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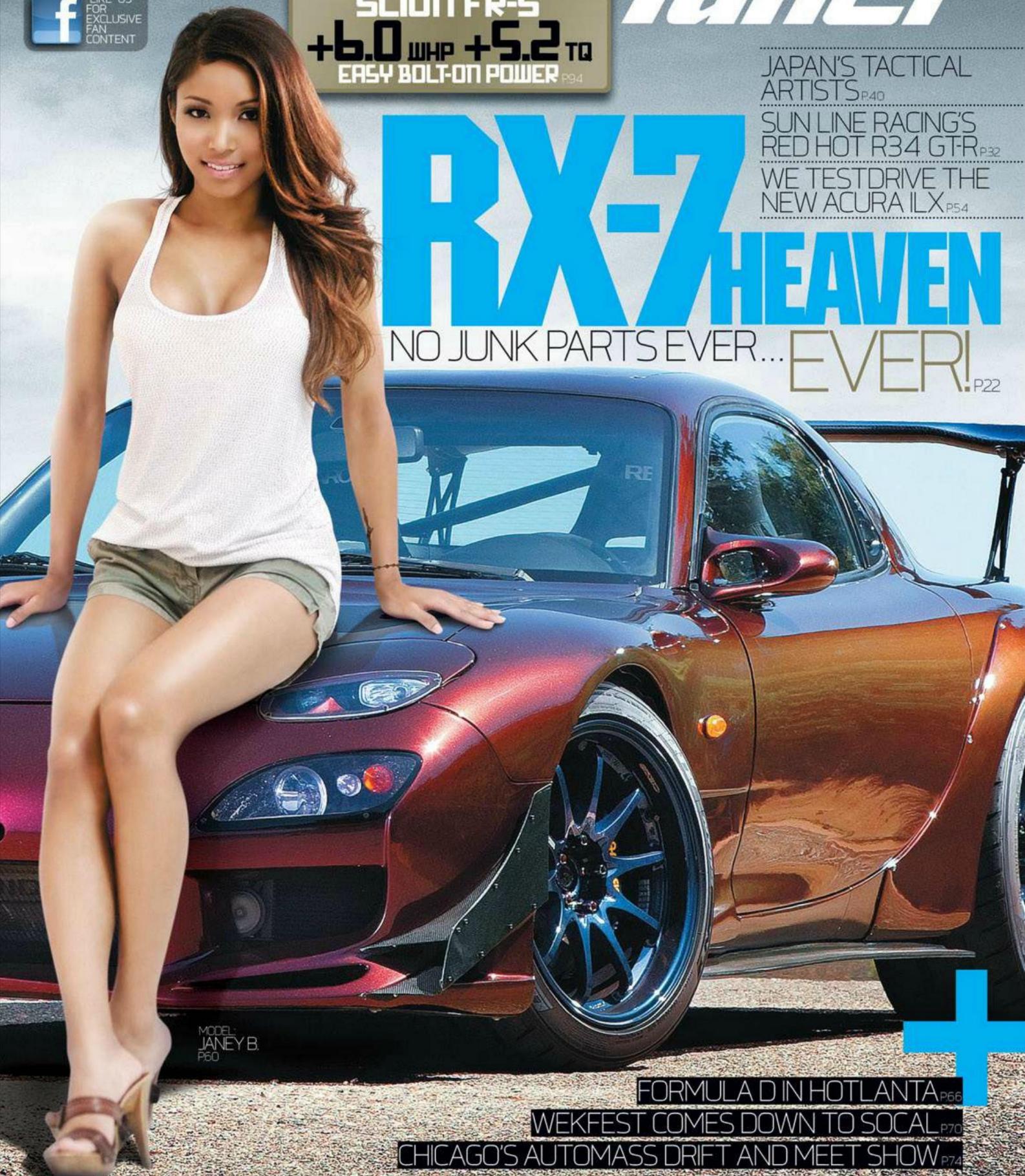
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BUILT.

A NEW WEB SERIES



NICK RICHARDS & MICHAEL ESSA
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TEAM EUROPEAN CAR

EUROS & CENTS

BUILDING A RALLY PORSCHE ON A DIME

by Greg Emmerson

They say competition brings out the best and worst in people, and for us it seems to hold true...

Recently enrolled in an eBay Motors-sponsored build-off against sister publications *Hot Rod*, *Lowrider* and *Four Wheeler*, we've set the bar high by selecting an '84 Porsche 911 as our entry and teamed up with GSR Autosport in Lake Forest, CA, to get the car "BUILT."

As one of the "best" shops around for both Porsche racing and tuning, they were a natural choice. It's the home of pro Formula Drift driver Michael Essa, who's leading our build crew which is all too familiar with tight deadlines. Just as well, because this is as tight as it gets!

As for the "worst," we admit to a new low—we've cut into a pristine Carrera to create our vision. The previous owner clearly poured love into this coupe, and we've already dropped the engine, stripped the interior, and cut off the roof! However, our sacrificial lamb is due for a major makeover into a rare and

unusual rally-style weapon. Plus, with all the proceeds from the car's sale on eBay benefiting the charity SEMA Cares, we're hoping our sins will be absolved.

For our rally car, we're taking inspiration from classic racecars like the infamous '80s Rothmans 911, but giving it a modern twist by building a vehicle that can be enjoyed equally on a dirt road or driving to



The 911 arrived without a scratch, but with an unapologetic transformation in its future.

WATCH EVERY BUILD AT
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WE'RE HOPING OUR SINS WILL BE ABSOLVED.

work. Our budget may not allow a turbo upgrade or 3.8L swap, but we're looking for rugged dependability from our rally replica anyway. So after some maintenance, the motor will be dressed and will receive new exhaust modifications to help it breathe.

As for the roof, we admit to cringing as the first cut was made, but the mood changed as soon as the roll cage fabrication began. Peeling the roof skin

and pulling the windows gave us a chance to fit a composite roof to shed some pounds. With luck, we'll have enough budget remaining to give brand-new upgrades to the brakes, wheels, suspension, interior, and exterior, and to execute a rally-inspired paint scheme.

Follow every build at BUILTfromEBAY.com, where you can watch the episodes, explore every vehicle from frame to paint, and vote for the garage. Upon completion, all vehicles will be auctioned off on eBay Motors for charity.

MEET THE COMPETITION



TEAM LOWRIDER

This worn-out classic and soon-to-be custom lowrider '66 El Camino is being built by the crew at Duran's Quality Painting in Baldwin Park, CA, alongside *Lowrider* magazine. But before he can lay on a single coat of candy-red paint, garage owner Rico Duran has plans for a new windshield, side windows, and a brand-new 350 GM crate motor with a 700R transmission from eBay Motors.



TEAM HOT ROD

Hot Rod magazine loves a challenge, which is exactly what this '68 Chevy Van is shaping up to be. That's why Mackey's Hot Rods in Huntington Beach, CA, will be handling the transformation. The van will keep its 350 Chevy V8 intact, but will get new brakes, suspension, and an airbag conversion from eBay Motors to go along with its planned aircraft carrier vibe.



TEAM FOUR WHEELER

eBay Motors has forever been a source of new hard-to-find Jeeps and Jeep parts, which is the big reason why Off Road Evolution and *Four Wheeler* went for this '70 Jeepster Commando. With a goal to go 100 mph on- or off-road, it'll need a makeover that includes eBay Motors-sourced 40-inch Nitto tires, a GM Ram Jet 350 V8 engine, and Dynatrac ProRock 60° axles.

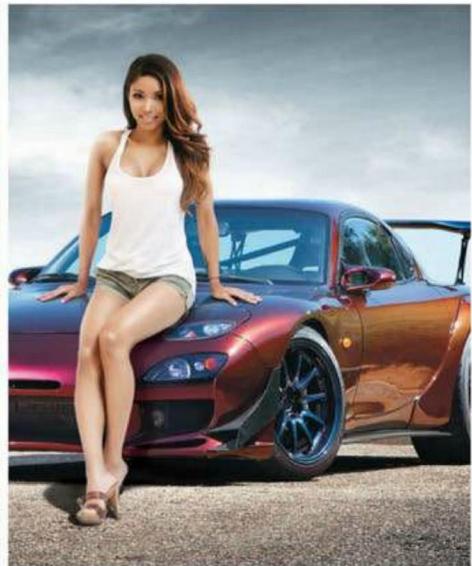
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I want every car in this issue. I'm serious, I really would love to own every one of these cars in this issue, and I wouldn't change a thing.

Many of my friends know I've got a very high standard for cars. It's not just the parts, craftsmanship, or performance that has to be up to par; it's how everything comes together. "The whole is greater than the sum of all its parts," really holds true. We're not looking for cars where the owner's purchased every part offered for their car. We want well-rounded cars built with dope-ass parts that not only drive well, but look badass while doing it. We don't want a track car, we don't want a show car; we want the perfect balance between both. That's what we aspire our street cars to become.

Take our cover car, for example. This is not your typical RX-7 with 500 whp race car nor is it a show car with eight subwoofers mounted in the engine bay. It's got parts like AP Racing brakes and a custom Atomic Rex billet aluminum steering rack—stuff you won't see on a street car, yet this car is driven on the street and has never seen a show. On the other hand, the car has ASM edition Recaro seats that are so baller you won't see them on a track car.

The same balance happens across the board with all the cars featured in this issue. Jared's 240SX is not a missile car and not a trailer queen. It's 100 percent of everything you want to do with your street build. Most of the cars out there that I'd say are nice still have a couple things I'd change about them. This time, however, I'd say all these cars are dead-on with what we're trying to showcase to you guys.

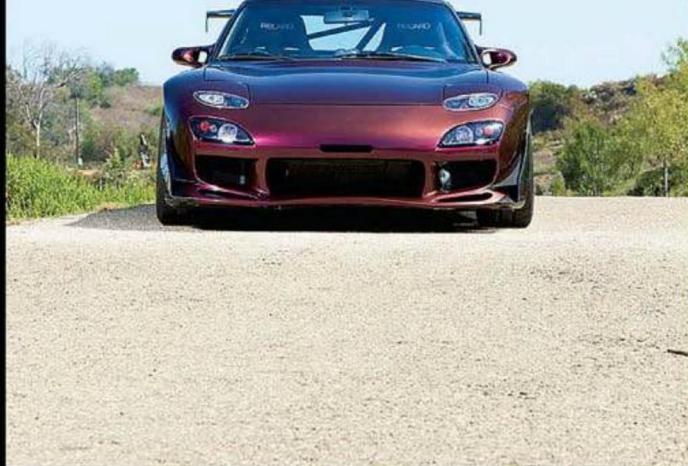
Enjoy your car life and see you next month.

Charles Trieu

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7

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BY SCOTT TSUNEISHI

Contrary to popular belief, the main reason for automotive DIY repair/projects is not (or should not be) about saving money. While DIY projects have become a growing trend within the past few years, there are other, far better reasons to do-it-yourself.

Main reasons are gaining knowledge, new skills, and the enormous feeling of satisfaction that comes from building or repairing your own parts. This is worth far more than any money can offer. As the youth of today look to acquire the basics in automotive repair or custom fabrication, we refer to a common metaphorical phrase that so fittingly suits any rookie do-it-yourselfer: We must learn to walk before we run. Looking for a simple translation? Take baby steps to learn the ins and outs of what you're planning to build or repair before you drive headfirst. Each and every new skill you pick up along the way enables the learning processes to be "exercised", making it easier to learn other new things that come your way.

The skills you learn from building an engine harness project or fabricating a custom part extend far beyond soldering a few components and wires. You must source the components, working your way through a flurry of technical data and service manuals to figure out if the part you think is right is actually right. But it doesn't end there.

You will probably need to brush up on your math skills as electronics schematics, such as resistors/diodes require mathemati-

cal principles. The greater your understanding, the more you have learned in the process. These are not trivial skills; you will also need to learn how to perform basic metalworking skills if attempting to repair items on your vehicle. Drilling, tapping threads, and resurfacing are all tasks that need to be done to complete your project. These are all skills that aren't just used in short-term detail. Chances are they are simply trade skills that might come in handy later on in life.

But don't go over your head and attempt to fix everything yourselves. DIY projects can also open you up to liability should an accident or injury result due to your auto repair work or fabrication. The reality is if you are not experienced or have the right tools to do the job, it won't be done correctly. That's something a professional mechanic with years of experience can and will address correctly the first time around. Auto repair and/or custom vehicle fabrication is not the place to cut corners, especially if your family's well-being comes into question every time they jump in your car. Keep in mind shoddy repairs or DIY work can lead to even more expensive repair bills to bring your car back to safe driving conditions.

When you build something correctly, there is a sense of pride, of achievement—there is something to show for it, something tangible. Something you made from raw materials, dedicated blood, sweat, and tears to finish provides enjoyment that no store-bought item ever will replicate. 

LET'S DO THIS

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¹ EPA estimate for available 1.4L turbocharged engine with 6-speed manual transmission.

2012 Chevy Sonic: Style for those with Substance
Mark Arcenal knows a thing or two about style. And as the founder of Fatlace, Mark demands that everything he touches has a soul all its own. That's why the all-new Chevy Sonic, which features an engine with the most torque in its class, offers 40 MPG highway¹ and is also a 2012 IIHS Top Safety Pick, is right down his alley.

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GOING POSTAL



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LOYALTY BACK ON DECK

I had recently let my *Import Tuner* subscription run out, but when I saw Levy Tran in the July issue you won back my attention! Glad to be back and thanks for listening to your readers!

David R.

Glad you liked that issue. Levy Tran is hawt! And Raymond's S14 on the cover is even more badass. We're trying hard to get the newest and dopest content out there. We have a lot of competition with other magazines and the Internet, but we're determined to find something different from what you see online and in various other magazines.



BLOGGER

I love Source Interlink's publications. The car magazines are awesome. I am a big fan of *Import Tuner*; it's a great mag. But I was wondering if there was any advice that you could give me because I have a blog on cars and eventually I want to turn it into a magazine?

Terrance B.

Honestly, for the time being we would just concentrate on keeping it a blog. Blogs have a lot of advantages that magazines don't (but also vice versa). The most beneficial part being very low overhead. Keep doing what you do, and if you ever get big enough that you have to start hiring full-time employees, consider branching out to a printed publication. You can easily get a magazine printed at one of the many publications in the country, but then you'll still have to pay a distribution company to get them to all the stores across the country. When you do get to that point, feel free to contact the executives in our masthead at the front of each issue.

TOO MANY GIRLS

I am an auto instructor, and I teach students, of both sexes, automotive skills. I would like to subscribe to your magazine but from what I've seen on the Internet ads on your website, it's more about scantily clad women than it is about the cars. I understand marketing, but my motor magazine only had one mostly dressed female in their ads. Money is king and I don't have the need to stir up raging hormones in teenage boys who are already on high alert for females.

Jeff E.

Sorry you feel that way, Jeff. We're sure some of our readers are freaking out right now because they feel that the magazine doesn't have enough girls in it. We try to keep the girl content down so we don't distract our car enthusiast too much. Instead, we only select one model for each issue. It's kind of like a nice little treat for a hard day's work on your car. We do think our website reflects our magazine too, and it's not as girl crazy as you might think. Check it out, it's not anything like what's all over the Internet already.

MODELING

Who do I contact about modeling? Thanks.

Nicola A.

Please send all model inquires to models@importtuner.com or directly to Editor Charles' inbox at charles.trieu@sorc.com. He loves it.

FEATURE MY CAR

Could I send some pics of my Nismo 350Z on Diamond Black RE30s? I've got some professional photos ready to send to you guys.

Matt M.

Please send all car feature inquires to features@importtuner.com or directly to Editor Charles' inbox at charles.trieu@sorc.com. Again, he loves jamming his inbox.



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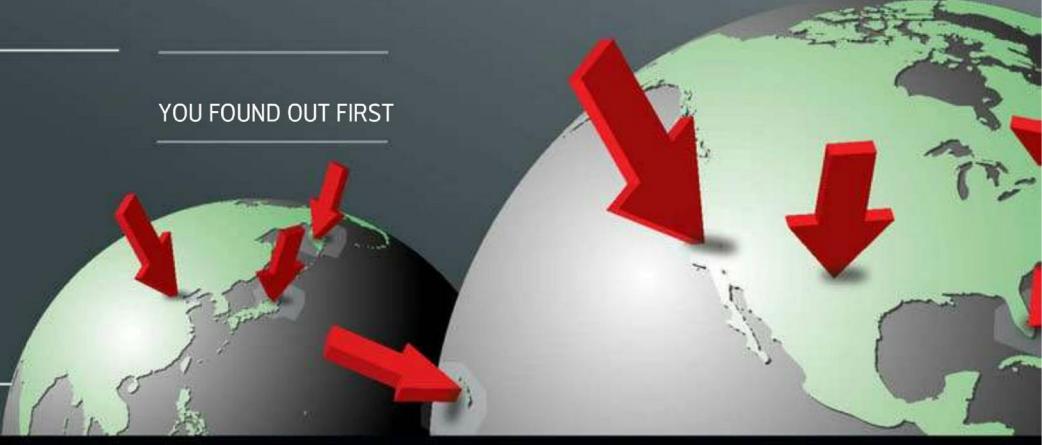
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IMPORT FACE-OFF

WOODBURN, OR

Think drag racing only happens on the East Coast? Nope. Oregon called out some of the wildest cars to jaunt the 1,320-foot dance floor. Still one of the most high-adrenaline games in motorsports, IFO is one of the premier venues that allows you to really put your motor to the test. Keep a look out as IFO travels to over 35 locations throughout the year.



DRIVE ENERGY DRINK

As if M7 Japan wasn't big enough—from selling just about every aftermarket part like turbos to coilovers, to being too busy running their race teams in D1, Super GT, or Formula D, to having spent enough money hiring drivers like Manabu Orido, Nobuteru Taniguchi, or Dai Yoshihara—now they are releasing their own energy drink. After having a huge success in Asia, they are finally bringing Drive to the U.S. market.

Other than using all-natural ingredients, they also use pure sugar cane. Not too many other energy drinks on the market use premium ingredients like this. The high Japanese standards are not just guidelines for their race parts, but Drive as well.

www.drivem7.com
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HELPING YOU WRENCH



FIX THAT LEAK!

BY SCOTT TSUNEISHI

What is a boost leak? It's an air leak in the intake path downstream of the mass airflow sensor (MAS or MAF) that often occurs when the engine is under boost from the turbo or supercharger. Because the vehicle's ECU determines fuel to the engine based on the amount of air measured by the airflow sensor, air leaking out causes the incorrect ratio of air to fuel, which can ultimately affect the tune and calibration of the engine. Leaking air also causes the turbo to work harder than it should, causing further loss of performance.



Turbo engines are more vulnerable to boost leaks because of more piping and hose connections versus a non-turbo engine. The hoses, if not properly addressed, can come loose, dry out, or crack over time. The advantage of a boost leak test over a visual inspection is that it can be easier to find if the small cracks or leaks are hidden from view or only show up when under pressure. In the case of a small crack or hairline fracture on the intercooler, it's very difficult to spot the damage by visual inspection while it's on the car. Using a pressure tester allows you to listen for any unusual noises such as air escaping, a clear indication that your car is losing boost pressure.



