should, therefore, last as long as the bike itself, is a significant step forward for the likes of you and I who are kept consistently poor by having to shell out for the replacement of 'quick-rot' exhaust systems all too frequently.

So then, let us get down to the guts of this motorcycle, the engine and transmission unit which, as well as providing the motive force, also comprises the major part of the whole machine's structure.

BMW have known for a long time that, however refined their opposed twins have become over the years, sooner or later (and most probably sooner) they would have to find a replacement to carry them through a world populated not only by increasingly clever motorcycles but also by increasingly stupid and restrictive legislation about noise and exhaust emissions.

They needed performance of the same order as that available in Japanese machinery which ruled out any sort of twin cylinder unit for starters. Three or four cylinders were

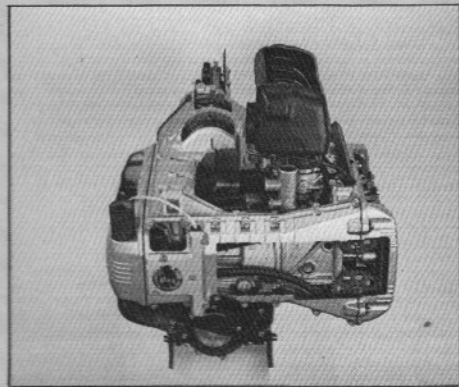
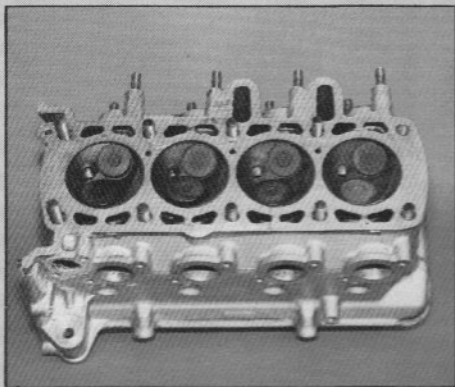
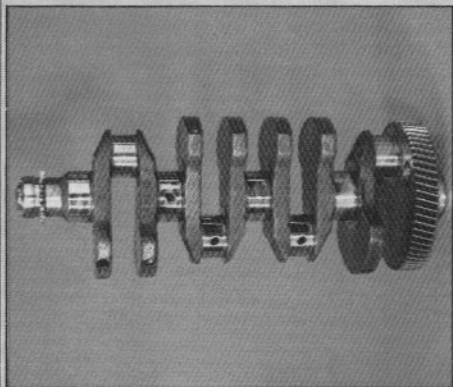


Development of the K100: (above) low, compact and bike-shaped, BMW's engine and transmission layout.

Below left: the one-piece crank takes the drive off the end web, risking torsional flexing; Below right: getting the biggest possible valve area into a hemi-head.

Above: wind tunnel development of the faired version produced this adjustable spoiler.

Below: fuel injectors and a Teutonic cam drive.



of the cast iron liners, the cylinder bores are coated with a combination of nickel and silicon — a feature adopted on the twins not that long ago.

The five bearing crankshaft has a gear-wheel incorporated into its construction at the rearmost end which drives both the clutch and a jackshaft from which are driven the oil and water pumps. This is an obvious layout, given that the gearbox has to be bolted to the rear of the engine. Across-the-frame fours take their primary drive from as near the centre of the crankshaft as possible, mainly to alleviate torsional stress on the shaft. However, with a large bearing area spread over five journals, crank flex should not be a problem on the K100 in its present state of tune.

Drive for the double overhead cams is taken direct from the crankshaft nose by good old roller chain with automatic tensioning, of course.

Valve operation is by the popular and reliable bucket and shim method. BMW have wisely steered clear of the fancy but fragile rockers favoured, at the moment, by two of the big Japanese firms. Also flying a little in the face of some modern trends, BMW have stuck firmly with two valves per cylinder, which is really all you need on a road bike.

The engine design is all very much 'state-of-the-art' stuff and if the engineering is as robust as that of the opposed twins, and

there is no reason to suspect that it is not, the K series motors should be able to look forward to a long and hard working life. After all, you can usually get at least 80,000 miles out of a modern car engine before it needs major surgery so the same should be true of this particular unit.

