



**SCION FR-S ANATOMY** A BREAKDOWN OF  
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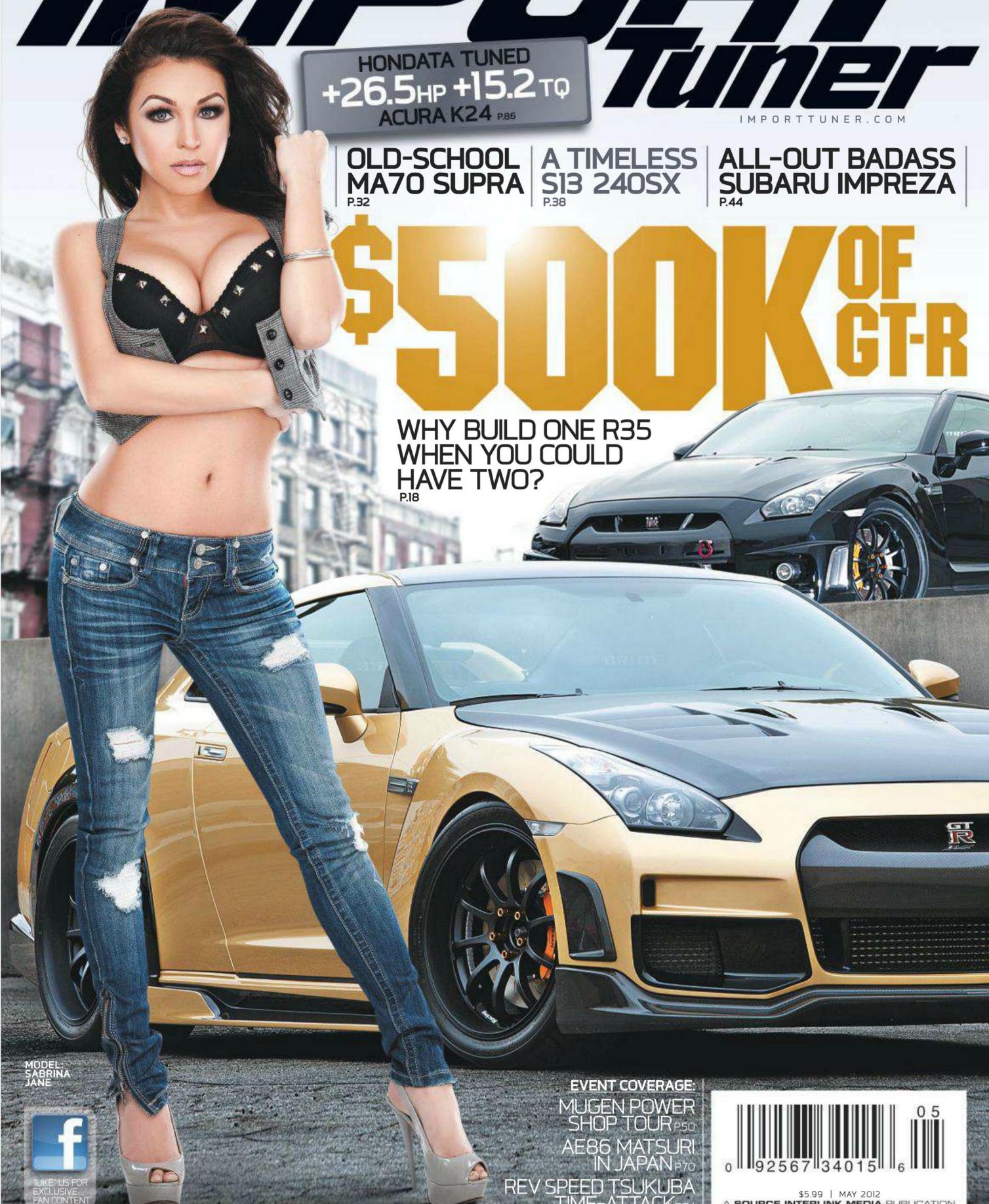
A TIMELESS  
S13 240SX  
P.38

ALL-OUT BADASS  
SUBARU IMPREZA  
P.44

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WHEN YOU COULD  
HAVE TWO?

P.18



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#### EVENT COVERAGE:

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IN JAPAN P.70

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**FEATURES**

- 22** **LIKE A BOSS**  
TWO SP ENGINEERING GT-RS (R35)
- 32** **BLACK SHEEP**  
TOYOTA SUPRA (MK3 MA70)
- 38** **TIMELESS**  
NISSAN 240SX (S13)
- 44** **ALL OUT**  
SUBARU IMPREZA WRX STI (GDB)
- 50** **INDUSTRY INSIDER**  
MUGEN POWER SHOP TOUR
- 54** **MODEL**  
SABRINA JANE

**EVENTS**

- 60** **SUPER LAP BATTLE: FINALS/FXMD DIARY**  
BUTTONWILLOW, CA
- 64** **SCION FR-S**  
SODEGURA CIRCUIT, JAPAN
- 70** **AE86 MATSURI**  
TSUKUBA CIRCUIT, JAPAN
- 74** **REV SPEED TIME-ATTACK**  
TSUKUBA CIRCUIT, JAPAN
- 78** **TECH REVIEW**  
AEM: S2000 TUNING
- 86** **POWER PAGES**  
ACURA RSX

**THE USUALS**

- 06** **INITIAL TIMING**  
EDITOR'S LETTER
- 08** **UNDER THE HOOD**  
INSIDE THE INDUSTRY
- 12** **GOING POSTAL**  
WE TRY TO HOLLER BACK AT YOU
- 14** **411**  
YOU FOUND OUT FIRST
- 18** **QUESTION IT**  
ERIC HSU FIXES WHAT YOU BROKE
- 82** **POWER GEAR**  
FOR YOUR EYES AND EARS

#157 **it**  
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Right now only iPhone users can use Instagram but later on this year Instagram is supposed to be available for Android users as well. We're quickly ramping up our account to supply you with the best photos of show cars, race cars, models, and even just stuff we find amusing. If you have an iPhone, start following us now. And if you have a Droid, make sure you keep an eye for the app to drop soon.

Adding to our social network, we're also on Google+. It's still in its infancy stage but millions of users are on it already so make sure you add us and put us in your circle for content you won't see in our magazine or on our Facebook.

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# TOP 7 REASONS TO BUY THE SCION FR-S

BY SCOTT TSUNEISHI

**The wait is finally over.** The FR-S is officially dropping in a few months. After three years of picturesque renderings and prototype vehicles popping up at auto shows, the newest and arguably hottest Scion will be sold at dealerships around the United States in the spring of this year. It's about damn time! There are numerous reasons why so much hype has been following this car ... and with just cause. But if you're still not convinced, here's IT's Top 7 reasons why your next car should be an FR-S.

**THE NEW HOTNESS:** The unmistakable styling cues and sleek exterior design of the FR-S is a welcoming invitation to many who have become accustomed to the average consumer cars being sold in the United States that portray the look and feel of your average grocery getter.

**BOXER ENGINE:** By far the biggest controversy of this car has been the engine. The flat-four boxer engine was a joint collaboration with Toyota and Subaru and will be powering the '13 FR-S, and with good reason. The low-mounted, N/A, 200hp, rev-happy boxer engine enables the FR-S to achieve excellent weight distribution, the lowest COG ever for a production vehicle, and will undoubtedly have numerous upgrades to ramp up its factory horsepower in the near future.

**REAR-WHEEL DRIVE:** Sport compact enthusiasts had been begging and pleading for Toyota to introduce an affordable rear-wheel-drive platform. Toyota finally seemed to get a clue and decided to bring back a real sports coupe with rear-wheel drive, the first Toyota car to do so since the old MR2.

**BALANCING ACT:** Weighing in at less than 2,700 pounds the FR-S is not only lightweight, but it's also designed with a well-balanced chassis that had been engineered to perform in considerable fashion both on and off the track.

**DRIVETRAIN:** Available in both six-speed manual and six-speed automatic transmissions, Scion managed to keep the FR-S affordable, which unfortunately came with the price of sacrificing amenities like dual climate control, push-button start, big-brake kit, and HID/LED headlights to mention a few. On the flip side, in doing away with creature comforts, they managed to include numerous performance features, like beefy Torsen-type LSD, traction control, short-shifter-equipped six-speed, and an automatic transmission with paddle shifters that is both responsive and quick.

**TUNER FRIENDLY:** The FR-S hasn't even been released, but aftermarket manufacturers have already begun developing numerous parts in anticipation of the car's debut as evidenced at the Tokyo Auto Salon. From superchargers to body kits, the 86/FR-S has been received with open arms and that's a good sign for both the car and our industry.

**AFFORDABILITY:** We won't guarantee the soon-to-be-released FR-S is the cheapest sport compact ever made, but several sources say that the car will sell for about \$25K. We consider it to be reasonably priced for what it offers in an auto market that's saturated with vehicles that are either too cheap or overly priced.

## PROPER RACING GEAR

BY VANESSA LAM

Last weekend, I trekked over to Streets of Willow at Willow Springs International Raceway to run the counterclockwise course for the first time with the track day organization, Shift-S3ctor. I hope to never have to truly put safety gear to the test, but it's surely better to be safe than sorry—so I went with the best. To ensure that I had a safe return with moisturized skin intact, Alpinestars outfitted me with everything I needed. This included a women's-specific Stella GP Pro suit (the same one that Danica Patrick wears ... if you're reading this, Danica, number-one fan here!) along with Tech 1-T shoes and Tech 1-Z gloves.

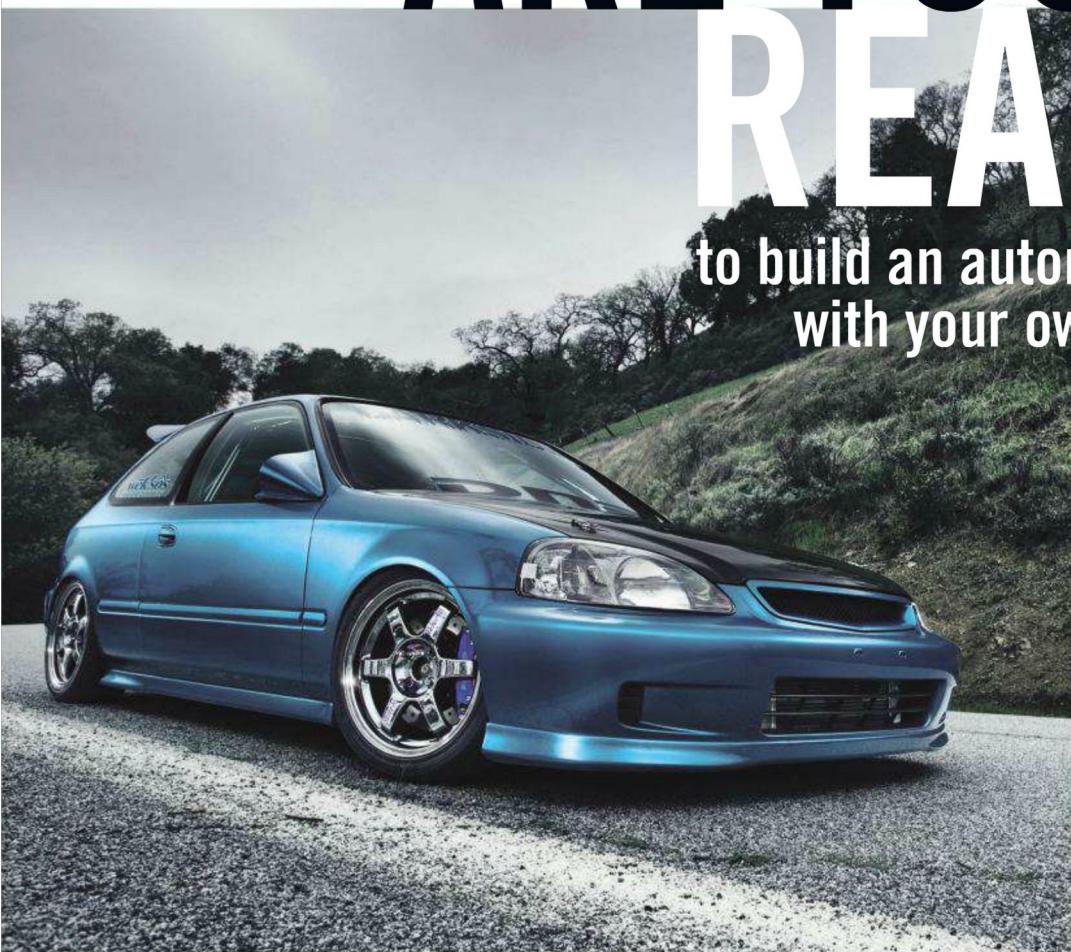


The suit is their top-tiered, three-layer suit comprised of a flame-resistant Nomex outer and inner layer plus a Carbon-X mid-layer. The triple combination of layers and materials provides for the ultimate protection along with some über comfort. This suit perfectly complemented the other safety gear I have. The shoulder is constructed with additional Carbon-X padding for added comfort when I wear my HANS device neck restraint. The shoes and gloves are both lined with the same flame-resistant Nomex material, while the shoes have a lightweight and durable full-grain leather upper. All are FIA and SFI rated to match the homologation standards of racing organizations.

I've always tried to never skimp on safety gear. After all, chances of crashes and fire accidents are the same—always plausible. Next up, I may look into beefing up my rollbar (and by beefing up, I mean tearing it out and putting a full 'cage in).

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## HELP A KID OUT

Hey *Import Tuner*, I just wanted to thank you for doing a great job with everything that you've done with the magazine. Something about your articles makes me feel connected, and the cars are always clean, yet with a devilish spark to them. I was really into *Super Street* for a while, and then I started to pick up more copies of your magazine. I fell in love. (I'm 16 and my dad does quality control with my media. Getting a subscription to a magazine with some reckless driving and hot models in skimpy clothes isn't his forte, so I kind of have to hide the mags.)

I'm not saying that *Super Street* is a bad magazine; it's just that the majority of the cars they publish lean toward those that I will probably never be able to get close to touching or building. Cars like the Papadakis Racing xB and the RE-Ame-miya RX-7 are great to look at, but I can't imagine a regular guy with a regular income pulling stuff like that. This is where you guys come in. The cars like the NorCal Civic, Super Subie, and Canadian Supra are clean, badass cars that I can tell they worked hard on. The best part is that the owners aren't tuning shops or race teams; they are real people who have normal lives. And that SR20DET-powered 240Z? You guys have both street monsters and tuning factory machines. Best of both worlds? I think so!

Anyway, I have always been in love with cars. I think about cars every minute of the day, and my room is filled with your feature cars. I tear them out of the magazine, tape them together to form a poster, and tape them up to my wall. I probably have more than 500 pages of *IT* on my walls! How do I get into the car scene with the predicament that I'm in? No one in my family has a project or tuner car, and the people who live around me are combat kit'd, faded paint, super ugly ass winged tuners. A lot of the tuners in the magazine say that they hung around fabricators and learned from them, but I don't really know any. I really want a job in the tuning/automotive culture field and this is (I think) the only way I might be able to do it.

Like they say, do what you love... and I love cars, so help a kid out. Thank you for the inspiration, hot models, hotter cars, and for making me fall more in love with cars. If I ever get a job at a nice tuning company, I'll be sure to hook it up with you guys (as if you need it).

Also, if Charles Trieu is reading this, my aunt Lyndzi Trang says she knows you, and I was like no way!? You gotta get me his 240SX. LOL

**-Daniel Wood**

Wow, you sound just like us when we were young. And Charles still does the same thing with his walls to this day. You should see his old office or living room. Getting into cars is rather difficult when you don't have many resources. We'd suggest you start going to some local meets and hanging out with the local scene. Then, start with a toolset and mess around with your car or friends' cars. And definitely take an auto class if they offer it at your high school. For more info, you'll have to get us a date with your aunt Lyndzi, LOL. Kidding, she's an awesome stylist, and we should work with her more often.

## IMPORTING A RIGHTHAND-DRIVE CAR

Do you know how to import a Nissan Skyline from Japan or Canada and register it legally in the United States? If you do, can you please tell me in steps or send me an Internet link.

Thanks,

**-Jarrett**

*Oh boy, here we go again. Importing a Skyline is pretty much illegal, unless it's over 25 years old. The R32, R33, and R34 models are pretty much illegal. You'll see some R33 cars here legally, because that's from when Motorex imported them. Motorex has long been out of business and no one else has gone through the trouble or expense of legally bringing in those cars. Most of the righthand-drive cars you see here in the States were broken down and the parts were imported and then illegally reassembled and registered through loopholes in the system. The state you live in also plays a big part of what cars you can import. Check with your local DMV before getting your hopes up too high.*

## USED CAR SUGGESTION

Hey, I just wanted to say you guys do an awesome job on all your issues, and I've never had anything to complain about. But I do have a question. I'm planning on getting a new car and really want the NSX, but people keep telling me that it's a very expensive car to tune up and service. So I just want to know, is it really that expensive to modify or keep up? If so, then I'll go for an EVO IX. Thanks for hearing me out.

**-Ctesiphon**

*Yes, although the NSX is getting more and more affordable each year, the parts are still the same price. Mods and maintenance are rather expensive because the parts on an exotic like that are already very high quality. For example, the factory rods are titanium and the factory clutch is a multilayered clutch. A clutch replacement is about \$2K because of that. And when you do the clutch you have to drop the tranny, which means you have to drop the engine on that car too, which also means you drop the whole rear suspension and subframe. The labor charges on that car are not for the faint of heart. Let's not forget the car's chassis is mostly made of aluminum. No cheap steel fenders here. If you're doubtful you can afford an NSX, you can't. Get the EVO; it's a great daily with tons of potential.*

## REPPIN' FLORIDA

I'm emailing you because I'm so tired of reading about events on the West Coast Tuner Shootout on the Pacific. Please, when can we on the Southeast say we've had a blast at one of these swap meets, cruise-ins, or shootouts? Please, please, help us out with hosting a tuner event here in Florida. Orlando would be awesome, and Jacksonville would be stoked! Please help us out here. Thank you for reading my email.

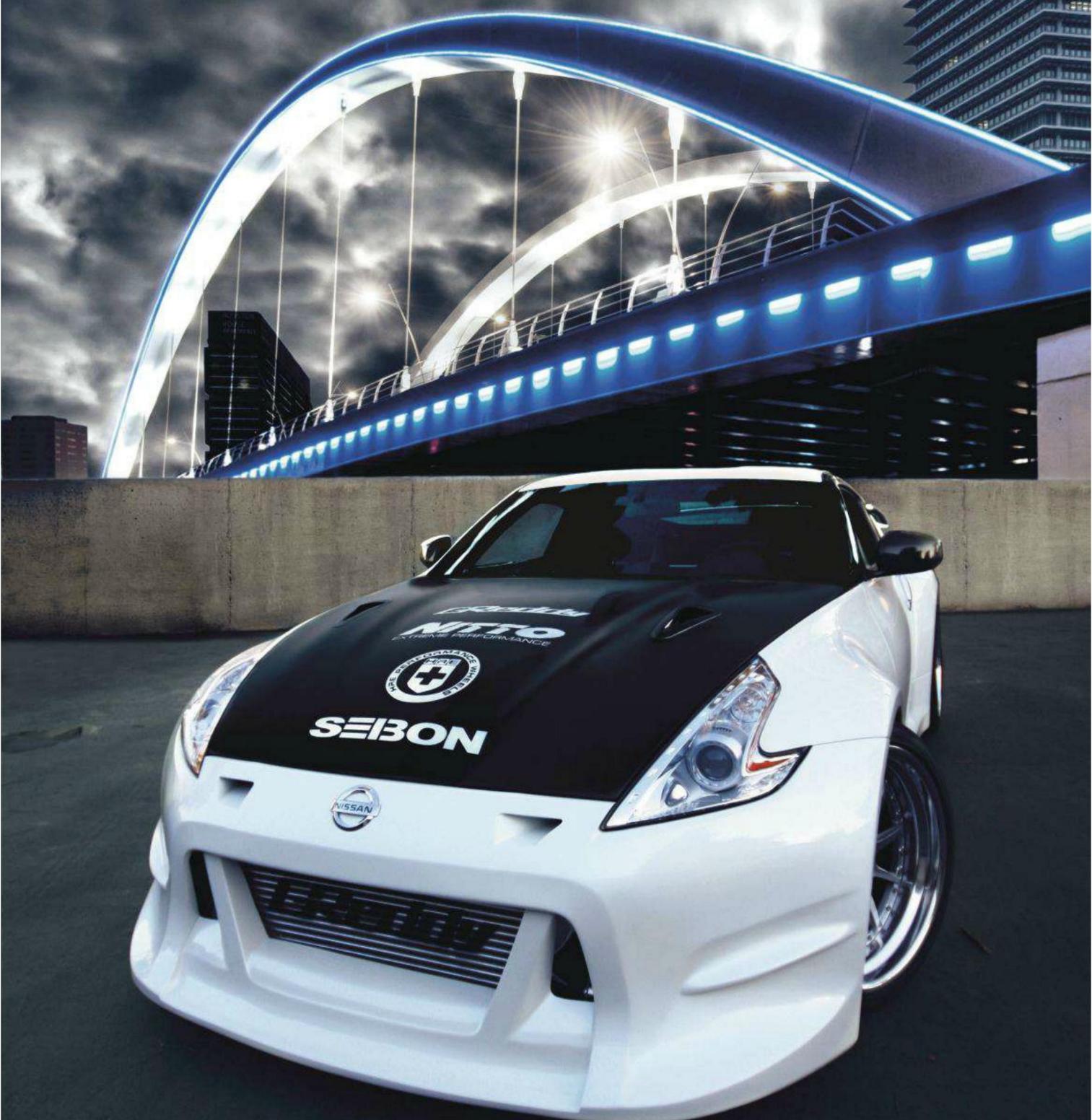
**-JR**

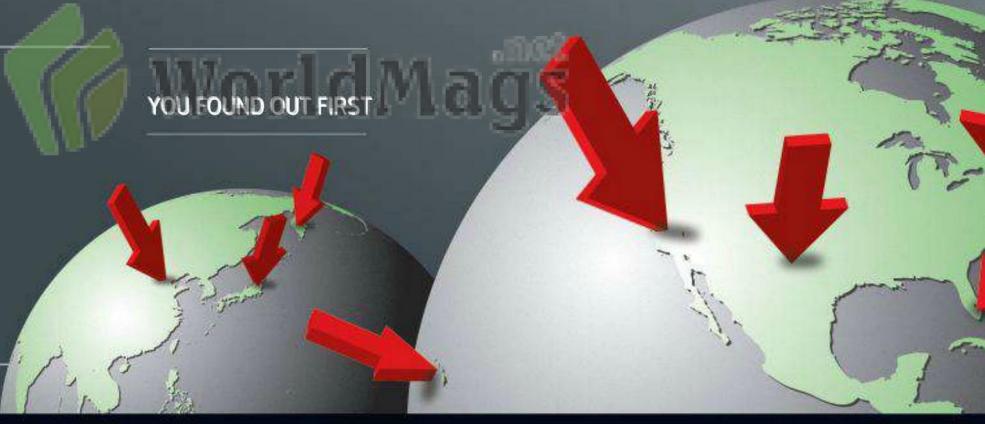
*Sorry, but Import Tuner really doesn't throw our own events. That's not to say we don't attend, cover, and support events because we're all about helping the scene out. Here are some events that do happen in Florida that we love. Start going to these events, and I'm sure you'll meet the right people to let you know of more events in Florida. There's tons of stuff in your area. You're in Florida not freakin' BFE.*

[www.formulad.com](http://www.formulad.com)

[www.importfaceoff.net](http://www.importfaceoff.net)

[www.stateofstance.com](http://www.stateofstance.com)





## PIONEER MIXTRAX LAUNCH PARTY

Recently, we got the horrible task of going down to Miami to attend Pioneer's private party at the Mansion to launch their newest product, Mixtrax. If you like hearing live DJs at bars and clubs like we do, you'll love this new product. Thanks to Pioneer you now get your own personal DJ-mixed music in your own car. Mixtrax will go through your music library and play songs in a nonstop mix. It's not as simple as just blending two songs together. Mixtrax actually finds a similar song with the same bpm and mixes the two songs at the perfect point. No more listening to songs that are too long, and no longer will you have to search your iPod to figure out what to play next. This also beats the playlist you've created that you've already memorized by listening to dozens of times. Mixtrax is available for your car and indoor as well. Check their site to find out which products come with the new Mixtrax feature.

