This 308 QV's appearance speaks softly, but its 3.5-liter V8 strikes a different note.

STORY AND PHOTOS BY ZACHARY MAYNE

BIG STICK

Most Ferrari enthusiasts have one model that they consider their favorite. For Washington resident Steve Thayer, that model is the 308. He likes the car so much that he has purchased no fewer than *eight* examples, starting with a black 308 GTSi in 1985. In the intervening years, he bought a few 328s, a 360 and an F430, but always returned to the 308. Today, he owns three of them.

"I think the 308 berlinetta is one of the most beautiful Ferraris ever produced for use on a public road," Thayer says. "It has a combination of curvaceousness and angularity that you find in a runway model. A lot of people own Ferraris because they are beautiful, me included."

There's more to this story than just looks, however. "My cars are driven regularly, because that's the point," explains Thayer, who also races vintage Porsche 911s up and down the West Coast. "The 308 is an almost perfectly balanced sports car. It's unbelievably stable at high speeds. The pedals are perfectly placed for heel-and-toe downshifts. The gated shifter is right out of a 250 GTO—talk about bloodlines."

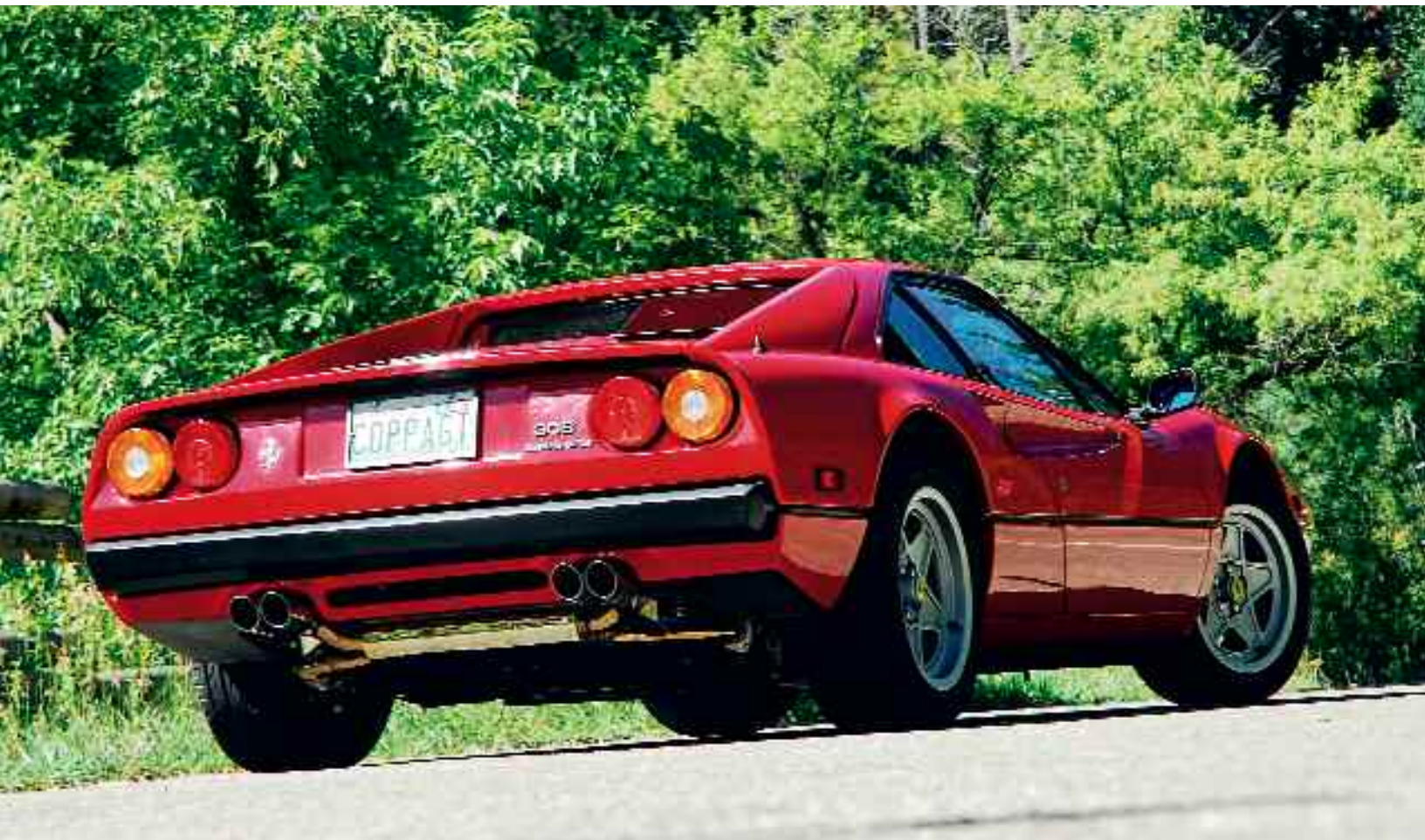
Thayer bought our featured car, a European-specification 1984 308 GTB Quattrovalvole (s/n 44263) in May 2004. "I bought the car from a gentleman in San Diego with the express purpose of restoring it and competing for the Coppa GT Driver's Award at the 2005 Ferrari Club of America National Meet," he says.

