A couple of hours west of N'awlins, nestled in amongst the sugar cane fields, bayous, swamps, drive-thru daiquiri stands, and within sight of the trees that line the Intracoastal Waterway, sits Marine Turbine Technology (MTT), purveyors of some truly interesting transportation.

A few miles offshore, all around Louisiana, there are hundreds, if not thousands, of oil rigs. How do you get people and equipment and supplies to them in all sorts of weather? Helicopters. Lots of helicopters, lots of swashbuckling veterans of foreign wars to fly them. And if you came up in St. Mary's parish, you've been bobbing around in boats since before you could walk, not necessarily by choice; even the solid parts of St. Mary's seem semi-liquid. Airport signs say Elevation: 2.

Ted McIntyre is the man behind MTT and lots of other things. After years spent catering to the lifestyles of the rich and famous with boats and airplanes, and a little acquaintance with the gas-turbine powerplants that power all those helicopters, it seemed more than natural to combine the two. That's MTT's main business: outfitting boats--OK yachts--with gas turbines. Back issues of Boating, scattered around MTT's offices, are filled with photos of staid-looking motor yachts trailing huge rooster-tails of water, piloted by prosperous, hairy-chested gentlemen wearing hugh grins--Ted's handiwork.

McIntyre organized and took part in one of the longest-running races in North America in 1990--the one up the Mississippi from New Orleans to St. Louis--in a 31-foot Warlock powered by two 650-horsepower Lycoming turbines. (Period photos show Ted as a better-looking and younger Jan-Michael Vincent type.) A nasty incident with a six-foot barge wake sidelined Ted's "boat", but one Howard Arneson covered the 1039 miles in 12 hours.

40 minutes and 50 seconds--7.5 hours faster than the previous record. Arneson's 32-foot catamaran was powered by a single 300-pound General Electric T-58 turbine producing 1325 horsepower. Pistons, to these guys, are positively archaic.

When you think about it, it's amazing that reciprocating piston engines still exist. The 14,000-rpm fours that power current Japanese 600s operate on the same prinicipal as Watt's first steam engine, for God's sake. The little pistons in an R6 Yamaha are hammering up and down 233 times per second, exerting tremendous forces on crankshafts, bearings...it's astounding that the things live more than a few hours. A turbine, on the other hand, is not much more than a jet with a gearbox: Once the fire's lit, what you have is a blowtorch spinning a few fans and a couple of shafts, riding in four or five bearings lubricated by oil that's never contaminated by combustion. Spinning is intuitively simpler than reciprocating, isn't it?

The biggest problem with turbines is they're way expensive, mainly because there are a lot more cars on the road than there are helicopters in the sky. Then, too, people who fly are much more particular about maintenance. After a certain number of hours, that turbine has to be yanked and inspected and maybe overhauled, whether it's working fine or not. Sometimes it's cheaper to sell the used turbine and buy a new one, particularly if some petroleum company is picking up the tab. And just because Allison Rolls-Royce doesn't want the thing used in an aircraft anymore doesn't mean it can't live a long, long time (and turbines do) in a land or water-going vehicle, where the rare failure would have much less dire consequences, and also where the turbine is way understressed. Enter MTT.

With earplugs and a helmet it even seems really quiet, 'til you pull up to talk to someone. Their mouth moves, your mouth moves, no sound registers.

It's all relative. I never had any idea how positively prehistoric the piston engine is until I went for a ride on MTT's Y2K turbine cycle.

All's you do, see, is turn on the ignition key, and hold down the starter until the compressor stage of the turbine revs up to 20,000 rpm or so (that would be MTT's patented "Smart Start"). You hear click click click as the igniter (sounds just like the one on your gas grill) light the fire--and then it "My God, a Lear jet's about to land on us!"

It's a longish stretch to the handlebars as you taxi, er, ride to the beginning of the mile-long runway at the Perry Flying Center (check for airplanes). Why's this bike so long? Whirrrrwhistlewhirrrr. While the 250-series Allison

Rolls-Royce turbine "ground-idles" at 68-70 percent of its 60,000 revs when in a helicopter, MTT has lowered the idle to around 50 percent in its motorcycle, and if you ease off the brake it'll whistle along nicely at 30 mph or so. A light squeeze of the brake stops it again. (There is a clutch, but you don't want to use it to launch the bike, as it will burn up in about 0.2 seconds when the turbine's on the boil. You use the clutch to decouple the rear wheel from the 60,000 rpm turbine when it's time to slow down from big speed.)

