THE PSYCHOLOGY OF SPEED
Why your brain loves thrapping down B-roads

250MPH GAS TURBINE BIKE
First ride on the bike that used to be a helicopter

'I DID 19,650 MILES IN 19 DAYS...
...on a Yamaha R1. Enter the incredible world of Nick Sanders

BIKE

TAIN'S BE[illegible]-SE[illegible]KE MAGAZINE

WORLD EXCLUSIVE

TRIUMPH DAYTONA 675

WE'VE RIDDEN IT. IT'S MIND-BLOWING

BIKES TESTED »**Confederate Hellcat** »BMW K1200S »**Honda CBR600RR** »250mph jet turbine bike »**Kawasaki ZXR400** »Honda Rune »**BMW K1200R** »Aprilia RS125 »**Suzuki Hayabusa** »Honda Blackbird »**Suzuki DR-Z400** »Suzuki GSX-R750 »**Honda FireBlade** »Kawasaki ZZ-R1100 »**Kawasaki ZX-12R** »Triumph Daytona 650

PLUS: EXCLUSIVE DETAILS OF 2006 YAMAHAS

WANNA RACE?

Unless you're sitting on a top-fuel dragster, you're gonna lose. Ben Miller rides the Y2K, a 320bhp freak powered by a gas-turbine engine from a helicopter

Words by Ben Miller **Photography** by Chippy Wood

This is voodoo engineering. In a workshop in the sleepy American South, the glittering swarf, thrum of milling and waft of machine oil are all as they should be. But instead of rods and pistons and crankcases awaiting a rebuild, the benches display drums of curious design.

Cylindrical and fascinating in this half-built state, formed of fine alloy and laced with intricate lockwiring, these are gas turbines. Even still and silent they have an air of alien menace. In helicopters they offer a glut of reliable, vibration-free power for little weight or bulk. On oil rigs they power fire-fighting equipment capable of emptying swimming pools in seconds. But Marine Turbine Technology, whose workshops these are, are fond of finding more unusual homes for these remarkable motors. On the water, in powerboats bought by the speed-crazed, the performance is devastating – superior to an outboard motor in the same way that an outboard beats a pair of oars.

I'm after that same kind of comprehensive one-upmanship. And I want it on the public highway. Runway speed is too clean and easy, devoid as it is of reference points or any sense of wrong. I want menace-to-society flat-out. In short, I need a production motorcycle of absurd performance and here, in this place of fat shrimp, hot sun and sodden swamp, a template 100 years old has been ignored. MTT have rejected the internal combustion engine and built a bike with jet turbine power. In doing so they've moved ballistic into a different ballpark.

Outside, fierce sunlight is vaporising the last of this morning's cool veil of mist. In the dark of the hangar my Y2K, paid for by someone else and due for delivery tomorrow, looks almost normal. It's low and long – the bike sits but a few inches above the polished concrete floor and measures 1727mm spindle to spindle – but there are few external clues as to its outlandish means of propulsion. Resplendent in a deep metallic red, hot-rod flames licking the fairing sides in surely deliberate symbolism, the bike could be a >

»Helicopter power
In here sits a Rolls-Royce gas turbine capable of 320bhp. Loud and hot, it's good for over 230mph

»Mildly afraid pilot
Up here sits a man in search of speed. Hot and petrified, he has no idea what will happen next

THE SPEC SHEET

MTT Y2K

Price	£100,000
Top speed	250mph+ (est)
Power	320bhp @ 54,000rpm
Torque	426lb.ft @ 18,000rpm
Engine	Rolls-Royce Allison 250 series gas turbine
Fuel consumption	6mpg
Available from	MTT 001 3379 240298

> It sounds like a plane and it smells like one too, a sulphurous pong that takes your brain straight to Heathrow

special. But the swingarm, massively engineered and short for the bike's wheelbase, suggests compromise and a longer than average engine. And while the switchgear is as average as it gets – Honda CBR600 – turning the innocent-looking key in the ignition brings a flatscreen display flickering into life. The prototype Y2K was analogue, it's dash of rough aluminium stuffed with dials. By contrast the production bike's 'Smart start' system makes operating this thing utterly straightforward.