[www.mixtrax-global.com](http://www.mixtrax-global.com)

[www.pioneerelectronics.com](http://www.pioneerelectronics.com)



## MORE FAKE CRAP

Recently, Cusco USA informed us that there are copies of their infamous oil catch can product. We're not talking about the look-alike copies. Actual fakes are out there with the Cusco box and logo printed all over the product. These knock-off products are being passed off as original Cusco parts, so make sure you check the link below before purchasing one. And if you've already got one, make sure you didn't get ripped off.

<http://bitly/wYddH5>



## IMPORT TUNER

# FR SHOOTOUT

After years of doing the *Import Tuner* AWD Shootout it's time we changed it up. No longer will we be putting EVOs against Imprezas. This year, we're going to make it available for any chassis FR-based (front engine, rear-wheel drive) vehicle. Everything from the new Scion FR-S and Subaru BRZ, to older models like the Nissan Z, Honda S2000, and Mazda RX-7 are welcome to compete. This is an all-out competition with very little limiting factors. The race will occur at Willow Springs International Raceway in California. The deadline to enter is June 1, so email us now. Submissions require car specs and a recent photograph. [postal@importtuner.com](mailto:postal@importtuner.com)



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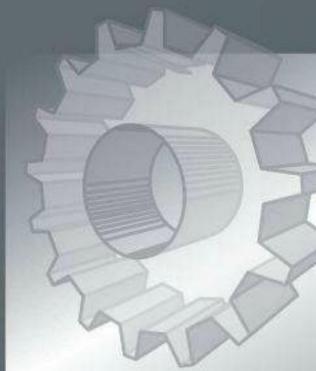
We know that comparatively our products are unbelievably affordable and we know we could charge a lot more for what they provide in performance, quality, and looks. For now, you are buying quality coilover kits for less than half the price of comparable kits. We are able to do this because there is no middle man, YOU are the middle man. You aren't buying our products from a retailer, you're buying our products at their pricing. On top of that, we offer an unbeatable two year warranty and satisfaction guarantee! Our products have been tested, purchased, and proven worldwide. For more information visit [www.racelandus.com](http://www.racelandus.com).

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# SUBARU OIL SYSTEM UPGRADE

Lateral and longitudinal forces from turns, acceleration, and braking, especially in drifting and road race vehicles, could push oil around the floor and up the side of the pan, starving the pickup under high-rpm/high-lateral g conditions. This is a common problem for high-performance engines. The Subaru EJ engine is notorious for oiling problems. From spun rod/crank bearings to occasional faulty oil pickup units, this engine has been begging for an aftermarket fix to prevent such mishaps from occurring. Killer B Motorsport out of Waynesboro, VA, specializes in aftermarket Subaru components. KBM offers a number of upgraded oiling parts, including a more robust oil pickup, oil pan baffle, and larger-capacity oil pan.



### OEM SUBARU EJ205 OIL PAN

Here's a close-up inside the OEM '02-05 Subaru WRX oil pans designed with a flat belly surface. You can see

that it already has a built-in baffle, but it does not provide enough flow control by itself to prevent oil starvation in high g-force turns.

### KBM OPTIMAL OIL PAN

The Optimal Oil Pan holds an extra 1.3 quarts of oil, a 30 percent increase in capacity over OEM. KBM uses  $\frac{1}{8}$ -inch-thick CNC-formed aluminum sheet to make the pan. For added convenience, the pan comes with two  $\frac{1}{2}$ -inch NPT drain/sensor ports in the CNC-machined billet aluminum drain block. The aluminum baffles built inside the pan are an improvement over the OEM designs to concentrate the oil closer to the pickup, making it more stable and less prone to oil flow fluctuations. The oil pan's compact design, based off of the OEM EJ25 pan allows it to be compatible with numerous aftermarket headers.



### KBM WINDAGE/BAFFLE TRAY

When running high rpm the oil is pumping faster and is under more pressure, which creates windage, an oil foaming condition that causes parasitic drag on the crankshaft caused by oil splashing out of the sump at high rpm, keeping the oil from settling back into the pan. Poor internal oil circulation keeps it from returning to the pan, causing the oil pickup to surge and, in many cases, starve the oil pump. A baffle pan's real purpose is to slow the return of the oil back into the pan. It is designed for the oil to fall on it so that air can escape the oil

suspension where it then gets picked back up. The KBM windage tray features numerous advantages over the OEM piece, including a closed rear section to prevent oil from sloshing into the crank under hard acceleration and aggressive shifts, a block contoured profile to minimize oil returning from the heads interfering with the crank, and directional louvers to prevent oil in the pan from splash/sloshing into the crank.



### OEM OIL PICKUP

Replacing the OEM oil pickup is a good idea, regardless of how you drive your car. An alarming number of Subaru owners have claimed that their factory-welded/brazed oil pickups have cracked at the base (shown with our pointer) of the pickup tube. A cracked pickup very rarely has any symptoms. If they do, it's an occasional oil light flicker at idle. The time between the initial crack formation and propagation to complete failure is more often than not, a rapid progression that gives little to no warning (see pic with carnage). A dented or damaged pickup can severely inhibit the flow of oil into the engine causing oil starvation.



### KILLER B OIL PICKUP

The KBM Ultimate oil pickup has become a popular upgrade among Subaru owners. The pickup uses a  $\frac{1}{2}$ -inch-thick double bracket, three-times OEM oil pickup tube thickness, and a brace between the bracket and the oil pickup tube to further strengthen the assembly. This highly reinforced pickup is a direct fit for all 2.5L '04-09 STI, '06-09 WRX, and LGT. The '02-05 EJ20 WRX requires 2.5L oil pan for fitment.



### HOTBOX

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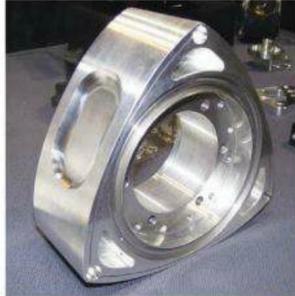


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Got a burning question or simply need some advice with problems you've encountered while wrenching on your current/future projects? Ask our automotive guru Eric Hsu anything—literally, he's going to answer every single question, as long as it's automotive related.

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## SCARED STRAIGHT

I grew up around big domestics my entire life. I eventually fell into the tuner world after buying a '90 VW Golf as my very first car and now crave something different, wild, and exotic with my sight set on a '92 RX-7 with the 13B rotary

engine. The current owner says it belonged to his son who has since gotten bored of the car and left it with his father to sell while he goes to school. He says he doesn't know much about the car other than the fact that it has over 100K, runs smooth, and keeps it stored in a garage. Realizing the uniqueness of the rotary engine, why does everyone seem so scared to tune it? I can't seem to find any technical information about them and the only people willing to talk about them are forum guys. I'm finding it impossible to believe anyone online after one guy told me to replace the headlight fuse that kept blowing with a paper clip. In reality, it ended up being a loose wire that was shorting out. I would also like to know what kind of power modifications I could make with a budget of \$6-8K. I would like to do as much of the modifications myself, but I know I can't do everything. Any help would be appreciated.

**-Michael Rafuse**  
Kingston, Ontario, Canada

Once upon a time, there was a media form called a book. Words were printed on pages made of fiber from trees not dissimilar from scrolls written on papyrus. In fact, books were almost like a series of bound scrolls. Yeah, but seriously, to learn the fundamentals of anything, I still refer people to books. Why? In this day and age, the Internet isn't the most reliable source of reference (like you've discovered firsthand). Sometimes the Internet has good information, but sometimes it's the blind leading the blind. You'll need to take whatever you read on the web with a grain of salt.

The rotary engine itself has remained mostly unchanged over the last 40 years, so a book published on the rotary engine even 20 years ago wouldn't be too far off the mark. While you'll have to excuse the books for their ancient references to carburetors, all of the information an old book offers regarding the engine itself, the maintenance, modifications, and the care of the cars and engines still remain valid. People are quick to dismiss books simply because they "aren't up to date", but one of the most widely used automotive engineering handbooks, the *Bosch Automotive Handbook*, was first published in 1932.

Try the *Mazda RX-7 Performance Handbook* by Mike Ancas for a starting point. Many of the rotary books I read in my youth are unfortunately no longer in print. Try perusing through some used bookstores, and I'm sure you'll find books on Mazdas and

rotaries. Before you start modifying any car, it's good to understand the principles of the engine itself.

As for modifying an FC RX-7 for \$8K, I'd recommend a turbo-back exhaust and unfortunately this is where most of your money will be spent, a Haltech stand-alone Platinum 1000 ECU with a plug-in adapter harness, a front-mount intercooler, and professional dyno tuning. Unfortunately, there aren't any cheap ECU solutions for the early RX-7s. Or if you want to give the tuning a try yourself, read up on fuel injection and learn or sign up for an EFI 101 class at EFI University ([efi101.com](http://efi101.com)). Tuning a rotary is just like tuning any other engine, although you'll need to be extra careful since the apex seals in a rotary are very sensitive to detonation.

## VALVETRAIN BASICS

I am currently in the midst of a very extensive engine build that has little to no aftermarket valvespring specification support. How exact do valvespring tolerances have to be? I have collected nothing but custom parts to properly build my Mitsubishi 6G75 engine, but have hit a roadblock when it comes to valvesprings. I've had multiple nationally known shops and manufacturers of valvesprings spec these springs and come up with nothing. No manufacturer is willing to do custom one-off springs without a 2,000-piece minimum order so I'm all out of options. I'm not sure if it's the spring diameter, heights, or coil bind that's preventing me from completing this build, but I would think if I can get a few of them correct and make some minor adjustment to the heads or a custom seat and retainer, we could make something work but I have yet to find a solution for the past seven months.

**-Thomas Drake**  
Davie, FL

There are several factors to consider when determining a valvespring to fit in your head: installed heights, seat pressure, open pressure, outside diameter, inside diameter, and coil bind height. There are actually more factors to properly design a valvespring, but it sounds like you'll be happy just to find something that could work so we'll skip the discussion on a spring's natural frequency and stress. The installed height is the height between the spring's lower seat and the bottom of the spring retainer when the valve is closed. The spring's inside diameter will affect how the spring is located. You may have to machine custom retainers if you cannot find a spring to work with your factory retainers. Or if the spring is located from the bottom seat, then you'll just need to find a spring with an outside diameter that will fit in the head and that is not larger than the factory retainer. A spring must be located with the spring seat, the retainer, or both. Once you have an idea of the dimensions that the spring must be close to, then you can find a spring with the seat pressure and open pressures you or your cam designer wants. The seat pressure is the amount of force that the spring puts on the retainer at the installed height. The open pressure is the amount of force that the spring puts on the retainer when the valve is at xxx inches of lift (ask your cam designer what xxx needs to be). This paragraph probably isn't going to help you too much, but hopefully it explains the basic information that you or your cam designer needs to gather. Once you have this information, I recommend you check out the Eibach EVS, Ferrea, and Manley valvespring catalogs for a massive range of springs you can choose from. I cannot suggest seat or open pressures for you since I know nothing about your valvetrain mass or cam profile, but your cam supplier or grinder should be able to help you out with that information. But my question is: Why hasn't he already helped you with this?

While some people enjoy this, wouldn't you be having more fun just beating the crap out of an EVO? This is an example of one of the reasons why I always tell people it's easier to modify a platform that everybody else has already done. When the average

guy tries to reinvent the wheel, the result is usually an uphill battle that requires a lot of time and money being spent for far less reward. There's a reason why everybody builds EVOs: There's a ton of parts support and the results are usually pretty damn good.

## ROASTING THE CLOWN

I received the Nov. '11 issue in the mail and saw you guys posted my stupid question. I don't even remember sending it. Prior to seeing Eric's response, I did my research instead of being lazy and sending more stupid emails. Thanks for the smack in the face; I definitely deserved it. Stupid questions get stupid answers! At least I got my 15 minutes of "I'm stupid" fame printed in a worldwide magazine. Sorry to the great Mr. Hsu for answering my retarded question. I can't wait to get crap from my people. Keep up the great work guys.

Your stupid question fan,

**-Wil Anderson**  
Richmond, VA

(ORIGINAL QUESTION)

## TRANS CONVERSION

I own a '92 Integra LS auto, and it's become my new project since I decided to total my '99 GSR. I've managed to pull everything off the GSR for a swap. When going from an auto to manual conversion, what would be the best pedal assembly for my '92 LS? The DC2's trans was a hydro, but it will be converted over to a cable. Which leads to my next question. What is best clutch cable for this application? I want to do this the right way the first time, being an import geek for the last 13 years I've learned my lessons on not taking the shortest route.

**-Will Anderson**  
Richmond, VA

Well let's see ... how about a clutch pedal assembly and cable from a '92 Integra LS? You've been playing with imports for 13 years, but couldn't figure that one out? I'm not sure if these questions are getting filtered enough. Scott, WTF?!



## WINTER WONDERLAND

I own a '09 WRX Premium (or 265 in Canada) sedan. I wanted to improve the vehicle's handling. I live in Edmonton, Alberta, Canada, where the winters are serious. Even in spring and summer our roads suck and a low ride height can be problematic. Basing my decision on

long-term durability, I chose to install a Perrin sway bar and endlink combo and strut bar. Due to increased bumpsteer I followed it up with a Perrin anti-lift kit and a 3-inch caster (alignment at a reputable shop). The car feels great when being pushed, but ride quality has suffered more than I had planned. I have seen GTSpec bumpsteer kits advertised. Would the bumpsteer kit with rubber OEM bushing in my control arms help bumpsteer and allow me the same confidence in corners with more ride quality? If not, what would you recommend for occasional track days and crappy daily driven roads?

**-Chris**  
Edmonton, Alberta, Canada

*Bumpsteer is something that happens when the steering rack or tie rods are setup incorrectly either due to the car being lowered or raised. Bumpsteer is a drastic change in toe throughout the suspension's travel that causes a loss of traction and directional instability. It usually doesn't affect ride quality except in extreme cases. It does, however, affect stability and traction.*

*The main purpose of an anti-lift kit isn't to improve ride quality or decrease bumpsteer; it is to keep the front end from lifting during hard acceleration improving front traction. I'm not sure what you mean by "3" caster, since caster is usually measured in degrees, but increasing caster on a all-wheel-drive car usually helps to increase turn in grip and steering feel.*

*You didn't mention if you actually kept the car's ride height stock or if you changed the springs and/or dampers.*

*Deciphering your paragraph, it looks like your question really seems to be two questions: 1) How can you keep the ride quality good while further improving the car's handling? 2) Would a bumpsteer kit with OEM bushings help to improve the car's handling?*

The answer to the first question is enough to fill several chapters in a book, but I'll try to summarize and answer both. It is possible that your new sway bar is too large or stiff, especially if you are running stock dampers and springs. You might try a smaller-diameter bar if that's the case. Whiteline has multiple sway bar sizes so I'd recommend a visit to their website. Unfortunately, a bar's diameter is really only an indication of its size. Bars of the same diameter from different brands, but made of different material or that use a different heat-treat process (if any), can react completely different on your car. The anti-lift kit and increased caster are good modifications. If your car isn't lowered or raised much, then I'm not sure if a bumpsteer kit is completely necessary. If the car is at or near the stock ride height, chances are you don't have much of a bumpsteer issue. Different dampers and springs can actually increase both ride quality and handling, but unfortunately "ride quality" is a subjective thing so there's really no other way to discover a damper and spring combo that you like without driving a car with the same setup yourself. Many of the higher-end suspensions (e.g. KW, Moton, Ohlins, AST, and more) actually ride much better than stock while handling better at the same time.

Overall, you need to speak to an experienced suspension shop, like Robispec, to help you get to your goal. There are a million websites that sell catalogs of parts, but it's the experienced shops that can tell you exactly what you need for your application.

## HORSEPOWER JUNKY

I own an '00 Honda Civic with a MagnaFlow cat-back exhaust, K&N air filter, and a performance chip. I was thinking about bumping the compression ratio from 9.4:1 to approx 10.2:1 like the Civic Si. Are there any drawbacks to increasing the compression ratio, and how much would that help increase the power? Also, what would you recommend as a next step to make more power?

**-Mitch Canfield, via importtuner.com**



*Increasing the compression ratio a large amount like you mention can only be accomplished by changing pistons and/or milling the head's fire face. Both of these methods are fairly expensive for the returns in power. To change the pistons, you will need a set of forged pistons, piston rings, every gasket seal, and O-ring involved with rebuilding the engine. Plus you'll need to actually rebuild the engine itself, which can be costly if you don't know how to do it yourself. To mill the head, you'll need to remove the head, measure the valve-to-piston clearance at various crankshaft angles (and cam angles if you have a variable valve timing engine), take the head to a machine shop for milling, degree the cams during reassembly, and use a new head gasket. While increasing the compression ratio is a good way to increase torque, engine response, and power, it is expensive and requires high-octane fuel. Why not go for a header, performance camshaft, lightweight flywheel, drive crank pulleys, and a Hondata ECU instead? Increasing an engine's efficiency can go a long way for both output and fuel consumption. You'll probably end up with the same or more power as increasing the compression ratio without the trouble and expense. Plus, you can remove the parts and sell them in case you want to sell the car one day.*



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**Y**ou are not allowed to know whom these cars belong to. You are not allowed to know the owner's name, age, exact location, occupation, hobbies, or what motivated these ridiculously amazing builds. Seriously. Why? Well, because that's how they want it. Quite out of the ordinary, I know. You better believe that it would take quite an extraordinary set of circumstances for us at *Import Tuner* to even give this type of situation a second thought much less actually go through with it. But sometimes you just can't say no. Sometimes the situation is so captivating and the car (in this case, *cars*) is so sick that you are willing to make an exception, throw convention aside, and just do it anyway. And this, my friends, is one of those situations.

So exactly what type of situation do we have here? Well, the gist of it goes something like this.

SP Engineering, located in Southern California, was contacted and told to purchase not one, but two brand-new Nissan Skyline R35 GT-Rs and build them no matter what the cost. Read that again and let it sink in. That's right—purchase two brand-new Skylines and build them to their satisfaction no matter how much it costs. Once built, SP was told to ship them to the customer in the Middle East—like a boss. Seriously, though, that's essentially how it went down. And that is pretty much the only information we can share with you about the customer. So, since we can't elaborate on that, let's first uncover the shop that did the builds, and then the builds themselves. It is quite clear that it takes a certain caliber of business and a certain amount of clout to be looked to for something of this nature. So take a quick look at SP Engineering and its history so that you can understand how it is that they have gotten to the point where this type of situation can even exist.

Founded in 1996, SP Engineering opened its doors with just three employees other than the owner. The 4,800-square-foot building that the facility was located in was a great start for the new proprietor, but relatively modest compared to

the other larger, more established local tuning shops that catered to the same market. Nonetheless, it wasn't long before SP began to develop a reputation for their work, exemplified through their customers' cars. Many magazines, including *IT*, began to keep an eye on the vehicles that came out of the facility for potential features. As SP's reputation grew, so did its client base, eventually leading to the company's relocation to a much larger 13,000-square-foot building containing five lifts, an in-house dyno, as well as larger office and warehouse space—all necessary to meet the ever-growing demand for their services. Originally focusing solely on the Japanese aftermarket industry, SP worked on the entire spectrum of Japanese vehicles, ranging from Honda Civics to Toyota Supras and Nissan Skylines. Eventually, SP branched out into the European and exotic car markets, becoming a trusted tuner for vehicles ranging from BMWs to Porsches to Lamborghinis. In addition to customer cars, SP's personal builds—ranging from their 1,000hp 2JZ-powered FD RX-7 to multiple R33, R34, and R35s—became quite well known in various circles throughout the years.

A more than respectable history that spans over 15 years, you have a feel for the type of business capable of handling this tier of clientele. It was SP's work, exemplified over the years through these various chassis that drew the customer to contact them to build the Skylines you see before you. Now on to the builds.





The customer only provided three simple points of input for what they were looking for from each car: horsepower, aero, and color. Anything and everything else was left to the discretion of SP. Similar to how one would seek out a famous tattoo artist, presenting the premise for the tattoo, sitting back, allowing the artist to make that vision a reality. It really isn't any different here. The customer presented the premise of what they wanted built with three points, and then sat back calmly and waited for the artist—SP Engineering—to make it a reality. And they did, starting off by purchasing two brand-new '11 Nissan Skylines, one black and one white.

First: the horsepower. The customer told them to build the vehicles to make 1,000 awhp. You know, like a boss would. Achieving that horsepower number required taking the already amazingly engineered VR38DETTs to a whole other level entirely. Using the information that they have

## THE CUSTOMER TOLD THEM TO BUILD THE VEHICLES TO MAKE 1,000 AWHP. YOU KNOW, LIKE A BOSS WOULD.

gathered from extensive R&D, the setup was decided on and the process began. The blocks were sent to Japan to be fitted with Greddy dry sleeves and then reassembled by SP with Greddy-spec JE pistons mated to Greddy 92.4mm stroker cranks by way of Carrillo Pro H-beam connecting rods. The combination yielded 4.3Ls of displacement. The heads were sent to Port Flow in Southern California to be





massaged and upon their return were reassembled using Ferrea valves, springs, and retainers as well as Tomei ProCam 280 intake and exhaust cams. The heads were then reconnected to the blocks using ARP custom age 625+ head studs with Greddy head gaskets. All of this work was to prepare the long-blocks for the SPE1000R turbo kit package. Greddy TD06 turbochargers were modified to flow in the 1,000-plus all-wheel horsepower range without sacrificing response. SP accomplished this by equipping the turbochargers with 67mm billet compressor wheels and 11 blade turbine wheels, as well as upgrading the turbine housings from 8 to 10 cm<sup>2</sup>. Fuel is pumped to ID2000 injectors by dual HKS fuel pumps working in conjunction with a custom third SP fuel pump. To put the power to the ground effectively and reliably, SP upgraded to an OS Giken TCD rear differential and Dodson Motorsport/Exedy Promax 10-plate clutch. A Greddy DCT cooler keeps HKS DCTF-I transmission fluid cool. And finally, to tune the monstrous setups to achieve the power output that the customer wanted in a reliable manner, HKS EVCs and AFKs as well as a Cobb AccessPort were installed and tuned. And just to make it clear, this motor and transmission build wasn't created solely for these projects. Any customer can have a comparable build done to their R35, for oh, in the general vicinity of \$75,000. This particular customer just had them do it twice.

Second: the aero. For the black chassis, a beautiful wet carbon Black Bison body kit by Wald was chosen to grace the exterior. Any customer can also own this for around \$13,500. For the white (now gold) chassis, the stunning wet carbon Tommy Kaira Ebbrezzza-R aero kit was chosen. The price of that kit? Around \$22,000.







Third: the color. The OE black chassis was to remain black, so it was sent to Superior PV Auto Body to have the Wald kit installed and then draped in matching black paint, with certain styling cues in the way the paint was laid in certain places per SP's direction. For the white chassis, it was decided that that vehicle would be gold. So what did SP do? They contacted the one and only Kazuhiko "Smoky" Nagata of Top Secret, and had the coveted gold paint shipped to them in its raw form directly from Top Secret Japan. Now it's SP's turn ... Like a boss! The chassis was then sent to Superior PV Auto Body as well to have the Tommy Kaira aero installed and then the entire vehicle slathered in the gorgeous Top Secret Gold hue.

There are so many more aspects to these builds, but I'll let the pictures do the rest of the talking. In those pictures are two incredible GT-Rs that you can't help but gawk at. The two cars demand attention, and if you don't give it to them from just a glance, the sounds of the vehicles' firing up and taking off will enter your soul through your ears and rip the respect right out of you.