Cake. I can ride this. Whirrrwheee. With earplugs and a helmet it even seems really quiet, 'til you pull up to talk to someone. Their mouth moves, your mouth moves, no sound registers. Like sneaky-fast, the thing is eerie-smooth-loud, but in no way obnoxious.

Point 'er downwind then (check for airplanes first) and open the throttle a little. You've been in a jet haven't you? You know how the thing moves slow at first, then picks up speed, then leaves the ground? Right. But have you ever been in a 460-pound jet?

The Y2K doesn't exactly leave the line hard; it sort of saunters off the ropes like Muhammad Ali, and you wonder why you were apprehensive. Then it gets to about 40 mph, the gentle whirrwhoowhee suddenly turns all serious bass-rumbly, the turbine asks your lungs if it can please borrow their air, and Holy Mother of God why did we ever leave Bourbon Street? Oh, that's why it's so long... If it were any shorter, this bike would rotate and leave the ground. There's a bit of delay between throttle and engine. Roll it open: phwoOOAAAAAAARR, oh dear, maybe close it a little...PHWEEeeerrrr.

I like the History Channel. I like the aircraft-carrier stuff, your steam catapults flinging planes off the deck, your F-14 Tomcats climbing straight up, all that type of testosteroneous stuff, and I have flogged Hayabusas at the dragstrip and so thought I knew, roughly at least, the sensation.

Did the Poles understand the tank? Did Custer understand the depth of Native American disgruntlement? Did President Clinton understand cigar etiquette?

Allison rates the 1960s-surplus tubine in the Y2K at 317 horsepower (at 6000 rpm at the output shaft). That's plenty. But 425 foot-pounds of torque, at 2000 output-shaft rpm (about 40 mph), is enough to make you wonder what's keeping the rear Pirelli's tread attached to its sidewalls.

At 60 mph the thing is pulling like a Hayabusa wide-open in maybe second gear. At 100 mph it's pulling harder, and your heart and collarbones are squeezing Bourbon Street out of your damp-sponge of a flammable liver against your butt against the seatback--and when the Louisiana Highway Patrol car with the radar (friend of Ted) flashes past you know you've got a half-mile of runway left (and really good brakes), but your wrist refuses to hold the throttle open any more because the thing is pulling even harder than it was a couple of seconds ago.

Part of it is the noise. This bike is making honest-to-God jet-fighter noise, we're on the runway, I have no pilot's license, and like I learned, this sort of acceleration just unhinges your thought process. All the blood rushes out of your brain and into your sphincter. (In Franklin, Louisiana, the next day, the visual and aural stimuli were even more incongruous. Say, who's driving a jet down Main Street? Interestingly, everybody in town turned out to see the bike except the cops. You have to like that.)

At the airfield though, even with my rolling start and on-again/off-again throttle uncontrol, I registered 161 mph on the cop's radar gun.

Christian Travert, product of France, constructor of the bike and chief test pilot, didn't register on the cop's radar at all. Actually there were two cops, and Christian didn't register on either's speed gun. That's because things traveling more than 200 mph don't register on most commonly used radar guns.

Christian was spooling the turbine up to 40,000 or so before releasing the brake (somehow it never occurred to me to do that), and he was keeping the throttle open. I think we can safely speculate that he was over 200 mph, in about a half-mile or runway.

Consider that strapped onto a Dynojet 150 dyno, the bike ran a 7.16-second simulated quarter-mile. OK, that's fast. But on the same dyno run, the Y2K made it to the half-mile mark 3.7 seconds later--that's right, a 10.88 second half-mile. Maybe faster, but the the rear tire was slipping/sticking on the dyno drum at top speed. With a long enough straight, there's little doubt the thing would go much, much faster than the 227 mph it's geared for now.

Although he built off-road racebikes in France (and rode with guys like Stephen Peterhansel), Travert understands high-speed motorcycle dynamics very well, thanks. Y2K, even under full power, tracks like a bullet train. You'll note that the swingarm and the countershaft (output shaft) share a common pivot. That means power into or out of the drive chain doesn't affect chassis attitude. And the strangest thing is the complete lack of

vibration. You hear the turbine but don't feel the turbine, except for the fact that it's trying to smoothly compress all your vertebrae into one dense donut. And it's the smoothness of power delivery that lets tires survive on the bike's Dymag carbonfiber rear wheel.