'Never forget what it's worth or what you're dealing with'

The centre of the screen shows a feed from the rear-facing camera. Easily dismissed as frivolous, the camera actually makes a lot of sense. Tucked in at four miles a minute, checking mirrors would be difficult. A lifesaver could be fatal. The camera view is flanked by displays of the drivetrain's vital signs. The key readout is percentage, which measures the turbine's operating effort, though speed is worth an occasional glance.

The Y2K idles at 50 per cent. Wind it up and the Rolls-Royce Allison 250 series gas turbine can generate 320bhp and 425lb.ft of torque. While the turbine can spin to 54,000rpm, the output shaft peaks at a more leisurely 6000rpm. Peak torque comes up at just 2000rpm. MTT reckon the bike weighs 227kg dry, of which just 60kg is the mighty turbine. That's a fluid-free power-to-weight ratio of 1.26bhp per kilogram. A Suzuki GSX-R1000 K5 tries its best with 159bhp and 166kg – 0.96bhp per kilogram. Pathetic, at least until you consider bang for your buck...

There can be no more stalling. I've had the Y2K's back-story in full from company president Ted McIntyre. I've been over a stripped Y2K in a build room, marvelled mission-control-in-a-matchbox comple And I've touched the turbine's delicate cowlings in ignorant awe. Now I must ri

Ignition on, killswitch set to run – so f normal. On the right bar a red button fi neutral. Pressing it again re-engages driv A tiny toggle switch under the left bar sh between first and second. Hands do all t work on this thing – your feet do nothin but brace against unholy forces.

Hold down the starter. The bike remai devoid of vibration but an insistent whi climbs in pitch as the starter motor win up the turbine. In the left of the display, percentage ticks up. The noise, while ali is little louder than the fridge hum of a standard in-line four.

At 25 per cent, the turbine actually fi The roar is comic in its intensity. You ca help but smile, though the heavy din an proximity – nobody ever sat on an idlin helicopter – make it unnerving. I'm told owners often feel the same. It sounds lik

Great riding position – if you're tall and heatproof

e and, with a slow shake of the head, you realise it even smells like one too, your net soon fragrant with a sulphurous pong takes your brain straight to Heathrow. ill you must hold down the starter – let ow and the thing will drop right back n to silent. Tempting, I know. Amid the os, the hot fumes and that smell, the iliar controls appear ridiculous – as if a ple of levers and a twistgrip could hope to trol the mechanised fury that's building eath your soft, insignificant form.

y 48 per cent, the starter's done all it can. now perhaps ten seconds since you began you must now take the readout north of er cent with tweaks of the throttle. re's a little lag but the turbine responds a surging, almost comforting whoosh. in the left lever. It acts like a ventional clutch, de-coupling the drive also retarding the engine's output shaft a small disc brake. Thumb the button irst gear and the labyrinthine hydraulics eath you noiselessly engage a clutch pack.

Leave the throttle well alone, check the camera for MIGs and feed out the clutch. Congratulations, you're rolling – lapping a car park and blasting away loose gravel with the 650°C blast of a helicopter engine.

The interstate's 15 miles away; between there and here a back road of gentle bends, big bumps and light traffic. I take first gear up to 40mph before flicking the switch and selecting second. The taller ratio slurs in with all the refinement of a good automatic gearbox. Everything is the same but now everything is different: same turbine whine, same near-prone drag-bike riding position, same meeting-Madonna sense of occasion. But now the potential for speed is different.

The bike's fast in first but in second, the Y2K's reach is extended almost infinitely. From here, flexing the turbine can take you to any speed you desire. Like a 747 on take-off there's a roar, the merest of pauses as potent energies coalesce, then a burgeoning, heavy force of which I can never imagine growing tired. With a serene, life-changing >

Making SUVs and people carriers look environmentally sound

'I made this'

MTT president and Y2K creator Ted McIntyre on the cellphone salute, supersonic speeding tickets and blank-cheque R&D...

How the hell did this happen?

'I was talking with a guy who'd bought a couple of boats from us. I wanted to put a turbine in a bike. He handed me a blank cheque and said that whatever it cost, he wanted one.

