

two wheels

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AUGUST, 1980

DIRT SHOOTOUT!
Honda XL, Yamaha XT
& Kawasaki KL Thumpers

TONY HATTON
Profile of an
ever-cool maestro

Bathurst Violence
Facts against
the fantasy!



two wheels

Volume 22, No. 6, AUGUST 1980

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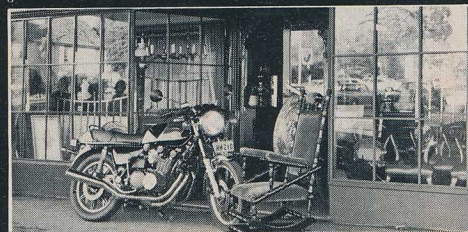
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Remember when that strange, original XS750D was called "years ahead of its time". It might well have been true — then! Many models later it's bigger and still with us. Even innovators are allowed to trail the slip occasionally. . . on page 20.

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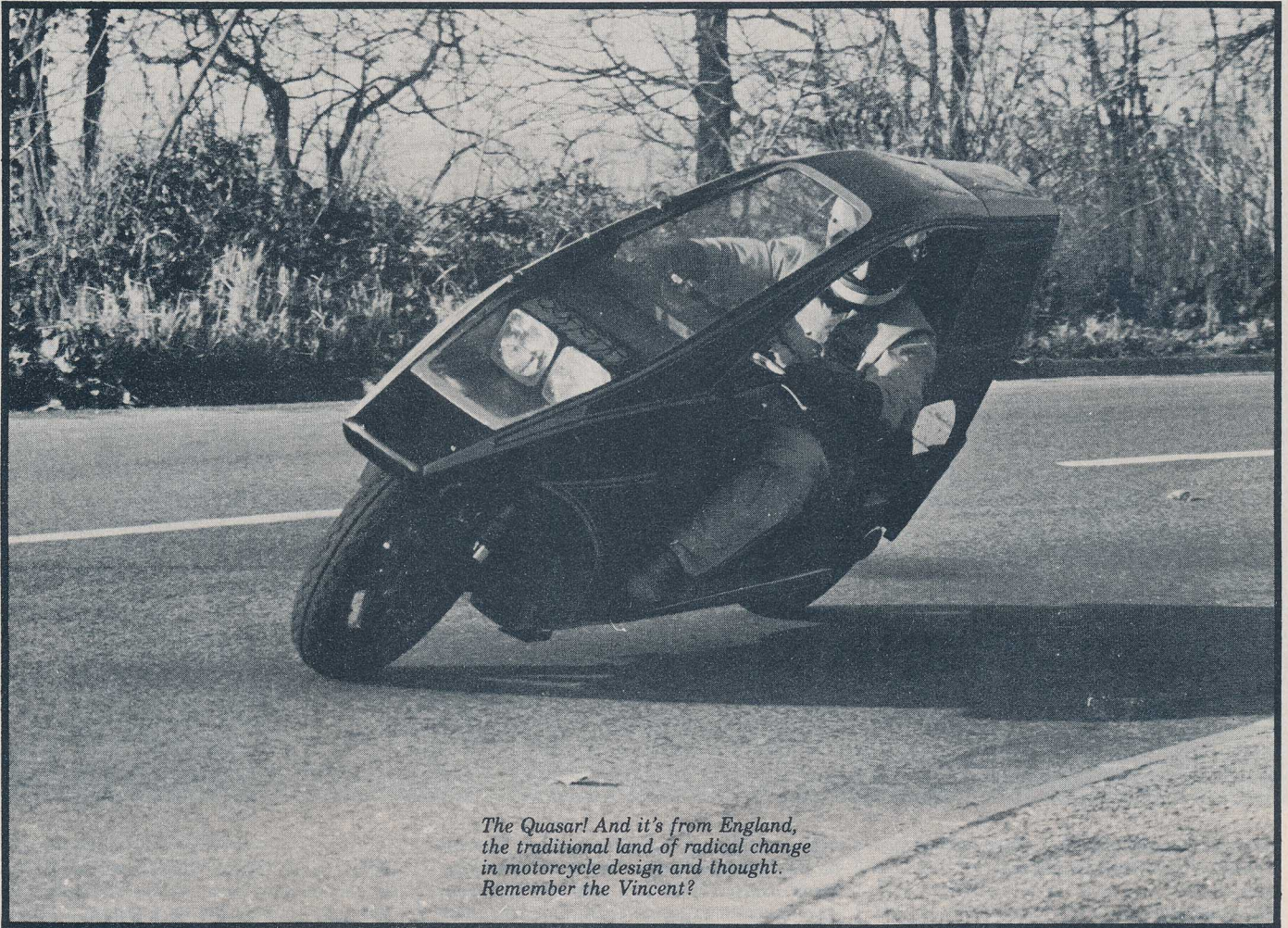
Bob Bowie with Steve Pickells

