

2003 MERCEDES-BENZ S600 SPORT

THE LAST STAND AGAINST MINIVANS

WHEN THE PREGNANCY ANNOUNCEMENT WENT OUT, I COULD ALMOST HEAR MY FRIENDS MOCKING ME IN A SING-SONG CHORUS: "PABLO'S GONNA GET A MINIVAN!" I started to panic.

I've only owned sports cars and sedans, and our two older children have been comfortably hauled in an E36 M3. But with a rear bench only 50 inches wide, and each child seat more than 20 inches wide, something with third row seating would become an agonizing necessity.

If today's child seats weren't so huge I could easily fit five baby butts in the M3's back seat. Too bad we're not in the '70s anymore. It's a tough world for daddy car enthusiasts today.

Then I had a revelation: Sunshine Kids. Not only do they manufacture high-end child seats, they've got the narrowest ones available specifically for my goal—fitting three wide. At only 17 inches wide, Sunshine's top-of-the line XTSL convertible seat has gotten great reviews, and feature a steel frame and forward- and rear-facing configurations that can safely accommodate kids ranging from a 5-pound newborn to the 80-pound Twinkie lover.

I was set, and after my wife gave me the green light with a "yeah, yeah" along with a roll of the eyes (a "yes" in my book), I found this '03 Mercedes-Benz S600 with an AMG aero package. Hey, the car is safe, which is

most important. It's also got a twin-turbocharged 5.5-liter V12 pumping out 493 hp and 590 lb-ft of torque, but that's beside the point. I learned it can easily be bumped to 650 hp. See where I'm heading with this one?

The S600's performance in stock form is intoxicating. With a mid-12-second quarter-mile at around 114 mph, it feels some 2,000 pounds less when you punch it (maybe not so much while turning). It's a textbook sleeper with a cabin so quiet you can hear your child's tummy rumble.

But I'm not very interested in stock Mercedes—not in my garage. That's where Renntech comes in. Renntech's founder, Hartmut Feyhl, has 12 years at AMG under his belt, even overseeing the iconic AMG Hammer project built in the '80s. Numerous Mercedes dealerships across the country sell Renntech goodies because the company's products don't void factory warranties.

We upgraded this S600 with Renntech's Stage 3 package. Rated at a monstrous 650 hp and nearly 800 lb-ft of earth-moving torque, it starts with a recalibration to the engine and transmission ECUs so that it not only makes more power but unlocks the torque limiter on the tranny, bringing it to current AMG 65 specs (it's the same transmission). The package is also complemented with Renntech's carbon-fiber intake kit and carbon engine covers, as well as an intercooler upgrade featuring a larger pump and

TEXT AND PHOTOGRAPHY / Pablo Mazlumian



twice the stock intercooling capacity for cooler intake air temps.

For aesthetic touches, the car sports Renntech's Monolite 9x19 wheels wrapped with General Tire's new ultra-high performance GMAX AS-03 tires (245/40 front, 275/35 rear). The package provides awesome performance in all four seasons, including light snow, and we didn't even realize this combination would also be good for a 15-pound weight savings per corner. Coupled with the sporty yet elegant CL-style black grille from 55 Tech Motors, the wheels and tires truly transform the look of this S-Class.

While Mercedes are known to be safe tanks, you're still at the mercy of a tire puncture and the dangers behind it. To lessen this possibility we installed TyreShield's tire puncture protection system in all four tires. And yet again we got a performance gain because this allowed us to remove the spare wheel and jack for even more trunk space. Coupled with the wheels and tires, the weight savings total 118 pounds.

After unleashing all that torque with the TCU software update, Renntech's limited-slip differential was a much-needed upgrade. This unit uses OS Giken internals to power both wheels instead of one, which we'll test separately in a future Proven installment.

With its new look, diet and performance mods, the car pulls like a freight train. MAF readings now top 65 lb/hr (~650 hp) at wide-open throttle, assuring us Renntech's power claims aren't exaggerated. Our GPS-based VBOX PerformanceBox confirms that—at 800-foot elevation on a regularly paved road, no burnout, and the traction control on (still too much wheelspin otherwise)—0-60 mph comes in a scant 3.7 seconds, 0-100 mph in 8.5 seconds and the quarter-mile goes by in 12.0 seconds at 119 mph. Don't forget this is with GT's all-season tires and a stock exhaust. Of course, we also dyno tested this car (see the following Proven article).