'In 2000 we took the finished thing to Daytona, not knowing what to expect. We set up at the gates, bought a few radio-ad slots and put the bike on the dyno. As soon as we fired it up and started doing runs, everyone started coming over. We got worldwide press coverage off the back of that. The thing just promotes itself. Wherever we go we get the cellphone salute – everyone stops to take pictures.

'The second bike we built was going to be mine but one Friday I got a call from Jay Leno [*minted US talkshow host*]. He said he was a member of the more-money-than-sense club and that he wanted it. On the Monday the cheque turned up.'

Who buys a £100,000 motorbike?

'It's 25 to 40-year-old white guys mainly, and the money just isn't an issue for them. They've got flash cars, they've got boats and they want one of these. They use them too – Jay gets around town on his and another guy was caught speeding at 217mph. I think he was pretty proud of the $10,000 fine.'

Do you ride it?

'Oh yeah. When you get out there, it doesn't matter how bad a day you're having – when you open that thing up it makes you smile.'

brutality the Y2K creams forward as if on a fishing line God himself is reeling in somewhere over the horizon. The normal laws of power and drag and diminishing returns just don't apply. Where you must wind up an internal combustion engine, work it until it can give no more and then hook another gear, the Y2K just shrugs out far greater force with none of the effort. As you flash past 100mph, far from slowing, the bike's actually getting into its stride, pulling harder. By comparison normal engines seem suddenly crude and weak.

In the sun, two wide strips of near-white concrete interstate race off to the horizon, rolling gently over low hills. Crossroads mean an ever-present threat of being pulled out on, while high-profile policing means an ever-present threat of cops with guns. Still, I haven't come this far to go steady.

Up ahead there's a break in the line of chugging, 70mph pick-up trucks. In an instant we go. The Y2K's riding position is perfect for assaults on illegal velocity. You lie in your rocket, sheltered behind the big screen, snug in the freight-train stability of a wheelbase that spans time zones. Sadly, Louisiana's appalling roads are less ideal. Even the flat bits are rough and scarred with ridges and dips. Between the concrete slabs, where the heat and flooding have widened the gaps to yawning chasms, tarmac sutures form violent launch ramps for 250mph, stiffly sprung motorcycles.

I home in on 150mph. It's been the work of moments. The Y2K's barely into its stride but I'm spooked. The rising windblast manages to creep over the screen and down the back of my neck, blowing my jacket up like a red leather airbrake I can't close. At the same time we clatter over a monster bump. The bike stays true but I roll off, passing two patrol cars just as we slip back down to sane speeds. Then the fuel-warning display starts flashing: 30 litres in as many minutes.

On the freeway you're divorced from the bike's fire-and-brimstone fury by speed and open space. Now the riverside town of New Iberia is about to lose its midday serenity.

It is hot, damn hot – a heavy, muggy heat that breeds apathy and daytime drinking in dark bars. My jacket is sodden. Sweat stings eyes already blinded by sun glaring off pale concrete. Shell-shocked pedestrians aren't nearly as funny as the response from drivers. Unable to pinpoint the source of the noise from within their boxes, heads poke out, scouring the sky for low aircraft.

Now the bike is getting hot. The clutch/output brake goes. The fluid may be Brembo finest racing brew, rated to well over 300°C, but it's not up to this. As the lever loses all resistance, the bike starts chugging in awkward surges. I stop in the shade, helmet off in time to hear the delicious whine of the turbine spinnng down. 'You on fire man! You on fire!' An old fella ambles over, gesticulating at the black smoke spiralling from the Y2K's pipes. I explain and, once

ated, my man delivers his verdict:
n, that is a beautiful machine.'
he crowd of one soon swells. When it's
furiously dividing distance over time, the
makes great street theatre. Some have
d of it but nobody can believe the price,
power or that I'm riding it. Neither can I.
's been one of those days, one that'll
ain vivid even under the grime of passing
s. I didn't reach flat-out, didn't even
e close. Back roads back to the factory
mised straights without junctions but the
suffered a fuel leak, a product of the heat
crash landings over the freeway bumps.
now I'm haunted, stalked by a
at if?' the size of Texas. In fitful sleep
eam of riding a Y2K at Bonneville, its
ings – orange like Chuck Yaeger's
ersonic Bell X-1 – streaked with 250mph
. I arrow across the dead-flat crust, the
son at full song, a speeding spec in a
d of bright white and deep sky blue.
haps there I'll find fast enough. ■