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"It's only a fairing and top box with sensible, strong components underneath – and all-British!"



The Quasar! And it's from England, the traditional land of radical change in motorcycle design and thought. Remember the Vincent?

QUASAR An Earthly Oddity

A Quasar, according to the concise Oxford dictionary, is a "Star-like object having spectrum with large red-shift." A Quasar, according to JEFF BROWN, is an all-English motorcycling revolution that has a top speed of 185 km/h, fuel consumption of 25.6 km/l, combines safety with visibility, comfort, weather protection, longevity, durability and simple maintenance . . . at a price of \$10,500. Ten days with the Quasar proved to Brown that there's nothing in the world or Japan that can match it. And all this time we've been worried about a lack of change in basic bike design . . .

I STARTED to feel a bit uneasy in the stomach after agreeing to test the Quasar. At first it had all been "it'll never happen bravado", a ride on the bike of the future, love to, I'll be in Bristol to pick it up tomorrow. But trundling home from work that day in the ice and sleet, it all started to sink in, and the thought of a 330 kg thing with a roof for chrissake, settled right down through the brain to sit very heavily in the stomach. . .

"But there's nothing to worry about; it's only a fairing and a top box with sensible, strong components underneath," said Malcolm Newell, one of the two men behind Quasar Motorcycles. And after talking to the ebullient Mr Newell and his partner, Ken Leaman, and looking through their factory, you can see his point.

The bike is simple, strong and sensible in ways which make it the first real advance in motorcycling since the Vincent, but it is such a brilliant combination of simple ideas that describing it as a fairing and topbox is akin to describing Japan's computer-controlled rail network as a train set.

The 30-odd Quasar owners in Europe — including Phil Read — are all very experienced riders who have owned or raced a lot of bikes. And every one of the owners is a man who appreciates comfort and design excellence.

"Younger riders don't appreciate the need for our bike," says Malcolm Newell. "Riders who've been around for a while know what they *don't* want — that's getting cold and wet and being let down by handling or reliability, and the need for frequent or expensive servicing.

"We're going for what the Japanese can't offer; the best available in England, for durability and comfort.

"It was a crusade at first and now a few people are starting to open their eyes, but we're still trying to establish Quasar realistically in the market. After that's done, we can start developing the bike and the concept.

"We know exactly where it can be improved, and given more backing we can also market a 74.5 km (100 bhp) 260 km/h turbo-charged sports version. It's a single seater, with a 50 mm shorter wheelbase and 200 mm lower, with hub-centre steering and a dry weight of 172 kg (to the current two-seater's 331 kg). We've also completed a design for a commuter bike which goes together like an Airfix kit."

And there are other completed projects sitting in Ken Leaman's design office; a twin torque converter which weighs less than a quarter of the Quasar's current four-speeder, and a microchip instrument system with 148 functions and weighing 100 grams, which was built a year ago.

The instrument system was designed by electronics engineer Terry Alexander and is claimed to be superior to the Aston Martin Lagonda's system.

But Quasar needs finance to expand. At the moment there are nine Quasar owners in England and 21 in Europe and the company can't meet demand with its one a week production. There is a four-month waiting list in England and orders come in at the rate of

about two a week.

The factory employs 32 people and apart from Quasar it does precision engineering work for many projects, including the Concorde.

"The present factory has taken us from prototype to production, but we have to expand, not only to meet the present demand, but to develop the concepts and put them into production," Mr Newell says.

11 years' search for \$\$\$?

The Quasar was born in 1962 when the concept sketches began. The first alloy-bodied prototype was built in 1973; 11 years to find the first backer! Who was it that said the British were conservative?

