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PROGRESS BMW's Flat Four

EXCESS Six-Bike 125 Trail Iron Test

FINESSE Riding Honda's V4 Racers

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Bikes Any More

SHOCK OF THE OLD

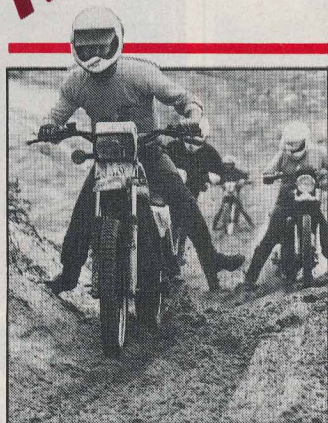
FIRST TEST OF HARLEY'S EVOLUTION ENGINE

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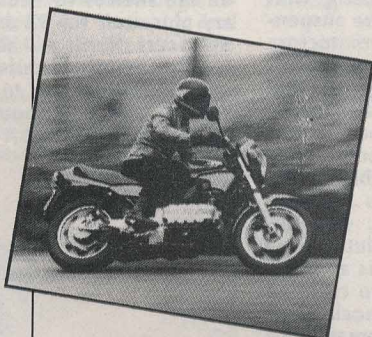
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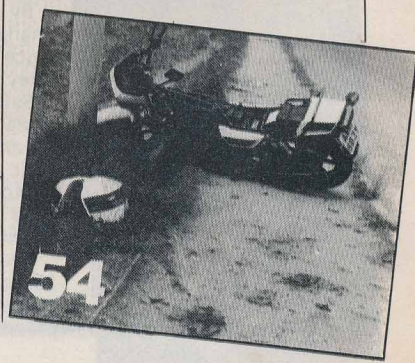
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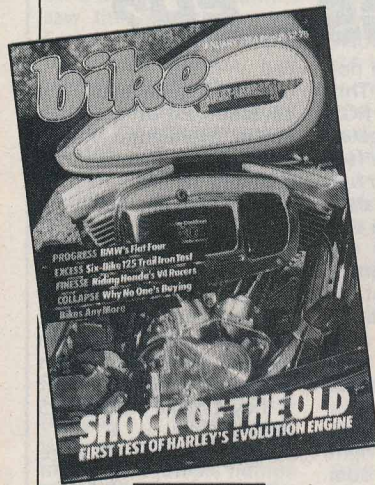
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Ring a ding ding