So have you been throwing around numbers in your head as to how much it cost to create each of the cars? A rough estimate on the value of each car would be about \$250,000. Yes, *each*. That's half a million dollars in one order. Like a boss. **It**





## BEHIND THE BUILD

**NAME.**  
MYSTERY MILLIONAIRE

**LOCATION.**  
BALL SO HARD, YOU  
WANNA FINE ME

**BUILD TIME.**  
SIX MONTHS

**HOBBIES.**  
BALLIN'

**FEEDBACK.**  
YOU WISH.

## '11 NISSAN SKYLINE GT-R (TOP SECRET GOLD)

**ENGINE** VR38DETT, 4.3L, 99.5mm bore; SPE1000R turbo kit; Greddy SPE-modified TD06 turbochargers, turbo manifolds, elbow, downpipe, blow-off valve, Type-R wastegate, Type 29R XL intercooler, intercooler piping, 98mm head gasket, dry sleeves; 92.4mm stroker crank, fuel rail; HKS dual fuel pumps, M45 spark plugs; Injector Dynamics ID2000cc injectors; Aeromotive fuel pressure regulator; Tomei ProCam 280 camshafts; Ferrea 1mm oversized valves, springs, retainers; ARP custom age 625+ head studs; JE pistons 98.5mm pistons (Greddy spec); Carrillo Pro H-beam connecting rods; TiTek titanium race exhaust, race mid pipe, carbon engine cover, carbon cooling panel; Carbing aluminum coolant reservoir tank; Samco radiator hoses; SP Engineering custom third fuel pump, air intake, dress-up bolts

**DRIVETRAIN** OS Giken TCD rear differential; Dodson Motorsport/Exedy Promax 10 plate clutch; Greddy DCT transmission cooler; HKS DCTF-I transmission fluid

**SUSPENSION** HKS Hipermax III coilovers; Swift 34mm with 8mm sidewall hollow front sway bar, 16mm solid rear sway bar

**WHEELS/TIRES** Advan RS-D 20x10 (front), 20x10.5 (rear); Toyo R888 285/35-20 (front), 315/30-20 (rear); TiTek race lug nuts

**BRAKES** Factory 6-piston Brembo (front), 4-piston Brembo (rear)

**EXTERIOR** Top Secret Gold paint, carbon hood; Tommy Kaira Ebrezza-R full "wet carbon" Aero Kit; TiTek carbon trunk; T1R towhook; paint by Superior PV Auto Body Shop

**INTERIOR** Bride Stradia II front seats, Type RO rails; Personal 330mm Grinta steering wheel; MCR carbon paddle shift kit; TiTek carbon center gauge bezel, lower shifter bezel, side dash vents, custom interior carbon overlay (A/C vents, door handle bezels, radio bezel)

**ELECTRONICS** HKS EVC6, AFK; Cobb AccessPORT

**GRATITUDE** SP Engineering, Greddy USA, HKS USA, Swift Springs USA, Mackin Industries, LOT USA, TiTek USA, Superior PV Auto Body Shop



## '11 NISSAN SKYLINE GT-R (BLACK)

**ENGINE** VR38DETT, 4.3L, 99.5mm bore; SPE1000R turbo kit; Greddy SPE-modified TD06 turbochargers, turbo manifolds, elbow, downpipe, blow-off valve, Type-R wastegate, Type 29R XL intercooler, intercooler piping, 98mm head gasket, dry sleeves; 92.4mm stroker crank, fuel rail; HKS dual fuel pumps, M45 spark plugs; Injector Dynamics ID2000cc injectors; Aeromotive fuel pressure regulator; Tomei ProCam 280 camshafts; Ferrea 1mm oversized valves, springs, retainers; ARP custom age 625+ head studs; JE pistons 98.5mm pistons (Greddy spec); Carrillo Pro H-beam connecting rods; TiTek titanium race exhaust, race mid pipe, carbon engine cover, carbon cooling panel; Carbure aluminum coolant reservoir tank; Samco radiator hoses; SP Engineering custom third fuel pump, air intake, dress-up bolts

**DRIVETRAIN** OS Giken TCD rear differential; Dodson Motorsport/Exedy Promax 10 plate clutch; Greddy DCT transmission cooler; HKS DCTF-I transmission fluid

**SUSPENSION** HKS Hipermax III coilovers; Swift 34mm with 8mm sidewall hollow front sway bar, 16mm solid rear sway bar

**WHEELS/TIRES** Advan RS-D 20x10 (front), 20x10.5 (rear); Toyo R888 285/35-20 (front), 315/30-20 (rear); TiTek race lug nuts

**BRAKES** factory 6-piston Brembo (front), 4-piston Brembo (rear)

**EXTERIOR** Wald Black Bison body kit; T1R towhook; paint by Superior PV Auto Body Shop

**INTERIOR** Bride Zeta III Type-L gradation front seats, Type RO rails; TiTek carbon center gauge bezel, lower shifter bezel, side dash vents; SP Engineering custom carbon gauge pods

**ELECTRONICS** HKS EVC6, AFK; Cobb AccessPORT

**GRATITUDE** SP Engineering, Greddy USA, HKS USA, Swift Springs USA, Mackin Industries, LOT USA, TiTek USA, Superior PV Auto Body Shop

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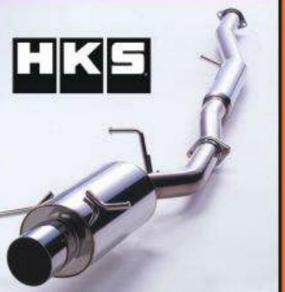


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PHOTOS BY JEFFREY SORIANO



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TOYOTA MA70 SUPRA



# BLACK SHEEP

DIFFERENT CAN  
DEFINITELY  
BE GOOD.



**T**he MKIII Toyota Supra is hardly an icon in the automotive world. It has neither a cult following, nor is it really ever in the media. Some may go as far as to say that it's simply flawed in design. The main offending factor is simply its weight; at close to two tons, the suspension is completely overworked just by attempting to keep up with the rest of the car. The engine has its fair share of nonbelievers as well, the 7M-GTE is notorious for blowing head gaskets and is generally not sought after by any means, especially not to propel such a heavy car. Only a true enthusiast would even consider an MA70 Supra as anything but a beater to get through a few winter seasons. But Russel Rumbawa is, in every meaning of the word, a true enthusiast. As one of a handful of people around the world who have successfully modified this platform, exclusive may be an understatement. It took the 36-year-old from Hawaii eight years to get this car to the state that it is now, and the end result is nothing short of impressive.

Russel has literally lived in every stage of the automotive "scene" and has witnessed it firsthand evolve from nonexistent to what it is today. His first car was a '91 Honda CRX that he purchased brand new when he was 15 years old. It was in that car that he learned to drive its manual transmission right there on the dealer lot. He shared with us that he wanted the Si model but it was out of his budget. We say it's plenty impressive that he was able to buy a new car at that age. Right off the bat he started racing the car on highways against other compacts; he realized immediately that in stock form the car just wasn't up to the kind of driving he enjoyed. So he did what any resourceful teenager would do, he started researching the few parts that were available at the time. He



continued to race on the highway until he moved to the mainland in 1994, where he was exposed to the ever-expanding car culture of Southern California. At the time, the vast majority of Japanese car aficionados were drag racing Hondas on the street, with thousands of cars gathering and drivers who were eager to show what their car could do. It was a sight Russel never forgot. Despite what everybody else was driving, he purchased his second car, a '85 Toyota Corolla GT-S hatchback. Drifting was unheard of at the time but Russel's eyes were forever opened to the joys of rear-wheel drive.

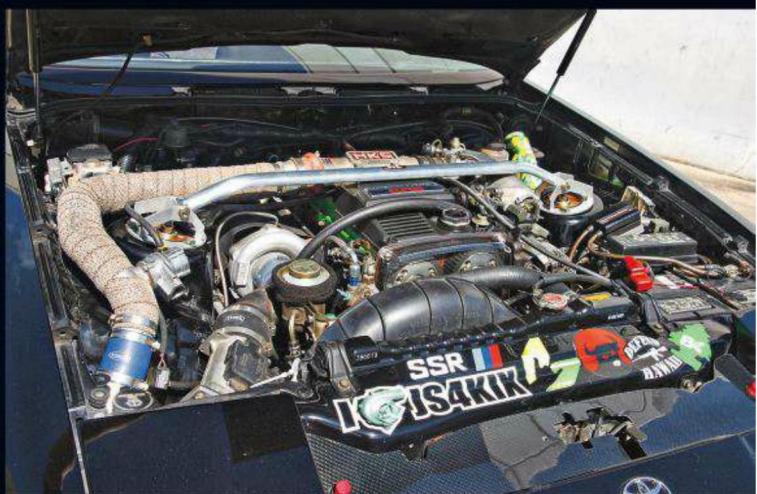
Let's fast-forward to 2003, Russel had since moved back to Hawaii with plans of staying there. It was time for a new project but the cars on the Island just weren't what he was looking for. Remembering how easily rust-free cars could be found in California he enlisted the help of his brother, who researched *Autotrader* (it was still years before luxuries like Craigslist were available) and found a few cars of interest. His choices were a MR2 Turbo, a Turbo II RX-7, and the Supra seen here, which he purchased from the original owner. Living in Hawaii, a working air-conditioning unit was very important to him and a few interior luxuries sweetened the deal. Immediately, he noticed that the steering felt sloppy and han-

dling was virtually nonexistent when drifting, coming from a background of Corollas, disappointing must have been an understatement.

So began the journey to turn a nonresponsive, numb car into a capable machine. The suspension could use all the help it could and help came in the form of JIC FLTA2 coilovers, which originally came equipped with 14kg/mm (front) and 10kg/mm (rear) springs. Russel felt that the spring rates were too soft and gradually worked his way up to the current 22kg/mm (front) and 18kg/mm (rear) setup that he preaches is perfect for allowing his car to feel nimble and much lighter than it actually is. A Megan Racing hatch bar and JIC strut tower and lower arm bars provide a bit more chassis rigidity and Suspension Techniques sway bars keep body roll to a minimum. A Safety 21 rollcage keeps occupants safe when Russel utilizes his newfound steering angle from the Drift Motion tie-rod spacers.

While the vast majority of MA70 Supra owners who modify their cars to this extent opt for a JZ-series engine, Russel was confident that the original 7M-GTE would suffice for his needs. The bottom end was left stock; however, the valvetrain has been augmented with Brian Crower camshafts, springs, and retainers working with AEM cam gears to allow the maximum amount of gases to be inhaled and exhaled by the engine. On the fuel delivery side of the equation, Denso 550cc injectors are fed by a Walbro fuel pump, which was made necessary due to the addition of a CX Racing T61 turbocharger replacing the stock unit. A Blitz blow-off valve keeps pressure levels in accordance to what the A'PEXi AVCR prescribes as the compressed air travels through an HKS intercooler. ARP head studs keep the distance between the block and the





head uniform with the 1mm HKS metal head gasket. Lastly, waste gases are deposited through a BIC downpipe and Exhaust Customs 4-inch catback.

As you can imagine, 415 hp would be literally impossible to manage with the original wheels and tires. Russel chose 18x10 and 18x12 SSR SP1s wrapped in Nitto NT555s to put the rotational energy to the ground. An aluminum driveshaft and Kazz limited-slip differential make sure that torque is transmitted evenly to the rear wheels.

---

**TRIAL AND ERROR BECOMES A ROUTINE WITH EVERY PART INSTALLED, BUT THE REWARD OF BEING A PIONEER IS GREAT AND TO AN INSPIRED INDIVIDUAL LIKE RUSSEL RUMBAWA, IT'S MORE THAN WORTH THE EXTRA EFFORT.**

---

Russel says that the huge wheels and tires were an absolute necessity. Due to his background with Corollas, fitting his wheels and tires just on the threshold of the Shine Auto fender flares is not an option but a requirement—providing for a functional but also an aesthetically appealing stance.

The exterior has been heavily modified, updating the look of the car. A Bomex front lip spoiler and side skirts combined with an Insurance Group Diana Godfather lowers the visual bottom of the car closer to the ground. The S2 air guide in the front bumper

is both functional and stylish, channeling air to the intercooler while really setting this car apart from the masses. Club Hotness Bodyworks laid down the paint, and the graphics are courtesy of Section D. Small details such as the Japanese market front markers and the HIDs mounted in Hella H4 housings make sure that Russel can see well and is seen at night. And of course, the 35 percent tint ensures that the extreme temperatures of Hawaii in the summertime are bearable. Providing the balance between comfort and performance, Bride Zeta III seats cradle both the driver and passenger in place. A Greddy shift knob and Razo pedals make shifting a pleasure. An Alpine head unit, powering JL Audio speakers, provides a break from the sound coming from the exhaust and the turbo spool.

It's always nice to see an owner who is completely satisfied with his creation. It's especially cool when the car is something as unique as this Supra that is often overlooked, assuming that its potential isn't worth tapping into. Once in a while, however, somebody comes along and provides a chance for the car to shine. Trial and error becomes a routine with every part installed, but the reward of being a pioneer is great and to an inspired individual like Russel Rumbawa, it's more than worth the extra effort.



## BEHIND THE BUILD

# TOYOTA MA90 SUPRA

OUTPUT: 415 WHP, 360 TORQUE AT 14 PSI

### NAME.

RUSSEL RUMBAWA

### AGE.

36

### HOMETOWN.

AIEA, HI

### OCCUPATION.

CUSTOM EXHAUST TECH

### HOBBIES.

BODYBOARDING, BODY SURFING, SKATEBOARDING, HIKING, RUNNING, TRAINING

### BUILD TIME.

SIX YEARS

### FEEDBACK.

LSDBREAKER@YAHOO.COM

### MOTIVATION.

"I BUILT MY CAR EVOLVING AND REVOLVING AROUND THE SPORT OF DRIFTING."

**ENGINE** Toyota 7M-GTE; T61 turbo; Brian Crower 272 camshafts, valvesprings, and retainers; AEM Tru Time cam gears; ARP head studs; HKS FCD, intercooler, 1mm metal head gasket, and Powerflow intake; Walbro 255-lph fuel pump; Nippon Denso 550cc injectors; A'PEXi AVCR and SAFC; Exhaust Customs 4-inch catback; BIC divorced downpipe; NGK BKR7E spark plugs and wires; Blitz blow-off valve; Driftmotion braided oil line kit; TRD radiator cap and oil cap; Horsepower Freaks timing cover; Sun Auto ground wire and amplifier kit

**DRIVETRAIN** Kazz two-way LSD; Drive Shaft Shop one-piece aluminum driveshaft; 4.3 ring-and-pinion; Driftmotion Delrin shifter bushings

**SUSPENSION** JIC FLT-A2 coilovers, strut tower bars and lower arm bar; Suspension Techniques sway bars; Megan Racing hatch bar; A1 rear traction rods; Driftmotion steering angle spacers; Cusco aluminum side bars; Safety 21 six-point rollcage

**WHEELS/TIRES** SSR SP1 18x10 (front), 18x12 (rear); Nitto NT555 225/40/18 (front), 275/35/18 (rear); Project Kics lug nuts

**EXTERIOR** Bomex front lip and side skirts; Insurance Diana Godfather rear bumper; Horsepower Freaks hatch visor and front turn signal covers; JDM front markers and JDM S2 carbon-fiber intercooler air guide; Retro-spec Turbo A carbon-fiber insert and carbon-fiber window/door pillars; Shine Auto Godfather-style fender flares; paint by Club Hotness Bodyworks; graphics by Section D; Hella H4 headlights; O-nex HID; 35 percent tint from Rontint

**INTERIOR** Bride Zeta III seats and rails; JDM steering wheel; NRG steering hub and quick release; Greddy shift knob; Razo carbon-fiber pedals; Retro-spec carbon-fiber doorsills

**AUDIO** Alpine DVD head unit; JL Audio speakers; MTX 10-inch subwoofer; Kenwood amplifier

**GRATITUDE** Sean at Munkywurks, Auto Customs; JR at Exhaust Systems Hawaii; Ben; John F.; and Section D boys

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**ROUND 6 | AUGUST 24-25**  
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1992 NISSAN 240SX

# TIMELESS

A STYLE THAT WON'T AGE





**T**here's nothing like nostalgia to bring back fond memories and good times, like a classic Biggie track or the smell of sweet perfume. We see so many builds throughout the years that might be hot for a minute but a season later the style or trend has hit the recycling bin. Then, there are individuals like Jeevs Sidhu who opt for a build that will always buck the trends, who would rather go with a project that will endure the times. The Calgary, Alberta, Canada, native has shown a unique sense of style, and it shows with his 240SX build—no matter the age of the car he would hope to keep things in fashion. Jeevs set out to build his car with the same prestige as famed Japanese S13 chassis tuner/driver Yoshinori Koguchi, but with his own twist to it. "Koguchi always has the best steez," Jeevs says when asked about his build.





The iconic build began with the heart of a beast. Jeevs had imported a red-top SR20DET, which is standard in the S13. Following some hard drift and track sessions, the tired red-top was relieved of its duties for a crispy black-top SR20DET found in the big brother S14. Prior to swapping the motor, Jeevs wanted to extract the most out of the powerplant as possible, upgrading to a Garrett GT28-60RS turbine, mated with a Tomei Extreme manifold. For spent gases he chose a Circuit Sports downpipe and A'PEXi N-1 titanium exhaust. To feed air, the classic Greddy intake manifold was mounted with a big-bore throttle body, all cooled down by a Greddy front-mount intercooler. Finishing up the engine bay, a wire tuck ensued including fuse box relocation. Those with an S-chassis know this is not an easy task to accomplish.

In Koguchi fashion, Jeevs wanted to have a clean, yet recognizable aero package. G-Grow would be the face of the 240SX matched with OEM Kouki side skirts, rear valence, wing, taillamps with the OEM carbon Kevlar garnish as the cherry on top. Before being coated in a metallic black paint, the front and rear fenders were pulled and prepped by Jeevs himself. This would allow for aggressive fitment and stance. "Finding a good wheel and tire combo that wouldn't make my car drive like garbage wasn't easy. It took time and money," Jeevs says. After going through several sets to dial in the car to his liking, the 240SX sits on 18-inch dual-toned SSR Professors. Like the fenders, most of this car was handbuilt by Jeevs. When asked what his motivation was, he said: "The build itself, and having a car built by your own hands".

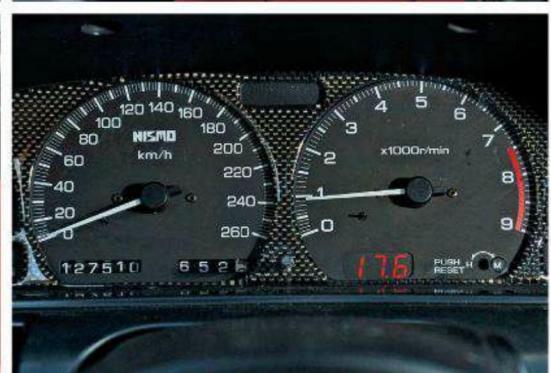
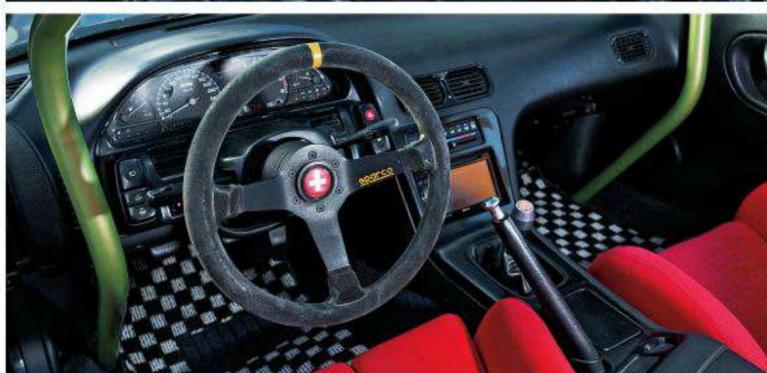
Handling was one of the most vital aspects of the build, relying on Stance coilovers, Tein tie rods, and a whole array of bushings and braces. Matched with a Safety 21 rollcage, the car was rigid and ready for track and daily duties. With the additional power added, braking was the next area to address. A Project Mu four-pot caliper brake kit was employed to share the duties with factory 300ZX Z32 two-pot rears.

To round out the build, two Bride holding monsters were



placed in the cockpit. A clean, uncommon mod is the deletion of the rear seats with the Origin Lab carbon-fiber rear panel. Tired of the worn-out OEM lighting inside the Nissan, Jeevs went through the necessity of replacing everything with LED bulbs, from the climate control to the NISMO cluster, which was also wired with a built-in wideband oxygen sensor gauge. Getting rid of some of the lackluster, worn OEM parts came Super-Made floor mats, Sparco steering wheel, and Kazama shift knob.

The objective of this build was to have a daily driver that would break necks with an S-chassis that's not multiple colors and smashed to pieces. See Jeevs is one of those guys who loves the 240SX too much to beat one to all hell. He's had this car for nine years, and his roots run deep with the car. It was his dad who started his 240SX love, coming home with a brand-new 240SX in 1992 for himself. "I tried to go for a clean track car look, using lots of JDM parts here and there" he says. The parts are what most 240SX owners have, but the total execution is something not enough 240SX cars ever get to. It's a timeless look with timeless mods.



## BEHIND THE BUILD

**NAME.**  
JEEVS "JDM GVS" SIDHU

**AGE.**  
28

**LOCATION.**  
CALGARY, ALBERTA, CANADA

**BUILD TIME.**  
EIGHT YEARS

**HOBBIES.**  
SKATEBOARDING AND  
BUILDING CARS

**MOTIVATION.**  
THE THRILL OF DRIVING A TRACK  
CAR ON THE STREET

**FAVORITE PART.**  
NISMO CLUSTER

**ADVICE.**  
BUY THE BEST STUFF,  
LESS IS MORE.

**FEEDBACK.**  
CK231@SHAW.CA

# 1992 NISSAN 240SXGS

OUTPUT: 320 WHP / 285 LB-FT OF TORQUE (EST.)

**ENGINE** '98 SR20DET swap; Phase 2 coil pack grounding plate; ARC air intake box and water pump pulley; Tomei Expreme manifold; S15 multilayer exhaust gasket; Garrett GT28-60RS turbo; Circuit Sports downpipe and coolant overflow tanks; A'PEXi N1 Titanium exhaust; Greddy intercooler, radiator cap, fuel rail, intake manifold with weld-on 70mm flange; Nissan N15 70mm throttle body; HKS Sequential BOV; RC 550cc injectors; Sard fuel pressure regulator; Aeromotive fuel pressure gauge, fuel lines, and fittings; Hondaata heat shield gasket; Koyo aluminum radiator; Samco radiator hoses; Power Enterprise belts; Flex-a-lite dual electric fan; Optima dry cell battery; custom wire tuck

**DRIVETRAIN** NISMO/Exedy multiplate clutch and flywheel combo; Circuit Sports clutch damper eliminator; STRD clutch assembly; JDM 180SX LSD; B&M short shifter; Peak Performance transmission mount

**SUSPENSION** Stance GR+ coilovers; Energy Suspension bushings and subframe kit; Circuit Sports floor bar and aluminum steering bushings; Tein tie rods; NISMO power brace; custom reinforced LCA; powdercoated red front and rear subframes; Tanabe front sway bar; Whiteline adjustable rear sway bar and endlinks; Carbin front strut bar with BMC stopper; Cusco rear strut bar; Touge Factory C-pillar bar; Safety 21 seven-point rollcage; Peak Performance rear upper control arm

**WHEELS/TIRES** SSR Professor SP1 custom painted 18x9 +8 (front) 18x11 +8 (rear); Rays Engineering lug nuts

**BRAKES** Project Mu four-pot (front) calipers, two-piece rotors, and pads; 300ZX Z32 master cylinder and rear brakes; stainless steel lines

**EXTERIOR** G-Grow front bumper; JDM 180SX side skirts, rear lip, rear wing, side markers, signal lights, city lights, taillights, and Kevlar rear garnish; Origin roof wing; painted carbon hood; shaved trunk lid; Max skid plate

**INTERIOR** Sparco concave suede steering wheel; Kazama shift knob and spin turn knob; carbon glovebox delete; Bride Gias carbon Kevlar driver seat, Brix passenger seat; Takata harnesses; Origin carbon rear bench; Super-Made floor mats; Pioneer F90BT GPS Navigation; Nismo 260km LED lit cluster with wideband gauge; T1R interior lights

**GRATITUDE** Speedtech Racing Development; Urban Expressions; Tunerworks Performance; Paul Tan, Billy Harley, Nick Show, William Ngan, Barbara De Leon, Jackie Law, Eric Zapata, Allan Calgui, Mark Lacey, Will Wong, Randy Schwitz, Chanry Kim, Lee Main, Rocky Park, and especially Pat Tan, who basically helped me out with the entire build.