At the time, the 308 was wearing aftermarket wheels and suffering from deferred maintenance. Thayer immediately sent it off for a full restoration, which saw the suspension removed and refinished, the body repainted in its original Rosso Corsa color, the worn interior reupholstered and the mechanicals brought back up to snuff. Soon thereafter, Thayer achieved his goal by winning that Coppa GT award.

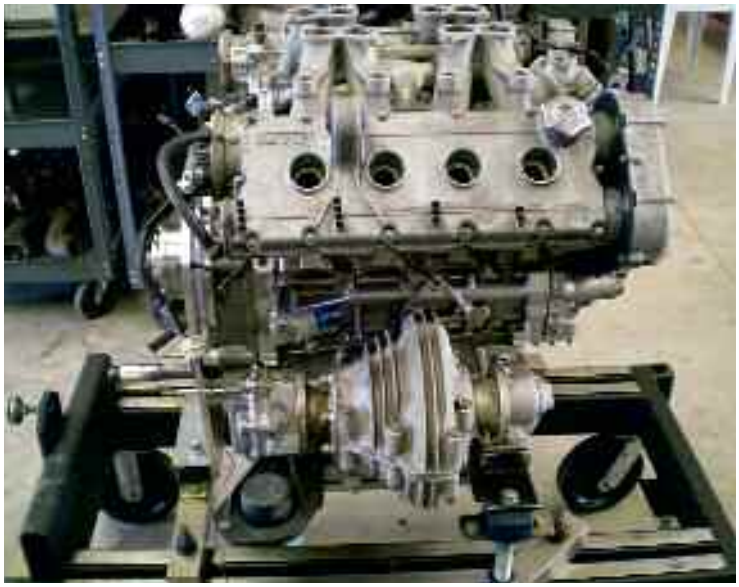
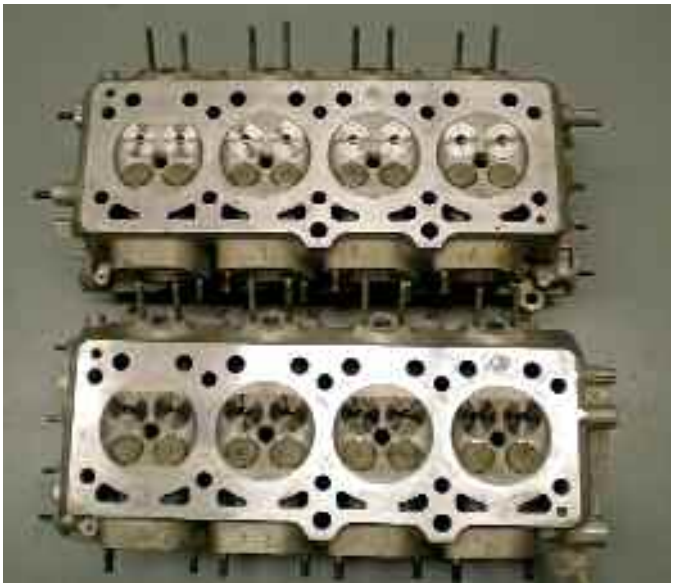
As much as he likes the 308, however, Thayer is the first to admit that the model isn't perfect. The biggest issue? At 240 horsepower, the QV's 3-liter engine, the most powerful of the 308 V8s, doesn't deliver the goods by today's standards. "The 308 is a true driver's car, but it just don't have a lot of power," he says with a shrug.