It can be a very good idea to make/use an intake leak test on any engine, regardless if the vehicle is boosted or simply naturally aspirated. To test for any leaks we constructed a homemade boost leak tester using a 2½-inch pipe welded on one side with a built-in nipple. To begin the testing process, we began by cooling off the engine before removing the intake filter to insert the pipe coupler.



Be sure to seal any vacuum lines or hoses coming off of the intake pipe. If there's a PCV hose coming off the valve cover that connects to the air intake, plug the end that's on the air intake off. This also includes the vent crankcase pressure line.

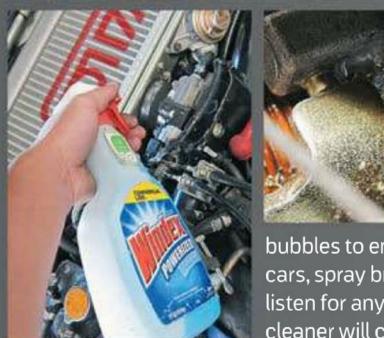
Use a compressed air nozzle



like the one pictured to the boost leak tester. Apply the air into any vacuum tube that leads into the intake tract or into your boost leak tester. This will pressurize the intake tract as if your engine was under boost. Clamp or close off any hoses that don't see a lot of pressure, such as the crankcase vent and PCV. Keep in mind to always regulate your compressed air down to about 5 to 7 psi. This amount of psi will be enough air pressure to let you detect any boost leaks. Applying excessive air pressure without regulating psi can cause the oil seals to blow out.



Listen for any hissing noise—this will indicate a boost leak. If the air pressure gauge indicates no buildup of pressure or does not hold for less than a second, that's a sure sign that a major leak exists within the engine. Be sure to pay close attention to problematic areas such as the blow-off valve or intake manifold for any leaks.



Another surefire method to check for leaks is to run the engine while liberally spraying soapy water to find any air leak. The soapy solution and air pressure will cause air bubbles to emit if a leak exists. For naturally aspirated cars, spray brake cleaner while running the engine and listen for any changes in idle. If a leak exists, the brake cleaner will cause the idle to drop significantly. ■

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OIL CONSUMPTION

I own a '02 Toyota Celica GT (five-speed) with TRD exhaust and AEM CAI. Recently, I have been experiencing issues with the motor, which has about 140K on the clock, beginning to consume oil along with a bluish smoke coming out of the exhaust. I assume the oil consumption is caused from burning oil, and the smoke is the result of oil blow-by from the piston rings. Of course, I am no expert but I experienced the same problem on another car I previously purchased. To make a long story short, the dealership replaced the rings, which cured the problem. How hard is it and what is involved in replacing the piston rings? Also, what tools and parts are required? I'm sure the head gasket needs to be replaced when opening the engine along with new piston rings.

Johnny Balash
Wadsworth, Ohio

Oil typically enters the combustion chambers through worn piston rings/cylinder bores or leaky intake valve stem seals. In extreme cases, there could also be cracks in the cylinder head, but this usually only occurs on engines involved in accidents or extreme overheating. Blue smoke can also come from leaky exhaust valve stem seals with oil getting heated in the exhaust manifold or catalytic converter. A leakdown test should be able to help point you in the right direction. If it is valve stem seals, then they can be replaced without taking the cylinder head off the engine with some special tools.

If you need to replace the rings and that's all you want to do, you can do this by dropping the oil pan and removing the cylinder head. You can remove the pistons from the top of the engine by unbolting the big end of the connecting rod and removing them from the bottom. Measure the bores to ensure there is no excessive cylinder wear using a dial bore gauge or at the very least a T-shaped snap gauge and a micrometer. Since the 1ZZ-GE engine has iron liners, you'll need a BRM ball hone to "rough" up the cylinders so the new piston rings will break in correctly. You'll also need some feeler gauges to measure ring endgaps. If the rod bearings are in good shape, you can reuse them or buy some new bearings from Toyota

of the same grade (see the Celica service manual for this information). If your engine was burning oil in the cylinders, then you'll also need to give the pistons a good cleaning since there will likely be a ton of burnt oil on them. You can use an overnight dip or some carburetor cleaner and some elbow grease to do this. Of course when you're putting it all back together, you'll need a brand-new head gasket and new cylinder head bolts. The Toyota 1ZZ has torque to yield bolts and should not be reused. Remember that you can never be too clean when building an engine. I've seen people put together engines without cleaning the parts or attention to detail with bad results. Attention to detail is what the best engine builders are good at.



HORSEPOWER POTENTIAL

I'm looking into giving my Honda S2000 (AP1) some more horsepower. I've decided that I'm going for a turbo instead of a supercharger mainly for the fact that I'm a firm believer that turbocharging should be associated with import cars and superchargers belong on domestics, even though I know you can get more horsepower from a supercharger for the S2000s—but to each his own. I'm leaning toward a Greddy turbo kit, mainly because it's CARB legal and a true bolt-on kit.

I am aware that the Greddy kit isn't the biggest turbocharger you can get due to the fact that more usable midrange power can be achieved with this type of turbo. The goal is to make anywhere between 400 to 500 street legal horsepower. What are your thoughts on the Greddy kit? From what I've read the Greddy kit can't make those kind of numbers. I'm also looking into getting the ECS kit from Design Craft Fabrication to convert the F20C into iVTEC. I've heard that this kit improves midrange power as well, and I like the fact that it is a bolt-on system and I know I can do all the work myself.

Josh Alexander, via importtuner.com

It's important to remember that a CARB-legal turbo kit is designed around the confines of being smog legal, which means retaining the factory catalytic converter (not a high-flow aftermarket unit) and all other factory smog devices. For this

reason, Greddy optimized the performance of their turbo kit around the factory smog components. The T518Z turbo features an 18G compressor section so it should be good for a solid 350 whp with a little more boost, proper tuning, and good parts selection. The Design Craft Fabrication ECS is a pretty trick piece, but requires a stand-alone AEM ECU or Hondata K-Pro conversion to control the iVTEC. Most of these mods can be done yourself with a complete set of tools and some elbow grease, but I would suggest the ECU tuning should be left to a professional if you're not familiar with the process.

As for making 400-500 "street legal" horsepower that would depend on what state you live in. Some states have a looser definition of what "street legal" is. In California for example, this means CARB legal and not a single modification otherwise to the car. In Montana, "street legal" almost means as long as the car can drive on the street. A Full-Race S2000 turbo system with a "high flow" catalytic converter might be a good compromise if you aren't too worried about the cops sweating you.

MIXOLOGY

I am currently building a GM (I know, sue me) 4.3L turbo motor. All the fuel injection is off a GMC Cyclone. I plan on running a FAST BigStuff3 fuel management. What will be the best route to keep detonation down and octane levels up? I have narrowed it down to E85 and water methanol injection. What are your thoughts, and the pros and cons of both? I want streetability, but also to be able to keep the boost pressures up without issues.

Anonymous, via importtuner.com

Are you sure you sent this question to the correct magazine? Oh wait, there aren't any Cyclone/Typhoon magazines, and your question is pretty general. E85 is a great fuel, but depending on where you live, fuel stations may have seasonal blends that can wreak havoc on a high-powered application. E85 can be anywhere between E70 and E85 and still be called E85 legally. The idea is that E70 provides easier starting in the colder winter months in states with brutal winters. I'm not sure if the FAST BigStuff3 has the feature for a Flex Fuel sensor or how fast the closed-loop lambda responds, but typically an ECU has to almost have both to allow an engine to live a long, happy life on E85 at high boost levels. Using a water and methanol mix for auxiliary injection is also a good idea to prevent detonation. Both methanol and water cool the charge temperatures down drastically allowing greater ignition advance and leaner fuel mixtures. The drawback is that there's only a limited supply. If the ECU or meth injection system has a safeguard protection system that kicks the boost down or runs a different fuel/ignition map when there's no more meth, then you're in good shape.

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ROTARY DILEMMAS

I own a '88 Mazda RX-7 convertible that has 234K miles. I haven't had any problems at all; the engine runs great; I perform most of the maintenance myself. This is my eighth RX-7. I previously owned a '88 Turbo 2 model, and miss the feeling of forced induction, which brings me to the conclusion to supercharge my engine.

First, I know that it is highly recommended that I do not supercharge an NA rotary engine, because of the high compression and that it's a six-port. However, I believe that with the proper tuning it can be done. I have decided to go with a centrifugal supercharger due to the ease of installation. I am considering upgrading to either Turbo 2, or 13B REW fuel injectors and fuel pump, fuel pressure regulator, as well as porting the throttle bodies, and installing a true dual exhaust system.

Should I use a recirculating blow-off valve or atmospheric setup? Should I have my stock ECU tuned to support the upgrades or should I use a stand-alone ECU? What other modifications should I make? Do you recommend not supercharging my motor? Everybody is telling me to go with a Turbo 2 swap, but I would rather go with a supercharger, because the cost of having the swap done, buying the parts to support the swap, and the core charges are just too much for me to pay up front. It seems supercharging is cheaper in comparison (if it is done right). I am not looking to make insane horsepower; I would be very comfortable with 180 to 220 rear-wheel horsepower. I drive my car daily, mainly from Pasadena to Downtown Los Angeles and the canyons on weekends.

Desmond Marshall, via importtuner.com

Supercharging an NA rotary can be done, and it has been done. If you search hard enough, you might be able to find a Nelson Mazda Supercharger kit. They used to be based in West Los Angeles right off Overland. The kit was discontinued long ago, but there are a few kits still floating around. The Nelson kit used a Paxton centrifugal supercharger. If you're OK with a roots-type supercharger, then check out Camden Superchargers up in Washington. They have kits for rotaries of various configurations including six-ports.

Performance UNDER PRESSURE

If you are running the airflow meter, then you'll want to recirculate the blow-off valve. If you end up running a stand-alone without an airflow meter, then you can run the blow-off valve dumping to atmosphere if you like. If you get sick of the noise, like I do, then you can also recirculate it.

The '88 FC RX-7 factory fuel injection is terrible. I'm not sure if you want to spend too much time on it, but given your fairly low horsepower goals, it might be OK if you know somebody who knows how to tune them. Whatever you end up doing, just make sure you always run 91-octane and an intercooler if you want it to live another 200K!



NITROUS FRIENDLY

I'm putting a 3SGE Beams (black-top dual VVTi) motor in my AE86 drift car. The engine is going to be NA, and I want to run at least a 50hp shot of nitrous oxide, possibly a 100hp shot along with E85 fuel. I haven't heard anybody combine both nitrous and E85. Can they be combined? Before you ask why I am running E85, my answer is that the engine is high compression, and I don't want to spend a lot of money on race fuel.

Anonymous, via importtuner.com

Yes, nitrous and E85 can be combined without any unusual problems. I would recommend you run a direct port kit (one nozzle per cylinder) if you plan on running anything over 50 hp. Intake manifolds were never designed to distribute a highly pressurized fog of nitrous and/or fuel. A direct-port system will prevent melted pistons due to nitrous/fuel distribution issues. Also, I'd recommend a bottle heater and bottle blanket for a couple of reasons: to get the most use out of each bottle and to get more consistent performance. One of the struggles of using nitrous on a regular basis is inconsistent bottle temperature. You probably learned in high school that the higher the temperature, the higher the pressure of a gas. Hitting the nitrous system on a 95-degree F day on a nitrous system tuned on a 65-degree F day can have disastrous results. Don't skimp, get the right parts, and you'll have a blast on nitrous... in your engine that is.

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FROM THE HEART

LOVE WHAT YOU DO AND
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DAY IN YOUR LIFE

For those of us who have experience building a car, have you ever asked yourself what it is that drives you to do what you do? I mean, have you ever really sat back and thought about it? Is it the physical act of taking a car/mechanical object apart and putting it back together with new or better parts? Is it the time spent with existing friends and/or creating new ones as you peruse online forums and attend meets and shows with your project? Or is it simply the love and devotion you've developed over the years to a particular chassis or manufacturer that makes you want to own and drive that particular vehicle? The rhetorical questions can go on forever, but I'm sure you catch my drift here. Is it one of those or is it a combination of all of them? Well, for Carol Mak, it is all of that and then some. The very words that she used to describe what she does and why she does it damn near made me want to stand up and put my fist in the air.



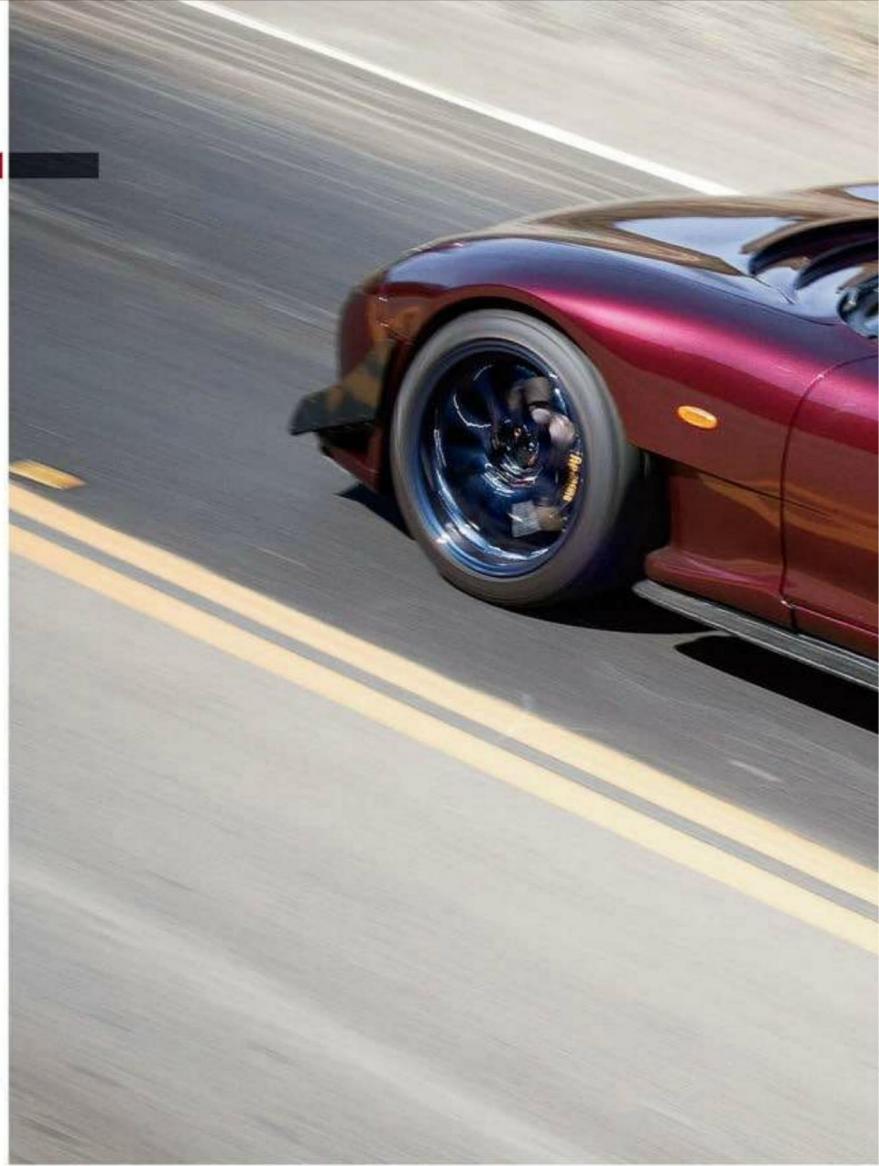
If you think that last statement I made was a little dramatic, that's fine, you'll see. Passion can be defined in multiple ways, but a quick glance through the various Merriam-Webster online dictionary definitions of the word had me stuck on two specific ones listed: "intense, driving, or overpowering feeling or conviction", and "a strong liking or desire for or devotion to some activity, object, or concept." Those two hit the nail on the head when it comes to Carol and her '94 Mazda RX-7. This enthusiast oozes excitement and passion from every pore of her body, and it is contagious. As a freelance writer for various automotive publications as well as a hard-core car head, I'm pretty much always looking at, reading about, or working on something car-related. I talk to a ton of enthusiasts from all over the world on a daily basis and all of them love what they own and what they do. But every once in a while, you meet one who stands out above the rest—be it for the car that they've built or for the way they express what they do and why they do it.

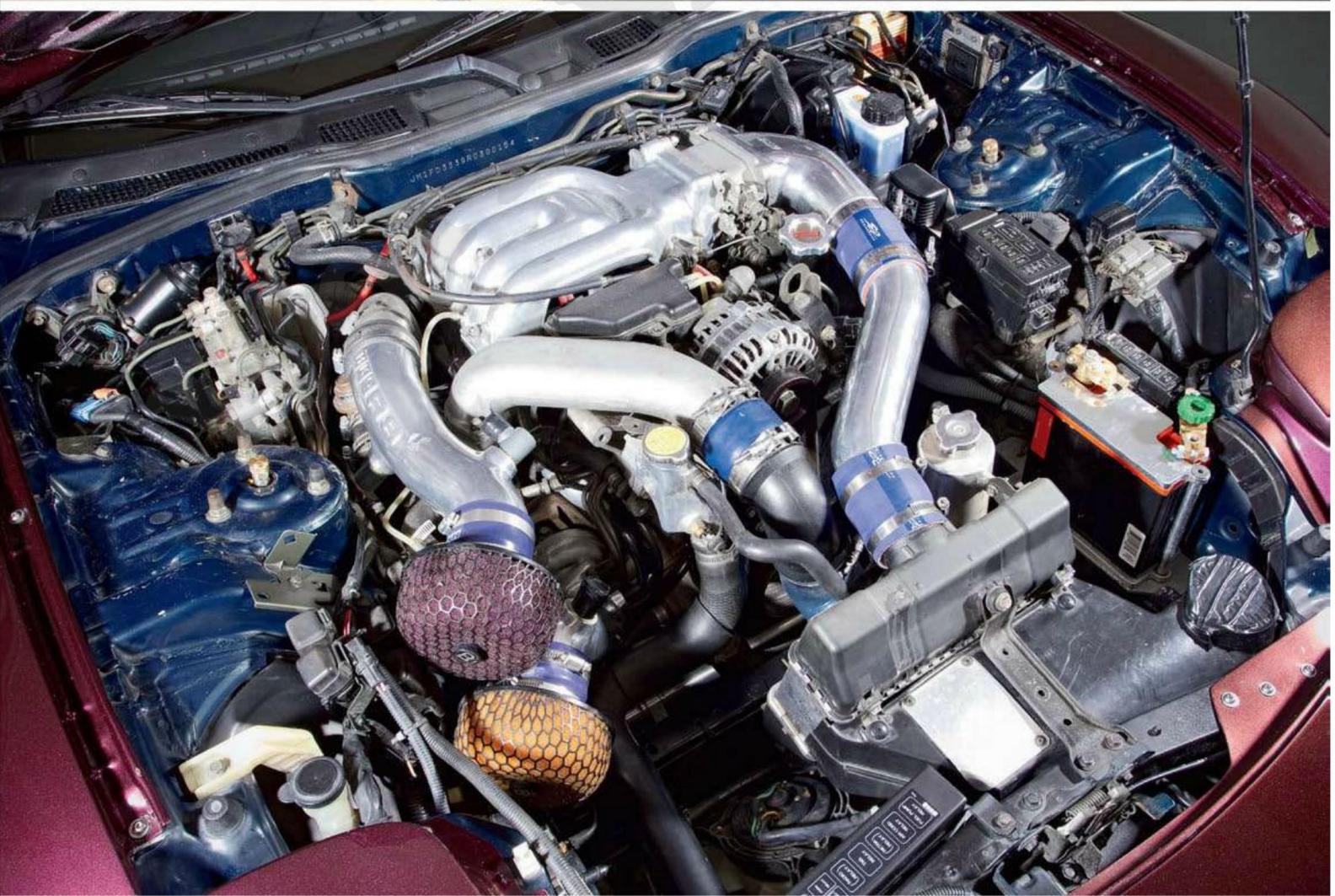
"The concept of a rotary engine is pure genius with a side of crazy (few moving parts, no reciprocating pieces), and the RX-7 chassis being light and well balanced with some gorgeous factory lines is why I love it. The way the engine sings, and the way the exhaust chokes you, pollutes

THE CONCEPT OF A ROTARY ENGINE IS PURE GENIUS **WITH A SIDE OF CRAZY...**

the air, and starves you for oxygen when you're standing downwind made me throw all rational thought out the window and fall deeply in an obsession with the car," she says. Are you feeling this owner's enthusiasm yet? It wasn't just concepts and ideas; a couple of specific builds influenced her directly. "The Revo-tune FD3S reinforced the love of the RX-7 for me," she says. [Ed. note: If you are not familiar with that particular build, you need to look it up now. You will instantly understand why she is a fan.] But one vehicle, in particular, really did it for Carol. "The '04 yellow JGTC RE Amemiya/Aspara Drink RX-7 is a sexy beast that inspired me, and should inspire everyone else to buy an RX-7, pretend to be a race car driver, and forget about pollution, sleep, hunger, and financial responsibility," she says. I love it!

