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TRACI BARRETT
FOR NARS COSMETICS

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'90s HITS

When it comes to cars, I'm a product of the '90s. Serving as my post-pubescent years, things like Transformers, Robotech, and Nintendo gave way to more important things like girls, ditching school, *Street Fighter 2*, shooting pool, and hanging out in K-Town. The problem with all of these activities was that it required the use of one very important tool: a car (mind you, this was an era before Facebook, Twitter, or the Internet. You had to actually, gasp, go out to meet people in the flesh).

Growing up in SoCal, mass forms of transportation were scant—you had better odds catching winning lottery numbers or HIV than a train to the city. Subways, like Austrian governors, are a recent innovation to L.A. If you didn't have a car, you were stuck at home or at the mercy of your friends—or worse—your parents. As a minor, getting your driver's permit was like your own Emancipation Proclamation; the license, your forty acres; and if you know where I'm going with this semi-racially sensitive analogy, you can guess what the mule represents (hint: they both have four contact patches).

Cars equated freedom, which is why my '90s were spent in adoration with them. You probably owned a Civic, Integra, or Accord (yes, they were actually cool back then), but the GT-Rs, NSXs, Supras, RX-7s, 300ZX, 3000GTs (yes, they too, were actually cool back then), were the halo cars of the era. All of which is why I'm still pre-Y2K when it comes to cars—I've been through at least a dozen pink slips, and the highest numbers I've seen are 1997.

But if I were a product of the new millennia, the two cars I would most certainly pine for would be the STI and EVO (see, I am going somewhere with this ramble). At first, they were a bit curious. All-wheel drive was cool and the turbocharged fours might have been a slight departure from the six-cylinders found in sports cars reigning years past, but the sedan configuration was straight-out weird. Four doors were for family duty. But your momma's Camry these sedans are not. They are fast, have an actual trunk, and sit four full-size adults. Try that in the back of Supra or 300ZX! Smarter sports cars, the STI and EVO are practical as they are nimble, and because of their similarities, natural competitors. They are the Mustang vs Camaro of our world and thanks to Continental Tires, we were able to continue the mother of all shootouts, STI vs EVO Challenge, to see who won bragging rights for the next year.

Speaking of mothers, this being the May issue, I want to dedicate the last paragraph to plug the one special person who matters the most in our lives. And no, not the tuner who solved the bogging issue under partial throttle or the buddy who helped you wrench during those late-night sessions, but your mom. This small morsel of gratitude is for the one who brought you into this world and wiped up after your oil-colored spills, topped off your fluids when you were shrieking in hunger, took care of you when you were way past your warranty period, and stuck by when you were in last place, disqualified, or suffering from mechanical failure. To all the moms in the world and to my own, thanks for being our own personal pit crew, team manager, and source of inspiration. Happy Mother's Day.

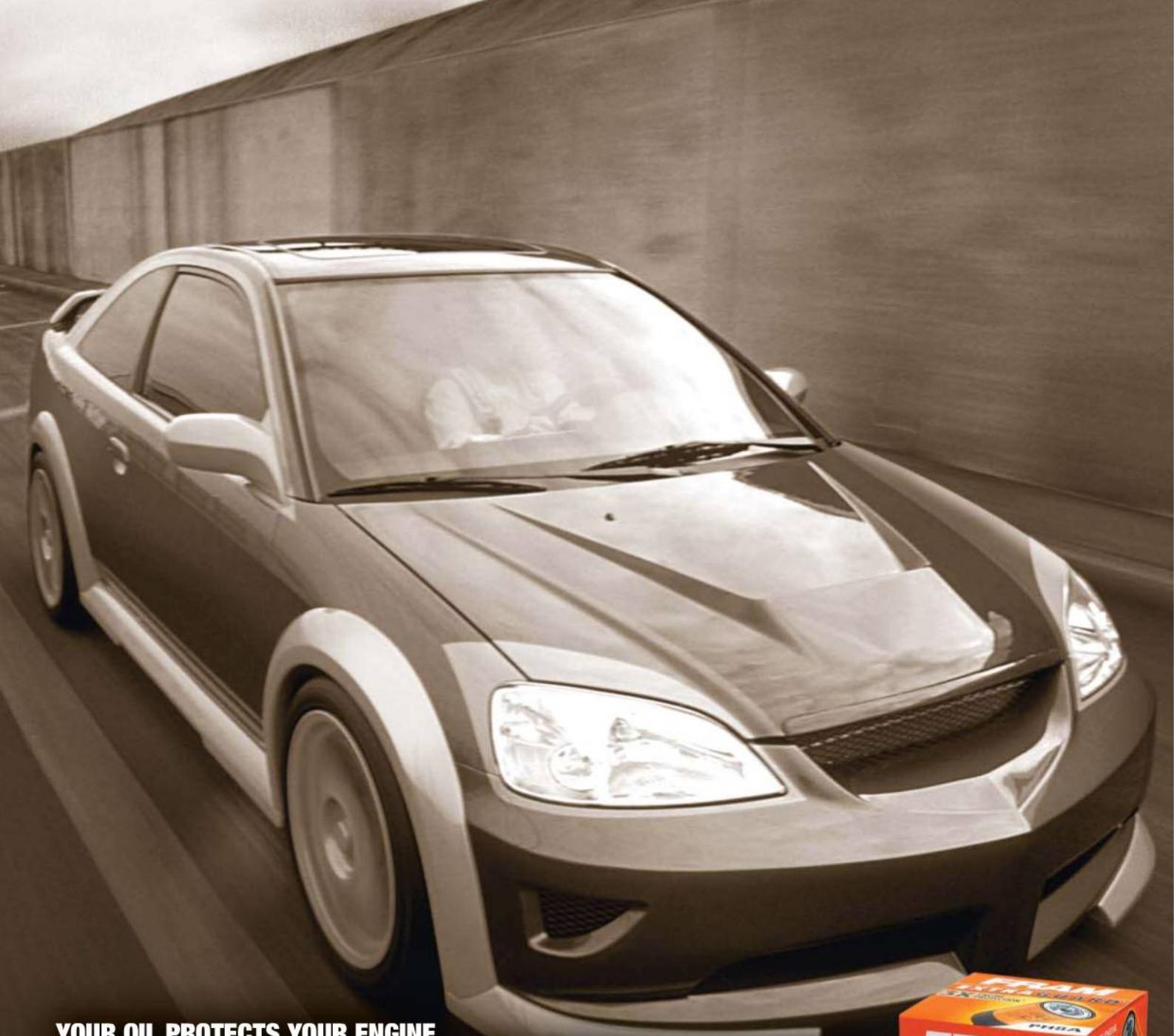
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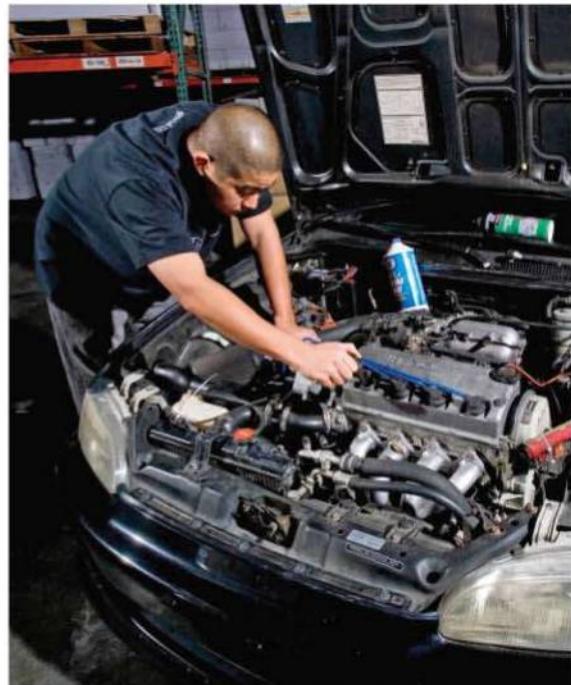
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On a monthly basis, we receive dozens of emails from loyal readers with questions ranging from engine swaps to the more creepy individuals inquiring how to get in contact with cover models. While few questions go unanswered in our never-ending chain of emails, there's always one that arises more often than most, usually encapsulated in bold face letters, titled "VEHICLE MAINTENANCE . . . HELP!"

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SENIOR EDITOR
SCOTT TSUNEISHI
scott@importtuner.com

CHING it
RIDING SHOTGUN WITH THE EDITORS



'09 MITSUBISHI LANCER RALLIART
In need of a wheel upgrade, we went to Ark Design for their new, completely un-Audi R8. An eight spoke design, the R8 feature a "balance ring" that provides rigidity and strength, perfect for a daily driver like the Ralliart. For sizing, we went with 19x8.5 on all corners. Look for a detailed build, soon.

EDITOR
CARTER JUNG

'05 SUBARU WRX STI

Here's a teary eyed photo of smoke and fire billowing from the engine compartment of my STI while competing in the STI Vs. EVO Challenge. I have yet to pinpoint what caused the failure, but in the meantime, I'll drive around my trusty old Civic.

SENIOR EDITOR
SCOTT TSUNEISHI



'93 MAZDA MIATA
The hotel is closed! Not only did the Miata recently get a new steering rack, partial bushing set and brakes, but in a move sure to piss off every cat/raccoon/vagrant within a three-block radius from Import Tuner headquarters, I replaced its torn/nonexistent top. No more hopping into a mysteriously warm seat after a late night at work, or reaching into my center console to discover that my stash of car wash tokens had been cleaned out . . . again. I even steam cleaned the interior, too, and was almost able to rid the roadster of its elusive urine ambience. Almost.

TECH EDITOR
LUKE MUNNELL

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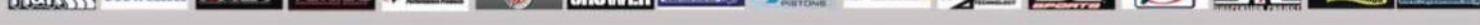
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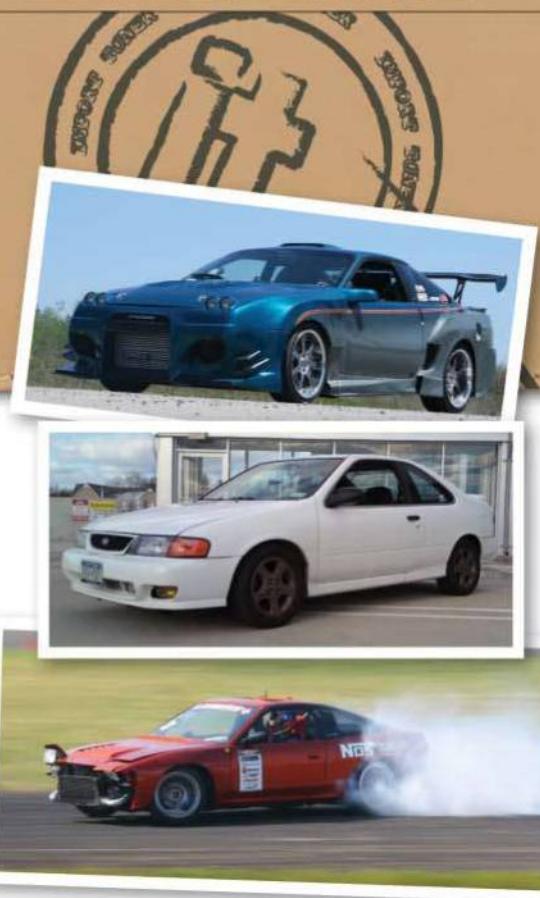
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GOING POSTAL



EVO OR STI?

I've asked a bunch of my friends, and now I come to you for your knowledge: I'm in the market for my first car, and I've got \$10K to spend. I'm relatively new to the car-modding scene (I've never done anything harder than an oil change and brake inspection). I had my eye on a Mitsubishi EVO IX or VIII—four doors, good power and looks, AWD, plenty of mods on the market. It seems like a no-brainer. This would be my first car, so I want something easy to mod and drive on the daily, and given the huge aftermarket support for the EVO, I figured it'd be a good place to start. Am I crazy to think I can find a running EVO for under 10 grand? If so, is there any other starter car in that price range that I should check out?

-Andy Tong
via importtuner.com

Welcome to the scene, Andy. It's good that you're honest with yourself about your abilities with cars—many people like to think they know more than they do, and bite off more than they can chew with a project. Take your time and learn everything you can about your first car and you'll figure it out in no time. And no, you're not crazy to think you'd find an EVO VIII for less than \$10K, just be prepared for it to be in less-than-perfect shape. Refer back to our April issue for an idea of what your first mods should be, then check out our 4G64 tech series—this type of project should be commonplace by the time you're ready for more power.



We'll NEVER get tired of CJ Gibson RT @sergioOh @importtuner I found the january issue...and the calendar!! <http://twitpic.com/wq5sh>

@Big_Ant @importtuner Guys, you need to give us NYC tuners credit for riding low. I look like flight of the bumblebee going down the street.

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SERIOUSLY GUYS

You have seriously been missing out on a car that has been showing up other cars at shows for years: Adam Cutler's '89 Ford Probe GT. Now, I know what you're thinking, "an '89 Probe isn't worth putting in the mag," but your instincts would be highly mistaken. This is a custom, one-of-a-kind Probe, with a home-built wide-body kit that would blow you away. Big wheels, custom turbo kit, fiberglass interior, and a sound system that would knock the "tupay" off your high school principal in seconds make this car pop. Some would say it resembles a Nissan 240SX; we even had a few Nissan guys ask what year 240 it was! If you have the guts, check out the attached photos and see for yourself. I promise you won't be disappointed. I'm a friend of Adam's and have been by his side for this build. No sponsors helped with this build; it was all out of pocket.

-Joshua Morgan
via importtuner.com

facepalm

BOX O' PRIDE

Let me start off by saying that I am a fan of your magazine. But I was flipping through the January '10 issue today and I noticed a "Going Postal" submission titled "Box o' Rice" by some guy from my town with a '97 Sentra, and got a little offended. I worked my ass off to build my '95 B14 SE-R. It's powered by an T25-boosted SR20DE. I bought every part and the car with my own money, and did all my own work. I'm asking you this favor: Can you please just put at least one pic of my car in your mag somewhere, so I can show it to people who talk down my SE-R and tell them to eat shit? Thanks.

-Tom DeCicco
via importtuner.com

We'd be glad to print a pic of your Sentra in the mag, even though it's kind of sissy for you to be offended at the intentionally riced-out Sentra from last month. You can also show the haters the "10 Most Underrated Imports" section we'll have in next month's issue, which you've inspired us to put together. We get emails all the time from readers with cool, but offbeat project cars that want to see more built rides like theirs. Problem is, for about as cool as some of these cars are, we know of about three Sentras, four DSMs and one Tiburon the rest of our readers would give a shit about seeing in our mag. Keep reading—we've got some surprises planned for you in coming months, and don't forget to check out the "Honorable Features" section on importtuner.com for more random sickness out there.

WOOPS!

While looking at your coverage of D1 Englishtown this year, you incorrectly put my name as the Third-place winner. The real Third-place winner was Steve Angerman, from New Jersey. He's in the NOS racing suit holding up the check in your pictures, and drove a deep-orange S13 hatch. He deserves as much recognition as possible, and I don't want him to think I punked him!

Much love to Import Tuner and the print movement!
-Sal Campo
South Amboy, NJ

Sorry about that. Retraction noted and corrections made to the online article. Steve, here's to hoping you don't live up to your last name!

@kerryandlc I have read @importtuner for 10 years thru a crx, ek9, eg6, dc2, gsx-r, evo ix, miata & now current R32 GT-R. Thank u 4 runnin me broke!

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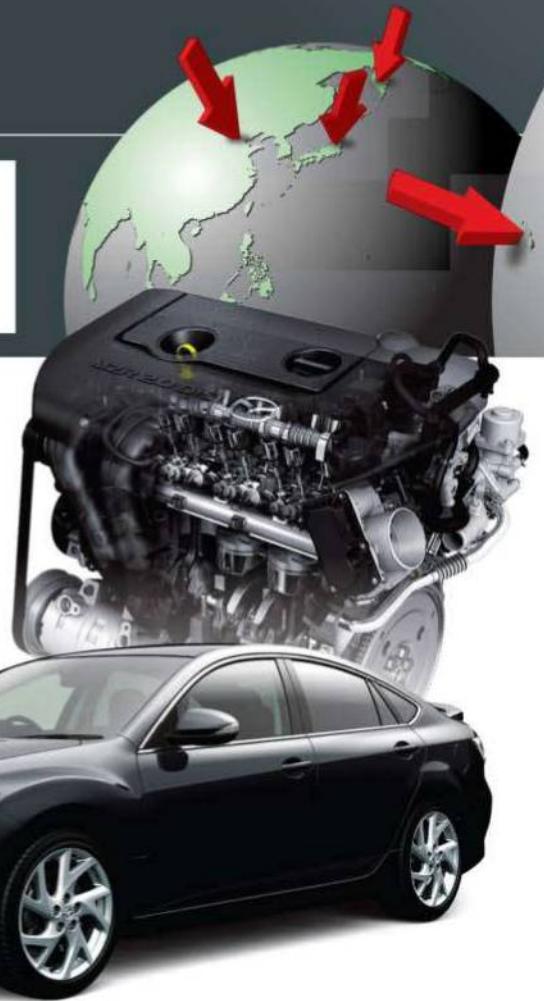
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SUMMIT
RACING EQUIPMENT

Early spring is upon us, which means we're smack in the middle of the post-auto-show scramble of OEMs to copy each others' ideas and one-up the next guy. Amidst Toyota's sticky situation with a throttle recall, the Detroit Auto Show catching on fire, Tata apparently plotting to rip off the American consumer, a sea of electric vehicles, and the usual random three- and four-wheeled craziness, here's what we felt was most worth our ink.

2011 JDM MAZDA6 DIRECT-INJECTION 2.0L, AWD, SLEEK STYLING

Let's start by saying there are no plans for us to get it. Sure, the new USDM Mazda6 will most likely bear some exterior resemblance to what was "pre-debuted" recently (full production specs to be revealed around the time you read this), and there's a good chance the front/rear torque-splitting AWD drivetrain will stay, but the re-worked direct-injection 2.0L MZR DISI engine (that boasts a 10-percent improvement in power/torque and fuel efficiency compared to a conventional arrangement) will likely remain only for the JDM market for which it was created, specifically to take advantage of an "eco-car" tax break—the USDM will keep the wildly less efficient (but bigger, and it's the only one with a manual transmission option) 2.5L inline-four. www.mazda.com



HONDA CR-Z (FOR REAL THIS TIME)

After a million (or so) outlandish speculations, radical concept sketches, leaked pre-production spy shots and pre-debuts, production specs of the car hailed as "the new CRX" have finally been released. Said John Mendel, executive vice president of sales for American Honda, "The CR-Z is a personal sport hybrid coupe for people with a spirit of adventure and an elevated sense of responsibility toward the environment... It's the first hybrid designed to maximize style and fun, in addition to efficiency and economy." Are you crying yet? If not, this might help: a 1.5L i-VTEC Integrated Motor Assist (IMA) gas/electric hybrid engine, CVT trans., Vehicle Stability Assist (traction control), and MacPherson/torsion beam suspension. On the bright side, an "EX" model with HIDs, a six-speed manny, and a pretty buff Bluetooth/nav/USB audio system is available, and we half-way hate to say it, but its "green" options (like its 36/38mpg efficiency, and color-changing tach that signals fuel-efficient driving) are kind of cool. Still, it's lightweight and looks good—engine/motor interchangeability is all we're really thinking about. www.honda.com

SCION TO GROW



Amidst speculation that Scion—whose 2009 sales figures dropped 49% from their 2008 levels—may be exiting the auto-making stage, Toyota's North American president, Yoshi Inaba, retorted by promising that Scion will actually grow its youth-marketing niche by offering two new models tailored to "American tastes", which the U.S.-designed and built tC was designed to satiate. Plans have been announced to debut Toyota's 1.3L 93hp Smart-battling IQ as a new Scion model for '11, and our guess is that a production variant of last year's Hako Concept would likely beat out rumors of a Scion pick-up truck that won't seem to go away. But neither platform offers the American styling to which Inaba-san hinted. Can a brotha get some turbo/RWD love up in here? www.scion.com





TRICKS OF THE TRADE

HELPING YOU WRENCH

INCREASE COOLING CAPACITY

Aftermarket radiators using high-flow cores and powerful fans can keep engines cool under even the most demanding conditions, but ask yourself: Is your setup working at maximum efficiency? Upon analyzing radiators in various performance imports, we noticed a majority of radiator fans pulling air in from gaps alongside radiator and shroud meeting points, instead of through radiators' cores, where it's most beneficial. Even a small gap along all four sides of a radiator/shroud will actually allow a fan to draw more air from the side of a radiator than through it, thus decreasing its efficiency in cooling your engine. Using some adhesive metal tape picked up from a local auto parts store, we were able to quickly seal the gaps in only a few minutes (this trick also works in sealing radiator cooling panels). While using foam or rubber can be an alternate solution, we found the metal tape to be a simple, yet effective fix for just a few bucks.



BEFORE



AFTER



LEXUS FT-CH PRIUS STARTS A FAMILY

In a bid to capitalize on the success of their Prius, Toyota, with plans to double hybrid output by 2011, recently announced their gas/electric FT-CH hybrid, designed to appeal to a younger generation that's grown up "in a world filled with video games and email". While we're not sure what email has to do with the concept's "8-bit styling" admittedly inspired by NES hits *Contra*, *Megaman* and *Super Mario Brothers*—nor why it's priced \$8k less than the Prius, yet planned to debut as a Lexus—it's frosted glass roof, suspension fabric seating and see-through headlights were just too wacky for us to pass up. www.lexus.com



370Z EARNED BEST RESALE VALUE 40TH ANNIVERSARY EDITION RELEASED

Kelley Blue Book recently honored the '10 370Z as having the highest forecasted resale value of any in-class vehicle of the new year, based partly on the fact that it fares so well compared to European sports coupes with far higher MSRPs. "The Nissan 370Z can be considered a bargain to begin with, which can be an important part of the resale value equation," stated an excerpt from kbb.com, "Nissan's latest Z is the most powerful, most fun, most desirable iteration yet . . . we'd be happy to take one—new or used." The '10 model year also marks the Z's 40th anniversary, which Nissan will be celebrating by offering the car in a 1,000-unit limited release, complete with an exclusive "40th Quartz" exterior hue, lots of red-stitched leather inside, badges, red brake calipers, luster-finished smoked wheels, and an authenticity plaque. We were kind of hoping for suspension upgrades, racing buckets or a couple of turbos, but would be happy to take one—tuned or not. www.nissan.com



OEMS FIGHT THE GOOD FIGHT

It's becoming increasingly obvious that despite its overall lackluster, post(-)recessionary, bear-market state, the auto industry selflessly continues to pour out more of the capital they so urgently need to those in an even worse situation: the benefactors of Haiti Relief work. "General Public Motors" got the ball rolling with a \$100k donation to the American Red Cross almost as soon as the Jan 12, 2010 magnitude-7 quake struck the South Atlantic republic, followed closely by Nissan's \$30k cash, dollar-for-dollar matching campaign for employee donations, and \$52k donation to Habitat for Humanity. Honda kicked in \$300k in cash and equipment, and Toyota, a whopping \$500k pledge to the Red Cross, Doctors Without Borders, and Save the Children, amidst one of the company's most expensive series of product recalls in history. www.redcross.org

THE ORIGINAL SUBARU VS. MITSUBISHI FACEOFF



If you're thinking today's EVO vs. STI rivalry is simply a product of competition between car-making rally competitors, you're close . . . but wrong. Even before the Galant/Legacy rivalry that predates our current EVO/STI situation, heated bouts of one-upsmanship between the two OEMs date as far back as the early 1960s, when two different models with the same name competed for Japan's first mainstream car buyers.

In contrast to how the EVO beat the WRX to production by one year (and the STI by two), it was Subaru whose 360 became Japan's first mass-produced car, with its pro-

duction debut in 1958. While Subaru's first car, the limited-production 1500 (largely produced by a division of Fuji Heavy Industries that would later become the Prince Motor Company, a predecessor to Nissan), was a luxury car built for the Japanese elite, the 360 was billed as the "people's car" by the Japanese government, much like the original Volkswagen (which, when translated from German, means "people's car") was proposed by Germany's Third Reich 20 years prior. Resemblance to the original Beetle is apparent in the 360's dual round headlights, dome shape, and rear-mounted, air-cooled engine (all of which garnered it the nickname "ladybug" in Japan). Where the 360 differed, however, was in its monocoque construction and fiberglass roof, smaller overall size, and in the two-cylinder, two-stroke, 360cc (356cc, actually) engine from which its name was taken. The 360's construction was ahead of its time, as opposed to the all-steel, frame-and-chassis Beetle, but performance numbers are a different story: the Beetle did 0-60 in 14.7 seconds, while the 360 took 37 seconds to hit 50 mph; it's 16hp engine couldn't routinely reach 60.

Inspired by the Subaru 360, Mitsubishi—who had been in the automaking game since the 1917 debut of their Model A—released their own variant of the Subaru 360, called the Mitsubishi 360, three years later. Like Subaru's car, the Mitsu 360 was built for the country's lowest automotive tax bracket with its 359cc, 17hp, two-stroke, two-cylinder mill, but the car itself was styled as a two-seat pickup and was capable of only a 50mph top speed (the next-generation model would see "significant" power improvements: one additional hp and a 53mph top speed). The success of the Mitsu version would prompt the company to quit messing around with the three-wheeled vehicles it was known for at the time, and produce the micro Minica full time (which remains in production to this day for international markets). Subie's success with their original 360 inspired the expansion of *kei* cars and trucks that did much to grow Japan's private industry.

The Mitsubishi 360 never officially made it to our shores, but 10,000 Subaru 360s were brought here by auto importer Malcolm Bricklin shortly after production, most with even smaller 423cc engines and MSRP's of around \$1,200. Initial sales were significant, then all but stopped once Consumer Reports labeled the car "The Most Unsafe Car in America" in 1969. Unsold units were largely destroyed, but became a cult classic among collectors for their low selling price, and because their 1,000-pound weight and small-displacement engines keeps them exempt from most registering/emissions legislation to this day.