Given the size of the car, performance of this magnitude is flabbergasting. And the fact we can average 22 mpg fully loaded on the highway at 70 mph isn't too shabby either (no comment on city driving mpg).

Thanks to the Sunshine Kids seats, this Renntech-tuned Benz will play the role of family hauler in the Mazlumian household for years to come. But it's also got the sports car-thrashing power I crave when I want to outrun the smell of stinky diapers. In fact, I did this recently and surprised the proud driver of a new Corvette Grand Sport. I gave him the ultimate, backhanded "thumbs up" just in time for him to spot the empty baby seats in the back, and then the license plate.



EUROPEAN MOTORSPORTS

THESE CARS, ORIGINALLY PRICED AT NEARLY \$140K, CAN BE BOUGHT FOR PENNIES ON THE DOLLAR TODAY. But while affordable, make sure you get one with a good warranty that covers at least the entire suspension or you could get stuck spending thousands on repairs. Also, having a competent and honest Mercedes mechanic with the Mercedes S.T.A.R. diagnostic computer handy is key to long-term reliability.

Fortunately, I found one in the Kansas City area in European Motorsports, around since the early '80's, that specializes in Mercedes, BMW, Audi and MINI. They were responsible for installing our spark plugs—a six-hour job because not only does it entail removal of the intercoolers, but there are 24 plugs total. Thankfully, the swap happens only every 100,000 miles.

European Motorsports also installed our Renntech

intercooler upgrade kit, which was an additional six-hour job because it involved removing the front clip, installing and wiring the high-flow pump, installing the new heat exchanger with new piping, and finally bleeding out the system multiple times (highly recommended) before reinstalling the front bumper.

CONTACT

European Motorsport
europeanmotorsportscentral.com

CONTACT

General Tire
generaltire.com

OS Giken
osgiken.net

Renntech
renntechmercedes.com

Sparkplugs.com
sparkplugs.com

Sunshine Kids
skjp.com

TyreShield USA
tyreshieldusa.com

55 Tech Motors
55tech.com

MERCEDES-BENZ S600

WITH NO LESS THAN A TWIN-TURBOCHARGED V12 SHOEHORNEED INTO THIS ENGINE BAY, THE MERCEDES S600 IS AN ICONIC CAR TO MODIFY. This was going to be a fun test, and our friends at Renntech knew it.

We like to replace the spark plugs and oil prior to any baseline test to ensure consistency and optimum performance. But there are a couple of hurdles. First, this car takes 24 plugs and it's a six-hour job to do it. At the dealer, this could cost you north of \$1,200. Thankfully, Sparkplugs.com sells factory identical NGK R IFR6Q-G Iridium plugs for half the dealer price, and an independent service center like the one we found, European Motorsports, will save you even a few hundred more in labor.

Our second hurdle was the intercooler pump. Unfortunately, boosted V12 and V8 Mercs are plagued with failing intercooler pumps that seem to let go at random, and mine was no exception. As soon as we took delivery we plugged in our Actron Pro Elite OBD-II scanner. The intake air temps soared to over 100 degrees F above ambient—and the MAF sees less and less air density after each pull—told the story. This was not good for performance, let alone for our testing.

It's good for us then that Renntech sells a full intercooler upgrade, featuring a pump that provides more than twice the flow and much greater durability than the factory pump. Additionally, the kit features a second heat exchanger for double the stock capacity, and includes all adaptive hardware.

The kit runs about \$4,000 from Renntech, and European Motorsports' technicians were up to the task of installing it. Thanks to the intercooler upgrade, our intake air temps consistently hover between 20-30 degrees over ambient. This is probably the most important upgrade for any V12 Biturbo or V8 Kompressor Mercedes.