The main changes to evolve from the prototype were to the bodywork, which is now produced in 7 mm GRP, and with a flat triplex windscreen instead of the original curved one. The curved surface had caused the bike to weave at speed as it sought low pressure areas in the air.

Since then little has changed. The first Quasar built has now covered 124,000 km and needs new valve springs, a grind and decoke (don't we all?), but it hasn't had the head off till now.

"There have been some bad accidents on Quasars, but there have been good results," says Malcolm Newell. "The latest was an estimated 40 km/h impact into the side of a

"It will go ridiculous distances without any strain or stress on the rider or machine".

car. The owner rode away from the crash and when we checked it on the jigs, no repairs were necessary to the frame, suspension or front wheel. Only the GRP and windscreen were damaged."

The Quasar is immensely strong due mainly to its space frame on a spine frame design. The front bulkhead can take 42 tonnes of pressure before distorting, and the rest of the frame is built around the bulkhead for total rigidity and to enable the widest possible swingarms. All wheel spindles are stainless steel and taper roller-bearings are used exclusively. The exhaust system is made from 14 gauge stainless steel and the muffler, tailpipe and anti-spill fuel

tank are all made from 16 gauge stainless steel.

The bike is heavy but Mr Newell says there will be no lightening of the present model, apart from non-structural areas such as the gearbox and instruments, because of the company's aim of achieving supreme longevity and durability with the Quasar.

"Besides, the weight has no detrimental effects on the bike's performance," he says.

The strength and safety aspects are obvious, as are other tricks like the stainless steel strips along the widest part of the body, on which the bike slides if dropped, and the fact that it won't go right onto its side but instead rock on these strips like a bottom-weighted kids' toy.

The low centre of gravity and low polar inertia, achieved by having all the bike's mechanicals placed low along the centre line of the bike (70 percent of the bike's laden weight is below the steering head) and its 50/50 weight distribution would all serve to nullify the effects of the weight, and the pivoted fork suspension front and rear would mean no weight transfer under acceleration or braking.

The bike's gearing, with a low first and tall fourth gears, with the all-alloy four-cylinder 848 cm³ Reliant car engine's immense torque, would give quick acceleration and 175 km/h cruising and the aerodynamic body would also negate the weight's effect on performance . . .

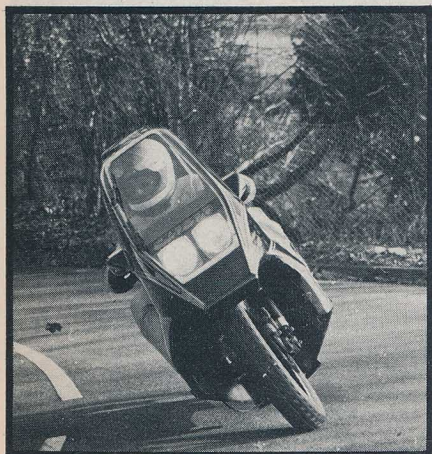
And still I was dubious, to the point where I was almost ready to call the whole thing off after weaving along dangerously on my first three-metre "ride".

Then Malcolm Newell, a man with 24 years' riding experience, who has owned 120 bikes, said: "Look, just relax. Give it a big right handful and go!"

With my guts telling me what it is like to make a true do or die effort, I did just that and apart from managing to get lost while riding around the block, the whole exercise was simple.

Another few kilometres following Malcolm on his Quasar and I was confident I could get the thing to Surrey, where I could settle into it on more familiar roads.

My first day on the bike was still difficult though. The weight, as Malcolm had explained, was never apparent, but I still couldn't help feeling a bit ill whenever I stopped and had to stick a leg out each side, while lying



Far left: Perfect response at any speed and so predictable in its handling the Quasar is a joyous bend-swinging.

Left: It mightn't seem right, but nonetheless coming to a halt in the bike means sticking your feet out while you're half reclined in the seat with the tape deck going full blast. Now, that's motorcycling!

half reclined and with a roof overhead.

The bike is easy to operate as all the controls are the same as any bike's, with the exception of two thumb-operated wands, the left one to flash the headlights, operate main beam and dip, hot air for demisting and to warm the rider's hands; the right stalk for windscreen wash/wipe, secondary engine start (the main starter is via the dash-mounted ignition key), indicators and dual horns.