SPECS	1958 SUBARU 360	1961 MITSUBISHI 360
BODY	TWO DOORS, FOUR SEATS, HATCHBACK	TWO DOORS, TWO SEATS, PICKUP TRUCK
ORIENTATION	REAR ENGINE, REAR-WHEEL DRIVE	FRONT ENGINE, REAR-WHEEL DRIVE
LENGTH	117.7 INCHES	117.9 INCHES
WIDTH	51.2 INCHES	51.0 INCHES
HEIGHT	54.3 INCHES	54.7 INCHES
WHEELBASE	70.9 INCHES	74.8 INCHES
SUSPENSION	FRONT AND REAR INDEPENDENT TRAILING ARM/TORSION BAR	FRONT AND REAR INDEPENDENT TRAILING ARM/TORSION BAR
ENGINE	EK31	ME21
TYPE	TWO-STROKE	TWO-STROKE
LAYOUT	STRAIGHT TWIN	STRAIGHT TWIN
DISPLACEMENT	356CC	359CC
BORE/STROKE	61.5MM X 60MM	62MM X 59.6MM
COMPRESSION	6.5:1	8.2:1
FUEL	25:1 GASOLINE/OIL MIX	25:1 GASOLINE/OIL MIX
TRANSMISSION	FOUR-SPEED SYNCHROMESH	FOUR-SPEED SYNCHROMESH
OUTPUT	16 HP	17 HP
0-50 MPH	37 SECONDS	N/A
TOP SPEED	60 MPH	53 MPH

KEN BLOCK CAR-JACKED!

Money can do amazing things. The last car we ever expected to do well in American rally was the Fiesta, but our opinions changed with the aforementioned model's near-sweep of the X Games podium last year, after Ford dumped loads of cash into promoting the newly designed model (in much the same way that GM promoted their Cobalt by competing in sport compact drag-racing and time-attack years ago). Per protocol, they've coaxed one of the sport compact world's most well-known drivers to

follow their lead, by signing gymkhana innovator and DC Shoes front-man Ken Block into two purpose-built competition rides for the '10 season. While we're stoked that this keeps Ken, co-driver Alex Gelsomino, and Monster Energy Drink together for 2010 Rally America and X Games competition—and gives Ken his well-deserved first crack at WRC competition—we're really going to miss his STI . . . no matter how much the newly imported Euro-spec Fiesta (based on Europe's Mazda 2/Demio) kicks ass compared to anything the American company has actually produced for the American market thus far. Want to see more of this thing? Let us know, via postal@importtuner.com www.monsterworldrallyteam.com





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DR-32 17" 18"



DR-33 15" 17" 18"



DR-34 15" 17" 18"



DR-35 17" 18"



DR-36 17" 18"



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FALKEN TIRE

Photo by Henry Z. DeKuyper



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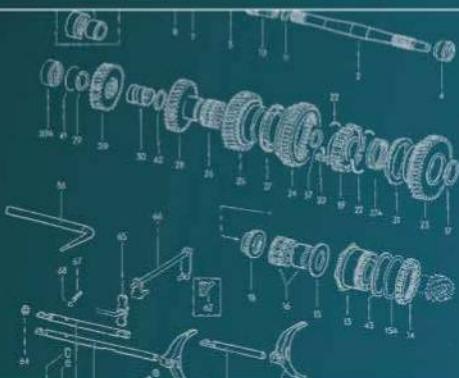


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QUESTION IT



WHY IS ERIC ALWAYS RIGHT?

In the April '09, and Aug '09 issues, Eric Hsu recommends the Cosworth M2 272-degree camshafts for the EVO. Is he only saying this because he works for Cosworth? With that aside, in the July '08 issue, an anonymous reader inquired about obtaining higher rpm from his Honda without 'busting something'. Why not recommend a B16B1 or B18C1 head, ARP rod bolts, and a chipped ECU? Also, in response to a question in the Oct '08 issue, I would recommend Sgt. Montanez spend \$5K on a B-series engine, a tiny T3/T4 turbo, injectors, a Walbro 255 lph, and a good tune rather than spending \$5K on a K-series swap. On the same page, Gabriel Kent was told his Honda Civic (EG) might not want to fuck with a 300ZX-TT, but Mr. Kent never mentioned if he had an engine swap or was still using the factory D16 motor. A DOHC VTEC with adjustable timing gears on both the exhaust and intake camshafts would definitely give a modified 500hp 300ZX a run for the money. In short, aren't Eric Hsu's replies to "Question IT" supposed to be unbiased? P.S. Congrats on Mr. Hsu's engagement, best wishes!

-Josh Le Vasseur
via importtuner.com

Thanks for the congrats. As part of the product development team at Cosworth, I have full confidence that Cosworth parts are the best, since we generally review and test a large majority of competitors' products before releasing ours on the market. Truth be told, if it wasn't the best, I wouldn't have my name associated with it. The last time I checked we have five F1 teams on this year's grid, so we all have a pretty important image to protect. BTW, where are those other companies' F1 engines? As far as being biased, I am biased as a motherfucker, but you've already noticed that, so let me spell out my biases for you: turbo engines, bigger engines, proven engine components, Cosworth, rear-wheel drive, all-wheel drive, and high-but-not-too-high-horsepower cars (filling blocks with cement isn't for me). I hate cheap shit made in China, knock-offs, and second-rate "high performance" car parts. Feel free to pick apart my advice all you want. When you've been doing this as long as I have, you can get a column and you give your advice. Until then, read mine.

FIXING WHAT YOU BROKE

Seems our intro in the Feb '10 issue was a hit. Here are some more facts you might not know about Eric Hsu:

1. Eric Hsu mounts, balances, and shaves his own racing slicks. With his bare hands.
2. As a child, Eric Hsu would check his Halloween candy for poison and razor blades. Those were the only ones he ate.
3. Eric Hsu was cast as the original Dom Toretto, but was replaced by Vin Diesel when the director wanted "someone who wasn't such a badass".
4. Eric Hsu went into S.W.A.T.'s house, and disrespected their whole family.
5. Eric Hsu can weld titanium and aluminum. Together.
6. On May 17, 1986, a unit of measure known as the "Hsupower" was established. To date, no vehicle has ever made enough power to warrant its use.



ERIC HSU
WWW.BEYONDTHEDYNO.COM/BLOGS/ERIC

BOOST DISASTER

I spent the entire summer trying to avoid writing in, but after numerous upgrades and maintenance on my '03 WRX and '85 300ZX (Z31) Turbo, I've run into identical problems with both. I replaced the turbo and the clutch with OEM replacements (nothing modified), but both vehicles mysteriously tach out at 5,000 rpm at only half throttle and I can't understand why?

-BBC
via importtuner.com

It's hard to diagnose problems remotely, but it sounds like there are vacuum/boost leaks in the system. Since both of your cars have mass air flow meters, it is critical that the charge systems are sealed and have absolutely no leaks. Since the Z is an older car, most of the time you'll find that cracked rubber hoses are the culprit. Even small cracks can cause major problems, so you'll have to inspect all the hoses carefully. The WRX has a fairly short charge system compared to the Z, so it should be easier to diagnose. The rubber hose that connects the top-mount intercooler and the throttle body often cracks. Also, the two intercooler inlet hoses on the bottom of the intercooler are easy to install crooked, and can also result in a vacuum/boost leak. Ideally, on both cars you should replace all intercooler transition hoses with silicone hoses and new stainless steel worm drive clamps. If you still have problems, you'll have to pressurize the charge system and listen for leaks. Small leaks can be found with a soapy water solution sprayed over all transitions, hoses, gaskets, etc. It's a pain in the ass, so good luck!

NERD ALERT!

I'm a first-year engineering student from Canada, and decided to design my own intake plenum for a Nissan RB26 in a student edition of the program Solid Works. I've been looking into the use of Helmholtz Resonance in the design of intake and exhaust systems and am curious if it's just as effective in boosted applications, and if there are any changes to the theory when the plenum pressure is greater than atmospheric pressure. This is the document I've been getting most of my info from; I'm not really sure how accurate it is, but it's the best I've come across:
www.grapepaperacing.com/tech/inductionsystems.pdf

I asked my physics professor, but he really wasn't any help.

-Matthew
Houston, TX

For turbocharged intake plenums, we at Cosworth do not take into account the Helmholtz resonance factor, due to the intake plenum's pressure being greater than atmospheric. In other words, it isn't possible for a pressure wave to travel within the plenum or intercooler tubes, since the pressure is nearly always positive on a turbocharged engine (under throttle). While a lot of our plenum designs are influenced by engine simulation software, empirical testing usually decides the final designs. Our engineers have a lot of experience with plenum design, which helps speed the process tremendously. Good luck with your design and let me know how it works out after testing.

CODE TALK

I would like to have an OBD1 reader that connects to a laptop to check for trouble and safety codes. Is this something you can help with?

-Peter Kellogg
Freeport, ME

Since there is no communication standard for OBD1 vehicles, it would depend entirely on what kind of car you have. OBD1 is manufacturer-specific. Generally, there is a lot of OBD1 support for domestic vehicles and very little support (to the public) for Japanese and European vehicles. You may want to try Auto X-ray, SPX and Snap-On for some OBD1 diagnostic equipment.

REAL TIME

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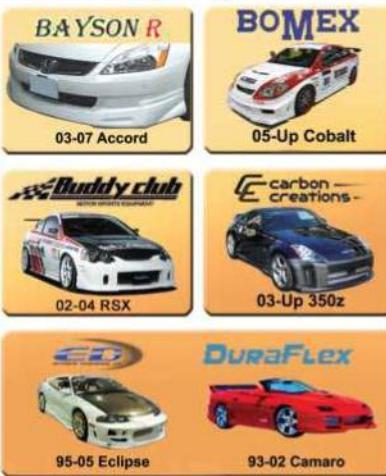
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NSX	Escort	Miata	G6
RL	Escort ZX2	Millenia	Grand Am
RSX	Focus	MX-3	Grand Prix
TL	Mustang	MX-6	GTO
TSX	Probe	Protege	Sunbird
Vigor	Taurus	Protege 5	Sunfire
Audi A4	Thunderbird	RX	Trans AM
A6			Vibe
TT			
BMW			
3 Series	Geo Metro	Mercedes ION	Pontiac Fiero
5 Series	Prizm	CLK-Class	Firebird
8 Series	Storm	E-Class	G6
M3	Honda Accord	S-Class	Grand Am
Mini Cooper	Civic	SL-Class	Grand Prix
Z3	Civic Si	SLK-Class	GTO
Z4	CRX		Sunbird
Buick	Del Sol		Sunfire
Regal	Fit		Trans AM
Riviera	Odyssey		Vibe
Skylark	Prelude		
Somerset	S2000		
Cadillac			
CTS	Hyundai Accent		
Eldorado	Elantra		
Seville	Sonata		
Chevrolet	Tiburon		
Aveo	Infiniti G20		
Beretta	Nissan 200sx		
Camaro	G35		
Cavalier	300zx		
Cobalt	350Z		
Corsica	Altima		
Corvette	Maxima		
Impala	NX		
Lumina	Spectra		
Malibu	Oldsmobile Alero		
Monte Carlo	Aurora		
Prizm	Cougar		
Chrysler	Cutlass		
300	Intrigue		
Cirrus	Plymouth Breeze		
Concorde	Volvo		
LeBaron	Laser		
Neon	850		
PT Cruiser	Neon		
Sebring	Lincoln LS		



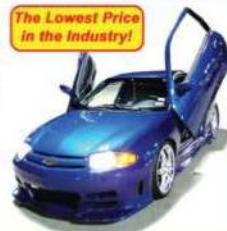
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NSX	Corvette	Focus	Jaguar GTO	Cougar	Trans Am	Corolla
RL	Mustang	Jaguar GTO	Mustang	Mustang	Sunbird	Corolla
RSX	Probe	Mustang	MR2	Odyssey	Vibe	Corolla
TL	Protege	Odyssey	MR2	Odyssey	Sierra	Corolla
TSX	Protege 5	Prelude	Paseo	Prelude	Sierra	Corolla
Vigor	RX	Prelude	PT Cruiser	Prelude	Sierra	Corolla
Audi A4	Talon	Prelude	Rebelle	Rebelle	Sierra	Corolla
A6		Prelude	Sebring	Sebring	Sierra	Corolla
TT		Prelude	Sierra	Sierra	Sierra	Corolla
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M3						
Mini Cooper						
Z3						
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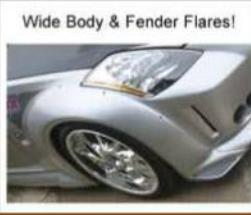
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01

BLACKBERRY BOLD 9700



01 Desperately seeking a smartphone that means business? Rejoice, as this revamp of the popular mobile handset ups the workday ante with high-speed (3G) Internet access, support for WiFi calling, a gorgeous 2.4-inch display, optical trackpad, and beefier processing power. Compared to its larger forerunner, it offers less screen real estate, but takes a step forward in terms of design, speed and ergonomics. And stacked against rivals, the device's QWERTY keyboard, extensive email, and world-calling capabilities make it a viable contender.

www.t-mobile.com / \$199 w/ two-year contract



02



03



04



05

02 AIRCURVE



Most iPhone docks do only one thing well: scam you out of your greenbacks with the promise of superior audio quality that, in practice, quickly strikes a disappointing chord. Thankfully, this transparent amplifier (which uses no speakers, just clever engineering to offer reasonably loud and solid sonic playback) delivers decent acoustic performance for minimal cost. A welcome nightstand or desk accessory, it's one of the more intriguing options available for everyday listening use, if not parties or studio listening sessions.

www.griffintechnology.com / \$19.99

03 HD-XR



Until they invent a way to beam films and television shows directly into our puny skulls, we'll settle for the next best thing: Streaming video. But while you're admittedly better off investing in a WiFi-ready Blu-ray player for slightly more, there's no doubting the ease with which said dedicated media extender pushes Netflix or Amazon "Video on Demand" content straight to your HDTV. Following a quick setup, the device makes it easy to wirelessly grab movies and primetime favorites.

www.roku.com / \$129.99

04 NC300B/W



Listen up—or don't—with a pair of noise-cancelling headphones that makes it easier to concentrate on what matters (i.e. Miley Cyrus' vocals), less on what doesn't (say, the bawling toddler next to you whose wails her enthusiastic bleats strangely resemble). Compact and lightweight, these models aren't just suitable for travel and easy to utilize, given quickly adjustable volume controls. They're also a decent value for a unit that retails toward the low end of the high-tech audiophile gear spectrum.

www.ableplanet.com / \$99.99

05 ABYSSUS AZER



Whether playing target practice with zombies' heads or using on-screen cursors to pretend to tickle Lara Croft's nipples, gamers demand one thing of their mice: Pixel-perfect precision. Enter a 3,500dpi, 3.5G infrared-sensor-equipped model that delivers peak accuracy and—especially when combined with a six-pack of Red Bull—can actually give PC owners an instant leg up on the competition. Just point and snipe away: Capable of tracking even the most exact motions, your victims' high-resolution nards will never know what hit them.

www.razerzone.com / \$49.99

06 ARMY OF TWO: THE 40TH DAY ■■■■□

Enjoy hosing heavily armed opponents down with hot lead, then reveling in the primal rush of an inseparable ally's post-massacre fist bump? Then check the successor to one of the earliest games to champion trigger-mashing co-op action's flow. With aid from a buddy or computer-controlled teammate, help death-mask-sporting anti-heroes Salem and Rios survive devastated Shanghai streets by using creative two-man strategies and an arsenal of customizable guns. Inventive level design focused on dual-pronged approaches elevates it above the usual mindless bloodbath.

www.ea.com / PS3, Xbox 360

07 MAG ■■■■□

The name says it all: Short for "massive action game," said immensely multiplayer blaster—letting up to 256 neo-futuristic commandos simultaneously wage war in squads of eight—happily ratchets up both fun factor and body count. What's more, hours spent perforating the opposition using well-aimed shots or a hastily-tossed grenade offer lasting impact, as ongoing play awards access to enhanced skills, better weaponry and leadership bonuses. Between mile-a-minute gunfights and the ability to execute smartly coordinated strategies, enlistment has its privileges.

www.playstation.com / PS3



06



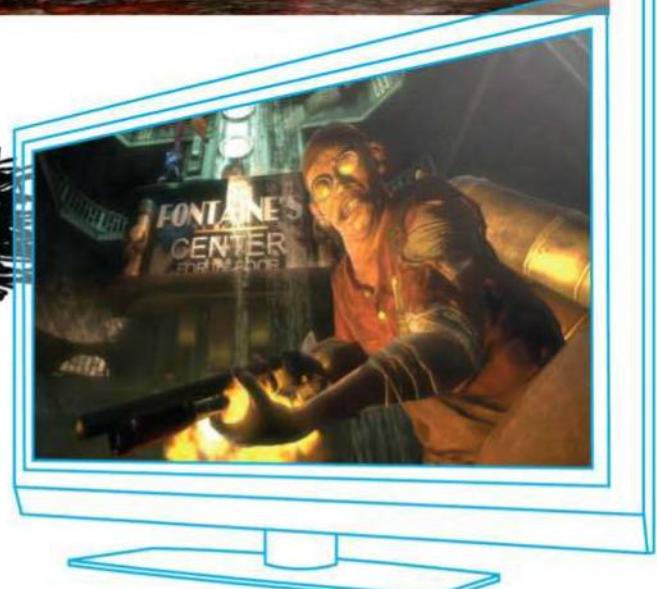
07



08



09



BIOSHOCK 2 ■■■■■

10 As first-person shooters go, it's impossible to top this long-awaited sequel's forerunner, which raised the bar for storytelling and characterization sky-high with its tale of a gene-splicing undersea paradise gone wrong. Still, the obligatory follow-up tries its hardest, putting players in the ironclad diving suit of a drill-armed Big Daddy who guzzles DNA to fight adversaries with ice-/fire-flinging superpowers. Adding multiplayer support, underwater scenarios, and options to adopt glowing-eyed "Little Sisters," it's a less moving, but ultimately worthy heir to the sunken throne.

www.2kgames.com / PC, PS3, Xbox 360

Dear Import Tuner,

I have a suggestion for your "Fact or Fiction" section. I heard somewhere that adding a lightweight flywheel causes the car to make power, but lose torque. I was thinking you could test this like you tested whether or not an LSD would lose power ["Fact or Fiction", Nov. '09 2NR]—with good, old-fashioned dyno testing.

"Chris"

via factorfiction@importtuner.com



DO LIGHTWEIGHT FLYWHEELS LOSE TORQUE?

The answer to this month's question may be a no-brainer to some, but since it remains a common debating point, and since we get emails like this one all the time, we've deemed it worthy of exposure. Plus, having recently installed and tested the effects of a lightweight ACT Prolite flywheel with our DC2 as part of the "Ultimate Efficiency" tech series featured last month, now might be the best time to clear the lightweight flywheel air once and for all.

The first part of understanding horsepower/torque relationships is to realize they are both measuring the energy output of an engine. Torque, as it applies to the reciprocating combustion engine, is the amount of rotational force it puts out, usually measured at its crankshaft or its car's wheels, quantified by distance (ft) and mass (lb). Imagine tightening a bolt to 72 lb-ft of torque with a two-foot-long torque wrench (the correct amount needed to tighten those Honda B-series flywheel bolts). If you're holding the wrench at its end when it clicks, you're pushing with 36 lbs of force (72 lbs/2 ft). If you're holding it halfway toward the head, you're pushing with 72 lbs of force (72 lbs/1 ft)—either



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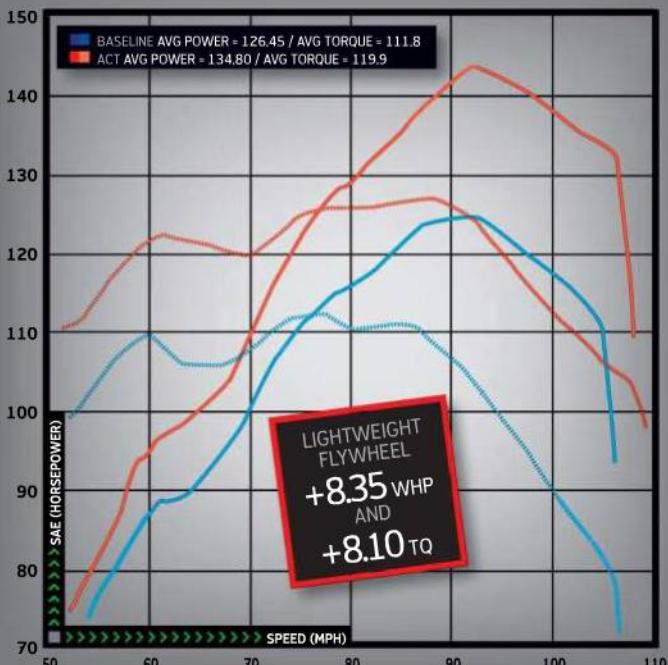


ACT PROLITE
WEIGHT
8 LBS 12.4oz

way, 72 lb-ft of torque is exerted on the bolt.

Now, picture tightening those bolts in one second as opposed to one minute and you're on your way to understanding horsepower, which adds time and a constant multiplier to the equation. One horsepower is defined as the energy needed to lift 550 pounds one foot in one second, and an engine's horsepower rating is simply its torque multiplied by rpm, divided by 5,252 to convert to revolution per minute (rpm). Therefore, any change in torque results in a proportionate change in hp. No matter how fast you tighten that bolt, it's still experiencing the same amount of force.

Lightened flywheels reduce the amount of energy produced by an engine that's spent in moving its components (parasitic loss). Since flywheels are solid, unsprung components of a vehicle's driveline, a lightweight flywheel will decrease parasitic loss at a constant rate, improving a vehicle's horsepower and torque output (measured after the flywheel) throughout its entire rev range.



THE VERDICT:

FICTION

to decrease torque but increase horsepower, the fact is that at the rpm where torque is decreased, so is horsepower (and vice versa)—changes are simply more apparent to horse-

power at higher engine speeds, and torque at lower engine speeds, due to the function of calculating horsepower from torque. Installing a lightweight flywheel doesn't decrease torque, but it does decrease inertia, meaning more torque will be needed to break traction with a clutch-kick (drifting or burning out), or to accelerate a vehicle off the line during a launch (drag racing, daily driving).

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With another season of Formula D almost upon us, what better way to kick off a new year of drift than to discuss the subject with a fine female? But who, might you ask? What girl could hold a decent conversation about the best tandem battle of '09, judging criteria, their favorite drifter, let alone cars in general? Well, how about last year's Miss Formula D, Miki Taka.

Genuinely JDM as Gundam, pixilated pr0n or a S15 Silvia, this Nagoya, Japan born bundle of *kawaii* can talk drift like one of the boys. And why wouldn't she? She played host to seven rounds of FD across the nation and she's more bi than a fixie. That's right, not only is Miki into cars like the rest of the boys, she digs girls. Us? We're just diggin' her.

Miki Taka

2009 Miss Formula D

The last time you were in *2NR*, we had you as a guest in *Formula D Diaries* where you talked about all the lessons learned from each round—which had the most impact?

The greatest lesson I would take from the entire season was to just have fun, be myself, and make the most of every moment and opportunity.

Any embarrassing moments you'd like to share?

Right before the awards ceremony for Round 2 in Atlanta, I was caught off-guard and rushed to the stage where I totally wiped out in front of a huge crowd! I got up afterwards and bowed. [laughs]

The bow was a nice touch. [laughter] What was your favorite round of FD?

That's a hard one. There were aspects of every show that I really enjoyed. If I have to choose only one it would be Vegas . . . but what happens there stays there, right? [laughter] Seriously though, I enjoyed Vegas because it was where I really had a chance to hang out with the FD staff and drivers. I had been acquainted with most of them before, but it was there where I really got to know them. And being a Blackjack fan, the tournament was fun.

Speed, line, angle and overall impression are the judging criteria for drift. Which do you think is the most important?

I'd have to say that overall impression would be my choice as the most important. Sometimes it's the 'ooh' impression left on the judges that can differentiate a good run from an awesome one.

If there was one, which two drivers would win the 'Miss FD Best Battle of 2009' award?

There were a lot of great ones but my favorite was between Ryan Tuerck and Katsuhiro Ueo in Las Vegas. They literally went toe-to-toe when Tuerck's rear tire hit Ueo's front tire, causing Tuerck to go airborne creating the infamous 'bunny hop'. You can see the video on my website or on Formula D's YouTube channel.

Who would win the 'Miss FD Crash of 2009' award?

Hmm . . . I don't know that anyone would want to win for crashing, so I'll go with Vaughn Gittin, Jr. for getting close as hell without crashing. I remember at Evergreen Speedway for Round 5, Vaughn just barely grazed his rear bumper against the wall of the track. For him to have touched the wall so lightly with the back of his car, without completely jacking it up, really impressed me!

Your favorite competition car?

My fave body style is the Nissan 350Z. Tyler McQuarrie, Robbie Nishida and Chris Forsberg all compete in one and Chris' 350Z helped him win the 2009 champion, so I'd have to go with the Z33.

Did you partake in any ride-alongs?

Absolutely! There was no way I could let this season go by and pass up a ride-along.

Who was it with?

My first ride-along was with Ross Petty at Las Vegas. What made it especially cool was Ross had just installed the underbody lights on his car and the ride-along was at night. The second was at the Evergreen Speedway in Monroe, WA, with Justin Pawlak. The film crew got footage of that one, which

was funny, because you could see how surprised I was when we took off! Drifting around the track is like a rollercoaster ride—a total adrenaline rush!

Little known fact: you own a G35 coupe. Are we going to be seeing you drift your Infiniti any time soon?

You know, I had considered hooking up my car and trying my luck with drifting but it's unlikely that I'll actually end up doing it. I'm involved with so many projects I wouldn't even know when to start!

If you ever do, holla! Our edit team of three would gladly help. If you could pick any car to build, what would it be?

