

TESTS: FERRARI 512BB, MASERATI MERAK/SS,  
VOLVO 242GT, PLYMOUTH HORIZON & TOYOTA CRESSIDA

# ROAD & TRACK

MARCH 1978

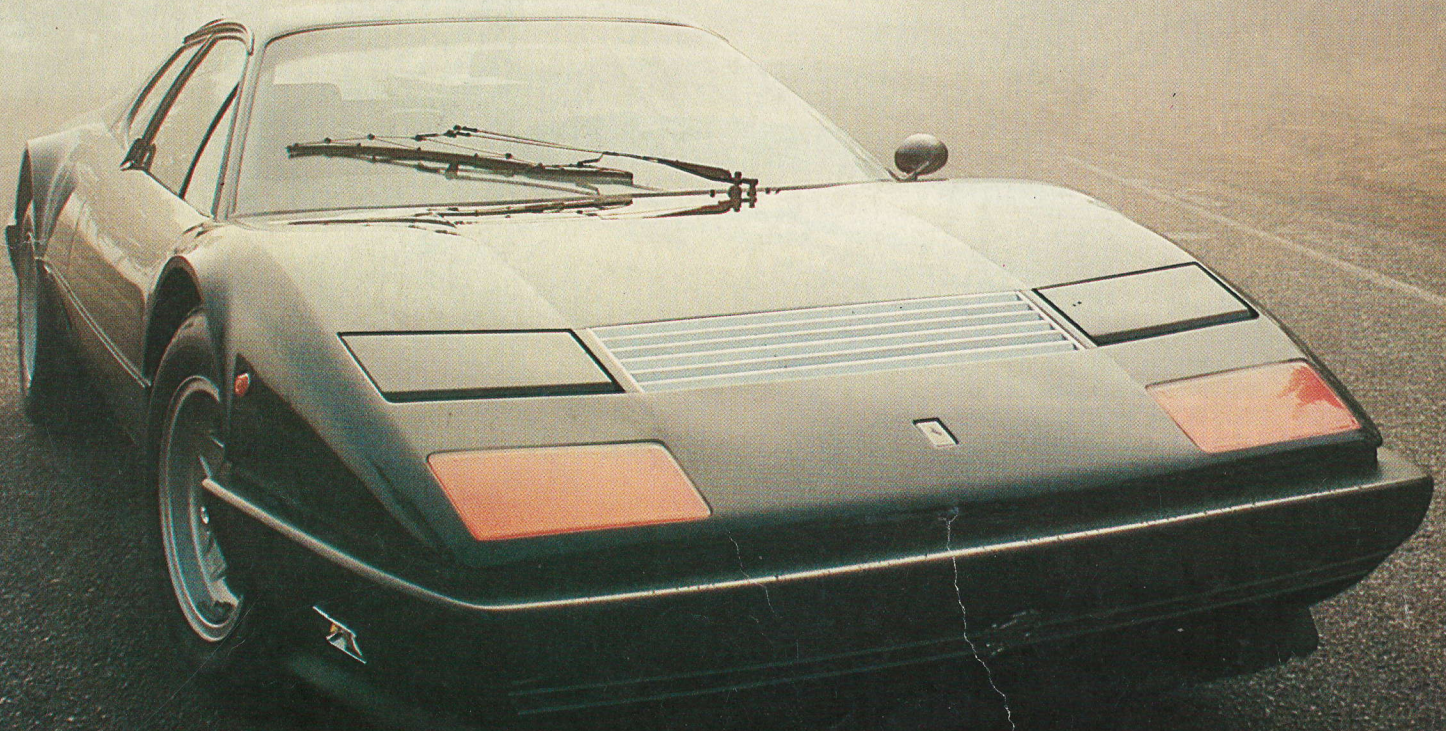
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## How to Photograph Automobiles - 1st in a Series