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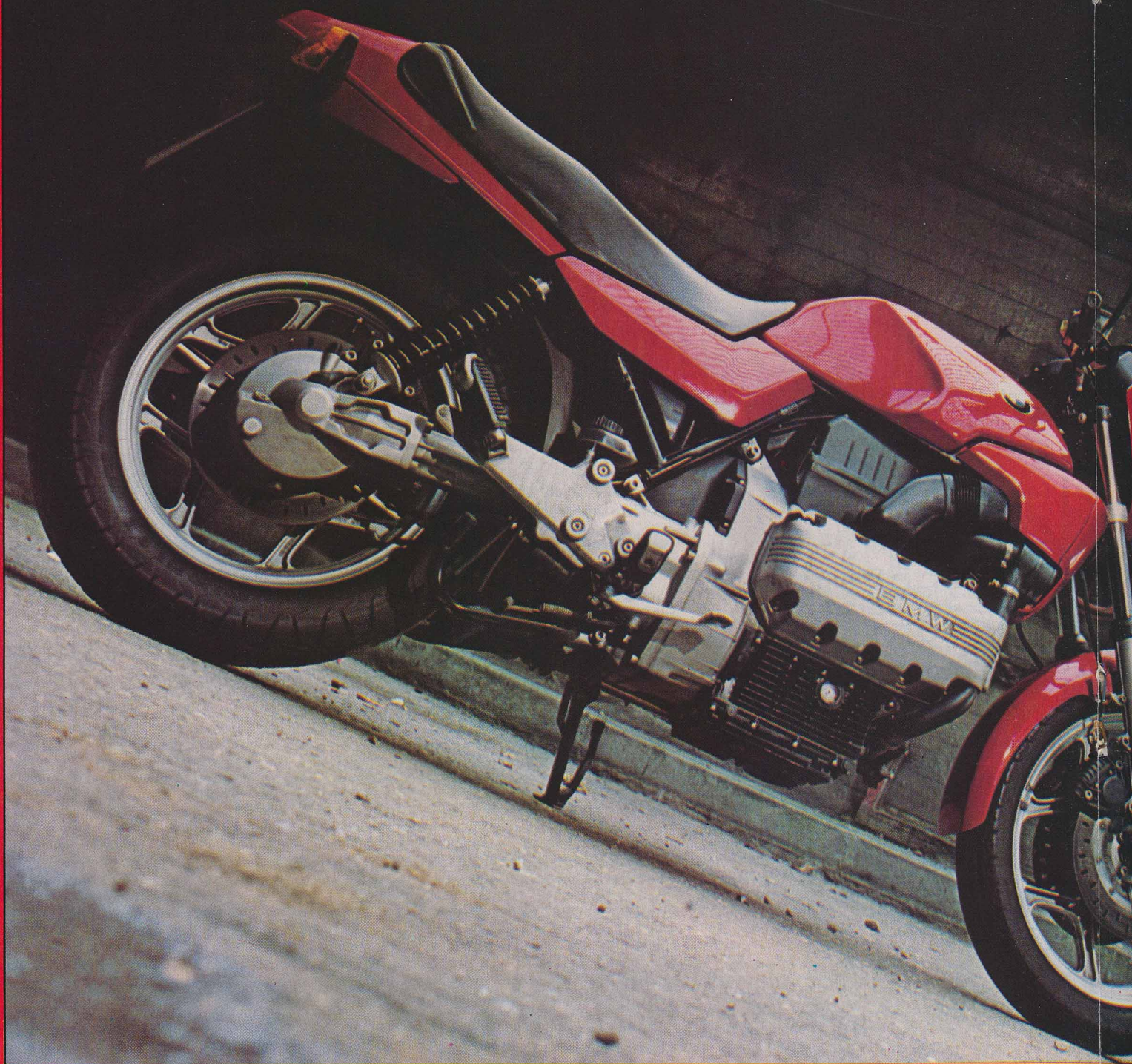


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— STRANGELY — — STRANGE... —



Photography Jim Forrest



... **BUT ODDLY
NORMAL**

*The K100 may be a totally new bike
but it's still very much a BMW.
Test Roland Brown*

THE IDEA came to me in a flash as the BMW loped lazily westwards towards the sunset, holding a steady 85mph as if by remote control, oblivious to the drama being acted out above. Yes, this had to be the story. The Big K on the big K — 1000 miles in a day on the new K100. The ultimate road test for the motorcycle built to take BMW into the 21st century.

Sure, we're into autumn now. It's cold, windy and the days are getting shorter. But there's a full moon coming up and when a manufacturer brings out their first radically new bike for 60 years you've got to do some-

(continues page 36)

STRANGELY STRANGE...

thing a bit special with it, right? Stirring sentences leapt before my eyes: 'Effortlessly the mighty four swept round yet another set of bends, machine and rider by now blended into one . . . adrenalin pumping with the engine after almost a day in the saddle . . .'

No motorways, either. Just me, the Bee-Em and two lanes of tarmac for however long it takes to get the tripmeter round the clock. Visions of brief notes scrawled hurriedly on the back of petrol receipts. Even at an average of 50mph it's 20 hours solid riding. No time for food stops, just a quick Mars bar and back on the road.

Up the east coast into Scotland, then head west to the Irish sea before cutting south down the length of England and home. Perfect, I could almost see the story . . . As I followed the red tail light of a 350LC down the gently curving A4 my only worry was that someone else might have thought of the idea first.

Two hours later I wasn't so keen. Darkness had arrived and with it rain. The A4's big sweepers had turned into the tighter twists of the A39 as we headed south-west through Somerset. I was getting colder by the minute and tired of picking out the road against the dazzling lights of oncoming traffic.

More to the point the BMW was doing little to help. On the faster bits the upright riding position was straining my arms and neck against the swirling wind. In the bends the bike's soft forks and its lurching on shutting the throttle were making quick riding more difficult than it should have been given the excellent tyres and brakes. And most annoying of all, the too-hard seat was making



life increasingly uncomfortable when we'd only been travelling for a handful of hours. Thousand miles in a day? Forget it.