If I were to build my own drift car, I'd definitely go with the G35 coupe. It's a rear-wheel-drive car that already packs a punch! We'd have to pump up the horsepower but I'd probably keep the stock Brembos. Suspension is a must and I'd throw on a tight-ass exhaust.

As all exhausts should be. Now that the season is over, so is the need for politics. Let's get down and dirty. In your opinion, who's the best drifter?

All season, I made it a point not to pick favorites. Now that the season is over, I still wouldn't know who I'd pick. Based on stats alone, I'm torn between Chris Forsberg, who won the 2009 season, and Ryan Tuerck, who took Second.

Who should pack up their bald-ass tires and go home?

There are no drivers who stand out as being particularly bad, so again, I can't pick a worst one. When it comes down to it, I'm usually a fan of the underdog. I came to learn with this sport, like many others, every now and again the underdog can surprise us. Like Round 6 in Sonoma, CA, when Stephan Verdier took First on the podium for his very first time. He was so excited and I was very happy for him!

So Stephan Verdier's your pick for worst drifter. I'll make sure to let him know that. [laughter] Kidding. For a Frenchie, he's cool. Who would win the ESL award?

So delicately put! You know, there were a few times that I could've used a translator



when interviewing some of the Japanese drivers, so I'd say that it wouldn't hurt for them to learn some English. On the reverse, it would be good for me to be fluent in Japanese, as well.

Hai! If you had to place a bet on the 2010 season, who would you put your money on?

Ryan Tuerck, because I just love those baby blues!

Little known fact: You swing both ways, which is totally 'Rawr!'. As someone who can appreciate the female form, who has the hottest umbrella girls.

Oh damn, that's a tough one! It would be a tie between Falken and Hankook. They are all very attractive, sweet girls.

For a Ménage-à-twizzle between an import model and drifter sandwich, who would the buns be?

In this line of work, I certainly get my share of eye candy. I can name a few hotties... but for now, my lips are sealed!

Boo! Between a chick's boobs and a dude's—how do I say—'package', in which application does size matter most?

Well, you know what they say, 'It's not the size that counts. It's how you work with what you have.' I couldn't agree more. I think that proportion is important, so that's what I look for more than size.

So two inches is cool if the dude's a hobbit?

[laughs] If it looks right!

I shudder at the mental image. Decent sex once a week or an amazing romp once a year?

Give me an amazing romp! Even if it's once a year, I'll be much happier than an abundance of boring sex. To be honest, if sex were boring, it's unlikely I'd be doing it all the time. I much prefer quality over quantity.

Motorboating: for or against?

[laughs] Hmmm... motorboating is a no. I think I'd be extremely turned off if someone put their face in my breast and did that! I can just imagine how a girl would feel if I 'motorboated' her. However, I do enjoy boobs. I hope I answered that question in the right context!

'I do enjoy boobs'? You did. Perfectly. Other than the last series of questions, your WTF moment of the year?

My life is one giant WTF moment! [laughs]

Like this entire interview. [laughter] Another little known fact is that you actually wrench on your car...

Indeed! I'm all about learning new things, saving a few bucks and getting my hands dirty, so when it came to fixing my car it was only natural. I'm also a very inquisitive person, so everything I learned came from asking questions and researching online. Now, I can do tune ups, oil changes, and I also do my own brake work. For the more serious work, I've been lucky not to have needed anything so far.

I'm blowing my wad here, but the last little known fact I have is that you used to sell auto insurance in your former life. Any tips you'd like to impart?

Someone did their homework! [laughs]

Some would call it e-stalking, but whatever.

[laughs] I did indeed sell insurance in the great state of New York. My first tip would be to keep your driving record as clean as possible. Second, when shopping for auto insurance, be careful not to base it solely on price. Minimum coverage really isn't the way to go. Make sure to go with a reputable company and get coverage limits that will really protect you in a worst-case scenario. After all, that's what insurance is for. We all hope to never use it, but it sucks to be without the proper coverage when we actually need it.

That was mighty Geico of you. How about for the next Miss Formula D? Any tips you'd like to impart?

I'm very excited for her, whoever she may be. My advice would be that she take the time to know the sport and the drivers. It's also really important to engage the fans of Formula D. Be involved. It will make being Miss Formula D that much more meaningful.

So now that your FD reign has met its end, what are your plans?

Although I'll miss FD, I'm at my prime and there's nowhere to go but up. I fully intend to continue traveling, while working with Prestigious Models. I'm excited about all the opportunities that came from this year and am going to continue working in front of the camera and tearing it up behind the DJ booth. Keep your eyes peeled! 

I can just
imagine
how a girl
would feel if I
'motorboated'
her

NAME: MIKI TAKA
HEIGHT: 5'2"
MEASUREMENTS: 34-26-34
ETHNICITY: JAPANESE/AMERICAN
(GERMAN, ITALIAN, SCOTTISH,
IRISH, RUSSIAN, ENGLISH, WELSH
AND FRENCH—WHEW!)
BIRTHDAY: JULY 4TH
HOMETOWN: NAGOYA, JAPAN /
MAPLEWOOD, NJ
WEBSITE: WWW.MIKITAKA.COM



SLIDERIDE

How to make a 16-year-old Lexus
more expensive than a new one.



Battle Version is pretty damn apt. That's the name of Alex Pfeiffer's operation. He's used to battling. Battling with other drivers, with the circuits, the cars, the tires, bids for sponsorship, and his number-one battle: to get a drift car together. Pfeiffer sourced a '94 SC300, the last Lexus to wear an SC badge and still be considered cool; chassis code: JZZ30, engine code: 2JZ-GE. One of the rare ones with a five-speed manual transmission, too.

It was a three-stage build. Step one was to go back to the metal, and powdercoat the chassis in candy red. Why that particular hue? "I wanted to do something different," says Pfeiffer. "I've built other cars with powdercoated chassis, but always a base color like grey or black, never something as bright as this." Step two: build a 2JZ-GTE engine to replace the car's stock naturally aspirated mill. Final phase: put it all back together. But let's rewind a bit.



Southern California-based AIT Racing makes body kits for racers as well as show cars. Pfeiffer selected the company's Velocity-style kit, consisting of front and rear bumpers and side skirts—all fashioned from fiber-reinforced plastic. He had other plans for the hood. That had to be carbon fiber. In this instance, a TS-II example from Seibon, the same operation that supplied the carbon fiber doors and trunklid. Bodywork was carried out by K&W Autobody of Diamond Bar, CA, painting most of the exterior enchilada in Porsche's Arctic Silver.

Pfeiffer looked to Speed-O-Motive (of West Covina, CA, who did a lot of the head work) and G-Dimension (based in the City of Industry, CA, whose Leon did the tuning) for all his engine renovation. This involved increasing the bore from 86 mm to 87, resulting in a larger displacement of 3.4 liters. The stock crank, connecting rods, camshafts, valve springs and retainers were ditched, replaced by their equivalents from the Brian Crower catalogue. Atop the connecting rods are 9.0:1 CP pistons. Pfeiffer saw no reason to change the stock valves.

The turbo system was upgraded by saying sayonara to the twin factory blowers and replacing them with a single Bullseye Power S368 turbine, along with

a Tial V44 wastegate and a Mishimoto intercooler. Mishimoto also takes care of other cooling duties with an aluminum radiator, fans and hoses, while an Earl's unit sees to the oil temperature.

"I got the intake, throttle body, and exhaust manifold from a guy named Jimmy on Club4AG," says Pfeiffer. "He saw my build thread and offered to sponsor the parts in trade for advertising his family business, Sedthee Restaurant Lounge, in Glendale, CA." There's your plug, dude. "He said they came from eBay, so I'm not sure what brand they are." On this evidence, no one could accuse Pfeiffer of being a control freak.

By manipulating the AEM Twin-Fire ignition module, Aeromotive A1000 fuel regulator and pump, Vipec fuel injection, 1,000cc/min fuel injectors ("Not sure of the brand. I ordered them through a friend." Figures.) and Nippon Denso spark plugs, the Vipec V88 ECU whips the engine's six inline cylinders into a 650hp frenzy at 7,500 rpm. Pfeiffer reckons it could see 850 on the dyno with higher boost. One thing



ONE THING PFEIFFER HAS LEARNED FROM THIS BUILD IS THAT "2JZ ENGINES ARE AWESOME." SO, HE PUT SOME CANDY COATING ON THE VALVE COVER



he's learned from this build is that "2JZ engines are awesome." So, he put some candy coating on the valve cover.

Work on the R154 five-speed manual transmission was done at Battle Version's headquarters, adding a clutch and flywheel from Competition Clutch, and a Kaaz limited-slip differential. "It was Competition Clutch's test setup for 1J- and 2J-to-R154 configuration. I'm not sure if they have it on the market yet, but when I got it, there were only a couple of people with that twin-disk setup. It comes as a kit with everything, including the slave cylinder and throw-out bearing," says Pfeiffer. "The Kaaz diff is for a Soarer. I got it over five years ago, but never got to use it in my street car, so I finally put it to use. It was painted bright-ass pink as an April Fool's joke."

"The suspension is all fairly custom," says Pfeiffer, "modified to fit those offset wheels. All the bushings have been replaced with Derlin instead of rubber." Our man also fitted some custom subframe spacers. The front and rear coilovers are old-school RS*R I-Shocks, with aluminum bodies, titanium reinforced springs, and two-way adjustment. Pfeiffer installed the suspension, fashioned some rear traction links and rear toe links, set it up, and did the corner balancing and alignment himself. The car sits low, with a -5.5-degree camber and zero toe at the front, and a -1.5-degree camber and 0.12 of an inch toe-in out back.

Those aforementioned wheels are Rays Engineering Volk Racing GTF two-piece forged models, sized 18x9 up front and 18x10 at the back, all with a +1mm offset. They're wearing Nitto NT05 tires, starting off as 265/35 front and 275/35 rear, but eventually being worn down to distressed rubber during the course of a drift event.

Equally important, but not taking so much of a pounding, is the Rotora braking system, with 14-inch rotors at the nose and 13-inchers bringing up the rear, with lines and pads from the same company.

Pfeiffer is known as a bit of a fabricator (or should that be pfabricator?) and we can see his handiwork inside the cabin. That six-point roll cage? A Pfeiffer pspecial. There's nothing in there that isn't necessary for racing, so two Sparco Corsa seats, a suede 330mm Sparco steering wheel, and G-Force racing harnesses make up most of the inventory. Plus that shift lever. "It's a B&M T-handle that I've run in my personal cars for the last 15 years," says Pfeiffer. "The same one. It just feels like home to me, so it has ended up in many of my cars."



As for the electrics, Pfeiffer puts his hand up to that too. "I bought a bunch of wires, a small fuse box, some switches, some relays, a blinker relay, some terminals, a lot of heat shrink, and I made a harness." Connected up in there somewhere is an Auto Meter rev counter. A quick look in the trunk reveals a Summit Racing 15-gallon fuel cell.

With a worth attached to the car in the region of \$75,000, Pfeiffer's hoping to recoup some of the investment scroll in the 2010 Formula D series, now that he's out of the judges' tower and back in the driver's seat. The catch is that he'll be doing it from behind the wheel of an entirely different car. "I built the SC for the 2010 FD season, but a last-minute sponsorship deal put me in another car," he explains. As for the future of this SC: "I'm just trying to keep it in one piece for now," he says, "but its day will come." **it**

PFEIFFER IS KNOWN AS A BIT OF A FABRICATOR (OR SHOULD THAT BE PFABRICATOR?) AND WE CAN SEE HIS HANDIWORK INSIDE THE CABIN. THAT SIX-POINT ROLL CAGE? A PFEIFFER PSPECIAL



PFEIFFER FACTS

It's been a long, tough road for Alex Pfeiffer. But it hasn't been without its high points. It even started on a high, by being born in Hawaii (in 1975). "My father was a fan of the local circle track where he would take us every weekend to watch the races," he says. "That's where I started to enjoy motorsports, week after week of watching V-8s bang their way around the track, falling asleep in the stands. I was five or six, but knew I wanted to race. My first car was an '80

Mercury Zephyr my grandfather gave my dad. I tried everything I could to get it sideways or to burn out. I'd take it to the pineapple fields where it didn't take much power to get sideways."

Before long he was in SCCA races, working at a local speed shop and drifting around the local mountain roads. Then he heard the call of the mainland—a kind of mechanics training course/racing school. It wasn't the happiest of times for him, but it led to working with a team that raced Porsches, then a job fabricating custom parts and servicing Stuttgart's finest. By that time, he had an AE86 and was driving around the hillier parts of north-

ern California. Then he found out about a drifting event at Buttonwillow, which he took part in with borrowed tires (lending tires for a drift event must be the height of generosity).

The start of the drifting affair coincided with Pfeiffer making his own parts for sale and the name Battle Version coming into being. He also procured a drift gig in RS* R's S2000, taking a win at the 2004 *Need For Speed* launch party at Irwindale. He subsequently spent two and a half years as one of the Formula D judges, but 2010 will see him back on the track in Tanaka Racing's Corvette, which leaves the SC featured here in something of a limbo.



Photos Jacob Leveton



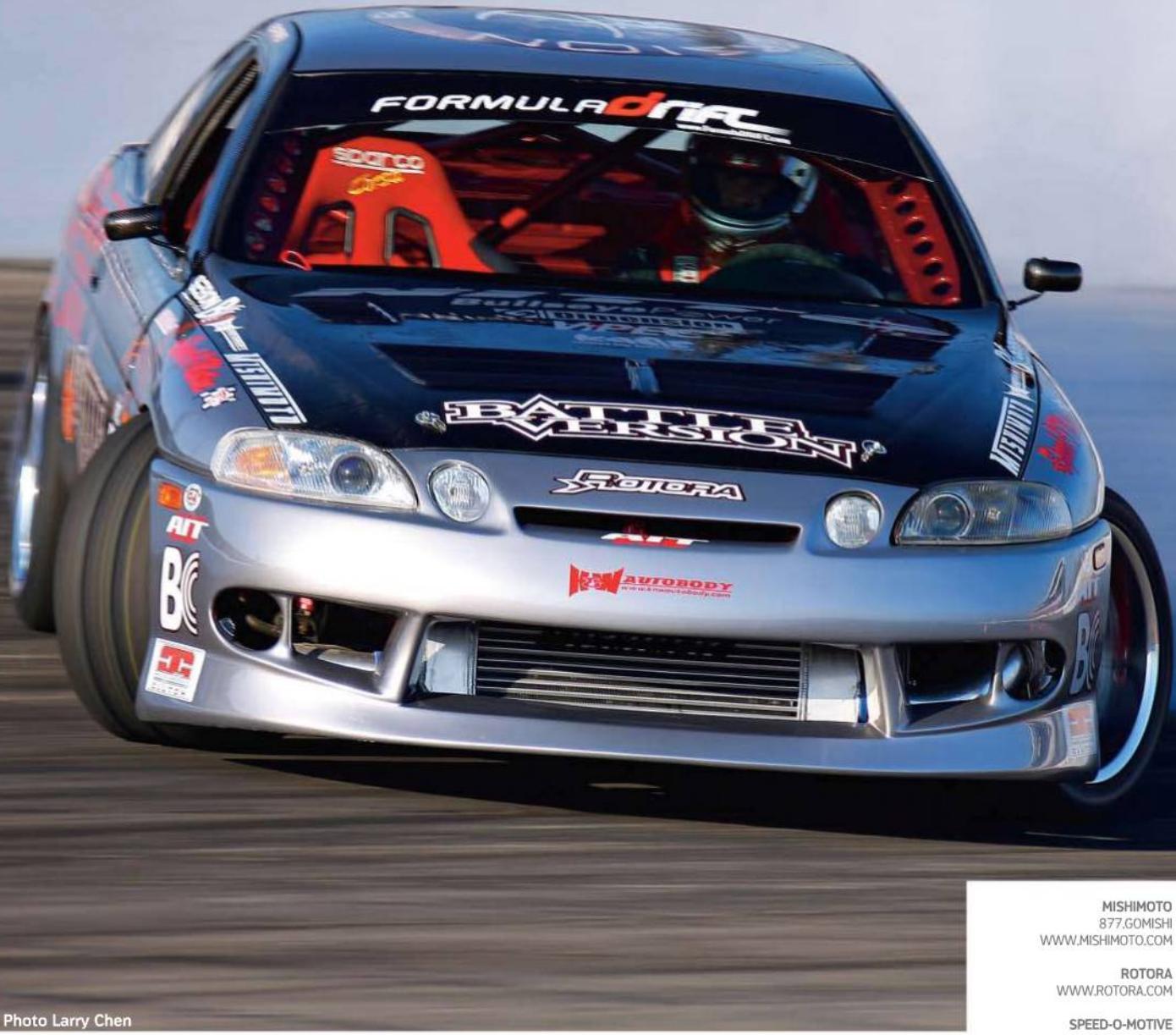


Photo Larry Chen

'94 LEXUS SC300

650 HP @ 7,500 RPM

NAME:
ALEX PFEIFFER

AGE:
34

HOMETOWN:
WALNUT, CALIFORNIA

OCCUPATION:
DRIFTER/RACER/FABRICATOR

BUILD TIME:
EIGHT MONTHS

FEEDBACK:
alex@battleversion.com

HOBBIES:
DRIFTING, VIDEO GAMES

QUOTE:

"PROJECTS LIKE THIS ARE NOT EASY. DON'T ATTEMPT
ONE UNLESS YOU HAVE A LARGE BANKROLL OR
YOU'RE GOOD AT BUILDING CARS."

ENGINE Brian Crower 272-degree
camshafts, crankshaft, connecting
rods, valve springs, retainers; CP
forged aluminum pistons; Bullseye
Power S368 turbocharger; Tial V44
wastegate; Mishimoto intercooler,
radiator, pipes, hoses, fans; Vipec
V88 ECU; Aeromotive A1000 fuel
regulator, fuel pump; limited-edition
Battle Version exhaust; Nippon Denso
spark plugs; AEM Twin-Fire ignition
module; Earl's oil cooler

DRIVETRAIN Competition Clutch
clutch, flywheel; Kaaz LSD; B&M
T-handle shift lever

SUSPENSION RS'R I-Shock coilovers
w/titanium springs; Battle Version
rear traction links, rear toe links;
custom Delrin bushings

WHEELS/TIRES Rays Engineering
Volk Racing GTF wheels (18x9
front, 18x10 rear); Nitto NT05 tires
(265/35 front, 275/35 rear)

BRAKES Rota 14-inch front rotors,
13-inch rear rotors, stainless steel
braided lines, pads

EXTERIOR AIT Racing front and rear
bumpers, side skirts; Seibon TS-II
carbon fiber hood, doors, trunk lid

INTERIOR Sparco Corsa seats,
330mm steering wheel; Auto
Meter tachometer; Battle Version
six-point roll cage; G-Force
racing harnesses; Summit Racing
15-gallon fuel cell

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STUDIOS

TEXT BY COLIN RYAN
PHOTOS BY HENRY Z DEKUYPER

'10 SUBARU LEGACY



CONTRACT KILLER

Codicil to a Legacy

Although we've seen plenty of STI models from various sources stripped down, powered up, and kitted out for the track, Subaru Performance Tuning (SPT), the company's own go-faster division, decided to head down a road less traveled when it made a special edition of the all-new Legacy sedan for the 2009 SEMA Show. It went VIP, the style adopted by the Japanese mafia (see sidebar).

The Yakuza aren't known for their love of modestly priced sensible sedans, but sister publication *Motor Trend* calls this all-new 2010 car "the most robust, buttoned-down and serene Legacy to date." So it's as good a place as any for SPT project managers Erik Lukas and Garrick Goh to begin.

Their secret to kicking off a VIP project car? Start with the wheels and let the rest of the choices be dictated by them. Lukas and Goh settled on these custom-made MC3 Enterprises Trinidad 20-inchers, 10 inches wide, with an outrageous three-inch lip and +30mm offset at the front, complemented by four-inch lips and +12mm offset out back. Stretched around these rims, literally, are Falken FK452 ultra-high performance tires, sized 235/30 at each end.



To accommodate this appreciably larger footwear, the fenders had to get some attention. The stock car already has some serious bulges, which have been enhanced here by smoothing them into a continuous curve and then flaring out the lip around the wheel well. While all this was going on, it was decided to fit JDM Legacy front and rear bumpers and a non-turbo hood, one without the big air scoop—even though the engine still runs a turbocharger (ensuring the proper chill factor is a Mishimoto front-mount intercooler with custom plumbing).

The tail end also receives super-subtle low profile spoilers on the roof and decklid, with a couple of cool rectangular exhaust tips in the rear lip, while USDM skirts hit the sides. To get the car rolling with more JDM panache, home-grown HID headlights, coated fogs, and power folding chrome-capped mirrors are added. And for the final flourishes: Subaru puddle lights, a chrome garnish above the rear license plate, and chrome door handles (from a Forester, believe it or not).

Shinjuku Black Plum. That's the name of this gorgeous custom-created paintwork. Under the watchful supervisory eye of "Bombka" at R&B Custom Auto Body of Philadelphia, PA, the car was first sprayed with a base of Crystal Black Silica, then a



DRIVEN: '10 LEGACY 2.5 GT LIMITED BY CARTER JUNG



MSRP \$29,995; \$34,146 (as tested)
ENGINE 2.5L, turbocharged 16-valve DOHC 4-cylinder Boxer engine
POWER RATING 265 hp, 258 lb-ft tq
CONFIGURATION front engine, all-wheel drive
TRANSMISSION 6-speed manual
CURB WEIGHT 3,477 (as tested)
SUSPENSION MacPherson strut (front), double wishbone (rear)
WHEELS/TIRES 18-inch alloy wheels; Bridgestone Potenza RE050A 225/45R-18 tires
 BRAKES dual-piston with 12.4-inch ventilated disc (front), single-piston with 11.4-inch rear disc (rear)
EPA FUEL ECONOMY 18 city, 25 highway
DRIVE IMPRESSION Me likes. Fast, respectable in the handling department and with refinement expected of a car in its class, it's a model I would consider purchasing if I acted more my age (and had a salary commensurate, thereof).
TUNABILITY See above.

At first glance, the '10 Legacy looks like it went through a growth spurt—it seems huge compared to its previous sibling. But it isn't as dramatic as it seems; overall length is increased by a scant 1.4 inches but overhang takes an arctic-like shrinkage with the wheelbase gaining 3.2 inches. Another dimensional improvement comes by way of a 3.6-inch wider track, but at the cost of a 3.2-inch taller profile. Headroom, schmeadroom. More than tape measurements, what does give the Subie a larger presence are the new headlights that arch back toward the A-pillar, blistered fenders, and strong shoulder line that wedges out to the trunk. To completely take in the aggressive styling, one need not look further than the modified

Legacy in front of you.

So the new *bippl'd* Legacy looks sick, how does it drive in stock form? For a full-on sedan, very well. Driving the six-speed manual, turbocharged 2.5L flat-four found in the 2.5GT Limited trim, the car drives similar to that of a WRX—under light throttle, mild mannered. Stomp on the gas and all 258 lb-ft of torque from the turbo kick in with a quickness and the drivetrain spits out 265 hp to all four wheels, propelling 3,400-plus pounds of Subaru from standstill to 60 in under six seconds—wicked fast for an upscale four-door that starts under \$30k.

More impressive is how something so midsized can feel so planted. Driving the Legacy to our cover

shoot, packed with Leianna Kai (model), wardrobe, and camera and lighting equipment through the hills of Santa Clarita, north of LA, the Legacy trotted through twisties without so much as a wheeze. Instead of the mushy feeling you'd get from most sedans, the Legacy's suspension were taut and the 18-inch wheel and tire combo offered generous grip. While an STI this is not, it's miles from your Pappy's Sebring.

My only complaint with the '10 Legacy is with its navigation unit; the interface took a bit of getting used to and it tended to spit out weird routes. The tunes from the nine-speaker Harman/Kardon audio, however, are the best I've heard in a Subaru, yet.



red-tinted pearl, followed by clear coat. The effect is that it looks dark plum-colored in the sunlight, but completely black in the shade.

Another essential aesthetic element is how close to the ground a VIP car can get. The only way to get so low and still be driveable is with an air suspension. Clear Star Media Group of Maple Shade, NJ, answered the call to fit a Universal Air suspension that can provide adjustable ride heights. Lukas and Goh have some wisdom to impart to anyone with air in their heads: "If you plan to actually drive the car, be realistic about ride heights and angles of approach."

There's a readout between the seat heater switches that shows the level of air pressure in the suspension's bags and reservoir tank. The switches themselves have been co-opted to now control the front and rear ride heights independently. The only other thing SPT has done to the chassis is to fit a front strut brace from an STI, but while the car was at Clear Star's facility, someone went crazy with the diamond stitching. Then again, such opulent effects are in keeping with the *bipu* brief.

In true VIP style, the interior is where the rest of the heavy lifting took place. Out went the stock rear seats, replaced by two Impreza buckets. Then Clear Star got busy covering all tush-supporting areas, plus door panels, inside the trunklid, and even a section that goes over the engine (hope it's heat-

THE CAR LOOKS MORE LIKE THE WORLD'S MOST EXPENSIVE LUXURY PRODUCTION CARS THAN A HUMBLE MID-SIZE SEDAN THAT ORDINARILY WOULD COMPETE WITH THE MAZDA6, TOYOTA CAMRY, AND HONDA ACCORD

resistant), with a synthetic leather-like fabric colored Togarashi Red (*togarashi* is dried and flaked red chili pepper, incidentally). Add some contrasting black, the extensive diamond stitching, black privacy curtains for the door windows, and the car looks more like the world's most expensive luxury production cars than a humble mid-size sedan that ordinarily would compete with the Mazda6, Toyota Camry, and Honda Accord.

In common with the best in luxury, this Legacy's cabin is all about the rear quarters (how often does that sentence crop up?)

The two lucky occupants here are separated by a console that houses a refrigerated beverage holder, plus an acrylic storage pod with motorized open-and-close action. The pod was designed to resemble the pneumatic tubes of drive-through banking.