A state of the art engine needs a similarly refined, up-to-the-minute electronic management system if it's to cope with all the latest emission laws and be well enough armed to fight the good fight on the showroom floors.

Digital fuel injection, as seen on the GPz1100 takes care of feeding the engine via its bank of four injectors.

From sensors incorporated into the system, the all-powerful computer receives information on the following: air flow and temperature, crankshaft speed, throttle valve position and engine temperature. Another sensor indicates the load on the engine so that the fuel flow rate can be adjusted accordingly. Finally, there is a thermocouple to give the signal to richen the mixture while the engine is warming up.

Fuel is pumped rather than gravity fed to the injectors via a fuel pump mounted inside the petrol tank itself.

Only the airflow sensor could be described as a bit agricultural, this being an analogue system using an air-flap mounted in the back of the airbox. Purveyors of techno-trivia will

know that Kawasaki dumped a similar setup in favour of fully digital monitoring when they introduced the second version of their GPz 1100 (the B2) in 1982.

All well and good, one supposes, and a neat way of avoiding the use of fixed jet, downdraught carburettors (as employed by the Yamaha XZ550) which are an absolute bitch to set up correctly.

I'm no Luddite but I must, at this stage, admit to being intimidated by such complex technology. Complex engine designs do not present a problem. All they involve is just more spannerwork to pull them apart and put them back together. Electronic engine management systems, however, are a different pan of chips all together. There is no way you can fix them yourself unless, like our electrical expert, Pete Roberts, you know a great deal about modern electronics. On the other, there is no reason why they should not be as reliable as the average television.

The ignition system, as well as providing the sparks, stands in loco parentis should you try and over rev the engine. At 8600 rpm, it retards the ignition causing a very noticeable disappearance of power. If you don't take any notice of Mum, then Dad, in the form of the management system, gets out the big stick and shuts down the fuel supply to the injectors when the engine speed rises to 8,750 rpm.

The silver-tongued talk of Public Relations ►

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K: Love It, But . . .

MAY I add my comments to those in recently published letters concerning ownership of the K100? I've had three BMW twins (R100/7, R100/S, R100RS) and was generally happy with these. Indeed, because of their reliability I had enough faith in BMW quality of design and workmanship to purchase a standard K late last October, without undue concern about its being an entirely new machine. I now find, 17,000 miles later, that my original assumption was correct.

However, Mr Dingley's letter, in particular, raised several points which I wholeheartedly endorse.

A major factor in my decision to get a K was the great enthusiasm from BMW, who expounded the many virtues of their new design, prominently that of providing unsurpassed ease of servicing, in all its aspects.

Now I'm fully aware that motorcyclists have within their ranks people who wouldn't know what to do with a spanner, even if it could talk (who would! Ed), but there are others who, through long experience, have learned the wisdom of home servicing and even total overhauls, sometimes to a higher standard than most franchised workshops. I'm not decrying all dealer workshops, but a lot of time and money can be spent before an honest and reliable service department is found.

BMW confirm that no expansive workshop manual exists or is likely to be published. I have pointed out that if this situation had been clearer before purchase I would probably have stayed with the twins. Perhaps it's all to do with cost? Isn't Britain a relatively small market? (Not so!) What about America and Canada? Surely the English market is large enough to justify the cost of printing a manual, insignificant compared to BMW's technical investment in the K.

In Germany, I understand, owners are legally obliged to have their machines professionally serviced; heaven forbid this state of affairs over here. To labour the point, I asked the Haynes people if they would be publishing their own manual on the Ks. They said not enough Ks would be sold to justify an economic print run. I stared at the list of existing titles and picked out half-a-dozen oriental six-month wonders. Doesn't BMW sell more over-750cc machines than any one Japanese (or Italian) firm?

What about the bike itself? Independently I came to the same conclusions as Mr Dingley, and fitted RS bars, which is potentially a 10 minute job but inevitably took me over an hour

due to unfamiliarity. All standard cables, hoses, etc, have been retained without problems but a 14mm spanner may be necessary to re-position the brake hose union. (The toolkit is without this spanner.)

The standard bar flexes on rubber mounts. It is also made of thicker-wall tubing, almost twice the weight of the RS item. The original grips came off easily, so I retained the end weights to plug the holes at the ends. A little care is needed with the right side to allow more clearance to avoid fouling the twistgrip. Vibration through the new bars is significantly reduced. (These "harmonic balancers" aren't fitted to the RS.)