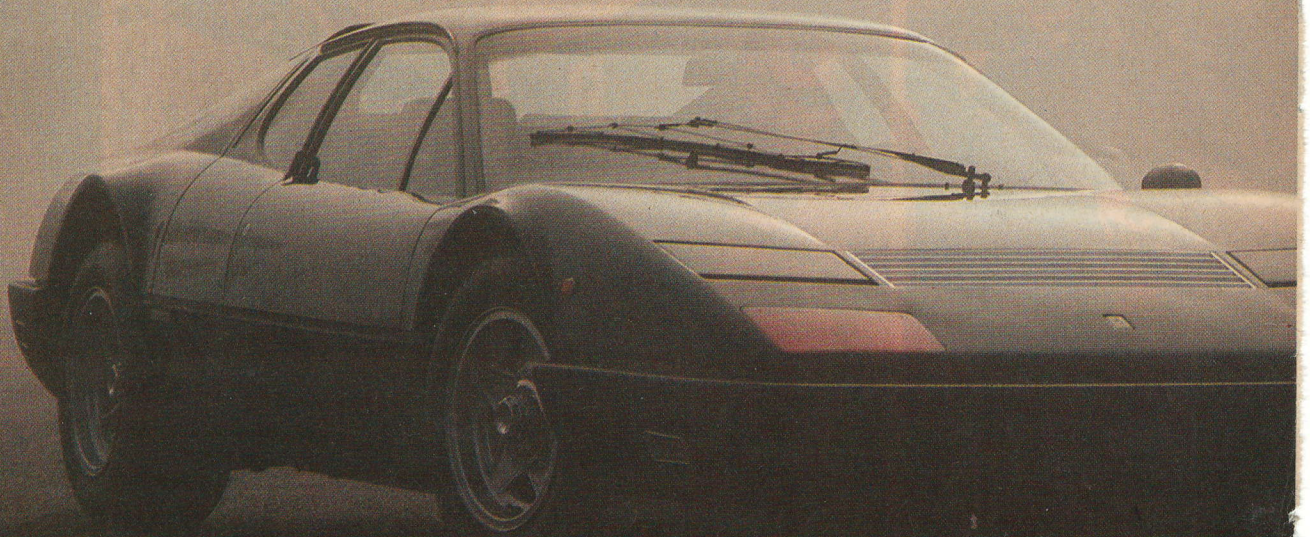
24 mm f 1.4  
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### **FERRARI 512BB** *Fast, Fantastic & Legal*



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105 min



# FERRARI 512 BERLINETTA BOXER

*Incredible, simply incredible*




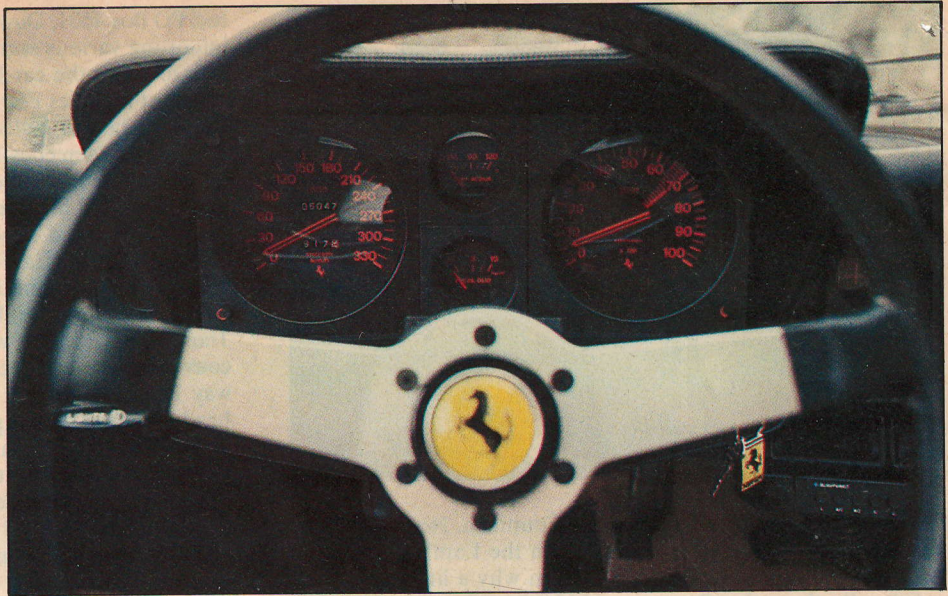
THERE IT SITS, like a mystery ship in a fogbound harbor, waiting to escape. Enzo Ferrari's 512 Boxer, perhaps *the* Ferrari; not necessarily beautiful and certainly not subtle, but powerful and aggressive. To even ask if it's fast would be stupid as that's quite evident in the smooth Pininfarina shape and the fat Michelin rubber. The only question is how fast? It's also obvious that this is a car that can be properly driven to its limit by few . . . and the power of it all is so overwhelming you don't feel badly knowing you're probably not one of them.

