

EUROPEAN CAR

DECEMBER 2001 VOLUME 32, NO. 12

SELECT THE BEST GEAR OF THE AFTERMARKET 2001

2002 Audi A4

Ingolstadt makes a very good car even better

AC Schnitzer S3 Sport

When the new BMW M3 just isn't quite enough beast

Lotus Position

You, too, can drive a new Elise on the streets of America



www.europeancarweb.com

PRIMEDIA
The Authoritative Source

\$4.99 • \$5.99 in Canada
Display Until 11/26/01



Contents

december 2001 Volume 32 Number 12



Features

34 **First Look: 2002 Audi A4**

Changing a sure thing...for the better

42 **Making Pigs Fly**

ABD Racing turbocharges the 2.0

46 **Select Gear**

The best of the aftermarket 2001

58 **100 Years of Passion**

DaimlerChrysler throws a once-in-a-century party

64 **New Kids on der Block**

Pressurized performance from Kleemann Mercedes

74 **Brabus C-Class Sports Coupe**

Junior league supercar performance

78 **Blazing Saddles**

AC Schnitzer S3 Sport

84 **The Lotus Position**

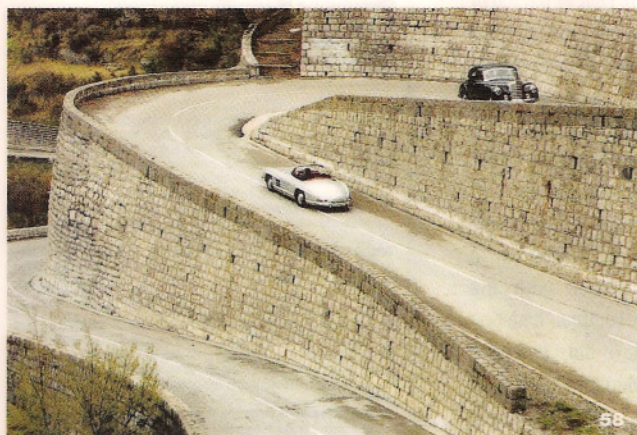
In search of enlightenment with a pair of Elises from Sun Int'l

94 **Long-term Update: Jetta Wolfsburg Edition**

A most pleasing and well-mannered car

96 **Long-term Update: Volvo S60 T5**

A classy, demure-looking sedan that stands out from the crowd



On the cover: This month we salute the winners of our Select Gear award for 2001. Also on tap is a report on the new A4 Audi, a pair of Loti you can drive legally in America, and yet another marvelous creation from AC Schnitzer.

The Tech Files

102 **Project BMW M3**

Part 5: Suspension—one step closer to a race car

114 **Winter Tire Buyers Guide**

For when the going gets cold—or worse

128 **Product Review: VW**

Eibach's Pro-System for the New Beetle

132 **Project GTI 16V**

Part 6: Intake and exhaust



The Regulars

- 4 Ed's Column
- 6 On the Line
- 10 World News, We Hear...
- 24 Tuned
- 28 The Personals
- 136 Motorsport
- 140 On the Web
- 142 Parts Counter
- 146 Tool of the Month
- 148 Calendar
- 150 Tech Letters



europaen car

europaen car december 2001 3

The Lotus Position

Meditating with Sun International's Elises

By Dan Barnes

PHOTOS BY JOSH JACQUOT

the process by which one enters the Lotus position is inseparable from the ultimate posture. One does not simply assume it but arrives at it by a choreography that must be worked out individually. Practice begets elegance and ease. First-timers are apt to fumble or get stuck. Other cars' entry routines involve folding up, becoming horizontal before entering. The Lotus position is most easily achieved by first standing on the aluminum floor, gently supporting one's weight by gripping the back of the seat, which has just enough softness, then sliding downward, guiding one's knees on either side of the tiny wheel. In the Lotus position, enlightenment can be experienced.