Each has their own Myron & Davis display screen set into the headrests of the front seats, so they can watch DVDs courtesy of a JVC KD-AVX77 head unit that can also play CDs and good old radio, has a touchscreen, and is Bluetooth enabled and compatible with iPods and iPhones—kind of expected these days, but still good to know.

Sending the JBL GT0628 6.5-inch speakers, GT0608C 6.5-inch speakers, GT5-402 four-inch speaker, and two GT5-10 dual voice coil 10-inch subwoofers shaking are a couple of JBL amplifiers. One is a GT5-A604, four-channel model for the highs, the other is a GT5-A3001 for the lows. We're told it sounds freaking awesome. A custom-made "carputer" (running the ubiquitous Windows) manages all infotainment functions.

The trunklid is a great thing to be under when it's raining. There are two umbrellas attached to its inside. Also in the trunk are a couple of acrylic panes providing a glimpse into the wonderful world of air suspension.

Just to make the general air of luxury even more rarefied, there's bespoke interior lighting, illuminated tread plates on the sills, and a light-sensitive rear-view mirror. And in the interest of full disclosure, the drivetrain is virtually stock, with only an SPT billet oil cap and billet battery holder, along with the aforementioned Mishimoto cooling equipment joining the 265-hp, 2.5-liter flat four engine under the hood. The six-speed manual transmission employs a few STI parts—pedals, a short-throw shift lever, and a shift knob fashioned from Duracon.



Now here's the big shock: the whole build took one month. Work began in October of 2009 and was completed for the SEMA show, which opened the following November. According to Lukas and Goh, some parts took longer than expected to come from Japan, so there were some long stints put in as the deadline loomed. One thing the pair learned during the course of this venture is that "it is possible to utilize the creativity of smaller local shops on a high-profile project. It injects a certain style that we might not have achieved otherwise, if we had built the car using only our ideas within the company—an extra dose of East Coast flair." There they go, looking to the East again. **It**

THE VIP TRIP

The kaleidoscopic world of Japanese car culture knows it as *bipu*, a kind of bastardization of saying VIP as a word instead of a set of initials. It's a style that sprang up in the 1980s among guys who lived their lives on the more interesting side of the law. Their esoteric Mercedes-Benz S-Class and BMW 7 Series cars were attracting the unwanted attention of police and rival gangsters alike. So they bought less showy, larger, rear-drive domestic sedans—such as the Nissans Cima and Cedric, and Toyotas Celsior and Crown, usually in black—slammed them lower than a dachshund's nutsack and filled them with luxury goodies. Although why they might think that this would throw cops and competition off the scent is a mystery. Perhaps that's why they weren't rocket scientists or

brain surgeons and turned to crime instead. According to urbандictionary.com (it's on the Internet, so it must be true), a gang called The Black Cockroach from the Wakayama Prefecture started the trend. A newly set up shop called VIP Company began doing all the mods. Then it just caught on from there. Purists might perceive an all-wheel-drive '10 Subaru Legacy as maybe too new-school to be proper *bipu*, but everything eventually becomes old-school. We think The Black Cockroach would have approved. "Each year for SEMA, we try to build some project cars that are unexpected and stretch the limits of Subaru's platforms," says company spokesman Dominic Infante. No kidding. This is an eagle that rocks.



SHINJUKU BLACK PLUM. THAT'S THE NAME OF THIS CUSTOM-CREATED PAINTWORK. THE EFFECT IS THAT IT LOOKS DARK PLUM-COLORED IN THE SUNLIGHT, BUT COMPLETELY BLACK IN THE SHADE





'10 SUBARU LEGACY

OUTPUT [HP]: 265 @ 6,000 RPM

NAME.
SUBARU OF AMERICA, INC.

AGE.
40

HOMETOWN.
CHERRY HILL, NEW JERSEY

OCCUPATION.
IMPORTER OF SUBARU CARS

BUILD TIME.
ONE MONTH

FEEDBACK.
subaru.com/contactus

HOBBIES.

MAKING CRAZY STUFF FOR SEMA SHOWS, MAKING
CRAZY STUFF FOR KEN BLOCK

QUOTE.

"EVERY YEAR WE BUILD THREE TO NINE VEHICLES
JUST FOR SEMA, SO KEEP AN EYE OUT FOR WHAT
SURPRISES WE BRING NEXT."

ENGINE Mishimoto front-mount
intercooler; custom piping; SPT billet
oil cap, billet battery holder; custom
engine cover

DRIVETRAIN STI short-throw shift
lever

SUSPENSION Universal Air adjustable
air suspension; STI front strut
brace

WHEELS/TIRES MC3 Enterprises
Trinidad wheels (20x10 +30mm
offset front, 20x10 +12mm offset
rear); 235/30-20 Falken FK452
tires

BRAKES Brembo calipers with Rota
13-inch slotted rotors (front);
Brembo calipers, rotors (rear);
Project Mu B-Force pads; SPL
stainless braided brake lines

EXTERIOR Custom flared and rolled
fenders; custom Shinjuku Black
Plum paint; JDM Legacy front
bumper, rear bumper w/accessory
skirt and exhaust tips, non-turbo
hood, HID headlights, accessory
coated fogs, power folding mirrors,

vent shades; Subaru puddle light
kits, chrome trunk garnish, Forester
chrome door handles, low-profile lip
spoilers (roof and decklid)

INTERIOR Impreza bucket seats
in rear; STI Duracon shift
knob, pedals; Subaru interior
illumination kit, illuminated sill
plates, electrochromic mirror
w/transflective display and
Homelink; custom rear center
console

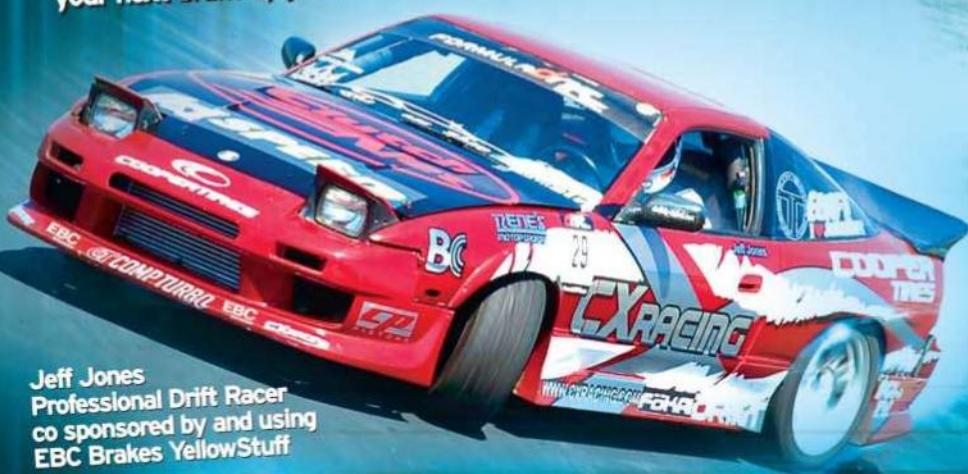
ELECTRONICS Myron & Davis displays
(2); JVC KD-AVX77 head unit; JBL
GT5-A604 amplifier, GT5-A3001
amplifier, GT0628, GT0608C,
GT5-402 speakers, GT5-10
subwoofers; custom infotainment
"carputer"

GRATITUDE Clear Star Media Group;
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TECH KNOWLEDGE

TEXT BY SCOTT TSUNEISHI
PHOTOS BY THE AUTHOR AND HENRY Z DEKUYPER



BEFORE YOU BREAK IT, **FIX IT**

10 must-know maintenance tips



Automotive maintenance is something most of us ignore, until one day your car suddenly stops in the middle of the highway or begins blowing plumes of smoke from the tailpipe and we wonder what went wrong. Maintenance determines the longevity, performance, and reliability of the vehicle you drive. The best part of maintenance is that it does not require any sophisticated understanding of vehicles or their systems. It may seem intimidating, but is often a simple matter of popping open the hood and taking a look around. A few steps, some regular checks, and addressing issues promptly can greatly extend the life of your vehicle.

01

CONTAMINATED OIL

Checking your engine oil should be a vital part of your car's regular maintenance schedule. Oil is what keeps the engine running smoothly. If you fail to keep that oil clean and topped off, you will definitely run into engine wear problems in the future. The general rule of thumb is if it's black, get an oil change. If it's brown, get an oil change soon. If it's white or mocha-colored, it can be a sign that a blown head gasket is leaking coolant into the cylinders and mixing with the oil.

As the engine accumulates mileage, blowby increases. This dumps more unburned fuel into the crankcase, which dilutes the oil and causes accelerated wear on engine components such as bearings and pistons, not to mention a loss of performance and fuel economy. Companies such as Blackstone Laboratories offer free test kits to send your oil in for analysis, to gauge the health of an engine.



02

CRACKED FUEL LINES

Fuel lines rarely need replacement, but over time rubber will begin to age and harden, developing cracks and leaks. When they begin to go bad, the results can be catastrophic. Vibrations, rubbing against other components, or impact can all cause an old line to rupture or crack, leading to engine fires or fuel starvation.

Check all fuel hoses, including metal fuel lines, for stress fractures or corrosion. This image of a cracked fuel line was taken from an '05 STI with less than 6,000 miles on the odometer.



03

FAULTY INJECTORS



Clean fuel injectors are a must for peak engine performance, fuel economy, and emissions. Dirty injectors lack the necessary means to deliver proper amounts of fuel, and cannot maintain the correct spray pattern that is essential for efficient combustion. Injectors are exposed to extreme heat which evaporates fuel from the injector surface at engine shutdown, leaving gasoline distillates to build up and bake on the nozzle, impeding the flow of fuel.

The harder you drive your car, the more often injector service and cleaning are required. A typical routine checkup of injectors at 100,000 miles is recommended on daily driven street cars, (turbo RX-7 owners should have their injectors cleaned every 50,000 miles, due to higher engine temperatures). Companies such as RC Engineering specialize in inspecting, cleaning, and flowing injectors of all sizes for both street and race applications.

04

CRACKED BUSHINGS



Control arms manage the orientation of the wheels in relation to the chassis and are important parts of your vehicle's suspension system. Too much free play and you and your passengers will find yourselves feeling car sick, not to mention excessive wear and tear that worn-out control arms can cause to the rest of the suspension system. The most common signs of a worn control arm bushing is a dull clunk or heavy click from one side of the car when moving from a stopped position or applying the brakes. Heavy vibration from the chassis at speed is also a good indicator that your bushings might be compromised. Other factors can cause clunking sounds, so you should also check the integrity of bushings visually or with a pry bar. There should be zero movement. Companies like Super Pro offer polyurethane replacement inserts to repair those torn bushings, while improving your vehicle's handling.

BLOWN SPARK PLUGS 05

A lot can be learned about what is happening in the combustion process by properly reading each spark plug—a must for any kind of performance tuning. Reading spark plugs can also give you an early indication of a problem that may be just beginning. In a properly tuned engine, the plug tips should exhibit a tan or brown hue. A black or ashy soot texture on the insulator indicates overly rich air/fuel ratios (AFRs), while very light tan or white, blistered insulators may point to an AFR that is too lean. Not all spark plugs are created equal. With a little research, purchasing the proper spark plugs that work for your custom engine setup can deliver optimal spark.

The cleaner of the two plugs here might indicate a well running car, but upon closer inspection, each tells us a series of events occurring within its engine. Note the insulator's white porcelain upper and lower half are showing two shades of colors in the top picture. The top half of the porcelain indicates a good AFR at wide-open throttle (WOT), while the bottom of the plug where the porcelain reaches below the steel body is a lighter color, indicating leaner AFRs at mid-range engine speeds. The dark deposits on the edge of the threaded body indicate the engine running slightly rich at idle.

Melted or missing electrodes, as well as a destroyed insulator, are obvious indications that something has gone seriously wrong with the engine. The mangled spark plug to the right suffered what is referred to as sustained pre-ignition. If you come across this scenario, check for an incorrect heat range plug, over-advanced timing, lean AFRs, or deposit accumulation inside the combustion chambers. If you happen to see a spark plug like this in your engine, you'd better look for possible internal engine damage to the pistons, cylinder walls, valves, rings, etc. This particular plug was pulled from cylinder number four of our project STI the day after its engine blew and caught fire on the track.



HELLA FLUSH + HELLA CAMBER = HELLA TIRE WEAR 06

The way your tires wear is a good indicator of the condition of other parts of the suspension. Abnormal wear patterns are often caused by the need for simple tire maintenance, or for a front-end alignment. Learning to read the early warning signs of trouble can prevent wear that shortens tire life or indicates the need to have other parts of the car serviced. Tire wear on the inner tread is most often caused by excessive camber or toe in the suspension, which puts too much load on the inside of the tire. The car may simply need to have the wheels aligned, but misalignment can also be due to old or worn-out springs, ball joints, or control arm bushings.



TURBO INSPECTION 07

Although rare, turbo failures do happen. Most failures are oil related but can be caused by a number of problems including age, thrust bearing failure from low oil pressure, or improper blow-off valve adjustment or size. A loss in power and low boost can be traced to a cracked or tight-spinning center cartridge, broken or seized wastegate, broken compressor shaft, or damaged wheel. Foreign object or dirt ingestion (dusting) can cause inlet blades to round off or become damaged, if an air filter isn't used.

Periodically remove your filter or inlet pipes and check the radial play of the input shaft by gently moving it back and forth. If there is more than normal (about 0.5 mm) of play on either side of the shaft, it's out of balance and requires service to keep the journal bearings from wearing out.



08

BUSTED WHEEL BEARINGS

Wheel bearings perform two very important jobs in a vehicle's suspension. They allow free wheel movement and support the vehicle's weight. To be able to do both of these jobs, the bearings' seals must be leak-free and keep the lubricant inside the bearings, and contaminants out. Wheel bearings need to be replaced when the seals have been compromised or emit a low howling noise that increases with speed, while driving. Things to look for when inspecting wheel bearings are loose or broken tapered rollers, scored race or roller surfaces, or excessive play in the assembly. The most common way to check your vehicle's wheel bearings is by jacking up the car and grabbing the wheel at the 12 o'clock and 6 o'clock position



and rocking the tire back and forth. If the wheels show any signs of play, you know it's time to replace the old bearings and inspect suspension bushings. An alternative test is to place the vehicle on a set of jack stands while positioning a pole under the tire. Use the pole as leverage between the wheel and ground, and push upwards to feel for excessive lateral wheel movement.

09

EFFED UP INTERCOOLERS



Intercoolers improve efficiency and power in turbo applications by rapidly radiating heat from the compressed intake charge before it enters combustion. Intercooler fins play a crucial role in the intercooler's ability to keep your vehicle's intake temperatures cool. Over time, the intercooler's fins can bend or clog from road debris and rocks, causing a disruption in airflow.

Using a pair of flat-head screwdrivers and plenty of patience, methodically wedge the bent fin between both flat ends of the two screwdrivers and press together to straighten them back to their original shape. A pair of wide-tip tweezers can also help speed up the process.

10

VOLTAGE TESTING



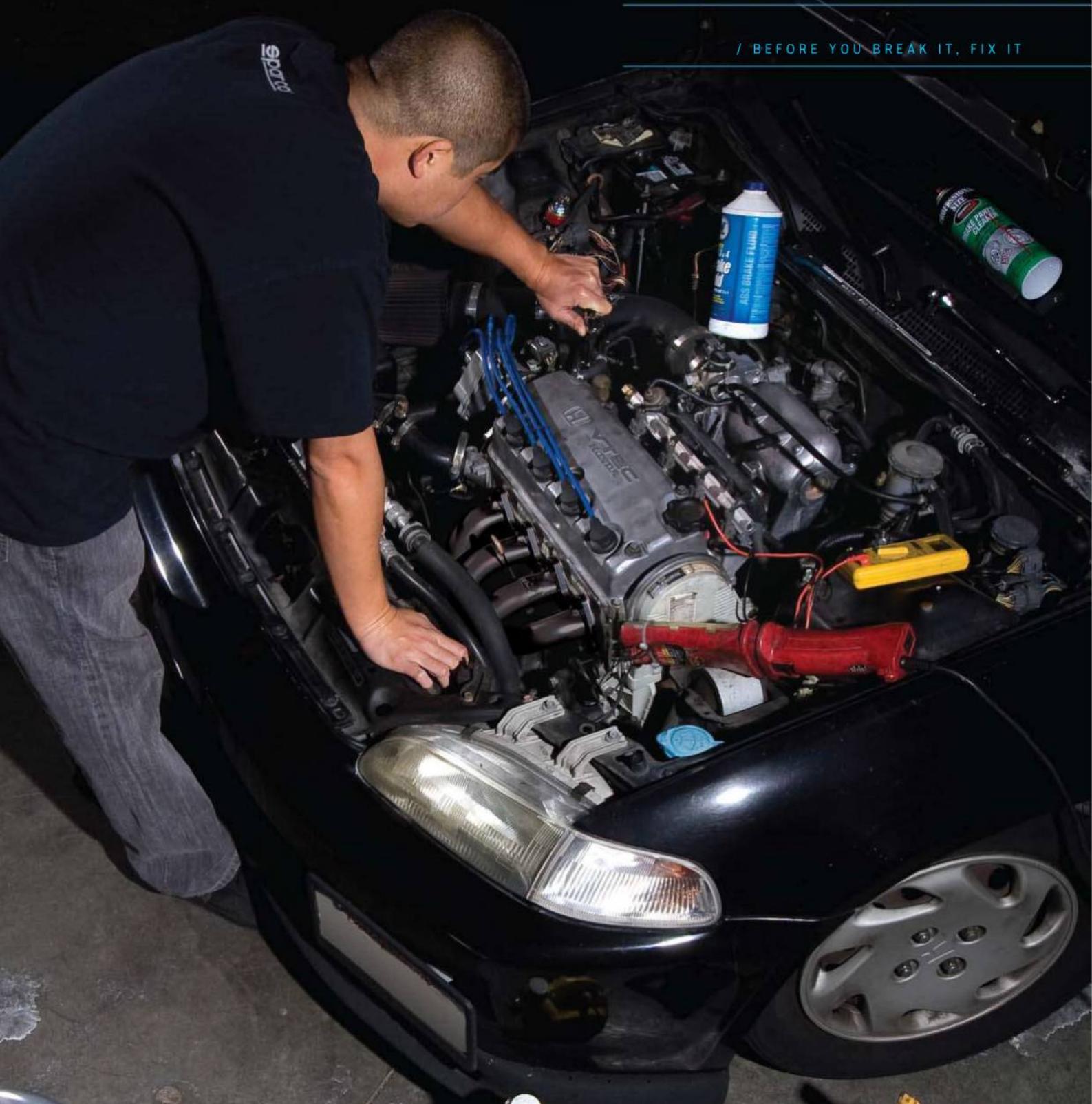
Spark plug wires send thousands of volts from an engine's distributor to its spark plugs. Because of this huge electrical load, the spark plug wire is subject to immense heat which, over-time, will degrade in construction. A bad spark plug wire may create so much resistance that the voltage never reaches the plug. A break in the insulation may cause the spark to arc to a grounding point, resulting in weak or no spark in the cylinder, making your car run rough and causing engine misfires, thereby allowing unburned fuel to harm catalytic converters.

Using a screwdriver placed into a wire's end and grounding it to check for spark is a commonly used method among mechanics, but it doesn't test a wire's resistance. The most effective method is to use an ohmmeter to check for a short circuit or a breakdown of insulation. Wires should be replaced if their resistance measured end-to-end with an ohmmeter exceeds OEM specifications.

The oxygen (O2) sensor's main function is to monitor AFRs so the ECU can maintain the lowest possible emissions, while delivering the best fuel economy with the greatest possible power. As an O2 sensor ages, it doesn't react as quickly as it once did. The increased lag time makes the sensor sluggish and prevents the engine from keeping AFRs optimal. If the engine burns oil or develops an internal coolant leak, the sensor element may become contaminated, causing the sensor to fail. Faulty oxygen sensors can cause engine misfires, pinging, poor gas mileage, increased emissions, and decreased power.

O2 sensors can be diagnosed using a scan tool or code reader to pull codes from OBDII vehicles, while check-engine light "flash codes" are relied upon with older vehicles. If an O2 sensor problem is suspected, the sensor's response and voltage output can be monitored using an ohmmeter. We measured the primary wideband O2 sensor from an '08 Subaru STI that read 2.5 ohms. Referring to the service manual, we found our O2 to be in good condition—voltage higher than five ohms requires immediate replacement. We should note that the rear O2 sensor on the STI is a narrowband unit that should be replaced if shown to read less than 30 ohms. O2 sensors can vary by manufacturer and should be cross-referenced with your factory service manual to ensure proper testing procedures and voltage reference. 





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BRAVE NEW WORLD

Shubash Singh's brazen take on the S15 Silvia is both humble and defiant—a refreshingly pleasing duality



Shubash Singh's '00 Nissan S15 Silvia is calm from the outside. With its factory gray casting back ominously, the exterior features an overly polite veneer that signals a potentially falsified sense of speed, power, and overall workmanship. The body modifications are not applicable, and Shubash is unapologetic about it all. Because just like the old maxim asserts, "Don't judge a book by its cover," his S15 is a crusty title-less paperback with coffee stains and dog-eared corners. The major separation of this underwhelming façade is the Silvia's pristinely planned, disco-ball-turning, massive guts.

Headgames Motorworks's Dave Localio first brought Shubash's car to our attention. I can remember the cold Tennessee night when I heard it start for the first time; it sounded strong and it rode well, but I couldn't get past its near-stock surface. "There has to be a reason why Dave, who builds four-digit-horsepower 2JZs for a living, like this thing," I reassured myself. And after a neck-whipping 70-140 freeway pull, I realized why. I was speechless, even after we pulled over to have a peak under the hood, and as the photographer muttered the words, "It's . . . beautiful!" I looked over and his face shone pure bliss. He was staring at the Silvia's SR20DET with magic in his eyes; the sight of the already ultimate motor fully developed was angelic. It was a moment of saccharine ecstasy, a spiritual connection through cars, and it's for those moments like that of unity between tuner and engine that the SR20 exists. Shubash is right in being unapologetic about the exterior.



"I grew up with a passion for cars and basically anything with wheels, from performance, sound, electronics, to appearance. I enjoy and fiddle with it all," Shubash said. "I bought this car because my father bought one some years back and I couldn't get enough drive time with it. The car handled and performed great in its stock state. The options and many ways you can go with this platform intrigued me and caught my interest. When I saw one for sale from a friend, I jumped and have been in it ever since." Much of that physical manifestation came from Shubash's father, who owned an auto sales and body shop when Shubash was growing up back in Trinidad. His father was also an avid street racer, flogging cars like the Datsun 1200, Mitsubishi Lancer GSR, and Mazda RX-7. This passion for cars, as well as the appreciation of the engine, transferred seamlessly into Shubash's life.

Everything in this Silvia was coordinated to an epic T, from the politeness of the exterior to the massive, velvety engine bay that cascades underneath the hood like a stage revealing Broadway performers. The engine alone cost around \$15K in parts and labor. The motor's head is fully ported with a polished valve job, matched perfectly with the intake and exhaust manifold. Piping was customized for shorter runs with less aggressive angles,



IT WAS A MOMENT OF SACCHARINE ECSTASY, SPIRITUAL CONNECTION THROUGH CARS, AND IT WAS FOR THAT MOMENT OF UNITY BETWEEN TUNER AND ENGINE THAT THE SR20 EXISTS



and the rotating assembly has been balanced. The 2.0-liter displacement remains intact but the compression ratio has been raised from 8.5:1 to 9.0:1. The stock turbo was upgraded with one from Precision, a model HP6262. The manifold is from Peakboost, with an equal-length T3 top mount, while the Greddy intercooler and pipes were customized to Shubash's liking and the boost controller was replaced with a Blitz Spec-R ICD-III version. All of which helps the Tomei Procam camshafts, Eagle H-Beam connecting rods, and CP pistons move a little faster to a tune of a firm, absurd loudness.

"I wanted to build this myself and see where I could push the envelope without sacrificing drivability and comfort. At the end of the day, I like driving the car," explained Shubash, "The most unique feature is the Tomei Reytec ECU; it takes me so long to explain to friends and strangers that Tomei, in fact, sells a stand-alone that is MAP-based for the SR20. It was this product and all the other unique ones that were the root of my frustration, waiting for them to arrive at my doorstep from shops

around the country as well as Japan. In the end, of course, it was all worth it."

Working under the hood and the car overall, Shubash always found himself generally pleased, but wishing the S15 was tuned to a more perfect setting. He toolled around with several setups and in two years, he found a level ground in which he felt the car was at its tuning peak. He then focused on the ride to complete the build. He installed a set of Ksport Kontrol Pro coilovers, Nismo bushings and motor mounts, and a Kazama Hicas Stopper kit. The factory wheels were replaced with 18-inch Rays Gram Lights 57 Pros with a deep dish in the rear that seems to run endlessly. Behind the Gram Lights sit Brembo calipers with Rotora rotors in the front and Brembo rotors in the rear. Project Mu B-Force brake pads run on all four corners, as well as SPL stainless steel braided brake lines. The inte-



TOMEI REYTEC

The Gratuitous Sidebar That Rhymes with VTEC.

So what's this hubub about the Tomei Reyetec? To get to the bottom of this somewhat enigmatic ECU, we hit up Riki Endo, representative of Tomei USA.