Carol's mentality and focus have been a part of her way of thinking and doing things for many years, so it makes sense why and how she does what she does. "A big appetite for the pursuit of perfection in all things, compounded with a thirst to learn and figure out a car and make it better (what other way is there other than to get your hands dirty?) is what got me elbows-deep into this love affair," she says. Carol's love affair started with a much different chassis, though. Around 12 years ago she was driving around in a stock Honda Prelude. Next thing she knew, it had turned into a Jackson Racing supercharged, Mugen kit, award-winning, magazine-featured car. But that vehicle just didn't do it for her, regardless of its accomplishments. "What I really should have done was start on an FD," Carol says. "Mazda's engineering philosophy, the RX-7's racing heritage, and the uniqueness of the rotary engine really drove me to want to build an RX-7." So she began the search for the chassis to begin the build with.







Carol had a plan from the very beginning of the build. "I bought a fixer-upper with the express intention that when each part had to go and be repaired (suspension, interior, electrical, engine, exterior, and drivetrain), I would upgrade it and create an opportunity to learn about the car and work on it myself," she says. Well, it turned out the chassis she picked up would provide her with all of the opportunities her heart could desire. "Everything pretty much had to be changed out on the car," Carol says. And the few parts of the car that haven't been touched aren't going to remain that way for very long. "If it's still original right now there's a plan for it to be changed out soon," she says. Her hands-on perspective comes from the community she has grown to love. "RX-7 owners are a whole different breed than any other car enthusiasts I've met," she says. "They're much more diverse, it includes an expansive age group, and are a close-knit community of people who really encourage and support everyone to work on their cars themselves and learn, innovate, and create new things."

As you can see from the pictures and list of modifications, Carol has great taste and spares no expense when it comes to her beloved FD. Parts like the Ohlins coilovers, ASM Recaro seats, AP Racing brakes, and the Atomic Rex billet steering rack set this car on another level. She is willing to go to great lengths to get what she wants for

I LOVE CARS THAT SPEAK TO THE DRIVER (THE OLD SCHOOL, RAW, MECHANICAL FEEL THAT REALLY TRANSLATES THE ROAD TO THE DRIVER) AND MY APPROACH TO MODIFYING THE CAR WAS TO MAKE IT **SPEAK ALL THOSE THINGS LOUDER AND BRING ME CLOSER TO THE ROAD.**

her vehicle, regardless of how difficult or inconvenient they may be. For example, Carol went on a 19-day trip to Japan and on just the third day of her trip she ended up finding what she calls a "helluva deal" on a Mazdaspeed twin-disc clutch. Regardless of how good of a deal it was she was across the globe with more than two weeks left in her trip, so she was going to have to pass on the deal... or not. Carol's determination took over and she bought it anyway. "I was lugging it from Tokyo down to Kyoto and Osaka and back up to Tokyo in a tiny rollaway bag that got so beat up it subsequently arrived in LAX missing a leg, half torn, with a hobbling wheel," she says.

Clearly, what we have here is a very special enthusiast whose passion for the automotive culture and lifestyle emanates from her very being. "I love cars that speak to the driver (the old school, raw, mechanical feel that really translates the road to the driver) and my approach to modifying the car was to make it speak all those things louder and bring me closer to the road." They say that if you love what you do you'll never work a day in your life. Well, if that is the case, then Carol has never worked on her car. Ever. And she never will. 



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BEHIND THE BUILD

NAME

CAROL MAK

AGE

28

LOCATION

BREA, CA

OCCUPATION

MECHANICAL ENGINEER

HOBBIES

ROCK CLIMBING, ICE CLIMBING, CANYONEERING, CAVING, SNOWBOARDING, TRAVELING, AND EATING. SHE ALSO PICKED UP RUNNING LAST YEAR.

BUILD TIME

SIX YEARS AND GOING

FEEDBACK

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MOTIVATION

"MAZDA'S ENGINEERING PHILOSOPHY, THE RX-7'S RACING HERITAGE, AND THE UNIQUENESS OF THE ROTARY ENGINE."

1994 MAZDA RX-7

310 WHP AT 6,500 RPM; 260 LB-FT AT 6,500 RPM

ENGINE 13B; Noltec motor mounts; HKS RS intake, 75mm Swaintech coated downpipe, Twin Power ignition; OE throttle body with RC Engineering enlarged butterflies; OE ceramic chromed intake manifold; Greddy polished aluminum turbo elbow, intercooler piping, pulley kit, oil filter, magnetic drain plug; Banzai block-off plates; NRS 2mm two-piece ceramic seals; Mazmart upgraded water pump; Denso Supra TT fuel pump; 550cc primary injectors, 1,300cc secondary injectors; Fujita Engineering titanium 80mm exhaust; Garfinkle oil pan; Sakebomb Garage twin black Setrab oil coolers with Mocal 180-degree oil thermostat; Fluidyne radiator; Samco radiator hoses; Mazda FC low-temp thermostat; NGK spark plug wires, No. 9 plugs; Odyssey PC680 battery; REVO Tune battery quick disconnect

DRIVETRAIN Carbonetic 1.5 way LSD; Mazdaspeed twin cerametallic discs; 4.44 Final Drive; GReddy extra capacity heat finned aluminum differential cover; RE Amemiya short shifter; delrin bushing differential mount; Moonface gold drain bolt; Redline synthetic oil

SUSPENSION Ohlins PCV coilovers; Fujita Engineering front sway bar, rear sway bar; Mazdatrix adjustable Heim joint front endlinks; ImprovedRacing adjustable Heim joint rear endlinks; Jun A-arm brace sandblasted and clearcoated with new OE ball joints; Super Now steering tie rods, aluminum machined front sway bar bracket; Pettit Racing toelink adjustable heim joint; Raceshop four-point rollbar with optional diagonal bar; Atomic Rex manual billet aluminum CNC machined steering rack and pinion with 2.4 turn-to-turn ratio; Nagisa Auto front fender braces; Makers Racing transmission brace; Banzai differential brace; combination of delrin bushings and new OE Mazda pillow balls and ball joints

WHEELS/TIRES Rays Volk Racing CE28 (18x9.5 +22mm front; 18x10.5 +18mm rear); Nitto NT05 tires (245/40-18 front; 275/35-18 rear); Project Kics R40 Neo Chrono lug nuts

BRAKES AP Racing CP5200 front calipers with stainless piston upgrades; Racingbrake OE rear big brake kit; Hawk HP+ front and rear brake pads; Mazda 929 master cylinder; Goodrich stainless front brake lines; Agency Power stainless rear lines; Super ATE blue fluid; N-Tech front brake backing plates with 3-inch high-temp brake hose vented to two custom fiberglass front bumper ducts, two-piece slotted rotors; Ti-Speed titanium front and rear brake shims

EXTERIOR Shine Auto Project FEED II R front bumper, fenders, carbon hood, carbon side skirts with Glasurit clearcoat, RE Amemiya carbon rear diffuser with center channel with Glasurit clearcoat, three-piece carbon front under-panel/diffuser; cut and fiberglass extended rear fenders to mate to FEED over-fenders; Fujita Engineering Aflux GTIIR rear spoiler, halogen foglights; R-Magic HID headlights; Mazda 99 tails; FEED x Ganador motorized side mirrors; PPG Nissan Interlagos Fire paint; new windshield, cowl, and wipers

INTERIOR Recaro TSG ASM Edition seats with side bolster covers, seat rails; Personal 350mm Grinta steering wheel; Works Bell Rapfix short boss with adapter; OE Mazda RX-8 shift knob; Redline Goods center tunnel, shift boot, e-brake boot; molded cabin carpet

ELECTRONICS A'pexi Power FC with Commander, AVC-R electronic boost controller; Defi D-gauge boost and water temp gauges

GRATITUDE "Ken at ShineAutoProject; Makito at Seven Apple Works for the magic he does with bodywork; RHDJapan for the massive import assistance on rare parts; Dan at SakeBomb Garage for the innovative products and great customer support; Eugene at SP Engineering for the odds and ends fab work and for shooting the breeze; Rich and Ihor at IRPerformance for the tech support; KAAZ USA for the differential work; and Tom, without you I would never have gotten to meet Fujita-san himself, found RE Amemiya HQ, and scored a great deal on a used Mazdaspeed twin-disc clutch during my Japan visit; RX-7 Club; Rotary Car Club; Team Boneout. But, most of all, my fiancé, Paul—much thanks for all that you've put up with me for the car. You've spent many hours hovering over the engine bay with me, sitting in the trunk trying to finagle the rollbar in place and lending me your brawn while I played 'brains' in the garage for hours on end. There's very nearly as much blood, sweat, and tears in this car from you as there is from me."

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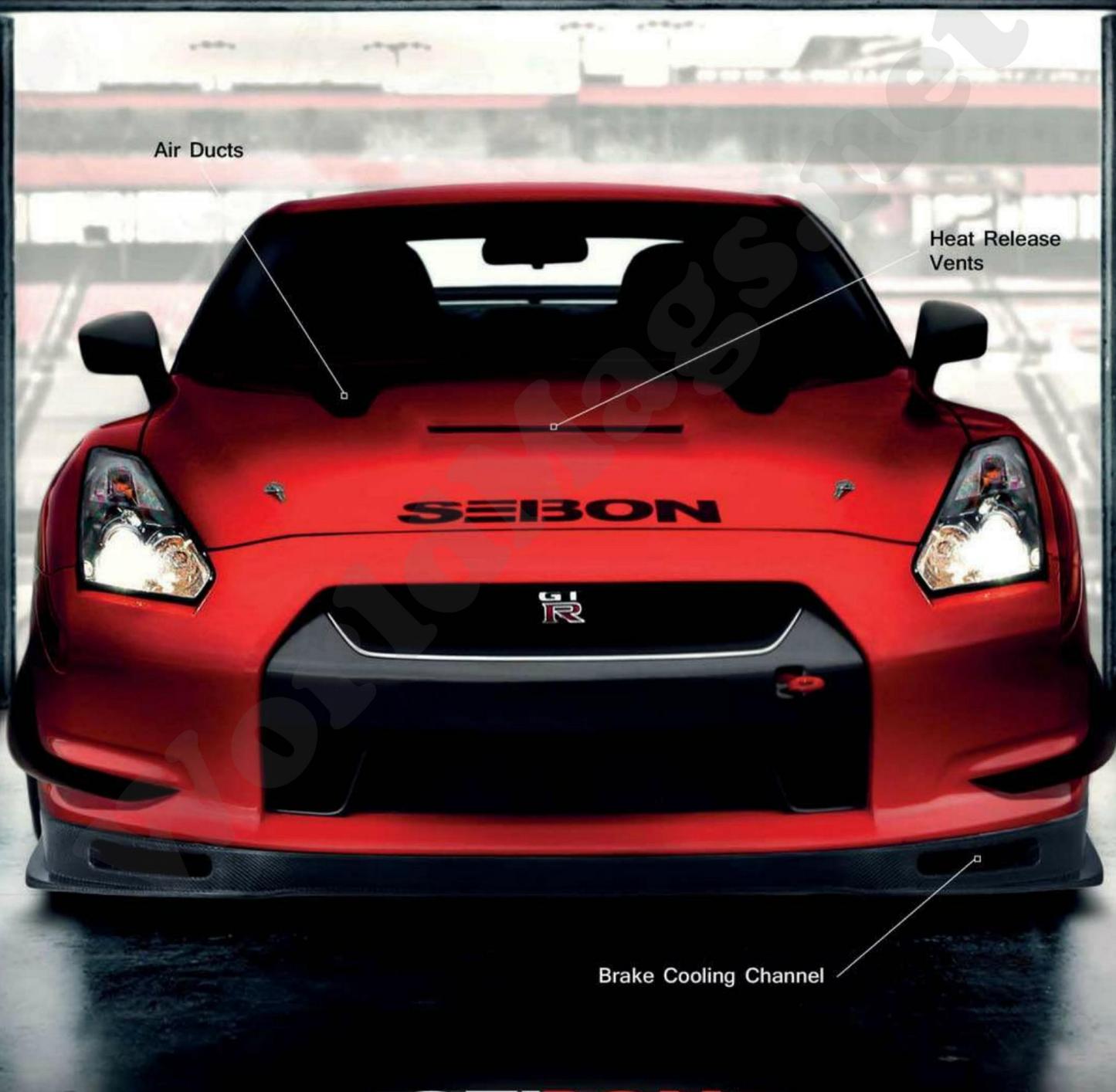
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Legend		Mazda 6	G6
NSX		Miata	Grand Am
RL		Millenia	Grand Prix
RSX	Ford Contour	MX-3	GTO
TL	Escort	MX-6	Sunbird
TSX	Escort ZX2	Protege	Sunfire
Vigor	Focus	Protege 5	Trans AM
Audi A4	Mustang	RX	Vibe
A6	Probe		
TT	Taurus		
BMW	Thunderbird		
3 Series			
5 Series			
8 Series			
M3			
Mini Cooper			
Z3			
Z4			
Buick			
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Riviera			
Skylark			
Somerset			
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Camaro			
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Corvette			
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Malibu			
Monte Carlo			
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Chrysler			
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Cirrus			
Concorde			
LeBaron			
Neon			
PT Cruiser			
Sebring			
Infiniti			
G20			
G35			
Q45			
Jaguar			
S-Type			
Kia			
Sephia			
Spectra			
Lexus			
ES300			
GS			
IS300			
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Plymouth			
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Legend	Corvette	Millenia	Jaguar	Evolution	Camry	Corolla
NSX	Chrysler Cirrus	Protege	Mustang	Galant	Corolla	Corolla
RL	Neon	Rio	Odyssey	Lancer	Corolla	Corolla
RSX	PT Cruiser	Spectra	Odyssey	Mirage	Corolla	Corolla
TSX	Sebring	Civic Si	Prelude	Nissan	Corolla	Corolla
Vigor	Avenger	GS	S2000	200sx	Corolla	Corolla
Audi A4	Neon	IS	SC2000	240sx	Corolla	Corolla
S4	Stratus	IS	SC	3000GT	Corolla	Corolla
TT	Odyssey	SC	Mazda	Elise	Corolla	Corolla
BMW	Eagle	200sx	MX-6	Evolution	Corolla	Corolla
3 Series	Talon	240sx	350Z	Galant	Corolla	Corolla
5 Series		3000GT	350Z	Lancer	Corolla	Corolla
M3		Elise	Altezza	Mirage	Corolla	Corolla
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TEXT BY STEVE ENOMOTO
PHOTOS BY HENRY Z. DEKUYPER

1993 NISSAN SKYLINE GT-R R34

BLOODY RED LIVERY

A DAILY DRIVER THAT WILL ANNIHILATE YOURS





Woe unto thee, the youth of Japan. It's a known revelation that the Generation Z of Japan has little or no interest in automobile tuning, let alone feel the slightest need to acquire a driver license these days. This is coming from the country that endowed upon the world the almighty Japanese renaissance supercar, the iconic Nissan Skyline GT-R. In current times, the last model of the Skyline GT-R series—the BNR34—is becoming increasingly affordable to the average consumer, particularly in the land of its origin. For us, it is also a cruel reality that none of the Skyline GT-Rs were ever made available as a North American production model vehicle. Sure, a handful of these sought after machines managed to skip the Pacific to the American soil, but the importation methods that were utilized remain ever so questionable. Both lawfully and illegitimately, a few entities have challenged this overseas importation through various means but have inadvertently managed to create this seminal of controversy involving the DOT, EPA, and the Feds.

Regardless of the situation in the United States, the Japanese unquestionably have it easy when it comes to owning one of these automobiles. All they have to do is simply purchase and register—without any hassles like going through loads of paperwork, searching for regulatory loopholes, or buying one for close to \$100K. But what about the R35? This one finally became available for purchase at any local Nissan dealer in the United States but failed to continue the RB26DETT legacy. In the realm of the enthusiast mindset, R34 and R35 are two completely different vehicles. In fact, the R35 lost its hierarchical inheritance when it was stripped of its Skyline badge and loaded with overcomplicated electronic gadgetry and chain-driven camshafts. The great R34 GT-R was known to excel in all forms of driving, even grocery getting whilst spitting out that distinct enraged sound that only a force-fed, cast-iron inline-six engine can produce.

For Sun Line Racing in Okayama Japan, the R34 represents the philosophy that an affordable and extremely capable machine doesn't have to be high maintenance or a dust-covered garage queen. But every vehicle Sun Line touches doesn't really turn to gold; instead, a definitive bloodred color that serves as the livery of the company's tuning aptitude. With the only exception being the full dry carbon R34 that was built recently, this blood red is a trademark warning sign to the other vehicle tuners out there to get out of the way and make room.



Since this '93 Nissan Skyline E-BNR34 is Sun Line's staple representation of a street vehicle, the key factor when tuning the engine was efficiency, reliability, and comfort. Large turbochargers require a lot of maintenance and the higher the power output, the more chance that things will breakdown thermodynamically. Therefore the factory turbochargers were kept in tact, with emphasis on small but vital surrounding components such as Tomei valvesprings, 1.2mm head gasket, and NISMO motor mounts. The target goal for this machine was an estimated 500 "streetable" horses, which is plenty for an all-wheel-drive GT-R to handle in terms of laying the power to the ground without getting all squiggly like an FR-configured vehicle. Furthermore, since the factory turbochargers are forced into pumping more air into the engine than its stock specification, fuel must be compensated to avoid detonation. Sun Line chose to go with the tried-and-true combination of using a Tomei high-volume fuel pump, NISMO fuel pressure regulator, and Sard 700cc injectors. The HKS Type R intercooler handles the cooling department along with the Trust oil cooler and a custom radiator keeps the air, water, and oil temperatures down efficiently.