JET BIKE TECH

Jet turbine engine
At the front of a jet turbine, blades draw in air and compress it before passing it through to the combustion phase. Here injectors blast fuel into the air stream and set it alight. The whole shebang then exits through more blades at the rear of the turbine, driving an output shaft – this is the crucial difference between a helicopter engine, like the Y2K's, and a jet engine for a fixed-wing plane, which has no output shaft.

Gas turbine engines produce more power than piston engines of the same size and weight. Because they're intended for aviation use and feature no vibration, they're also very reliable. On the downside, turbines are pretty thirsty and they're expensive. The Y2K can run on diesel but it drinks it hard (8mpg). Components spin at very high rpm and the temperatures involved are high, demanding expensive materials and production processes. Jet turbines are also more suitable to applications with a constant load.

The maintenance schedule is very reasonable. Engine cleaning, recommended every 1500 miles, is as easy taking off the fairing, squirting some degreaser into the idling turbine and rinsing it with water. The turbine's oil needs changing annually.

Two-speed transmission
Similar in principle to an automatic car gearbox, the Y2K uses hydraulic clutch packs to select one of its two ratios. First is 2.75:1, second is 1:1. The drive then passes through 90° before hooking up to the chain final drive. Controlled by switches on the bars, the transmission's easy to use, arguably easier than a conventional bike because neutral's only ever a button-push away.

Wheels, tyres and brakes
The Y2K runs on 17in carbon-fibre Dymag wheels from little old England, with Pirelli tyres – 120/80 at the front, a sizeable 200/50 at the rear. Brembo 320mm discs and 4-piston calipers feature at both ends – two at the front, one at the rear. They're good and they need to be. Not only is the Y2K very fast and fairly weighty but its also devoid of any engine braking.

Vast and beautiful aluminium chassis
The beam-type frame is a meticulously engineered work of art, as is the swingarm. Built up of aluminium extrusions and machined parts, the frame consists of the two main side spars and a further two running over the top of the engine, under the carbon fuel tank. Sections of the main spars also serve as oil tanks for turbine and transmission lubricant. Each frame is the product of 40 man-hours – the welding is exquisite.

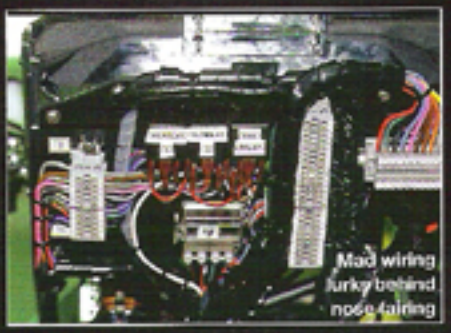
Suspension
55mm upside-down Storz forks, set at a lazy 27° head angle hold the front wheel. The swingarm is controlled by a fully adjustable Öhlins shock. Both are set-up firmly and struggle to cope with the terrible roads around the firm's Louisiana HQ. Though in truth, little short of an adventure bike could.

Bodywork
The fairing, seat unit and fuel tank are all carbon fibre, laid up in-house at MTT. They're thin, with a degree of flex that makes them tough. The carbon cloth goes stiff with the application of a resin, much like glass fibre, but MTT tried several before they found one capable of saying firm in the face of the turbine's incredible heat.

Electrics
A wiring nightmare, the Y2K is packed with cable and loom. The most crucial system is the FADEC – Fully Automated Digital Engine Control. Standard fitment on all modern jet aircraft, FADEC monitors a range of parameters and delivers thrust accurately in response to throttle inputs. The system also looks after the engine, ensuring safe running and long component life.

My Shell station's fresh out of Avgas...
No problem – fill her up with diesel. Get a points card and you'll be in patio furniture for life.


Big power, little swingarm


Mad wiring lurks behind nose fairing


Rear-view telly shows what it blows away