VEHICLE DATA

Engine: 5.5-liter V12 twin-turbocharged
Transmission: Five-speed automatic
Mileage: 82,500
Current modifications: Renntech intercooler upgrade, Renntech Monolite wheels, General Tire AS-03 tires
Dyno data: Dynojet 424x
Temperature: 67-73° F
Humidity: 9-15%
Test Gear: Third

BASELINE

Peak Power: 471.9 hp @ 5300 rpm
Peak Torque: 570.2 lb-ft @ 4200 rpm
50-115 mph dyno accel: 4.16 sec.
Temperature: 67° F
Humidity: 9%

TEST NOTES

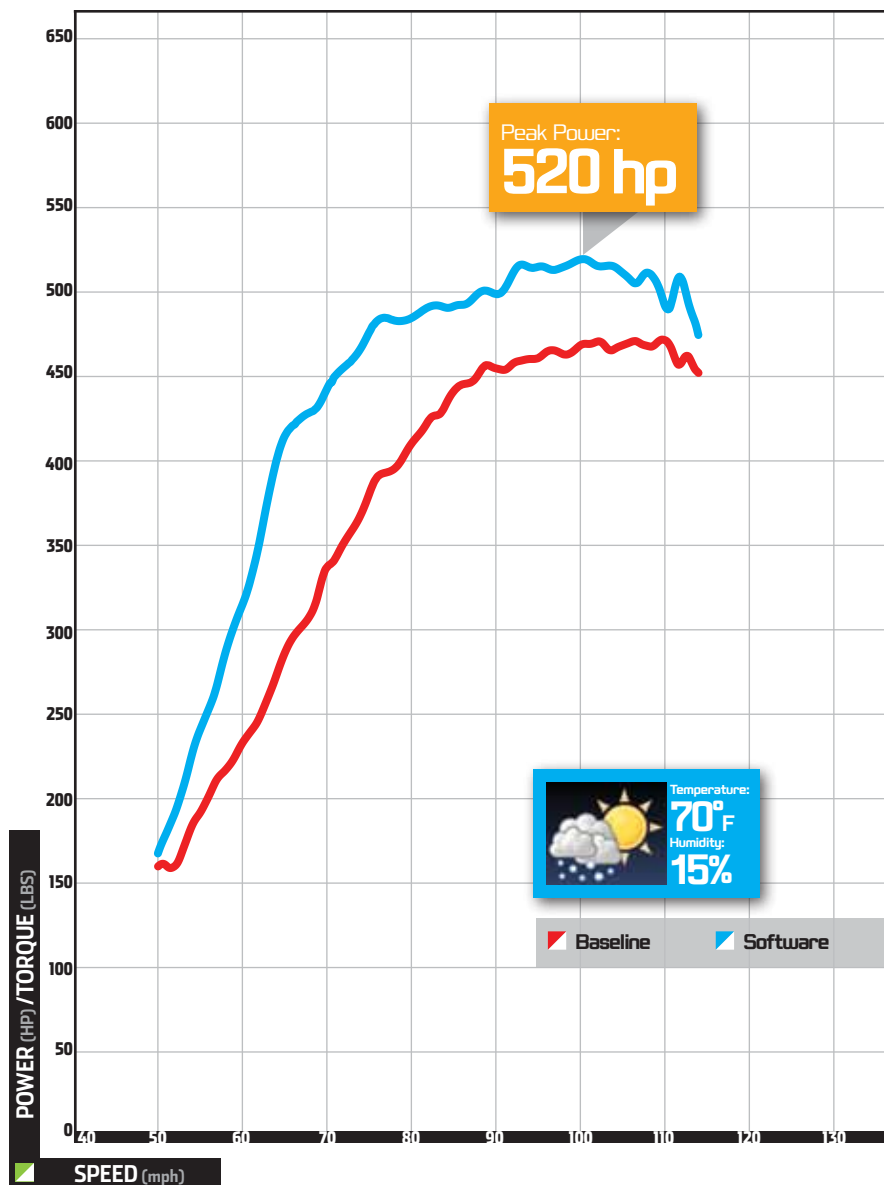
With good IATs, new plugs and fresh oil, we were set for baseline testing at Modified by KC in Kansas City. On MKC's 424x dyno we set the car into its factory "dyno mode" via the steering wheel buttons (how cool is that). This deactivated all the electronic gremlins that would otherwise freak the car out.