## HOTBOX

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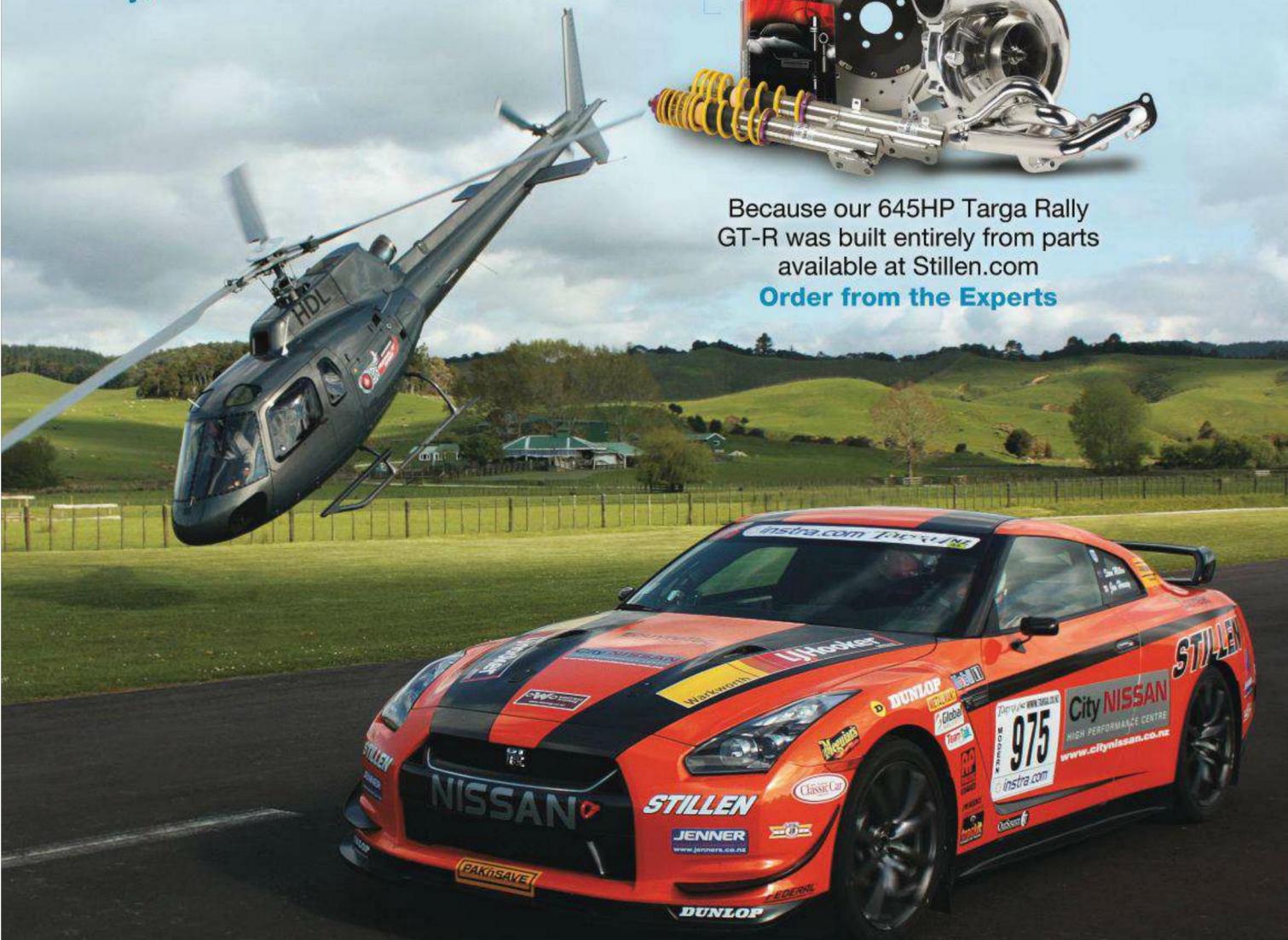
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## JEFF HILL'S '05 SUBARU STI

Over the past 10 years, Subarus have turned into a staple of the automotive tuning industry. Starting as a more niche, specialty tuner car in the 1980s, Subarus have exploded into the mainstream with the introduction of the American market Impreza WRX in 2002, and then going on to become the focus of various motorsport events throughout the United States and worldwide. With the spotlight on Subarus in events such as rally racing and time-attack, it seemed only natural to see the aesthetic styles of these purpose-built race cars carrying over onto the streets and, ultimately, into car shows. Jeff Hill's '05 Subaru STI is one of those cars that takes the time-attack race car style and applies it to the medium of car shows, resulting in an almost undefeatable juggernaut in the local car show community of the Pacific Northwest.

A native of Portland, OR, Jeff was no stranger to the relatively new, but almost froggy-looking bug-eyed WRX of 2002 and 2003. While the rest of the world enjoyed Subaru's performance and rally racing pedigree, the first WRXs that populated

the Portland area were still unfamiliar territory for Jeff. Rather than taking the leap into what was still a rather obscure Japanese manufacturer to most people, Jeff decided to roll around in a Dodge SRT4. The car suited his needs for a few years, but he soon realized that it wasn't exactly best suited to be competitive in the car shows he planned to enter. While attending one of these car shows, he happened to come across the new STI version of the WRX, along with the newly updated front end. The STI's stock 300 hp and new looks made Jeff instantly fall in love, and he decided at that very point that he just had to have one.

With his brand-new '05 STI sitting in his driveway, Jeff began to search around for all of the parts he'd need to create a show winner. The selection of both power and aesthetic parts compared to his old SRT4 was staggering, and he had no problem paying top dollar for the best parts he could find. He first started out with a complete Ings+1 body kit and Varis carbon Kevlar hood, but while these parts looked great, they didn't quite suit Jeff's style. He sold these parts before they ever saw a body shop and continued his search while lurking on the various Subaru forums. He stayed under the radar for around five years as he slowly accumulated parts, almost like a camouflaged predator waiting to strike at the car show scene. Jeff made himself a goal to win NASIOC.com's Top Scoob competition and in December of 2009, he unveiled his car for all of the forums to see.



The reception to Jeff's car on the forums was understandably a mixed bag, but the car show judges were wowed instantly. Unlike most cars, where one can see how an owner slowly builds up the car over time from various shows to shows, Jeff's STI surprised everyone in the scene as soon as it showed up, already fully built. From the very start, nearly every part of the car was touched in some way, maintaining a balanced attack on the exterior, interior, motor, and in-car entertainment fronts.

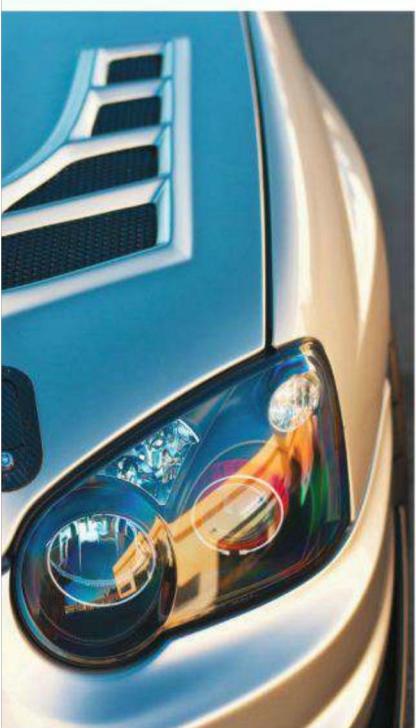
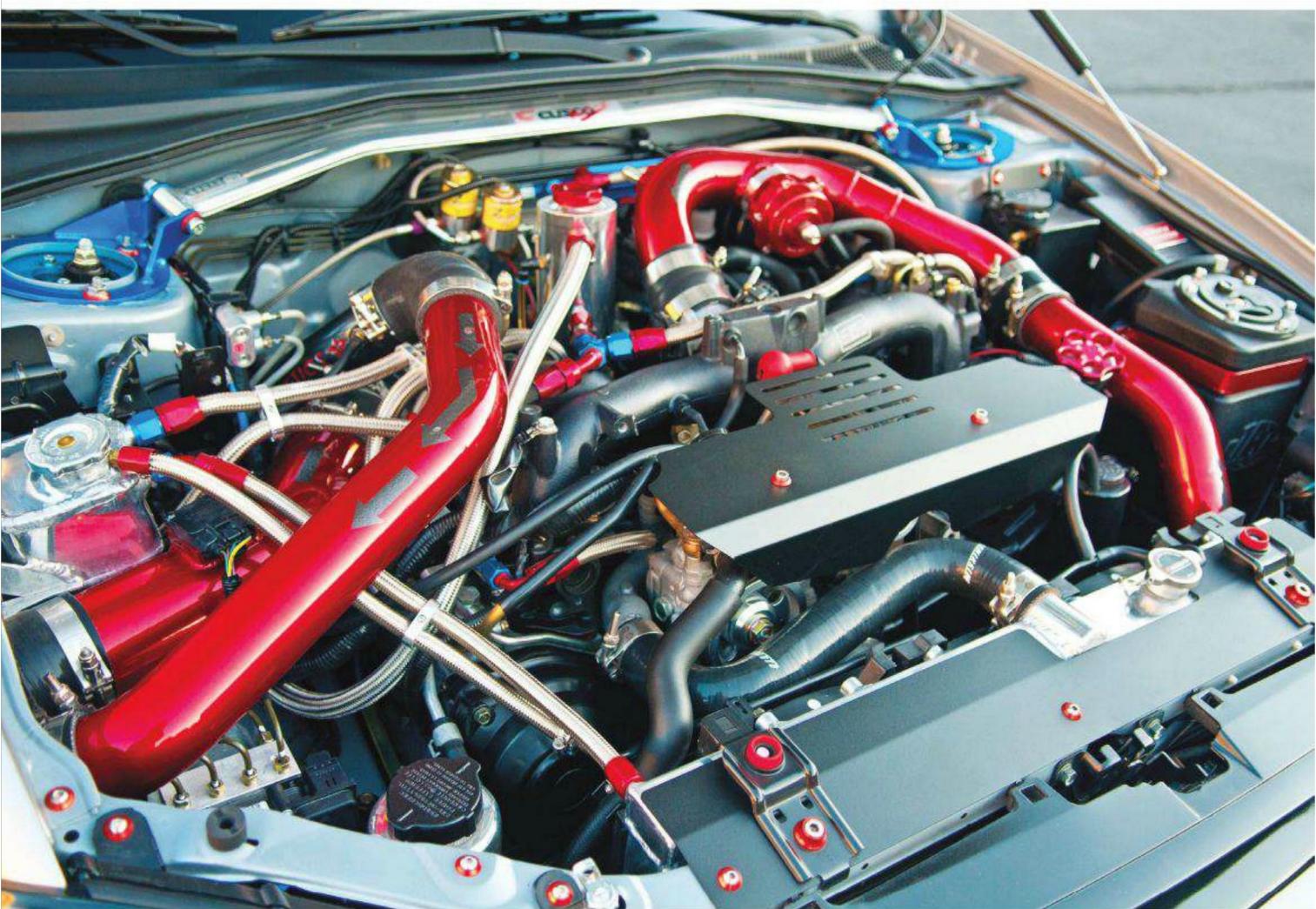
The first iteration of Jeff's STI included a rather subtle Chargespeed carbon-fiber Bottom Lines kit, SYMS rear carbon-fiber spoiler, Seibon Edition Volk TE37s, and Rally Armor mudflaps. While these parts won trophies, the parts were merely holdovers until his full Voltex body kit and GT wing arrived to reach out and smack all onlookers, often resulting in a love/hate relationship among many. Nevertheless, from the body kit to the LightWerks Honda S2000 retrofitted projectors, to the paint-matched Seibon CW-style hood and hoodscoop, Jeff's STI set the tone for standing out and being in your face. Keeping balance in mind, having a fast-looking exterior meant nothing without the power to back it up, so Jeff made sure that even from the beginning of his car show career, his car would have enough "go" for his "show".

**THE STI'S STOCK 300 HP AND NEW LOOKS MADE JEFF INSTANTLY FALL IN LOVE, AND HE DECIDED AT THAT VERY POINT THAT HE JUST HAD TO HAVE ONE.**

Beneath the painstakingly cared for exterior sat the STI's standard 2.5L motor, putting out as much power as possible without internal upgrades. The Treadstone/Turbonetics rotated turbo kit and intercooler setup, complete with Ultimate Racing injectors and fuel rails, Tial 44mm external wastegate, and Cobb/Surgeline-tuned Accessport, put out 513 whp and 494

wheel torque on Q16 race gas at 26.7 psi. A large collection of supporting modifications, ranging from dual Walbro fuel pumps to GrimmSpeed phenolic thermal spacers, helped keep the motor happy, while replacing as many engine bay lines as possible with stainless

steel braided lines showed Jeff's attention to detail. Very few stock rubber hoses can be seen in the engine bay, and many of the lines have been tucked under the intake manifold to provide less confusion and clutter.

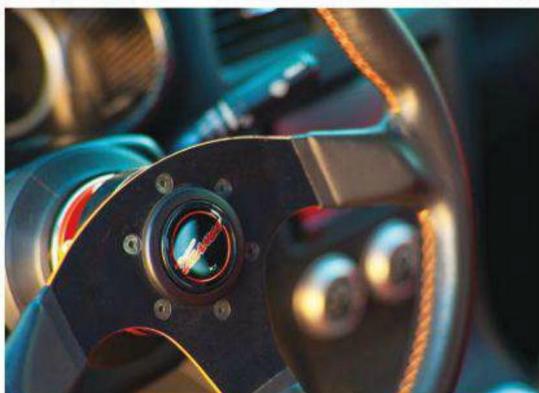


With the exterior and the power out of the way, Jeff continued his attention to detail in the interior and with his in-car entertainment system. Red and black dominate the cockpit, with rear seats and door cards reupholstered in red to match the front Sparco Torino 2s, whereas black Alcantara suede encompasses the headliner and dash areas to match the black carpets. It's not hard to figure out that this was Jeff's car, since he had his North American Subaru Impreza Owners Club (NASIOC) screen name "STIlyyi" stitched onto the door cards. Even the Defi BF series gauges are red and black, allowing everything in the interior to match as much as possible. A custom fiberglass trunk enclosure houses four MB Quart amps and two Alpine 12-inch subwoofers, along with ZEX N20 bottles for the intercooler sprayer, filling the entire trunk space.

The final piece to Jeff's car show-winning puzzle was the suspension, which wasn't neglected in any way. Jeff accomplished this first with a set of Cusco Zero2R coilovers, front and rear strut bars, rear triangle brace, camber adjustable lateral links, engine and transmission mounts, and a rear subframe brace. Whiteline front and rear sway bars with sport anti-lift kit and roll center adjustment kit help keep the wheels and tires planted firmly, while the full collection of GTSpec underbraces take care of all the other loose ends. To ensure that the power is transferred to the ground properly, Jeff went with a set of 18x9.5 Volk LE28Ns wrapped in 265/35/18 Hankook Ventus R-S3 tires. Unfortunately, these wheels didn't quite clear the stock Brembos at their offset, so Jeff switched out the Brembos in favor of a complete front and rear Rotora big-brake kit, with six-piston calipers up front and four-piston calipers in the

rear, all of course in red. The fat tire width provides function along with flushness, which typically cannot be said for many of participants of the incorrect fitment fad.

With all of the pieces in place and a full collection of Best of Show and Best Subaru trophies in hand, Jeff entered his car into the NASIOC's Top Scoob competition, pitting his car against some of the best Subarus that the entire forum universe has to offer. He ended up changing his wheel setup to 18x10 WedsSport SA-55M in black red machining, but it wasn't enough to take the top spot. More than content with his Second Place finish, Jeff decided that while the car wasn't fully complete in his eyes, it was time to start a new project. After six full years of ownership, he placed a for sale ad on the forum and within five days the car was sold to a local Subaru dealership in Vancouver, WA. Rather than selling off the car to a new buyer, the dealership instead chose to use it as a display car to show off how far a new owner can go with modifications. As an alternative of seeing his car parted out or sold to a nameless new owner, Jeff says, "The car has been put out to stud, similar to a 3-year-old race horse following a successful run to the Triple Crown." ■





## BEHIND THE BUILD

# 2005 SUBARU STI

OUTPUT: 513 WHP / 494 WTQ AT 26.7 PSI

**NAME.**  
JEFF HILL

**LOCATION.**  
BEAVERTON, OR

**ENGINE** Turbonetics GT-K 500 rotated turbo; Treadstone stainless steel downpipe with re-plumbed dump tube, up-pipe, 3.5-inch intake, black 4.5-inch intercooler, catch can, and heat shield; K&N filter; Full Blown fuel pump hanger; two Walbro 255-lph fuel pumps; Ultimate Racing top feed fuel rail kit and 1,260cc injectors; Tial wastegate and blow-off valve; Gallery red engine dress-up bolt kit; Turbosmart billet aluminum oil cap; eBoost2 40-psi Sleeper Series EBC; NGK spark plugs; Cusco exhaust manifold; Coolingmist CMGS FS methanol injection kit with failsafe; ZEX direct port N2O; HKS carbon-Ti exhaust; Go Fast Bits pulleys; Mishimoto radiator and hoses; GrimmSpeed thermostat, PnP intake manifold, TGV deletes, 8mm phenolic thermal spacer, and 2.5mm stainless steel exhaust gaskets; Subtle Solutions alternator cover and radiator shroud; Gruppe-S carbon-fiber hood dampers; Turbo XS coolant overflow; Forge power steering reservoir; A/C delete; PRE custom N2O lines, fuel lines, coolant lines, and methanol reservoir; Killer B windshield washer reservoir

**DRIVETRAIN** Cusco transmission bushings; GTSpec differential mount bar; Kartboy transmission crossmember bushings and short shifter with bushings

**ENGINE MANAGEMENT** Cobb Accessport V2

**FOOTWORK & CHASSIS** Whiteline sport anti-lift kit, steering bushing kit, sway bars, roll center adjusters, differential bushings, and camber bolt kit; Hotchkis front and rear articulation ball joint endlinks; Cusco Zero 2R coilovers, strut tower bars, rear triangle brace, trailing arms, lateral links, engine mounts, and rear subframe brace; GTSpec front lower tie brace, rear T-brace, three-piece subframe set, and four-point ladder brace

**BRAKES** Rota six-piston (front) calipers, four-piston (rear) calipers, stainless steel lines, rotors, and pads

**WHEELS/TIRES** 18x9.5 Rays Volk Racing LE28N with center caps; Project Kics R40 Neo Chrome lug nuts; Hankook Ventus R-S3 265/35ZR18 tires

**EXTERIOR** Voltex side skirts, Type-5 V-mounted EVO IX GT wing, front bumper with custom shaved license plate, carnards, and front under wing; JDM S203/S204 clear side marker lamps, Spec C roof vent, and rain guards; rolled and pulled fenders; NRG carbon roof vane and hoodpins; Hella Supertones; Seibon carbon-fiber hood, reverse hoodscoop, and carbon trunk lid; Ganador side mirrors; Varis carbon-fiber B-pillar cover; L'aunsport carbon-fiber C-pillar cover; custom de-badged front grille; Nukabe front and rear tow hooks; LightWerks custom projector headlights

**INTERIOR** Defi amber BF series boost, oil, and EGT gauges, Defi Link Control Unit II; carbon-fiber triple-gauge hood; carbon cluster bezel; Coolingmist CMGS FS gauge; TurboSmart eBoost 2 Sleeper gauge; Auto Meter wrapped A-pillar pod; Works Bell Team Orange leather steering wheel with autographed hub by Samuel Hubinette and Tanner Foust; Gentex K31 auto dimming rearview mirror; Sparco Torino front seats, wrapped rear seats, harness bar, and harnesses; Alcantara headliner, pillars, visors, door panels, and upper dash with red stitching; dyed seatbelt anchors and panic handles; Spec C roof vent trim; WRX black carpet; black STI floor mats; JDM S203/S204 black trim dash kit and shifter trim with boot; Amerex dry chemical fire extinguisher; Autospeed dead pedal

**AUDIO** Kenwood Excelon DNX8129 all-in-one navigation/DVD player; MB Quart amps and components; Alpine 12-inch subwoofers; Kinetik power supply power inverter

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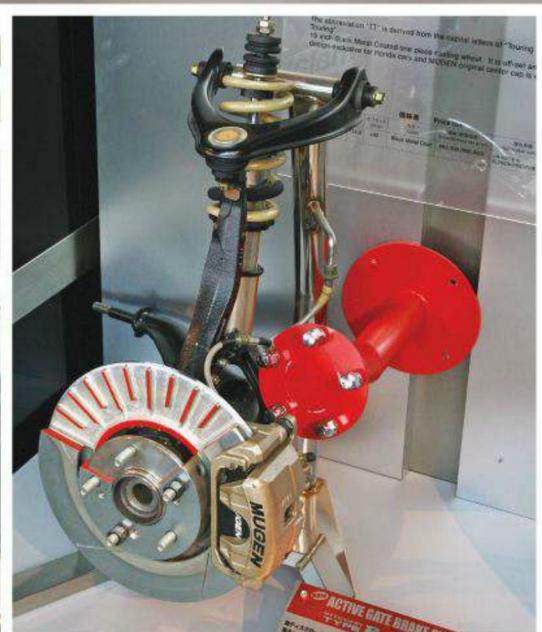
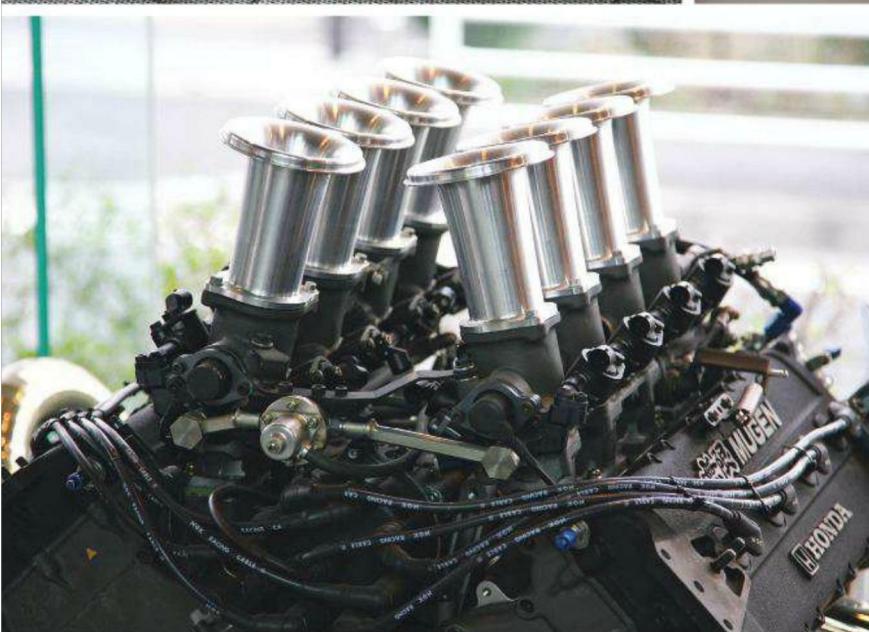
# INDUSTRY INSIDER: MUGEN POWER SHOP TOUR

PHOTOS AND TEXT BY DINO DALLE CARBONARE

Mugen and Honda share a different type of bond. Unlike TRD and Toyota, or Nismo and Nissan, Honda does not officially own Mugen. Their ties are far deeper than that; it's as deep as blood. Hirotoshi Honda, son of Honda founder Soichiro Honda, started Mugen in 1973. Soichiro started the motor company, and Hirotoshi started racing and tinkering with both the cars and motorcycles.

Being a part of Honda categorizes this establishment as a tuning wing rather than a tuning shop. Catering to the customer who is looking for more performance from his Honda, Mugen has to develop its cars and products in accordance to stringent regulations and homologations. For this reason you will never see Mugen come up with turbo or supercharger kits, or anything of such an extreme nature. Mugen engineers are more akin to race technicians, fine-tuning parts and cars to extract a little more performance from every possible angle. Careful planning is taken to guarantee that each part will function and be as durable as its OEM counterpart and, of course, give a performance advantage.





## MUGEN POWER SHOP TOUR



On top of offering a long list of soft-tuning options for pretty much every Honda model on sale, Mugen, at times, shocks us all and takes things into its own hands by creating limited editions of the sportier versions Honda creates. The Mugen Civic Type-RR is probably the best example here, a car that was sold in a short production run back in 2007. As they have shown us at auto shows and Tokyo Auto Salons, Mugen knows a thing or two about teasing us all with crazy concepts. The most extreme concept of all—the NSX-RR widebody beast from 2009—is still very much in the minds of every Honda enthusiast around the world.

At their headquarters, just a stone's throw away from the old Honda F1 facility in Wako, Mugen has a small showroom where some of its past creations are displayed along with a selection of tuning parts and a mouthwatering lineup of old race engines. [It](#)

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World's Wildest

**Nicknames:**

Beanie, Sabby, Wolverine, and Tiny

**Your first kiss:**

My leg was shaking, and he had pretty blue eyes.

**Hidden talent:**

Yes, and I prefer them to stay hidden. LOL

**Biggest turn-on:**

A very big . . . vocabulary. Seriously.

**Worst date:**

I went out with a guy who would not stop looking in the mirror and had absolutely nothing to talk about.

**Favorite food:**

Beef jerky

**Favorite TV show:**

Archer, Law & Order, and Aqua Teen Hunger

**Celebrity crush:**

Never!

**Worst habit:**

Sleeping in

**Guilty pleasure:**

Scotch

**Childhood:**

I was a troublemaker and a geek. Those are the best kind, troublemaking geeks.

**What kind of guys do you go for?**

Humble and honest, with sexy eyes and a fantastic brain.

**Your style:**

Ever changing

**Best pickup line that's worked on you?**

Hi.

**Weirdest phobia:**

Touching cardboard

**Where have you always wanted to live?**

A castle in Ireland

**Sport:**

I used to kick ass at basketball.

