

# DELAYED GRATIFICATION

After three years of track-day retirements and ongoing restoration work, a very rare Ferrari F2 car is ready to race. MARK BREWER explores the rebirth of Dino 166 s/n 0004.

When John Weinberger unveiled his Dino 166 Formula Two race car (s/n 0004) at the 2004 Monterey Historics, the Ferrari *F1 Clienti* personnel on hand from Italy [*"Coming to America," FORZA #59*] descended on the little Ferrari like a Mediterranean wave. It's likely none had ever seen one of these machines in running condition—if at all—and it's possible some didn't know the car's fascinating but obscure place in Ferrari history. While five of the original seven F2 Dinosaurs still exist, Weinberger's may be the only race-ready example.

"The Historics invited the Dino, even though there wasn't a class for it, to show that it's an important car with provenance," explained Weinberger. "That was really a privilege for

me. The car was very popular. There was a constant stream of people looking at it, and looking at the names on the side—Brambilla on one, Amon on the other—asking questions and taking pictures. It was absolutely amazing.

"We ran with the F1 cars," he continued. "I was gridded last, but I did pass one F2 car, so I didn't finish last. What's important is that we had some great fun, we finished and people loved the car."

S/n 0004's appearance at the Historics was a success, but getting it there hadn't been easy. Weinberger had to call on more than 50 years of experience in fixing, selling and racing exotic cars, as well as a far-flung network of contacts and friends, to prepare the little Dino for its Monterey debut.





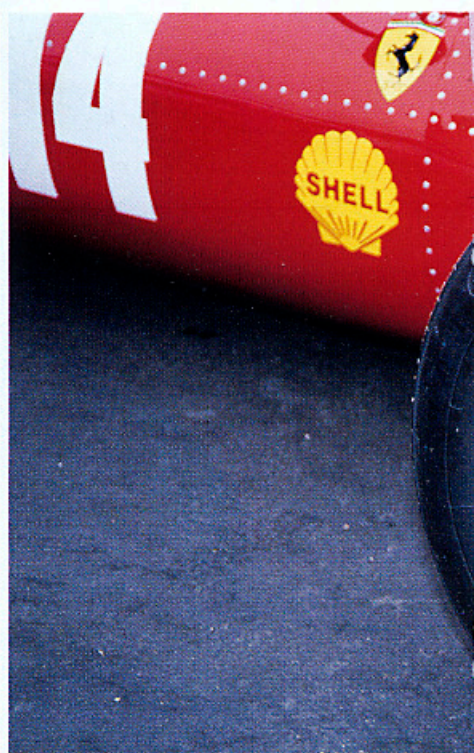


Formula Two may be best remembered for its heyday in the early 1950s, when rising development costs and shrinking grids prompted the FIA to abandon the Formula One specification and run F2 cars in the 1952 and '53 World Championships. Alberto Ascari won the title both years driving a 2-liter four-cylinder Ferrari 500 F2.

World Championships aside, F2 served as a support series for F1 from 1948 to 1984. In the early days, it was a "small-car class" to the full-bore Grand Prix machines, and factory F1 *piloti* regularly drove the smaller, lighter and less powerful F2 cars. By the late 1960s, the series focused on up-and-coming drivers: Future World Champions Niki Lauda and Keke Rosberg got their start in F2.

S/n 0004 was built for the 1967 F2 season with a mid-mounted twin-spark 65° V6 with twin overhead cams and three valves per cylinder—two intake and one exhaust. Displacing 1,596cc, the motor produced 200 bhp at 10,000 rpm, redlining at 10,500. A five-speed transmission delivered power to the rear wheels.

The car wasn't ready in time for its European debut, but spent the winter running in the Tasman series in New Zealand and Australia as a Dino 246T





with a 2.4-liter V6. In that grueling eight-races-in-nine-weeks season, Chris Amon drove the car to two firsts and one second, finishing second overall in the series behind Jim Clark and his Lotus 49T.

When s/n 0004 returned to Italy, Ferrari installed an updated 1.6-liter engine. Drawing on their F1 experience, the engineers had tweaked the V6 by fitting new four-valves-per-cylinder heads, narrowing the bore and lengthening the stroke to 79.5 x 53.5mm—total displacement fell slightly to 1,594cc—and increasing the compression ratio slightly to 11:1. Power output rose to 225 bhp at 10,600 rpm, pushing less than 1,000 pounds of dry weight.

Several 166 Dinos were available for the '68 F2 season, and s/n 0004 sat on the sidelines until the last two races in October, when Vittorio Brambilla fired it up and smoked the competition. At the car's first race at Hockenheim, Brambilla qualified eighth then worked his way through traffic to finish first and set the fastest lap. Looking back, Brambilla said it was his greatest racing moment, "an incredible joy." He also won the final race of the season, finishing the series third overall.

