



## BERLINETTA MOTORCARS' TURBO FERRARI 308 RACER

by John Matras  
PHOTOS BY THE AUTHOR



"We came in sixth out of eight in class in the one [race] we ran in '92, and naturally won some prize money and won some points for Ferrari in the manufacturer's championship, probably the only guys who have done that for Ferrari in the GT class for a long time."

If Doug Pirrone seems to boast, it's not without due cause. As he points out, not too many people have raced GT Ferraris lately—except against other Ferraris. Just to take on the megabuck Nissan and Ford teams in IMSA's GTS class was a moral victory, and in truth about all that Pirrone could hope. And he still gets a kick out of telling about the Roush Ford crew clocking him with radar at 164 mph on Lime Rock's pit straight. That's fast for Lime Rock, which is only 1.54 miles long overall. Comparison: The Roush factory-backed Mustangs were only three miles per hour faster.

Ironically, Pirrone hadn't built it as a race car from the start. It left Maranello as a 1976 308GTB, one of the early fiberglass cars, and Pirrone, owner of Berlinetta Motorcars Ltd., a Long Island-based

restoration and Ferrari specialty shop, wanted a car to drive at the Ferrari club events he frequented. "I couldn't afford a (Ferrari 512) BBLM or something like that, a 250 LM, so we had to build it," explains Doug. "It's been refined since then. I would like to refine this further and put [the] pistons, connecting rods and cylinder head studs, and all the good stuff that's in [a customer's Testarossa]. Then I could run this thing at least 30 [pounds of boost]. Maybe a touch over that. But we want to creep up on it, in stages."

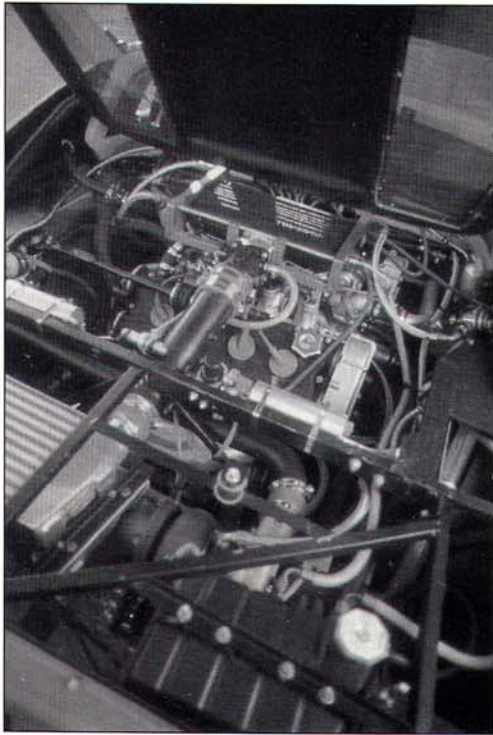
Thirty pounds of boost? But the 308 didn't have a turbocharger. What's going

on? Well, "track cars" are run-what-you-brung things—providing basic safety elements are met—and because Pirrone wanted a fast billboard for his shop—as well as a personal toy—the car was built for speed. Says Doug, "We went the turbocharged route because we wanted to make a big splash at Ferrari club events."

The 308 made a splash. It pulled a 512 BBLM on Pocono's long front straight.

But then, Pirrone confesses, he decided

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he wanted to race the car. But to do that with the SCCA, he'd have to use the stock 2-valve engine with no turbo - and he still wanted to go fast at Ferrari club events. "The class it was eligible for," Doug confides, "was the IMSA GTS class with the turbos on it."

"So we took some more weight out of it...with [a] removable front and rear frame, also made that way for replaceability at an event. If you got hit you don't have to go home if you brought another one with you."

With the subframes came a new rocker arm front suspension, with the front shock absorber/coil springs mounted

inboard, using remote reservoir Fox racing shocks. Anti-roll bar bias is adjustable on the fly from the cockpit.

Ride height is easily adjustable, and the suspension is also droop limited, i.e., preventing over-extension of the suspension. Onboard air jacks—one at front and two at the rear—were installed for faster pit service, and per IMSA regulations the car has a dual (fill and vent) dry break fuel filler system. And, of course, there's an onboard fire extinguisher system.

Pirrone also developed his own removable lightweight panels, using the 308 as a buck. A local shop, a remnant of Long Island's erstwhile aircraft industry, made the molds and the panels for the racer. The body panels fit over a full roll cage for the cockpit.