After the session, we were shocked to see over 470 whp through the auto tranny. This may answer the question behind our 54 lb/hr MAF readings, which would indicate roughly 540 hp. Renntech even tells us that the '03 Mayach S7, rated at 550 hp, doesn't make more boost than an S600, and is the same. Still, 470 whp through the auto tranny for a 493-hp car is definite sandbagging by Mercedes.

While Fourth gear pulls with this car, which yield 15-20 whp less, would have been preferred because of how quick Third gear is, the factory 130-mph governor makes it impossible to note any top end gains. Third gear alone maxes out at a whopping 115 mph, so at 130 mph a Fourth gear pull ends too prematurely while the car remains stock.

RENNTech ECU & TCU SOFTWARE

GRAPH 1: BASELINE VS SOFTWARE



TEST 1

PERFORMANCE

Peak Power: 519.6 hp @ 4850 rpm
Peak Torque: 695.9 lb-ft @ 3100-3700 rpm
Max HP gain: 128 hp @ 3150 rpm
Max TQ gain: 216.1 lb-ft @ 3150 rpm
50-115 mph dyno accel: 3.50 sec.
Temperature: 70°F
Humidity: 15%

Parts: Renntech ECU and TCU software upgrades
Installation time: 5 minutes
MSRP: \$3,750

PROS

- Big power increase with seamless delivery
- Doesn't affect factory warranty

CONS

- Every upgrade for this car will be expensive

TEST NOTES

As soon as baseline testing was over we eagerly overnited the engine ECU and tranny ECU (aka TCU) to Renntech, which had it back in our hands in less than 48 hours for testing. The firm flashes the engine ECU with new boost and fuel/ignition calibrations, and their TCU upgrade unlocks the max torque allowed through the transmission, much like AMG does for the newer biturbo 6.0-liter motors. After all, we're told the newer cars still use the same, bulletproof unit. The TCU upgrade also features a full manual mode, which is unavailable in stock form and makes dyno testing a little challenging.

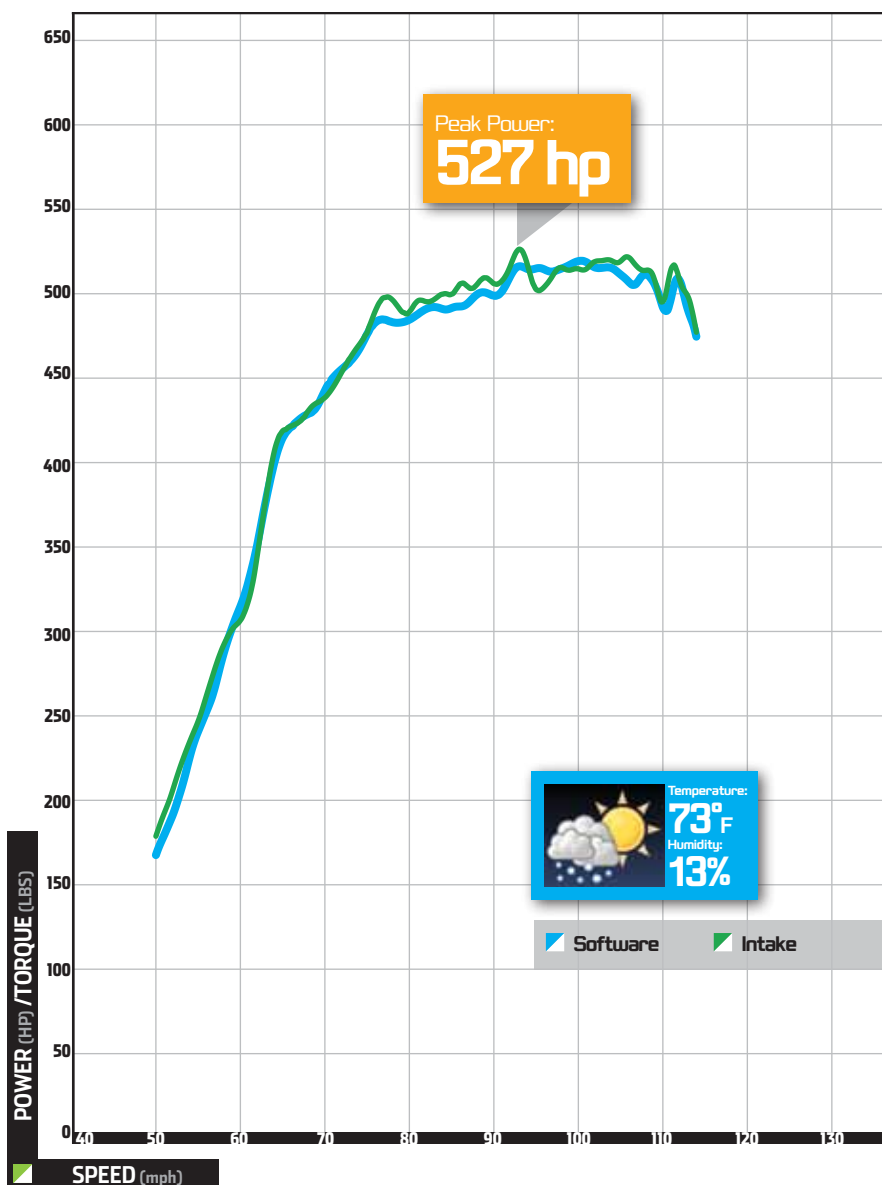
On my way back to the dyno I gave the throttle a couple of blips and could instantly feel the difference, and the Actron scanner was now registering 64 lb/hr through the MAF sensor. The newfound power is at a near-scary level, and one could start to worry about engine longevity. But a quick glance at the ignition values at wide-open throttle and you'll see around -12 degrees of timing (yes, negative 12). These engines are not even trying.