**Best gift received:**

Beef jerky—true story.

**Yourself in three words:**

Perfectionist, creative, sassy



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#### **Thank you list:**

I'd like to thank Charles and all of my fans. I'd also like to thank Tana Love, Michael Gabriel, and Diana Keinejad for keeping me grounded and happy when I'm having a bad day!



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THE CROWNING OF A NEW CHAMPION

TEXT BY SCOTT TSUNEISHI

PHOTOS BY HENRY Z. DEKYUPER

The Super Lap Battle Finals held its annual time-attack event at Buttonwillow Raceway in California under perfect weather conditions. The venue is approximately a two-hour drive from Downtown Los Angeles through the rural landscape of Bakersfield. Since its inception in 2004, SLB has continued to be considered the most anticipated event. Tuner shops and professional drivers from around the globe come out to beat lap records in their class and gain bragging rights for the year.



## UNLIMITED FR CLASS WINNER

1:40.981

NAME:  
FX MOTOSPORTS  
DEVELOPMENT

CAR:  
1991 ACURA NSX

DRIVER:  
TYLER MCQUARRIE

Last year we witnessed the Sierra Sierra Enterprise EVO break the Super Lap Battle record of 1:43.523 held by the infamous HKS CT230R at Buttonwillow Raceway with a time of 1:41.046. The SSE team made history, becoming the first official American team to reclaim the SLB track record as FX Motorsports Development and their NSX settled for Second Place with a best time of 1:41.949. For 2011, it was no surprise that SSE was a no-show to the event; the team had previously stated that they would be

cutting down on various competitions due to financial reasons. This was the perfect opportunity for team FXMD to show once and for all that all their hard work and perseverance in the off-season would pay off as driving ace Tyler McQuarrie manhandled the FXMD NSX to a new Unlimited FR record as well as broke the Overall Record held by SSE with a lap time of 1:40.981. Earlier in the day during qualifying, Tyler dislocated his shoulder from the sheer brute force of the car.

OVERALL  
WINNER



**UNLIMITED FF CLASS WINNER****1:47.394**

**NAME:**  
WORLD RACING  
**CAR:**  
2011 SCION TC  
**DRIVER:**  
CHRIS RADO

Among the fellow competitors, five class records were broken at the 2011 event including Chris Rado and his highly publicized FWing 2.0 World Racing Scion tC. The dual-wing-clad machine made history with a new Unlimited FF class record with a 1.47.394 in the morning session before his car suffered a head gasket/piston failure, which rendered the vehicle in a dormant state for the remainder of the day.

**LIMITED FR CLASS WINNER****1:53.221**

**NAME:**  
BERK TECHNOLOGY  
**CAR:**  
2000 BMW 135  
**DRIVER:**  
CARL RYDQUIST

Berk Technology's BMW 135i piloted by Carl Rydquist squeaked out a win against the Plattform AG E46-supercharged M3. The two teams were in a heated battle throughout the day; Tarzan Yamada jostled the E46 with a best time of 1:53.457-less than half a second separated the two cars. As the event came to a close, Berk Technology claimed First Place victory and set the new Limited FR record with a time of 1:53.221.

**LIMITED AWD CLASS WINNER****1:49.124**

**NAME:**  
EVASIVE  
MOTORSPORTS  
**CAR:**  
2006 MITSUBISHI  
EVO IX  
**DRIVER:**  
MICHAEL CHANG

**LIMITED FF CLASS WINNER****1:54.789**

**NAME:**  
SPORTCAR MOTION  
**CAR:**  
1998 ACURA  
INTEGRA TYPE-R  
**DRIVER:**  
TIM KUO



The ultra-quick Sportcar Motion Integra Type-R bested their previous track time of 1:56.987 in the Limited FF class. With Tim Kuo behind the wheel, the supercharged Honda was comfortably ahead of Second Place competitor Damien Cook's Honda Civic (2:02.401), awarding SCM's Integra a new class record.

**STREET FF CLASS WINNER****1:59.086**

**NAME:**  
APOLLO  
PERFORMANCE  
**CAR:**  
2005 FORD FOCUS  
**DRIVER:**  
CLINT BOISDEAU



The '05 Ford Escort driven by Clint Boisdeau has been on a tear at numerous events since the beginning of the year. It was no surprise he managed to clinch another trophy at the Buttonwillow finals. Let's forget the fact that Boisdeau's car wasn't the most visually attractive time-attack machine at the event, this car rips! The Focus tore up the track as we witnessed for the first time in SLB history a Street FF car break into the sub 2-minute lap times, with a 1:59.086 lap time and a new class record.

**UNLIMITED AWD CLASS WINNER****1:55.771**

**NAME:**  
UMS TUNING  
**CAR:**  
2005 MITSUBISHI  
EVO VIII  
**DRIVER:**  
TONY SZIRKA

**STREET AWD CLASS WINNER****1:57.735**

**NAME:**  
EVASIVE  
MOTORSPORTS/  
KONTRABRANDS  
**CAR:**  
2006 MITSUBISHI  
EVO IX  
**DRIVER:**  
MICHAEL CHANG

**STREET FR CLASS WINNER****1:57.887**

**NAME:**  
EVASIVE  
MOTORSPORTS  
**CAR:**  
2006 HONDA S2000  
**DRIVER:**  
ROBERT WALKER



Among the other competitors, notable mention goes to the Evasive Motorsports EVO IX (Limited AWD class). It posted a personal best 1:49.124 for the class win. The Limited AWD class victory was awarded to the Gates311 EVO X with a 1:50.181. The Kontrabrandz EVO IX led a commanding podium finish among the Street AWD competitors, clocking a 1:57.735. UMS Tuning's EVO VIII took the Unlimited AWD class with a time of 1:55.771 while the Evasive Motorsports S2000 rounded out a First Place podium win in the Street FR class with the quickest time of 1:57.887. For additional coverage and photos, be sure to visit our website at [www.importtuner.com](http://www.importtuner.com).

**STREET AWD CLASS WINNER****1:57.887**

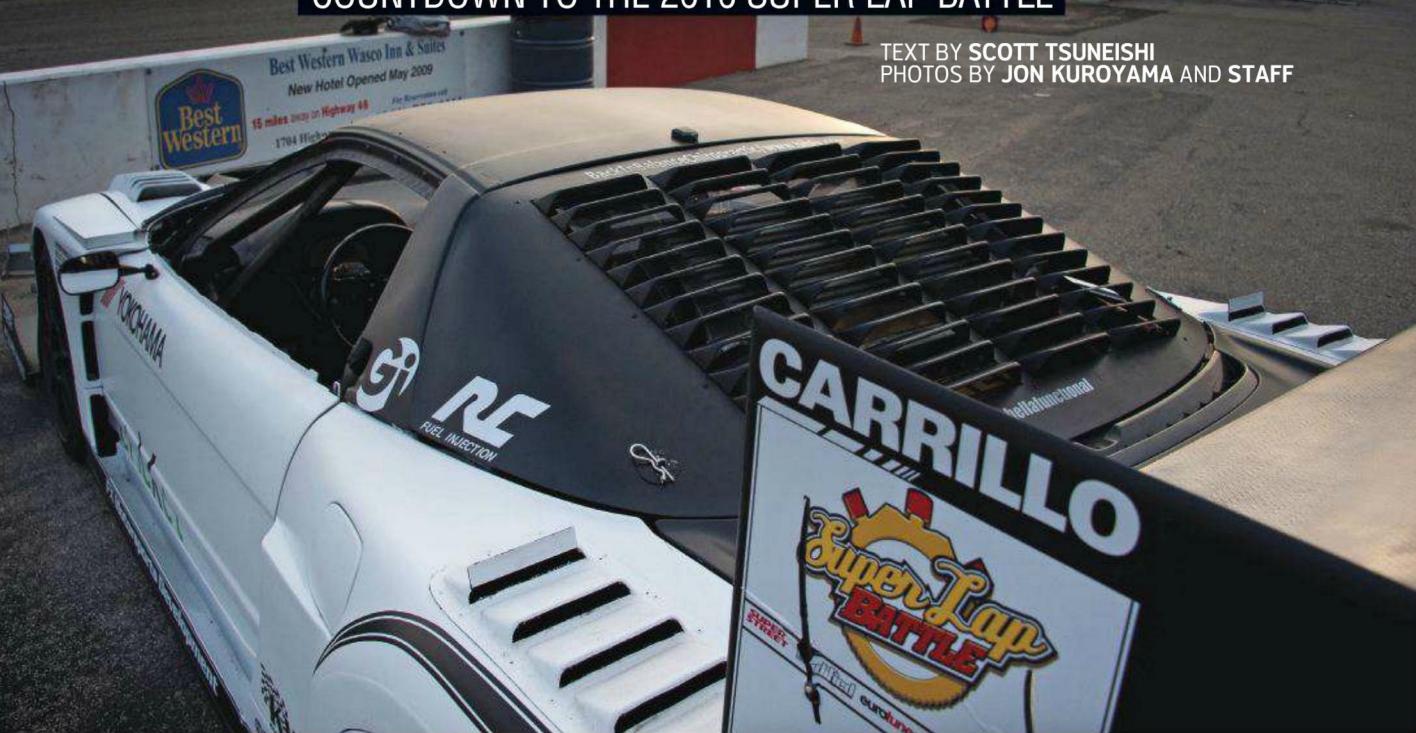
**NAME:**  
EVASIVE  
MOTORSPORTS  
**CAR:**  
2006 HONDA S2000  
**DRIVER:**  
ROBERT WALKER



# FXMD ROAD RACE DIARY

COUNTDOWN TO THE 2010 SUPER LAP BATTLE

TEXT BY SCOTT TSUNEISHI  
PHOTOS BY JON KUROYAMA AND STAFF



## Editor's Note:

Worn, battered, and bruised, the FXMD NSX roars into the paddock just completing its second run session of the day. Posting an impressive 1:41 lap time, the NSX was fast enough to beat the official rear-wheel-drive record held by them last year but was still well short of the overall track record. The deafening roar of



the engine comes to an abrupt halt in the paddocks as a handful of the team quickly goes to work making the necessary adjustments/changes to the NSX's suspension, while the remaining crew focuses on repairing the melted boost lines from excessive heat just seconds before. Tyler McQuarrie, who is in charge of piloting the FXMD time-attack machine, quickly unsheathed his helmet and yelled out the window, "Does anyone know our lap times?" Team/vehicle owner Ken Nanimatsu quickly responded "1:41.8". Tyler analyzed the track data from his run while icing his injured shoulder as the team continued to work on the vehicle in preparation for the third and final session of the day.

Team FXMD is no stranger to the time-attack scene. The NSX has undergone numerous changes since '07 when the machine was clad in flat black with minimal aero modifications.

It's been four years in the making since this daily driven NSX radically evolved into one of the most influential and feared machines on the time-attack circuit. The story you are about to read is seen through the eyes of Ken as we turn back the hands of time and follow this team and driver as they prepare the FXMD NSX for the inaugural Super Lap Battle. The personal diary of the crew and driver is filled with many of the highlights as well as disappointments that make the world of motorsports what it is today. Nothing is as easy as it seems. For exclusive behind-the-scenes content, interviews, and photos of the team including engine tuner and driver, be sure to check us out at [www.importtuner.com](http://www.importtuner.com).

## NSX Evolution

Last year, we were disappointed with the results of our car but at the same time optimistic. The lap times we recorded were not indicative of what the car was capable of. On the last filer lap of the day, we were on pace to run well past the SLB lap record but unfortunately lost the motor halfway through the run. In the end, the Sierra Sierra EVO took home the overall win and a new SLB lap record with our team coming in a close Second Place. With that in mind, we knew our focus for the 2011 season was reliability and refinement. Building a competitive time-attack car requires plenty of time and patience, and we were willing to spend those long hours to make it a budding reality. The amount of time the team dedicated to this car during the off-season was astounding. We had an interim goal that we would test the car at least three times prior to the event. This is something we have never done before, and we benefited greatly from it.



Ken Nanimatsu  
FXMD Team Principal

We made numerous changes going into this year's SLB, starting with the addition of new personnel. Grant Borman was added to the team to take on all of our fabrication duties. This has always been a weak spot on our team, and he was a godsend. Jon Kuroyama of Kuroyama Tuning was also added to the team to take over all of the tuning duties. Jon spent countless hours rewiring and tuning the car to extract maximum amounts of horsepower with an emphasis on keeping the motor running well throughout the event. Nothing needs to be said here, because if you do not know who Jon is and what his capabilities are you have been living under a rock for the past two decades.

#### Body/Aero/Engine Upgrades

Our primary focus was to increase the rear downforce on the car. Therefore our in-house aerodynamics engineer Andrew Brilliant designed us a new rear wing via CFD (computational fluid dynamics) software. In terms of the engine, we kept the internal pack-



age the same from the previous year using CP pistons, Carrillo rods, and a BC crankshaft. WPC treated all of the metal surface components from the engine internals to the transmission gears for added reliability.

#### Why Tyler McQuarrie?

At the last minute due to a scheduling conflict with Billy Johnson, our original driver, we had to make a decision on who we could get to drive the car and make sure whomever

we chose was the right person for the job. With basically no time for the driver to get any seat time, we needed a driver who knew the Buttonwillow CW13 course, had driven high downforce cars, was fast, and able to take care of the car and bring it back in one piece. Tyler McQuarrie's name quickly came up as we have raced against him in the past and has driven a previous iteration of our time-attack car. He did a great job and his lap times speak for themselves!

#### The Best is yet to Come!

At the end of [the 2011] SLB we ended up with a similar feeling as last year. That damn Buttonwillow course seems to punish us more than any other track. As usual we had some unforeseen issues come up that hindered our performance. Regardless, we were happy that we broke the SLB track record, but at the same time we know that we are much faster than what we ran and will prove it in 2012. Stay tuned!

-KEN NAMIMATSU

“ ”



# SCION FR-S:

## FIRST DRIVE IN JAPAN

### A NEW ERA OF PERFORMANCE

TEXT BY SCOTT TSUNEISHI

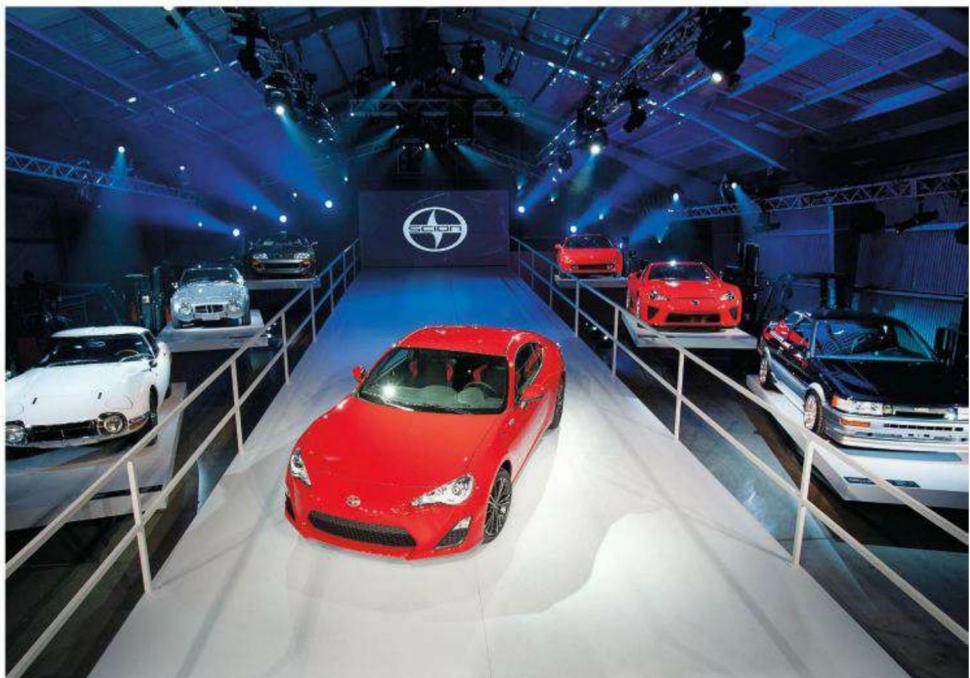
PHOTOS BY SCOTT TSUNEISHI AND MANUFACTURERS



Scion held a "First Drive Program" for their new "halo" car, the Scion FR-S in Japan for a handful of journalists including *Import Tuner*. The Scion FR-S (which stands for Front-engine, Rear-drive, Sport) will be the first real sports car since the Scion brand first established in 2002.

To recap, this was the shortest press trip to Japan in all my years as an automotive journalist. How short? Forty-eight hours short. That's exactly how long it took us to fly halfway across the continent, land in Tokyo, wake up at 6 a.m. the following morning to testdrive the new Scion/Toyota FR-S/86 on Chiba's newest circuit, then grab some dinner before jumping back on a midnight return flight the same day. As crazy and chaotic as it seemed, the experience was well worth the trip. And what were our thoughts on the Scion FR-S? Let's just say, it's all that it's been hyped up to be . . . and more.

The media event was held at Sodegaura Forest Raceway to experience driving the soon-to-be-released FR-S. Sodegaura Forest

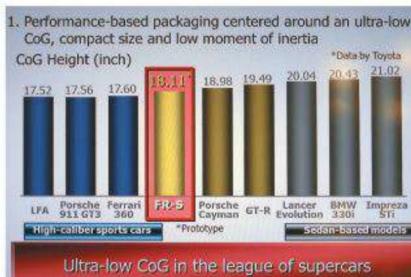




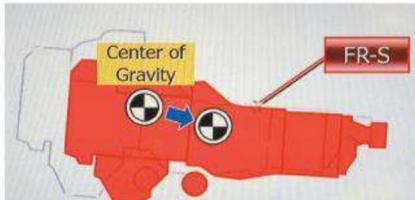
Raceway is a brand-new racecourse in Chiba, Japan, approximately one hour from Tokyo. The course is small and technically challenging, measuring 1.5 miles long and made up of 14 turns. Each journalist was given three five-lap sessions, to put both U.S.- and JDM-spec (called the FT-86 in Japan) FR-Ss through a battery of driving tests around the circuit while pushing them beyond their limits. We experienced periodic on-and-off rain, which made driving the car more challenging.



Tada-san posing with the FR-S.



In data provided by Toyota, only the Porsche GT3, Ferrari 360, and Lexus LFA have a lower weight balance over the FR-S/86. It was revealed that these supercars had an advantage with a ground clearance of 110 mm. The FR-S, on the other hand, stands 130 mm off the ground (almost an inch higher), but with good reason. Both Toyota and Scion need this vehicle to cater to both weekend track warriors and daily commuters.



The 4U-GSE's flat-four boxer design and compact size allows it to be mounted further toward the firewall and extremely low in the FR-S/86, giving the car a dynamically favorable front-to-rear weight ratio of 53:47 and a low center of gravity comparable to a formidable group of supercars. Impressive indeed!

We asked Toyota Chief Engineer Tetsuya Tada, the man responsible for bringing the FR-S/86 project—Toyota's most anticipated sport compact car in years to life—about the FR-S. "We wanted to give the world a fun sports car," he says. "We started work on the development of a new vehicle platform that not only handled well, but also catered to performance enthusiasts. The FR-S/86 gets its core inspiration from three Toyota models: the Sports 800, 2000GT, and the AE86 Hachiroku. In building a unique car, we brought back the return of a horizontally opposed engine combined with a RWD layout. Numerous prototype models were designed and tested at the Nürburgring as well as other circuits. We subjected these prototypes under grueling test conditions, and over the course of three years, made numerous refinements to bringing the FR-S/86 to its current state. The whole concept behind the design was to bring the spirit and essence of *fun* back into driving. The FR-S/86 will undoubtedly become as iconic as the AE86 Hachiroku, Supra, MR2, and GT2000 of the past."



#### CHOICE OF SIX-SPEED TRANSMISSIONS

The driving enthusiast can choose between a new six-speed manual and an optional six-speed automatic transmission. Toyota engineers spent significant time in designing both transmissions to maximize performance, and it's apparent both on and off the track. The six-speed manual uses triple-cone synchronizers on First through Third gears for precise shifting and strength while the factory short shifter delivers a firm gearshift with every selection.

The optional paddle-shift six-speed automatic transmission is made by Aisin and based upon the IS-F transmission, which offers gear selection both smoothly and quickly. On the track, the large center-mount tach and integrated shift light/warning meter allowed the driver to maintain concentration on the track ahead. A quick flick of the paddle shifter enabled the boxer to quickly climb through the rpm as well as performing downshifts before entering every corner. The automatic platform also has a Sport mode that can be switched on the center console for quicker, firmer automatic shifts. We initially chuckled at the thought of running laps around the track in an automatic 86 but as the day progressed, we found ourselves clamoring for more seat time in the automatic.

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Nissan Altima	2007-10	2.5L	#69-7061TS	+7 hp*
Subaru Impreza WRX	2009-10	2.5L	#69-8004TTK	+14 hp*

\*\* With mass air

\* Estimated horsepower gains based on specific or similar vehicle dynamometer tests. Results will vary. For more information, look up vehicle and/or testing protocols at knfilters.com.

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With Ken Gushi also participating to test the vehicle's grip and drift ability, he concluded the event by providing us with his driving impressions. "The FR-S handled well in grip driving conditions, but I was truly impressed on how easily I was able to control the car with every drift. Coming from a family who has owned and driven AE86s since I was a child, I can say the FR-S/86 was a blast to drive!"



Gushi was also present at the FR-S media event. We later learned he would be competing in the '12 Formula Drift series in a Scion Racing/Greddy FR-S race car, which will make over 600 hp.



"When designing the FR-S/FT-86, we asked ourselves what styling cues would blend classic Toyota heritage as well as being a new level of excitement to the consumer," Tetsuya Tada says. "We came up with a concept that was heavily influenced by the AE86 Hachi-Roku, 2000GT, and S800 Yota-Hachi. The end result was a car that was lightweight, with a rear-wheel-drive platform that was extremely low to the ground with a long, sleek hood."

## First: Driving Impressions

The FR-S's 2.0L flat-four pulls smoothly while offering impressive throttle response with a torque curve that maintained throughout the powerband until its 7,400-rpm redline, despite it being just 151 lb-ft. The electric steering assist with a ratio of 13.1:1 through a 14.4-inch steering wheel offered agile handling with minimal understeer. Even in the heavy rain that fell in the later half of the day, the electronic stability control (ESP) helped keep the car under control. The FR-S/86 currently owns one of the lowest COGs of any production car in the world at just 18.1 inches.

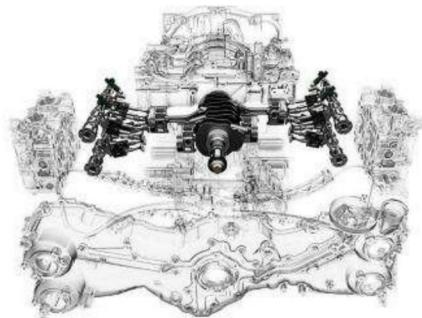
Similar to the AE86 of yesteryear, the FR-S/86 doesn't rely on brute horsepower. Instead, a remarkable combination of lightweight design and manageable power offer a perfect balance, making this car a thrill to drive. The factory-rated 200 hp was more than sufficient for the FR-S/86's lightweight chassis

but for some reason we found ourselves craving more horsepower, especially when flogging down the straights. Toyota is betting that the FR-S/86 will invoke the same emotions and loyalty that made the AE86 so popular over the past 26 years across the world, campaigning in almost every genre of racing from road racing to drift.

## Subaru Boxer Engine?

Why a boxer engine? Before you get your panties in a twist, understand that this isn't the first dance for Toyota using this type of engine. Boxer engines, also known as horizontally opposed engines, are designed with the pistons arranged symmetrically to the left and right along the crankshaft. In 1965, Toyota designed the legendary Sports 800, affectionately called the "Yota-Hachi". This rear-wheel-drive Targa-top roadster was engineered with the 2U engine, an air-cooled 790cc horizontally

opposed flat-two (boxer) style engine with dual Mikuni carburetors. The flat-two played a key part in the S800 to enable the bonnet line to be kept as low as possible, which offered a low center of gravity. The 0.8L 2U (45 bhp at 5,400) Yota-Hachi was produced from 1965 through 1969 and was known as Toyota's first production sports car.



## Toyota's Triumphant Return

After stepping away from the boxer engine for more than 43 years, Toyota returned to its roots as they jointly developed with Subaru to deliver a new-generation boxer engine.