The other difference is the gearchange, which is by way of two car clutch-type pedals, the lower one for downchanges and the top one (stepped out 20 mm from the lower) for upchanges. It's very easy to use given a good solid stab, and I only blew it once, hitting it into first instead of third and locking the rear wheel solid. That was my first real taste of the Quasar's handling. The bike's rear came around to nearly 45 degrees to the direction of the road but straightened up when I pulled the lever on the hydraulic clutch. After that I tried a few tentative power slides and the Quasar responded with all the finesse (and none of the drama) of a sports car. In fact there's nothing to stop a rider pointing it like a rally car or a motocrosser, using slides to wash off a bit of speed and to get it pointed right before going into the corner. But the trick is the rear end doesn't "hang out", it slides smoothly and neatly to any point the rider wants.

By the time I was on the motorway to London I loved the Quasar for its totally predictable and totally neutral handling; no change of attitude under brakes, even pushing hard, right to the apex of bends, and perfect response to throttle at any speed, at any lean angle. The brakes are twin 242 mm cast iron discs at front and a single rear, operated by AP double piston calipers all around.

And I soon found it could almost equal its joyous bend-swinging ability on the dull, desolate and deadly boring motorway. On with the throttle friction damper to hold the speed at 150 km/h, up with the volume of the tape deck and blast along with gloves off and jacket undone in a pocket of warm, still air smiling at all the stunned car and truck drivers.

Good for the spirit

There are six gauges on the Quasar's dashboard (speedo, tacho, fuel, oil pressure, ammeter and coolant temperature), so, I've no excuse for not noticing the rocketing temperature gauge.

Clouds of smoke brought it to my attention and after stopping, twisting a knob and lifting off the left engine cover (two seconds flat) I discovered a dry radiator. A few kilometres of pushing (very good for the calf and shoulder muscles) and I found a farmhouse where the radiator was refilled and the drama was over. Well, almost.

This episode cost me about two hours, which meant I missed the motorway turn-off in the dark and rode right into London (in my second week in England) instead of turning south.

I mention this because three hours and 80 km later I was still bobbing around in the London traffic like a cork in a Pacific

cyclone, weeping with frustration and wishing to heaven I was on an RD400, or better still, in a car with a travel agent driving.

The Quasar's size and my lack of experience on it added considerably to the nightmare, but it was also my salvation. The bike attracts a lot of attention; old ladies lean out of the windows of Bentleys and politely ask, "What is that spaceship?", and businessmen reverse their Rover 3500s 30 metres at traffic lights to question the rider. And motorcyclists surround it, willing to talk for hours.

Every time I pulled over, people of all types wanted to talk, and all gave me directions. Finally, when I found myself pointing north onto the Battersea Bridge instead of south over the Kew Bridge and I stopped, hoping to find somewhere safe to leave the Quasar while I caught a taxi home, yet another rider pulled over, questioned me about the bike and led me the 16 km to home. And he wouldn't even come in for a beer!

I then took the Quasar to an associate's house where it would be safe for the night and rode home on a Kawasaki Z250, which, on a wet night after stepping straight out of the Quasar, felt incredibly primitive, unstable, unresponsive and absolutely diabolical in the usual English drizzle.

I was less dubious when I went to pick up the Quasar the next day and after another few hours in the cockpit I was totally at home in it, to the point of leaving a test GS1000 Suzuki ridden by a co-worker for dead, not only on winding roads, but in traffic too.

At the end of the day I was demonstrating its stability and manoeuvrability to sceptical colleagues by doing figure eight turns and reversing the loops, from walking pace to 15 km/h in a very tight car park.

The overgeared first gear enables the Quasar to creep along like a trials bike in and out of slow-moving traffic and there only has to be the slightest trace of forward

motion for the bike to be perfectly balanced.