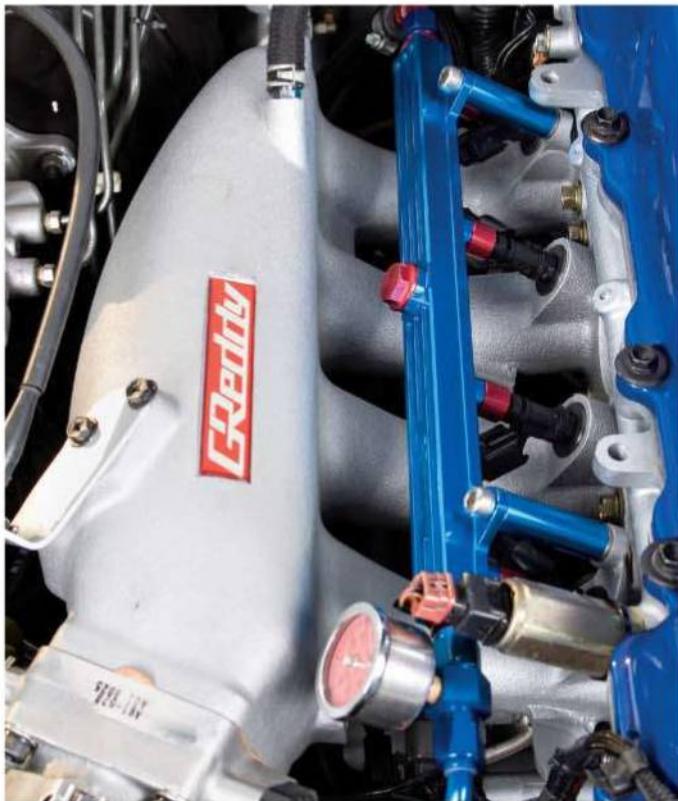
According to Endo-san, "This programmable ECU is very popular in Japan due to its convenient software setting, A/F ratio adjustability, and mapping the ECU is done with ease. We also provide downloadable data on our website for the user! Thank you very much for giving us the opportunity to inform your readers about our Reyetec system!"

No problem, buddy!



rior includes a svelte set of Bride Euro II front seats that face a custom gauge panel for the Defi and Innovate wide-band gauges between the radio and climate controls.

Among his team who worked on the car, including the people at MTR Racing and Headgames Motorworks, Shubash often refers to the build as "good times" and it is telling that he was so taken with the concept of goodness. What was an ideal car on paper, he has built into a gargantuan presence. "There are so many SR20s floating around, but few are really completely done. It was a gradual build, but it was so much fun to do," said Shubash. It's difficult to imagine any tuner finding much unhappiness in Shubash's S15, and if they did, they shouldn't expect Shubash to do much about it. ■



EVERYTHING IN THIS SILVIA WAS COORDINATED TO AN EPIC T, FROM THE POLITENESS OF THE EXTERIOR TO THE MASSIVE VELVETY ENGINE BAY THAT CASCADES UNDERNEATH THE HOOD





'00 NISSAN SILVIA

OUTPUT [HP]: UNDISCLOSED

NAME.
SHUBASH SINGH

AGE.
30

HOMETOWN.
NASHVILLE, TN

OCCUPATION.
PROGRAMMER

BUILD TIME.
TWO YEARS

FEEDBACK.
tripleJs15@gmail.com

HOBBIES.
OUTDOOR SPORTS AND FISHING

QUOTE.

"I WANTED TO BUILD SOMETHING UNIQUE, A CAR WITH ALL THE CREATURE COMFORTS AS A FINE WEEKEND CAR, MAINTAINING THE SEXINESS OF THE S15 WHILE EXPOSING THE INNER PERSONALITY WITH REAL POWER."

NAME. ENGINE SR20DET; balanced rotating assembly, custom head porting; Tomei Procam camshafts, oil pan, throttle body, rocker arm stoppers, Reyetec Hi-Boost, oil cap, polished compressor housing, multi-layer exhausts manifold gasket; Russell braided lines; Eagle H-Beam connecting rods; CP Pistons 9.0:1 pistons, piston rings; ARP head studs; Supertech valve kit, dual valve springs, titanium retainers; Greddy S15 Version 2 intake manifold, intercooler pipes, fuel rail, catch can; HKS Hi-Power exhaust, blow-off valve; Precision HP6262 V-band outlet turbocharger; Peakboost equal-length T3 top-mount turbo manifold; Tial wastegate; Blitz Spec-R IDC-III boost controller; Koyo aluminum radiator; JDM radiator hoses; Flex-a-Lite FAL-220 radiator fans; Enjuku Racing adjustable thermostat; Splitfire ignition; NGK spark plugs; Injector Dynamics ID1000 fuel injectors; Aeromotive A1000 fuel pressure regulator; Walbro and Bosch fuel pumps; Power Enterprise head gasket

DRIVETRAIN Ogura Racing Clutch kit; Nismo transmission mount

SUSPENSION Ksport Kontrol Pro coilovers; Nismo bushings, motor mounts; Kazama Hicas Stopper

WHEELS/TIRES Rays Gram Lights 57 Pro Titanium wheels (18x9 front, 18x10 rear); Nitto NT-555 tires (235/40-18 front, 255/35-18 rear)

BRAKES Brembo calipers with Rotors 13-inch slotted rotors (front); Brembo calipers, rotors (rear); Project Mu B-Force pads; SPL stainless braided brake lines

EXTERIOR Stock

INTERIOR Bride Euro II seats; custom gauge panel

ELECTRONICS Defi/Innovate gauges; Blitz/Defi displays; Eclipse iPod and navigation head unit, speakers; KnuKonceptz wiring; Optima Battery relocated to trunk

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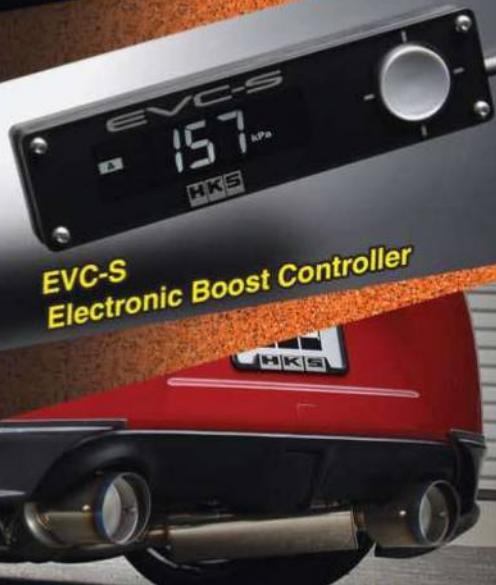


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BATTLE LOL-YALE

Bang! We're all dead.

I'm a huge film dork. It's not my fault—I went to school with a bunch of other film dorks and they corrupted me. Thanks to them, I will never again watch a movie without trying to spot flubs, wondering about lighting and set design, or tearing up at the beauty of a long, continuous Steadicam shot (*Goodfellas*) or ridiculously complex car chase (*Ronin, Bourne Identity*). Even today, I'm probably one of about three people who will buy a DVD only if it offers widescreen formatting and director commentary. I told you—big dork.

One of the first such commentaries I can recall was an interview with Quentin Tarantino, describing the "Mexican Standoff"—a scene found in many of the Western flicks that inspired his work—in which



a group of the film's pro- and antagonists finally confront each other, guns drawn in all directions, and tense moments of silent uncertainty loom until one person triggers a shootout, and almost everyone ends up dead. Think *The Wild Bunch*, *True Romance*, or *Reservoir Dogs*.

After this year's STI vs. EVO Shootout, presented by Continental Tire, I'm identifying another type of shootout, one I'm calling the "Buttonwillow Standoff", in which high-hp, AWD time-attack assault vehicles are drawn, last-minute adjustments are made, and tense moments of rough idling and uncertain air/fuel ratios loom until the green flag drops, and (almost) every car blows up or catches fire. Because after two years of Subie/Mitsu loyalists battling without a hitch, that's what happened this time around.

STI CAR #109: Import Tuner '05 STI
BEST LAP: DNF

OWNER: Scott Tsuneishi

DRIVER: Andy Hope

OUTPUT: 365 whp

ENGINE: Cosworth short block; HKS S-type intercooler, F-Con V Pro, Camp 2, intake; FP Green turbo; Koyo radiator; DC Sports exhaust; Tomei equal-length header, downpipe

SUSPENSION: Tein MonoFlex coilovers (12kg/mm front, 10kg/mm rear); Whiteline 37mm front and rear swaybars, end links, bushings; M1FD 12-point lower chassis brace

DRIVETRAIN: Spec clutch, lightened flywheel; AMS clutch line

BRAKES: Stoptech slotted rotors; Project Mu brake pads; Zero Sports stainless brake lines; Motul RBF600 fluid

AERO: JDM STI lip; Chargespeed over-fenders, rear bumper; ARC reverse hood scoop; Kaminari carbon fiber hood, trunk

WHEELS: 18x9.5 +35mm offset Volk Racing RE30

TIRES: 275/35-18 Continental ExtremeContact DW

"First Car to Blow Up of the Day" awards went to us, when Senior Editor Scott Tsuneishi's '05 STI caught fire on its first lap out, at the hand of ex-Sport Compact Car editor Andy Hope. Scott drove his car 200 miles from Long Beach for the competition without a hitch, and has since not been able to pinpoint the cause of the blaze—all reasons we're suspecting this is Andy's carefully laid revenge for all those "Death Taco" lunch sessions we dragged him to while he shared an office with us. Well played, Sir!



ANDY



STI CAR #107: Team SCS '08 STI
BEST LAP: DNF

OWNER: Sam Milipas

DRIVER: DNF

OUTPUT: 360 whp

ENGINE: Garrett GT30 turbo; Cosworth intake manifold; Tomei exhaust manifold; Cobb Accessport ECU

SUSPENSION: Cusco Zero 2E coilovers

DRIVETRAIN: ACT Street clutch kit

BRAKES: Project Mu six-piston front calipers, four-piston rear calipers, brake pads

WHEELS: 18x9.5 Rays Engineering CE28 Formula Limited

TIRES: 265/35-18 Continental ExtremeContact DW

Nearly tied with us for FCTBUTD honors was Sam Milipas' blue Team SCS '08 STI, which suffered a momentary lapse in oil pressure and subsequent timing gear jump, also in its first round out. Miraculously, Sam was able to fix the issue before the drive home, but will have to wait until next year to redeem his reputation in competition.



STI US EVO



CAR #100: TEAM SCS SUBARU '08 STI BEST LAP: 2:04.691 (Round 3)

OWNER: Jon Gih
DRIVER: Andy Chen
MODS: Classified

After Sam's Team SCS '08 STI called it a day in the first round, Randy Chen was able to drive Jon Gih's Team SCS '08 STI to a 2:04.691 in the third round, before (voluntarily) calling it a day. Got all that? Us neither—it took me two days to fact-check this bit.



CAR #108: YIMISPORT '08 STI BEST LAP: 2:04.391 (Round 4)

OWNER: Paul Yim
DRIVER: Mike Lewis
OUTPUT: 526 whp

ENGINE: Balanced rotating assembly; Manley Turbo Tuff connecting rods; JE Pistons; Killer Bee oil pan; L.A. Sleeve re-sleeved bottom end; 5 Axis CNC-ported heads; +1mm Supertech valves, valve springs, titanium retainers; Yimi Sport intake, intercooler, piping, oil/air separator; Flowmaster Hushpower exhaust; Milspec 100-cell catalytic converter; Full Race twin-scroll turbo manifold; Borg Warner 83-75 turbocharger; HKS SSQV blow-off valve; Tial MV-S wastegate; PWR radiator; Samco radiator hoses; Mocal oil cooler; NGK iridium spark plugs; Deatschwerks 1,000cc injectors; Walbro fuel pump; Cosworth ECU, tuned by Paul Leung of Yimi Sport

SUSPENSION: KW Club Sport coilovers; Whiteline 24mm front sway bar, 24mm rear sway bar, bushings, front camber plates, four-point under-carriage brace; GT Spec front strut brace, fender braces; Cusco mid-body brace

DRIVETRAIN: Exedy twin-plate clutch, flywheel

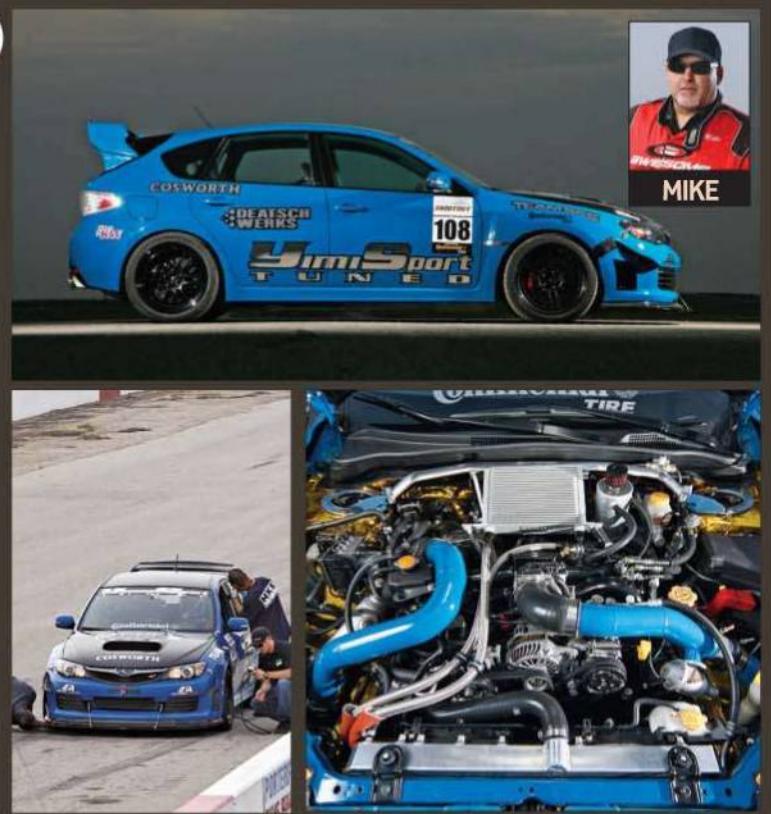
BRAKES: Brembo 355mm Gran Turismo brakes (front); Hawk DTC 70/60 pads; custom stainless brake lines

AERO: Seibon carbon fiber hood; APR custom carbon fiber canards, front lip, splitter; Blacktop Aero carbon fiber double-deck wing; rolled fenders

WHEELS: 18x9-inch +35mm Volk Racing RE30; 18x9.5-inch +38mm Enkei RPF1

TIRES: 275/35-18 Continental ExtremeContact DW

500+whp and a metric ton of high-end parts might seem like a recipe for track domination, but that turned out not to be the case for the YimiSport STI, which suffered immense turbo lag during partial throttle, and loss of traction at full throttle. "I drive it on the street," explains owner Paul Yim, "But it's set up for slicks on the track." Street tires can be fast, especially this year's spec tire of the Shootout (see sidebar), but "a smaller turbo would've actually helped us go faster, in this instance," says Paul. It might've been wishful thinking—the very next day, during SLB finals, a freak pinhole in the slug's oil feed line sprayed 0w-50 onto the turbo, catching it on fire, and necessitating a brand-new replacement.



CAR #106: Circuit Monsters '05 STI BEST LAP: 2:02.176 (Round 3)

OWNER: Nicholas Bright
DRIVER: Andy Hope
OUTPUT: 450 whp

ENGINE: Overbored 100mm block; Mahle pistons; Crower rods; twin-scroll Garrett GT35R turbo; custom V-mount intercooler/radiator; AEM EMS

SUSPENSION: Cusco Zero 2E coilovers

DRIVETRAIN: Cusco carbon twin-plate clutch, flywheel

BRAKES: Endless two-piece rotors, brake pads; Zero Sports stainless brake lines, fluid

AERO: '06 STI front-end conversion, lip; Syms spoiler; HKS rear diffuser

WHEELS: 18x9 Enkei RPF1

TIRES: 255/40-18 Continental ExtremeContact DW

After Andy burned down Scooter's Scooby in the first round, we decided to let Team *fuego* call in yet another pinch racer to balance the scales: Nicholas Bright's Circuit Monsters-backed STI, piloted by Circuit Monsters frontman ... wait for it ... Andy Hope. Now would be a good time to interject that had he not sabotaged our STI, neither his boy's car (nor his newly formed Circuit Monsters streetwear line) would be receiving this valuable ink. With one part pure talent and two parts blatant disregard for other people's things, Andy was even able to click off a 2:02.176 around the CW-13—the fastest Subaru lap of the day—with the car in less-than-perfect shape before setting it, too, on fire in the day's last session. Well played, indeed!





CAR #101: HB SPEED/ROBISPEC/COBB TUNING EVO X

BEST LAP: 2:01.737 (Round 2)

OWNER: Jon Drenas
DRIVER: Jon Drenas
OUTPUT: 450 whp
ENGINE: FP Red turbo; Cosworth cams; AMS front-mount intercooler, piping, intake, downpipe; MXP catback; Cobb Tuning/HB Speed E85 tuning
SUSPENSION: Robispec custom KW Variant III coilovers
BRAKES: Project Mu brake pads
AERO: APR wing; HB Speed front splitter; Mode Racing canards
WHEELS: 18x9.5 Enkei NT03
TIRES: 275/35-18 Continental ExtremeContact DW

Jon Drenas' HB Speed car had been "giving him trouble all week", in his words. In fact, it was technically the slowest EVO of the event, but it finished as one of three cars that didn't suffer some sort of catastrophic failure, and its second-round best time was still fastest than any of the STIs. Jon's "troubles" sound like a pretty damn good time to us, even though everyone agrees he could've gone even faster.



THE GREAT EQUALIZER

A LOOK AT OUR CONTINENTAL EXTREMECONTACT DW SPEC TIRE

The concept of a spec tire—a mandated competition tire, classified by any combination of: construction, UTQG rating, size, manufacturer, or brand—should be familiar among racers and enthusiasts alike. Take two cars making the same amount of power and wrap one

with grippy R-comp and the other with all-season touring tires, the former would whoop the latter's rear bumper around the track. Great for tire compound testing, not so much when testing cars. So, we elected Continental Tire's ExtremeContact DW to level the playing field (along with current DMV registration and Shell 91-octane pump gas) so that each car and driver's true potential could shine through.

Noticeable at first glance is the DW's asymmetric, direction-specific tread design, with continuous center ribs. This keeps the greatest amount of rubber on the road at all times, helping to maintain longitudinal traction in instances of hard acceleration or braking. It also allows for a large void-to-tread ratio for excellent wet road performance, with a tapered tread block for a more predictable traction threshold, and more forgiveness when it's passed. The DW is also constructed with twin steel belts for strength, which are reinforced with spirally wound nylon cap plies to provide consistent handling regardless of g-load, with increased rebound and decreased weight. Sidewall construction is rigid, but not enough to increase road noise or rolling resistance.

With a 340 UTQG treadwear rating, the DW offers surprising traction, thanks largely to its proprietary surface compound that has actually outperformed lower-rated alternatives in our own dry-surface testing. And one cool feature the DW has that others in its class don't: "Tuned Performance Indicators", in the form of varying-depth "DW" letters molded into the tread that can be used to indicate tread life, or gauge how far tread should be shaved for optimum track performance. The best feature, though, might be the tire's low MSRP. After this year's Shootout, we're sure our competitors would much rather spend their coin on replacement parts than tires. www.conti-online.com



STI VS EVO



CAR #104: IMPORT TUNER/ MITSUBISHI EVO X BEST LAP: 2:00.691 (Round 1)

OWNER: Elliott Moran

DRIVER: Rob Walker

OUTPUT: 391 whp

ENGINE: AMS intake, intercooler, piping; Fujitsubo exhaust; Garrett GT3071R turbocharger; HKS sparkplugs; Deatschwerks 800cc injectors; Walbro fuel pump; HB Speed ECU re-flash; Engine work by Tein and the 2NR staff

SUSPENSION: Tein Monoflex coilovers (12kg/mm front, 10kg/mm rear); Hotchkis 32mm front sway bar

DRIVETRAIN: Exedy Stage 2 clutch, flywheel; AMS bushings

BRAKES: APM two-piece rotors; Brembo calipers; Project Mu pads (front); AMS stainless/Teflon brake lines

AERO: C-West front bumper, side skirts, rear bumper, canards; Voltex rear wing; Bodywork and paint by Finishline, Gardena, CA

WHEELS: 18x10.5-inch +25mm offset Volk Racing RE30

TIRES: 265/35-18 Continental Extreme DW

Mr. Super Lap Battle himself, with Rob Walker behind the wheel, redeemed our good name by gripping out the fastest run of the day, in the first round of competition, with his '08 EVO X split-cover car. It even held as the day's fastest until the third round. But by that time, Rob was fast asleep in the Tein truck with a food coma and Elliott was ripping into his third carton of Camels, so we thought it a nice gesture to let the winner enjoy his day.



CAR #102: OCTANE REPORT/M1FD/ TUNING TECHNOLOGIES EVO VIII BEST LAP: 1:59.317 (Round 4)

OWNER: Joey Leh

DRIVER: Russ Warr

OUTPUT: 400 whp

ENGINE: Tuning Technologies prototype turbo upgrade, tuning; Works O2 sensor housing, downpipe, high-flow catalytic converter; Greddy cat-back exhaust, boost controller; AEM intake

SUSPENSION: KW Variant III coilovers

DRIVETRAIN: Gruppe-S ACD ECU; Carbonetic rear 1.5-way LSD

BRAKES: Hawk brake pads; M1FD stainless/Teflon brake lines

AERO: Ings+1 N-Spec front bumper, side skirts; APR rear diffuser, wing; M1FD front splitter, dive planes

WHEELS: 18x9.5 5Zigen FN01R-C

TIRES: 265/35-18 Continental ExtremeContact DW

Another former *Sport Compact Car* editor, but also a full-time Asian cuisine critique and co-founder of Octanereport.com, Joey Leh fielded the day's fastest competing car. In true street form and laying down consistent 2:00 passes, it looked like it might survive the entire event; too, until virtually the last lap, when driver Russ Warr pushed it to its fastest time ever, spinning a rod bearing in the process that would end the engine's four-year reign as an abused press/project/track car during the next day's SLB finals. If ever there was a way to go out in style, this was it.



CAR #105: BONE-STOCK '10 SUBARU WRX STI BY SPT BEST LAP: 2:06.260 (Round 4)

OWNER: Subaru

DRIVER: Tyler McQuarrie

OUTPUT: 315 hp; 290 lb-ft of torque @ 14.7 psi of boost

ENGINE: 2.5L DOHC 16-valve turbocharged/intercooled horizontally-opposed four-cylinder; Dual Active Valve Control System (DAVCS); SPT turbo heat shield, billet oil cap, billet battery hold-down, cat-back exhaust

SUSPENSION: STI Performance springs; SPT strut tower bar, lower chassis brace

DRIVETRAIN: six-speed manual trans; Symmetrical All-wheel Drive; Driver Controlled Center Differential (DCCD); helical front differential; Torsen rear LSD

BRAKES: Stock Brembos

AERO: STI front-lip spoiler

WHEELS: 19x8.5 Prodrive GT2

TIRES: 245/35-19 Continental ExtremeContact DW

Subaru was nice enough to lend us a '10 STI SPT (Subaru Performance Tuning) press car to drive to the event, on the assumption—we suspect—that it wouldn't see very much track time. Little did they know until now, we basically ran it as hard as possible, start to finish of every session, all day long, without a hitch. And its best time was clocked in the final session of the day, with Tyler behind the wheel, meaning it had more to give all along. It wasn't the fastest car of the day, but compared to those that hitched a ride home on a flatbed, it wasn't the slowest. And it offered a quiet ride, A/C, cargo storage, satellite radio (XM Chill FTW!), and a lot more that gutted time-attackers don't... even though we like those, too.



It's important to note that of the five cars that didn't survive our two days, this was the first major event on entirely new setups for four of them, and all of their problems were caused by a simple oversight or freak equipment failure. Proven by the HB Speed cars of this event and the winning cars of the Super Lap Battle profiled in last month's issue, modifying your car isn't the problem—expecting it to fare well in competition without first shaking it down probably will be. As for car #5, this event's winner, stock engines do have their limits—even the venerable 4G63. You gotta pay to play, and we're betting Joey's EVO will be back, running faster and more reliably by the time this gets out. 



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STI vs EVO

Clash of the Titan Killers



You are the Mspeed R34 GT-R. Your entire coupe unibody has undergone extreme weight reduction and chassis reinforcement. Every detachable body component has been replaced with lightweight, dry carbon fiber alternatives. Your brakes have been upgraded to 355mm, two-piece Brembo rotors with magnesium eight-piston calipers. Your Quantum/Hyperco suspension costs two thousand dollars. Per corner. And your engine: a fat 760 whp from a fully built 2.8L RB26DETT, boosted with twin Apex'i AX53B60 turbos. You've got all the necessary bits for performance and nothing more. The culmination of your automotive perfection resulted in a lap time of 54.481 seconds at Japan's Tsukuba circuit in December of 2007—a lap time the time-attack community speculated couldn't be beat by a true, production-bodied car; if it could, only one or two GT-R/FD-badged machines might've been able to do it, on their best days.

But then came Sun Auto's Cyber EVO: a stock(ish)-bodied, four-cylinder, four-door production family car that beat your time in just under two years. What. The. Fock.



Competition is a powerful thing. Thanks to it, we enjoy goodies like the iPhone, 300-channel satellite TV programming and 22-megapixel digital SLRs for yesterday's price of a Micro TAC 8200, Skinemax subscription and about one-fourth of a Canon EOS D2000 (2MP resolution, \$12k price tag in 1998). Without it, we likely wouldn't be driving cars that bear any resemblance to today's high-performance imports. In the same way as homologation requirements of touring car competition lead to the development of road-shredding giants like the Supra, 300ZX and Skyline GT-R (profiled last month), so did the World Rally Competition's Group A homologation lead to the "evolution" of lighter and smaller compact cars into turbo-four/AWD giant killers designed to dominate dirt/snow/gravel/tarmac racing, while still appealing to the general public. It was this class that single-handedly lead to the birth of the Lancia Delta HF 4WD and Ford Escort Cosworth in Europe, and Japan's Toyota Celica All-Trac (185), Mitsubishi Lancer Evolution, and Subaru Impreza WRX STI we all lust over today.