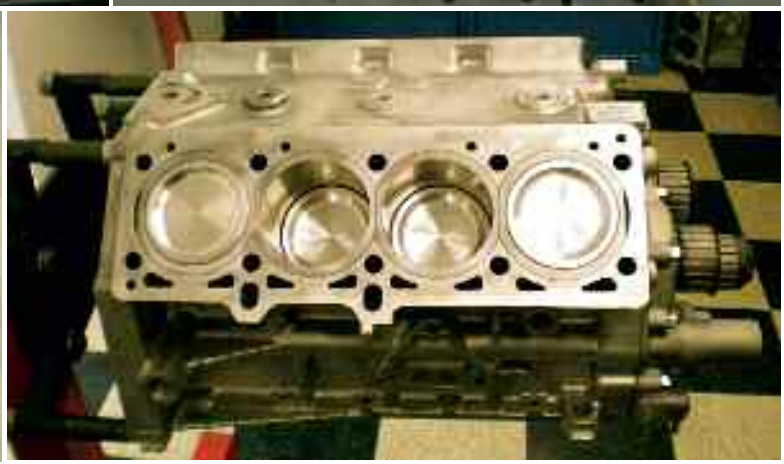
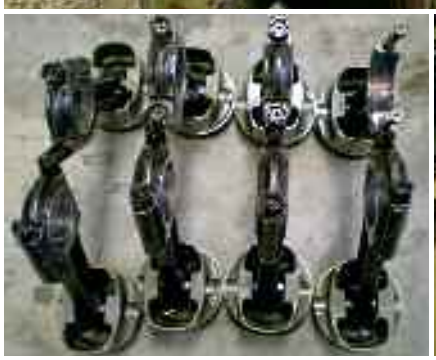
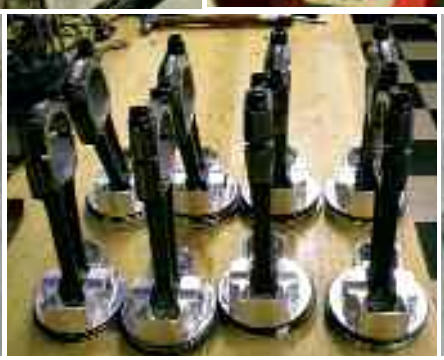
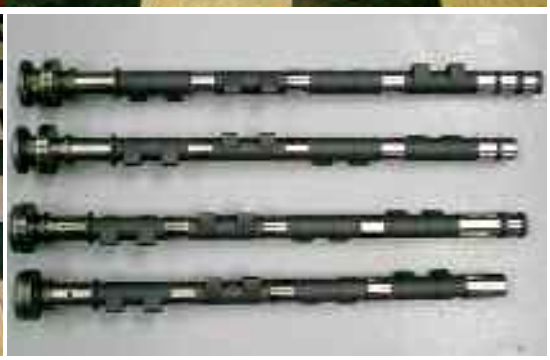
Thayer is not the first owner to wish for more ponies, of course—I've seen 308s fitted with everything from hotter cams to turbochargers and superchargers to 360 Modena engines—and he actually already owns a pumped-up 308, a Euro-spec 1979 GTB that puts out 270 horses thanks to cams, high-compression pistons and a free-flow exhaust. (In case you're wondering, his third 308 is a U.S.-spec, fiberglass-bodied 1976 model.) For the QV, he wanted to push the envelope further. "The idea was to vastly improve horsepower and torque while maintaining the appearance of the factory engine," he explains. "And since it now makes over 300 horses, mission accomplished."