Some time was spent chasing intermittent starter failure. Investigations revealed nothing untoward, but a new starter button assembly was fitted under warranty. The final cure was to stop a multipin flexing where it was attached to the frame. None of this was too inconvenient, as the bike bump starts after two strides.

The front silencer cover bracket has fractured twice. The first time it was re-welded, the second time, the cover was replaced. I've met owners who have had new exhaust systems to cure this.

All electrical relays are in a box under the tank where I suspect condensation may collect, as I've had to clean corrosion off various terminals.

A new seat pan was made and re-covered, giving my 5ft 7in a little more legroom. Passengers hate the grip cups provided which are totally inadequate and should be replaced with a proper grab rail.

Don't get me wrong, none of these faults have bothered me much, as usually they can or have been put right with little effort. Perhaps I'm not fussy enough.

I've added crash bars, injector cover and standard BMW fork gaiters, all of which improve general appearance and are practical.

The overall finish seems to be quite durable, the only corrosion found being at the little buttons on the footrest plates. I, like many others, bemoan the passing of the "Earles fork" quality of finish, but as an honest salesman pointed out, those machines cost twice as much as their peers. The standard K100 is competitively priced today, so perhaps we should recognize this. Incidentally, I'm always amused when the extra money I could have spent on an RS is paying full running costs for two years instead!

Oh, one minor gripe. Once I had the misfortune to have some scallywag drop a "foreign body" through an oil filler, which on today's machines are so prone to vandals. Why not a large-diameter ubiquitous allen cap please? Then I would be a happy man indeed. (Except for the manual situation.)

I don't think I've been too critical about the bike. Indeed I love it, can't get off it, go everywhere on it, dream about it, I'm obsessed with it.

Do yourself a favour and rob a bank if necessary and buy one.

London E2

Alex Carey

PS. One Track is a sane man in an insane world. He can borrow my bike any time he likes. I once dreamed of owning a Vincent but when I got the money I bought a K100. Both are a lot of fun.

Years: YES NONE
at 5 years: YES NONE
discussions: if yes
ins - dates, conviction
separate sheet

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men stops, as far as *Mechanics* is concerned, in the test house at LEDAR where Leon Moss conducts independent tests on our behalf to find out how much power is finding its way to the only place that counts, the rear wheel. In the case of the K100, maximum power on our test machine, with 2,000 miles behind it, was 77.7 bhp at 7,900 rpm some 13 less than claimed, which is about par for the course for all manufacturer's claims, whatever their country of origin, and quite respectable and adequate in any case.

By way of comparison, Kawasaki's one litre, four cylinder, fuel injected bike, the Z1000H, which appeared on these shores in 1980, had a similar maximum output of 79 bhp at 8000 rpm. So BMW are right up with Japanese achievements in this particular area. Similar too is the BMW's high maximum torque of 57 foot/pounds at 7000 rpm (identical to the Kawasaki in fact) with a good spread of torque that enables the K100 to pull strongly right off the bottom of the rev range.

Out in the real world, the engine delivers as much power as most people would require and does so with extreme flexibility. It will pull strongly in top gear from as low as 2,000 rpm so most town traffic, apart from jams, can be negotiated with minimum use of the gearbox.

Out on the country lanes, you have to be travelling very quickly before you start needing to change down to get good drive out of corners. On the way back from Weston, following a very pepped up Screwloose over one of his favourite roads, the A38 between Tewkesbury and Worcester, I found, for the