The transmission was kept stock. Although not entirely factual, the word *Getrag* is synonymous with the word *bulletproof* to many enthusiasts. Getrag is a German transmission manufacturer that builds and provides superior gearboxes to vehicle manufacturers typically for high-end sports cars. The only other vehicle that was worthy enough to receive this brawny Type 233 six-speed gearbox from the factory was the MK4 Toyota Supra. With an upgraded clutch, it is known to withhold some serious torque well above and beyond the intended factory numbers. Sun Line had chosen to go with an Exedy twin-plate carbon clutch and flywheel, solely because of carbon fiber's immense grappling characteristic under high inertia load.

Tein plays a vast role in the vehicle's suspension makeup. The vehicle was going to be used primarily on the streets but Sun Line needed a suspension system

THE INTERIOR OF THE VEHICLE REMAINS VERY MUCH LIKE HOW A STREET CAR SHOULD BE—NO JUNGLE GYM ROLLCAGES OR VARIOUS GAUGE CLUSTERS LITTERED ABOUT. THE ONLY INDICATIONS FROM THE INTERIOR THAT THIS IS A TUNED MACHINE ARE A **BLITZ SBC DC SEQUENTIAL BOOST CONTROLLER, BRIDE GIAS RECLINABLE BUCKET SEATS, AND A NARDI CLASSIC STEERING WHEEL.**





that could also be used competitively on the racetracks. The Tein Circuit Master Type N1 coilover system was the textbook verdict. Yes, this unit is made strictly for the track, but don't forget that it features a wide compression and rebound parameter that can be set precisely to almost every kind of situation. Besides, an external reservoir suspension always looks so menacing in the wheelwell! Other accompanying components include NISMO front and lower arms, with Sun Line's own front and rear camber adjustable arm setup.

A full-fledged tuning shop must consider the affect one modification has to another no matter how trivial or unrelated they may seem. A perfect example is that once a car is modified to accelerate quicker, it must be counteracted with an approach to make the car decelerate equivalently—unless it's a drag machine packing a chute in the rear. The factory Brembo brakes are an outstanding package but Sun Line decided that a circuit vehicle required more precise braking control so the Endless brake calipers, rotors, lines, fluid, and pads were chosen. The massive front six-pot and rear four-pot calipers are dimensionally harmonic with the oversized rotors as well as the MA22 brake pad compound for maximum initial bite, braking control, and longevity. A couple drawbacks to this modification are the hardened ceramic metal blend pads, which make a lot of squealing noise and are designed to work optimally with R-compound tires.

The interior of the vehicle remains very much like how a street car should be—no jungle gym rollcages or various gauge clusters littered about. The only indications from the interior that this is a tuned machine are a Blitz SBC DC sequential boost controller, Bride GIAS reclinable bucket seats, and a Nardi Classic steering wheel.

The R34's full NISMO Z-Tune body kit was shot with Sun Line's trademark red paint and topped off with a Sun Line 3D GT Wing Type II and cooling hood. Be careful staring at the exterior, you may experience arc eye symptoms from the contrast emitted off the gold SSR Type F 18x11 wheels and the popping red paint. Yokohama Advan AD08 compounds were selected because of its Micro Silica + Hyper Density Carbon composite properties, which provide great traction on wet and dry surfaces.

To have an automobile of this caliber that's readily available for purchase with its price dropping every year should be considered a blessing. Plenty of aftermarket go-fast parts are available on the market, still far from becoming discontinued. For us, Americans, it first starts with envy, then irrepressible jealousy, followed by uncontrollable rage, since the Skyline GT-R is our forbidden fruit of the automobile world. We, the people, who inhabit this great nation of the United States recognize this cycle of emotions whenever gazing upon one of Nissan's greatest creations. As long as vehicle manufacturers keep producing four-wheel machines, tuning companies like Sun Line Racing will continue making them faster than no other. **IT**





1993 NISSAN SKYLINE GT-R R34

490 PS AT 7,000 RPM

ENGINE RB26DETT, Tomei 87mm bore 1.2mm head gasket, fuel pump; NGK Racing spark plugs; HKS Racing suction air intake; NISMO fuel pressure regulator, catalytic converter; Sard 700cc injectors; HKS Type R intercooler; Sun Line Racing titanium front pipe, GT-spec EX 90RS titanium exhaust, radiator; Trust oil cooler; SAMCO hoses; Plasma Racing coolant

DRIVETRAIN Getrag transmission; Exedy twin-disc carbon clutch

ENGINE MANAGEMENT HKS F-Con V Pro ECU tuned by Sun Line Racing

FOOTWORK & CHASSIS Tein Circuit Master Type N1 (18kg springs); NISMO lower arms; Sun Line Racing camber control arms

BRAKES Endless Racing six-pot caliper (front), four-pot (rear), MA22 racing brake pads, brake lines, brake fluid

WHEELS/TIRES SSR Type F 18x11 +22, lug nuts; Yokohama Advan AD08 265/35-18

EXTERIOR NISMO Z-Tune aero package; Sun Line Racing 3D GT Wing Type II, GT cooling hood

INTERIOR Bride GIAS reclining bucket seats; Takata racing harness; Nardi Classic steering wheel; Works Bell steering hub; Blitz dual SBC-ID boost controller; NISMO cluster

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TEXT BY JOEY LEE
PHOTOS BY SAM DU, SEAN KLINGELHOFER, AND JONATHAN WONG

1992 HONDA CIVIC



AIR OF SPEED

JAPANESE EG6 CIVIC
TRACK TOY BUILT
WITH STYLE
AND FUNCTION

The Honda community as a whole has grown by leaps and bounds within the last decade or so. It's wild to even think about how much has changed during that stretch of time. Here in America, the early 2000s saw a dramatic shift from the wildly popular body kit era to the much more understated "JDM" phase. Everybody wanted OEM Japanese Honda parts on their cars and other American Honda enthusiasts chose to go after the Japanese circuit racing-inspired look. That didn't mean that you necessarily had to race your car, you just had to achieve the look of a Japanese Honda racer. That theme is still popular today, but the American Honda community has become infatuated now with custom fabrication and extensive engine bay modifications. The terms JDM are often overused and have basically lost all original meaning. Now, people who want to be "JDM" just throw random things like towhooks, stickers, and replica Japanese wheels on their car to get that "JDM" look.





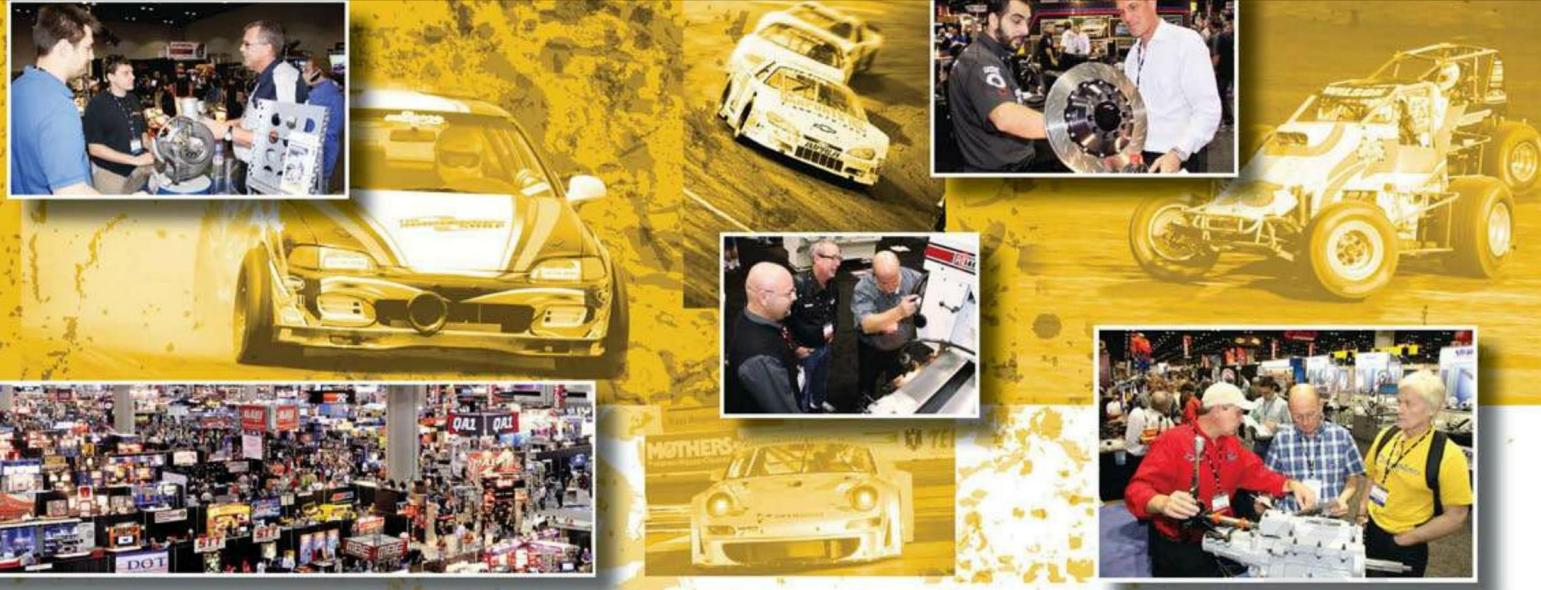
ATUKI HAS BECOME SO FOND OF AMERICAN HONDA STYLE THAT HE HAS EVEN ATTEMPTED HIS OWN INTERPRETATION OF A USDM HONDA BUILD—HE TOOK A LEGIT JAPANESE DC5 INTEGRA TYPE R AND CONVERTED IT TO U.S. ACURA RSX TYPE S SPECIFICATIONS.



While things seem to be changing year to year here in the States, the Japanese Honda crowd has also made some changes of its own. Many have now adopted the “USDM” way of modifying their Hondas and are now theming their builds with intentions to replicate American Hondas. It is a little strange to hear but it all comes down to people inspiring other people, regardless of their country of origin. The USDM scene, if you will, is growing every year, and the surge in popularity doesn’t look to be slowing down anytime soon. Even still, the USDM style of tuning is far from reaching mainstream success in Japan, and the core group of Japanese Honda heads are still very much into the motorsports.

Atuki Tsubouchi has a wide variety of tastes when it comes to automobile modification. He spends a bulk of his day doing custom stereo installs on high-end exotics at his shop, Tactical Art, and has also recently discovered

a fascination with American Honda style. Atuki has become so fond of it that he has even attempted his own interpretation of a USDM Honda build. He took a legit Japanese DC5 Integra Type R and converted it to U.S. Acura RSX Type S specifications and installed a lip kit from Extreme Dimensions, which is a Stateside fiber-glass body parts supplier. His DC5R even sits on American-made CCW LM5 three-piece wheels. That seems pretty commonplace over here, but it is otherwise unheard of in Japan. His interest in this particular style of tuning has expanded over to his business, where he recently started to bring in U.S. aftermarket products to sell to other USDM fans. Though it may seem like he has his hands full with the audio installs and his Integra Type R, he has managed to make time for his true love: this ‘92 Honda Civic hatchback. After normal business hours at Tactical Art conclude, Atuki shuts the front doors and turns into a race car builder. He not only assembles Honda engines in-house, he is also quite skilled with the welder and has the ability to fabricate anything from an exhaust to a complete rollcage. Atuki’s Civic was built entirely within the confines of Tactical Art and serves as his weekend track vehicle.



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The first and most eye-glaring detail about this Civic is the beefy front fascia. A couple of you may be scoffing at the idea of a Civic having that much front aero, but you better believe that this Civic is built with pure function in mind. Time-attack and closed-circuit racing has always been quite popular in Japan, and it is what first intrigued Atuki as an enthusiast. In the seven years that this Civic has been in his possession, it has seen a significant amount of time on local racetracks. In fact, at no point in time is this EG6 ever driven on a public road these days—it is strictly a track toy. Even if he did decide to take it out for a leisurely cruise on the street, he would be a headlight short, seeing as how the driver-side headlight has been cut and converted into a makeshift intake duct. Deleting one headlight doesn't mean much in terms of weight savings but it does add to the overall theme of this build, which is a steady shedding of unnecessary pounds. The heavy OEM hood has been replaced with a carbon-fiber unit, and the interior has been completely gutted. A fiberglass mold of the original Civic dashboard supersedes the OEM piece, and the passenger seat is nowhere to be found. A lightweight Bride bucket seat sits where the driver seat once sat, and a Takata safety harness keep Atuki planted in the cockpit when he is ripping through the track. Aerodynamic enhancements come in the

form of a custom-mounted Origin rear wing, front carbon lip/diffuser combo, and a half-cut rear bumper.

Weight reduction is always a good idea for race cars, but another issue that Atuki ran into was what wheel and tire to run. He felt that the smaller wheel sizes that are usually found on Civics were preventing him from running good lap times. So to get more tire and a wider wheel onto the front of the Civic, Atuki modified his front OEM fenders by spacing them outward. With the additional room, he was able to squeeze in some fairly aggressive 16x9 SSR SP3R wheels. Being that this is a front-wheel-drive vehicle, maximum contact patch for the 225/45-16 Advan A050 is key. In the rear, you will find some slightly narrower 16x8 Volk Racing TE37s.

No legit track vehicle would be complete without a formidable engine setup, and the Tactical Art EG6 is no slouch. Atuki spent countless late nights at his shop assembling this 1.8L Honda engine. He utilized a ported B16A cylinder head with TODA Racing Spec-B cams, and mated it to a B18C block, which features a knife-edged crankshaft. Cold air is driven into the motor via a J's Racing air intake and exhaust gases run through a Mugen 4-1 header and out into the atmosphere through a completely custom exhaust system, fabricated by Atuki.

Atuki may dabble with different projects often and take chances with different styles of modifications, but this Civic is most certainly his crown jewel. The guy is a fabricator, engine builder, custom stereo install specialist, and also a good driver. He does everything well, and it comes as no surprise that he has built himself a balanced, competitive, circuit racer. If you have a chance, make sure to check out some in-car footage of him on the Nakayama Circuit on YouTube—this little EG6 absolutely rips it on the track. ■

300V

The Perpetual Revolution



Photo: Mark Weber, Pirelli World Challenge



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BEHIND THE BUILD

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(TACTICAL ART)

AGE
31

LOCATION
OSAKA, JAPAN

OCCUPATION
REPRESENTATIVE DIRECTOR
AT TACTICAL ART

BUILD TIME
SEVEN YEARS

HOBBIES
BUILDING RACE CARS

FEEDBACK
T-ATSUKI@TACTICAL-ART.JP

MOTIVATION
"TO HAVE A FAST,
LIGHTWEIGHT HONDA FOR
CIRCUIT RACING."

1992 HONDA CIVIC

ENGINE 1.8L Honda B18C engine block, B16A cylinder head; TODA Racing Spec-B camshafts, cam gears, high-power timing belt; Tactical Art pistons, piston rings, valvesprings, custom-fabricated exhaust system; custom knife-edged crank; ported and polished cylinder head; OEM B16A valves; Mazda FD3S RX-7 fuel pump; J's Racing Tsuchinoko air intake; 70mm throttle body; Mugen 4-1 exhaust header; Nagai Densi MDI simultaneous ignition system, Blue Point Power spark plug wires; NGK spark plugs; custom baffled oil pan, oil pump; Koyo radiator

DRIVETRAIN Exedy Hyper single clutch; ATS Silent Metal mechanical limited-slip differential; Third, Fourth, and Fifth cross gearset; 4.929 final drive

SUSPENSION Crux Aluminum High-Capacity Damper B coilovers; Swift springs; Safety front/rear antiroll bars; customized steering knuckle arm; Vision bushings

BRAKES Endless CCRG front brake pads, CCR rear brake pads; Goodridge brake lines

WHEELS/TIRES 16x9 +13 SSR SP3R (front); 225/45-16 Yokohama Advan A050 (rear); 16x8 +42 Volk Racing TE37; 215/45-16 Yokohama Advan A050

EXTERIOR Origin 1340mm rear wing; custom Tactical Art front diffuser and end plate, half-cut rear bumper; Tactical Art Blue paint; Spoon Sports side mirrors; cutout driver-side headlight; carbon-fiber hood

INTERIOR Bride Zeta II seat; custom fiberglass dashboard; no-name steering wheel; Omori analog gauges; Tactical Art roll cage; Takata safety harness

ELECTRONICS A'pexi Power FC

GRATITUDE Tactical Art crew; Team Madame

HOTBOX

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When Nissan designed the first S13, they thought they created a car that would serve the needs of the public and allow them to have a little fun along the way. Never would they have imagined a car that would become an icon for the next two decades. If you showed Jared Nieves' car to the designers of the S13, I imagine they would have stared in bewilderment. This car is far from stock, but it maintains the same essence and the same dutiful purpose mixed with the bit of fun Nissan designed into their little hatchback some 20 years ago. This car, in particular, might be a little more fun than they envisioned, but nonetheless, it maintains an elevated level of the same goal created in the late '80s. Present day, this car does not encompass anything unusual, except for keeping an SR20DET engine, a sadly waning trend in recent years. This car contains all the pieces of the puzzle, which were put together meticulously over the course of this build. Being an icon for such a long time, countless S13s have been built in a similar fashion to the one on these very pages. Now, you, the reader, may begin to wonder why this particular one deserves a feature, and not your car or your friend's beater. What makes this car so special?

Well, nothing in particular, if I am totally honest. However, it is more than just the overall picture. The way each piece of this puzzle is particularly crafted, placed, and assembled entices a curiosity and an undeniable presence when you view the car. I've seen this car many times at local car meets, parked some distance away, yet demanding my attention. Even if I have dozens of equally impressive cars sitting in front of me, this car begs to be looked at. Like a good photograph or painting, it has a visual tension that cannot be denied. There is something about the way this car hovers above the ground yet maintains a harmonious unity with it at the same time. It is an organic shape taking part in the scenery. The Porsche Meteor Gray paint is a subtlety that boldly hugs the curves Nissan so delicately drew onto paper. Origin aero took the job of master stylist and added some J.Lo curves to the already sleek design, no doubt pleasing onlookers.



While inspecting the paint, the engine bay is one particular thing to notice. Again, a color that has been done, but the choice of color is one that no man should touch: purple. And it isn't because purple is feminine or lame; it's the superstitious following behind purple paint known as "the purple curse". Some of you may be familiar with this philosophy that purple cars are cursed and unlucky. Jared, however, seems to defy this theory with his reliable SR that sees frequent street use. Carefully selecting the parts used for the motor aids the SR's unquestionable reliability. Tomei products are used throughout the cylinder head, matched with a Garrett GTX3071R turbo, mixed with some top quality, locally made exhaust parts. For the most part, this car seems trouble free, but that's not without some less-than-glorious moments of luck.