The most difficult part of designing the Y2K was flipping the turbine over so as to route the exhausts downward. Once that was done, it was relatively simple to extend the exhausts rearward, so as not to incinerate the rider's feet. In fact, louvering the exhaust extensions admits plenty of air, which cools exhaust gas and burns any remaining fuel, rendering the thing quite clean. (It'll burn anything flammable but seems to prefer #2 diesel.) An 8.5 gallon tankful will get you maybe 150 miles down the road, and if you get stuck, 32-ounce daiquiris sell for five bucks in St. Mary's parish (always on sale).

Yes, you can ride Y2K on the street--in Louisiana anyway-- and no worries about overheating should you get caught in traffic. This turbine is air-cooled and how: At top whack, the compressor sucks in 52 cubic feet of air, or four pounds per second. Christian figures that's why top speed is mainly dependent upon gearing: Once rolling, just like a jet, Y2K sucks its own hole in the atmosphere, and its dual exhausts close it up behind.

Above, left: Production Y2Ks will have much hipper (color) rear-view monitors.
Above, right: The bike has two big batteries: the front one sits next to the turbine's compressor stage. At nearly 60,000 rpm, about 52 cubic feet of air per second moves through that steel-mesh strainer.

But then, that appetite for air is also the hard part. Turbines like clean air, and there's not much room in a motorcycle for the sort of air filter Y2K really needs. The resulting compressor stalls are kind of cool, though: Pop pop, whooooooOOOOSSHHHhh.....

Sadly, Y2K is not for sale. Happily, by the time you read this, Christian will have build seven more bikes which will be better, slightly smaller and lighter, and of course faster. Two-speed automatic planetary gearboxes--with first gear good to 80-ish mph--should make low-speed acceleration just as invigorating as what's up top in the single-speed prototype.

What will Ted and Christian do to amuse themselves next? For one thing, there's a humongous offshore raceboat sitting engineless outside MTT in the weeds, which I assumed was some sort of derelict wreck. But when we looked inside, the thing was packed with machined aluminum bulk-heads and looked as high-tech as the space shuttle, in fact. No O-rings.

"Ah, the Cougar," Christian says.

Left: Frenchman Christian Travert built the bike and remains the only human to hold the throttle wide open.

MTT owner Ted McIntyre's toys include a turbine-powered Chevy S10 pickup and this 1500-horsepower, twin-turbine airboat. "In water it'll do 50 or 60. On mud or wet grass , maybe 90," Ted says.

The plan, see, is to mount a couple of big turbines in the 50-foot offshore beast, which will get it up to 140 knots or thereabouts, at which point there should be enough airspeed to light the two Air Force surplus F-14 Tomcat engines (on order). "When they light," says Christian, "I do not want to be in that boat."
Man, I don't even want to be in the same ocean.
Ted McIntyre and his crew are crazy, but in a good way.

No pistons, more power

MC's turbined technical editor tells all...

Small but whirry: A surplus Allison R-R 250-series C-18 turbine weighs 136 pounds but makes 317 horsepower and 425 foot-pounds of torque.

All internal-combustion engines--pistons or turbine-- have two things in common: First, their power output is basically a function of air/fuel mixture burned per unit time; second, efficiency rises with increases in pressure ratios. The crucial difference here is that the piston engine does its work sequentially while the turbines processes are continuous.

A four stroke piston uses 180 degrees of crank rotation to fill its cylinder; then another 180 degrees to compress the charge; a third half-turn to extract work from the burned charge; followed by a final 180 degrees to clear the cylinder so the whole 720-degree process can be repeated. Turbines take in air, compress it, release it into a combustion chamber where fuel is added and burned, and the exhaust products drive other turbine blades. Part of the power goes to spin the compressor turbine; the rest goes to jet thrust or, in this case of the turbo-prop, to drive a turbine section geared to an output shaft. Details vary: Output can be taken directly from the main turbine shaft or, more commonly, from a separate turbine on its own shaft.

Pound for pound, piston engines just aren't in the same horsepower class as the turbines, due to the later's great capacity for burning volumes of air/fuel mixture per unit-time and low weight. Reciprocating stresses (like those of a piston engine) have to be contained by plenty of heavy structure.

And yet, even without the enormous difference in manufacturing cost, we can be confident that piston engines will prevail in motorcycles. Why? Simply because the turbine's compression ratio is speed-dependent. That magnificent 10.0:1 pressure ratio falls to maybe 1.5:0 at low speeds, and it will suck up fuel like it belives you own your own oil wells. This also means sluggish throttle response. Be glad the Y2K turbine bike is not in our future; you wouldn't like one if you had it, no matter what Mad John Burns says.

-Gordon Jennings