Like any of the great Ferraris, you don't have to buy a Boxer to own one, because you own it in your head. Burn the image of the car's instrument panel into your memory and recall it when needed, complete with the view down your favorite road as you try the Boxer there. Remember the look of the Boxer when it's in motion. This is the greatest reason for exotic cars, of course, as they provide a little corner of fantasy when we need to slip away (temporarily, at least) from what surrounds us. They are an integral part of the American Dream and have been since the Duryea, Benz and Peugeot were the most exotic automobiles around. Unfortunately, exotic cars are also something your government has come close to eliminating.

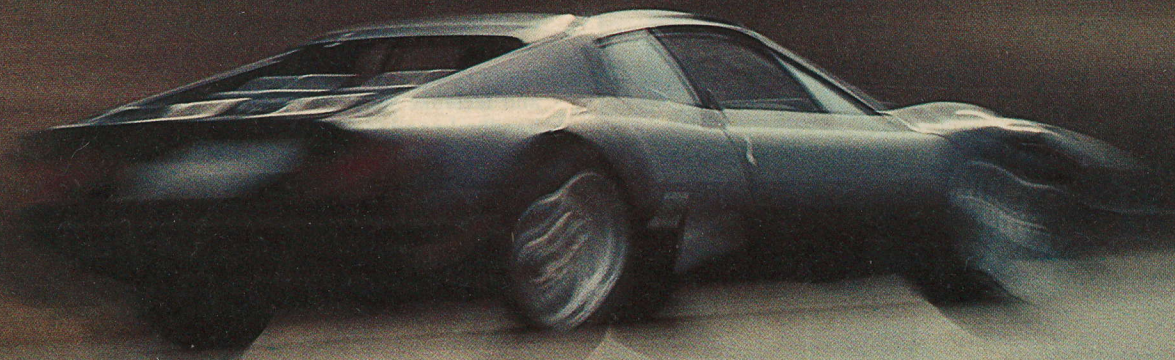
Is that last statement unfair? Perhaps, because we readily admit the need for anti-pollution laws and we haven't seen Ferrari successfully certify a Boxer. Whether the blame belongs with the government or Ferrari is, for the moment, beside the point, because what hurts is that today there are few exciting sports and GT cars left anywhere in the world. Happily, we have one of them for this test and because it's a completely legal, California-registered Ferrari 512 Boxer, this becomes two stories, one a road test on the 512 and the other on how it came to be legal.

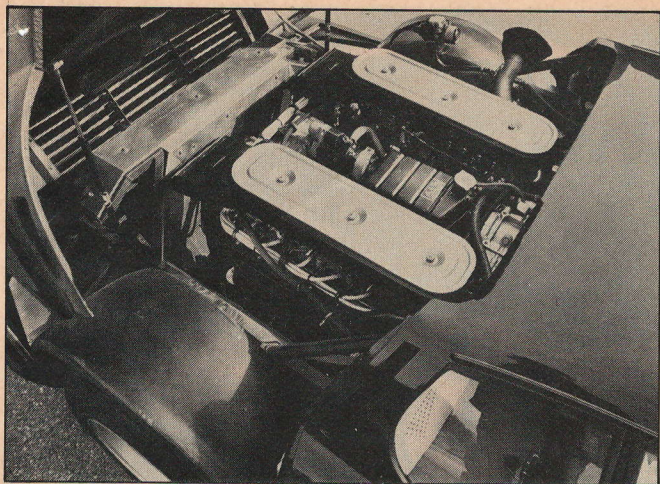
Ferrari's Berlinetta Boxer was first a show car presented at the Turin Show in 1971 and second a production car introduced at the same show the following year. That initial series had a 4.4-liter flat-12, which is a 180-degree version of the production V-12 and not a derivative of the company's racing flat-12. The 5-speed gearbox is actually part of the alloy engine, nestled below and to the rear of the cylinders. All the chassis specifications and features are of the sort you would expect in Ferrari's counterpart to the Lamborghini Countach.

We tested a European version of the 4.4-liter Boxer in June 1975 and it proved to be the fastest road car we'd ever driven, topping out at 175 mph. It held that honor until the following 



PHOTOS BY JOHN LAMM





February when we tested a 192-mph Countach. Now comes the 5-liter Boxer. Did it take the crown from the Lamborghini? No, but that's unimportant and we'll explain why a little later.

