

— Sideways in the **LOTUS EVORA**—Lightness goes big



European Car

AWEstruck

Audi A4

Bigger muscles for the 2.0T FSI

Obsession

Mercedes 500E and 190 16V
—Cool never dies

First Drives

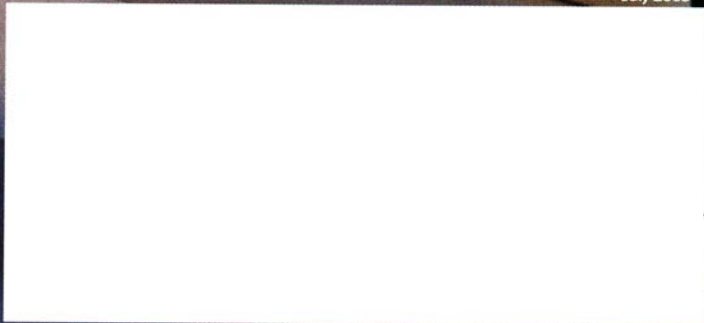
BMW Z4
Lambo LP560
Spyder



HAMMER DOWN

EVOSPORT C63 AMG
A **560 HP**
SUPER-TUNED SEDAN

July 2009



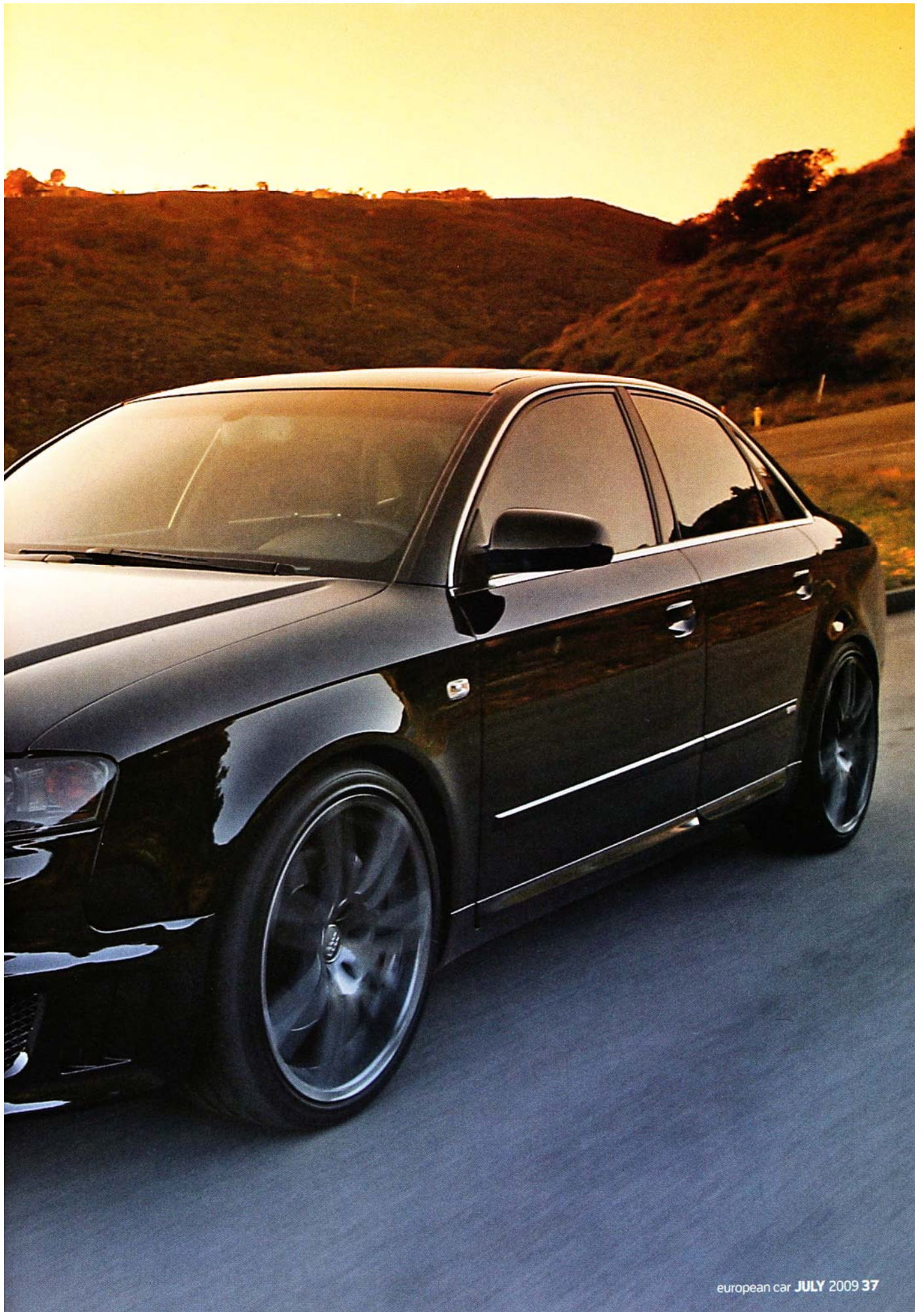
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SHOCK & AWE

AWE Tuning uncorks the 2.0T FSI in dramatic fashion

by Karl Funke photography by Robert Hallstrom

The whine of a high-strung turbocharged four-cylinder running between four and five thousand rpm howls through the hills northeast of San Diego, Calif. Each careful snick of the gear lever is meticulously executed to keep the compressor on the boil in the powerband's choicest mid-range tenderloin. The induction system exhales through an enlarged, uncorked diverter valve with a noisy, shuddering sigh, really your only aural indication that this Audi isn't running with your standard turbo four.