Enlightenment changes the universe, distorting space and time. Motorcycles grow large, small cars enormous. The Road is straightened by the Lotus' sheer smallness, which allows a larger arc to be cut through its curves, as well as by the car's cornering power. Conversely, tall grass on the shoulder becomes an impediment to visibility, putting the tightness back into some turns. The line between going fast and not going fast is narrowed.

Other light cars are praised for handling tail-out, rotating about points forward, tossing the driver sideways. The Lotus moves like a mid-engine car, rotating about its center and sliding evenly. The steering is perfect. I learned the rhythm of The Road in another mid-engine car, which in its dullness could at least mouth platitudes of wisdom. That car showed the edges of shadows cast by the light. The Lotus speaks in words of lightness.

For a camel to enter the city by the Needle Gate, its saddle and bags must be removed, and

it must lower itself to its knees. Likewise, the Lotus requires that comforts and excesses be divorced. Ultimately, luxuries exist to protect us from the realization that our life, in the present moment, is unfulfilling. The Lotus exists to fulfill. Luxuries are not only unnecessary—they are an impediment. Carpeting, air conditioning and large stereo speakers are all absent, though they could be added if required for some reason. Roof and windows are mere salutations to common perceptions of necessity. Some find that the greatest experiences of life are received when the accessories of civilization are escaped entirely. It is to these spirits that the Lotus speaks.

In this context, consider me a "divinity school" dropout. In high school I made sketches of a 1,500-lb mid-engine sports car with a chassis of extruded aluminum beams. I told people I wanted to become an engineer and work for Lotus, because that was the only company that would actually build it. I wanted to be responsible for the Elise. Only, someone at Lotus had the same idea and saved me from myself.





I couldn't even call myself an engineer before they built it, and it followed that I escaped a lifetime of pursuing lightness to the exclusion of many other, more important goals. And yet, the lightness is good, and it still resonates within me. It is, in the end, why I am here, writing this.

The messenger of lightness, the day it shone on *ec*, was Sun International, of Manhattan Beach, Calif. Anybody with sufficient money can buy an Elise from Lotus Cars USA Inc., but it will not be possible to title the vehicle and register it for street use in America. It will be a toy, little more than a big go-kart in the eyes of the law. It can be pulled around on a trailer or in a transporter and driven on closed courses to one's heart's content, but it will never legally see public pavement. Credit the old design of the Elise's 1.8L Rover K-series engine, which even Lotus can't make meet U.S. emissions requirements.

Sun International makes it possible to register an Elise by installing the highest output version of what is arguably the finest 1.8L naturally aspirated engine available today, the Honda B18C5. Unique

in production to the Acura Integra Type R, this engine is rated for 195 bhp at 8000 rpm and 130 lb-ft at 7500 rpm, with a redline of 8400 rpm. Not only does it make superb numbers, the Type R is an ultra-low-emissions vehicle and comes with a limited-slip differential from the factory.

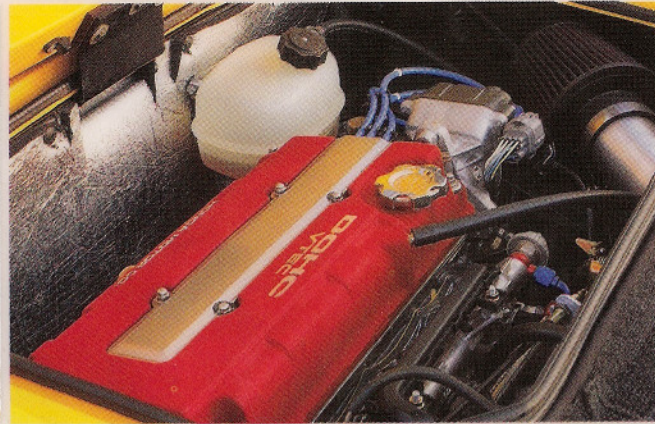
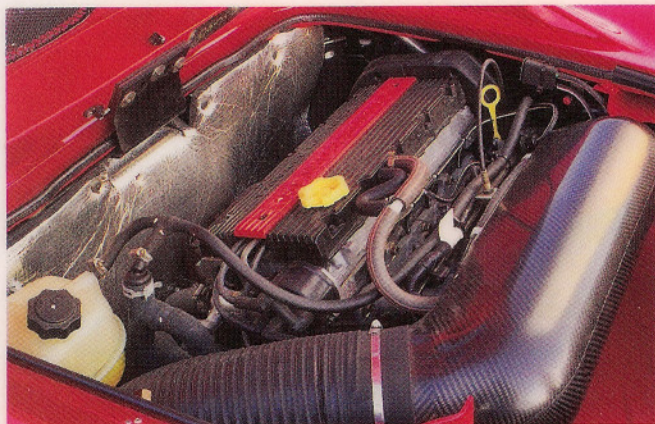
Sun purchases used drivetrains and, to ensure reliability, has the engines rebuilt, blueprinted and balanced before installing them in Elises. Along with an open-element intake and free-flow exhaust, more power results from the changes.