Officially, the earlier Boxer was a 365GT4/BB, while this one is a 512BB and if you use the older system of multiplying the model number by the number of cylinders to determine displacement, this should be a 6.1-liter Boxer. Dream on, because the 512 means 5.0 liters and 12 cylinders, this being the same numbering system used in Ferrari's racing cars for several years. They got to 5.0 liters by widening the bore 1.0 mm to 82.0 mm and lengthening the stroke from 71.0 to 78.0 mm. Displacement figures out to 4942 cc and with a rise in compression ratio from 8.8:1 to 9.2:1 and using the same four Weber 40 IF 3C carburetors, the horsepower climbs from 344 DIN at 7200 rpm to 360 DIN at 6200 and the torque from 302 lb-ft at 3900 to 333 at 4600. The 512 uses a dry sump system, while the 4.4 had a wet sump. The gearbox has also gone through a rearrangement of ratios and the point of all this reworking was to make the Boxer a more tractable machine off the *autostrada*.

Dimensionally you'll find the 512 to be 1.1 in. wider at the back to accommodate the 225/70VR-15 XWX Michelins. Up front are 215/70VR-15s, the size that was at all four corners on our test 4.4-liter Boxer. The changes you can see are the addition of a small air dam spoiler under the chin, a NACA duct just ahead of the rear wheels for brake cooling, a new taillight arrangement with four lamps instead of six and a rearrangement of the louvers and intake boxes on the rear deck to feed a new internal airbox system.

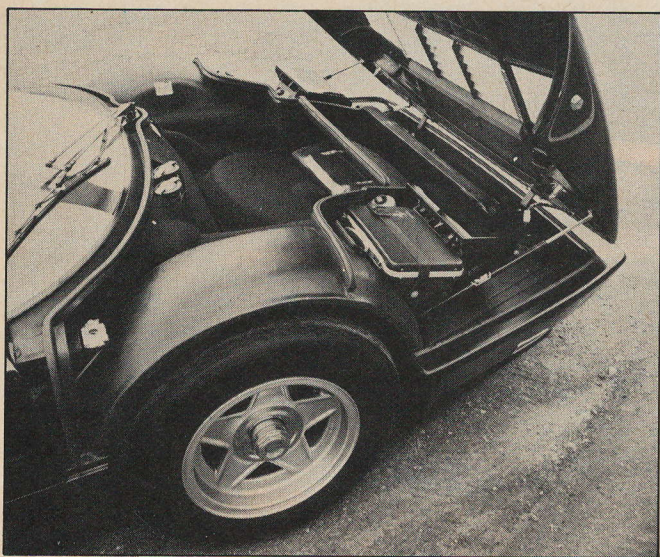
There are still more changes in this 512 to put it in line with U.S. laws, so we should now introduce the group responsible for the car being here and legal. The men who brought the car in are Werner Schoch and Michael Pokorny (W. Schoch Porsch Sales,

Inc. PO Box 4501, Downey, Calif. 90241). They make their livings importing various scarce automobiles, doing whatever is necessary to make the car legal, and reselling them. Although their usual list includes Ferrari Dinos, Daytonas (they have one of the country's largest collections of Daytona Spyderys) and 4.4-liter Boxers and Mercedes-Benzes, the 512 seemed like a great challenge. They bought the car in Milan and imported it, gambling that they could fit the car to the government's regulations. To do that, Pokorny and Schoch first sent the 512 to Trend Imports in Hermosa Beach, California where the Mardikian brothers (Albert and Jack) began the work needed to have the car signed off by the Environmental Protection Agency and the Department of Transportation. The word "work" hides the enormity of the conversion project, because to do the 512 correctly, that is say the way Ferrari would do it, involved eight months of hard labor, headaches and seemingly insurmountable problems to be solved by a team of six men, including three engineers. Schoch and Pokorny made a point of refining and detailing the car to the point where they felt Ferrari himself could walk up to the car and approve of the finished product. As they were completing the 512, Luiz Dallazen, the man who now maintains the car, mentioned it to a customer with a 4.4-liter Boxer (also fully legalized) and before long Alan Vieira made one of the more interesting trade-ups we've heard of.