By the time we reached our destination I was glad to get off; and disappointed to have discovered that despite all the hype and years of development, the K100 has basic faults that could have been eliminated at an early stage. The R80ST we tested in September was a good bike spoiled to some extent by three main failings: too-high bars, a soggy front end and a plank-like seat. That BMW should go to the trouble of designing a completely new bike and then build all three into it suggests a perversity you wouldn't expect even of them.

It can't have been easy for BMW to come up with a modern design after all these years. For reasons of brand loyalty the designers were constrained from the word go to making the new machine not only decidedly un-Japanese but also distinctively a BMW. When you consider how many different engine configurations the Japs have cornered of late there are precious few left of any use, to say nothing of Oriental advances in styling and chassis technology.

But by plumping for a watercooled straight four and turning it sideways to lie horizontally

BMW have produced a motor which, while hardly state-of-the-art, effectively pots a small flock of birds with one barrel. A one-litre four has the potential to deliver what the factory regard as adequate power in a suitably civilised, BMW-like manner. And while it's stretching a point a little to say that the new motor resembles the familiar boxer engine there's enough similarity to retain much of the corporate image, along with some of the flat twin's advantages.

The boxer engine's virtues of low centre of gravity and a crankshaft turning in the same plane as the final drive have been retained, the latter removing the need to turn the drive through 90 degrees before sending it off to the back wheel. And the engine's position, with cam cover conveniently poking out to the left and the crankshaft only a few bolt-turns away from fresh air on the right, makes even crank bearing and piston replacement possible without removing the lump from the frame. A simple spill could however gain even quicker access to the vulnerable internals and a set of optional-extra crash bars would seem a good investment (perhaps I'm biased).

The 987cc light-alloy motor has a longish stroke at 67 x 70mm and follows recent boxer engine practice in having no cylinder liners (those who read Herr Ryder's report in last month's issue can talk among yourselves for a couple of paragraphs). A nickel-silicon carbide coating called Scanimet lines the bores instead, reportedly saving on weight and friction. The twin cams are spun by a roller chain running across the front of the motor. Despite the factory's four-valve experience with Formula Two cars there are only two valves per pot, worked via buckets and shims (shims on top) and aligned in slightly different planes to help give the incoming mixture a swirl.

Down at the bottom end (or right end if you prefer), the forged, five-bearing crank is geared to turn the alternator and clutch in the opposite direction to itself. This reduces the pitching which occurs when opening or closing the throttle but does not remove it altogether. The clutch is the traditional dry,

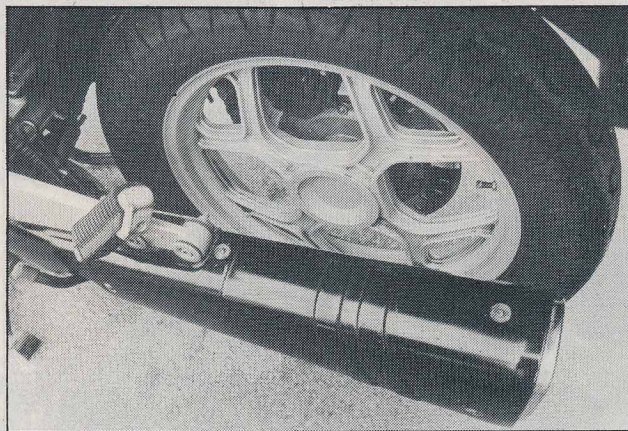
single-plate affair and manages to be light without resorting to unnecessary hydraulics. The five-speed gearbox is positive if a shade heavy, with few clonks and false neutrals lurking inside. The drive shaft exits to the right inside the single-sided swing arm and completes what BMW call the Compact Drive System: 'one of the most lightweight units in the history of motorcycle construction', they claim with much Teutonic puffing-up of the chest.