IT ISN'T BECAUSE PURPLE IS FEMININE OR LAME; IT'S THE SUPERSTITIOUS FOLLOWING BEHIND PURPLE PAINT KNOWN AS "THE PURPLE CURSE".





There are few occasions where his paint choice has gotten the best of him. When he originally upgraded his turbo, he was out cruising around and managed to break a few rocker arms. After he got that issue sorted, he started going through transmissions faster than he went through tanks of gas. Sensibly, he upgraded to the Z33 adapter kit, which is manufactured locally, and has been worry free ever since. Then, there was a recent incident when he was cruising around Phoenix and got pulled over, purely out of suspicion. This encounter resulted in the car being impounded, because as the officer said, "A bunch of these motors have been reported stolen." Clearly, he was misinformed. This is always nerve-racking, because impound lots are not known for being gentle with stock cars, never mind insanely low, beautiful cars like this one that requires a certain elegance when being handled. After a very thorough "investigation", much similar to a Barnum & Bailey affair, he finally received his car back from the impound lot, making it out unscathed in the unlikeliest of outcomes.

This endurance of love and the trials of passion bring us back to why this car deserves to be here. Jared is unwavering in his pursuit of perfection. Despite all the tests and troubles, despite the long process to get to this point, Jared saw this

through to the bittersweet ending, the very car sitting before you. The look of this car has changed many times, arriving at this current recipe for success. The car looks the part and plays it too. It is not just driven to and from car shows; the grocery store, track, and to weekend barbecues, as well. That bit of economy, mixed with the glimmering hint of fun and the undeniable looks, carried through two decades of existence and still plays a major part in today's choice of automobile appeal. This car receives love across the Internet and deservedly so. Nissan did not know what a gem they created when they first set out to mass-produce the 240SX, but after seeing this car, and what glorious potential it possesses, nobody can deny that, in the right hands, this is more than just a car, it's a work of art. It is a transportation masterpiece, and when Jared opens the garage and starts this car, he can't wipe the smile off his face. I'd say that's pretty damn special, considering that this is just another S13. ■



AFTER SEEING THIS CAR, AND WHAT GLORIOUS POTENTIAL IT POSSESSES, NOBODY CAN DENY THAT, IN THE RIGHT HANDS, THIS IS MORE THAN JUST A CAR, IT'S A WORK OF ART.

BEHIND THE BUILD

NAME JARED NIEVES
AGE 29
LOCATION GLENDALE, AZ
OCCUPATION WAREHOUSE MANAGER
HOBBIES SHOES, GAMING, CARS, SPORTS, CLOTHES
BUILD TIME THREE YEARS
MOTIVATION "BECAUSE PEOPLE SAID THAT YOU CAN'T MAKE A 240 HATCH LOOK GOOD."

1989 NISSAN RPS13 240SX

402 WHP / 370 LB-FT OF TORQUE (EST.)

ENGINE JDM Nissan S13 SR20DET engine, Garrett GTX3071r .82 AR twin scroll turbo; A'pexi Power FC D Jetro; Tomei 256 intake/exhaust cams, 1.2mm head gasket, oil pan, valvesprings/retainers, fuel pressure regulator/gauge, 850cc injectors; Blitz front-mount intercooler; Future Fabrication intercooling piping, custom downpipe/exhaust, oil catch can; Tial 50mm blow-off valve, twin 38mm wastegates; Isis intake manifold; Koyo radiator; Nismo power brace, thermostat, motor/transmission mount; Nissan SR20DET S13.4 valve cover with -10 AN fitting; Nissan RB25DET clutch fan

DRIVETRAIN Nissan 350Z (Z33) transmission; Spec Stage 3 clutch; Carbonetic two-way differential; Suspicious Garage clutch line

SUSPENSION Powered by Max ProComp coilovers, solid subframes risers; Stance rear upper control arms, rear toe arms, tension rods, traction rods; modified front spindles and steering rack spacer

WHEELS/TIRES Work VS-KF 3D Chrome 18x9.5 -23 R disc 225/35/18 (front), 18x11 -5 offset 235/40/18 (rear)

BRAKES Nissan 300ZX (Z32) calipers/rotors (front and rear), Suspicious Garage brake lines

EXTERIOR Origin Aggressive Type 1 body kit, 40mm front fenders, 50mm rear fenders; DMAX vented hood; Nissan 180SX kouki taillights

INTERIOR Bride Low Max Gias seat and seat rail; NRG steering wheel, quick-release hub; Kelly Wolfe four-point rollcage with gussets; GReddy boost controller, 60mm gauges (oil pressure, oil temp, and water temp); DEFI white racer boost gauge; HKS turbo timer

GRATITUDE "Shout-out to Concept Z Performance, Pit Stop Performance, Team Top Flight, Boost Junkyz, Future Fabrication, Twisted Metal Auto, Echelon Motorsports, Suspicious Garage, Kelly Wolfe, Adam Mattson, Patrick Kemper, and all my friends and family."

HOTBOX

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STREET SWEEPER GANG
WWW.STREETSWEEPERGANG.COM

TOP FLIGHT
WWW.TEAMTOPFLIGHT.BLOGSPOT.COM





FIRST DRIVE

2013 ACURA ILX & RDX

ACURA'S NEW ENTRY-LEVEL LUXURY SEDAN AND
REFINED COMPACT UTILITY VEHICLE.

TEXT BY VANESSA LAM
PHOTOS BY VANESSA LAM AND ACURA



2013 ACURA ILX

Generation Y—those between the ages of 18-34—attends music festivals, owns iPhones, uses Pinterest, and goes on road trips.

If this sounds a bit like yourself, Acura's created an entirely new luxury compact sedan catered just for people like you. It's hard to imagine that the youth of today isn't as into cars as they were only a decade ago, as research has shown, and the value of having a driver's license has depreciated. Acura's answer to this ongoing dilemma is the 2013 ILX—loaded with personality, value, and style.

Directly competing against the Audi A3 and BMW 1-Series, the ILX gives shoppers an additional option of luxury with a bonus of reliability and starts in the mid-\$20,000 price range. Since it shares the same chassis as the Honda Civic, the ILX is the smallest in the lineup sitting beneath the TSX, and hopes to fill the void the late RSX had left behind.

COMFORT FOR THE PRICE

Although the ILX shares the same platform as the Honda Civic, it assuredly doesn't share the same interior as the Civic (and what it was controversial for in the 2012 model year). Offered in optional leather and loaded with features, the interior craftsmanship shines with what you'd expect in a luxury sedan.

Standard features are aplenty and should make you quite happy if you're like us and feel empty without your phone and/or Pandora. Acura has proved they know what's up in today's tech-savvy age by offering a plethora of standard features with the ILX including Pandora Radio, SMS

Text Messaging, Bluetooth Handsfreelink, and USB with iPod compatibility.

Options expand even further with the two available trims—Premium Package and the Technology Package. For an extra \$3,300, the ILX 2.0 liter with Premium Package comes packed with heated leather seats, 360W premium audio system, multi-view rear camera, 17-inch aluminum wheels, and HID headlights and foglights. For the consumer with deeper pockets, an extra \$5,500 gets you the Technology Package that includes an HDD-based navigation system, traffic and weather updates, ELS Surround Sound, and Homelink.

DRIVEABILITY

The entry-level luxury sedan is offered in three trims: 2.0L five-speed automatic, 2.4L six-speed manual, and 1.5L hybrid (the first hybrid for the Acura line). Having testdriven all three versions in the mountains of Arizona, the 2.0 liter pumping out 150 hp and 140 lb-ft of torque seems slightly lackluster in terms of zippiness but the 2.4 liter packed with 201 hp and 170 lb-ft of torque made up for it on our test run. The shifting in the manual transmission of the 2.4L model felt lighter than the TSX six-speed but left us yearning to experience an automatic version.





The introduction of a hybrid model for Acura was expected, as Honda has been recognized as an industry leader in the category. Though it added city driving amusement, the hybrid system seemed anything but smooth due to the engine feeling as if it kept stalling every time. One impressive feat was the estimated (and achieved) EPA 39/38 mpg (24/25 mpg for non-hybrid).

As we put Acura's new Amplitude Reactive Damper design to the test by driving through the mountain roads, the car felt stable and planted through the hairpins. This new design allows for the main piston being used when small road vibrations occur and when more damping force is needed in hard cornering, the second valve assists.

SLEEK AND CLASSY

Sporting the signature front grille (and more subtle beak), the ILX is designed to maximize aerodynamics and fuel economy. The lines flow throughout the body and complement the low sitting stance. Built using mostly high-tensile steel, the ILX features a reasonably more rigid body for better ride comfort and precise handling than the Honda Civic. The aluminum hood and bumper beams provide for a lightweight body.

The 2013 ILX is at dealerships now, starting at \$25,900.

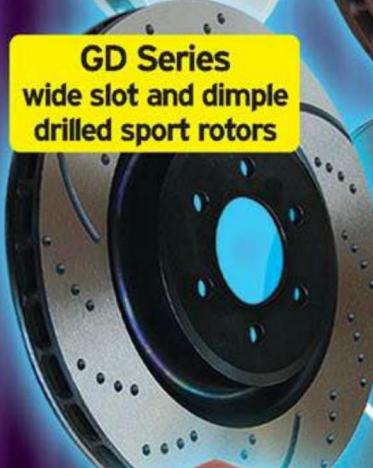


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2013 ACURA RDX

The first-generation RDX was available as a 2007 model that offered SUV buyers a small, sporty vehicle that was smaller than its older brother, the MDX, and more performance oriented. The much-touted turbocharged 2.3L motor was rated at 240 hp with 260 lb-ft of torque and packed quite a serious punch. Featuring Acura's Super Handling All-Wheel-Drive system, the RDX was everything the market just didn't have. Much has changed with the 2013 model.

The second-generation RDX—available as a 2013 model—has dropped their exhilarating turbo motor and went with their naturally aspirated 3.5L V-6. Although it doesn't feel like smile-inducing fun, the redesigned model has a rated 273 hp and 251 lb-ft of torque—a significant gain in horsepower but with an expected drop as well. Even their all-wheel-drive system has been toned down; in place is a more conventional—and cheaper—system. Some may say they have sold out and went to the dark and boring side, but the RDX is headed toward better pastures.

Like the ILX, the RDX is standard with Amplitude Reactive



Dampers, offering great ride quality and handling. Interior space has been redesigned to make for a more fluid look and feel that offers more space for both driver and passengers. Overall, the redesign feels much more refined and is powerful in its class, all the while achieving top fuel economy, so the disappointment in lack of turbo thrust ends right about there.

The RDX carved up the snow-covered canyon road effortlessly with help from the ginormous 8-inch navigation screen. The new all-wheel-drive system seemed to be anything but cheapened; traction was no issue throughout the uphill climb to over 5,000 feet elevation. Throttle response and power delivery was much more instantaneous than its predecessor.

While on our trip, we were able to directly compare the RDX with its competitors—the Audi Q5 and BMW X3. Automatically, the RDX has a noticeably more intuitive layout than its German counterparts. With its eight-speed automatic transmission, the BMW felt as if it would never stop shifting. The Q5 just didn't seem to be able to muster up the power to keep up with even the late-model RDX. And at a premium price for either Audi or BMW models, the RDX is clearly the winner in our book.

The 2013 RDX is at dealerships now starting at \$34,320. ■





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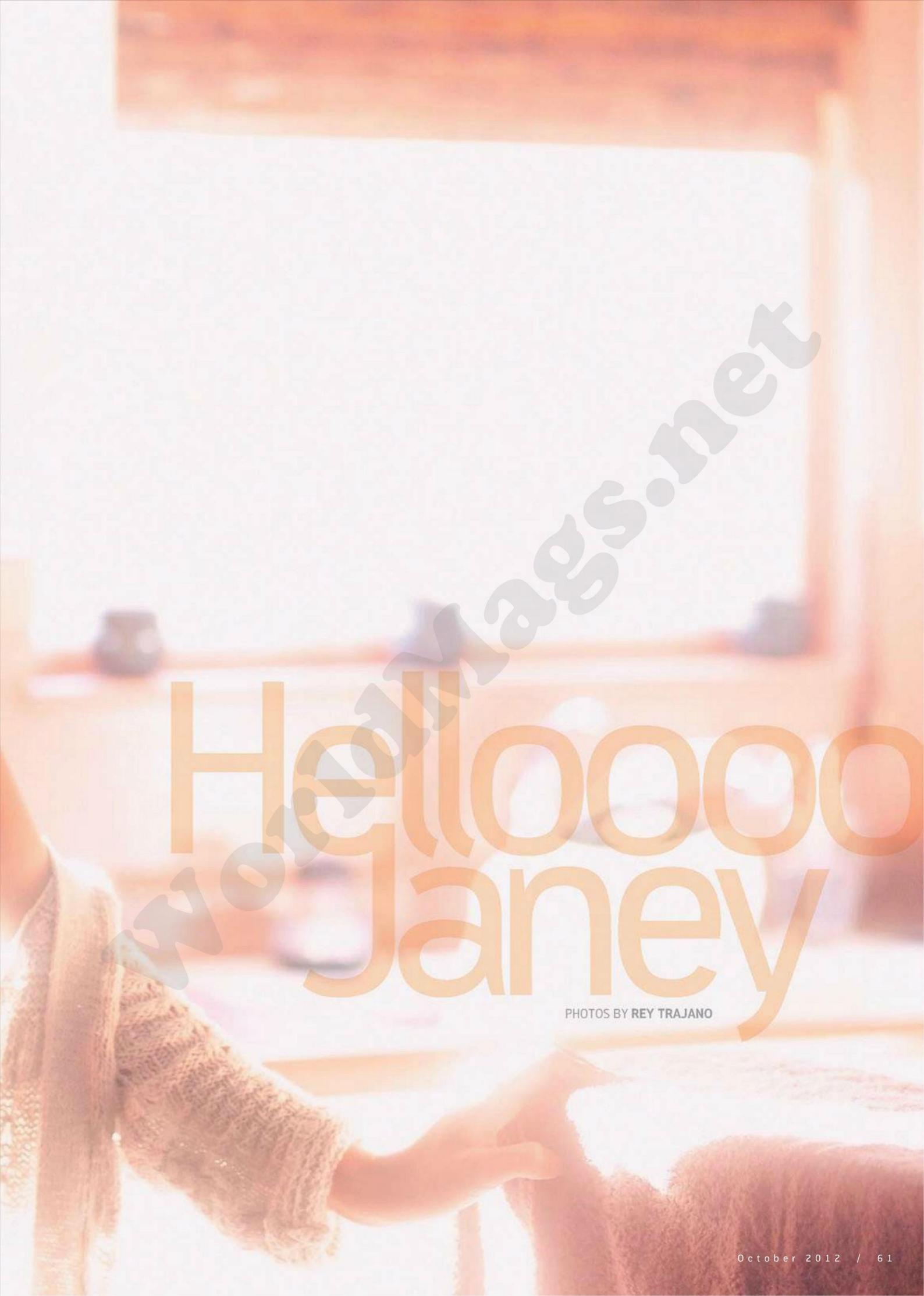


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A close-up photograph of a person's hand holding a small white cat. The hand is visible on the left, wearing a light-colored sleeve. The cat is white with some dark spots and is looking towards the right. The background is a bright, sandy, outdoor setting, possibly a beach, with some blurred objects in the distance.

Hellooooo Janey

PHOTOS BY REY TRAJANO



舞情步深



Favorite car.
Lexus LFA

First kiss.
I remember it being really messy, and not in a good way.

Hidden talents.
I'm a classically trained pianist with 11 years of formal lessons under my belt.

Biggest turn-on.
Chivalry. I'm a sucker for a gentleman with manners.

Favorite food.
Bacon. Anything with bacon is the key to my heart.

Favorite TV show(s).
Tosh.0, Saved By The Bell, and Game of Thrones

Worst habit.
Sleeping in. I love sleep.

Guilty pleasures.
Chocolate, and lots of it!

Tattoos and/or piercings.
Seven tattoos. I used to have 13 piercings, but I currently only wear one—and it isn't my belly ring!

The best pickup line that worked on you was.
"I have a Hello Kitty present for you, but I left it at home." It gave a guy who I usually wouldn't give a second chance another date. He was a slick one.

Sports.
Hurdles, I was ranked Third in my league (not bad for a shorty).

Your style.
Eclectic. I'm girly, athletic, classy, and edgy all wrapped into one.

Weirdest phobia.
Breast-feeding. Don't ask. LOL.

I'm totally addicted to:
The Time Crisis arcade game. I can't pass a machine and not play.

Music.
A little bit of everything

Three words that best describe you.
Optimistic, goofy, and ambitious



JANEY B

Height: 5'4"

Measurements: 32D-24-35

Ethnicity: Filipino

Sign: Taurus

Birthdate: May 8

Hometown: San Diego, CA

Facebook: facebook.com/hellojaney

Twitter: [@hello_janey](https://twitter.com/hello_janey)

Instagram: [hello_janey](https://instagram.com/hello_janey)

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2012 FORMULA DRIFT

ROUND 2

ROAD ATLANTA

TEXT BY SCOTT TSUNEISHI
PHOTOS BY HENRY Z. DEKUYPER

ROAD TO THE CHAMPIONSHIP

Formula Drift Round 2 "Road to the Championship" was jam-packed with near sold-out crowds, thrilling drifting, and top driver upsets we've become accustomed to at the start of the new 2012 season.

Prior to the event, the drifting community was blindsided with news that the city of ATL had approved an ordinance to ban drifting from stadiums and venues within 1,200 feet from residential areas. Luckily, round two of Formula D continued without incident due to its off-city location, but that didn't stop the crowds of fans to show strong support for saving drifting and protesting the deliberate targeting of their favorite sport within the city of ATL.

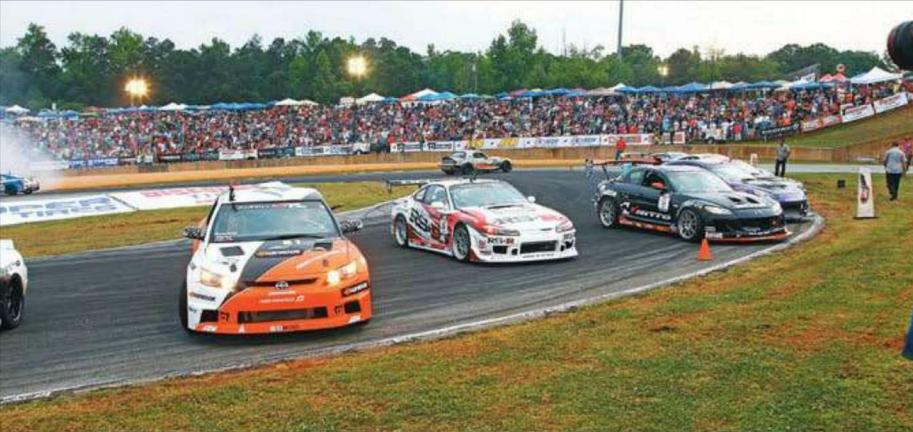
Formula Drift at Road Atlanta for 2012 brought a few new changes to the course, including the layout of the famed Turn 10 complex layout. Instead of going through the "horseshoe" in a counterclockwise direction, the FD staff reversed the configuration. The new 2012 layout required going up and around the horseshoe instead of turning in first. The change in configuration wasn't a problem for the larger horsepower cars, but seemed to cause problems for the smaller displacement engines,

which struggled to keep momentum and speed to climb the hill. Another addition to the course was vehicle proximity sensors, which flash to let both judges and fans know if a competitor comes within distance to trigger the sensors.