If the "chicken or the egg" debate ever surfaces in EVO-vs-STI bench racing bouts, let your friends know it was Mitsu who beat Subie to the punch by one year. Mitsubishi had previously been campaigning its turbo/AWD Galant VR-4 in Group A rally competition, but as the showroom version of the car grew to meet public demands for comfort, safety and utility, race-prepped examples subsequently became bulkier on the track (or lack thereof) and were routinely upset by smaller European models. In 1992, the company homologated (meaning they sold at least 2,500 of) a turbo/AWD version of their smaller Lancer model and the EVO I was born. Such was the case with Subaru, their proven, yet growing-in-size Legacy, and the choice to homologate a trim of their Impreza sport compact as the WRX in 1993, and one year later, to release the WRX STI. The mid to late nineties then saw EVOs and STIs become the two dominant platforms of the series, and the names of drivers like Tommi Makinen and Colin McCrae become household among racing fans.

Homologated touring cars are all-out muscle. Just so long as they can be de-tuned enough to clear speed bumps and idle in 100-degree city traffic without polluting *too* badly, while still destroying their competi-

EVOs AND STIs ARE BECOMING THE FASTEST CARS IN TIME-ATTACK COMPETITION, BEATING BUILT TOURING CARS AT THEIR OWN GAME. BUT WHAT MAKES THEM SO GOOD?



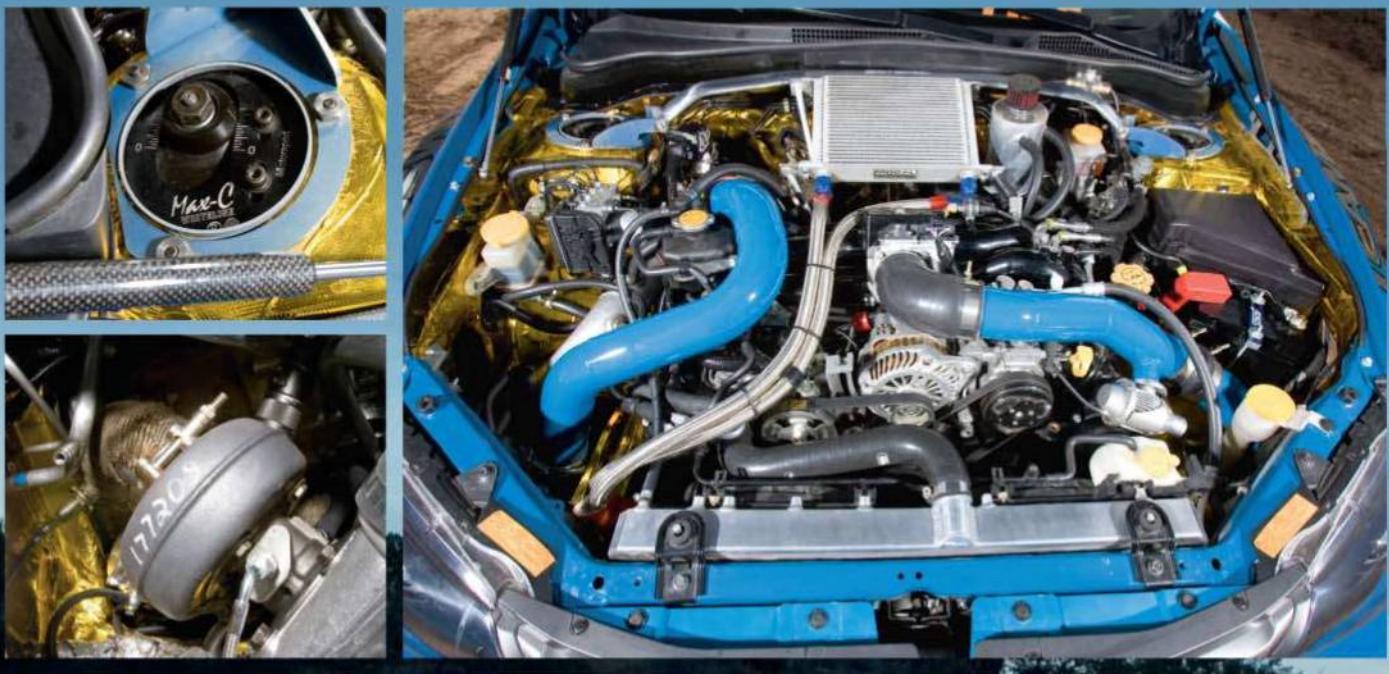
tion around a paved circuit, they're generally good to go. But when a car must meet the same average-Joe requirements, yet also be light and nimble enough to maintain performance over any terrain imaginable, all while being sturdy enough to survive the crashes and all-out abuse of off-road competition, a level of finesse emerges. Add to that FIA-mandated limits on displacement and peak power that force competitors to focus on chassis rigidity, torque production, throttle response, and drivetrain prowess to gain an advantage, and you end up with a car that will outperform nearly any other in almost any scenario.

Like ours of this month: time-attack. As of this year's Super Lap Battle finals and *Import Tuner*'s own STI vs. EVO Shootout at Buttonwillow Raceway in California, and Japan-based *Rev Speed* magazine's Super Battle at Tsukuba circuit in Japan, EVOs (with STIs following closely) are the fastest platforms in competition, two years running. That they're consistently beating built touring cars at what is essentially their own game proves their level of refinement. But just what makes them so good? Elliott Moran, organizer of Super Lap Battle and owner of the C-West-clad EVO X on these pages has his opinions. "It's simple," he starts, grinning and counting with his fingers, "Turbo four-cylinder engines are light, and capable of more than enough power with a little work. All-wheel-drive is perfect for racing—you have four wheels on the ground most of the time, if you get power to the right ones at the



right time, you get more traction. Front-to-rear weight transfer under acceleration is even, and the front-engine layout is easier to drive for most people. And each model is revised every two years." He's quick to point out that EVOs have so far been faster than STIs on the streets, drag strips, and in time-attack. Controversial as it may be for its wild modification and fabbed strut towers, Japan's HKS CT230R is recognized as the fastest production car of any make in competition, but Sun Auto's faithful Cyber EVO is closing in on its records, having clocked a 54.392-second Tsukuba lap only weeks before this writing. In the U.S., Sierra Sierra's EVO VIII is closing in on the CT230R SLB record after only its first year competing, and AMS' EVO X is arguably the fastest EVO X in the world, itself also after just one season. At face value, it would seem the Subies have some catching up to do.

Paul Yim, owner of the Santa Clarita-based Subie dojo Yimisport, has his own opinions on the matter. He's owned and tuned EVOs and STIs alike, and the Laguna Seca Blue STI laid out on the pages in front of you has served as his company's test bed since it was purchased new in November of '07—meaning it, and its 536 whp have stood at the forefront of STI tuning technology. "If you're looking to drop \$30K on a solid, fast, practical street car out of the box, the Subie's perfect—loads of torque, it's comfortable . . . and have you seen the EVO's trunk space? It's a joke." He continues, "But if you want to tune your car a little, make more power and beat

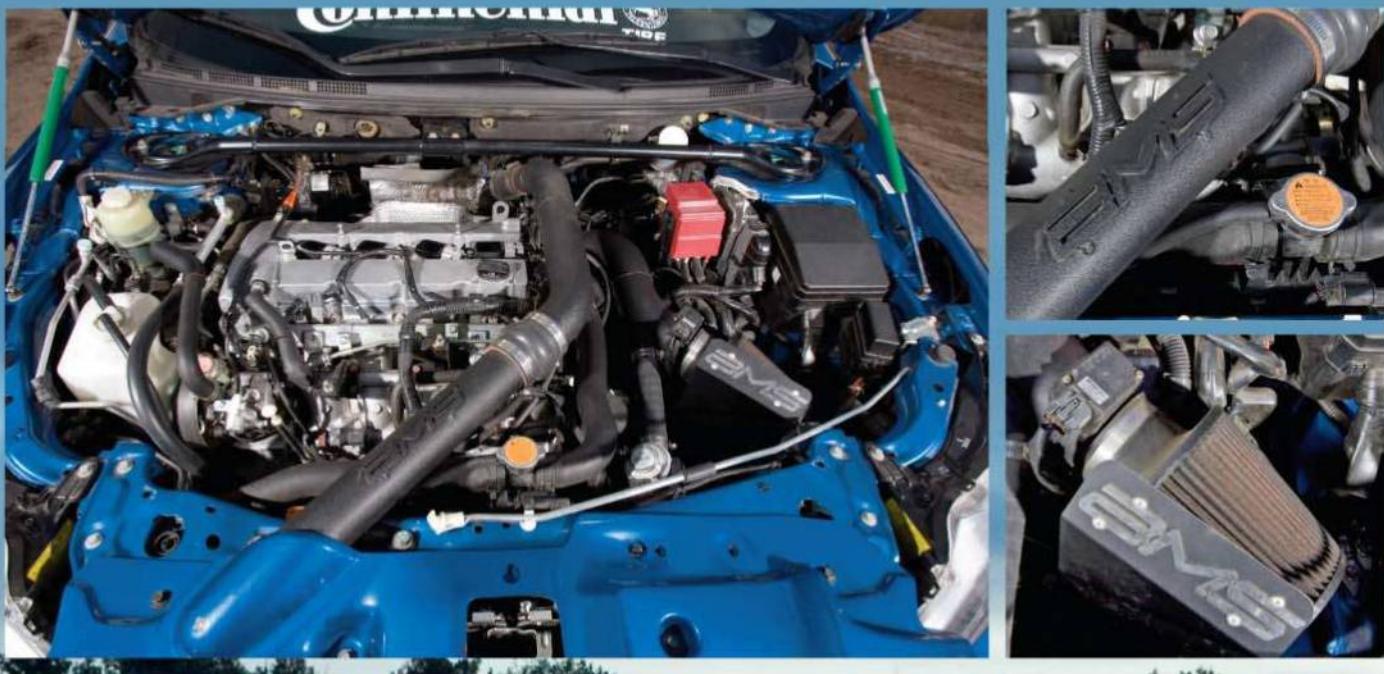


everyone at the track on the weekends without worrying that it's going to blow up, you probably want the EVO." He reconsiders. "Then again, if you're loaded and your only goal is to build an all-out track monster ... they're pretty much the same." Yim points to two fundamental differences with each car. "The EVO's engine has always been bulletproof. Even the new 4B11 has proven its stock block can take some serious abuse. If the U.S. STI's EJ25 came with forged pistons and a better head design like the 4G/4B—like the JDM STI engine—they'd be every bit as strong." He continues, "And the EVO chassis just feels more responsive on the track; twitchy, almost. It responds to every steering and braking input, which is good, but also makes the STI way more comfortable on

bumpy, unpredictable roads, like the ones most of us drive everyday." A product of their extensive rally heritage, we suspect, where competition-built Subarus outnumber, and outright own their EVO rivals.

STIs have a proven overheating problem when driven hard—especially the '08+ cars, which are equipped with radiators half as thick as in previous years. For emissions' sake, they also run a factory-preset closed-loop 14.7:1 air/fuel tune until 4,000 rpm, which severely limits timing advance and power output. And then there's the problem of them blowing up. "There are certain steps you should take when building an STI," explains Paul Leung, Yimisport's lead tuner, "First, get an Accessport and have it tuned the day you buy your car. Then buy bolt-





ons, a good suspension and lower the car a little, do your alignment, and have fun." But he cautions, "Make sure to upgrade the oil pan, intercooler and radiator, and add an oil cooler before you go racing. And if you upgrade the turbo and injectors, build the block. Replace the pistons at the very least—stock ones don't usually last long." Typically, cylinder four leans out and detonates due to excess back-pressure that builds at its near-90-degree exhaust port, keeping the proper amount of fuel from entering combustion. "A good turbo manifold and some mild porting will take care of this," Leung advises.

Modifying an EVO is a slightly different story. Super Lap Battle's 2008 Street AWD and 2009 Limited AWD class-winning car, Ryan Gates' AMS-

powered EVO X, has raced two entire seasons on a stock-block, 500+whp 4B11 engine without a hitch. Elliott's car has managed to run faster than most with comparatively little added to it—even 1.081 seconds faster than Yim's STI at our STI vs. EVO Shootout (though in Yim's defense, he was testing a larger turbo on the car, the powerband of which was too "peaky" for his driver's liking on street tires—a more fitting turbo replaces it now). Still, they aren't without their hiccups: "The MR's twin-clutch SST transmissions are known to overheat on the track," explains Elliott, "but it's not much of a problem with an aftermarket transmission cooler. And all EVO Xs experience fuel starvation during hard cornering when the gas tank is less than half full." He continues, "Those are the only two drawbacks I



EVO V THE FASTEST

It's no secret that the *Import Tuner* STI vs. EVO Shootout's big brother, Super Lap Battle (coverage of 2009 Finals in last month's issue), has hosted some of the world's fastest time-attackers of both makes. But it's Buttonwillow-only final event makes it somewhat

HKS CT230R

This undisputed time-attack champ has gone 53.589 seconds at Tsukuba and 1:43.523 at Buttonwillow, both in 2007, and both setting fastest-lap production car records. Countless best efforts from the world's top Impreza/RX-7/GT-R/S2000/NSX and other EVO machines haven't been able to break it. How much longer will it stay on top? Is it even legal?



SIERRA-SIERRA EVO VIII

Upstarts of the Year honors go to Sierra Sierra, whose first-year competition car is currently the U.S.'s fastest around Buttonwillow, and in Third place for the crown, with a 1:45.061, clocked at the 2009 SLB Finals.



AMS EVO X

Chicago-based AMS' current Unlimited-class competitor is suspected as being the world's fastest EVO X in time-attack competition. It's clocked a 1:36.230 at California Speedway (Sierra Sierra's best was a gear-limited 1:38.028), and won another time-attack series' 2009 championship outright.



APC RACING EVO II

Australia enters the record books with the World's Quickest EVO drag car (March '09 issue *2NR*), with a 7.94@176.96 clocked in the 2008 Spring Top Fuel Nationals at Willowbank Raceway in Oz.



S STI IN EACH CAMP

exclusive to Western U.S. competitors, and alas, it is Super Lap Battle—not Super Line Battle—so there's no drag class (although time-attacking drag cars would be fun). Let's look at some of the world's fastest EVO/STI straight-line and circuit racers:

CUSCO/TOMEI/VOLTEX/TEAM TARZAN '07 IMPREZA WRX

Buttonwillow's second-fastest super lapper, otherwise known as the Cusco WRX, stands less than a second from the title as Buttonwillow's all-time fastest, with a 1:44.372 clocked at 2008 SLB Finals.



TOP SPEED GC8

Featured in our July '09 issue, the late Atlanta-area Impreza is speculated to have been the U.S.'s fastest Subaru time-attacker to date; it beat Crawford by four-tenths of a second to take the 2008 GT Live top honors at VIR, and unofficially broke the track record of Utah's Miller Motorsports Park during a practice session, also in 2008.



CRAWFORD '08 STI

With a 1:45.552, Crawford Performance's '08 STI sits at Fifth in the runnings for fastest at Buttonwillow, but also represents the fastest U.S. '08 competitor of any make.



ESX MOTORSPORTS '06 WRX

World's Fastest STI honors go to our Southern California homeboy Ali Afshar and his 7.90@196-second '06 Subaru WRX.



know of." Flexing an off-the-shelf Tein/Hotchkis suspension, a slight APM/AMS/Project Mu brake upgrade and making a fat 391 whp, his car is on the verge of sub-two-minute passes at Buttonwillow. "It might've been able to break two minutes—the driver didn't get a lot of seat time with it this year. But with the Voltex aero it has now, it shouldn't have a problem," he claims. To put this in perspective, a stock Z06 'Vette and Porsche 911 Turbo (997) won't run better than a 2:02. A stock EVO X GSR will do about a 2:05.

It's often said that the EVO will turn a novice driver into a pro behind the wheel. This is largely thanks to the car's Super All Wheel Control (S-AWC) system that reads information supplied by on-board accelerometers, throttle-position and ABS sensors, and electronically engages differentials to deliver the best possible traction under any circumstance. It's been a hit since the EVO IV and the current system has been in play since the EVO VIII. "It wasn't as good with the VIII's open diff," comments Elliott, "but on the IX and X it's often called the 'magic diff.' The STI doesn't have this reputation.

No holds barred, the stacks are just about equal. In Second Place of SLB's all-time fastest list is the Cusco/Tomei/Voltex/Team Tarzan '07 Impreza WRX, less than a second off the HKS time. In Fourth is another first-year competition car: Crawford's '08 STI, and it's currently ahead of AMS' EVO X in SLB rankings and within just two seconds of HKS. And let's not forget Atlanta's Top Speed GC8 that owns Southeastern time-attack record books, or the U.K.'s Zen Performance or Roger Clark Motorsports Imprezas that consistently beat out FD-, Elise-, and EVO-badged competitors. "The low-profile design of Subaru's flat-four gives the cars a better weight distribution than the EVO," states Yim, "Sometimes I think the reason STIs aren't winning as much is just because there are less of them out there."

The STI/EVO racing rivalry that led to the potent streetcars we enjoy

today is very much a double-edged sword; competition to build a faster homologated racecar also means competition to "grow" a brand into a more viable showroom car, which usually means (in the case of the Galant/Legacy) one that's larger, more comfortable, and less of a performer. Could this already be happening with the STI and EVO? "Both cars are larger and 'fatter' in their newer generations, but the chassis are more rigid, and they still make the power they always did," explains Yim, "Still, a lot of racers prefer the older cars." Ryan Gates isn't one of them: "I sold my EVO IX to buy a X, and can honestly say the X is better in every way," he testifies. Subaru's newly released '10 STI SE brings further performance enhancements to the showroom (sway bars, springs and suspension bushings from the JDM STI Spec C; reduced weight; etc.), but the EVO has apparently stopped evolving; the X brings no major performance changes for '10, in what should be its first year as an EVO XI. The rumors we hear include direct-injection or diesel 4B11 variants, or Ralliart Sportbacks—both seemingly geared more toward fuel economy and utility than performance.

Now that both manufacturers have pulled out of the WRC, will more comfortable interiors, better fuel economy, decreased NVH, and greater storage capacity see the same heated competition once fought over acceleration, braking

IF LONG-HELD RECORDS SET BY THE GT-R, NSX AND FAIRLADY BEING TAKEN OUT BY EVOs AND STIs TELLS US ANYTHING, IT'S THAT THE FUTURE IS BRIGHT FOR BOTH CARS.

and handling improvements? "The Impreza engine is ready to be replaced," explains Leung, of Subaru's venerable EJ-series engine which comes of drinking age this year, "and it seems like everyone is moving more toward fuel economy than performance. Still, we never got the good version—the JDM EJ207—so I can't imagine a new engine being anything but better."

No matter the fate each car's manufacturer has in store for it, competition among tuners and enthusiasts like Paul and Elliott will keep performance evolving. Twenty-one years after the introduction of the first-gen Eclipse, turbo/AWD DSMs continue to upset their competitors on the time-attack circuit, and push further into the 7s down the 1320 in near-street trim. And if long-held records set by performance giants like the GT-R, NSX and Fairlady being taken out so easily by EVOs and STIs tells us anything, it's that the future is bright for both cars. "I originally bought my STI to be a 300whp daily driver while I raced the EVO," says Yim with a laugh, "But after we got past the small hurdles, I liked it so much I sold the EVO. I probably won't stop until it's running in the Unlimited class." Elliott's view is different. "My EVO is done. I'm going to take it to the track more, run under two minutes at next year's Super Lap Battle, and just enjoy it. It's faster than most cars on the street and as long as it stays that way, that's good enough for me." 



'08 MITSUBISHI LANCER EVOLUTION X

BUTTONWILLOW RACEWAY TIME: 2:00.691
391 WHP @ 7,500; 321 LB-FT @ 4,500 RPM

NAME.	OCCUPATION.	HOBBIES.
ELLIOTT MORAN	UNKNOWN	CARS, CLOTHES AND HOES ARE ALL A BROTHA KNOWS!
33	1 YEAR AND COUNTING	"NAH MAN, BET! BET!"
HOMEtown.	FEEDBACK.	
LOS ANGELES, CA	elliott.moran@sorc.com	

ENGINE AMS intake, intercooler, piping; Fujitsubo exhaust; Garrett GT3071R turbocharger; HKS sparkplugs; Deatschwerks 800cc injectors; Walbro fuel pump; HB Speed ECU reflash; Engine work by Tein (Yes, that Tein) and the 2NR staff

DRIVETRAIN Exedy Stage 2 clutch, flywheel; AMS bushings

SUSPENSION Tein Monoflex coilovers (12kg/mm front, 10kg/mm rear); Hotchkis 32mm front sway bar

WHEELS/TIRES 18x10.5-inch +25mm offset Volk Racing RE30 wheels; 265/35-18 Continental ExtremeContact DW tires

BRAKES APR two-piece rotors; Brembo calipers; Project Mu pads (front); AMS stainless/teflon brake lines

EXTERIOR C-West front bumper, side skirts, rear bumper, canards; Voltex rear wing; Bodywork and paint by Finishline in Gardena, CA

INTERIOR Recaro Profi seats; Takata harnesses; AMS harness bar, shift knob; DEFI Advance CR gauges; ATI gauge pod



'08 SUBARU WRX STI

BUTTONWILLOW RACEWAY TIME: 2:01.772
526 WHP @ 6,000 RPM; 494 LB-FT @ 5,100 RPM

NAME.	OCCUPATION.	HOBBIES.
PAUL YIM	YIMI SPORT SHOP OWNER	FAMILY, GOLF, VIDEO GAMES, BUILDING CARS
34	1 YEAR	"IT TAKES MONEY"
HOMEtown.	FEEDBACK.	
SANTA CLARITA, CA	paul@yimisport.com	

ENGINE Balanced rotating assembly; Manley Turbo Tuff connecting rods; JE Pistons; Killer Bee oil pan; LA Sleeves re-sleeved bottom end; 5 Axis CNC-ported heads; +1mm Supertech valves, valve springs, titanium retainers; Yimi Sport intake, intercooler, piping, oil/air separator; Flowmaster Hushpower exhaust; Milspec 100-cell catalytic converter; Full Race twin-scroll turbo manifold; Borg Warner 83-75 turbocharger; HKS SSQV blow-off valve; Tial MV-S wastegate; PWR radiator; Samco radiator hoses; Mocal oil cooler; NGK iridium spark plugs; Deatschwerks 1,000cc injectors; Walbro fuel pump; Cosworth ECU, tuned by Paul Lueng of Yimi Sport

DRIVETRAIN Exedy twin-plate clutch, flywheel

SUSPENSION KW Club Sport coilovers; Whiteline 24mm front sway bar, 24mm rear sway bar, bushings, front camber plates, four-point under-carriage brace; GT Spec front strut brace, fender braces; Cusco mid-body brace

WHEELS/TIRES 18x9-inch +35mm Volk Racing RE30 wheels; 265/35-18 Continental ExtremeContact DW tires (street); 18x9.5-inch +38mm Enkei RPF1 wheels (race)

BRAKES Brembo 355mm Gran Turismo brakes (front); Hawk DTC 70/60 pads; custom stainless brake lines

EXTERIOR Seibon carbon fiber hood; APR custom carbon fiber canards, front lip, splitter; Blacktop Aero carbon fiber double deck wing; rolled fenders; PPG Laguna Seca blue paint by L&J Auto Body and Paint in Santa Clarita, CA; chrome and black graphics by Paint by Mike in Santa Clarita, CA

INTERIOR Race Tech 1000 front seats

ELECTRONICS Defi gauges; Pioneer Avic Z2 head unit; JL Audio 300x4 amplifiers; Hertz Components 6.5-inch speakers

GRATITUDE Yimi Sport crew; Full-Race; KW Suspensions; APR Performance; Cosworth; Flowmaster; Team SCS; Mike at Deatschwerks; West End Alignment; L&J Auto Body; Ferdie at South Coast; Mike and Lewis

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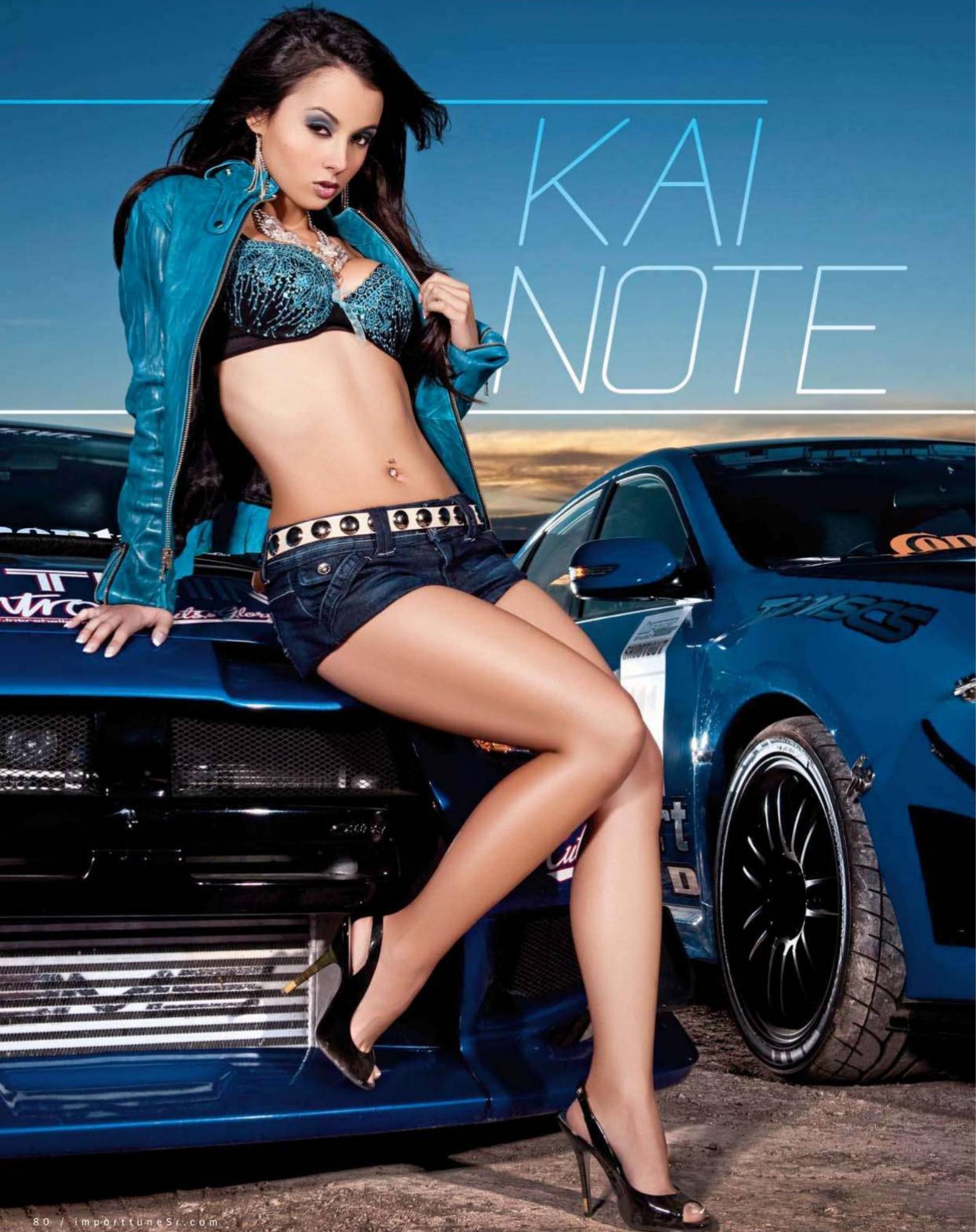
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INTERVIEW BY CARTER JUNG
PHOTOS BY CARTER JUNG

LOCATION: HOLLYWOOD SHOWLIGHTS
MAKE UP: TRACI BARRETT FOR NARS COSMETICS

STYLIST: TIFFANY DEAN



By the time we wrap the first half of the photoshoot at our studio near LAX, it's 3 p.m. There are two hours of sunlight, at best, and sixty miles of SoCal traffic to brave to get to the second location. Great.