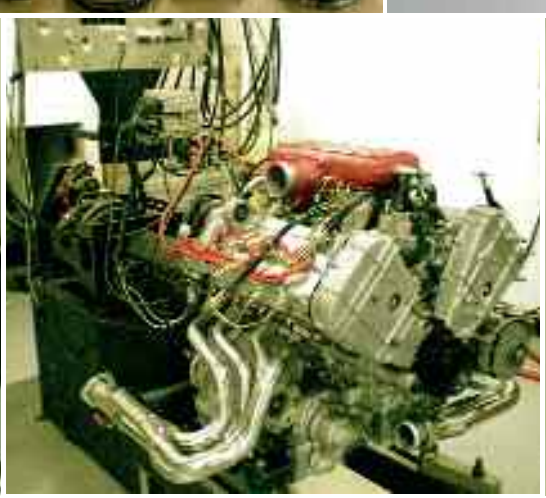
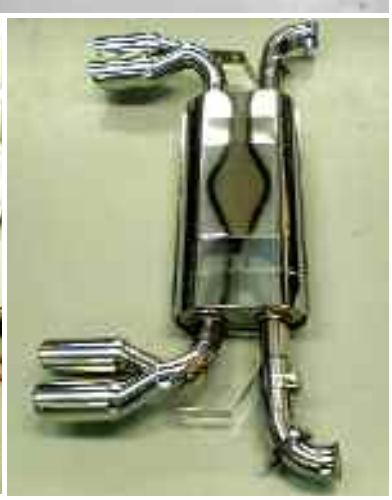
The secret? The engine was bored and stroked to 3.5 liters



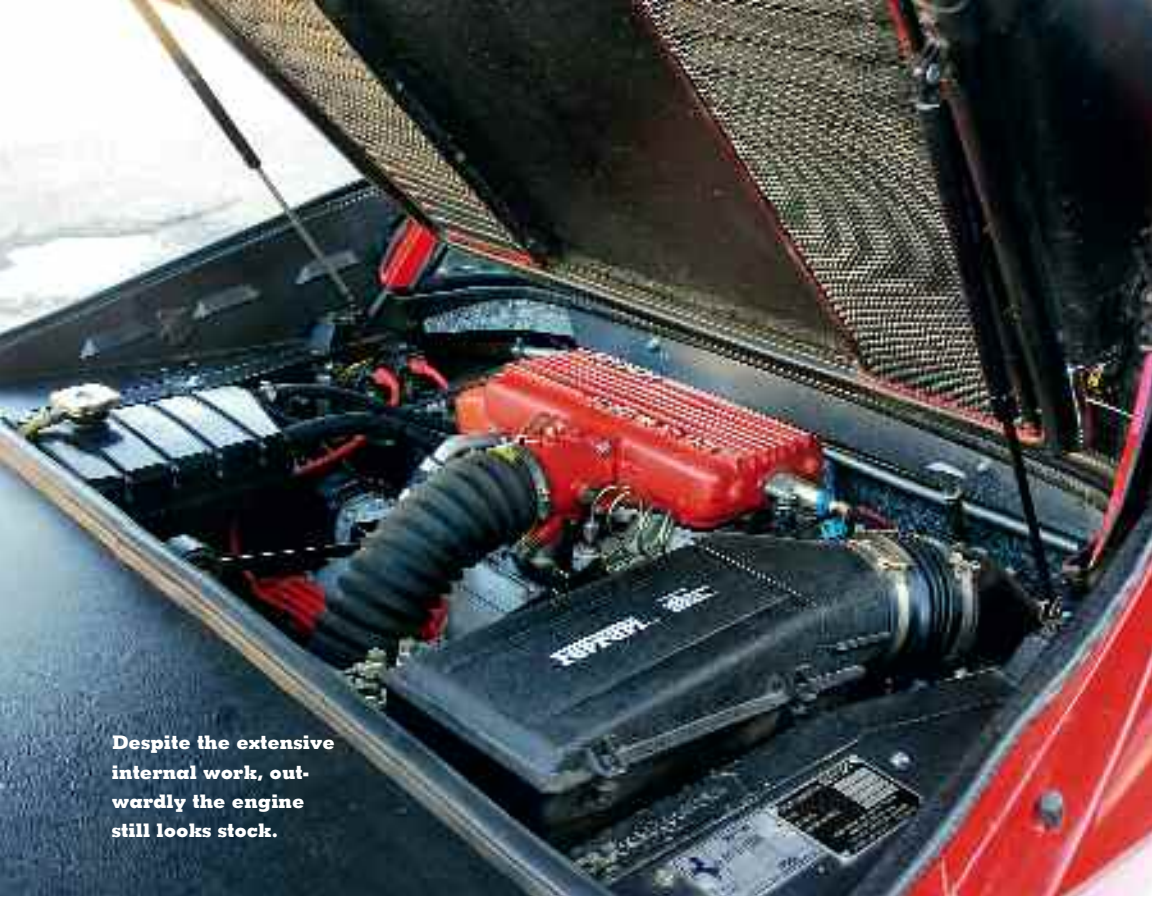
Steve Thayer's Euro-spec 308 looks stock from the outside, but it's a different story inside the engine. The heads received larger exhaust valves and more aggressive camshafts, while the block was fitted with larger pistons and an F355 crankshaft. A custom aluminum flywheel was also added. When bolted to the engine dynamometer, the reworked 3.5-liter V8 produced 303 horsepower and 260 lb-ft of torque.