Having established who's who, we can continue with the commentary, which still centers around styling. Obviously one of the biggest problems in converting a Boxer to our laws is having the bumpers done properly or the car could end up looking like Dick Tracy. Subframes were built for the front and rear to tie the bumper system into the main tubular frame, the bumper stroke being handled by hydraulic cylinders, which isn't too surprising. However, the manner in which the bumpers fit with the overall design is surprising and they look as though they were meant to be there, leaving some observers feeling the car looks better with them. Maybe yes, maybe no, but they certainly don't detract greatly from the Pininfarina shape and the finish is superb, as though they'd come straight from Maranello. Then again, the overall finish of the car is above even Ferrari's usual high standard, and you know how black shows every surface imperfection. Equal care was given to other certification problems, like the sideguard beams in the car's doors.

Inside there are a few signs of the 512's federalization—non-Ferrari seatbelts and a Fasten Seatbelts light—but they don't detract from what has to rank with the finest automotive cockpits in the world. The seats, our major complaint in the 4.4, have been completely changed. In the older car the single-piece fabric-covered seats made it very difficult for some drivers to find a proper driving position. The leather versions in the 512 are the reverse, looking pretty though not necessarily comfortable at first glance, but settling you in like the pocket of your favorite baseball glove taking a hard liner. And the seats adjust for seatback and cushion rake, making it possible for just about any driver to find a comfortable position. The remainder of the Boxer interior is little changed and that's fine with us. The Day-Glo orange markings on the instruments get their information to you with the sort of visual ease most instrument panels manage only at night with the dash lights on. There's no mistaking the Ferrari shifter with its neat slots, looking almost spindly but feeling so robust. Two minor complaints: Ferrari still puts a group of similar lookalike and feelalike switches on the center console just ahead of the handbrake and to the right of the shifter and we suspect the Boxer owner has to spend some time learning their order before being able to work them without looking. Also, we feel there should be more than two air conditioning outlets on the dash. Overall, the feeling of the interior is inspiring, to say the least, and easily fits the \$38,000 price tag of the Boxer in Italy.

Compared to the interiors of several other exotic automobiles, the Boxer's is relatively simple and we don't miss such gadgets as touch-sensitive switches or LED readouts. When you drive the Boxer, you find its form becomes function and everything seems in exactly the right place; no flashiness, just business. Those buttons on the center console don't control the sort of things you



need when you're in a hurry and the lights and wipers are on convenient steering column stalks. The Boxer seat has you fairly high up with none of the lost-down-in-the-car feeling of the Bora or Countach. It feels as though Ferrari has raised the seat height compared to our 4.4 test car, for now vision is exemplary with a clear view in all directions except the rear quarter and there it's certainly adequate. The 512 gives you a great feeling of being ahead of and in control of the action in the Boxer, the sloping nose seeming to put you in direct contact with the highway. There's a sense of being in command and in the first seat in a roller coaster . . . and the ride can be just that breathtaking.

One reason, of course, is the flat-12. Its certification was managed by adding four catalytic converters and then carefully working timing and carburetion (the latter no small task with 12 throats) to meet the federal requirements. That simple statement obviously glosses over many hours of sweat, but to go beyond this would take pages of copy and, besides, the men who do such things are reluctant to pass on their secrets, because certifying an exotic car isn't the sort of art that is developed overnight. The area where Pokorny and Schoch deserve particular credit is the way the engine compartment is finished. The converters are actually inside the stock Boxer exhaust system, completely hidden from view, and the heat is kept away from the engine compartment and the bodywork by extensive aluminum heat shielding, complete with inspection plates.

We have no horsepower figures on the certified Boxer and a comparison of acceleration figures with the 4.4 Boxer is unfair as a dodgy clutch in that car prevented wheel-spinning starts and maximum rpm shifts. However, the 5-liter managed 0-60 in 5.5 sec and 0-100 in 13.2 sec, which compares favorably with the European version of the 4.4 with which *Motor* got times of 6.5 sec to 60 and 13.5 sec to 100 mph. According to the factory owner's manual, the 512 goes from 0 to 400 meters (1312 ft) in 13.7 sec. That's only a couple of ticks quicker than the 14.1-sec ¼-mi time we recorded, so the certified Boxer really hasn't lost any appreciable performance and we've listed the European DIN bhp and torque specs in the data panel. Normally with test cars such as the Boxer we ease off the line, giving due respect to the clutch, which was never meant for drag racing starts. Vieira, who is one of the most cooperative owners we've worked with, suggested we try a few full-power, dump-the-clutch starts—which were remarkable, smoky delights to watch—and rev the engine to 7500 rpm, 500 above the recommended redline. Both helped lower the Boxer's acceleration times.