Ajar the hood and you're immediately greeted with both Toyota and Subaru engraved onto the engine cover, along with the etchings "D-4S" and "BOXER". The technology—even the engine block—is completely new. Everything is new. The only thing that remains the same as previous model Subarus is the engine mounting points. The 4U-GSE engine was built by Fuji Heavy Industries, parent company of Subaru,



### ENGINE TUNABILITY

With the FR-S powered by a Subaru engine, many of us assume that the ECU and main wiring harness is similar to the later-model STI/WRX. William Knose, vice president/product management of Crawford Performance, says that's not the case. Knose, a Subaru tuning expert, had a rare opportunity to analyze the FR-S ECU, allowing him to reveal some interesting information.

"This is not a simple case of plug-and-play with a Subaru WRX ECU. The FR-S/86 uses a completely different ECU and harness versus the WRX. The WRX harness/ECU is the same as the STI for the most part, so you are out of luck. We have already attempted to connect the ECU to pull the ROM file using Ecutek (Subaru ECU flash) but have not had luck as of yet. We have looked into this ECU and inspected it pretty heavily so far." Knose follows up by saying, "The real question is will anyone make a relish option for this vehicle?" The biggest challenge—knowing this vehicle is not factory turbocharged—becomes a big obstacle for ECU reflash engineers when developing a custom setup that is based on the naturally aspirated computer. With any luck, Knose hopes to get his hands on an ECU to analyze its interworkings a bit further so he can send that info off to Ecutek. "We need to see if we can access the ECU or if it is a completely locked down Toyota ECU, even though it's stamped Subaru," he says.



### GREDDY FR-S TUNER CONCEPT

A modified version of the FR-S was recently debuted during late last year's press event. Built by Greddy, this Raven Black (color code) FR-S offered a visual taste of what the soon-to-be-released model would look like when upgraded with aftermarket additions, which includes a prototype coilover package, exhaust system, and aftermarket wheel package.





however taking its own Toyota Engine code; it is also the main catalyst as to why the FR-S/86 handles exceptionally well.

#### D-4S Injection System

The FR-S's 2.0L, naturally aspirated four-cylinder engine combines Subaru's newly developed horizontally opposed engine and Toyota's cutting-edge D-4S injection system, which incorporates both direct injection and conventional port injection for each cylinder. D-4S technology donated from Toyota to Subaru boxer engines uses eight injectors, four injectors fire separately for direct injection and the remaining are for port injection. The D-4S system, partnered with a high 12.5:1 compression ratio, results in delivering 200 hp and 151 lb-ft of torque. Tada-san says that D-4S technology is what allows the Subaru boxer engine to maintain such a high compression ratio and impressive torque-to-liter ratio figures for a normally aspirated engine, while maintaining low fuel consumption and reduced gas emissions. The bore and stroke on the 2.0-liter is 86x86 (perfectly square), similar to the Honda/Acura K20, Toyota 3S-G, and Nissan SR20DE engine. If history has taught us anything, we can attest to how popular both these engines have been in the tuner market with the 4U-GSE engines sure to follow suit.



#### LSD EQUIPPED

We were delighted to find out that the Scion FR-S will be equipped with a T-2 Type B Torsen LSD rear differential. The diff is similar to the one offered in the older first-generation RS200 Altezza, which was the only model that came with a factory LSD option. The T-2 Torsen is a popular model that has been used on numerous vehicle applications, including the IS, LFA, Impreza WRX/STI, Genesis coupe, and Honda S2000 (AP2), and has been known by enthusiasts to be a more robust system that can take quite a beating. Torsen, which stands for torsion-sensing, uses gears that lock under load to provide more grip when exiting a corner, but acts like an open diff under trailing throttle so it does not induce understeer coming into the corner. Torsens are known to be quiet, feature smooth engagement, and are great OEM LSDs for vehicles that deliver less than 300 hp. Aftermarket-wise, a plethora of upgrades are available for both Torsen and clutch-type units by manufacturers like Cusco, Kaaz, OS Giken, and Quaife.

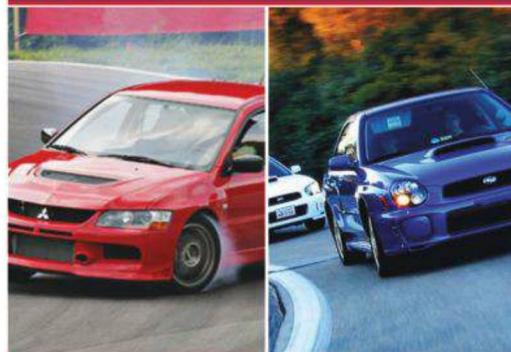


When asking Tada-san if he designed the FR-S/FT-86 more as a sports car or as a commuter vehicle, he quickly gleamed and replied, "Both". He added: "We designed the FR-S/86 as a track day car/daily commuter and realized that most of us want the convenience of hauling tires both to and from the track while being able to carry larger items like golf bags. The 2+2 seating configuration with folding rear seats enables the FR-S to fit four large wheels and tires with room to spare for a helmet and other trackside necessities." How much thought did Toyota put into designing the FR-S/86, you ask? Even the dashboard has been thoughtfully designed in such a way that a roll cage can be installed without having to modify it. How's that for motorsports dedication?



The streamline windows are a telling tale that this car is heavily influenced by the classic 2000GT.

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The Rays Progressiv forged wheels on the Greddy FR-S measure 19x8.5 +45 (front) and 19x9.5 +45 (rear). The front brakes were fitted with prototype four-piston Greddy calipers.



#### SUPERCHARGER RUMORS CONFIRMED!

HKS makes its triumphant return to D1 Grand Prix this year with an FT-86 they have dubbed the "HKS Racing Performer 86". With Nobuteru Taniguchi behind the wheel, HKS engineers have been hard at work, building a competitive drift car by the first D1 race on April 14. HKS Japan's motorsports specialist Ken Tanaka claims campaigning with the FT-86 will allow HKS to utilize the technology obtained from D1 for product development for their "Racing Performer 86" product line. HKS will be arming their FT-86 with an HKS supercharger kit designed specifically for the car. The "GT Supercharger" is a "torque reaction drive type" centrifugal supercharger. HKS's initial plans are to design the kit using a GTS7040 HKS supercharger, but will switch over to the larger-sized GTS8550 HKS supercharger if additional horsepower is required. While additional supercharger information and horsepower numbers remain confidential, Ken claims the 4U-GSE engine should receive a significant boost of power with plans to sell the kit to the general public by the end of this summer.



#### FR-S Tuner Market Upgrades?

It's no secret that the Toyota Scion FR-S is probably one of the tuner scene's most hotly anticipated cars in a long, long time. We've known for a while that Toyota Racing Development (TRD) along with aftermarket manufacturers, like HKS, Greddy, Top Secret, and Vertex to mention a few, have already begun developing aftermarket parts and body kits for the soon-to-be-released vehicle as witnessed at the most recent Tokyo Auto Salon. TRD Japan revealed plans to release an adjustable suspension kit (40-way adjustable dampers), full aero kit, forged (5x100-bolt pattern) 18-inch wheels package, and a big-brake kit with six pistons up front and four out back. We can't wait!

#### Scion/Greddy Drift Program

Prior to the debut at this year's Detroit Auto Show, the Scion was completely stripped, acid dipped, and prepped by Greddy engineers at their facility. Check out that beefy OEM fender brace.



#### TURBOCHARGED VERSION?

Die-hard enthusiasts have been following much iteration of the FT-86 prototypes and concept cars. Among them was a turbocharged prototype that existed more than two years ago. Toyota shocked the tuner community with the unveiling of the Gazoo G Sports concept car at the '10 Tokyo Auto Salon. Based upon the earlier-model FT-86 concept car, the G Sport offered visual sex appeal with its widebody aero kit, blistered fenders, vented carbon-fiber hood, and GT wing. Details of what was underhood were vague other than the most important being the turbocharged boxer 2.0L engine. Initial plans were to begin a gradual rollout in Japan in mid 2010, which never panned out as the project was put on hold to make room for the production version of the FT-86.

While the FR sports car has yet to debut, rumors have already begun to swirl regarding a turbo version of the FR-S/86. According to Japanese sources, Toyota has plans to turbocharge the FR-S/86 with a 1.6L turbocharged engine one year after the initial introduction of the models. While a turbocharged version is the hot ticket we had all been patiently awaiting to hear, this information should be taken with a grain of salt. If the engine is indeed a 1.6L platform, we assume it's being done more for fuel economy rather than increasing horsepower. The same source indicated that the same turbocharged engine rumored to be standard in the Subaru BRZ would also be used in the Toyota GT-86 and Scion FR-S. Regardless of what rumors were being spread, we know firsthand in talking with Tada-san that he wasn't a fan of turbocharging the FT FR-S/86. But never say never.

## OEM HID/LED HEADLIGHTS

Here's a comparison between the FR-S headlights to the left versus the FT-86 HID/LED set on the right. Swapping between the pair should be a simple plug-and-play affair.



## OEM EXHAUST SYSTEM

Here's another JDM swap that includes the FR-S factory exhaust on the left versus the FT-86 exhaust with the larger-sized tips shown on the right.



## OEM INTERIOR UPDATES

Inside the cabin, the black interior with red accent stitching on the seats matched the stitching on various parts, including the door panels. With variations between the FR-S and FT-86, we were informed that the car would be offered with a selection of different trim packages on the Japanese/European market—red steering wheel included.



## FT-86 PUSH-BUTTON START/HVAC CONTROL

The absence of a push-start button, electronic dual climate control, and HVAC system on the FR-S was alarming, but we knew it was a necessity to keep cost production down in the U.S. vehicle. Regardless of how cool it might look, the important thing was that both vehicles remain the same in terms of performance.



## FT-86 REARVIEW MIRROR

Last but not least is the world's first (in a production car) frame-less rearview mirror offered only in the FT-86. Regulatory issues restrict such items from being used on production vehicles here in the States, but nothing is said about purchasing a set overseas and swapping out your original. Just don't get caught! Scion has recently decided to move up the on-sale date in the United States to spring with a sticker price of approx \$25 to \$30K.



## ONE FOR THE MONEY



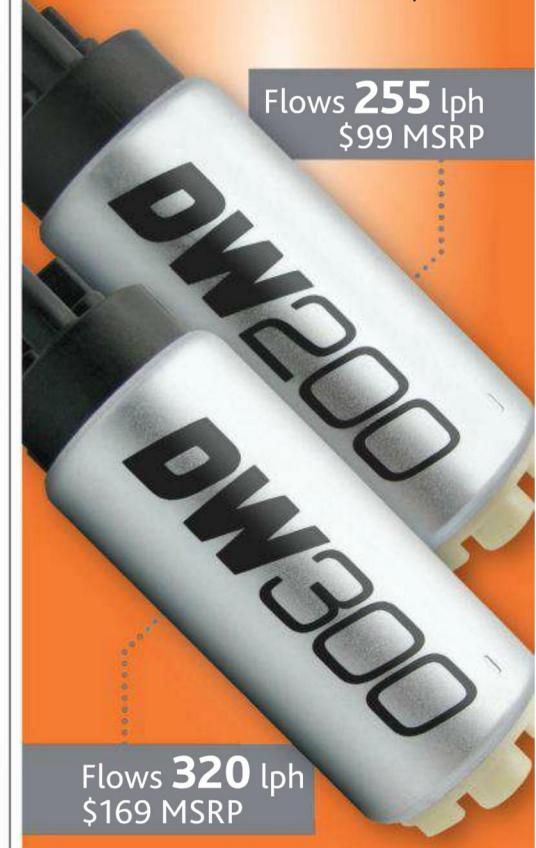
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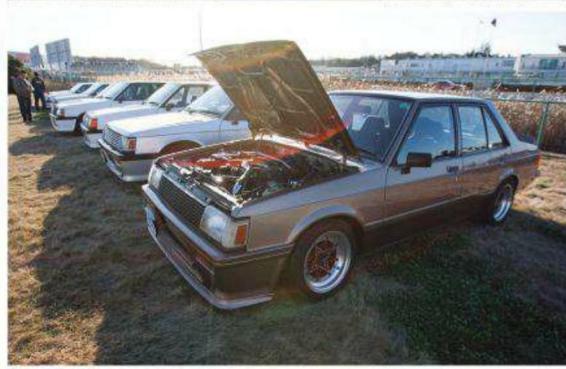
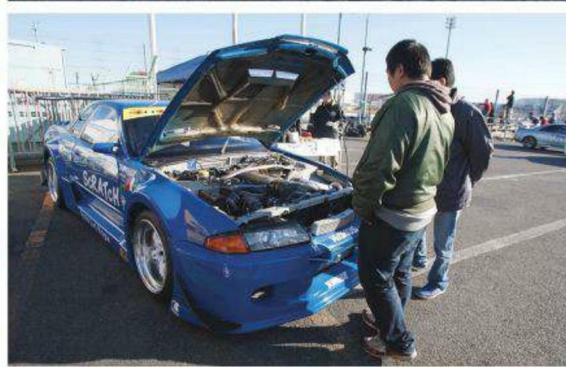
# AE86 MATSURI

THE ANNUAL HACHIROKU  
MEET IN JAPAN



As the sun began to rise over the Tsukuba Circuit, cars were already in queue in the parking lot for the AE86 Festival kickoff event.

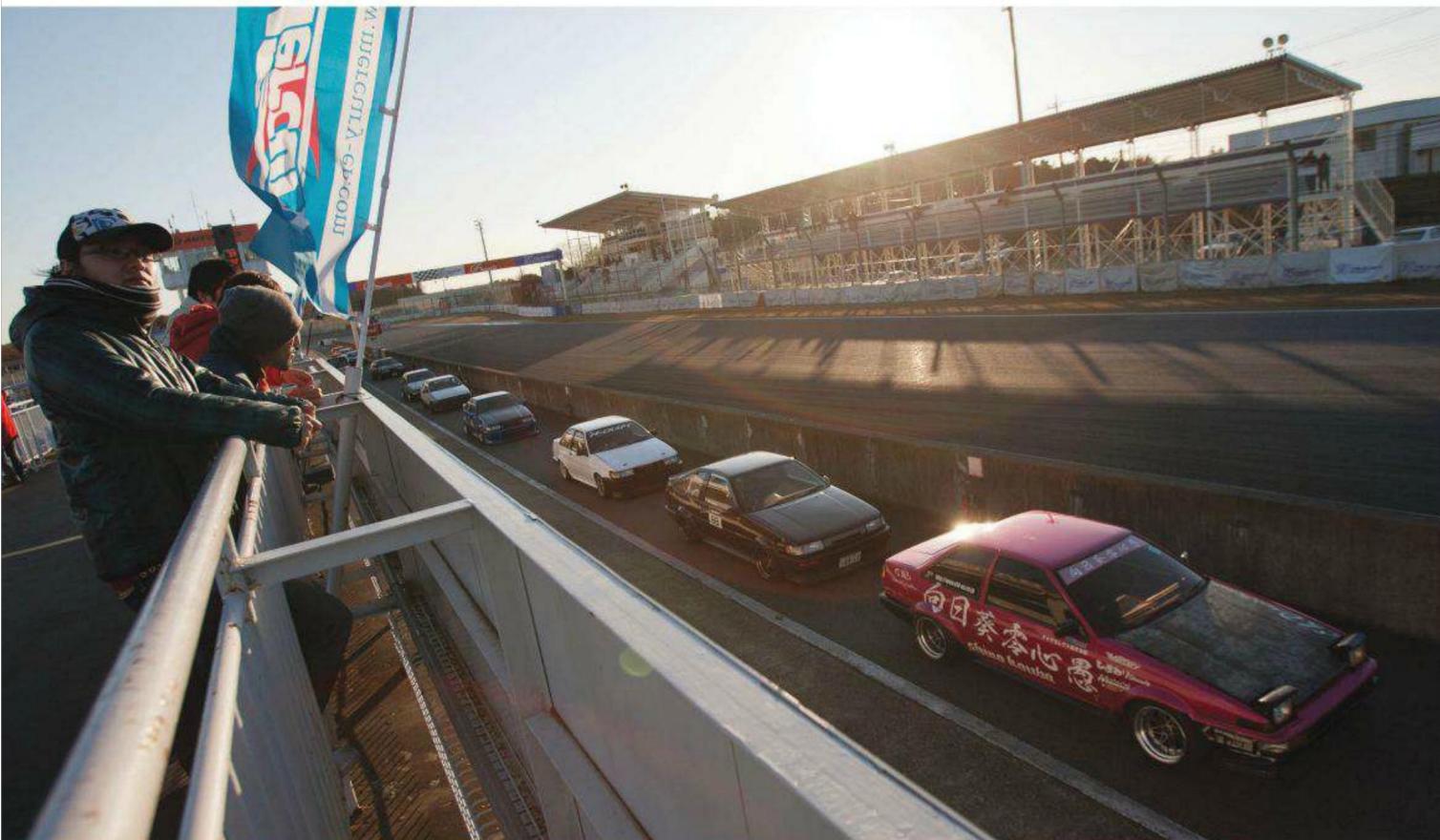
It was a cold, cloudless morning, and the pit area started to fill up. Car owners caught up with their friends and club members, while others mingled about looking at some of the cars on the track. The event is billed for AE86 owners, but it's open to anyone. People come from all over Japan to attend. One hard-core AE86 owner even drove all the way down from Hokkaido (the most northern region of Japan)! The cars at this festival are also not strictly limited to just AE86s; Nissan Skylines and a beefy black NSX were also spotted. It doesn't



## AE86 MATSURI

seem like anyone complains about it either. At the track, drivers of all skill levels were divided into groups based on the type of car they brought. Then, they were allowed to punch it full throttle down Tsukuba's legendary time-attack course.

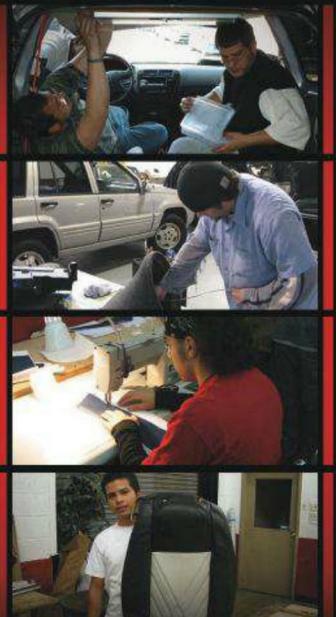
The crowd is what one would expect—very friendly and fun. Ages ranged from the early 20s to the late 50s. The event appeals to a diverse group of people of all ages and interests, with classic cars rivaled by the newer Skylines present. It was a good mix, and everyone enjoyed the camaraderie among all of the enthusiasts. ■



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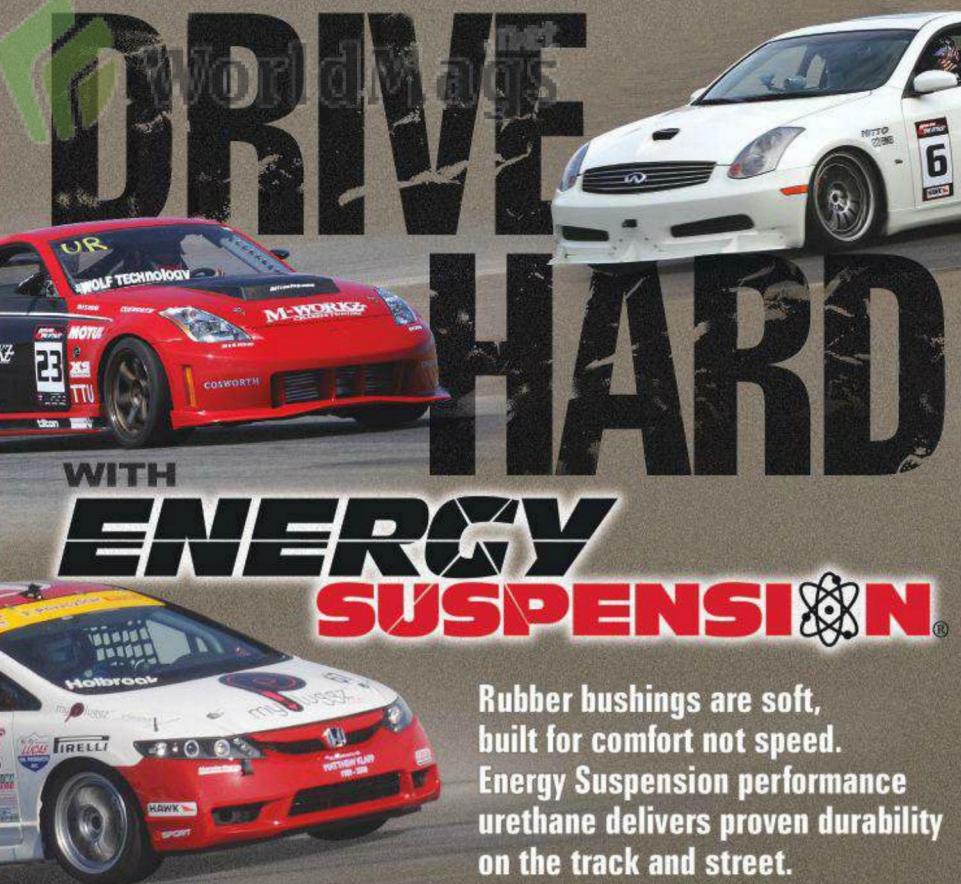
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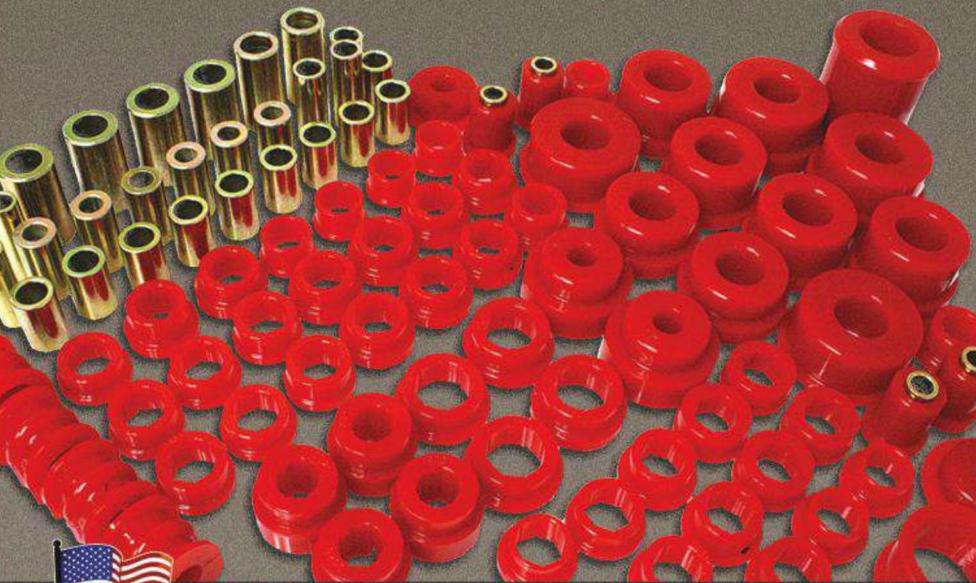
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# TSUKUBA TIME-ATTACK

TEXT AND PHOTOS BY ALEXI SMITH OF NORIYARO.COM

As dawn broke over the Tsukuba Circuit, the light dusting of snow that greeted teams as they began to set up for the 2011 Rev Speed magazine's Tsukuba Super Battle didn't fill them with a lot of confidence in seeing too many records fall. Despite the miserable start to the morning, entries were still quite strong with all 71 listed entrants showing up and setting up their pits. The largest group of cars (43 entries) was entered in the Street Class, which requires submission to an emissions check, current inspection papers, and the installation of

street-legal radial tires. As the first sessions began, it was clear that the track was going to remain wet for the first half of the day, so drivers were encouraged to head out in an attempt to dry up the racing line as soon as possible. All but three entrants in the Open Class passed on the first session, but former D1 Street Legal champion drifter Naoki Nakamura was out sliding around and enjoying the open track in his competition S15 Silvia, albeit with some minor changes to the suspension alignment and tire pressure settings.





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**A toolbox on your wrist.** It will keep you on schedule, but the *Colossus Hybrid* is about much more than time. The imposing case features a rotating gunmetal bezel that frames the silver, black and yellow face. You'll find a battalion of digital displays on the dial arranged behind a pair of luminescent hands and a bold yellow second hand. Powered by a precise

quartz movement, the watch is doubly accurate in analog and digital mode. And it's packed with plenty of handy extras including a bright green EL back-light for enhanced nighttime visibility, a tachymeter along the outer dial and a full complement of alarms and split-second countdown timers. The *Colossus Hybrid* secures with a folded steel bracelet that highlights a row of striking dark center links. It's a rugged watch that's more than ready for your daily grind.