Lightweight or not, the good news is that the engine is a true BMW in its ability to chug along from almost zero revs without a hint of complaint. With a claimed 90bhp on tap it's not particularly powerful at the top end — our max speed of 127mph puts the K100 on par with a good 750 — but there is heaps of torque throughout the range and the power curve is virtually straight from three grand upwards. No steps at all; just open the throttle and the bike gathers pace in a steady if undramatic (cynics would say boring) manner until the motor peaks out at 8000rpm.

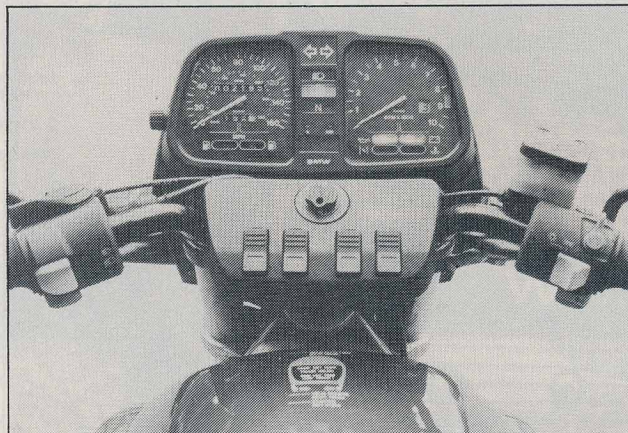
The most vivid illustration of the K100 engine's flexibility came on the aforementioned West•Country jaunt when I chanced upon Porlock Hill, a wonderously twisty one-in-four cliff face that would have the pilots of some bikes slipping the clutch in first. The road was streaming wet and I glanced down coming out of a tight bit to see the tachometer indicating 1500rpm in second gear. Being by this time in a thoroughly spiteful mood I hoofed up into third, at which point the revs fell nearly to the three-figure mark. But the bike kept pulling, juddering a little but hauling on to the top with no need to change gear again before it redlined at nearly a ton on the next straight.

Much of the credit for this low-rev performance and for the reasonable economy — I averaged 42mpg, with a gentle-use best of 49mpg — goes to the fuel injection and ignition systems which are controlled by a computer below the seat. The injection set-up is a version of the Bosch LE-Jetronic system employed in BMW cars for some time. It uses information on air temperatures and volume,

...BUT ODDLY NORMAL



This has got to be the world's ugliest silencer, even if it is very effective at helping the K100 purr through noise tests. We can understand the K's radiator mimicking BMW car design but why does the muffler have to resemble a rear bumper?



Even the clocks look like the front of a 7-series saloon — but they're big 'n' bright. Switchgear is less successful, though, and the low fuel warning light's grip on reality is, uh, questionable...

coolant temperature, throttle position and engine speed to measure the dose of fuel handed out by the row of injectors which sit on the top left of the engine.

An electrical fuel pump is stashed away in the 4.8 gallon aluminium petrol tank and can be reached through the large fuel cap opening. Below the tank is the ignition unit which triggers the fuel injection as well as timing the ignition as a function of vacuum and engine speed. This magic box also reduces ignition advance at 8600rpm and switches off the fuel at 8750rpm to stop over-revving. The whole system is efficient and neatly hurdles the emission laws that will eventually help to kill off the big boxer.

The exhaust side is no doubt equally efficient but it's also incredibly ugly. Four copper-coloured downpipes which look like something you'd expect to find sticking out of a skirting board lead into a big tin box covered by what appears to be a piece of broken plastic guttering. But it wouldn't do to mock too much because with a fine regard for longevity the complete system is made from stainless steel. No rotting from the inside for this little lot: apart from its looks the only problem was the cloud of smoke that would often appear when starting the bike up after leaving it on the sidestand for any length of time.

Style-wise the whole bike is a bit of a mish-mash. Compact Drive System or not, that motor is a pretty hefty lump and with its wide humpy radiator and the little headlamp cowl someone likened the K100 to a cross between a big Chevy motor and a CX500. Unkind words indeed, though after a couple of weeks I must admit to finding it almost attractive.

If the cycle parts look like conventional BMW then that's exactly what they are. I've already mentioned the forks: undersprung, non-adjustable units with no anti-dive. They could have been lifted straight from any BMW model of the past twenty years. Perhaps the Japanese are sometimes guilty of using technology overkill with little benefit to the rider

but this is surely taking things too far the other way. The forks are much too soft and with no facility to stiffen them you're left with a front end that reduces control by using up much of its 7¼ inches of travel every time you brake or shut the throttle sharply.