I hop, or rather crawl, on the most feared of LA freeways, the 405, and it's a sea of red taillights. Double great. On the bright side, sitting shotgun in the '10 Subaru Legacy 2.5GT (read micro review on p. 44) is the lovely Leanna Kai. One could do much worse for a carpool buddy.

We start chatting when a call comes through. I pick it up and instinctively mute the radio. It's Elliott "Mr. SLB" Moran in his EVO X behind me, asking for directions in case we get separated. While I'm giving him the route—legally, on my handsfree, of course—music is still piping through the Harmon Kardon speakers. I thumb the volume control button on the steering wheel down some more and it does absolutely nothing. The female voice is still singing, a cappella. Puzzled, I reach for the main volume knob on the center console when I discover the sweet melodious source; it's Leanna. And wow, what a voice.

"So . . . you like to sing?" I ask. Move over, Captain Obvious.

"I do. I've been singing for as long as I can remember. Music is my life!" Leanna replies.

Smolderingly hot and vocally talented, she's almost too good to be true.

"Now only if you were into cars, you'd be every readers' wet dream," I joke.

"I am! Not the whole bed-wetting thing, but I'm into cars."

"Yeah right."

"No seriously, I have a Honda that used to be all fixed-up. Loud exhaust, suspension and everything."

Gentlemen, meet the perfect woman.

For as many models as I've interviewed, you're the first to own a fixed-up Honda. Let's moisten some fanboys' pants: what do you own and what have you modified?

I have an '05 Honda Civic. Now, I just have a system in the back, but I used to have wheels, coilovers, an exhaust . . .

How did you get into Hondas?

Because they look sporty! [laughs]

Let's say ZNR had a budget—a complete hypothetical—and we could kick down \$10K to build your car, what would you want to do to your Civic?

First, I would swap for a K24 with a VTEC head, supercharge it, and go with a new engine management system. I'd upgrade the suspension, forged rims, and go with a big brake kit. . . do they come in pink? [laughs]

Except for the pink, not a bad plan . . . what's the one modification no man should ever have on his car?

Spinning rims. They look gay.

Agreed! [laughter] Was the Civic your first car?

My first car was actually a '68 Beetle—I wish

I still had it! It was the cutest car ever. It totally fit me and my personality, but I needed to trade it in for a more reliable car that could go up hills.

What's your dream car?

I wouldn't mind an '09 Nissan GT-R. In black and pink!

Just like my interracial videos. Can you drive a stick?

Of course I can! Real women can drive a stick, baby! It's the only way to drive and be in complete control.

How about our cover cars—which do you prefer, the EVO or STI?

I'm kinda scared to answer this one because now I know both of this month's owners.

Screw 'em. They already got their cover! [laughter] Besides, I won't tell anyone.

Hmm . . . In that case, I'd have to say EVO, just because I'm not a fan of hatchbacks.

I think you just made Elliott blush. [laughter] Does a car make the man or does the man make the car?

A man definitely makes the car. If his person-

ality is crap then he better have a nice car. But if a guy is really sweet, has a killer personality and drives a beat up car, it's all gravy!

So, hypothetically, if someone rolled up in a beat-up gold S14—broken hood, fender, lights, and gasp, automatic—what kind of killer personality should I, er, that person, pack?

I look for a guy who is confident and isn't scared to talk to me. It's such a turn on when a guy has a sense of humor. He has to be smart—I want someone who can keep me on my toes.

Turn-offs?

Body odor, bad breath, smelly farts, and guys who are too into themselves.

Where do you meet guys? Clubs? Bars?

Actually, I meet guys at random places because they're usually more sincere.

The local jungle gym? Street corner? The Internet?

[laughs] No! At a friend's birthday party or get-together. Through friends of friends.

REAL WOMEN CAN DRIVE A
STICK, BABY! IT'S THE ONLY
WAY TO DRIVE AND BE IN
COMPLETE CONTROL



LEATHER JACKET AND BELT BY HUGO BOSS; BRA AND BOYSHORT BY VICTORIA'S SECRET.
DENIM SHORTS BY YMI JEANS; SHOES BY JESSICA SIMPSON; JEWELRY BY HEATHER HYDE



You have an incredible passion for music and can sing like a mofo—who would you compare your vocal talents to?

Oh my gosh, I couldn't really compare my music to my idols. I'm definitely inspired by Alicia Keys, Mariah Carey, Beyoncé, Christina Aguilera, Michael Bublé, and Sade, however.

Kanye West: mad talented or just mad?

I think it's both. That man has awesome musical creativity but the guy seriously needs to chill out sometimes.

When and what was your first public performance?

My very first performance was when I was about seven or eight years old. I sang *Little Mermaid* for a talent show. OMG, I was totally obsessed with that movie and anything to do with mermaids.

Do you play any instruments?

I enjoy playing the piano. I started taking lessons when I was in Sixth grade but I didn't really get into playing and writing my own music until about two years ago.

What is this about you yodeling?

[laughs] I started listening to LeAnn Rimes when she was really country, and in one of her first albums she yodeled. So, I really wanted to be able to yodel and I would practice all the time.

How is yodeling different from singing?

Well, yodeling is all about having a lot of control in your voice. Actually, there's no difference, just a different technique I would say.

If you could collab with any artist on your first single, who would it be? Why?

Michael Bublé! He's effing hot and his voice matches mine. We would make a ridiculous song together.

So what you're saying is that you two would make beautiful music together?

...

OK. Um. Moving on. What about hip-hop artist?

Black Eyed Peas. They have unbelievable talent.

Any embarrassing performance stories you'd like to share?

In high school, I was singing in front of over 500 people and I totally forgot some of the words. It was horrible but I played it off.

That's where yodeling would come in handy. Where can our readers hear some of your music?

They can go to www.myspace.com/leannakai. They're older songs but I'll be putting some new tracks up soon.

Other than cars and music, what are some of your hobbies?

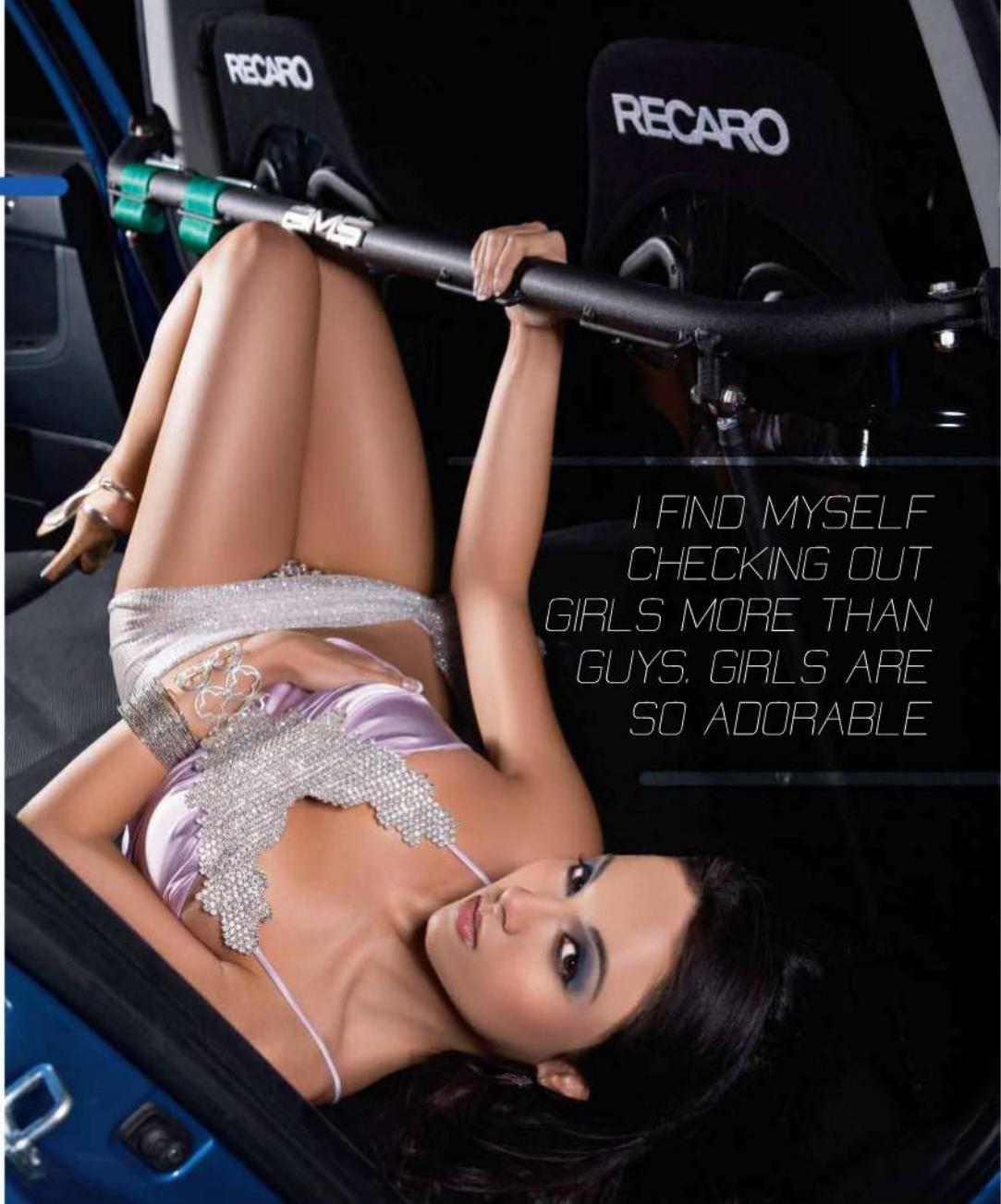
I love working out and painting, it's really therapeutic. I also love doing girly things with my friends like shopping and watching movies, sleepovers and pillow fights.

As a quarter Italian, your thoughts on Jersey Shore?

It's a lame show and it's not something I would ever want to watch, but that's just me.

A hearty fist pump to that. What are your vices?

I say the 'F' word sometimes under my breath. I know it's bad but I do it when I'm frustrated.



I FIND MYSELF
CHECKING OUT
GIRLS MORE THAN
GUYS. GIRLS ARE
SO ADORABLE

Let's get into some "lasts". When's the last time you laughed milk-squirtly hard?

George Lopez live. 'Nuff said.

Tara is super hot . . . as long as she lays off the taco trucks.

I remember reading about that! [laughter]

What's the last great meal you've had?

After the photoshoot and we had Mediterranean food in Glendale and we argued about how to spell 'Mediterranean'. [laughter]

That's why the pasty white Microsoft gods invented Spell Check. The last time you heard a good pick-up line?

Do you believe in love at first sight or do I have to walk by again?

Why no, dear. The last time you had a bi-curious moment?

It happens often—I find myself checking out girls more than guys. Girls are so adorable.

Such as . . . ?

Latina girls are exotic and I think Selma Hayek and Penelope Cruz are really pretty.

How about from our industry?

Ooh that's tough—there are a lot of hot import models. I'm not usually into White girls, but Miss Genna is so cute and I totally want to squeeze her boobs. Also, Tara Love, [Miss ZNR September '09] is really hot—she was actually my classmate since junior high.

The last time someone got on your nerve?

Besides other than now? [laughs]

Someone wants an extra 15 lbs Photoshopped into their picture. . .

No! [laughter]

The last good movie you saw?
Avatar!

When was the last time someone successfully got your number?

I was at work and some guy offered to buy me frozen yogurt. He said he would call me when he got to Pinkberry to ask me what flavors I want. He was actually pretty smooth about the whole thing and I didn't even realize I just gave out my number until after I had already given it to him. I'm so gullible sometimes. [laughs]

So, uh, now that the interview's over, I was thinking about running to Baskin-Robbins to pick up a banana split while you change. What's your number again?

[laughs] Carter, you're so lame.

Dairy Queen, perhaps? It

Height: 5'3"

Measurements: 32-24-32

Ethnicity: Hawaiian, Portuguese, Italian, and Irish

Sign: Aries

Birthday: April 13th

Hometown: Los Angeles, CA

Website:

www.myspace.com/pixelove41386
www.myspace.com/Leiannakai

Thanks:

My parents and family because they have always supported and loved unconditionally; my dearest friends Sasha and Karen; Chris from FatFish Entertainment; my mentor Tricia Kawasaki from SpoCom; all the guys from Extreme Autofest and Import Image; silly Miss Genna for her friendship and guidance; my fans for always believing in me; and Carter for being the awesome man he is and picking little ol' me to be featured in the hottest import magazine!

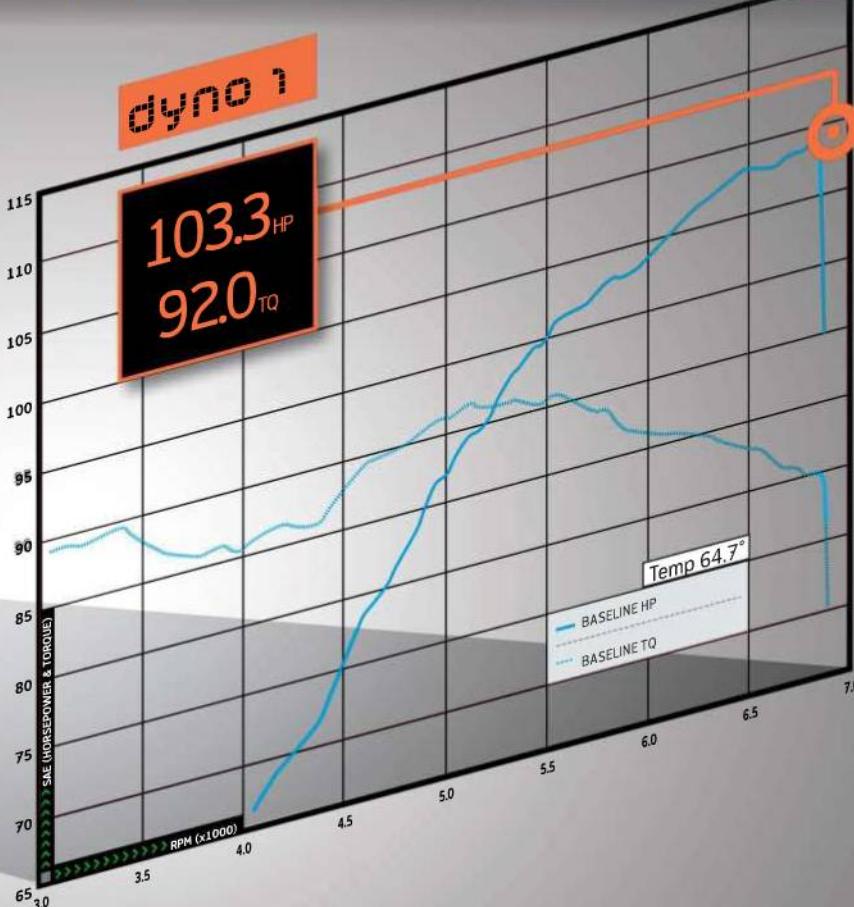


TOP BY ANGELA DEAN; BIKINI BOTTOM BY BETSEY JOHNSON; SKIRT BY TIFANY WEST; SHOES BY JESSICA SIMPSON; JEWELRY BY HEATHER RYDE



1999 HONDA CIVIC EX

• OWNER: KY LE (NO, NOT "KYLE")
• DYN0 AND FACILITY:
SP ENGINEERING DYN0JET
• INSTALLATION: SCOTT TSUNEISHI
• TEXT BY: SCOTT TSUNEISHI
• PHOTOS BY: STAFF



BASELINE

PROS

The sixth generation ('96-'00) Civic CX-EX models were built as economical, fuel efficient vehicles in the late '90s, while Honda engineers had a more performance-oriented outlook for its brother, the 160hp B16A2-powered Civic Si. Although the 1.6-liter D16Y power plant delivers a meager factory-rated 127 horsepower, performance enthusiasts have built the SOHC engine to more than 500 whp.

CONS

With this year marking the 14th anniversary of the sixth-generation Civic, these unheralded warriors continue to flood our cities and highways as the vehicle of choice for both young and old. Unfortunately, many of these cars have accumulated over 200K miles on the odometer and require regular maintenance to keep them running in top condition.

NOTES

Before strapping the Civic on the dyno, we performed routine maintenance, including an oil change and spark plug check/replacement. In stock trim, the SOHC VTEC powered 103.3 hp and 92.0 lb-ft of torque through the Civic's hub cap-clad wheels.

GREDDY TI-C CAT-BACK EXHAUST

PROS

Greddy's Ti-C cat-back exhaust system combines both looks and performance, using 60mm stainless piping, a polished stainless steel muffler, and a titanium heat-treated tip. The Ti-C exhaust delivers an increase in high- and mid-range performance, while maintaining sub-94db levels when used with the included tri-mounted silencer.

CONS

The catalytic converter's nuts and bolts required plenty of WD-40 before attempting to remove them, as corrosion managed to fuse them shut. Upon installing the new exhaust system, we found adjusting the mid-pipe and canister before tightening the bolts helped to keep the exhaust tip from precariously resting on the factory bumper.

PARTS

Muffler section, intermediate section, tip, silencer, hardware, instructions, decals

TOOLS

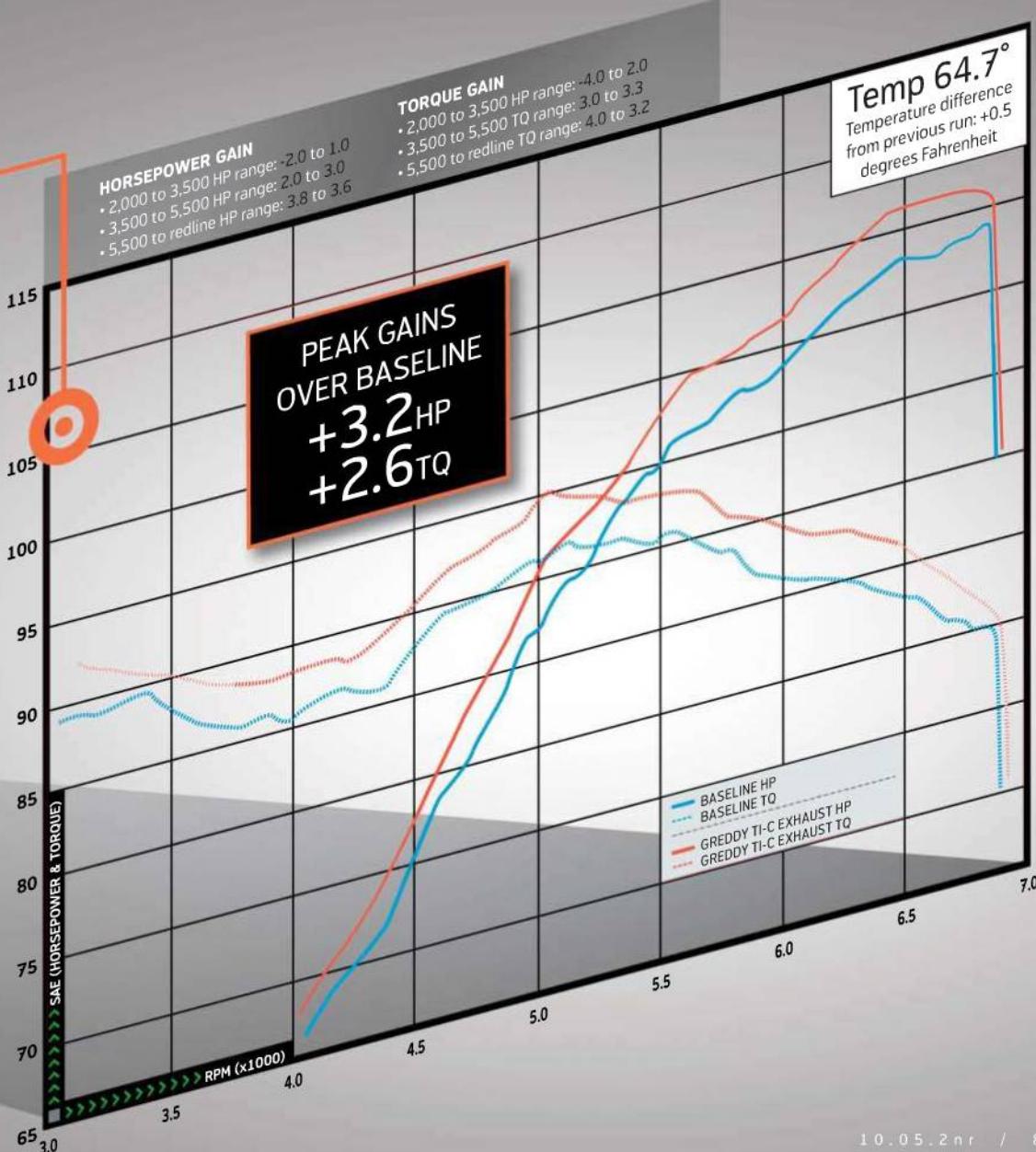
10-, 12-, 14- and 17mm sockets, 10-, 12-, 14- and 17mm open-end wrenches, ratchet, extension, WD-40, and anti-seize.

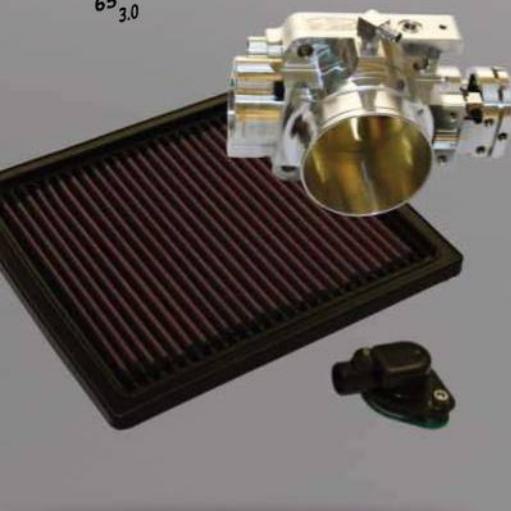
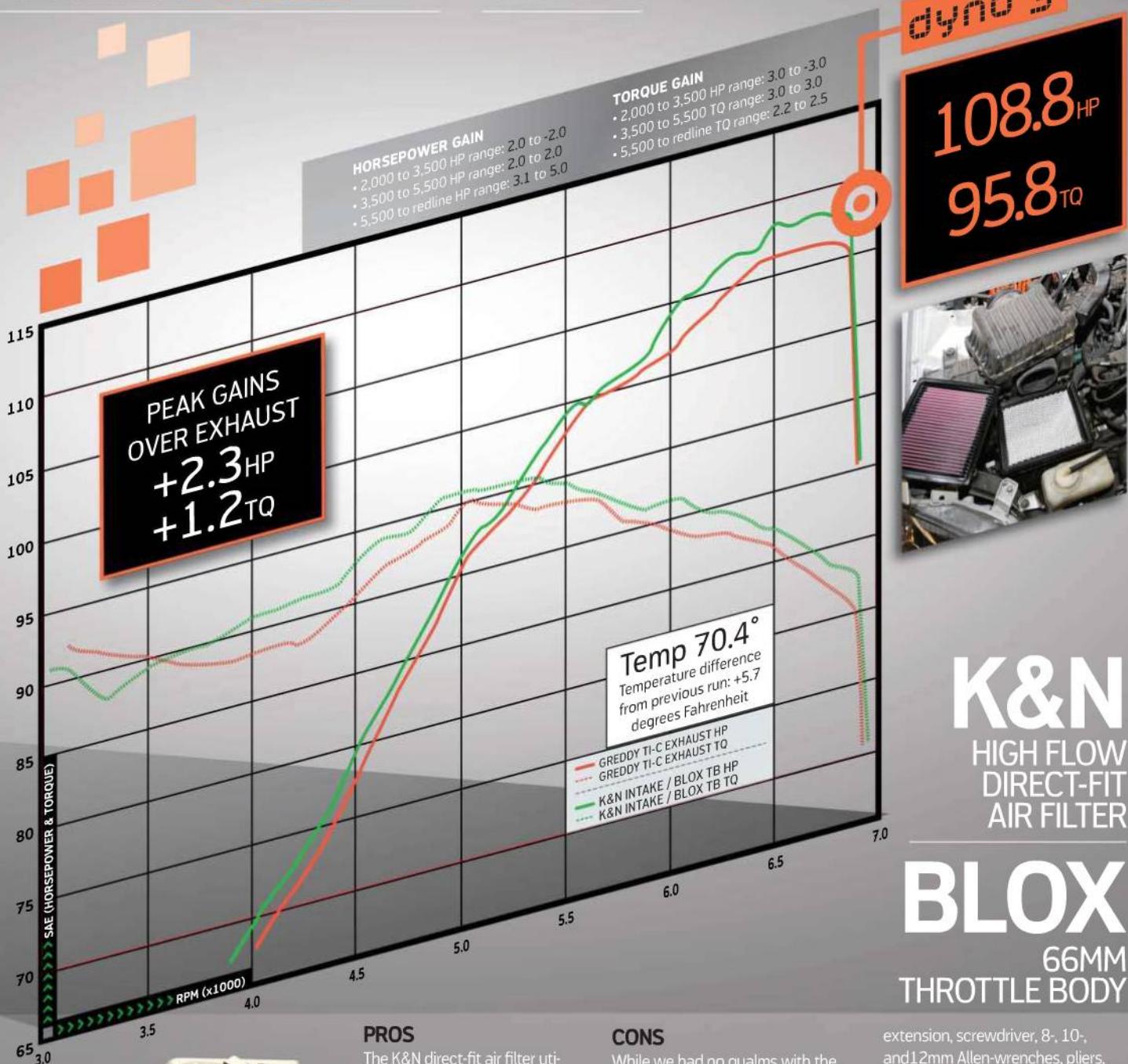
INSTALLATION TIME

60 minutes

NOTES

Dyno testing the exhaust revealed an increase in hp and torque throughout the power band, with a peak gain of 3.2 hp and 2.6 lb-ft of torque, along with a healthy performance gain from 3,500 rpm to redline.