TOP 32 QUALIFYING

The Top 32 was full of upsets including a surprise victory by Toshiki Yoshioka in the RS-R Silvia, who won by default due to NOS Energy Drink/Hankook 370Z driver and former FD champion Chris Forsberg breaking a right front suspension arm upon entry on the rumble strips. Forsberg's team called a 5-minute session but couldn't get it repaired in time to take his second run. Another stellar upset included Joon Maeng in the Nitto/Lucas Oil Mazda RX-8 taking out the Mobil 1 Camaro of Tyler McQuarrie, but the biggest upset was Ryan Tuerck in his Team Retaks Nissan 240SX defeating reigning champion Dai Yoshihara. Yoshihara in the Discount/Falken Tires S13 showed the crowd why he was the 2011 champion as he pitched his car around the course with textbook drifting in the first of two tandem battles. Tuerck laid it all on the line on the second run and shot out off the line like a cannon as Yoshihara was forced to play catch-up. The judges were obviously impressed and gave Tuerck the overall win. The early round elimination was a surprise blow for Yoshihara and his team, which sent him packing along with dropping his ranking in the championship points contention.





GREAT EIGHT

Michael Essa vs. Justin Pawlak

Michael Essa in the GSR Autosport/Nitto BMW ZR4 took the lead in the first of two battles. He looked strong coming out of the first clipping point, but Justin Pawlak maintained his composure in his Falken Tire Ford Mustang; he kept within a door's distance of Essa throughout the entire course. It was Pawlak's turn to take the lead for the second run with Essa giving chase as the Mustang pulled a significant gap between the two competitors. Essa pedaled his car in an attempt to catch up, but in doing so laid down a shallow line approaching the final clip, giving Pawlak the win.



2012 FORMULA DRIFT ROUND 2

GREAT EIGHT CONTINUED

Joon Maeng vs. Walker Wilkerson

Joon Maeng's nerves seemed to get the best of him. His super-aggressive lead lap caused the Nitto/Lucas Oil Mazda RX-8 to lose control as he spun into the dirt, narrowly missing the V-LED proximity sensor coming out of the first turn. During the second round it was obvious that the RX-8 car had suffered damage from the previous run; it drifted wildly through the course, eventually coming into contact with Walker Wilkerson's Falken Tire/Fatlace S13 240SX driver-side door. The hit was an automatic disqualification, and Wilkerson moved on to the Final Four.



Daigo Saito vs. Aurimas "Odi" Bakchis

Into the second run, Bakchis in his Team M7/ Bakchis Motorsports Nissan S14 overcooked a turn and went wide as the S14 dropped two tires into the dirt. Bakchis quickly recovered as he attempted to navigate through a thick plume of smoke created by Daigo Saito's Achilles Tire/Bridges Racing Lexus SC430. Saito bobbed near the end of the run, but had enough points for a two-to-one judges decision and moved into the Final Four.

Fredric Aasbo vs. Rhys Millen

Up next was Fredric Aasbo in the Need for Speed/Papadakis Racing Scion tC versus Rhys Millen and his Hankook/Rhys Millen Racing Hyundai Genesis coupe, a battle of Norway versus New Zealand. The winner would automatically move on to battle Saito for a podium finish. Aasbo kept his foot firmly planted on the pedal; he poured on the smoke and more drift angle than Millen. The second tandem run had Millen leading with Aasbo playing chase. The Scion tC shadowed the Hyundai Genesis' every move. Millen was ultimately docked points from the judges when he displayed a shallow run, giving Aasbo the win.



FINAL FOUR



Walker Wilkerson vs. Justin Pawlak

Top contenders Wilkerson and Pawlak kicked off the Final Four with JTP leading in the first of two battles. JTP's Falken Tire/Ford Mustang is a horsepower beast as it pulls away from Wilkerson's hybrid-powered Falken Tire/Fatlace S13 240SX V-8 machine. Wilkerson was the first to flinch; he bobbles with a correction coming out of the second clipping point—advantage JTP. Wilkerson's manages an amazing second run as he perfectly hits every clipping point, but it wasn't enough to overcome his previous mistakes as JTP moves on with a unanimous win from the judges. Although Wilkerson was eliminated, he still had a chance to take a podium win as he moves into the Third Place consolation round to face Saito, this season's most feared competitor.

Fredric Aasbo vs. Daigo Saito

Aasbo displayed a strong run, but Saito wouldn't give up; he kept close distance to the Norwegian's door. Saito seemed to have problems all day; he once again overcooks a clipping point and slightly bobbles, causing him to separate from Aasbo for a split second. Both judges and spectators lost sight of both cars on the second run as smoke from both cars blanketed the track. The judges, to the dismay of the fans, gave the victory decision to Aasbo, as he moved into the finals with Saito battling Wilkerson for Third Place contention.



FINALS



Daigo Saito vs. Walker Wilkerson

Saito exhibits a textbook run in his 2JZ-powered SC430 as Wilkerson's S13—even with a V-8 underhood—looked underpowered. The second run, Wilkerson leading and Saito giving chase, looked to be an easy win for Saito, the Asian Series Formula

Drift champion, but once again a major correction causes a six to seven car-length gap between the two as the crowd immediately gasps in surprise. With Saito's costly mistake, the judges determined a one-more-time was necessary. Determined not to make another mistake, Saito smoked his Achilles tires in the elimination round and drifted to another impressive podium and back-to-back Third Place finish.

Justin Pawlak vs. Fredric Aasbo

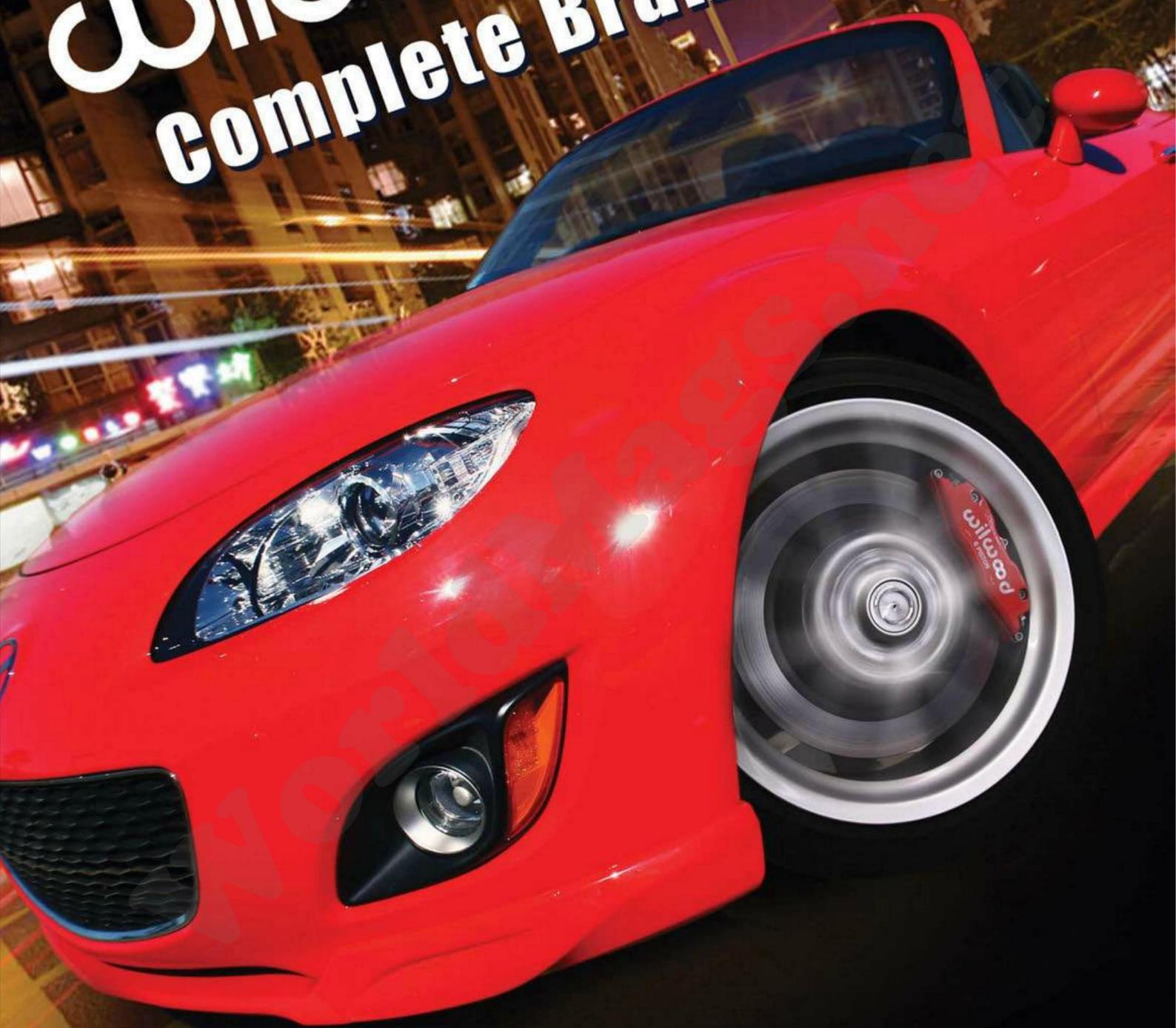
Aasbo displayed some monster angle as the lead car over JTP; he easily took an advantage in the first of two tandem battles. JTP was determined to claim another nail-biting victory, but Aasbo had other plans as he mirrored every move the Mustang made. The crowd patiently awaited the results while the judges carefully scrutinized the replay. After an excruciating wait for both fans and drivers, the judges declared JTP the winner as he takes First Place for the second time in two FD events.



	FORMULA DRIFT PROFESSIONAL CHAMPIONSHIP 2012 POINTS STANDING AFTER TWO ROUNDS
1	Justin Pawlak 209 points
2	Daigo Saito 157.5 points
3	Fredric Aasbo 152 points
4	Rhys Millen 127 points
5	Matt Powers 126.5 points
6	Ryan Tuerck 120.5 points
7	Dai Yoshihara 118 points
8	Odi Bakchis 117.25 points
9	Ryan Kado 114 points
10	Kyle Mohan 109.5 points
11	Toshiki Yoshioka 108.5 points
12	Michael Essa 97.5 points
13	Vaughn Gittin Jr. 96 points
14	Chris Forsberg 93 points
15	Tyler McQuarrie 88.5 points
16	Kenneth Moen 87.5 points
17	Ken Gushi 86.25 points
18	Joon Maeng 86.25 points
19	Conrad Grunewald 85 points
20	Matt Field 79.25 points
21	Tony Angelo 78.75 points
22	Walker Wilkerson 69.50 points
23	Darren McNamara 50.25 points
24	George Marstanovic 49.25 points
24	Dennis Mertzanis 49.25 points

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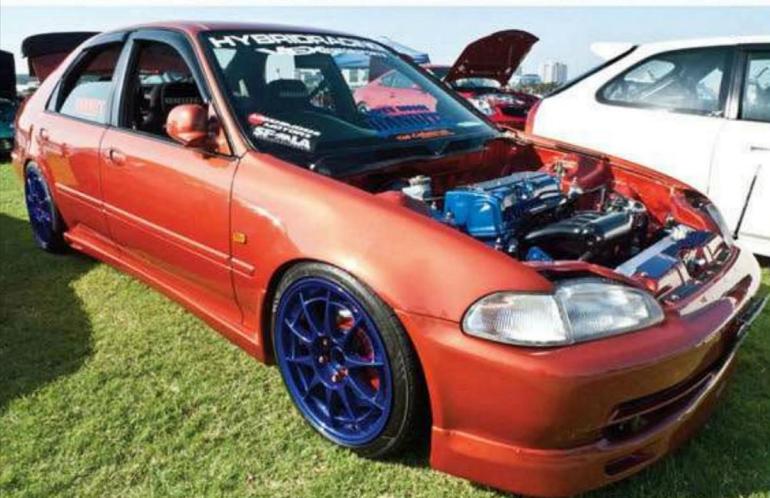
QUEEN MARY PARK – LONG BEACH, CA

TEXT AND PHOTOS BY CHARLES TRIEU

NorCal's hottest car show comes back to SoCal in full effect. Outdoor at the Queen Mary Park in the city of Strong Beach, over 4,000 people came through to see over 400 of the West Coast's best. Wekfest has really become a staple in the show circuit. This year the guys of Weksos will be bringing Wekfest to new cities like Austin and even out the East Coast in New Jersey.

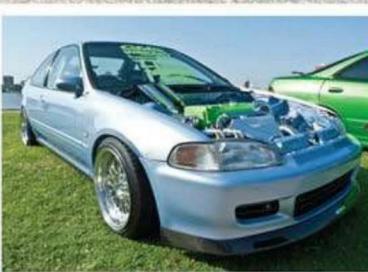






If you're looking for a show with real and pure car enthusiasts, this is it. If you're anywhere near one of the show locations make sure you come through. You won't be disappointed. 

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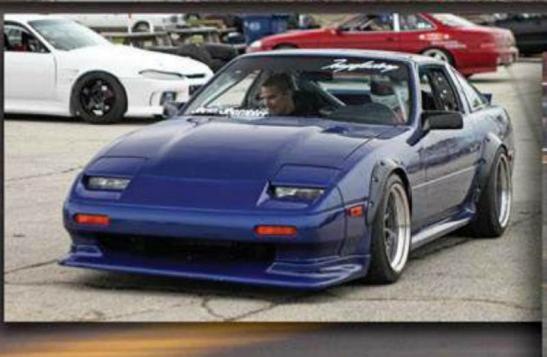


Automass CHICAGO, IL

TEXT AND PHOTOS BY BRAD SILLARS

What happens when four of the largest forces in the Midwest car enthusiast scene combine to put on one event? You get the grassroots epicness that Chicago now knows as Automass.

ClubFR is well known in the Midwest for hosting some of the most successful open-invite drift events with a veritable list of who's who in the local community attending. They teamed up their expertise with Touge Factory (a local car shop well known for their Stance brand coilovers and Tra Kyoto Rocket Bunny cars), JDM Chicago (the biggest JDM car community in the Midwest) and Project X (a thriving performance shop in Chicagoland) to host an open-invite drift event and car show at Toyota Park in Bridgeview, IL.



MAZDA



AUTOMASS



As anyone who has been to a car show can attest, they start to fizzle after you do your first lap around the venue and see everything once. This is why the dynamic aspect of events like Automass makes it such a crowd pleaser. All skill levels were invited to participate in the drift event with three different tiers of drivers. The noobs got to do donuts around a garbage can to hone their skills, the intermediate class did

single-car runs through a coned course, and the advanced class ... well ... it was pretty much tandem chaos in the best way possible. Nonstop action had the crowd packed against the fence to watch drivers from car clubs like Risky Devil/Junkhouse, Breaking, and Keep Drifting Fun's Josh Herron.

After the success of Round 1 you can guarantee that Round 2 will be equally as, if not more, epic. To stay in the know check out JDMChicago.com for the date of the next Automass. You do not want to miss it! tougefactory.com





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ROUND 4 JUNE 22-23	WALL SPEEDWAY
ROUND 5 JULY 20-21	EVERGREEN SPEEDWAY
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ROD'S JUNK REMOVAL

TAKING JUNK AND MAKING IT NEW

The term *ghetto* comes to mind every time I hear or read about someone, somewhere, who has miraculously removed rust from metal parts using nothing more than a can of soda. That's right ... the same refreshing beverage you probably have lying around in your fridge. As preposterous as it sounds, this urban legend had me second-guessing myself and made me wonder: Does this stuff really work? After

hearing fascinating stories for the 100th time about someone's brother's mother's sister having amazing success with a can of soda, it brought me around to finally test the myth with my own controlled experiment and find out for myself if it truly works. Perhaps there's some secret ingredient in soda that will react with iron oxide (rust) that removes it? We're soon to find out!

?

SODA FACTS OR FICTION YOU BE THE JUDGE



1. In many states in the United States, the highway patrol carries two gallons of soda in the trunk to remove blood from the highway after a car accident.

2. To clean corrosion from car battery terminals: Pour a can of soda over the terminals and it will bubble away the corrosion.

3. To clean a toilet: Pour a can of soda into the toilet bowl and let it sit for one hour, then flush clean. The acid in soda also removes stains from fine dining chinaware.

4. To remove rust spots from chrome car bumpers: Rub the bumper with a crumpled-up piece of aluminum foil dipped in soda.

5. You can put a T-bone steak in a bowl of soda and it will be gone in two days.

6. To loosen a rusted bolt: Apply a cloth soaked in soda to the rusted bolt for several minutes.

7. To remove grease from clothes: Empty a can of soda into a load of oil-stained clothes, add detergent, and run through a regular cycle. The soda will help loosen grease stains.

?

SODA RUST REMOVAL TEST



To test if a soda's acid can truly dissolve rust, we gathered up a set of used head studs from an old Subaru EJ20 engine sitting around in the garage. The head studs were heavily oxidized with rust and residue.

To begin our experiment, we placed the rusted head studs in a half-cut can filled with soda and left it alone for a few days while monitoring its progress.

DAY 3: No change



DAY 7: No change besides a slimy residue beginning to form. We replaced the soda with a new batch and continued the process.

DAY 15: Head studs look visibly worse, but now have a hazy sugarcoating similar to rock candy. We threw away the soda and called off the experiment.



FAIL X

METAL RESCUE: RUST REMOVER BATH



Rather than waste more time experimenting with various soft drinks, we decided to take the more sensible approach and test a new rust removal solution called Metal Rescue, a water-based, biodegradable, rust removal solution that has been receiving praise across the automotive community since its debut at SEMA 2010. Metal Rescue Rust Remover reps claim their formula was developed for use on iron and steel and removes rust from metal, but will not harm other materials such as wood, glass, rubber, vinyl, or plastic because it contains no acids or alkalis.

Metal Rescue reps claim their product is easy to use with virtually no labor involved, like no scrubbing, dipping, brushing, or other agitation to remove rust. Using a three-step program, you can de-rust your metal parts by simply soaking, check, rinse/dry. We opted for the easy approach rather than using electrolysis, sand blasting or dangerous naval jelly chemicals. To test this magic in a bottle for ourselves, we rummaged through the garage and gathered up a handful of rusted parts ranging from mild to the more severe.

Although Metal Rescue doesn't require any prepping prior to soaking, we recommend pre-cleaning your parts to speed up the process of rust removal as well as extend the life of the chemical. We went one step further to ensure a clean finish by scrubbing our parts with a Scotch-Brite pad to remove surface rust.

After more than five minutes of scrubbing one side of the badly rusted Subaru EJ20 oil baffle plate, it was evident the rust had worked its way in and around the metal and wasn't coming off. We purposely left the other side of the baffle tray untouched without any prep work to put Metal Rescue to work.