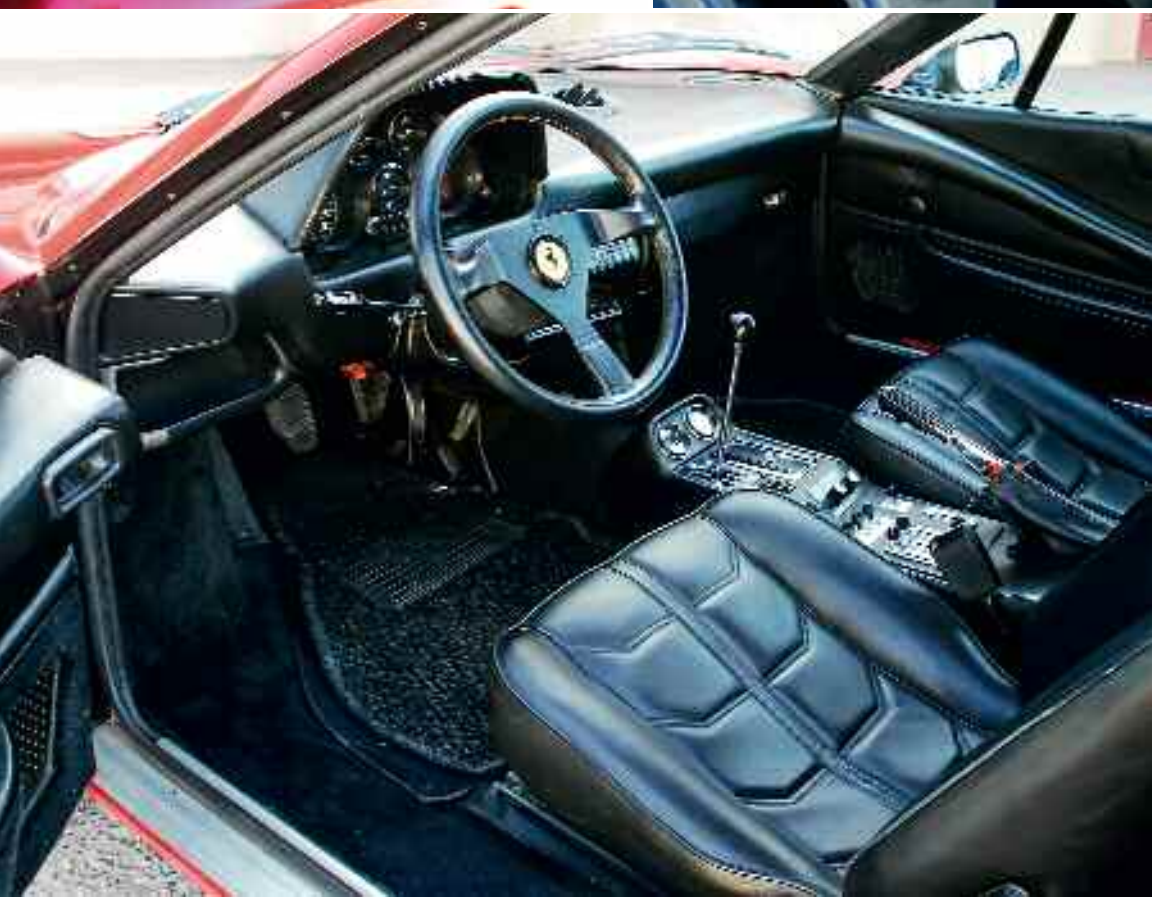





PHOTOS THIS PAGE COURTESY CAROBU ENGINEERING



Despite the extensive internal work, outwardly the engine still looks stock.



of displacement, thanks to larger pistons, an F355 crankshaft and some extensive work by Carobu Engineering.

According to Tate Casey, who co-owns Carobu with Bert Wehr, the idea of increasing the 308's displacement came about as much by chance as anything else. A couple of years ago while rebuilding a 360 GT race engine, says Casey, "We noticed that the bore centers and the main bearing saddle spacing and size for