Brambilla later raced the car

in the 1968 Temporada series in South America, finishing fourth overall with one win. Andrea de Adamich won the series in another 166 Dino.

S/n 0004 returned to Europe for the 1969 season. Ferrari added a rear wing and squeezed a bit more power out of the engine, but, driven once again by Brambilla, the car turned in a lackluster performance, finishing seventh overall.

In 1970, the Dino was put out to pasture. It first sat in Luigi Chinetti's showroom, then rested in a Connecticut home—in the den, not the garage. Everett Anton Singer bought the car in 1985, fixed it up and ran it at Road America and Woodland Hills. A couple of owners later, and after a stint in a museum in Nelson, New Zealand, Weinberger brought the Dino back to America.

After vintage racing a Lotus 41 Formula B car for several years, Weinberger, the owner of Continental AutoSports, an Illinois Ferrari and Maserati dealer, had decided it was time to get a Ferrari. "We like to race what we sell," he noted.

Weinberger has preferred mid-engine race cars since his days as a Porsche dealer, when he won the 1968 Sports Car Club of America's Central Division National Championship in B Sports,

driving a year-old Porsche 906 factory prototype. He wasn't interested in racing an F1 car, however, so he was intrigued when a contact pointed him toward s/n 0004.

After checking the car's racing history and condition, Weinberger decided to buy it. "It was absolutely original, with the original '68 Formula Two engine in it," he said.

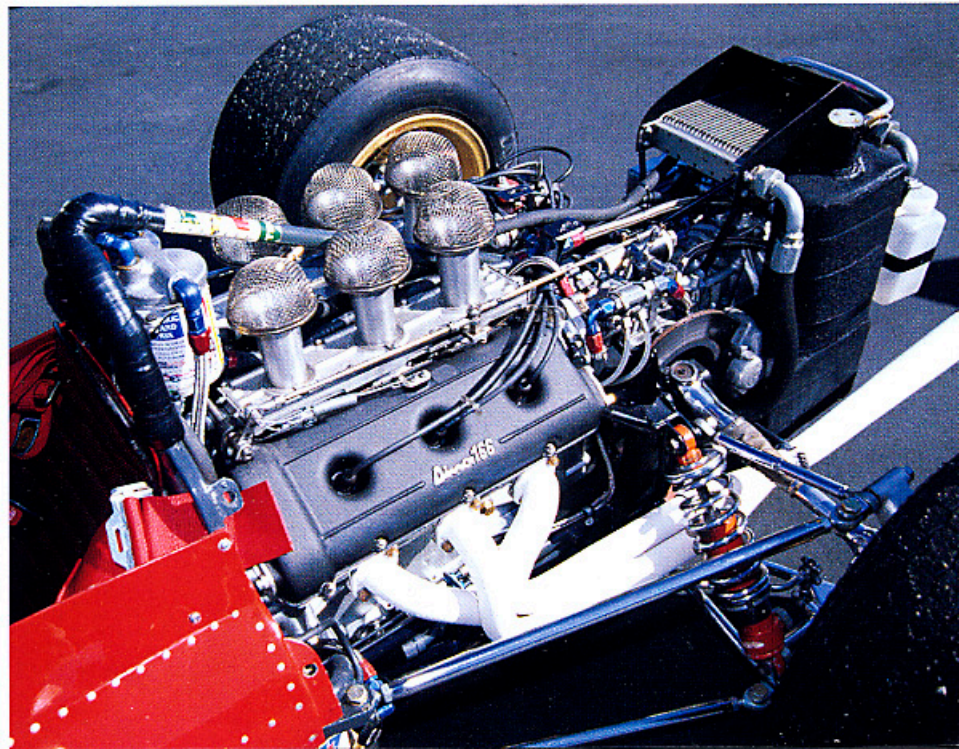
Another factor was that he understood, or perhaps wanted to believe, that the Dino had been maintained since its factory racing days. But as he was about to learn the hard way, the decade spent sitting in a museum had taken its toll.

Weinberger first drove s/n 0004 at Indianapolis Raceway Park in the spring of 2001. His crew chief, Gary Kral, who doubles as Continental's service manager, says the car initially got the equivalent of a very thorough service—the same level of attention he would give to a vintage race car that was fully sorted and ready to go. "Normally, what you do with these cars is take them completely apart, down to every nut and bolt, and start over," he explained.