PROS

The K&N direct-fit air filter utilizes an oiled element made of multiple interwoven layers of surgical cotton gauze to increase airflow, while providing excellent filtration. Each panel filter kit is designed to fit stock air boxes for ease of installation, and comes with K&N's limited million-mile warranty.

Blox Racing billet throttle bodies are available in various sizes ranging from 66mm to 76mm for the Honda and Acura D-, B-, and H-series engines. Blox throttle bodies feature brass throttle plates, stiffer throttle springs, and sealed bearings for smooth operation. The larger-than-OEM design offers an increase in airflow, resulting in increased horsepower and torque.

CONS

While we had no qualms with the removal of the old filter and effortless installation of the new K&N panel filter, the Blox 66mm throttle body required more patience to install. The new billet piece necessitated repositioning the factory throttle cable bracket closer to the throttle body in order to reduce cable tension and high-rpm idle, along with sourcing a rubber cap to seal off a vacuum port which wasn't used with our specific engine.

PARTS

K&N Filter Panel: Panel filter, sticker, warranty card
Blox Throttle Body: Throttle body, gasket, TPS sensor, installation hardware, stickers

TOOLS

10- and 12mm sockets, ratchet,

extension, screwdriver, 8-, 10-, and 12mm Allen-wrenches, pliers, Teflon tape, vacuum cap

INSTALLATION TIME

60 minutes

NOTES

A quick spin on the dyno revealed the new intake filter and throttle body combination helped to eliminate the loss in power and torque experienced from 2,000 rpm to 3,000 rpm from our previous dyno run. The combination netted a peak gain of 2.3 hp and 1.1 lb-ft of torque over our baseline numbers. The new intake combination increased both horsepower and torque throughout the powerband, as the 1.6-liter engine saw a consistent gain of 2 hp and 3 lb-ft torque from 3,800-4,800 rpm.

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DC SPORTS 4-2-1 STAINLESS-STEEL HEADER

PROS

The DC Sports 4-2-1 header is available in both polished T-304 stainless-steel and ceramic-coated versions. A two-piece, 4-2-1 design enables exhaust pulses to create additional horsepower from mid-range to top-end, to suit both daily driven and raced vehicles.

CONS

Removing the factory header from an 11-year-old vehicle can become painstaking, as many of the nuts and bolts are rusted and difficult to remove. Be sure to use the proper tools and plenty of lubricant when removing each bolt—stripping or snapping them will extend your installation time.

PARTS

Header, hardware, gasket, plug-in O2 sensor wire extension, CARB sticker, instructions, stickers

TOOLS

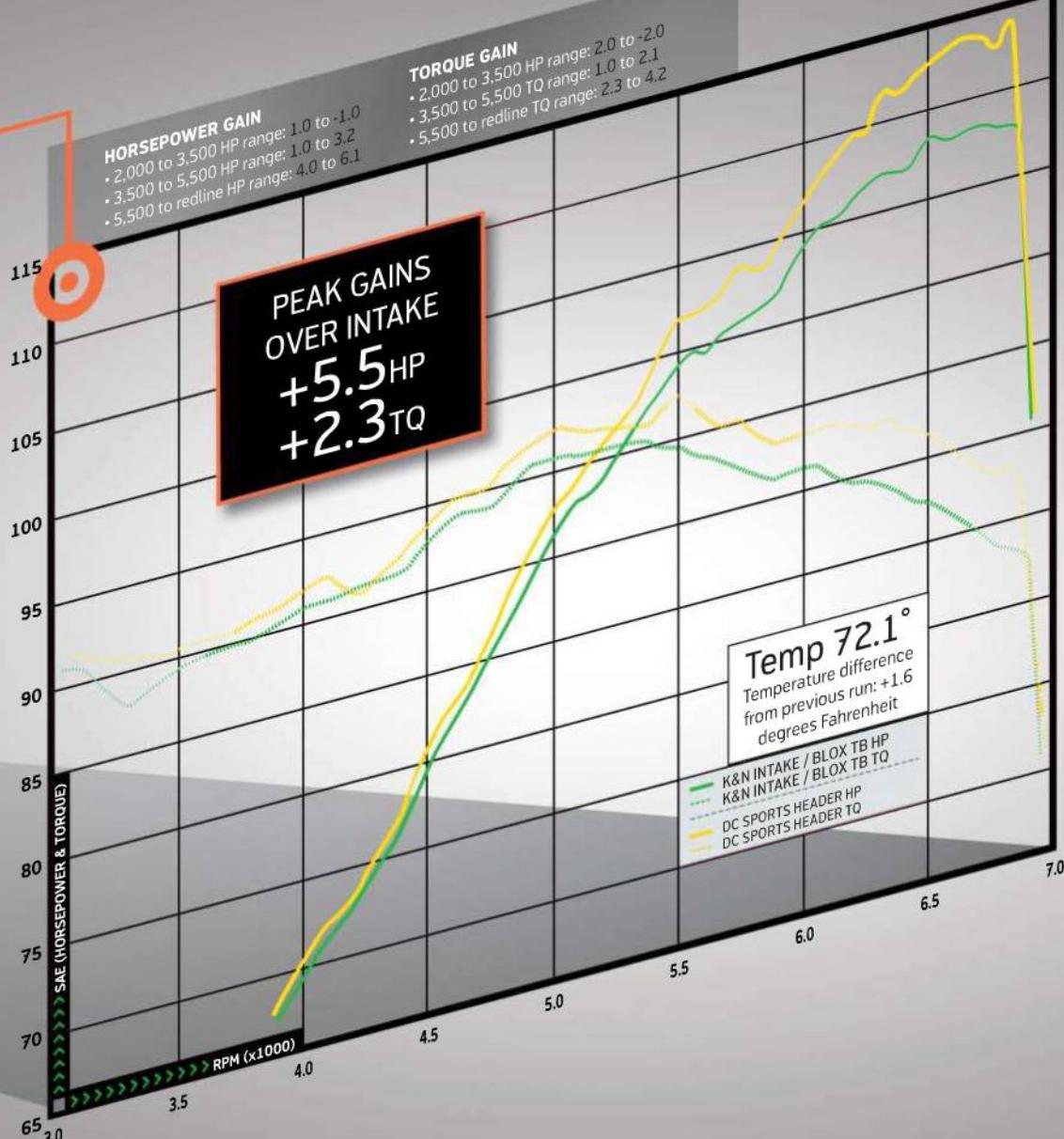
10-, 12-, 14- and 17mm sockets, 21mm O2 sensor socket, swivel, open-end wrenches, extension, breaker bar, wire cutter, anti seize, WD-40.

INSTALLATION TIME

80 minutes

NOTES

With the DC header bolted into place, the Civic made its largest gains of the day, dynoing at 6.1 hp and 4.2 lb-ft of torque over our previous run, with the largest gains taking place from 5,300 rpm to redline.



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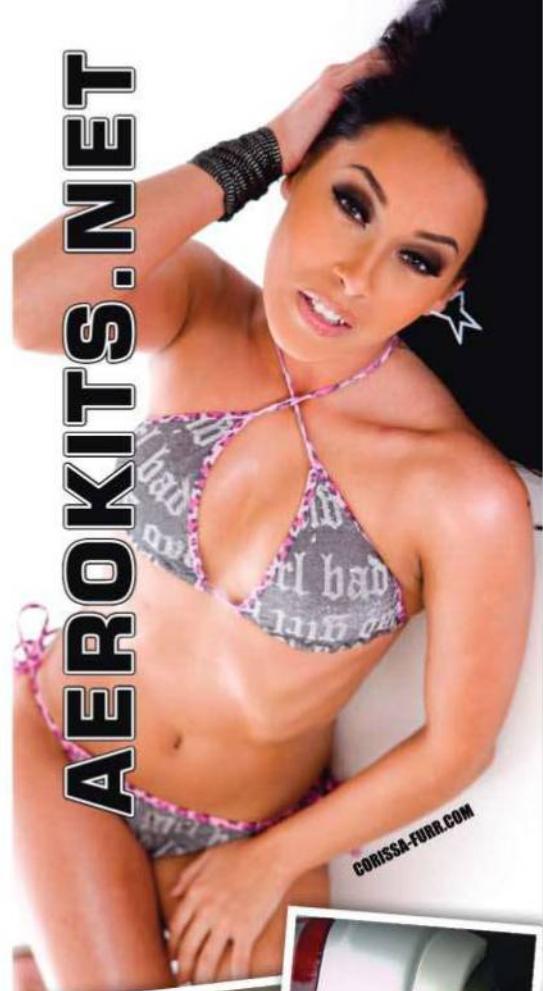
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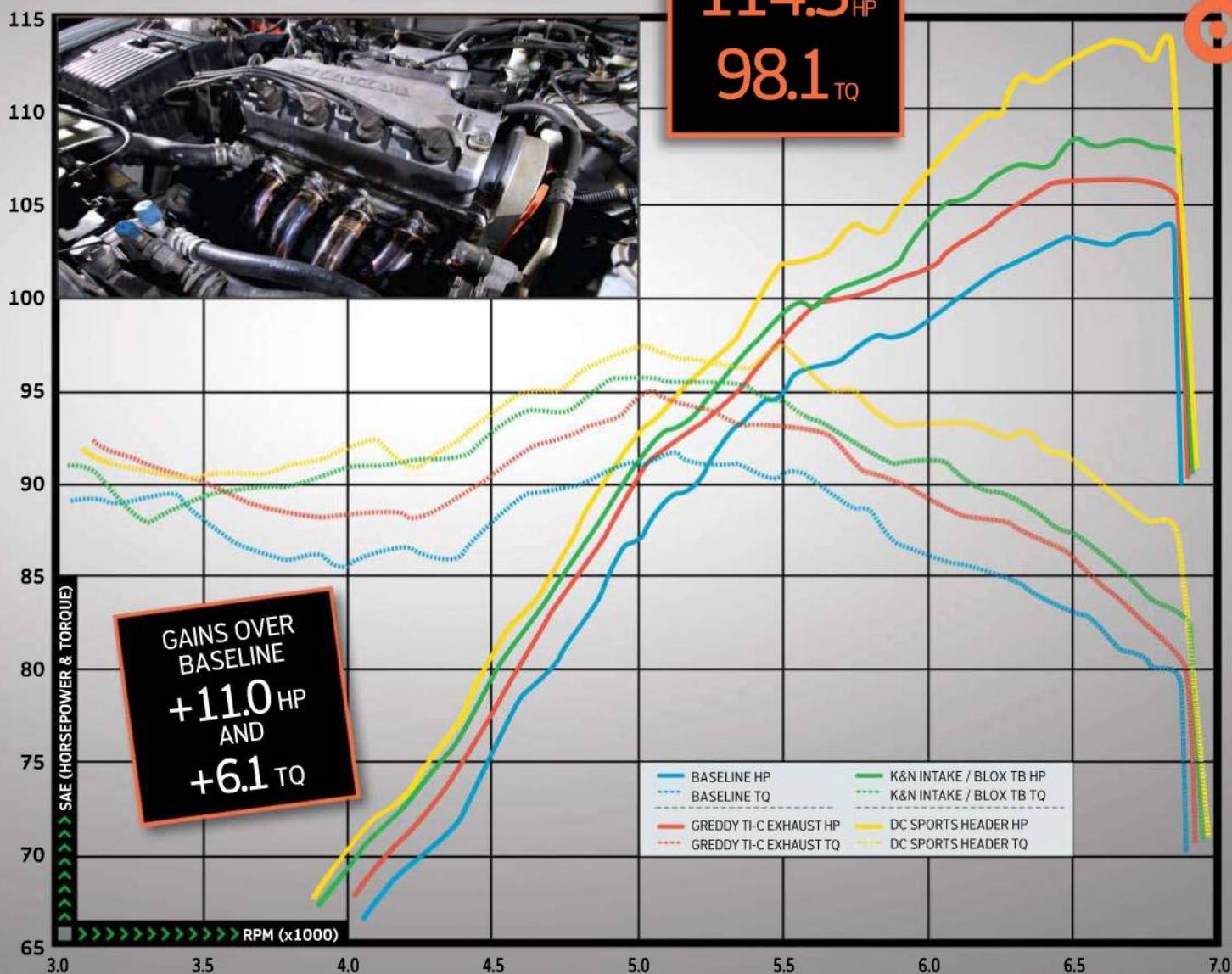
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CONCLUSION

	HP Level	+HP	TQ Level	+TQ
BASELINE	103.3		92.0	
GREDDY TI-C EXHAUST	106.5	3.2	94.6	2.6
K&N FILTER / BLOX TB	108.8	2.3	95.8	1.2
DC SPORTS 4-2-1 HEADER	114.3	5.5	98.1	2.3
FINAL	114.3	11.0	98.1	6.1

CONCLUSION

Testing our '99 Civic EX with these basic bolt-on products managed to net us a gain of 11.0 hp and 6.1 lb-ft of torque over our baseline run. It might not seem like much, but these modifications serve more to pave the way for future mods like head work, fuel management, an aggressive cam and larger intake manifold, nitrous, etc, which would help this single-slammer's power rival that of built B-series mills for about a quarter of the price. And taking out a worked Type R with an SOHC Civic? You can't put a price on that.

BANKROLL

GREDDY TI-C EXHAUST	\$670.00
K&N PANEL FILTER	\$57.05
BLOX 66MM THROTTLE BODY	\$350.00
DC SPORTS 4-2-1 HEADER	\$517.09
MSRP TOTAL	\$1,594.14

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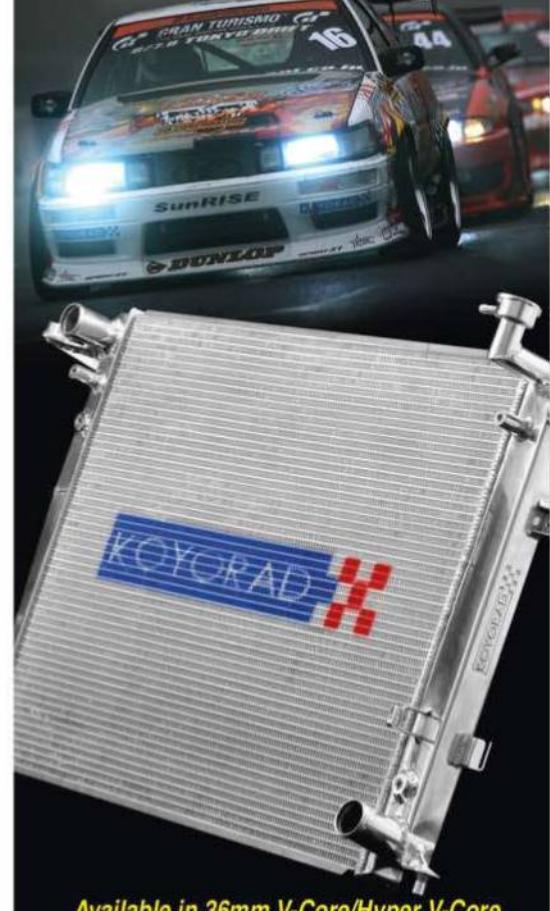
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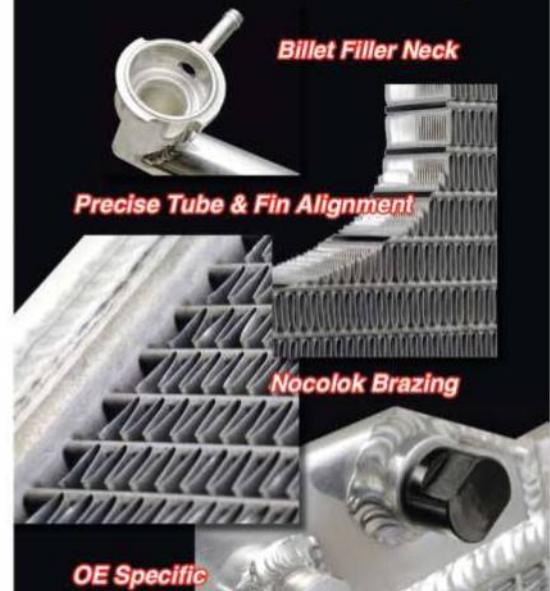
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www.pioneerelectronics.com



04 VIPER CAR ALARM IPHONE APP

iPhone-controllable car alarms? Yup, Viper's got an app for that. Directed Electronics unveiled a new application that allows customers to control parts of their vehicle from their iPhone or iPod Touch. The app, called Viper SmartStart, creates a virtual keychain control module that can do things like lock and unlock your vehicle, open the trunk, and activate the alarm, getting rid of the need to carry around a keychain clicker as long as you've got your phone handy. A new system will cost \$499, but if you already have a Viper alarm system, upgrading is \$299. The first year of service is included in that price, afterwards, it's \$29.99 a year.

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LONGSHOTS

GOOD EXPOSURE

We're doing something a little different this month, and shining the spotlight on motion pictures instead of static photography. If you're a car enthusiast (obviously) and haven't heard of the video prodigies Andy Sapp and Will Roegge, then you probably haven't heard of YouTube or Vimeo either. Before you embark on your magical trip down Al Gore's information super-highway, peep these frames pulled from their videos. Send your shots to longshots@importtuner.com. This month's winners receive fresh t-shirts courtesy of fortysixtyphoto.com



ANDY SAPP

**Websites:**

andysapp.com / slide-style.com / driftmechaniks.com

Location:

Dirty Souf, aka Atlanta, GA

List of recent projects:

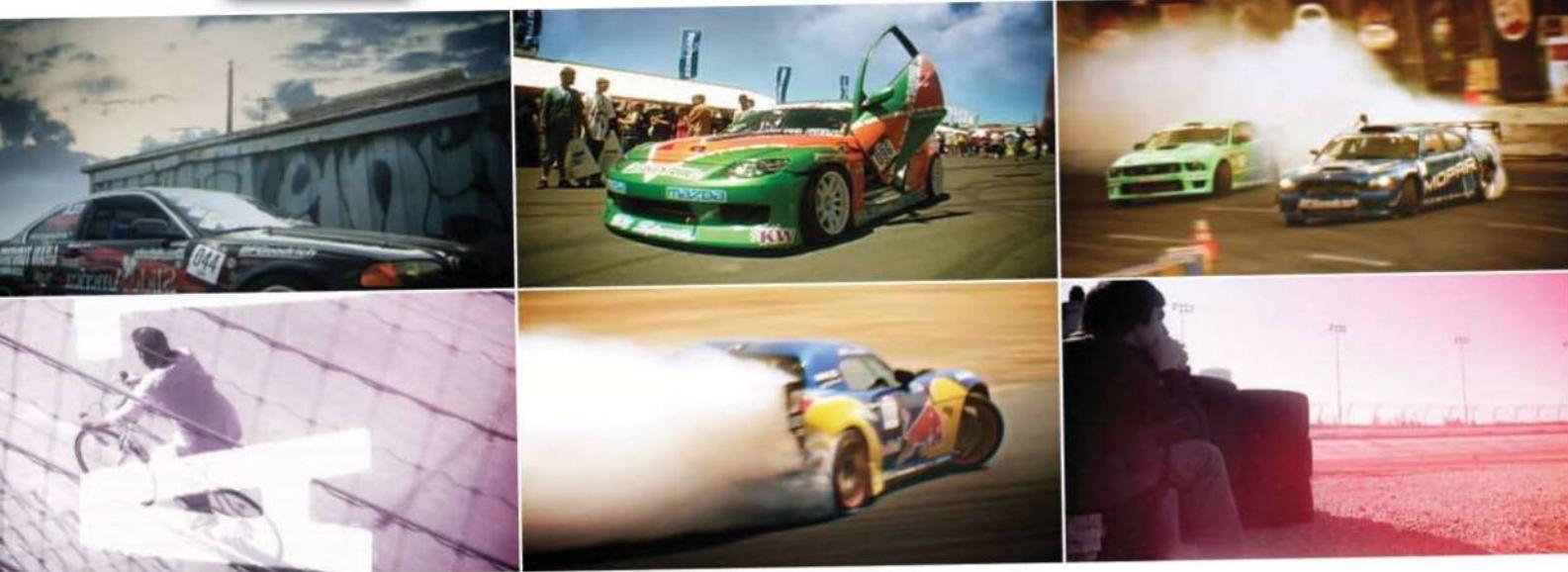
MotorMavens.com, Turbonetics Indent Bumper, My '09 Motion Graphics Reel, SlideStyle.com redesign.

Why you do what you do, and how it relates to the ZNR scene:

I'm an artist, a drifter, and a die-hard gearhead. I do what I do because I love it, and I wouldn't have it any other way. Doing design, web development, video editing, and motion graphics for projects in the automotive industry combines everything I love in day-to-day life.

Longest you've worn your beard:

Not long enough.



WILL ROEGGE

**Websites:**

willroegge.com / artpants.com / mediummonster.com

Location:

Los Angeles, CA

List of recent projects:

Dubai 24-hr race for Speedhunters, Live @ Sundance 2010 for the Sundance Film Festival, Portrait of a Champion - Chris Forsberg

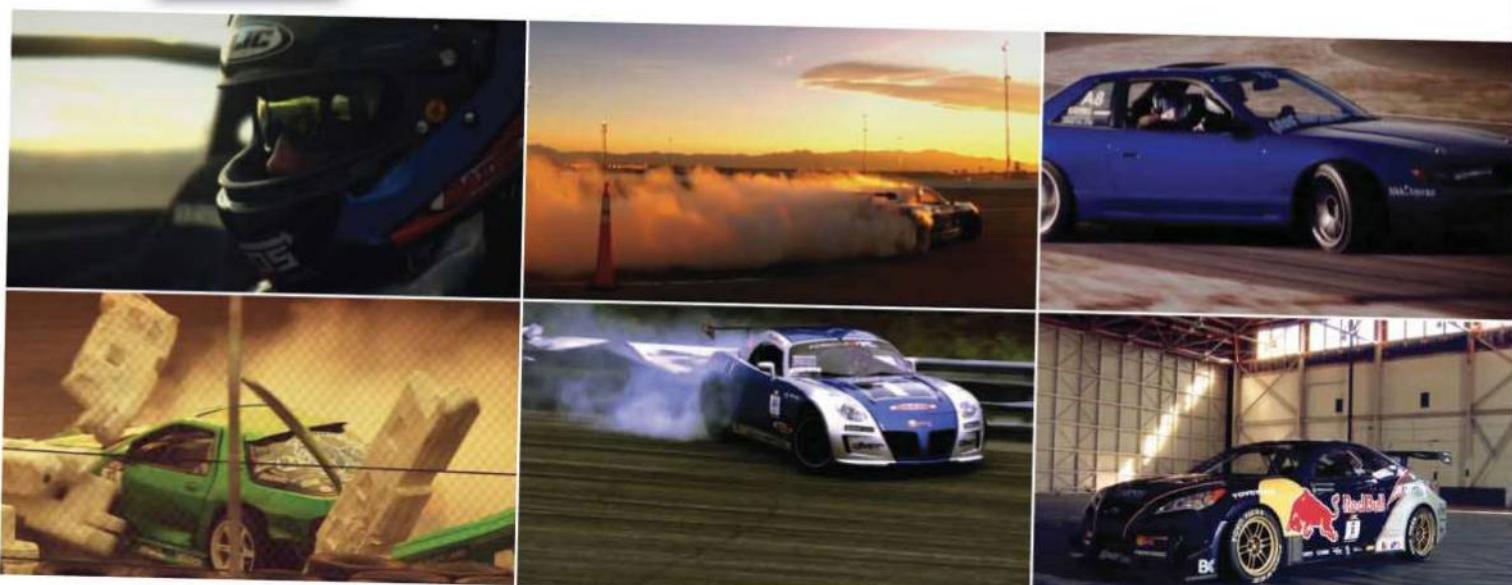
Why you do what you do, and how it relates to the ZNR scene:

After working for a few websites, sport compact specific and general automotive, I started my own production

company. I've been shooting Formula D since 2008 and working with drivers like Patrick Mordaunt, Rhys Millen, and Chris Forsberg to bring their driving abilities to audiences. Pat and Andy Sapp got me involved in shooting amateur events and I really like the U.S. grassroots drift scene. Other than drifting, I've shot USAC sprint cars, NASCAR, NHRA top fuel, standing-mile shootouts, off roading, and hot rods, to name a few.

Longest you've worn your beard:

Andy has me beat on this one. I like to keep it "art beard" length.



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