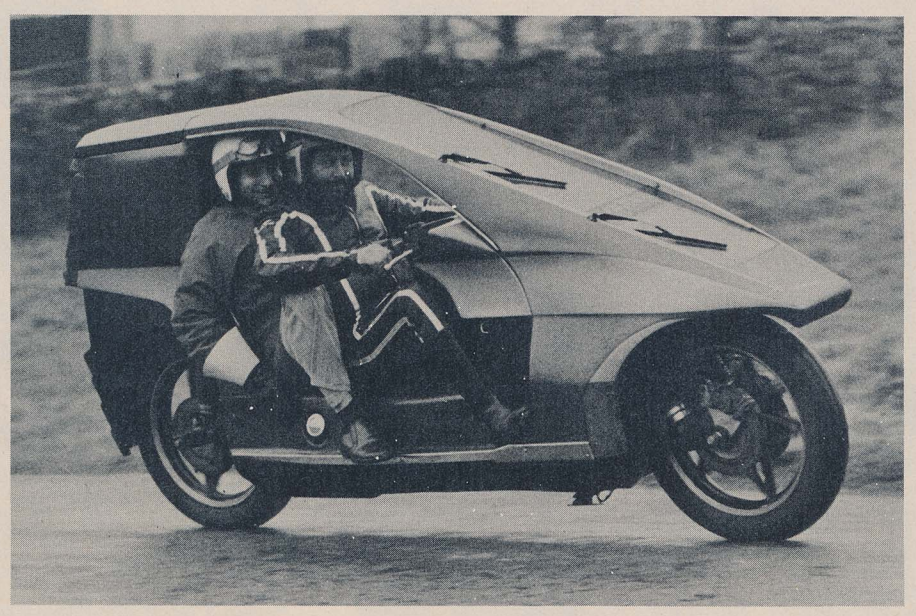
Wassisit!



● THERE HAVE BEEN MOTORCYCLES THAT looked like corner-carvers but were wobble-champions, bikes that handled superbly but carried stone-age engines, high-horsepower rockets fitted with short-fused rear chains and tires, limp-wristed little models that had no appeal whatever, and other machines of such enormous complexity that nobody outside the design departments have been able to appreciate the hardware. And now there is the Quasar.

The Quasar is a long, low, heavy, expensive, two-wheeled vehicle; it's so strange in appearance that it defies the conventional motorcycle label. The Quasar invariably provokes extreme reactions from first-time beholders. Strangers stand transfixed. Experienced motorcyclists either scorn and dismiss it—or stand awe-struck by the thing. Some see the Quasar as mere nonsense with no possible relevance to motorcycling. Others consider it the biggest scientific advance since the internal combustion engine was first attached to a bicycle frame.

Two English engineers are responsible for the Quasar's design, development, production and (they trust) universal acceptance. One partner is ebullient Malcolm Newell, who has a background in race-car engineering and an inclination for constructing strange automotive devices. The second engineer is studious Ken Leaman, who was a full-time aerodynamicist but is now trying to engineer an innovative product on the company's very slim resources and meagre manpower.

Newell and Leaman conceived the Quasar after spending years complaining about the bikes they owned. Why, they grumbled, did their Kawasaki-3 misbehave in corners, their Triumph twin vibrate, and their old BSA clatter? And why did their nice new 1000cc tourer need an assortment of fiberglass extras (fairing, panniers, top box, etc.) before they could actually tour in comfort? None of the computer-designed (but conventional) high-flyers met their personal desires, so they began transforming their ideas into the unconventional Quasar.

In Newell's words, "The Quasar is a total-concept motorcycle utilizing low technology and basic principles." In spite of its revolutionary appearance (and "revolutionary" is a word they studiously avoid), the Quasar is less exotic than it at first seems. It's low technology because existing and available components *must* be used instead of highly sophisticated pieces which *could* be designed but would push development costs way out of sight.

The Quasar should be driven by a compact, water-cooled 750cc four with cylinders running fore-and-aft, and power should be transmitted through a semi-automatic gearbox to shaft final drive. But nobody in the UK makes anything remotely like that, so the available alternative is a 41-horsepower 848cc Reliant car engine featuring four cylinders and the low technology associated with basic automobile-type engineering and construction.