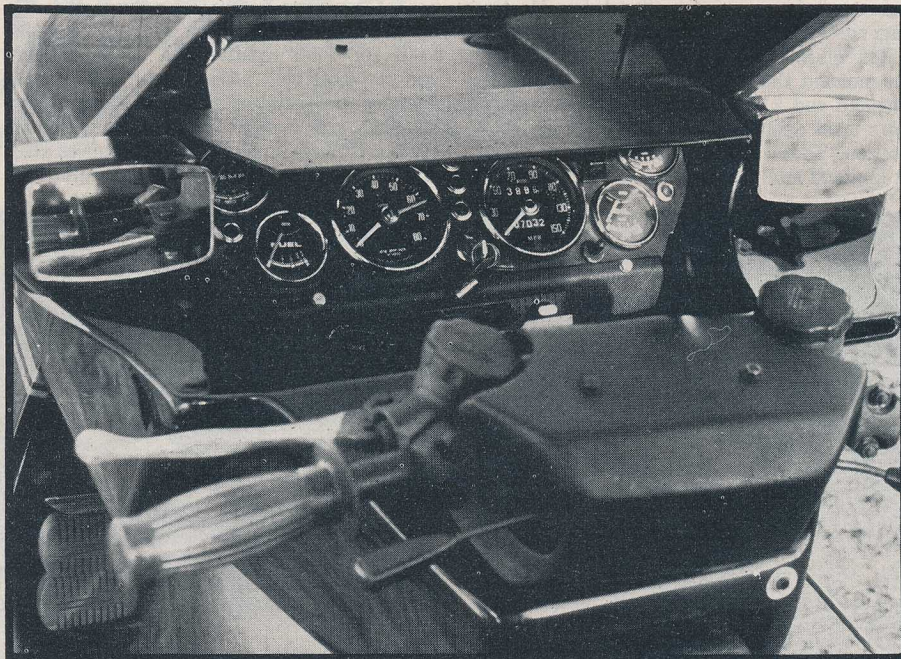
Stopping is also drama-free because the bike has to be tilted a long way over before the weight can be felt. And if it is allowed to fall onto the stainless steel strip a hand on the roof edge and a gentle rock will have it returned to the vertical.

For parking the Quasar is equipped with a retractable stand on each side, with feet about 12 cm x 8 cm to prevent it sinking into soft ground. Either stand is extended by pulling the handle on the appropriate side and then turning to lock the stand down.

The Quasar's seat is leather and a hammock-like mounting at head level allows it to be adjusted for different-sized people and also to allow a pillion to be carried, without affecting comfort for either occupant. The seat lifts out for access to the transmission and fuel tank, and it can be folded and placed in the dash recess when parked in the rain.

For maintenance, access to all mechanical components is by removing the engine panels (one quick-release knob each) and the entire body can be removed in less than ten minutes, though this would rarely be necessary as all major engine work, including the crank assembly and cylinder liners, can be replaced without removing the engine from the frame. The power train

What can only be described as the cockpit — nearly the same as a normal bike with the exception of two thumb-operated wands. The left wand flashes the twin 75 watt quartz halogen headlights, operates main beam and dip, and hot air for demisting and warming the rider's hands (that's right, this bike has a heater) while the right wand operates windscreen washers and wipers (we are talking about a bike!), indicators, dual horns and the secondary engine starter. A full complement of gauges, but says tester Brown there's too many and the speedo and tacho needles waver somewhat. Quasar says the Smiths instruments are used because it's an all-British bike and only British parts are used.



itself is held by just eight bolts.

The bike is built to run with next to no maintenance and when work has to be done it is a mechanic's dream because every component is so accessible.

The Reliant engine (used in Reliant cars and three-wheelers) is so understressed it's almost ridiculous. All-alloy construction with wet liners, pushrod-operated overhead valves, a single SU carburettor and that's about it, producing 30.5 kW (41 bhp) at 5500 rpm, on a 9:1 compression ratio. The engines have had an impeccable reliability record in the UK for about 15 years and commonly record 200,000 km before requiring a head clean-up.

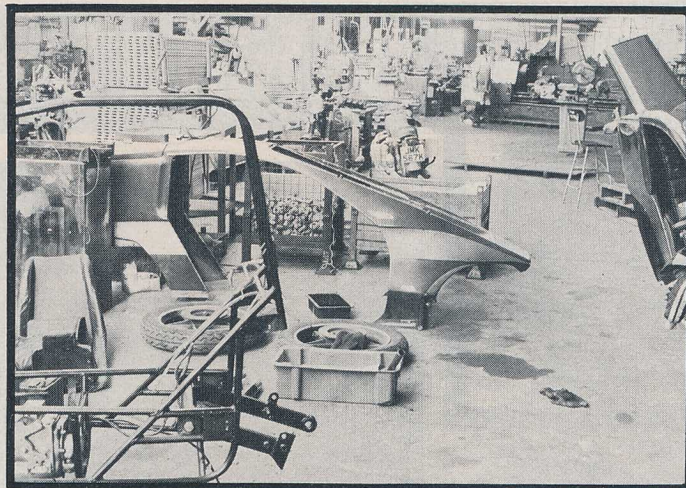
The clutch is a 158.75 mm diameter single plate, dry-diaphragm type, hydraulically operated with the fluid reservoir on the left handlebar.