While the majority of the gains happen down low, you still enjoy an average increase of 50 whp from midrange on up.



RENNTech INTAKE

GRAPH 2: SOFTWARE VS INTAKE



TEST 2

PERFORMANCE

Peak Power: 526.8 hp @ 4500 rpm
Peak Torque: 703.1 lb-ft @ 3100-3700 rpm
Max HP gain: 17.0 hp @ 5350 rpm
Max TQ gain: 16.7 lb-ft @ 5350 rpm
50-115 mph dyno accel: 3.47 sec.
Temperature: 73°F
Humidity: 13%

Parts: Renntech carbon-fiber intake
Installation time: 30 minutes
MSRP: \$5,250

PROS

- Perfect fit
- Beautiful finish for engine dress-up
- Doesn't affect factory warranty

CONS

- Every upgrade for this car will be expensive

TEST NOTES

To complete Renntech's Stage 3 package we installed its beautiful carbon-fiber intake kit, featuring two new carbon boxes with a high-flow filter element in each. Complemented with a full carbon cover for the intercoolers as well as the front of the engine, the carbon bling under the hood is instantly noticed by everyone when the hood is popped open.

During testing we noticed the car wanted to hit the higher numbers but little fluctuations weren't helping the intake's gains. While the delta from 3800 rpm on averaged just under 5 whp, we'd bet that with more of a ram-air effect from the road at high speed this intake should definitely show more consistent gains in the mid-teens.



CONCLUSION

GRAPH 3: COMPARE ALL



WITH SIMPLE BOLT-ONS, THIS CAR IS SIGNIFICANTLY FASTER. Down low it's a torque monster but the gains from 4000 rpm onward is what tells the true story of straight-line acceleration. In this car's case, it still averaged over 50 whp—and we think maybe even a little bit more with the intake at high road speeds. Off the dyno and in the real world this equated to a 0.8-second improvement in the 60-120 mph acceleration test, now at 8.5 seconds—that's knocking on the door of a 2010 Porsche 997.1 Turbo.

In acceleration testing using our VBOX PerformanceBox, our baseline testing, using our all-season tires, completed 0-60 mph in 4.4 seconds and the quarter-mile in 12.7 @ 114.1 mph. With the ECU, TCU and intake upgrade, these numbers improved to 4.1 seconds and 12.2 @ 118.6 mph. With this kind of acceleration, our Renntech S600 is the ultimate family Q-ship. Next time, we've got one last upgrade up our sleeves that will improve acceleration even further.