Remembering some of America's great supercars, there is nothing terribly unique about that 0-60 mph time until you consider that the Boxer just keeps on accelerating. We saw 150+ on the speedometer with plenty of reserve power, but not enough road to use it. By our calculations the car should top out at the 188 mph the factory claims and 13 mph beyond our estimate of the 4.4-liter Boxer's top speed. What the numbers don't project is the feeling of power in the Boxer, something that starts right off the line and continues on up with no wait-until-it's-on-the-cam hesitation. There's remarkably little drama to it all, just a little initial burble caused by richness, the engine clears its many throats and then you tick off the gears and watch the speedometer climb steadily to the right. And providing just the right background music is the characteristic Ferrari growl, sounding a little

lower than the smaller V-12s, but with the usual multi-cylinder smoothness.

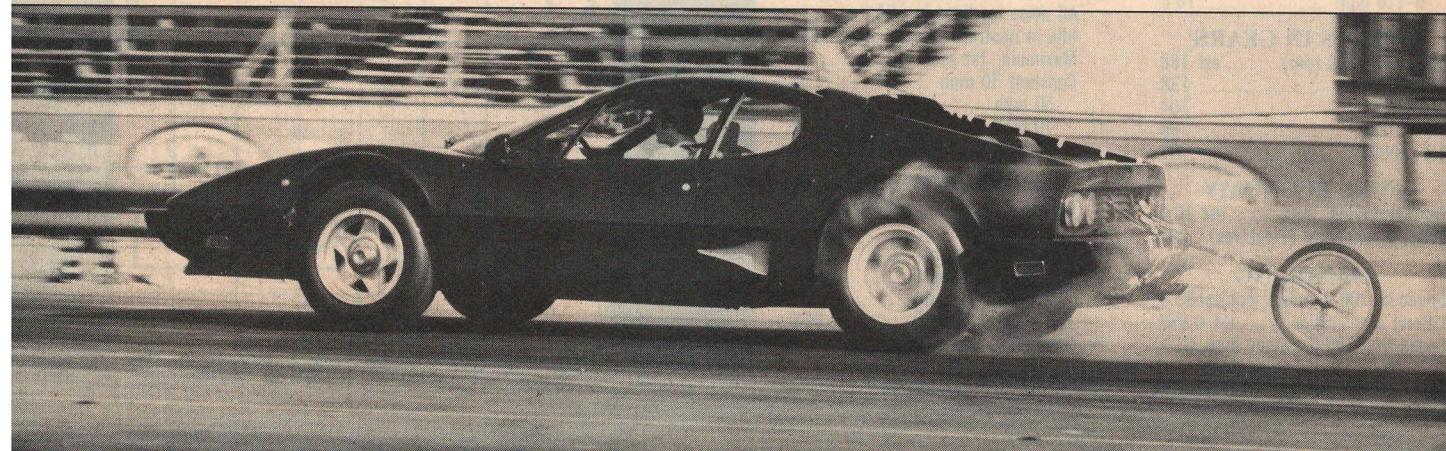
That sort of power would mean nothing, of course, without a proper suspension and once again the Boxer doesn't disappoint. The 512 suspension design remains the same as the 4.4, with unequal length A-arms all around, and appropriately stiffer coil springs, revalved tube shocks and larger-diameter anti-rollbars. This combination provides a car that is well balanced and doesn't care to be thrown about, but driven smoothly. On our slalom course, where the Boxer managed 61.2 mph (the 4.4 clocked 60.4 mph), it wanted to be snaked around the pylons with precision, and was ready to flick the tail out when thrown. We weren't able to put the car on a skid pad, but the Engineering Editor's conservative estimate is that it would generate 0.850g, the increase over the 4.4's 0.845g resulting from the larger tires. On the road all this means a car with some initial understeer, which can be taken to a neutral attitude and beyond to oversteer, depending on the driver's needs. Yet it is also a car that could bite back quickly at the novice who, for instance, might get over his head in a sweeping bend and revert to his instincts and the brakes.