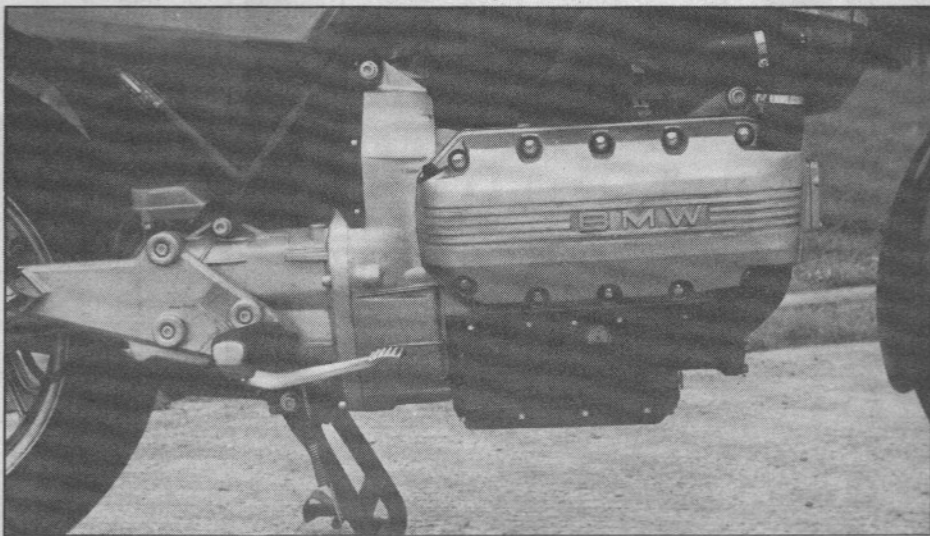
first time, that I was really having to work the gearbox hard to keep the flying GSX in my sights but even so, I rarely had to go lower than third gear.

Cold starting was exemplary, as it should have been, the only problem being the clouds of smoke from the exhaust on the occasions when I left the bike on its sidestand overnight, allowing oil to collect in the top end (well, side end, to be strictly correct!) of the engine. This, I must stress, is not a cause for concern.

While the engine may not set any new standards of power, smoothness and low noise levels, it certainly comes well up to existing standards in such matters.

The transmission adheres to previous BMW designs but with the inclusion of a light alloy selector drum. The gearchange is very smooth, quick and positive, and is up to the standards that the Japanese have taught us to expect.

So substantial is the mass of the engine/gearbox unit that the frame does not have to



A new fashion, a new style. The power unit of the K100 is well up with the performance offered by bikes from the East.



Above: It could have been worse. This is what the prototype exhaust looked like. Below: Both the dials and the warning lights are large and easy to read.



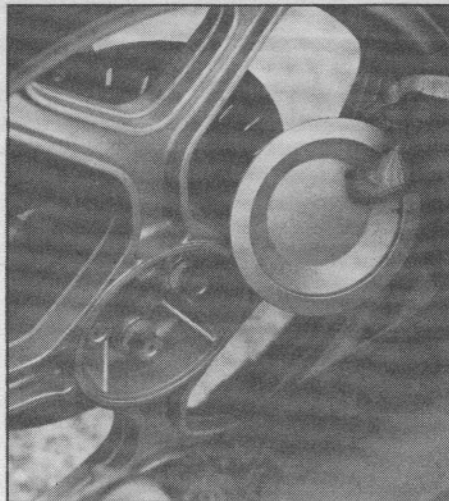
contribute a great deal to the structural rigidity which is why there is so little of it. It's really just a sketchy trellis on which to hang things like the seat, tank, forks and so on.

The monolever rear suspension set up is borrowed from the GS/ST models, making removal of the rear wheel a very simple task. It is retained to the driving flange by four bolts, covered by a plastic disc. BMW have avoided the temptation and complication of fitting a rising rate linkage system to spring the rear end. Normally, I would applaud this decision, but having just spent a couple of hours this morning (when I should have been writing this) attacking the local lanes on the Suzuki Gamma and having been amazed by the ability of the Full Floater back end, I'm not so very sure. But, monolever works, is simple to look after and lacks the myriad range of adjustments common on many modern machines which, I suspect, offer the rider more confusion than help. The rear unit on the K is a gas damped item with spring pre-load being adjustable in the conventional manner.

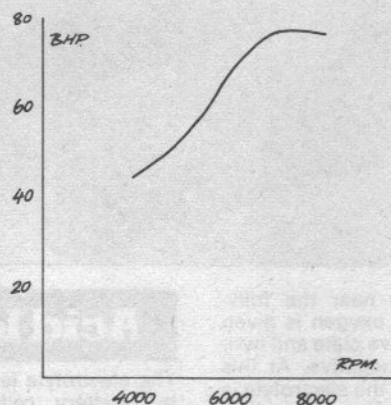
The front fork stanchions measure up at a massive 41.4 mm and are similarly devoid of any fancy gadgets like air-assistance, variable damping and anti-dive.