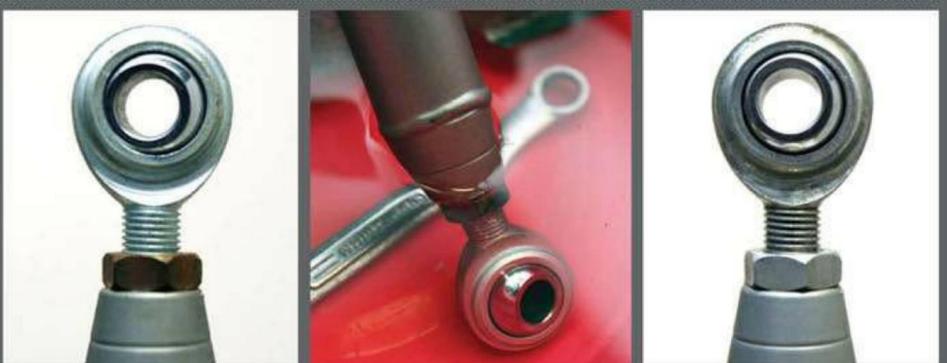


TECH KNOWLEDGE

We began the process by soaking the parts inside a plastic container. A pair of badly rusted license plate bolts, Craftsman wrench, and harness bar were all thrown into the mix to put Metal Rescue to the test. Metal Rescue reps state that one gallon of Metal Rescue should be able to de-rust approximately a $1\frac{1}{2}$ pound of rust.



NOTICE: The harness bar's powdercoated surface is also submerged within the chemical. Fear not, the solution has been designed not to remove or harm the vast majority of paint coatings. However, if there is a layer of rust under the paint or paints (and inks) using iron oxide pigments (usually orange or red) may dissolve the pigment in these types of paints. It is always best to test on a small section or hidden area prior to use. Within an hour of soaking, the rusty harness bar bolt looked as good as new.



Check periodically as soak time ranges according to the severity of the rust and the surface area. Light rust will require 5 to 30 minutes, moderate rust takes up to four hours, and heavily rusted items may take up to 24 hours. If you are trying to speed up the rust removal process, Metal Rescue will work faster up to a temperature of 150 degrees F (70 degrees C). Do not leave your part in the solution after rust is no longer present or the metal might become dark. After soaking the rusted license plate bolts for five hours, you can literally see the rust falling off. Also, notice the oil baffle plate beginning to show its original metal surface with nothing more than soaking in the tub of solution—now that's amazing!



After a 24-hour soak, the wrench and baffle plate were both removed. Check out the before-and-after photos, including both front and backsides of the baffle plate.





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EASTWOOD

METAL BLACKENER SOLUTION

During the final stages of testing, we used Eastwood's Metal Blackener Solution on our renewed and rust-free license plate bolts, which were now exhibiting a dull raw metal appearance. The Eastwood blackening solution is a mild acid solution mixture of Selenious acid, phosphoric acid, copper, and nickel that lets you reproduce the OEM look of black oxide on any iron and steel nuts, bolts, and brackets quickly, safely, and economically with no special equipment.



This chemical is odorless, non-caustic, and produces no fumes, making it safe for usage in and around the garage. Keep in mind this is not a paint product; the blackener is an etching solution.

To show how the product works on a larger scale, we dipped the corner of our previously treated Subaru oil baffle plate for a few seconds to show the blackener's result. Large parts can also be blackened by placing the solution in a large clean container and brushed on heavily using a foam-type paintbrush.



Once the part is clean of any rust and paint, it is then submerged into the solution for anywhere from 20 seconds to a minute (depending on surface area) as the chemical turns the metal from silver to black. After blackening, rinse the part in clean tap water for 10 to 20 seconds, and dry and wipe the surface with a clean cloth. Applying either a clearcoat or Eastwood's Diamond clear satin will help to maintain a rust-free finish.



This photo illustrates the remnants of residual rust from the two-turbo exhaust housing we tested following our baffle plate that were badly rusted from sitting in storage the past few years. Now that's a ton of rust! **It**



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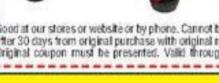
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AUTO DETAILING 101

HOW TO WASH AND PROTECT YOUR CAR

TEXT BY SCOTT TSUNEISHI
PHOTOS BY MEGUIAR'S AND SCOTT TSUNEISHI

Regular washing is important, but to keep your car looking good, you should detail and wax it regularly. Even if you've neglected your car's finish, making it look almost new isn't really all that difficult. The car care experts at Meguiar's sat me down for a quick instructional course that was followed by hands-on detailing to show us how to use their products to bring that new car shine back to our filthy Subaru WRX with impressive results. Using Meguiar's products including their newest 2012 lineup, we began the process by following their "Five Step Paint Care" process: 1) Wash; 2) Clean/Prep; 3) Polish (optional); 4) Wax/Protect; 5) Maintain. Embarrassingly, we admit the last time our Subaru was detailed was back in 2006 for the SEMA Show. We decided it was time for a makeover. Upon retrieving the car from storage last year to remove the decals off the car, we noticed some severe marks across the doors and hood that required detailing along with an unintentional two-tone color scheme that existed between the doors and fenders. Plain and simple, the paintjob was screwed.

AUTO DETAILING: WHAT IS IT?

More than simply washing the exterior of your car with soapy water and a rag, or wiping down the interior with various cleaners and a vacuum job, auto detailing involves a number of procedures that will ultimately give the car a renewed luster with brighter color. The goal of auto detailing is to restore and clean the car to its newest condition possible. The question often becomes: How committed are you toward cleaning your car? Sure, you can take the easy way out and find professional detailers in your neighborhood, but if you enjoy taking the time to make your car look its best, you can get the same results right in your very own driveway. All it takes are the right supplies and your time and attention to the job to get it done right.

WHAT YOU WILL NEED

- 1 Microfiber towels
- 2 Plastic/rubber treatment
- 3 Spray-on detailer
- 4 Polish/wax
- 5 Wax applicators and/or orbital polisher

If your car hasn't been washed or waxed and has been sitting as long as our WRX, you'll need some additional items, including:

- 6 Clay bar
- 7 Compound (pre-wax cleaner)
- 8 Wax



STEP 1 WASH YOUR CAR

Wash and dry the car thoroughly before starting your detail work using the two-bucket method. While there is no approved way to wash a car, there are a number of wrong ways. Properly washing your car will minimize unwanted and unsightly paint swirls. Dark-colored cars, in particular, require utmost care and patience. Use a microfiber or genuine sheepskin mitt along with special automotive wash soap when cleaning. Stay away from dish-washing detergent, which will strip any remaining wax off your car. Quality car washes/shampoos are usually pH controlled, contain gloss enhancers, and some even have small amounts of water-soluble wax for good measure. The two-bucket method involves using two car wash buckets to ensure your car is properly washed. The first bucket is filled with clean water, and the second bucket is filled with car wash shampoo. Soak your mitt into the soapy car wash solution first to wash your car with suds and then soak into the bucket with clear water to rinse the mitt thoroughly. Using two buckets virtually eliminates the risk of transferring dirt back onto your paint and scratching the finish.

When wiping your car be sure to use a microfiber style or genuine sheepskin cloth. Stay away from towels that contain polymer fibers that will scratch the clearcoat surface and leave unsightly swirls. Do not assume that the 100 percent cotton label on the towel is telling the truth. The only way to check is to actually set fire to a rolled-up corner of the towel. If you get a clean flame like a candlewick then it is 100 percent cotton. If you see black smoke and melted fibers, then most likely it uses polymer fibers.



STEP 2 EVALUATE YOUR PAINT

Meguiar's recommends washing your car at least once a week to help maintain its luster. If your vehicle's paint has been neglected or shows signs of heavy oxidation, similar to our carbon hood, we recommend moving onto the next step, which consists of claying the car.

STEP 3 CLAYING

To check if your car is in need of a clay job, simply run your fingertips over the paint surface of your car. Does it feel rough or sandy? If the answer is yes, your car's paint has contaminants that attached to your car's paint, where it bonds and begins a process of oxidation and needs to be addressed before waxing. Clay bars are used to remove deep ground-in dirt and stains, contaminants such as brake dust, overspray, and rust without damaging the car's finish.

Meguiar's recommends using quick detailing spray as a lubricating agent for the clay versus water.

To begin the process, glide the clay in a straight back-and-forth direction while making sure that you are only using one side of the clay. When the clay glides freely as you rub the surface, this means the clay bar has pulled the contaminants out of the paint. Immediately discard any clay if dropped on the floor as rock or dirt sediments will adhere and scratch your paint surface if reused. Clay bars are also an excellent source on glass to remove heavy road film, bug deposits, and water spots.



BUILDLOG

STEP 4 POLISHING/WAXING

Rotary polishers are the professional's choice for paint correction. The main purpose of rotary polishers is to remove paint imperfections, and professional detailers will have no problem operating a polisher safely. However, when placed in the hands of an amateur, improper use of a circular machine polisher can actually burn the clearcoat due to overheating. This is one reason to stay away from heavy-duty circular polishers. The Meguiar's Dual Action polisher uses a random motion to help eliminate the risk of paint burning and is designed with an internal feedback circuit that increases torque when downward pressure is applied to remove imperfections in the paint. We used Meguiar's yellow foam (polishing pad) with their Ultimate Compound to safely restore color and clarity to abused and neglected finishes. This formula cuts as fast as harsh abrasive compounds but without scratching, even on clearcoat finishes. The Meguiar's black foam (finishing pad) was paired up with Ultimate Liquid Wax. This new-and-improved synthetic polymer wax can be applied in direct sunlight on a warm surface—it won't turn white or affect its performance. If you're unsure what types of compounds or waxes to use on your vehicle, we suggest asking a professional or simply taking the time to read the detailed instructions/labels on the product.

Michael Pennington, Meguiar's director and detailing guru, revealed a neat trick to clean your door locks using a bamboo skewer found at your local grocery store. The skewers are soft enough not to damage the paint while the tips flare out to contour to the edges you're attempting to clean.

Another trick of the trade includes using the bamboo skewer covered with a microfiber cloth to clean around hard to reach areas like emblems.



STEP 5 POLISH/WAX REMOVAL

When cleaning your car, make sure to address areas you wouldn't normally wash, like areas between the doors. Doorjambs are the areas all the way around the interior doors; the rubber seal, the hinge and door locking mechanisms tend to collect dirt, but usually don't get cleaned during a normal wash. Before wiping down the doorjambs, spray them with a good cleaner product. We used Meguiar's newly released Ultimate Wash and Wax—the waterless cleaner is simply sprayed on and wiped off.

Another area that often goes uncleansed is under the door handles. Use a soft foam applicator pad or a microfiber pad as shown to apply around the handles. Remember to always use a microfiber cloth to remove wax.



STEP 6 HIT THOSE PLASTIC AND RUBBER PARTS!

Unpainted trim and weather seals made of rubber, vinyl, or other types of hard plastic will become brittle and oxidized over time. We used Meguiar's Ultimate Black Plastic Restorer on the front cowl. After one application, the piece looked showroom new.

STEP 7 GLASS CLEANING

When asking Pennington if he recommends using newspaper to clean windshields he laughed and had this to offer. "What year is this? 1960? I'd like to think we've civilized over the years. But in all seriousness using newspaper can become rather messy, not to mention leaving smudge marks and streaks," he says. Pennington suggests using Meguiar's Perfect Clarity Glass Cleaner. This streak-free cleaner is another new 2012 product that is available in either a trigger spray bottle or aerosol can.

To clean your windows and guarantee not to leave any streaks, Pennington offers a simple four-step process. Frame the cloth (fold it in a square), fill (wipe), flip (upon wiping), and wipe using a second towel.



STEP 8 INTERIOR MAINTENANCE

The labels pretty much explain all there is to know about which type of finish you prefer. Both products are nongreasy and infused with Scotchgard protectant.



STEP 9 WHEELS/TIRES

Brake dust will coat your wheels in a fine layer of unsightly brown residue. To clean them, we once again used our waterless Ultimate Wash and Wax before applying the tire dressing.

Meguiar's Endurance Tire Gel is formulated with highly advanced polymers (macro polymers and copolymers) that bond to the tire's surface and will not sling off onto your side panels or body kit while driving, leaving hard to remove stains.

The tire gel formula uses anti-ozonants, which help guard against sun exposure and pollutants that cause tires to "yellow" and acquire that brownish film. Upon applying the gel, owners have an option of leaving it with a shiny appearance or toning it down by simply wiping down the surface with cloth—we prefer the subtler matte look.

Even under low light conditions, the detailing makeover from before to its current state was simply amazing.

We were relieved to see the marks on the door were removed and wouldn't have to repaint the car due to some old decal etchings that we thought were permanent.

It was difficult to get a good photo of the carbon-fiber hood due to all the shiny reflections—that's a good thing to have!

We pulled the car into the sunlight and performed a quick look over to check for any missed areas on the car before we called it a day.



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Car enthusiasts across the world rely on car covers for one sole purpose: protection. When a vehicle is left sitting outside for any considerable amount of time, contaminants such as bird droppings, tree sap, and industrial fallout attack the exterior of your car causing various forms of damage. If your car is kept outside but is regularly used and washed then these haphazards have less of a chance to damage, and it would simply be too impractical to put on and remove a car cover every day. However, if your car is going to be left sitting for any more than a few days, for example if you go on vacation or have more than one car, then we recommend using a car cover to protect it. A quality car cover will help to extend the life of your car and retain much of its value while preventing minor nicks, scratches, and even small hail damage from occurring. Even if your car is kept in storage, an indoor cover is a smart investment in protecting your vehicle's exterior paint. Indoor car covers will protect against dust, dirt, metal particles, and other airborne pollutants that can be found in garages or in storage spaces.

Coverking Bespoke Program: Custom Cover

We took a trip out to Coverking headquarters located in Anaheim, CA, to witness firsthand a demonstration of their 3-D Scanning equipment. Coverking recently launched its Bespoke program, which is ideal for owners of super-customized vehicles that also include crazy aero, allowing them to protect it with a perfect fitting custom-made cover that won't necessarily fit underneath a universal cover. We used our Mitsubishi Evo IX equipped with an aftermarket Voltex wing, street series bumper, canards, and custom side skirts as the perfect candidate for Coverking to scan and design a custom cover. Upon arrival, Coverking began the initial process by using a specialized scanner to take 3-D measurements of the unique body design.

Once the scan was complete, the data log information is relayed to their engineering department before finalizing the cover design to begin manufacturing. The Bespoke cover takes a mere week from the date of measure and is offered in a variety of fabrics and colors to choose from, as well as custom piping, embroidery, and logos. We chose to go with the Satin Stretch fabric, which is made for vehicles parked indoors. Stretch Satin material has Lycra fibers for stretch in both directions and is soft to the touch. The elastic-type material helps to mirror every perfect contour of our vehicle and uses a fleece inner liner to protect against scratches.

The New Generation of Covers

This isn't your grandpa's old-school car cover. Don't assume all car covers should be watertight in design. Coverking and their team of engineers designs its own fabrics to specify exact material composition and construction and does not use "off-the-shelf" fabrics. All Coverking outdoor Custom Car Cover materials are breathable, which allows moisture that is trapped under the car to escape through the cover, preventing a "greenhouse" condition of condensation, which may result in rust damage—another reason why you should never use plastic tarps to cover your car. Car covers are specifically designed to let water run off and they are made of materials that will not degrade in weather, heat or humidity. Tarps trap water and have been known to cause significant damage to your paintjob, and since they can trap pooled water and moisture, you actually run a higher risk of rusting on your car. Along with the custom 3-D Bespoke cover, Coverking also provided us with their Stormproof cover for our Subaru STI, which spends most of its time outdoors. The Stormproof material consists of millions of microscopic yarns that is combined into a microfiber material and is extremely water and fade resistant, yet remains completely breathable. The end result is a cover that handles the extremes of any climate, wet or dry, with outstanding UV resistance yet soft to the touch and won't scratch your paint's surface.

For additional info on Coverking and how to detail your ride, check out our exclusive coverage at www.importtuner.com.



Subaru STI



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Randy Riggs



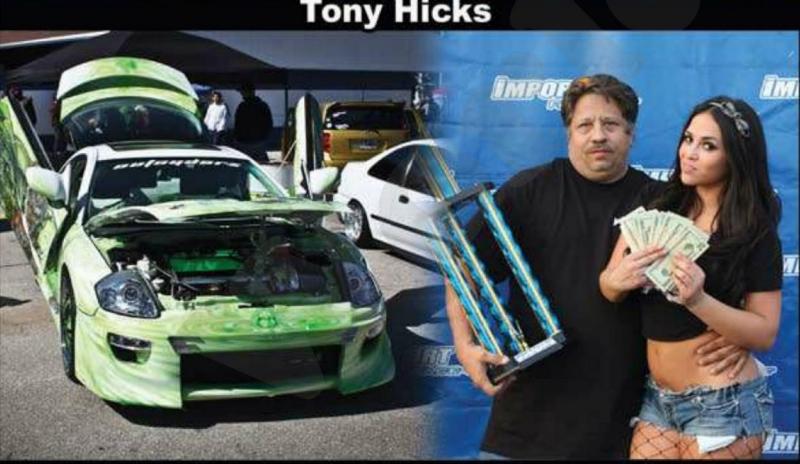
Marcus Chin



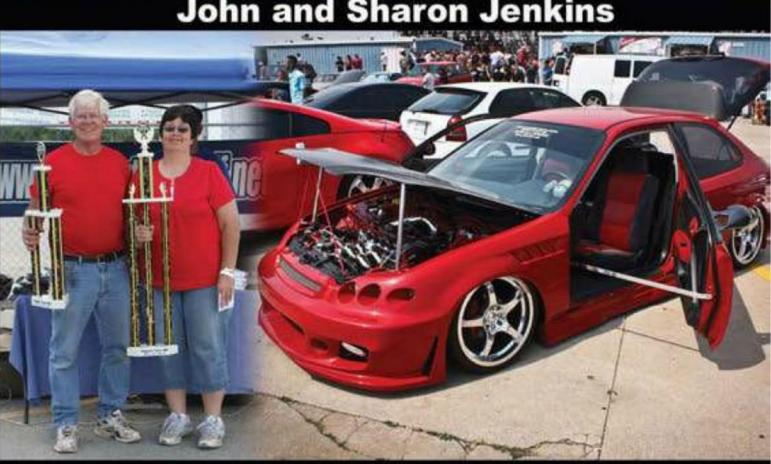
Lamar Henderson



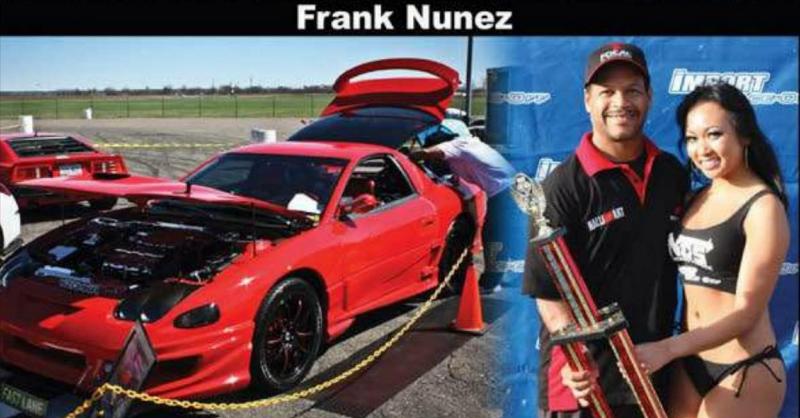
Tony Hicks



John and Sharon Jenkins



Frank Nunez



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CLUTCH MASTERS SUBARU BRZ/SCION FR-S SIX-SPEED CLUTCH/FLYWHEEL

Clutch Masters introduces their performance clutch/flywheel kits for the brand-new Subaru BRZ and Scion FR-S. The FX Series kit features a solid steel flywheel, heavy-duty pressure plate, and multiple friction disc designed to handle high torque outputs while maintaining a stock pedal feel.