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THE V8'S MID-RANGE HOWL MORPHS INTO A HAIR-RAISING SHRIEK BY THE TIME I DIP THE CLUTCH AT 7,200 RPM. THIS ENGINE FEELS STRONGER THAN A 348'S, AND DISPLAYS A SIMILAR QUICK-REVVING RESPONSIVENESS

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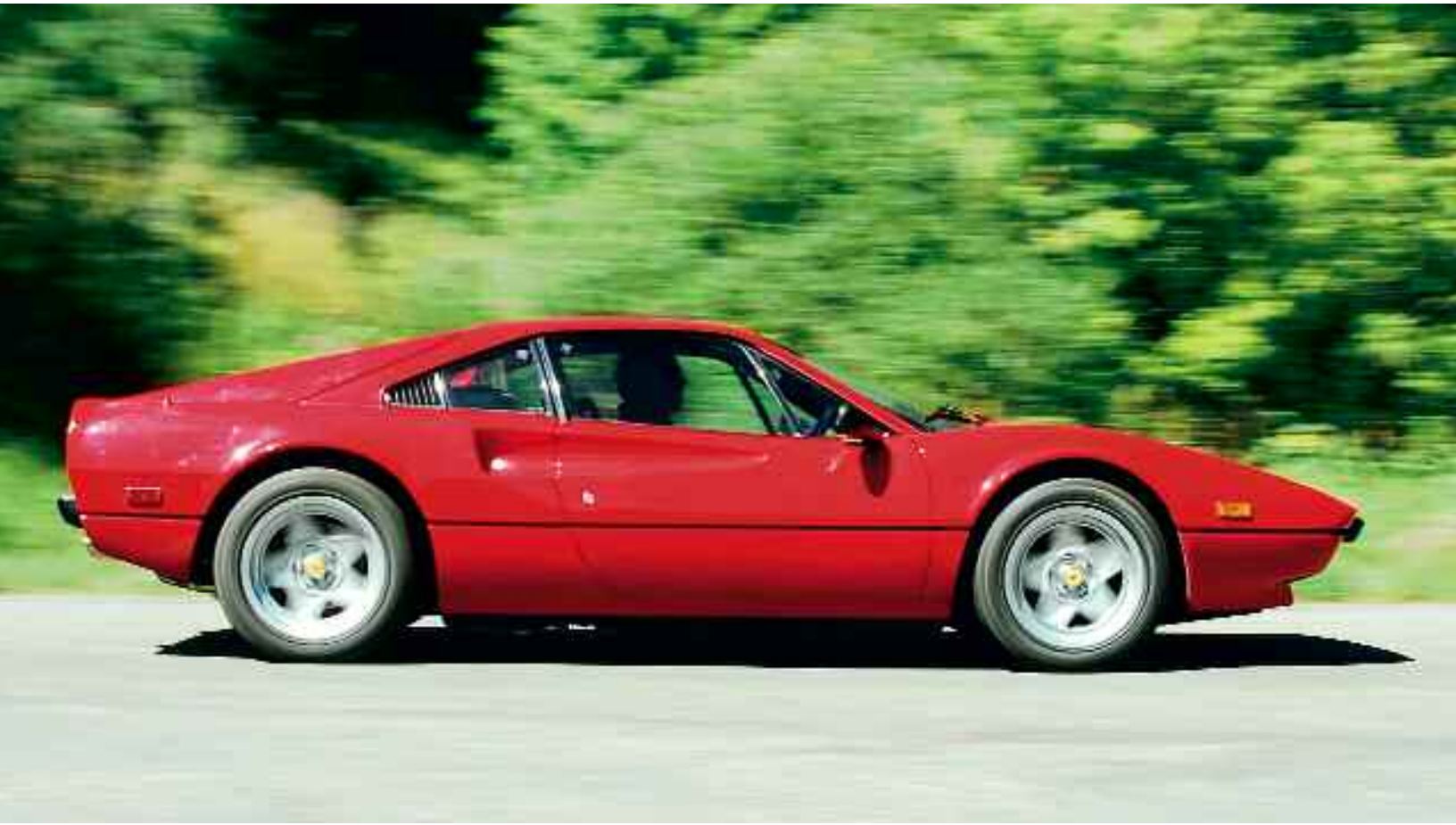
the 360 engine and the 308 engine were the same." Ferrari's later V8 motors have been evolutions of the original rather than entirely new designs, which means that it's possible to install a 348, F355 or even a 360 crank in a 308 block.