In certain respects, the Reliant mill fits the Quasar ultimate-tourer bill extremely well. The thing is rugged with a life expectancy of 80,000 miles or more, and it churns out maximum torque at a modest 3500 rpm. Depending on overall gearing, 5000 rpm equals 100 mph, or 90 mph comes at 4500 rpm using the tallest final drive ratio, giving a 70/80 mph cruising speed without overstressing the parts. Not unexpectedly, the lazy-turning engine (fed by one 1.25-inch SU carburetor) provides the sort of fuel economy that ranges from 100 mpg at 50 mph to a realistic 70 mpg under normal conditions. With a four-gallon tank, gas stops come at 250-mile intervals. On the other hand, the engine is a massive lump that contributes mightily to the 690-pound curb weight.

Another unwelcome inheritance from the car quarter is the gearshift. Since the riding position is semi-reclining in a hammock-style seat and since the rider's feet rest on angled running boards, the only practical gearshift arrangement is by push-pedal. The Quasar has two spring-loaded pedals on the left, one above the other. Toe the top one and the box changes up; nudge the lower one and the transmission downshifts. Alas, the Reliant

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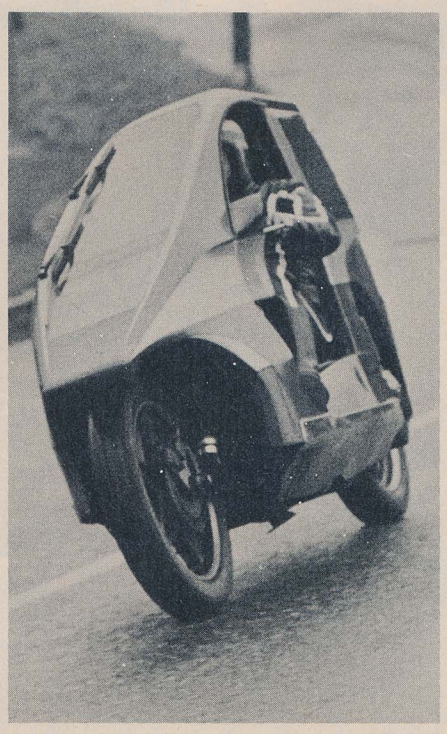

unit starts life as an all-synchromesh gearbox controlled by a waggle-stick; it becomes a motorcycle positive-stop box in the Quasar while illogically retaining the synchro-cones. The transition is ingeniously contrived through a system of gears, control rods, pivoting cam plates and shafts-within-shafts. It works acceptably for leisurely shifts, which, given the heavy clutch lever, are probably the only kind that you can make. (The car-specification single-plate clutch is hydraulically operated.) The Quasar makes a convincing argument for one form or another of automatic transmission.

Newell initially envisaged his total concept as a smooth-contour motorcycle without the normal clutter of stuck-on pieces, and with nothing open to public view that didn't have to be seen. This thinking naturally meant a comprehensive enclosure, and its aerodynamic form inevitably led to the provision of crash-protection and weather-proofing. That the fairing should provide first-class penetration and stability largely dictated the long 77-inch wheelbase, the low 16-inch seat height and the indirect steering. And because aerodynamic principles prohibited chopping off the enclosure at a point where normal fairings end, the Quasar had to have a roof and a tail.

Leaman's streamlining exercise extracts the utmost from basic aerodynamics, insofar as the two-wheel layout permits. The leading edge of the snout exerts down-thrust to counteract lift formed by pressure build-up in the wheel arch. From there, laminar flow takes over to accelerate the air stream up the specially shaped windscreen, producing a low-pressure area, and creating a non-turbulent stream over the roof, while the screen pillars prevent the air from spilling down the sides. The roof line itself conforms to the appropriate airfoil listed in the NACA book (source of all those clever racing car airfoils) to give negative lift and keep the weight on the wheels. Since the greater part of the fairing mass is forward of the machine's vertical centerline, the Quasar would yaw like mad without some form of stabilizing at the back. Therefore the enclosed tail is more than a roof support; it's a stabilizing fin performing the same function as on an aircraft. Making it sound very simple, Leaman describes the low-drag streamlining as "fundamental aerodynamics," pointing out that the very first fairing required only minor modifications to cure the Quasar's tendency to dart about, seeking minimum-pressure areas when traveling behind large trucks.

The Quasar chassis is a space frame strengthened by a beam frame in the form of the engine. An immensely strong front bulkhead carries the leading link fork; small-diameter tubes sprout from the bulkhead and form the space frame, roll bar and engine mountings. At the rear, the bearings for the box-section swinging fork are placed exceptionally far apart, and Girling gas shocks provide control. As distinct from the normal shaft-drive practice, the Quasar drive does not go along one fork arm; it is routed separately between the left arm and the wheel.