The Lotus Position

Sun brought us two Elises, the yellow one a completed example of its latest conversion specs, the red one a standard-issue Lotus Sport 190. Before road testing them, we strapped both to the Dynojet 248C at the McMullenArgus Tech Center. The archives show that a stock Integra Type R shows within a few hp of 160 at the wheels. That is very close to the numbers produced by the Sport 190, factory-rated as 190 hp—161.8 hp at the wheels at 7700 rpm and 119.5 lb-ft at 6860 rpm. At wide-open throttle,

the Sport 190's torque curve was beautiful, nearly flat but climbing gradually, very smooth until it fell off gently near redline. The Sun car produced much larger peak numbers, but not nearly so elegantly. With a stock program in the ECU, Sun's conversion delivered 186 hp at 8180 rpm and 121.9 lb-ft at 7690 rpm to the rear wheels, suggesting as much as 215 to 220 horsepower at the flywheel. This approaches the capacity of the cooling system, which is said to be about 225 hp.

An experimental ECU, with a lowered VTEC engagement point and increased redline, made less torque below VTEC engagement, generally more after and bogged between the actual and stock engagement speeds, due to an incorrect fuel map. Future versions, Sun has promised, will correct that defect. It may be possible to better exploit the mechanical changes to the engine and make even more power with better driveability through software. However, it seems obvious that each departure from a factory Type



The Lotus Position

R installation creates more real estate for naysayers and regulators to camp out on.

Between about 3500 and 6000 rpm, the all-important midrange, the Sport 190 produced more torque than the Honda engine did with either ECU. With the factory ECU in the Sun car, the Sport 190's advantage extended to 7000 rpm. However, the VTEC engine's torque was still climbing, and the stock ECU didn't reach fuel cut-out until 8600 rpm versus 7700 for the Sport 190.

With so much more area under the torque curve, there's no question as to which car is faster, but subjective elements make the choice of steeds less clear. Both cars are loud. The Sport 190 tugs at one's emotions like a high-strung vintage race car. It is raucous, rowdy, ready to romp. It wants to run, but only if it can run fast. Unfortunately, the Sport 190's racing seat was fixed in location for a driver much smaller than me, so I was unable to experience the Lotus position in the red car. However, the other editors reported that the smooth torque curve made it very easy to drive. Also, progressive and controllable breakaway at the limit gave our photog/shoe the confidence to truly

lean on the car. At idle, the Sport 190 burbles menacingly, as if champing impatiently at the bit. Indeed, its tolerance for dilly-dallying is limited. While positioning it for photos, it needed to be taken for a quick squirt periodically to clear the plugs. Perhaps its English engine management is not calibrated for The Road's 4500-ft elevation.

The yellow car is equally serious. Earlier versions we drove had rigid engine mounts that caused the whole car to buzz like a Loctite® salesman's birthday falling on Christmas. We are pleased to report that this has been sorted in the latest installation. The yellow car idles like a fully modern production car, patient in traffic, entirely willing to stop, then go, then stop yet again. *Ad infinitum*. And yet its capabilities are far from latent. Perhaps some of the reason for the current popularity of Hondas is that they sound fast. Put an open-element intake on one, and the long cam overlap with VTEC engaged gives it an unmistakable honk. Put that honk 2 feet from your ear, with little sound deadening, and it becomes vicious, far outstripping the exhaust for sheer decibels.