With an upright riding position like the K100's, it's simply not necessary to have such a soft front end for a comfortable ride. I never felt totally at home while cornering fast because changing direction in a bend often made the Bee-Em stumble disconcertingly. And if any bike needs anti-dive then it's this one. BMW say that the present hydraulic systems don't work for more than 1000 miles due to the oil frothing but even if that is true, which I haven't found to be so, it doesn't take into account mechanical systems such as Honda's excellent TRAC.

At least the wish bars and low centre of gravity make the K100 fairly easy to flick around 'despite' having an 18-inch front wheel. But unfortunately that light steering is equally evident when straight-lining at high speed, when the handlebars sometimes seem a little too twitchy for comfort. Nothing nasty, you understand. It's just that when you're sitting there, bolt upright, fighting the breeze at 120mph the front end takes a bit longer than some to straighten out after hitting a cat's eye or similar.

There's not much wrong with the frame, a lightweight collection of tubes that uses the engine as a stressed member. It has no swing arm pivot because the single-sided Monolever, similar to those on the R80s, turns on bearings set in the rear of the gearbox housing. The rear shock works pretty well whichever of the three preload positions it is set on, giving a much firmer ride than the front end. Damping is non-adjustable.

Braking is taken care of by three big slotted Brembos which had plenty of opportunity to show that they were just as good in the wet as in the dry. The front pair were progressive and powerful, and the rear less sharp than the normal oversensitive disc (though I'd be just as happy with the R80ST's drum). The rear

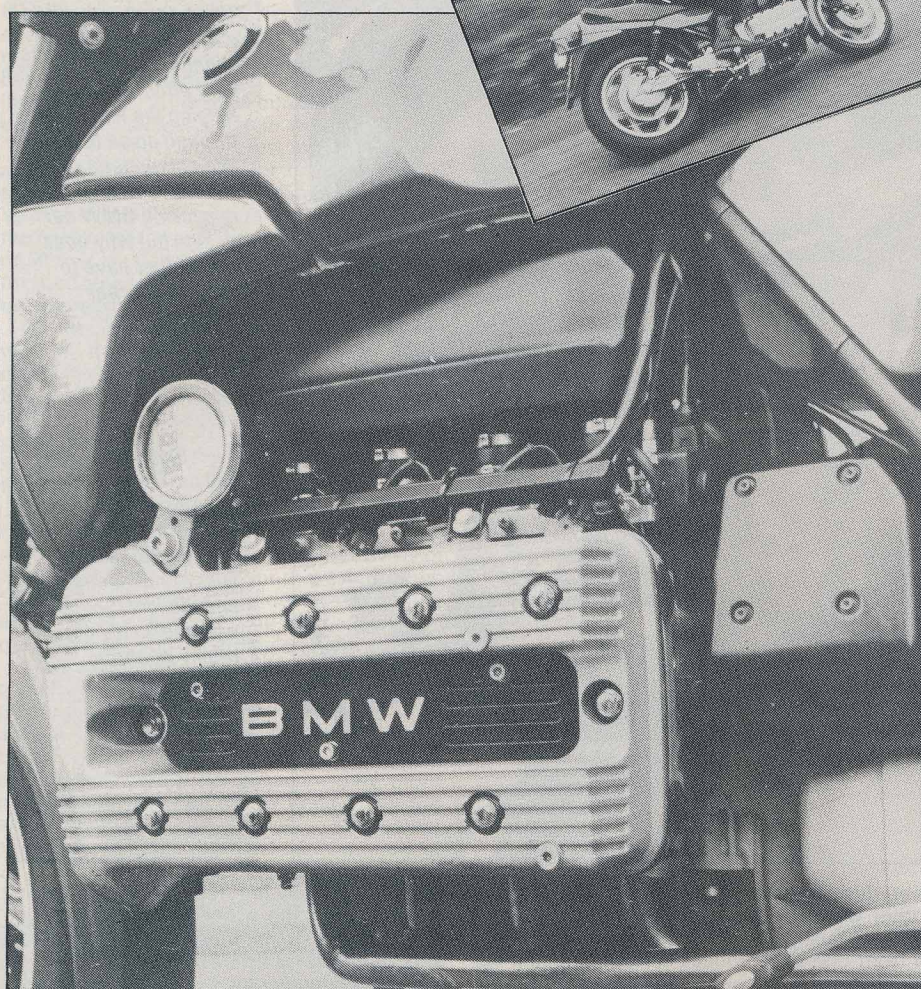
wheel is still easy to remove — with no swing arm to get in the way on the left it can be whipped out in minutes. Both wheels have four Y-shaped spokes, each with an H-section for strength, and come with a choice of Pirelli, Metzeler or Michelin hoops. On the Bee-Em I'd stick to Metzeler for their combination of grip and wear, though as our bike was wearing Phantoms (in both senses of the word) I didn't complain. Strange tyre choice for a shaftie, someone said, but if the Pirellis disappeared fast then they certainly held the road well while they were going away.