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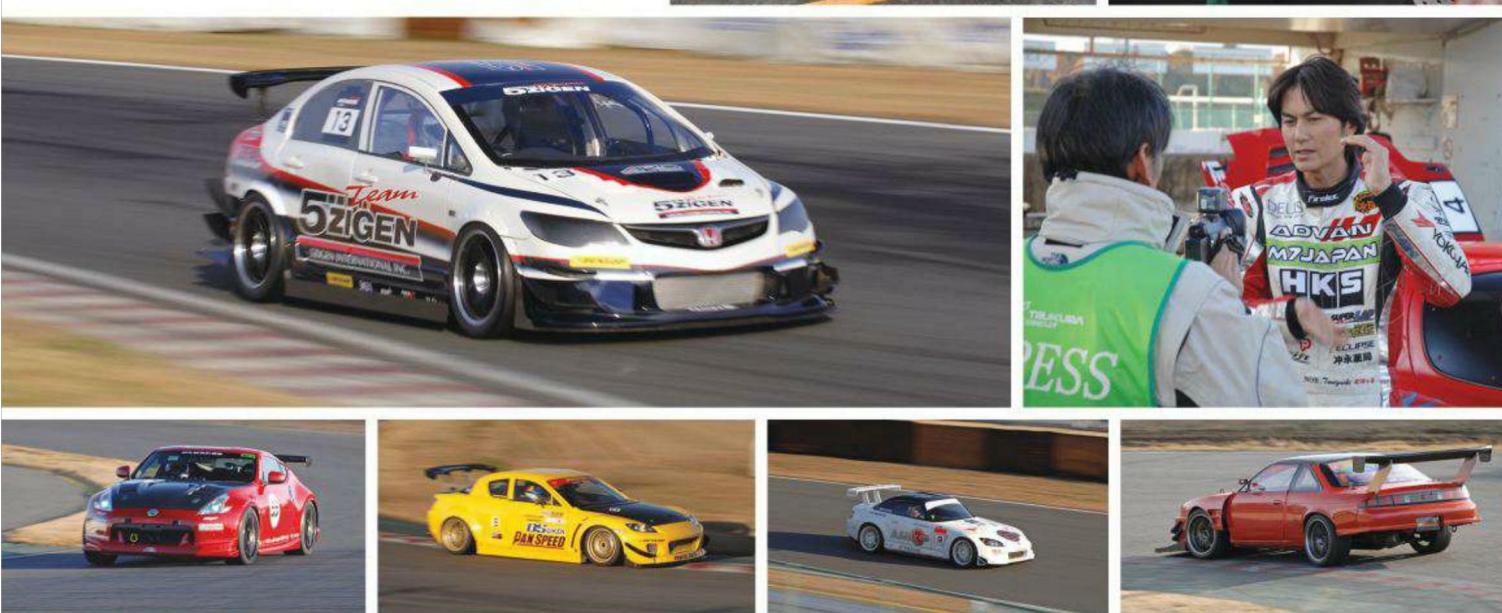
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With track conditions still cold and temperatures hovering 42 degrees, many of the teams made frequent pit stops during the sessions and spend precious time adjusting tire pressures. Ingenious teams like Reverse kept their tires in a small plastic tent warmed by a kerosene jet heater. It seemed to work. Even though they had only just swapped from 265 series to the much larger and untested 285-series Yokohama A050 tires, they managed to drop their time from just barely over the 1-minute bragging-rights barrier to 59.382.

Even though no major records were broken this time around, and Pan Speed and Revolution weren't able to better their already blistering times, Autech Tsukada's R35 managed to reset the Street Class radial tires course record to 58.655. The most unusual performers of the day had to be the tuning shop Outer Plus TiR, which not only had the fastest time in the first wet session—amazingly renamed the “Wet Battle”—with their “Street Slick Tyre” class Lotus Exige S, they also had two cars in the small “EV” class. It was so small, in fact, that they consisted both of the entries, a Tesla Roadster that lapped at a respectable 1'06.934 and a Nissan Leaf that pulled an understandable 1'14.652.

A few Super Battle regulars were unfortunately absent from this year's competition, such as the Esprit NSX, R-Magic RX-7, and the crowd-favorite “Under”—Suzuki's Scorch Racing S15 Silvia that is preparing for another trip to the World Time Attack Challenge in Australia this year. Despite this, and even though Revolution will have to try once again to beat the HKS CT230R's unbeaten 53.589 time, the 2011 Tsukuba Super Battle was a well-fought event filled with the smell of burning brake pads and the sound of scraping carbon fiber. ■

TEAM	CAR	TIME
Revolution	Mazda FD3S RX-7	54.731 at 220.3km/h
Pan Speed	Mazda FD3S RX-7	56.197 at 210.2km/h
Garage Yawata	Nissan R32 Skyline GT-R	57.629 at 225.5km/h
RE Wing	Mazda FD3S RX-7	57.651 at 207.8km/h
Advance Auto	Chevrolet Z06 Corvette	57.887 at 214.5km/h
Fujita Engineering	Mazda FD3S RX-7	58.051 at 197.4km/h
Outer Plus TiR	Lotus Exige S	58.168 at 200.4km/h
5Zigen	Honda FD2 Civic Type-R	58.249 at 206.9km/h
Autech Tsukada	Nissan R35 GT-R	58.655 at 215.3km/h
Shadow Sports Design	Porsche 993 GT2 RS	59.185 at 216.6km/h
Pan Speed	Mazda FD3S RX-7	59.219 at 194.5km/h
Reverse	Nissan R32 Skyline GT-R	59.382 at 216.3km/h
Ajio Create	Subaru GRB Impreza WRX	59.532 at 192.6km/h
Pan Speed	Mazda SE3P RX-8	59.741 at 198.2km/h
Arvou	Honda AP1 S2000	59.931 at 178.3km/h



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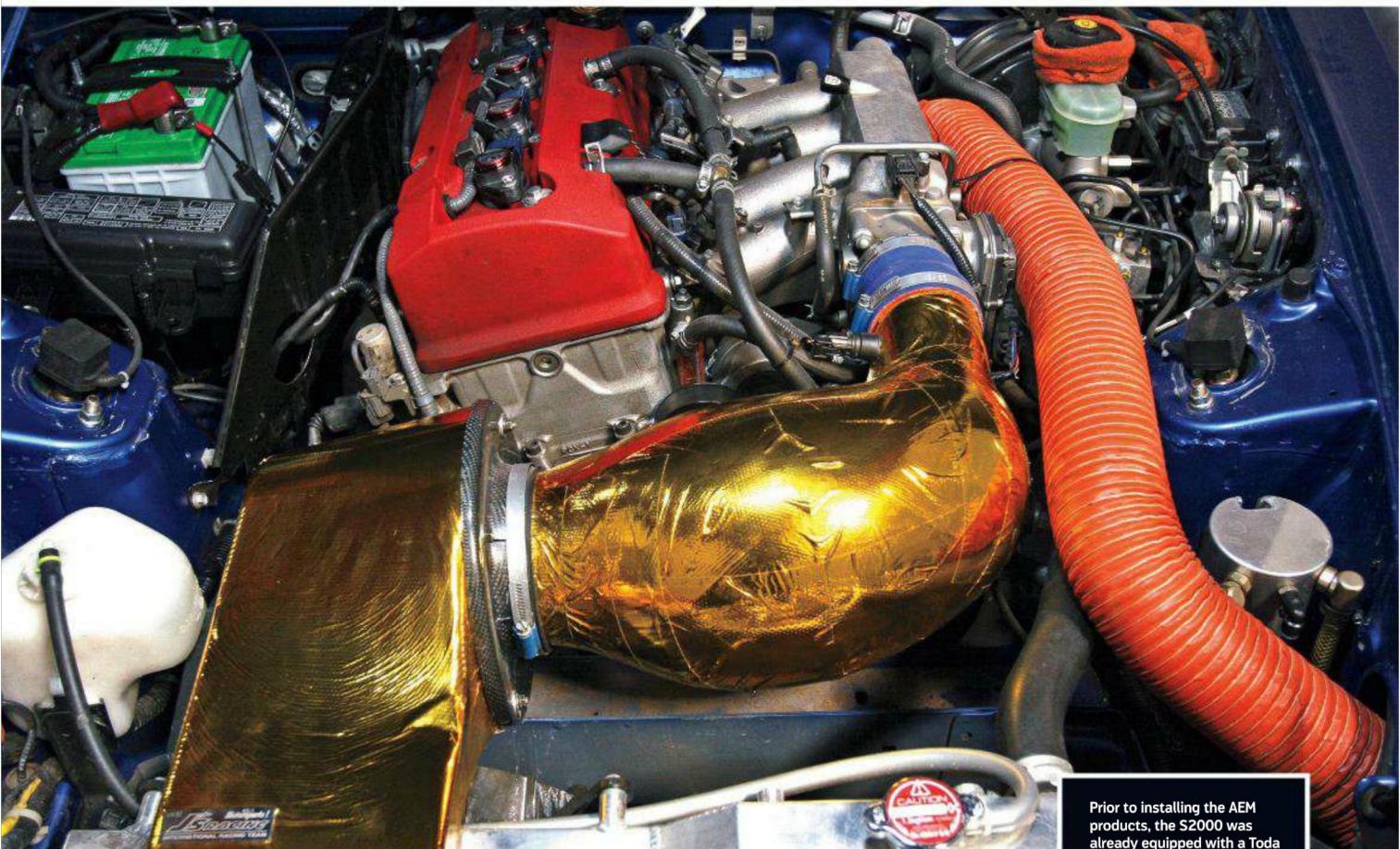
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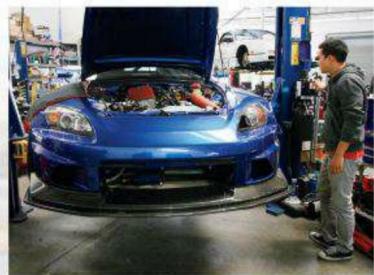
AEM'S 4-CHANNEL WIDEBAND UEGO AND SERIES 2 EMS

Over the past few years, we've been doing lots of testing of balancing air/fuel ratios, detonation limits, and exhaust temps and found serious horsepower gains to be made with individual cylinder tuning. When tuning an engine, having the proper amount of combustible fuel to the amount of air (air/fuel ratio) to sustain the burn is critical. Running rich can cause a loss in power, while running too lean may result in serious engine damage.

In testing, we acquired AEM's newest 4-Channel Wideband UEGO Controller that allows users to monitor the air/fuel ratio (AFR) of up to four individual cylinders simultaneously, along with an AEM Programmable "Series 2" Engine Management System to test and tune on our test subject, the Evasive Motorsports S2000.

Monitoring individual air/fuel ratio measurements doesn't just help tuning fuel per cylinder, it can also lead to improvements in your intake/exhaust system design to run more efficiently and with greater horsepower potential. This was the case in many engines, including the S2000 F20/F22C engine.

With our AEM products along with some proficient tuning, we were confident we would be able to extract additional horsepower out of an engine that's built a reputation of offering marginal power gains when gifted with additional bolt-on performance parts.



Although the S2000 might not have the big horsepower numbers that we'd like to see (if even just for bragging rights), this Honda has built a reputation in the S2000 community as well as the time-attack circuit. The S2000 prior to our testing currently holds the record in the Street RWD class with an official 2010 SLB lap time of 1:56.7 at Button Willow Raceway.



## AEM 4-CHANNEL WIDEBAND UEGO

Typically, differences in air/fuel ratio between cylinders vary depending on throttle loads/engine speeds. AEM's 4-Channel Wideband UEGO Controller allows users to monitor the air/fuel ratio (AFR) of up to four individual cylinders simultaneously (or up to 12 cylinders if multiple units are paired together). The 4-Channel Wideband UEGO controller is ideal for anyone using an engine management system or data logger to monitor individual cylinder AFR in an effort to maximize engine power where individual cylinder trims are needed. The 4-Channel UEGO amp quickly and easily allows for four lambda sensors to be installed in a motor, and allows information to be transmitted via analog inputs or CAN to your ECU or data logger. The kit has both 0-5V and CAN outputs for integration with any engine management or data system, and features optional exhaust backpressure compensation. The unit features a shock and weatherproof housing, allowing it to be mounted virtually anywhere in the vehicle without worry.



To begin modifications, we properly secured our Toda header to the workbench before taking proper measurements to begin drilling holes for the bungs.



When mounting the sensor bungs, the sensor tip must be exposed to exhaust gas in order to give accurate AFR readings and be mounted at an angle of at least 10 degrees from horizontal in order to prevent liquids from collecting in the sensor housing. AEM also offers an optional EBP (exhaust backpressure) kit (PN 30-2064) that must be used if you have bought the AEM 4-Channel Wideband UEGO and plan to install it between the engine and the turbo. You will need to use this pressure sensor to get an accurate air/fuel reading. As pressure changes at the sensor, the air/fuel readings will change resulting in an incorrect tune.



For thin-wall header tubing, drill a  $15/16$ -inch hole and weld in the bung. For thick-wall tubing/castings, drill a  $1\frac{1}{16}$ -inch hole and weld in the bung.



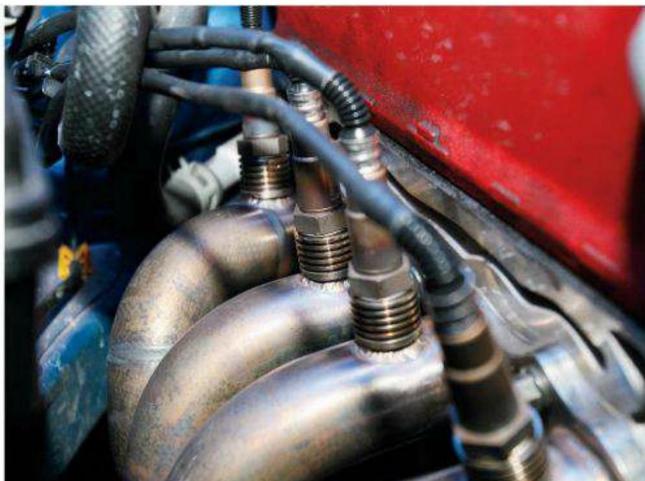
Be sure to use a metal file to clean up any sharp edges or burrs on both the outside and inside of the tubing before you begin welding.



AEM's specially designed heat-dissipating sensor bungs are TIG welded into each primary.



Here's a mock-up of the bungs tack welded in place before finalizing the welds.



On an N/A-powered Honda like our S2000, both cylinders two and three have been monitored to run a bit lean and require a slight amount more fuel. Using an invaluable tuning device like the AEM 4-Channel UEGO allows to properly address any tuning issues.



## AEM WIDEBAND UEGO GAUGE

The wideband UEGO sensor controller accurately monitors air/fuel ratios (AFR) during the tuning process to prevent a lean fuel mixture, which could lead to engine damage. AEM has combined its single-channel wideband UEGO controller and gauge display into one unit, offering AFR accuracy and control with an easy-to-read interface.



AEM's Wideband UEGO Controller features a digital LED display and sweeping LED "needle" that changes colors as AFR changes from rich to lean. The UEGO gauge proved beneficial when tuning the S2000 and was requested by our tuner to help properly monitor the engine's AFR while making full throttle passes on the dyno.



## OKADA PROJECT PLASMA DIRECT COIL PACKS

Okada Project Plasma Direct coil packs use a high-power amplifier built into the unit to increase spark current by two times that of the original equipment. The Okada Project coil packs replaced our factory ignition coil system to increase ignition output and supply greater combustion efficiency—two important features we deemed necessary as we attempt to squeeze every last bit of power out of our 2.2L engine.



# AEM PROGRAMMABLE "SERIES 2" ENGINE MANAGEMENT SYSTEM

The AEM EMS has come a long way since its first debut in the tuner market.

The "Series 2" engine management system for the '06-08 AP2 S2000, which uses a drive-by-wire system, is a complete engine control system that plugs into the factory harness and uses the factory sensors. This means you do not need to replace any part of the harness or sensors, just plug the EMS into the harness and begin tuning. The Series 2 EMS is fully programmable as it allows you to control every aspect of your 2.2L engine including selectable direct drive or 0-5V coil output for custom applications. From VTEC to rev limit, timing, ignition control, injector size compensation, boost control, built-in/real-time data logging capability, nitrous injection, even anti-lag and individual cylinder fuel and timing—which was the main focus for our test.



AEMdata is a custom data analysis software package with advanced 3-D graphics and a user-friendly interface. The software is integrated in a number of AEM products including the EMS Series 2. AEMdata allows the user to review data, playback data, and overlay data using charts, dash displays, gauges, or custom displays that you create. High-speed logging is saved to a file internally or via PC connection. AEMdata logs each channel and allows you to overlay the data on a track map to know exactly what your car was doing.



Features include custom math channels, X/Y plots and histograms, stage or circuit modes, and more, all aimed at making sure you get the most out of your data.

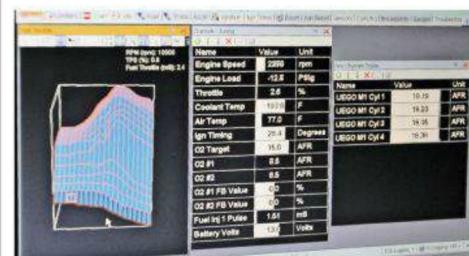
AEMdata features a functional workspace that allows information to be quickly accessed. It is designed to be customizable by the user with either a layout interface or gauge-style setup.

Vehicles equipped with a Vehicle Speed Sensor (VSS) and accelerometer can log data to create track maps and overlay their information from previous runs to monitor performance.

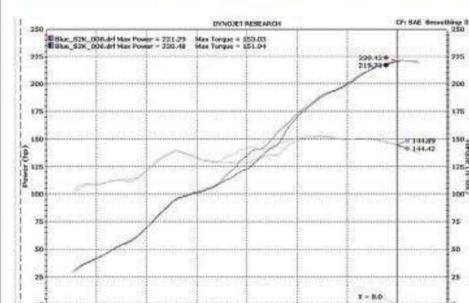


MP Tuning offers a custom extended wire harness for the S2000 AEM EMS to make installation a simple plug-and-play process.

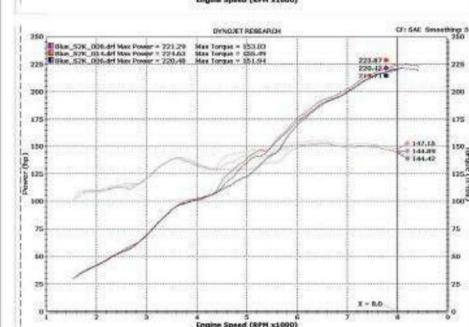
Mitch Pederson of MP Tuning, a former AEM engineer, who was part of a team responsible for developing the EMS fuel management system, made the necessary modifications to our AEM unit and played a key part in tuning our S2000.



This screenshot shows the UEGO system monitoring air/fuel ratios for each cylinder. This allows Pederson to carefully calibrate the cylinders individually for optimal performance.



With a baseline of 220.4 and 151.9 lb ft of torque, Pederson altered timing, fuel, and ignition, using the provided AEM basemap to reveal consistent gains of 5 hp and 4 lb·ft of torque from 6,000 rpm to redline. The vehicle's redline was also increased from 8,000 to 8,500 rpm over factory.



We spent extra time tuning within the midrange powerband, focusing on improving the VTEC transition from the low to high cam phase. Dyno charts revealed a noticeable increase in midrange power and torque, with additional tuning. The S2000 recorded the largest gain at 4,950 rpm with gains of 17 hp and 16 lb·ft of torque over baseline.

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01

## WILWOOD PRO SERIES BRAKE KIT

Wilwood Engineering introduces a front disc brake kit for the '95-05 Mazda Miata sports car that features the latest in disc brake technology for improved performance. The kit features forged billet Dynalite calipers that can be ordered in Platinum-E or red powdercoating and the buyer's choice of standard, or drilled and slotted rotors. The complete kit comes with calipers, aluminum rotor adapters, rotors, caliper brackets, BP-10 brake pads, and all of the hardware required to finish the installation.

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## SSR PROFESSOR MS3/MS3R

02

The Professor MS3/MS3R is the newest addition to the SSR wheel lineup to be released in spring 2012. The wheels consist of a three-piece construction and are offered in widths from 7 to 13.5 inches (stepped lip), and 5.5 to 12 inches (reverse lip). The wheels are also available in a large offset range. The newest Professor wheels utilize HTM (Heat Treatment Manufacture) technology during the manufacturing process, which heat-treat the wheels to increase their strength, resulting in a wheel that is lighter and stronger—ideal for race cars and street cars.

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03

## TURBOSMART VEE-PORT PRO

Redesigned from the ground up, the new Vee-Port Pro is 20 percent smaller and 33 percent lighter than its predecessor, making it ideal for custom installs in tight spots and for those seeking a weight advantage. The BOV features unique high-flow ports and a new piston design to provide quicker response and better sealing capabilities. Additional features include a V-band clamp for mechanical fastening to the weld flange, optimized spring for greater adjustability, and a 360-degree swivel vacuum fitting. The unit is available in either blue or black caps.

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04



## PIONEER APPRADIO 2

Pioneer continues to bring you the latest in-car technology with its AppRadio 2, the next generation smartphone-powered audio system that can be used with an iPhone and now an Android. The unit is compatible with many of the latest Android smartphones equipped with either the Mobile High Definition Link (MHL) or a micro HDMI connection. The AppRadio 2 features a large 7-inch capacitive touch screen, enabling control of supported functions using similar touch-and-motion gestures of the connected smartphone device, built-in Bluetooth for hands-free calling, an input for an optional vehicle-mounted rear-facing backup camera, an input for interfacing with the vehicle's steering wheel controls, and two sets of pre-amp outputs for connection to external amplifiers.

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05



06

## SATECHI SOUNDFLY VIEW

Satechi announces the availability of the Soundfly View Bluetooth FM transmitter for hands-free calling and wirelessly streaming music. The Soundfly View features an informative but non-obtrusive LCD screen, which simply plugs into your car's 5V port to display caller and music information from any compatible Bluetooth-enabled phone via car stereo. The Soundfly View has a Voice Dial feature, which allows for hands-free calling and can activate Siri on the iPhone 4S. Additional features include an SD card slot for music storage, built-in microphone, and 3.5mm audio input and output jacks compatible with most mobile devices. The device also includes a fully functional remote and integrated controls to answer/end calls, adjust volume, change frequency, play/pause, fast-forward and rewind, shuffle/repeat or bookmark favorite songs.

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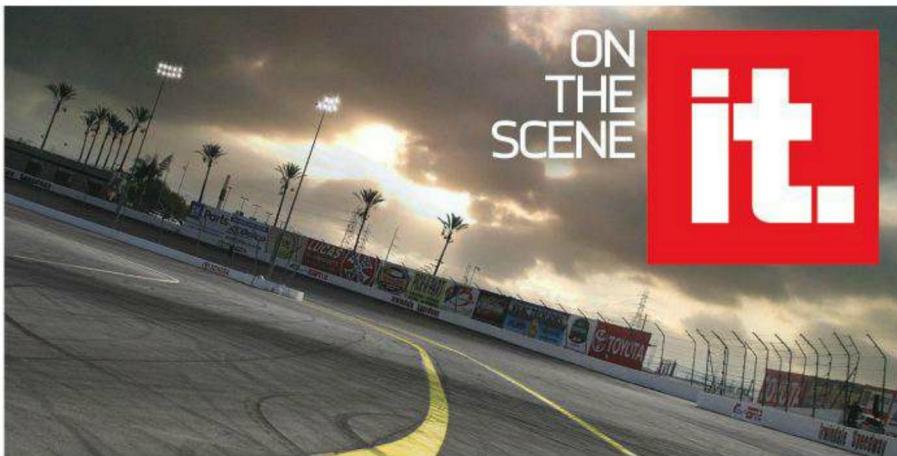
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## AD INDEX

Adam And Eve	85
Andys Autosport Integrated Str	30-31
Asset Marketing Services Inc	75
Automotive Racing Products	85
Autotech Access Sys Tenzo	49
Competition Cams Inc	77
Continental Tire The Americas LLC	C4
Deatsch Werks	69
Design Engineering	77
Discount Tire Corp.	10, 11
EBC Brakes USA Inc	5
Energy Suspension	73
Formula Drift Holdings LLC	37
Go Pro	C3
Harbor Freight Tools	57
Hondata.com	85
K&N Engineering	59, 65
Mobile Technical Training	73
Motovicity Distribution	53, 77
Quarter Master	67
Raceland USA	15
Scion	C2-3
Seibon International	13
Spec Inc	59
Steve Millen Sportparts Inc	43
Thermo Tec	84
TSW Alloy Wheels	20-21
Universal Technical Institute	9
Wilwood Engineering	17
Zex Innovations	7
Zerolift Autolab LLC	73

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# 2004 ACURA TSX PART 1

## BASELINE

### PROS

The K24A2 engine features intelligent variable timing (i-VTEC) used on both the intake and exhaust cams and is factory rated at 205 hp and 164 lb-ft of torque. Its 2.4L engine is a long stroke version of the highly refined 2.0L engine found in the Acura RSX-S. With the TSX used car market being more affordable and increasingly popular among the import tuner market, we seized the opportunity to power page test three products with the goal of creating additional horsepower.