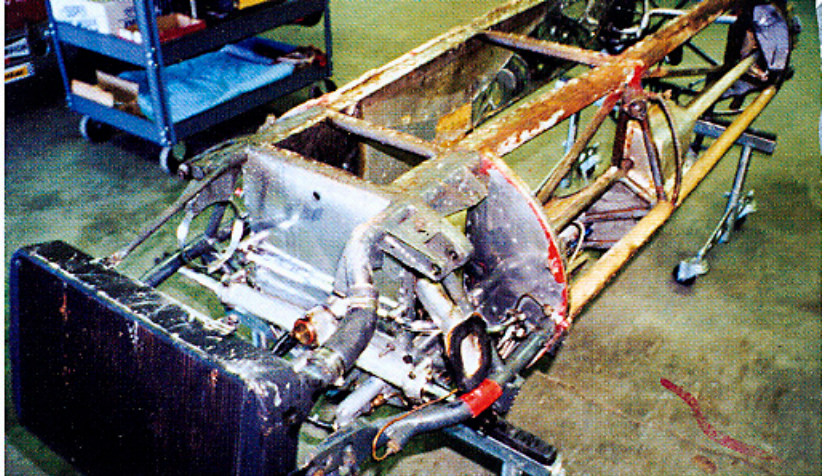
Weinberger's philosophy is a bit different: "I think you have to drive it to find out what's wrong."

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**Below: 1.6-liter V6 utilizes a production Dino block with F1-inspired four-valve cylinder heads and a Lucas slide-throttle air intake. The motor makes 225 bhp at 10,600 rpm.**







**Top right: S/n 0004's bare chassis, stripped during the restoration. Above: Owner Weinberger says the car's tight cockpit fits him perfectly.**

## THE DINO HELD ITS OWN AGAINST F1 CARS OF THE SAME ERA...

The car looked good, like someone had really taken care of it, but IRP was an efficient proving ground. After Weinberger's first run, the crew discovered coolant leaking from the front engine cover. It's a complex part: Made of magnesium, it contains the water pump, oil pump and plumbing for the oil and coolant.

Coolant also leaked from the main frame tube, which carries water from the radiator in the front of the car to the water pump in the back. It turned out that while the Dino sat in the museum, there was still coolant in the system, which ate away at vulnerable metals. Luckily, the aluminum engine was unaffected, so the leaks were restricted to the engine cover and the steel frame tube.

The crew wrapped the leak-

ing frame tube—the engine cover wasn't fixable—and sent the car back out. During Weinberger's next practice run, a cam wheel came loose, and the car refused to restart when he returned to the pits.

Disappointed but not surprised, Weinberger sent the car to mechanic John Hajduk in Indianapolis. Hajduk reseated the cam wheel, reset the valves that had been thrown out of spec by the cam wheel problem and replaced the main frame tube.

Weinberger next took the Dino to the Cavallino Classic in January 2002. In practice at Moroso Motorsports Park, he was able to hold his own against Ferrari F1 cars of the same era because s/n 0004 was better suited to Moroso's many corners and short straights.

He loved the car's handling, but felt it lacked power under

7,000 rpm. The engine cover still leaked despite attempts to seal it up, and early in the second practice run, the same cam wheel that reared its ugly head in Indianapolis came loose.

Weinberger had the cam wheel reseated once again, then took the car to the 2002 Brian Redman International Challenge at Road America. The engine held up under the pressure of Road America's famous high-speed straights, but the extended time at higher speeds really heated up the exhaust, which in turn roasted a nearby brake hose, ending his day.

Not wanting to risk another failed outing, Weinberger sent s/n 0004 to Baurle Autosport in Addison, Illinois for a full restoration. Ken Baurle completely disas-





sembled the Dino and replaced all questionable parts, including everything made of rubber.

There were no plans to work from, so, "They made drawings and molds from the original parts and had new parts made," explained crew chief Kral. "The car uses Koni shocks, and you can send those back to Koni to be rebuilt.

"With the Lotus, there's a big network to draw on when you need something," he continued. "You can get a suspension piece in a week. With the Ferrari, you're on your own. Suspension pieces and tubing were cut from standard materials. If it's possible, you make it yourself because it's easier. If you don't have to deal with someone else, you have more control over the project."

Baurle crack-tested the frame

and discovered more tubes to replace. He also replaced the rusted brake lines, as well as the five-speed gearbox's synchronizers. The Lucas fuel pump was tossed in favor of a more reliable Bosch unit, and numerous small parts were fabricated.

The restoration process incorporated several updates to make the car safer and more reliable for vintage racing—longevity wasn't an issue when this Dino was new. For example, the original flywheel incorporated a rubber lovejoy coupler. Baurle made a new one completely out of aluminum, a fix that was simpler, faster, cheaper and more reliable than trying to craft a new part with the rubber coupler.