If the K100's handling is disappointing then so too are its ergonomics, the little things that you expect to be right on a three-grand motorcycle and which make all the difference when it comes to comfort and ease of use. There are some nice touches: there's a useful handle to help get the bike on its centre-stand; the tank cut-outs fit even long legs; the clocks are big and clear. And while a spring-loaded sidestand increases the chance of dropping the bike (the K100's clangs on the 'zorst as it goes up, to remind you), at least you wouldn't be riding it at the time if the stand was to blame.

Starting on the horrors, the most unforgivable (and ungriving) of all is that seat. I rode the Bee-Em for several hours on three occasions and each time was getting decidedly uncomfortable by the end, which is ludicrous on a bike of this kind. I should add that I spoke to one guy who had ridden for some distance with no bother but after a few hours on the K100 I was as fidgety as I had been after riding most of the length of France two-up on a 350LC. I wouldn't fancy that trip on the K100.

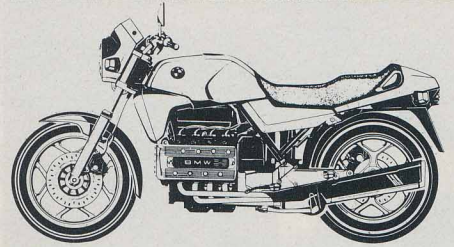
The bike's lines have been kept clean at the back by giving the pillion a pair of mouldings in the seat to hold: better than nothing but not as good as a grabrail. And with nothing of any substance to hook bungees round I was forced to use the plastic tailpiece, which eventually wore off some of the paint. At least there's some storage space inside the tail, and more beneath the seat along with the excellent tool kit and an ingenious puncture repair

STRANGELY STRANGE...



K100's soft, long travel suspension and torque reaction make its handling very Boxer-like

CHECKOUT



BMW K100

| | |
|------------------------|--|
| Price (inc taxes) | £3290 |
| Guarantee | 12 months/unlimited mileage |
| Engine | dohc, 4 cyl, watercooled |
| Bore x stroke | 67 x 70mm |
| Capacity | 987cc |
| Comp. ratio | 10.2:7 |
| Carburation | Fuel injection |
| Ignition | Electronic |
| Air filter | Paper element |
| Oil filter | Cartridge type |
| Oil capacity | N/A |
| Max power @ rpm | 66kW (90bhp) @ 8000 |
| Max torque @ rpm | 8.6kgm (62ftlb) @ 6000 |
| Clutch | Single disc, dry |
| Primary drive | Gear |
| Gearbox | 5-speed |
| Electrics | 460W alternator, 12V 20Ah battery, 60/55W headlamp |

CYCLE PARTS

| | |
|--------------|--|
| Tyres | Pirelli Phantom (see text) |
| Front | 100/90 V18 |
| Rear | 120/90 V17 |
| Brakes | Brembo |
| Front | Twin 285mm (11in) discs |
| Rear | 285mm (11in) disc |
| Suspension | |
| Front | Coil spring, telescopic |
| Rear | Monolever, coil spring, 3-way preload adjust |