CONTACT

55 Tech Motors
55tech.com

Actron
actron.com

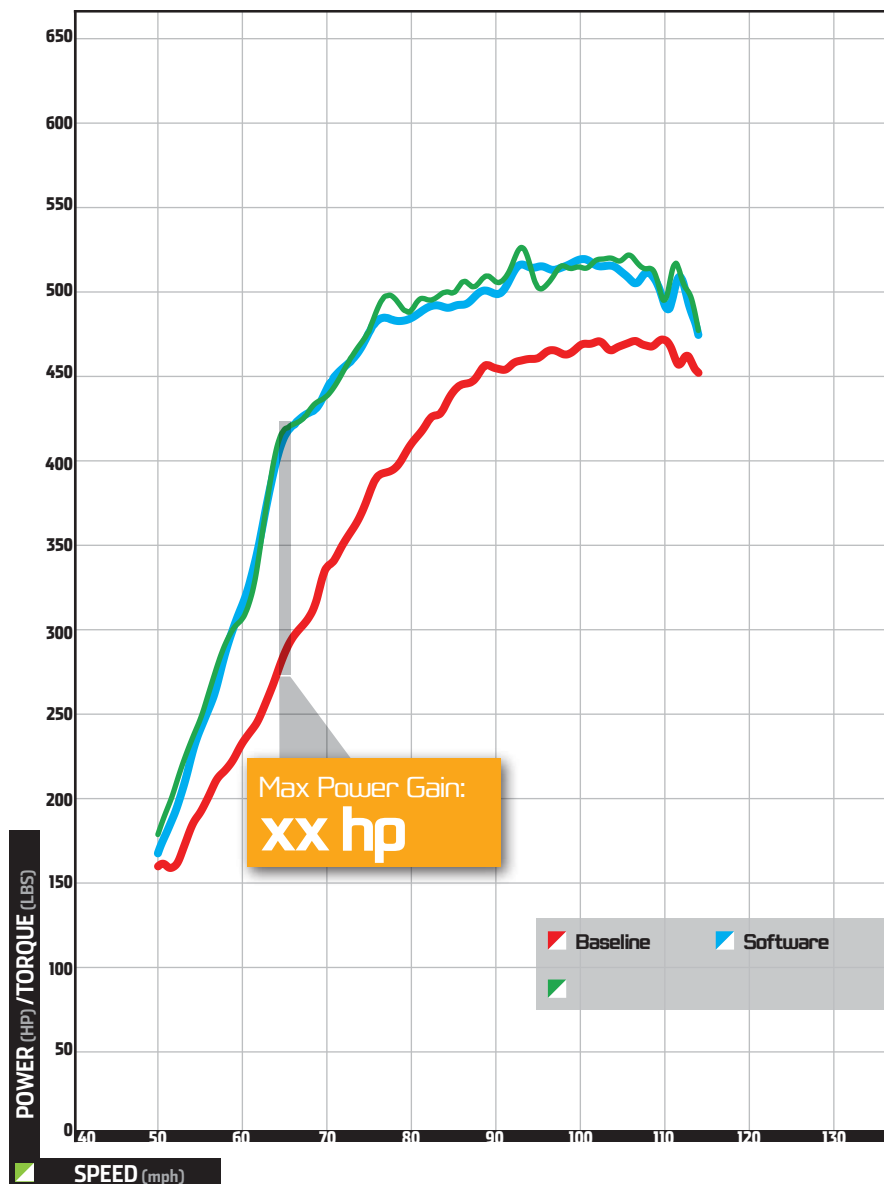
European Motorsports
europeanmotorsportscentral.com

General Tire
generaltire.com

Modified by KC
mkcperformance.com

Renntech
renntechmercedes.com

VBox USA
vboxusa.com



The CL blackened grille from 55 Tech Motors is a simple aesthetic upgrade that, coupled with Renntech Monolite wheels and wider General Tire AS-03 rubber, makes a huge improvement to the looks of the front end.