The suspension is very soft and gives that characteristic squashy BMW feel but at the same time allows hard cornering without vagueness or wobbles as well as providing comfort on long journeys. Like with all compromises, you do not get the best of either world but the balance is acceptable.

The seat and riding position add to the long distance comfort, leaving your tender



Above: Rear wheel is retained to drive flange by four shouldered bolts. Below: Maximum power is 77.7 bhp @ 7900 rpm. Figures obtained at LEDAR.



regions unaffected even after 200 miles in the saddle without a break. I would, however, like to see another few quid on the price and a nose fairing fitted. Nothing spectacular, just enough to take the wind off the rider at about 90 mph upwards so high averages can be maintained without neck strain.

Braking is by Brembo with plenty of stopping power available and, for a change, plenty of feel in the front brake. The rear unit, however, although reasonably powerful, has that dead feeling so characteristic of Brembos, robbing the rider of useful feedback until the rear wheel locks up.

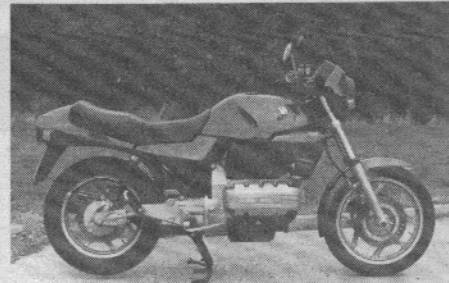
The instruments are neat and unfussy with all the information you need clearly displayed. The digital clock is a handy bonus, or would have been. It wasn't working on our test machine for some reason.

With a price tag only a touch over the £3,000 mark, there is little doubt that BMW are hoping to capture a much larger share of the big bike market than they have up to now.

Opinion on the bike's possible appeal varied in the *Mechanic's* office. I think, in the end, that the bike falls somewhat between two stools, being a good tourer and an exciting scratcher but not excelling in either mode. What I'd like to see is a version styled purely for the guy who wants a taut handling, fast looking machine with no touring pretensions at all. They've almost got the Japanese in their sights with the K100, just give it a bit more development and we've got the makings of an interesting sales battle.

Jim Lindsay

SPECIFICATIONS



BMW K100 PERFORMANCE

Maximum speed	
prone.....	132.2mph
upright.....	126.5mph
Standing start 1/4 mile.....	12.57s @ 106mph
Fuel consumption	
average.....	47.3mpg
worst.....	32.8mpg

ENGINE

Type.....	four cyl, four-stroke, liquid cooled
Bore x stroke.....	67 x 70mm
Piston displacement.....	987cc
Compression ratio.....	10.2:1
Fuel system.....	Bosch fuel injection
Ignition system.....	electronic

TRANSMISSION

Gear ratios.....	1st — 4-5, 2nd — 2.96, 3rd — 2.30, 4th — 1.88, 5th — 1.67
Primary reduction.....	1:1
Final reduction.....	2.9:1
Clutch.....	Single plate, dry

CHASSIS

Front tyre.....	100/90 x 18
Rear tyre.....	130/90 x 17
Front brake.....	twin discs
Rear brake.....	single disc
Front suspension.....	telescopic form
Rear suspension.....	one sided swing arm with gas charged damper and three way adjustable spring pre-load

ELECTRICS

Generator.....	460 Watt alternator
Battery.....	12V/20Ah
Headlight.....	55/60W, halogen

DIMENSIONS

Wheelbase.....	1513mm (59.6in)
Overall length.....	2210mm (87.4in)
Overall width.....	957mm (37.7in)
Dry weight.....	215kg (473lb)
Fuel capacity.....	21.6 litre (4.8gal)
PRICE.....	£3290
Warranty.....	12 months/unlimited mileage
Importer.....	BMW (GB) Ltd, Ellesfield Avenue, Bracknell, Berks

TESTER'S VERDICT

Good points.....	unique, comfortable
Bad points.....	suffers small identity crisis
Performance.....	Japanese (good)
Economy.....	also Japanese (unremarkable)
Handling.....	good if bouncy
Comfort.....	BMWish
Braking.....	powerful
Equipment.....	excellent toolkit, first aid kit, clock, etc.
Value.....	Almost Japanese