The rack-and-pinion steering feeds back plenty of notice about what is happening, along with many of the road's bumps, though they come through as signals, not steering deflections. You'll notice our steering index number (turns lock-to-lock times turning circle divided by 100) is rather high at 1.32 and while this would seem to indicate slow steering, it actually shows the sort of steering you need to contend with the potential twitchiness of a high-powered, 180-mph-plus, mid-engine sports car. And it doesn't hurt in low-speed steering effort, which in the Boxer is about as high as you'd comfortably want it. The 512's ride is firm, as is to be expected, yet what you feel is not the shock of road dips and bumps, but more the chassis "reading" the road surface. The difference is that the surface irregularities don't jar you, but are absorbed by the suspension and what you feel are more signals of what the car is doing.

Apparently Ferrari didn't feel the 512's added power called for larger brakes and they retained the same 4-wheel vented disc system. Our test certainly pointed up no deficiencies, the car stopping quickly with no control problems. The wheels locked initially on hard stops, but if we backed off the pedal slightly and then reapplied them hard, the brakes suffered no more lock-up.

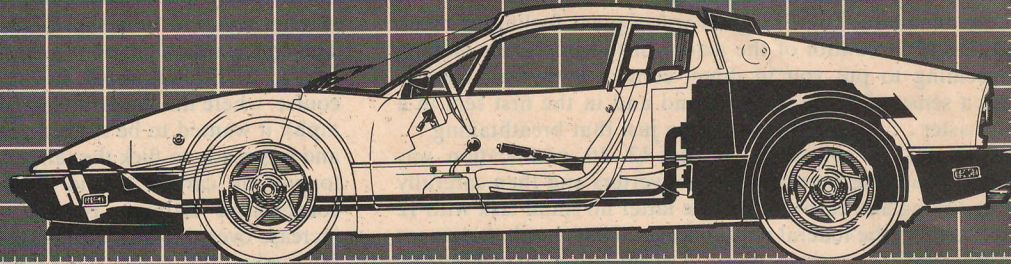
Earlier we mentioned that the Boxer did not take the fastest road car we've tested crown from the Countach, but that it was unimportant. That's because, taken on balance, the Ferrari 512 Boxer wins a more important award, as the best all-around sports and GT car we've tested. If we had to pin the reasons down to one, it would have to be that the Ferrari doesn't forget the driver. The Countach is a fascinating design, and certainly as quick as they come, but to live with one could be maddening because the design forgets that the driver must be able to work in the car and feel in control of the beast. Maseratis suffer somewhat the same problem. The Boxer has it all, the speed, the handling, the lovely shape, the well done cockpit and, most important of all, a reputation for reliability.

Now we come to what is, quite literally, the bottom line. If you'd care to have your own Schoch and Pokorny version of Ferrari's 512 Boxer, they'd duplicate what you see here for \$85,000.





# ROAD TEST FERRARI 512BB



SCALE: 10" DIVISIONS

### PRICE

List price .....\$38,000  
 Price as tested .....\$85,000  
 Price as tested includes standard equipment (air conditioning, AM/FM stereo, electric window lifts), emissions & safety certification (\$47,000)

### MANUFACTURER

Ferrari Automobili SpA  
 Casella Postale 589  
 Modena 41100, Italy

### GENERAL

Curb weight, lb ..... 3615  
 Test weight ..... 3685  
 Weight distribution (with driver), front/rear, % ..... 40/60  
 Wheelbase, in. .... 98.4  
 Track, front/rear ..... 59.0/61.5  
 Length ..... 180.3  
 Width ..... 72.0  
 Height ..... 44.0  
 Ground clearance ..... 4.9  
 Overhang, front/rear ..... 46.1/35.8  
 Fuel capacity, U.S. gal. .... 31.7

### ENGINE

Type ..... dohc flat 12  
 Bore x stroke, mm ..... 82.0 x 78.0  
 Equivalent in. .... 3.23 x 3.07  
 Displacement, cc/cu in. .... 4942/302  
 Compression ratio ..... 9.2:1  
 Bhp @ rpm, DIN ..... 360 @ 6200  
 Equivalent mph ..... 172  
 Torque @ rpm, lb-ft ..... 333 @ 4600  
 Equivalent mph ..... 127  
 Carburetion ..... four Weber (3V)  
 Fuel requirement ..unleaded, 91-oct  
 Exhaust-emission control equipment: four catalytic converters, air injection