Brakes use JFC Grand National-style stock car calipers with NASCAR-style "Martinsville" rotors, so named because the Virginia short track requires more braking than other roundy-round circuits. Still the stock car brakes, good as they are, are less effective than, say, road racing AP or Brembo calipers, which Doug would prefer. Those, however, cost about ten times as much. The discs are air cooled, the fronts ducts equipped with a water mist spray that cools the incoming air via evaporation.

Liquid water doesn't touch the brakes. Brake bias is adjustable from the cockpit.

The clutch is standard 308 fare as is the transmission. Doug found the clutch and transmission adequate, particularly if the former were switched to a double-disc carbon-kevlar unit, which Doug plans to do the next time the clutch is out. He used the stock disc for racing, but he admits that with the power the engine is producing, it does require finesse and it won't take abuse.

Power. That's one of Doug's favorite subjects. The racer has a remarkably stock dohc four-valve engine from an '83 308. The only internal changes are (1) a wider

second groove and ring on the pistons and (2) notching the side of the big end of the connecting rod to spray oil on the piston bottom for cooling.

Externally, Electromotive's electronic fuel injection is used, computer controlled and programmable. The system also times the distributorless ignition, fired from four coils for the eight cylinders. The timing disc is camshaft pulley mounted. A dry sump system, it's pump driven off the crankshaft, and was designed inhouse by former house engineer Don Wolf. A triangular hard rubber key on the crank end fits a triangular metal drive, protecting the pump from shock loadings, and it has been completely reliable. Wolf also adapted the electronic control system.

Of course, it's all prelude to the turbocharger. Engine exhaust exits through the standard manifold, which is flowed and heat insulated (originally for emissions but also good for the turbo) to the turbo and then out the back. Cool air to the compressor side exits to an intercooler mounted horizontally at the back of the engine compartment. It's cooled by ducted air, though Doug says that if money were available, he'd replace it with a larger unit and reposition it for greater effectiveness. From there the charge is routed past a pop-off valve to the standard 308 QV airbox. Boost is adjustable, but because Doug doesn't even trust his own will in the heat of battle, the control knob is in the engine compartment.

Running at Lime Rock, the 308's boost was set at 16 psi but still managed to match or better the acceleration of the Roush Mustangs and Miller's factory-supported Nissan. From published reports that those cars made on the order of 650 bhp, Pirrone figures the 308 at least equaled their output with even more potential. With an engine rebuilt internally for racing conditions—pistons, connecting rods, O-ringed head, etc.—maximum boost could be dialed up to 30 psi and horsepower cranked up even higher.

Pirrone notes that the Ferrari V8 has more potential than its Ford or Nissan rivals: "It's got eight cylinders instead of [the Nissan's] six. The inherent design of the car is such that I can get higher rpm out of this engine. Eighty-five hundred rpm is easy; [the Nissans] run theirs to about 7500. The Roush Mustangs are a two-valve four cylinder, basically a Ford 2.3-liter Pinto engine turbocharged. They don't turn a lot of rpm because of heavy pistons, and you've got 2.3 liters with only

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four cylinders. This has three liters with eight cylinders, the Nissan has three liters with six cylinders. So each one of the Nissan's pistons is heavier than this. Each one of the Roush pistons is heavier than this. This is more conducive to high rpm. Roush Mustang is only a two-valve engine; each of those valves is heavier, they don't move as fast. The more times you can go through a power stroke-per minute, the more work you can get done per unit of time; that's the definition of horsepower."

It was good enough at Lime Rock for lap times (on the "old" course) of 57 seconds. That's well behind Millen and his 300ZX, which turned 50-second laps. But, counters Doug, "With me driving, if I had the money to put the real good brakes in it and all the real good stuff in it, and buy all the real expensive tires and keep changing them for each session—and some more driving practice—I could probably get the car down to a 55, maybe a 54. So I know with a guy like Steve Millen driving it, he could probably get the car down to a 52, maybe a little less. So it's pretty competitive."

And with the "ten million dollar a year budget" of the regular teams—instead of the \$500,000 Pirrone has into the car—the Berlinetta Motorcars 308 could run heads up with the other racers. Right now, the car is used for Ferrari track events, its shrieking whistle attracting more attention than a round of incoming. Pity any driver of a megadollar exotic who sees this four-wheeled Sidewinder growing fast in the rearview mirror.

More's the pity that a funded, first-class effort can't be made in IMSA's lower classes. Moral victories are good, but the real thing is so much better.

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