As it turned out, Thayer's QV served as the perfect test bed to develop a larger-displacement 308 engine. Once the Ferrari was shipped to Carobu, engine builder Wehr

set to work. While a 360 crankshaft could have been used, an F355 unit was chosen for economic reasons. "An F355 crank is less money in the current used-parts market, and the performance improvement with the CIS engine is probably not worth the difference in price," Casey explains.

The installation of the later-model crank was far from a simple bolt-in operation. "It was obvious that while the crank would physically fit, some modifications would be necessary to make it work," says Casey. For starters, the F355 crankshaft was machined to accept a pilot bearing in order to work with the 308 clutch and the nose of the crank was shortened slightly. Since the bolt pattern of the F355 flywheel differs from the 308's, a custom aluminum flywheel had to be made to mate the new crank with the 308 clutch. The clutch disc was lined in Kevlar, and the pressure plate was rebuilt with stronger springs to withstand the added power and torque.

Next up were a set of 85mm pistons and liners, which combined with the crankshaft's 77mm throws (up from 71mm) to increase displacement to 3,493cc. Carobu's in-house parts division, Razzo Rosso, makes the thin-walled steel liners for mega-horsepower F40s, says Casey: "They survived almost 30 psi of boost with no problems, so using them in this 308 engine works."



Razzo Rosso also makes the forged pistons, which feature a 10.5:1 compression ratio. The new pistons are actuated by the stock 308 connecting rods, but the original hardware has been replaced with sturdier ARP bolts. The lighter titanium conrods from the F355 would fit, but it was again decided the cost outweighed the benefit.

The next hurdle was getting the QV's stock Bosch CIS mechanical fuel injection and Marelli Digiplex ignition to work with the increased displacement. Thayer wanted the changes to be virtually invisible, which meant no conversion to electronic fuel injection or carburetors, though either would have produced more power.