### DRIVETRAIN

Transmission ..... 5-sp manual  
 Gear ratios: 5th (0.92) ..... 2.94:1  
 4th (1.21) ..... 3.87:1  
 3rd (1.60) ..... 5.12:1  
 2nd (2.11) ..... 6.77:1  
 1st (2.95) ..... 9.47:1  
 Final drive ratio ..... 3.21:1

### CHASSIS & BODY

Layout ..... mid engine/rear drive  
 Body/frame ..... tubular steel chassis/steel & aluminum panels  
 Brake system ..... vented discs; 11.3-in. front, 11.7-in. rear, vacuum assisted  
 Swept area, sq in. .... 445  
 Wheels ..... Cromodora cast alloy; 15 x 7½L front, 15 x 9L rear  
 Tires ..... Michelin XWX; 215/70VR-15 front, 225/70VR-15 rear  
 Steering type ..... rack & pinion  
 Turns, lock-to-lock ..... 3.3  
 Turning circle, ft ..... 40.0  
 Front suspension: unequal-length A-arms, coil springs, tube shocks, anti-roll bar  
 Rear suspension: unequal-length A-arms, dual coil springs, dual tube shocks, anti-roll bar

### ACCOMMODATION

Seating capacity, persons ..... 2  
 Seat width, in. .... 2 x 19.0  
 Head room ..... 35.5  
 Seat back adjustment, deg ..... 35

### INSTRUMENTATION

Instruments: 330-kph speedo, 10,000-rpm tach, 99,999 odo, 999.9 trip odo, oil press., oil temp, coolant temp, ammeter, fuel level, clock  
 Warning lights: brake system, hand brake, ignition, low fuel, fog lights, choke, lights on, seatbelts, hazard, high beam, directionals

### MAINTENANCE

Service intervals, mi:  
 Oil change ..... 3000  
 Filter change ..... 3000  
 Chassis lube ..... none  
 Minor tuneup ..... 3000  
 Major tuneup ..... 6000

### CALCULATED DATA

Lb/bhp (test weight) ..... 10.2  
 Mph/1000 rpm (5th gear) ..... 27.8  
 Engine revs/mi (60 mph) ..... 2160  
 Piston travel, ft/mi ..... 1105  
 R&T steering index ..... 1.32  
 Brake swept area, sq in./ton .. 242

## ROAD TEST RESULTS

### ACCELERATION

Time to distance, sec:  
 0-100 ft ..... 3.3  
 0-500 ft ..... 8.0  
 0-1320 ft (¼ mi) ..... 14.2  
 Speed at end of ¼ mi, mph ..... 103.5  
 Time to speed, sec:  
 0-30 mph ..... 2.5  
 0-40 mph ..... 3.3  
 0-60 mph ..... 5.5  
 0-80 mph ..... 8.7  
 0-100 mph ..... 13.2  
 0-110 mph ..... 16.6

### SPEEDS IN GEARS

5th gear (6800 rpm) ..... est 188  
 4th (7000) ..... 138  
 3rd (7000) ..... 104  
 2nd (7000) ..... 80  
 1st (7000) ..... 57

### FUEL ECONOMY

Normal driving, mpg ..... est 10.0  
 Cruising range, mi (1-gal. res) .. 307

### HANDLING

Speed on 100-ft radius, mph est 35.6  
 Lateral acceleration, g ..... est 0.850  
 Speed thru 700-ft slalom, mph .. 61.2

### BRAKES

Minimum stopping distances, ft:  
 From 60 mph ..... 140  
 From 80 mph ..... 252  
 Control in panic stop ..... very good  
 Pedal effort for 0.5g stop, lb ..... 25  
 Fade: percent increase in pedal effort to maintain 0.5g deceleration in 6 stops from 60 mph ..... nil  
 Parking: hold 30% grade? ..... na  
 Overall brake rating ..... excellent

### INTERIOR NOISE

All noise readings in dBA:  
 Idle in neutral ..... 63  
 Maximum, 1st gear ..... 91  
 Constant 30 mph ..... 68  
 50 mph ..... 72  
 70 mph ..... 78  
 90 mph ..... 83

### SPEEDOMETER ERROR

60 kph (37.3 mph) indicated is actually ..... 35.5  
 80 kph (49.7 mph) ..... 48.0  
 100 kph (62.1 mph) ..... 60.0  
 120 kph (74.6 mph) ..... 72.0  
 150 kph (93.2 mph) ..... 90.0  
 Odometer, 10.0 mi ..... na

### ACCELERATION