The gearbox is a four-speed, all synchromesh unit, operated by a very solidly built linkage system from the two pedals, and final drive is by a variable length shaft drive incorporating two universal joints, to a spiral bevel final drive unit, all beautifully machined by Quasar. Gear ratios are: First 3.88, second 2.05, third 1.32, fourth is direct at 1.00. Final drive is 3.5:1.

The gearing gives a top speed of 185 km/h, with 180 km/h a comfortable motorway cruising speed, and third gives a true 145 km/h, second gives 75 km/h and the "crawler" first gear goes to 35 km/h at the 6500 rpm redline.

Fuel economy averaged 25.6 km/l (70.8 mpg) for the ten days I had the bike and it was generally ridden hard, with the total mileage of 2000 km equally divided between heavy traffic and motorways and fast second-

Malcolm Newell in the Quasar factory where he and 32 other people put together about two bikes a week — more finance is needed to expand the operation, but given time one of the greatest revolutions in bikes will be produced in ever-growing numbers, even if they do cost \$10,500 to buy.



The workshop. From what appears to be disorganised chaos is really organised mayhem, but the Quasar keeps rolling on.

dary highways. Range was 370 km, though the fuel gauge showed empty at about 320 km.

One of the main reasons for the good fuel economy was the engine's peak torque being produced at only 4000 rpm; apart from the odd all-out blat in company with more conventional bikes, I found I naturally changed up at about 4000 rpm, which gave a performance beyond all but supercars and one-litre Japanese multis.

Rebounding shortcomings

The Quasar's frame is made from nylon-coated Reynolds 531 tubing: the front leading link and rear pivoted forks are supported by Girling gas shock absorbers. The suspension was the only aspect of the Quasar that could be faulted, particularly on rebound damping.

When I asked Malcolm Newell about this after the test he was aware of the Girlings' shortcomings and said the bikes need stiff damping and very long, soft springs. Koni makes a perfect shocker for the Quasar, but he felt the Girlings, while not perfect were very close, and they wanted to keep the bike all-British, so Girlings it is.

Quasar had a lot of support from Avon tyres in the development of the bike, thanks to the enthusiasm for the project of Avon's Derek Trigg, who approved the development of tubeless tyres and had them ready for the bike before the first prototype was completed.

"We needed those tyres, too," Malcolm Newell says. "The bike was designed around the concept of tubeless tyres and thanks to Avon, we weren't held up in the development."

The Quasar's wheels are made in the factory and are impregnated with a loctite product to cure porosity as well as being acrylically coated. The 4.25 x 18 wheels are cast in M27 aluminium, heat-treated and X-rayed. They are heavy, but were designed for the Quasar, with massive wheel centres for heat absorption to promote bearing life. They are also self-cleaning.

In fact, the Quasar itself is almost self-cleaning, with all the brightwork in alloy or stainless steel. The bodywork itself only needs an occasional wipe with water and a

SPECIFICATIONS BRIEFLY

Engine: Longitudinally-mounted four-cylinder four-stroke. All-alloy; wet cylinder liners. Pushrod-operated overhead valves. Pressurised water cooling system.

Capacity: 848 cm³.

Compression ratio: 9:1.

Carburettor: Single SU.

Power: 30.5 kW (41 bhp) at 5500 rpm.

Transmission: All synchromesh four-speed gearbox, left foot operated positive stop gearchange. Shaft drive, two universal joints and spiral bevel final drive unit.

Ratios: First 3.88. Second 2.05. Third 1.32. Fourth 1.00.

Final drive ratio: 3.5:1.

Engineering: Frame: Space frame incorporating spine, Reynolds 531 tubing construction, nylon coated. All bearings taper rollers.

Suspension: Pivoted fork and Girling gas shock absorbers front and rear. Leading link steering. Hydraulic steering damper mounted on track arm connecting steering to front forks.