SPARE PART PRICES (INC VAT)

| | |
|--|---------|
| Air filter | £9.88 |
| Oil filter | £5.59 |
| Head gasket | £11.28 |
| Front mudguard ... | £52.18 |
| Front indicator and stem | £7.72 |
| F/brake lever and master cylinder | £84.61 |
| One side panel | £22.28 |
| Total | £193.54 |

DIMENSIONS

| | |
|------------------------------|--------------------|
| Wheelbase | 1516mm (59.5in) |
| Overall width | 960mm (37in) |
| Seat height | 810mm (32in) |
| Weight (inc 1gal fuel) | 225kg (497lb) |
| Fuel capacity | 22 litres (4.8gal) |

PERFORMANCE

| | |
|--------------------------------|---|
| Top speed, prone | 125.7mph |
| Top speed, upright | 118.7mph |
| Best one way | 127mph |
| Standing 1/4-mile ... | 12.37sec/108.69mph |
| Speeds in gear @ redline | (1) 50mph (2) 75mph (3) 97mph (4) 119mph (5) 137mph |
| Fuel consumption | |
| Overall | 6.7 litres/100km (42mpg) |
| Ridden hard | 7.8 litres/100km (36mpg) |
| Speedo. accuracy | |
| At ind. 30 mph | 29.8mph |
| At ind. 50mph | — |
| At ind. 70mph | — |
| Supplied by | BMW (GB) Ltd, Ellesfield Avenue, Bracknell, Berks RG12 4TA. |

outfit. With rubber bungs for the tubeless tyres and tiny gas canisters, you don't even need a pump.

The handlebars are too high and wide for fast cruising but give a slightly leant-forward riding position with good leverage. I wasn't totally convinced by the switchgear: big, colourful buttons looking like something out of a kid's toybox, which would be fine if they did all the right things. But although the indicators are self-cancelling the system was designed by university boffins who apparently don't ride motorcycles. Putting the left-hand indicator switch on the left bar and the right one on the right is all very well on paper but overlooks the fact that, with the throttle and front brake to operate, your right hand already has quite enough to do.

Mix in a wet road junction, a pretty stiff throttle and a front end that dives when you touch the brake and the last thing you want to be doing is fiddling for the right indicator or the manual cancelling button with your right thumb. The latter cancels both indicators, which takes some getting used to, though I'd been riding the bike for nearly a week before I scared myself trying to turn off the left one with the horn button (in the corresponding place on the left bar) as I cranked out of a roundabout.

I could live with the indicators but not with the mirrors, which are small and blur uselessly at anything over town speeds. Having already been stopped for speeding on a BMW this year because I didn't notice the copper coming up behind due to poor mirrors I was not pleased to find that the K100's are equally bad. Improvement please, BMW.

The headlamp is adequate and the instrument console clear and simple, with a gear indicator as well as the normal warning lights. The red bulb that comes on to warn of back

light failure showed its value when the brake light developed an intermittent fault; the indicator self-canceller and the speedo also packed up while we had the bike. The fuel gauge kept working but wouldn't have been missed. It consists of a pair of warning lights which come on with seven and then four litres left in the tank. Unfortunately they're totally unreliable, flashing on and off for miles after first making an appearance, and I twice nearly ran out of petrol (there's no reserve) when the four litre light had only just come on for good. A clock is standard fitment on the RS and RT versions but is an optional extra on the basic K100. All the normal BMW accessories are available, from a windshield and panniers to heated handlebar grips and Nivomat suspension.

It gives me no pleasure to say that I ended up feeling pretty disappointed by the K100. Perhaps I was expecting too much of it, but if so I wasn't the only one: wherever the thing went it was surrounded by hordes of people, more so than any other bike I've tested. Many of them were the normal non-motorcycling BMW enthusiasts who'd no doubt been impressed by the ads in the Sunday supplements but it was impossible to ride the length of Regent Street without at least one despatch rider pulling alongside at the lights to ask 'What's it like, then?'

After the first dozen or so my answer was always the same: 'Pretty much like any other BMW, really.' You can take that whichever way you wish, of course. It is probably what the hard-line BMW owners wanted to hear anyway, and at £3290 (a grand more for the RS) the K100 is cheap enough to tempt more than a few of them. It just seems a waste that after building such a good engine BMW should fail to finish what could have been an excellent motorcycle. ■