For its part, Carobu wasn't interested in butchering the stock fuel and ignition systems. Says Casey, "Rather than trying to reengineer these two systems to fit some 'hot-rod' engine characteristics that they weren't designed to handle, the goal was to modify the engine to make more power but stay within the design parameters of the existing engine controls." However, since the CIS injection fuel curve is basically fixed, and the Marelli ignition is a sealed unit that cannot be modified, there wasn't a lot that could be done besides optimizing ignition advance, which required moving the ignition pickups off the flywheel.

Next up was the camshaft design. Carobu plugged all of the engine specifications and performance parameters into its engine-design software, which can analyze and measure inlet and exhaust tracts and changes to them, as well as predict how much power different camshaft profiles will produce. Carobu's previous experience with CIS engines showed that a radical cam can cause an unstable or oscillating idle, so Casey chose a modest regrind with higher lift and longer duration. To allow the heads to breathe better, the stock 28.75mm intake valves were replaced with 30.5mm units.

For the exhaust, Carobu fitted a modified Larini header and an X-Ost Maranello muffler. Since Thayer's QV is a Euro car, there was no catalytic converter to worry about.

One of the goals of the project was to match or exceed 348 performance levels, and when the engine was tested on a dyno, it didn't disappoint. Peak

output was 303 horsepower at 7,000 rpm and 260 lb-ft of torque at 5,600 rpm, improvements of 63 hp and 60 lb-ft compared to a stock Euro QV. The Carobu-modified mill is more powerful than a 328 (270 hp) or a 348 (300 hp), and, Casey says, when you factor in the QV's 2,865-pound weight with a half tank of gas, Thayer's car should nearly be able to keep up with a 380-hp F355—at least in a straight line.

I won't be taking on any F355s today, but am still anxious to sample the engine's newfound thrust. Sliding into the car's low-slung cockpit, I discover that it's business as usual; Thayer hasn't altered the interior one bit. The 308 fits me like a snug suit, and the instrument binnacle has a no-nonsense feel, with a tachometer on the left, a speedometer on the right and separate gauges for fuel, oil pressure and water temperature in between. However, the sharply angled three-spoke Momo steering wheel blocks my view of the latter dial.

A twist of the key brings the V8 to life with a muted burble. Inside, it's not much louder than a stock 308, although the exhaust note is deeper. It's a different story from outside, however; when Bert Wehr fires up the engine to move the car around during our photo shoot, the V8 sounds like a real fire-breather. While I generally prefer cars with metal roofs, in this case I might want a targa-top GTS in order to better hear the engine sing.

I snick the shifter into first, release the long-travel clutch and get on the gas. The improvement in torque is immediately apparent. Stock 308s and even 328s don't have much grunt in the lower portions of the powerband, but Thayer's 308 has enough torque for me to short-shift into second or even third around town and still make quick progress. It's clear that every-day driveability has been improved considerably.

I soon head for a favorite stretch of serpentine mountain road. It's here that the 308's engine really shines, as it authoritatively slings the Ferrari from corner to corner. The power only gets better as the revs rise, increasing in leaps and bounds as the tach sweeps around the dial. The V8's mid-range howl morphs into a hair-raising shriek by the time I dip the clutch at 7,200 rpm and slide the thin gear lever through the metal gate into third. The engine feels stronger than a 348's, and displays a similar quick-revving responsiveness.

While its fantastic engine more than exceeds my expectations, the Ferrari doesn't deliver a completely cohesive driving experience. The steering feels a bit dead on-center, but the primary issue is the stock suspension, which, when partnered with sticky Pirelli P Zero tires and significantly more power, allows for noticeable body roll and brake dive. There's plenty of feedback so I'm never left wondering what's going on, but the car is happier going fast in a straight line than being chucked through the corners.

In my experience, a few aftermarket parts can really tighten up a 308's handling. Thayer may perform such a suspension upgrade in the future, but for now he's simply enjoying being able to startle drivers who aren't expecting this 25-year-old car's turn of speed. "The racing heritage of Ferraris is important, and you experience it even in a 308," he says. "Now the car's straight-line performance corresponds to its heritage and sports-racer appearance." O