The steering column and headstock, being sited a number of feet apart, are connected by drag links with 1:1 ratio, and a hydraulic damper is placed between the track rod and the front fork. The fork is a rectangular-section tube carrying Girling gassers with springs hidden in tubular metal covers. Braking is by three 9.5-inch cast-iron discs with Lockheed hydraulics. The front calipers are bolted to a parallelogram linkage without an asymmetric hookup; brake dive is no great problem, thanks to the long wheelbase and low center of gravity (70 per cent of all-up weight is below the steering head). The Quasar makers claim a 26/28-foot stopping distance from 30 mph—and they are unhappy with the patent owners who prevented them using the ultimate refinement of anti-lock brakes.

Fears that junk engineering lurks below the bodywork are pretty well dispelled by the material specifications and high quality components. All spindles are stainless steel, and the fuel tank and exhaust system are likewise fabricated from stainless. Every chassis/steering/suspension bearing is either an adjustable taper roller (three-inch diameter in the headstock) or needle roller; the frame is nylon coated; and the Newell/Leaman "better-than-the-best" design philosophy seems firmly embodied in the complexity of the heat-treated, self-cleaning cast-alloy wheels.

Designed for maximum strength and rigidity, each of the five spokes is divided into a "V" with legs of continually changing section. At the hub, they are slim-line airfoil becoming roughly oval at the rim junction, and with a consistent cross-sectional area throughout. Viewed from any angle, there is no violent change in section as with an "H" nor do the spokes terminate at the hub; rather, they extend across to provide a rim-to-rim stress pattern. The hubs are large in diameter, partly to hold large bearings and partly to dissipate braking heat before it cooks the bearing lubricant.

Back in 1974, Avon produced the "first real motorcycle tubeless tire" (a fair claim) for the Quasar in response to persistent pestering from Newell and Leaman. Nowadays the special 4.25/85H18 Roadrunners are reserved exclusively for Quasar wheels which have three humps bridging the well to prevent tire roll-off in the event of a flat.

Besides full instrumentation, twin 75-watt quartz-halogen headlamps, a huge low-density taillight, windscreen wash'n' wipe and emergency-start facilities, the Quasar offers little luxuries like ducted hot air to your feet and hands. Or, to do the thing in style, you can have the optional extras of radio/cassette player, inertia reel harness, fog lamps, three-cubic-feet panniers, inspection lamp, clock and cigar lighter.

Despite those sanitary distractions, the Big-Q is still fun to ride, after you overcome the initial shock and master the new techniques. On board the Quasar, the novice pilot quakes at the prospect of Sammy Miller U-turns in narrow streets. Moreover, he will experience difficulty in getting his feet down at the precise moment the Quasar stops. Then there's the curious feet-out, knees-bent posture to contend with when balancing the stationary vehicle. Even remembering that the Quasar will fall over requires a good deal of mental concentration. The restricted vision, the invisible front wheel, the air of remoteness are certainly *different.*

But the strangeness passes with experience, and the Quasar starts performing once you stop treating it like a trail bike. On motorways, it's a case of aiming and allowing the Quasar to do the rest. On open, winding roads its stability and speed out of corners are remarkable and the actual speed is 10 mph faster than the impression. With Newell in the cockpit, the Quasar will hold a Guzzi LeMans and the like at bay; with a competent motorcyclist in charge it will devour anything else with 41 bhp. Occasionally the Quasar will accommodate an extra set of elbows, knees and feet to become a two-seater, at the cost of straining the ultimate-tourer description.

At $7220 the Quasar is no bargain for the fellow with a frail bank account. However, Newell and Leaman have a waiting list of 117 anxious customers. Production is running at two a month, and it will rise to five if all goes according to plan. The buyers for the most part are French, rich and egotistic. You can't ride a Quasar if you're an introvert!

Predictably, the Quasar has been tagged "futuristic"; indeed the total-concept cycle may not be that far distant in the minds of safety legislators, once they get tired of messing around with cars. The British road and traffic research people at any rate were highly delighted when "Murphy," their long suffering dummy, survived "with bruising" in the standard 30-mph head-on crunch with a 28-ton concrete block. Murphy was saved by being a long way from the scene of the accident, the relatively slow collapse of the Quasar's front end and its resistance to the end-over-ending.

You may believe the Quasar concept follows the right lines, or you may consider the thing a mad hatter's two-wheeled device. But be warned if you think that traditional bikes are forever. Beware, one Japanese manufacturer has already proposed a five-year standstill on Quasar production in return for the existing design rights.

—Jim Greening