### CONS

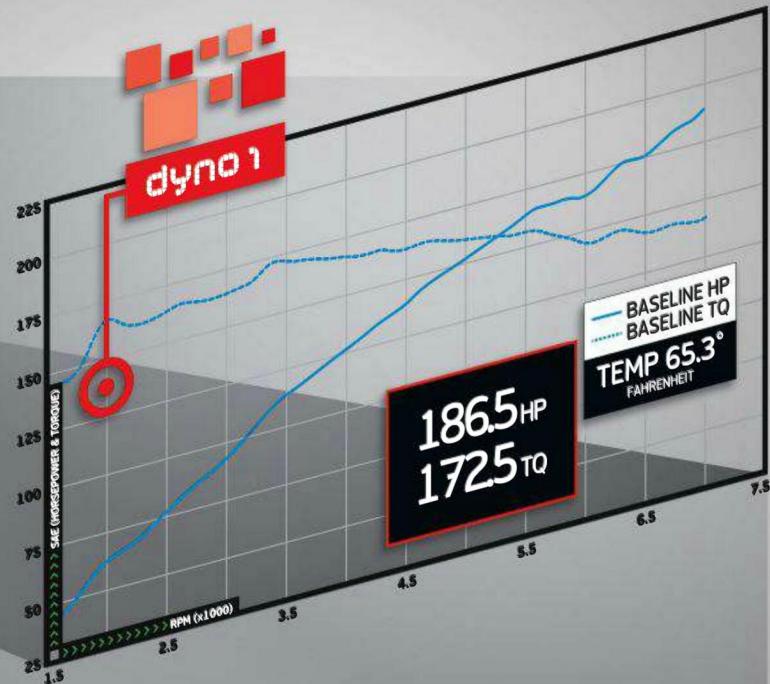
Initial dyno testing revealed the factory ECU tuning on the 2.4L engine was obviously tuned by Honda/Acura for those commuters only using their cars to and from work. The graphs



DYNAMOMETER MODEL:  
DYNAPACK 4000

TESTING FACILITY:  
CHURCH AUTOMOTIVE TUNING

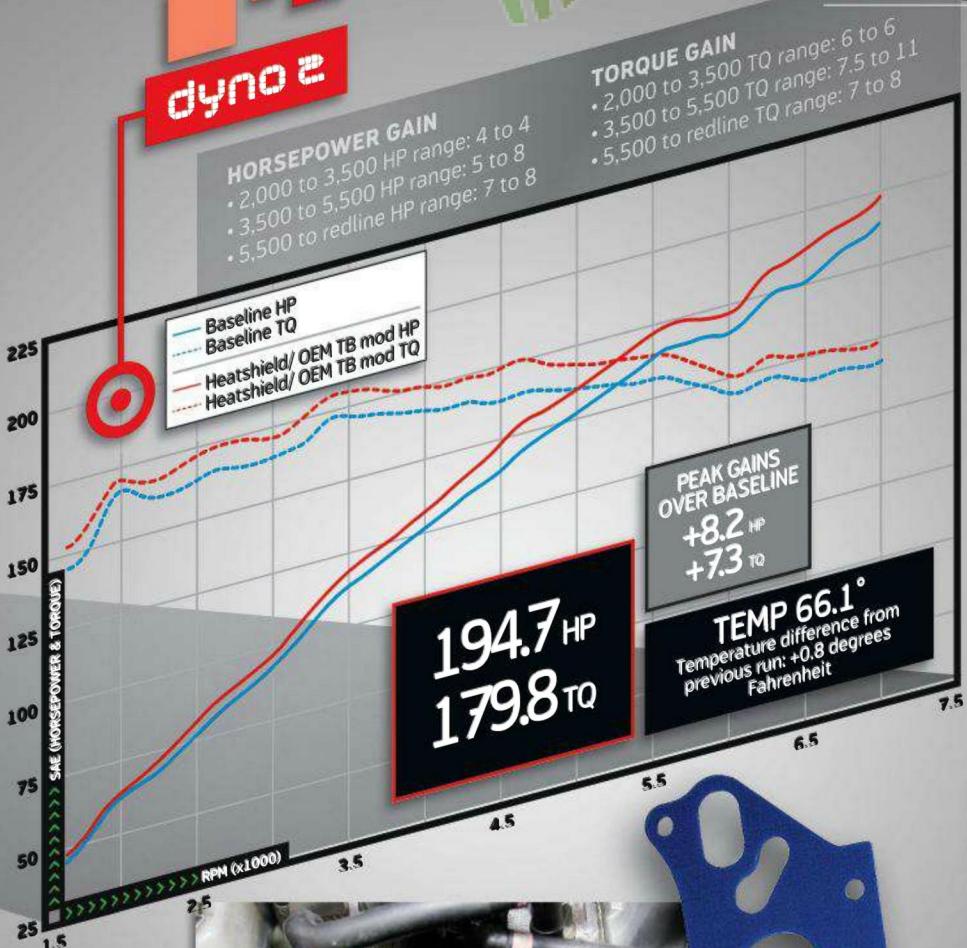
TEXT BY SCOTT TSUNEISHI  
PHOTOS BY SCOTT TSUNEISHI AND  
MANUFACTURERS



showed a significant drop off in power as torque figures were adversely affected before the low-to-high-cam transition of VTEC. A gradual decline of more than 27 lb-ft of torque from 172 to 145 lb-ft was recorded before the VTEC secondary lobes were finally engaged, at 6,000 rpm as it ever so slightly increased once again.

### NOTES

Prior to our baseline run, the TSX was given an oil change, spark plug check/replacement, and OEM intake filter replacement before strapping onto the dyno. In stock trim, the TSX delivered 186.5 hp and 172.5 lb-ft of torque.



# HONDATA HEATSHIELD AND OEM THROTTLE-BODY MOD

## PARTS

Heatshield gasket

## TOOLS

10, 12, and 14mm socket; 10, 12, and 14mm open-end ratchet; extension; screwdriver; pliers; and magnetic pickup (for the nuts and bolts you will drop)

## INSTALLATION TIME

60 minutes

## PROS

For \$50 the Hondata Heatshield intake manifold gasket is considered the best bang for the buck in terms of horsepower. The Hondata unit is made of a special high-temperature-insulating gasket, which replaces the stock intake manifold gasket. This gasket has been proven beneficial on the TSX and its K24A2 engine as the factory intake manifold was designed with long narrow runners that are prone to experience internal heat soaking, ultimately affecting the incoming air. Keep in mind that for every 3.3 degrees C (5 degrees F) rise in intake temperature, air density drops 1 percent. The hotter the air, the less fuel the computer injects to compensate for reduced oxygen, which translates to less power. We combined the Hondata Heatshield with bypassing the coolant lines on the OEM throttle body. The TB modification is a simple DIY trick that ended up costing us nothing in the end, but was a major help in keeping intake temps cooler for additional horsepower.

## CONS

Installation involves the long process of removing the intake manifold, installing the gasket and replacing the intake manifold. Be sure your engine is completely cool before attempting to remove/install the gasket, which also applies with the TB coolant bypass mod to prevent any coolant burns.

## NOTES

The Hondata Heatshield and TB mod delivered 8.2 peak and 7.3 lb-ft of torque over the previous run with both horsepower and torque gains throughout the entire powerband. The largest gains were recorded in the low to midrange level from 2,100 rpm to 5,500 rpm with the largest recorded gains taking place at 4,300 rpm with 12.5 hp and 7 lb-ft of torque.

# HONDATA FLASHPRO

## PARTS

Hondata unit/ECU, USC cables, stickers, instructions, and CD-ROM

## TOOLS

Laptop and tuning experience

## INSTALLATION TIME

140 minutes

## PROS

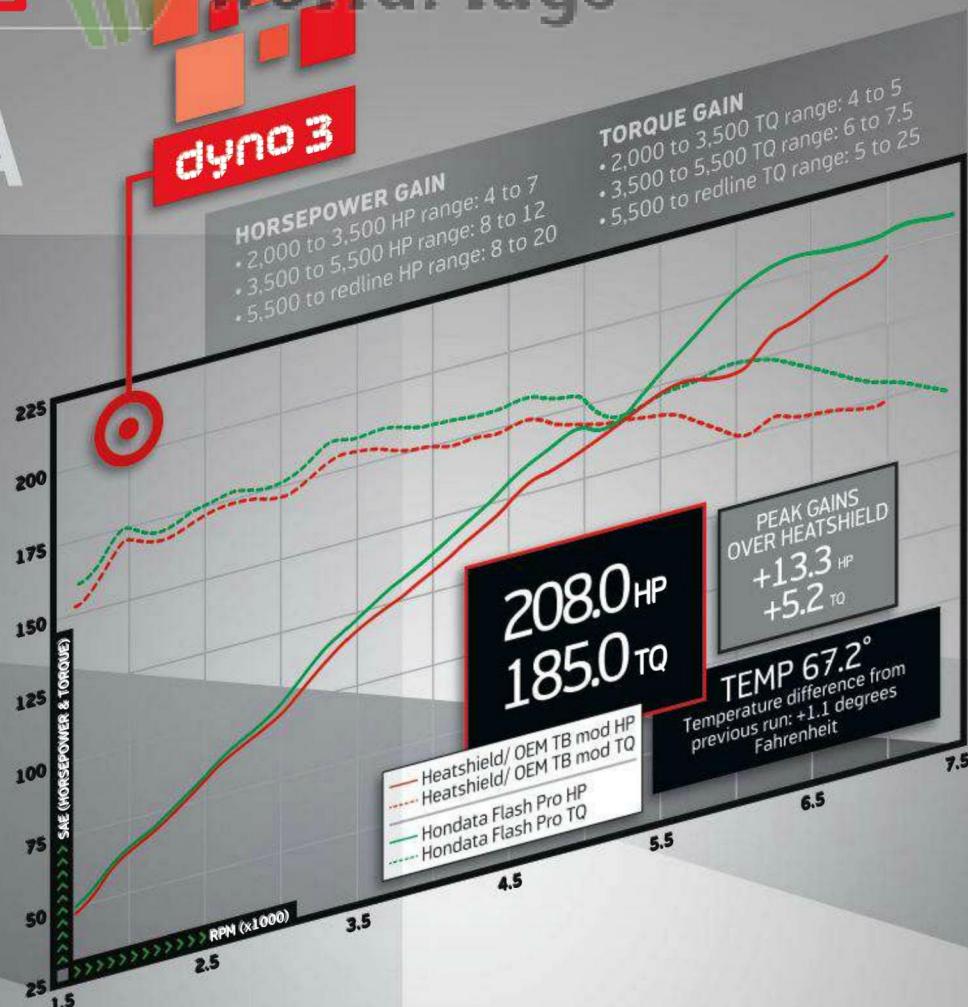
Hondata's FlashPro for the '04-'08 TSX is the latest addition to its highly successful FlashPro line, offering comprehensive tuning solutions to the late-model Honda market. The Hondata FlashPro enables the user to quickly and accurately tune the TSX engine computer parameters through the OBD-II diagnostic port for maximum performance and economy without having to use a dual harness or ECU while allowing you to retain both VSA and cruise control. Using the FlashPro manager software enables multiple features including 20 hours of onboard data logging capability, support for larger injectors, race vehicle sensor disabling, individual cylinder knock data logging, fuel trim and ignition trim tuning, along with a bevy of additional parameters.

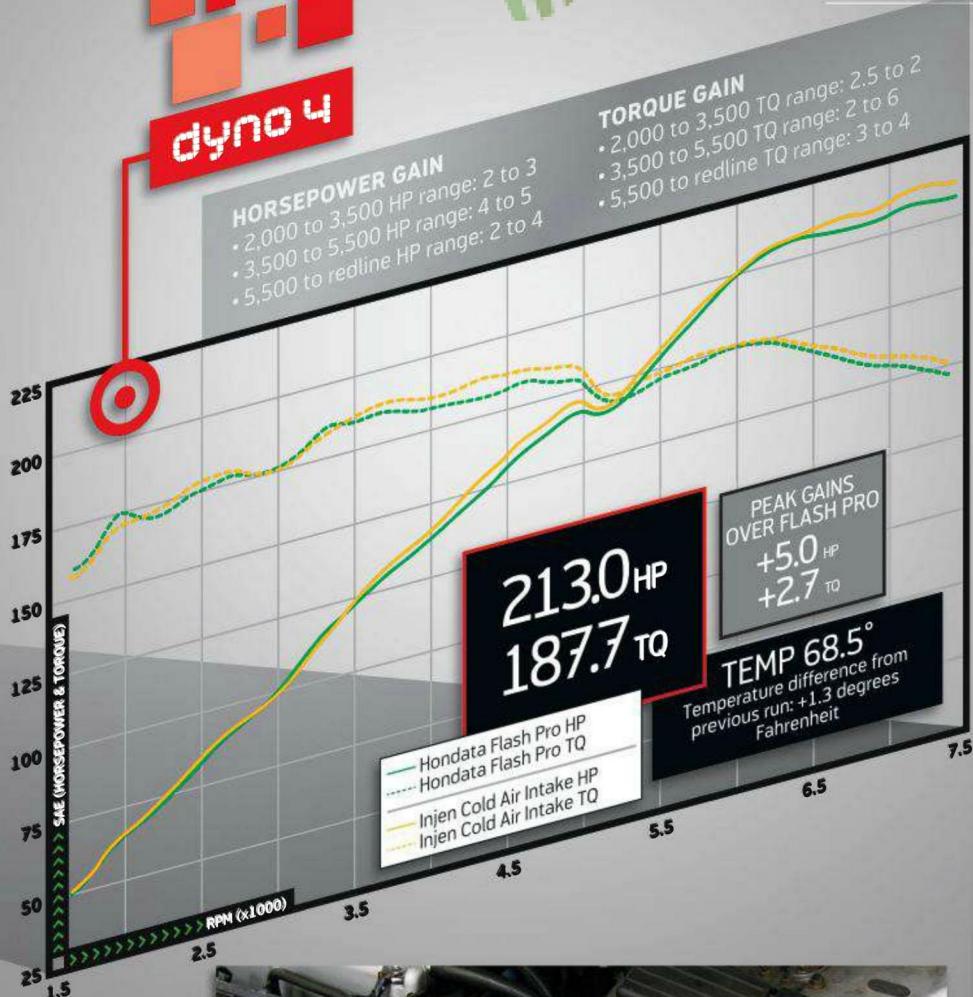
## CONS

The '04-'06 Acura TSX will need to be retrofitted with a '07-'08 Acura TSX ECU, which Honda retails for \$610 U.S. and a Hondata-supplied adapter cable for \$50 in order to properly tune with a FlashPro. Although this step is a bit more expensive, it is vital for optimizing the ECU for your modifications.

## NOTES

The FlashPro allowed us to lower VTEC engagement to 4,900 rpm, while increasing the rev limit to 7,600 rpm. The most coveted reason to purchase and tune with the FlashPro is the ability to adjust the variable timing control (VTC), which is located on the end of the intake camshaft for additional horsepower. The factory ECU limits the maximum cam angle to 20 degrees of cam movement. This is fine for a stock TSX engine, but completely inadequate for modified engine, which needs no less than 25 degrees on the high cam. FlashPro allows you to tune up to 25 degrees with the stock cam wheel and up to 50 degrees with a modified/replacement VTC cam pulley to take full advantage of larger profile camshafts, race headers, and aftermarket exhaust systems. Dyno testing following tuning the FlashPro revealed an increase in power and torque throughout the powerband, with a healthy gain in the midrange and top end from 3,500 rpm to redline.





## INJEN SP SERIES COLD AIR INTAKE

### PARTS

Performance filter, two-piece intake tube, brackets, washers, grommets, nuts and bolts, silicone hose, hose clamps, instructions, stickers, and stud rubber mount.

### TOOLS

10 and 12mm socket, 10 and 12mm open end, ratchet, extension, screwdriver, and pliers

### INSTALLATION TIME

40 minutes

### PROS

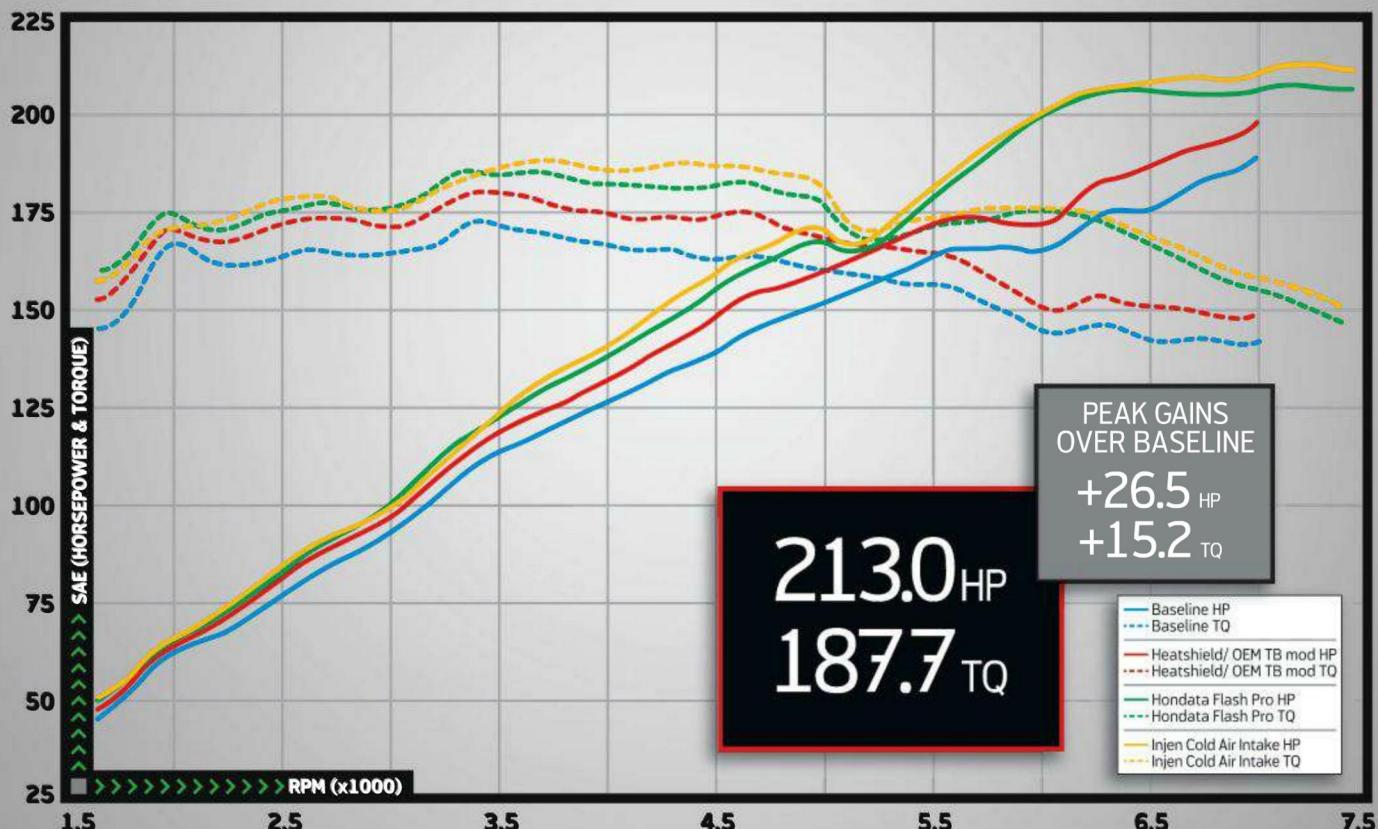
The Injen SP Series cold air intake system is built from 6061, T6 aluminum alloy and comes in your choice of polished aluminum or black finish. The Injen intake features TIG-welded aluminum vacuum ports and brackets, stainless steel clamps, and Injen's Purosil silicone hose. The cold air intake also includes a rubber vibra-mount used to relieve stress on the intake pipe from driving vibration. Each Injen air intake system comes with a replaceable Injen performance urethane air filter, limited-lifetime warranty, and is CARB approved.

### CONS

Installing the intake system does require the removal of the driver-side wheel and tire, under panel pieces, and some clever maneuvering to squeeze your hands and fingers inside the cramped engine bay area. The TSX with its small front bumper duct proved to be a cumbersome task to remove, which requires the owner to remove the duct cover to access the reservoir box and bolts that reside under the bumper before attempting to install the new intake.

### NOTES

The cold air intake along with tuning increased both horsepower and torque throughout the powerband as the TSX made gains of 6 hp and 4 lb-ft of torque at 4,500 rpm while consistent gains of 5 hp and 4 lb-ft of torque were seen from 5,200 rpm to redline.



## CONCLUSION

	HP	+HP	TQ	+TQ
BASELINE	186.5		172.5	
HONDATA HEATSHIELD/OEM TB MOD	194.7	8.2	179.8	7.3
HONDATA FLASH PRO	208.0	13.3	185.0	5.2
INJEN COLD AIR INTAKE	213.0	5.0	187.7	2.7
FINAL	<b>213.0</b>	<b>26.5</b>	<b>187.7</b>	<b>15.2</b>

## BANKROLL

HONDATA HEATSHIELD	\$50.00
HONDATA FLASHPRO	\$695.00
ACURA '07-08 TSX ECU	\$610.00
HONDATA '04-06 TSX ADAPTER KIT	\$50.00
INJEN SP SERIES COLD AIR INTAKE	\$374.85
<b>TOTAL</b>	<b>\$1,779.85</b>



## CONCLUSION

Our final testing saw peak output improve to 213 hp and 187.7 lb-ft torque—an increase of 26.5 and 15.2 lb-ft of torque—with the largest gains of 32.2 hp and 38.3 lb-ft of torque occurring at 6,000 rpm. With over 200 hp to the wheels, a quick drive around the block revealed a night-and-day difference with improved throttle response. We found this TSX a blast to drive on the street. Torque output and horsepower improved greatly in all the right places. Stay tuned for part two in our next issue as future modifications are calling our name in the form of a full exhaust system, RBC intake manifold, and aftermarket camshafts. We're betting this engine has what it takes to eclipse the 250-whp marker. **IT**

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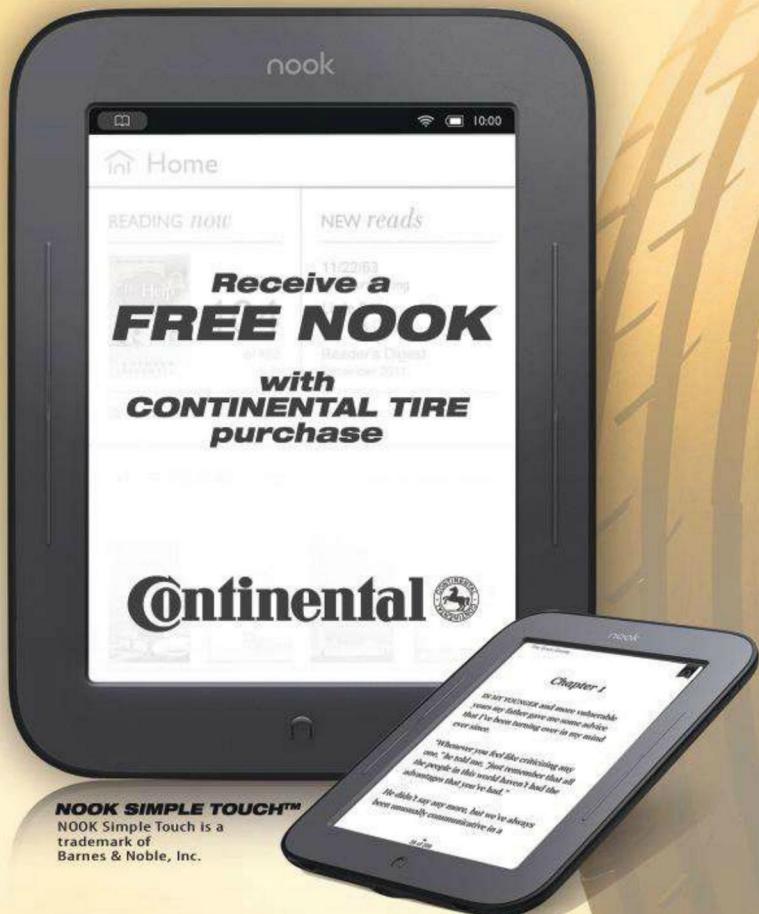


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