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“At speed it’s simply a matter of keeping the revs in the right place to keep the turbo happy... not too high, not too low.”

Catch the car standing still long enough to have a look and there are other visual indications of its sporting intentions. Larger S4-spec brake rotors and calipers peer through a set of RS4 replica wheels. Courtesy of height-adjustable coilover spring-and-damper assemblies at all corners, the chassis hunkers over said wheels, as though guarding them jealously like some ill-tempered Bavarian *spitzenhund*. And if your eye is especially well trained,

it may light on the humongous center-mount intercooler core peering through an RS4 factory grille installed above the RS4-look front bumper cover.

The car’s owner, Jared Salas, knows a few things about hot pursuit; he’s a U.S. Border Patrol officer who makes his living chasing illegal entries in and around San Diego County. The car, a B7-series A4 2.0T, was initially fitted with a K04 turbo upgrade kit. Salas wanted more power,

however, and it didn’t take long for him to formulate a plan to extract it.

Because it so happened that around the same time Pennsylvania-based AWE Tuning had more or less finalized a new turbo upgrade package for the 2.0T platform centered around a Garrett GT2871R turbocharger. The East Coast outfit was looking for a real-world street car to try it out on. Salas had prior experience with Temecula, Calif., based Pure

Motorsport, an authorized AWE dealer and Salas’ local tuner of choice. Since he was looking to swap the K04 for something bigger and ostensibly badder, both he and AWE loomed large on each other’s radar screens. I’d say it was a match ordained by heaven, but then I’d have to shoot myself. Suffice to say the rest is history.

A standard K04 kit upgrade will net about a 25 percent gain in power from the 2.0T FSI engine, putting you somewhere in the



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250- to 260-hp range. Depending on its state of tune, the GT kit can push that number up over 300 hp. The standard package includes the larger compressor, the exhaust manifold, fuel augmentation including a high pressure fuel pump and larger injectors, and custom management software developed jointly with GIAC.



Salas didn't stop there. The factory intercoolers were swapped for a larger—much, much larger—front-mount AWE unit. It utilizes an all-aluminum bar-and-plate design, 2.5-inch mandrel-bent plumbing, and was designed using complex Computational Fluid Dynamics (CFD) software. The end tanks alone went through no fewer than 14 design “evolutions,” while the core

itself looks to be one-third again larger in terms of sheer surface area as the two side-mount OEM units stacked one on top of the other. In spite of its size, it's meant as a direct bolt-in treatment with no modifications required for fitment.

Along with the chiller upgrade, the initial point of induction on the turbo's cool side has been

of engineering is intended to keep a stealthy exhaust note that won't attract the wrong sort of attention. The exhaust has been mated with an AWE high-flow catalyst section to keep the sniffers happy. And to help reduce rotational mass, a Neuspeed lightweight crank pulley has been swapped in for the hefty factory bit.

In independent dyno testing, AWE estimates this particular application to be throwing down some 340 hp at the crank on 91 octane, and even more attainable with ascending octane levels. While not especially explosive off the line—as packaged, the turbo setup really only starts to get its torque on between 3000 and 3500 rpm—power builds rapidly and exceptionally smoothly. While at speed it's simply a matter of keeping the revs in the right place to keep the turbocharger happy... not too high, not too low. And when the turbo's happy, it's guaranteed to keep a stupid grin plastered across your face.

Salas, AWE, and Pure MS aren't calling the project done yet. It's speculated there's still more power to be had, though it's also believed that the stock 2.0T internals have reached their limit. If any further power tuning is to be carried out, part of the process will most likely involve cracking open the engine block and replacing the factory connecting rods with stronger units. And as this goes to print, Salas will be tracking the car with a Stasis Engineering center differential to experiment with a more variable torque split.

2006 Audi A4 2.0T

- **Layout**
Longitudinal front engine, all-wheel drive
- **Engine**
2.0-liter I4, dohc, 16-valve. AWE Tuning/Garrett GT2871R turbocharger, AWE exhaust manifold, DV relocation kit, high-pressure fuel pump, injectors, AWE/GIAC software, APR turbo-back “Stealth” exhaust w/AWE catalyst, AFE Pro Dry air filter, Neuspeed lightweight crank pulley, Stern Pro-Mount engine mounts
- **Transmission**
Six-speed manual
- **Suspension**
Vogtland height-adjustable coilovers, Hotchkis anti-roll bars, Stern adjustable control arms
- **Brakes**
S4 front assemblies
- **Wheels and Tires**
Velocity Motoring V708, 8.5x19
BFGoodrich g-Force T/A KDW, 235/35
- **Exterior**
Deval RS4-style front bumper, RS4 grille, Lamin-X tinted light covers
- **Performance***
Peak Power: 340 hp
Peak Torque: 295 lb-ft
*AWE data

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Pure Motorsport
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All in all, a fine example of Ingolstadt engineering, well seasoned with a generous portion of good old American shock and awe. 