Wheels and tyres: 4.25 x 18 Avon Roadrunners on heat treated LM25 alloy rims.

Brakes: Twin front, single rear 242 mm cast iron discs. AP double piston calipers, hydraulically operated.

Dry weight: 310 kg. Wet, 331 kg.

Electrics: 12 V negative earth system. 12V 28 amp alternator. 20 a/h lead acid battery. Coil and distributor ignition. Twin 75W quartz halogen headlights. Triple fluorescent tube tail light, four 60 mm dia. brake lights. Stereo tape deck with socket for helmet earphones. Speedo, tacho, oil pressure, water temperature, fuel level and ammeter. Main beam, ignition and indicator warning lights.

Body and cockpit: Thumb-operated wands control headlights flash/main/dip, hot air to demist and rider's hands (left wand). Windscreen wash/wipe, secondary engine start button (main start on dash ignition key), indicators and dual horns (right wand).

Bodywork: GRP panels, 7 mm thick, retained by quick release fasteners. Low tint laminated Triplex safety-glass windscreen. No chrome fittings.

Continued on page 85

The Quasar

(Continued from page 73)

chamois and there are no spokes, cooling fins or crevices. The rear mudguard was designed to minimise spray and is very effective.

Behind the rider in the tail section the Quasar has a 0.0566 m³ (two cubic feet) lockable luggage compartment which can hold two full face helmets as well as rain gear (which is unnecessary on the Quasar anyway).

Its electrics are run on a 12-volt amp/hour car-type lead-acid battery, while ignition is a simple car-coil and distributor. All the bike's wiring uses multi-pin connectors.

Lighting is yet another indication that a real biker was behind the bike, with twin 75 watt quartz halogen headlights. The rear light is a 1452 cm², louvred, shatterproof GRP lens lit by three shockproof fluorescent tubes powered by two inverters, making the tail light failsafe, as well as gigantic and bright. The indicators are in a separate lens above the stoplight.

When I had to return the Quasar my com-

The heart of the Quasar, an 848 cm³ Reliant car engine so understressed it's "ridiculous" and with enough power to match all but the one-litre Japanese bikes. Fuel consumption is amazingly low for a bike with so much oomph!

plaints were minimal. There was the rebound damping, which is just that shade less than perfect, and explained by the fact that the Girlings are the best British products available to suit the bike.

There were the Smiths instruments, too many of them, and with wavering speedo and tacho needles: "Again, they're the best British units we can get: of course we want to use our digital system, but we haven't got the resources to put it into production yet," replied Malcolm Newell.

And the last point was that the rider's left knee could knock the left control stalk, turn-

"In fact it's outside the realms of motorcycling, not because it is like a car . . . because it is so far in advance of 'modern' two-wheeled blancmanges."

ing the heater/demister off from its bottom position; "That's simple, we'd just adjust the stalk up if a customer found the same fault."

It's nice to be able to find so few faults with a bike, particularly a concept as radical as the Quasar. But it's even nicer to have the manufacturer give clear, understandable explanations for any faults which are more than a simple matter of tailoring for individual riders.

The Quasar is the supreme efficiency machine; it gives an owner safety, visibility, comfort, weather protection and longevity and durability, as well as simple mainten-

ance. It will go for ridiculous distances without any strain or stress on the rider or the machine.

The biggest bugbears are tyre wear (about 10,000 km a rear tyre) and the purchase price, \$10,500. But apart from tyres, that's about all you would ever spend on the bike because a home mechanic can give it a complete service and engine tune in the time it takes to change the plugs and points of a modern multi.

In the Quasar brochure a lot is made of the fact that the bike is all-British, from its design to its smallest component, and that the engineering and equipment is the best Britain can offer. Malcolm Newell makes even more of this, and his pride is entirely justified, because while the British bike industry is all but dead, a small pocket of enthusiasm and knowledge has produced the ultimate motorcycle, exclusively for the knowledgeable and experienced rider.

In fact it's outside the realms of motorcycling, not because it is like a car as some idiots suggest, but because it is so far in advance of "modern" two-wheeled blancmanges.



Rear lighting uses three shockproof fluorescent tubes powered by two inverters. Failsafe as well as gigantic and bright, while below are four more rear lights. Indicators are in a separate lens above the stoplight. The box is large enough to store two full-face helmets — and remember, what you're looking at is the bike's roof!