The engine was separated from its womb and sent to PHP Race Engines in Wauconda, Illinois. Proprietor

Barry Sale was thrilled to see the Dino V6 again—he first saw it at the season-ending F2 race at Vallelunga in October 1968. Sale was wrenching for the McLaren team that season, and remembers the Dino as a great car, although not quite as good as the Cosworth FVA-powered McLarens. He attributes Brambilla's win to his superior driving skill.

Sale kept the Dino's original wet-sleeve cylinders, but replaced most of the engine's internals. New valves and 200-gram pistons were fitted, as were custom titanium rods that matched the new rod bearings—the unique Dino race car bearings were not available. The main bearings, a Fiat Dino part, were.

The most interesting engine component is the Lucas slide-throttle air intake. Instead of

using butterfly valves to control the flow of air through the trumpets, a metal plate slides sideways out of the way. When completely open, there's no obstruction to restrict airflow. At the time, Sale explained, it was the best intake technology available.

In the meantime, Weinberger had sent the engine cover to a specialist in Tennessee to have a replica cast from aluminum. It took four months, and engine work had to be suspended until the part arrived. "We couldn't do anything," Weinberger said. "The delays are really the heartbreaking thing about restorations."

After the cover was in place, the final step in the engine assembly process was installing the cooper's ring. This round-profile metal ring is placed in a groove in the block, and gets crushed when the head is





**After a long and challenging restoration, the Dino F2 was ready to race at the 2004 Monterey Historics.**

torqued down, creating a seal. Sale found a cooper's ring from a Cosworth DFV 3-liter Formula One engine that worked in the Dino.

Weinberger was chomping at the bit to get the car ready for the 2003 Brian Redman International Challenge. But he also wanted to get it right, so he decided to have the fuel injection rebuilt, hoping that would cure the car's performance ills. "The fuel-injection system was a little loose, a little worn out from age," explained Kral. "It's such a precision fuel unit that a couple of little pits and a little bit of looseness affect the mixture."

It took two months to get the restored FI system back. With the entire car in Baurle's hands, he had just enough time to assemble it before the big weekend.

Days before the race, dyno testing confirmed that the rebuilt fuel injection had improved the V6's performance. "It was perfect, it ran like a champ," Weinberger remembered. This was the kind of breakthrough he had been looking for, that beautiful moment when everything comes together and works.

But the test soon hit a low point when the cooper's ring failed, breaking the seal between the head and the block. If it had been a run-of-the-mill head gasket or a part from a more popular race car, it could have been fixed in time. In the Dino, it meant that Weinberger had to postpone his car's post-restoration debut.

The car finally returned to the track at a vintage racing event at Road America in the spring of 2004. Weinberger gridded and finished tenth, completing a successful weekend with no hiccups.

The extended run also allowed him to discover that s/n 0004 fits him perfectly, like a slipper rather than a shoe. "I

think the car was made for me," he said. "I'm five-foot six, weigh 140 pounds and I think that's what Brambilla and Amon weighed when they drove the car. And it shifts like absolute butter: The gearbox is perfect, such crisp shifts."

The Dino's next race came at the 2004 Brian Redman International Challenge, also at Road America. Weinberger gridded and finished 15th in a field of more than 40 cars.

S/n 0004's most recent outing was at Monterey. It was Weinberger's first experience with Laguna Seca's infamous Corkscrew. "You can't see where it goes, so you have to set the car up and almost float it in the air to come down the correct way," he said. "Once you get in the groove, it's really fun."

The V6 Dino's distinctive, high-pitched wail attracted a lot of attention at Laguna. "It had a completely different sound than the other cars," said Weinberger. "Most of the time it was by itself, so people could hear it all the way down the straight." The slide-throttle intake has its own

sound, and since the front of the motor is all gear-driven—the cams, the alternator, the oil pump, the water pump—the V6 even creates its own unique symphony when idling.

In the end, Weinberger's thrill of victory wasn't signaled by a checkered flag, but in successfully getting this rare car back into racing condition. "The most difficult part of the restoration was the time it took," he explained. "You can always overcome these obstacles, because that's what we [as a Ferrari dealer] do, but it wasn't easy."

The challenges ranged far beyond his initial expectations, yet Weinberger still feels good about the project. "We loved it," he said. "With a Ferrari race car, you really need to get it out where people can see it and hear it. When people come to a vintage race and see an old Ferrari, they just love it, whether it won or not. So there's that love relationship to getting it out and doing its thing again, even though it may not be competitive today." ●