Acceleration, of course, is stupendous. We have been present at the testing of another,

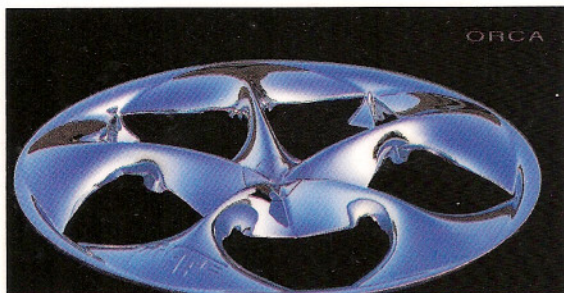
less powerful Sun Elise, during which it achieved a 13.2-sec. quarter mile at 104 mph. Familiarity with Type Rs makes it possible to keep VTEC engaged and go astoundingly fast (though earplugs or a different intake may be called for). The car requires one to recalibrate reflexes and instincts to match new ideas about how fast fast is.

Through no fault of Sun's, quicker reflexes were not optional but required to push the yellow car. Before being imported, this particular car was fitted with an aftermarket adjustable-height suspension, and unfortunately the owners of the vehicle thought that minimum ride height would look best for the photographs. Combined with not-sold-in-the-U.S. Yokohama tires, tremendous grip was available, but performance defects were aggravating. With two full-size American males in the car, the suspension bottomed out frequently on imperfect public roads. There were likely toe- or camber-curve issues as well, as the yellow car was more hair-triggered about its breakaway. Going over the edge of adhesion happened much more suddenly and dramatically, yet not to a degree that any violence to fiberglass ensued.

Here there are two paths to the Lotus posi-

Niche

800 600-3271



Lotus **340R** The Ultimate **Elise**

We've been licking our chops with almost unbearable anticipation since Lotus announced it would build the 340R. First shown at the Birmingham show in 1998, the concept version of the 340R astounded onlookers with its radical styling and naked ambition—a no-compromise ultralightweight sports car without parallel in today's showrooms.

Finally, our hunger will be satisfied when we climb into a new 340R, bought by the suspension firm of Eibach as a rolling billboard for its contribution to the 340R's suspension, which includes springs combined with Koni shocks for the standard version, and, for cars aimed at the track, a remote reservoir race damper kit.

Stay tuned for a full test of this exciting car. —GNB



tion. Both hold the possibility of fully experiencing lightness, but choosing one's way requires a philosophical decision be made. Is the state of enlightenment one to be sampled briefly, but with great intensity, and then left behind when one returns to the grind of daily life, or is it something to be incorporated into the routine of each day?

I personally have difficulty answering. In the Lotus position, one is vulnerable even to fortune's modestly sized slings and arrows. The Elise likely has structure relative to its size and weight to protect one from encounters with fixed objects, but what about other threats? Economy cars tower over it like Suburbans over

MGBs. How long can one tempt fate? On the other hand, it would be terrible for an Elise to stay locked up in a garage, requiring a trip to a distant racetrack in order to be experienced. The pressures of life could keep one from commencing the ballet nearly as often as would be good for the soul.

However, it is only on a racetrack that the maximum can be milked from the Elise, a car that was inarguably built with maximums in mind. To turn again, the racetrack, though safe, artificial and confined, is...well, artificial and confined. Another writer has described Gearheads Who Enjoy Quiet Places in the Wilderness, and the Elise is as fine a way...as

exists. Watching the sun turn the world red as it descends into smog one has climbed out of, feeling the earth radiate the warmth of the day as the air cools, is one of the better ways to forget what a desk is like. That, it can be argued, is the purpose of enlightenment. ☒

Lotus Cars USA Inc.
(800) 24LOTUS

www.lotuscars.com

Sun International Inc.

Fax: (310) 546-1343

e-mail: sir@sunspeed.com

www.sunspeed.com