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01



02

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head. Placing the P2R thermal gasket in between the intake manifold and the cylinder head helps reduce the amount of heat soak the intake manifold normally absorbs from the cylinder head, keeping it cool while achieving more horsepower.

P2R POWER REV RACING

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03



AEM COLD AIR INTAKE: '08-AND-NEWER EVO X

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06

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CRZ

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TSX 04 - 10

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2013 SCION FR-S

TEXT AND PHOTOS BY
SCOTT TSUNEISHI

DYNAMOMETER: RACELINE 224X DYNOMETER

BASELINE

PROS

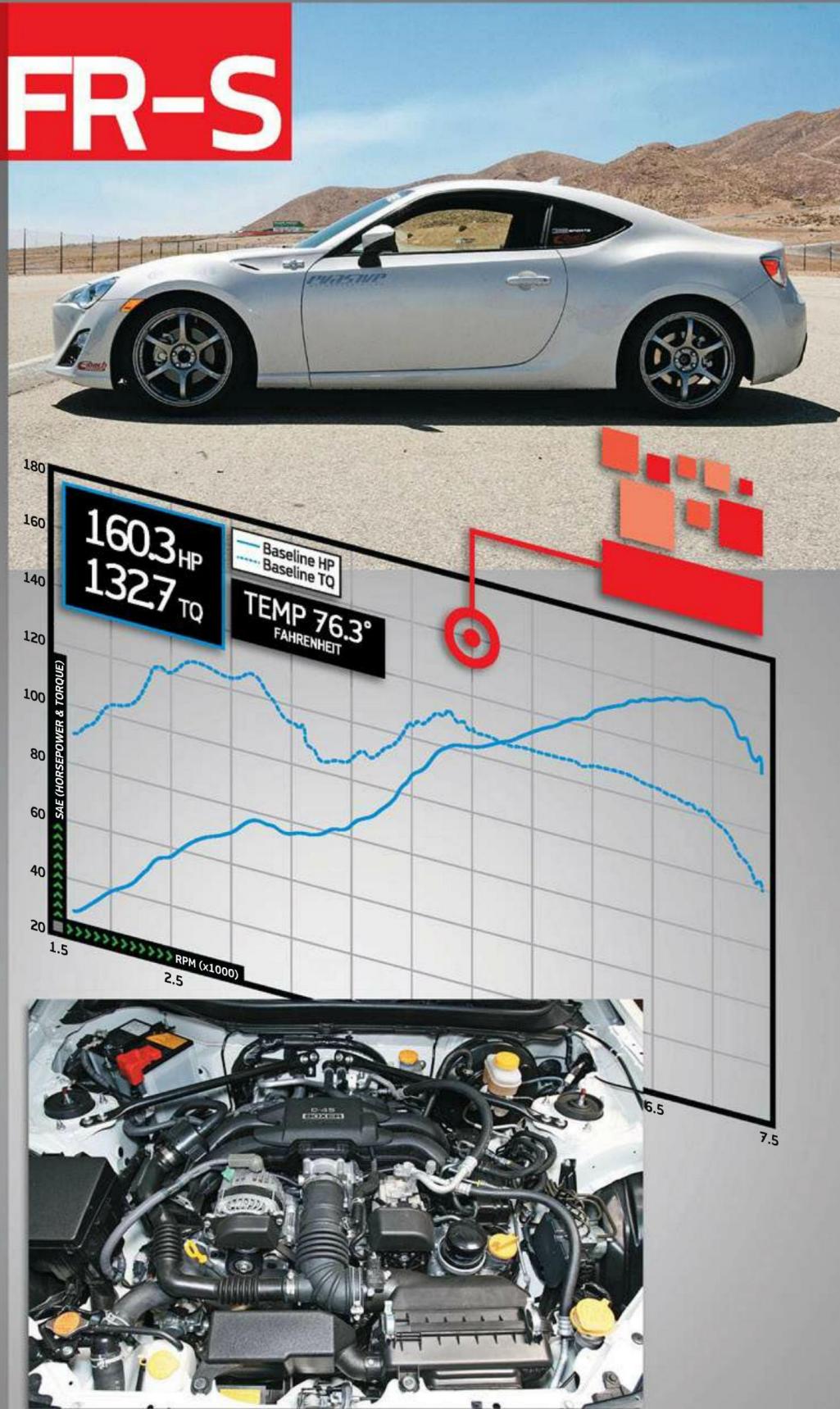
Just prior to our Power Pages testing, the FR-S was introduced less than a week ago at local dealerships, yet we somehow managed to get our grubby paws on a "Whiteout" colored Scion to spin on the dyno. Plenty of aftermarket manufacturers have already begun developing numerous parts in anticipation of the car's debut as evidenced over the last few months. 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. 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. Weighing in at less than 2,750 pounds (MT) 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.

CONS

By far the biggest controversy of this car has been the 4U-GSE engines. The flat-four boxer engine was a joint collaboration with Toyota and Subaru. The factory-rated 200hp boxer engine enables the FR-S to achieve excellent weight distribution, the lowest CG ever for a production vehicle, but the biggest question on every tuner's mind was how would this direct injection engine fair on the dyno? Upon installing our first aftermarket part and conducting a few dyno pulls, we were quickly educated on the fact that the FR-S 4U-GSE boxer engine doesn't take kindly to bolt-on modification. It's as if the factory ECU seemingly pulls out a bright red stop sign every time you tamper with this engine. For those looking to generate more horsepower with your FR-S, continue reading along, you will see through our extensive dyno testing that simply slapping on aftermarket parts without tuning offers minimal gains at best.

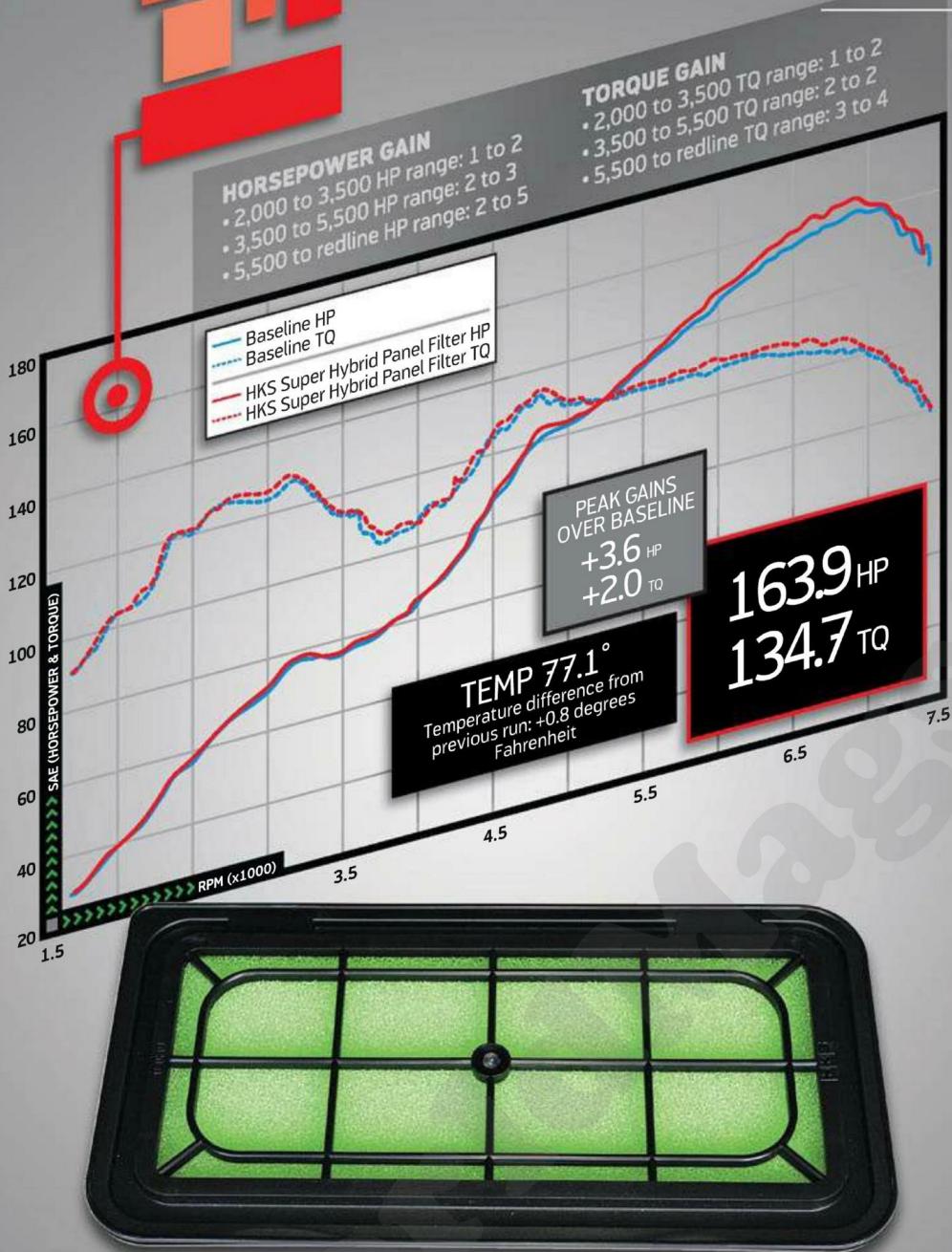
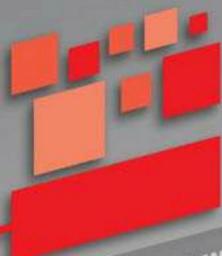
NOTES

With the car strapped to the dyno, we made a series of pulls as the FR-S laid down con-



sistent figures on the average of 160.3 hp and 132.7 lb-ft of torque to the wheels. We also monitored the engine's air/fuel ratio, which ran approximately 14.9:1 from 1,300 to 3,000 rpm at low-end, 13.1:1 from 3,200 to 6,200 rpm in the

midrange and richened up significantly at the top end (12.0:1 and lower) from 6,300 to redline at wide open throttle—an indication that the ECU was tuned significantly rich throughout the powerband to preserve the motor for longevity.



HKS SUPER HYBRID DROP- IN PANEL FILTER

PARTS

Panel filter

TOOLS

None

INSTALLATION TIME

5 minutes

PROS

The HKS Super Hybrid Filter is a direct replacement panel filter designed to fit into the factory FR-S airbox. This maintenance-free filter helps to increase airflow and filtration over the stock unit. Using a three-layer dry filter, the super hybrid filter separates and catches dust particles and optimizes airflow direction through the filter while the replaceable element eliminates the need to re-oil the filter. The first layer catches larger dust particles while the second and third dual-density polyurethane layer filters out smaller particles. Why test a panel filter rather than a cold air intake, you ask? The answer is simple. Our inaugural testing commenced during a time when no short ram or cold air intakes were available due to the FR-S's week-old release on the market. Panel filters were already available and plenty abundant due to the filter's shared design with the 2011-and-newer Scion tC.

CONS

The FR-S 4U-GSE boxer engine loves to breathe. Unfortunately the factory panel filter's restrictive cotton gauze design chokes the engine's performance. For testing purposes, we also dyno'd the factory airbox without a filter, which lost 2 hp and 2 lb-ft of torque in the process. As the air flows over the MAF sensor, removing the filter from inside the box creates air turbulence and improper airflow over the MAF, causing the ECU to compensate for the changes and attributes to the power loss.

NOTES

Dyno testing the HKS filter revealed an increase in power and torque throughout the powerband, with the largest gains of 5 hp and 4 lb-ft of torque at 6,600 rpm over our previous run. Consistent gains of 3 hp and 3 lb-ft of torque were seen from 6,000 to redline over our baseline run. The air/fuel ratio was recorded to run slightly leaner with the new intake filter coming in at 12.8:1. The leaner air/fuel condition was an accrediting factor to our increased horsepower.

DC SPORTS PROTOTYPE OVER- PIPE/RACE PIPE

PARTS

DC Sports Overpipe: nuts and bolts, and hardware

DC Sports Race Pipe: gaskets, nuts and bolts, and hardware

TOOLS

10, 12, 14, and 17mm sockets; 10, 12, 14, and 17mm open-end wrenches; ratchet; extension; crescent wrench; antiseize; and WD-40

INSTALLATION TIME

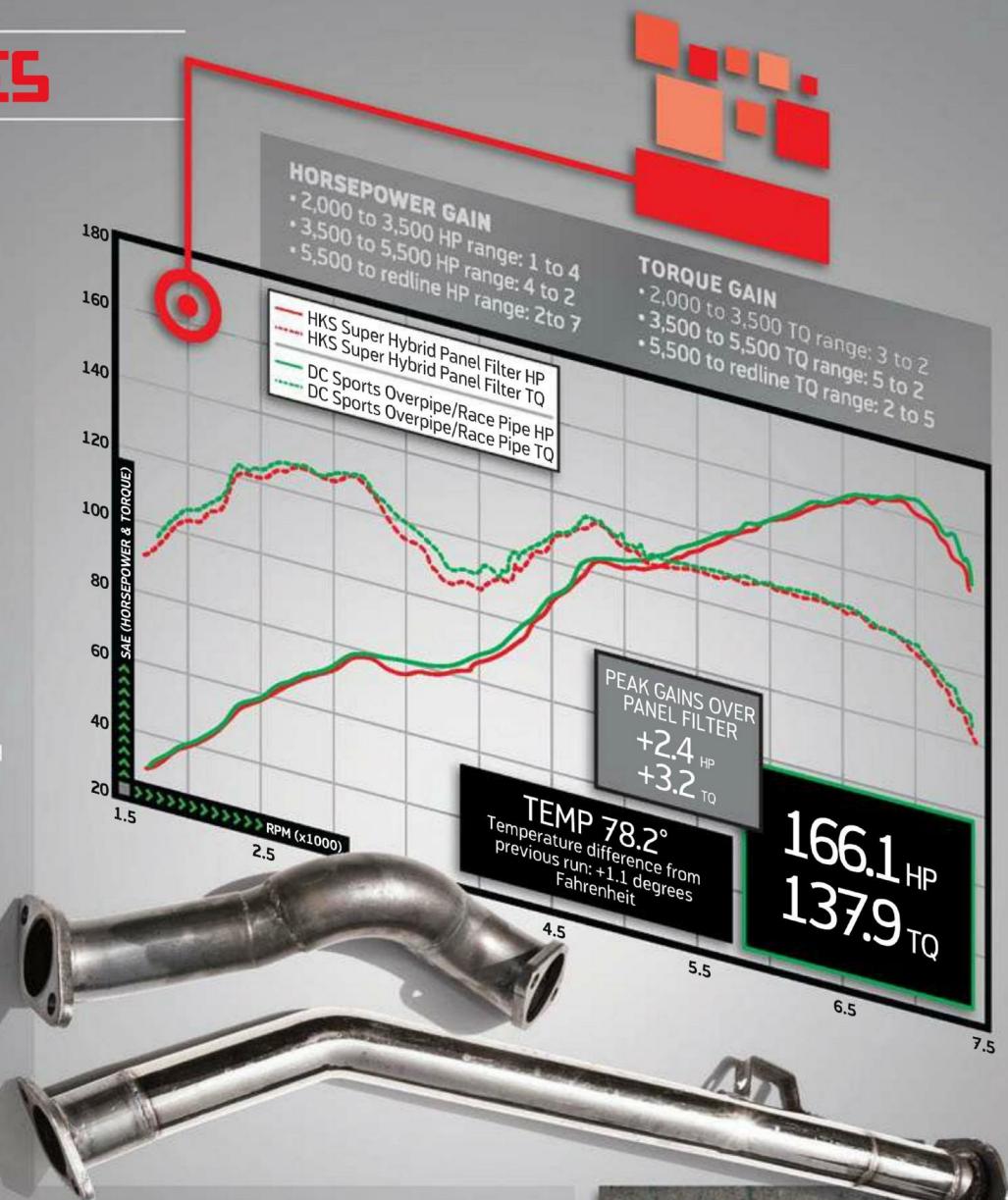
120 minutes

PROS

Constructed out of 2.5-inch 304 stainless steel, the prototype DC Sports Race Pipe replaces the secondary catalytic converters, while the DC Sports Overpipe with its 2.25- to 2.5-inch flared setup discards the factory press-bent piece, the most restrictive part of the exhaust system. Replacing the catalytic converter and factory overpipe with the prototype DC Sports parts helped eliminate backpressure and freed up additional horsepower from our 2.0L engine. The DC Sports Race Pipe is intended for off-road use only and is not street legal. Depending on your state's emissions laws, you may not pass a smog test without the secondary converter.

CONS

Although we made some good power, the factory ECU was once again the crux of our problems. The 4U-GSE ECU proved to be more difficult/stubborn than we imagined; it kept our peak power levels to a minimum, regardless of any parts we installed. Prior to testing the overpipe and race pipe, we installed a 2.5-inch diameter prototype exhaust system with dual exhaust canisters designed by Raceline Development. We were convinced our newly installed free-flowing system compared to the factory 2.118-inch diameter piping exhaust system would awaken the boxer engine for our largest power gains of the day. Unfortunately, that wasn't the case. The prototype exhaust system lost peak power and torque versus the OEM exhaust, with only marginable gain near redline that wasn't even worth mentioning. We took things a step further and ran



open header by unbolting the exhaust at the mid-pipe/DC Sports Race Pipe to see if our prototype exhaust canisters and/or Y-pipe design was causing excessive backpressure and power loss. Surprisingly, a spin on the dyno showed no power changes. The numbers remained identical to our previous run—at which point we had come to two simple conclusions. The first was Toyota/Subaru did their homework and designed an exhaust system to work in harmony with the 2.0L engine. The second was tracing back our issues to the factory ECU that was limiting our horsepower potential. Our crash course on FR-S tunability found ourselves deadlocked with an ECU that has been developed to be seemingly self-aware and intolerant to major changes other than stock.

NOTES

Even though our factory exhaust was combined with the DC Sports Overpipe and race pipe setup, we were pleasantly surprised with the deep exhaust pitch and modestly quiet decibel level. The DC Sports Overpipe and Race Pipe increased both horsepower and torque across the board, with peak gains of 2.4 hp and 3.2 lb-ft of torque over baseline. The FR-S recorded the largest gains in the midrange with a gain of 4 hp and 5 lb-ft of torque and once again at 7,010 rpm to redline with a gain of 7 hp and 5 lb-ft of torque. The air/fuel ratio remained nearly identical compared to our previous run with only a slightly richer condition (14.8:1 versus 14.1:1) from 1,500 to 3,200 rpm.



2012 ULTIMATE WHEEL&TIRE GUIDE

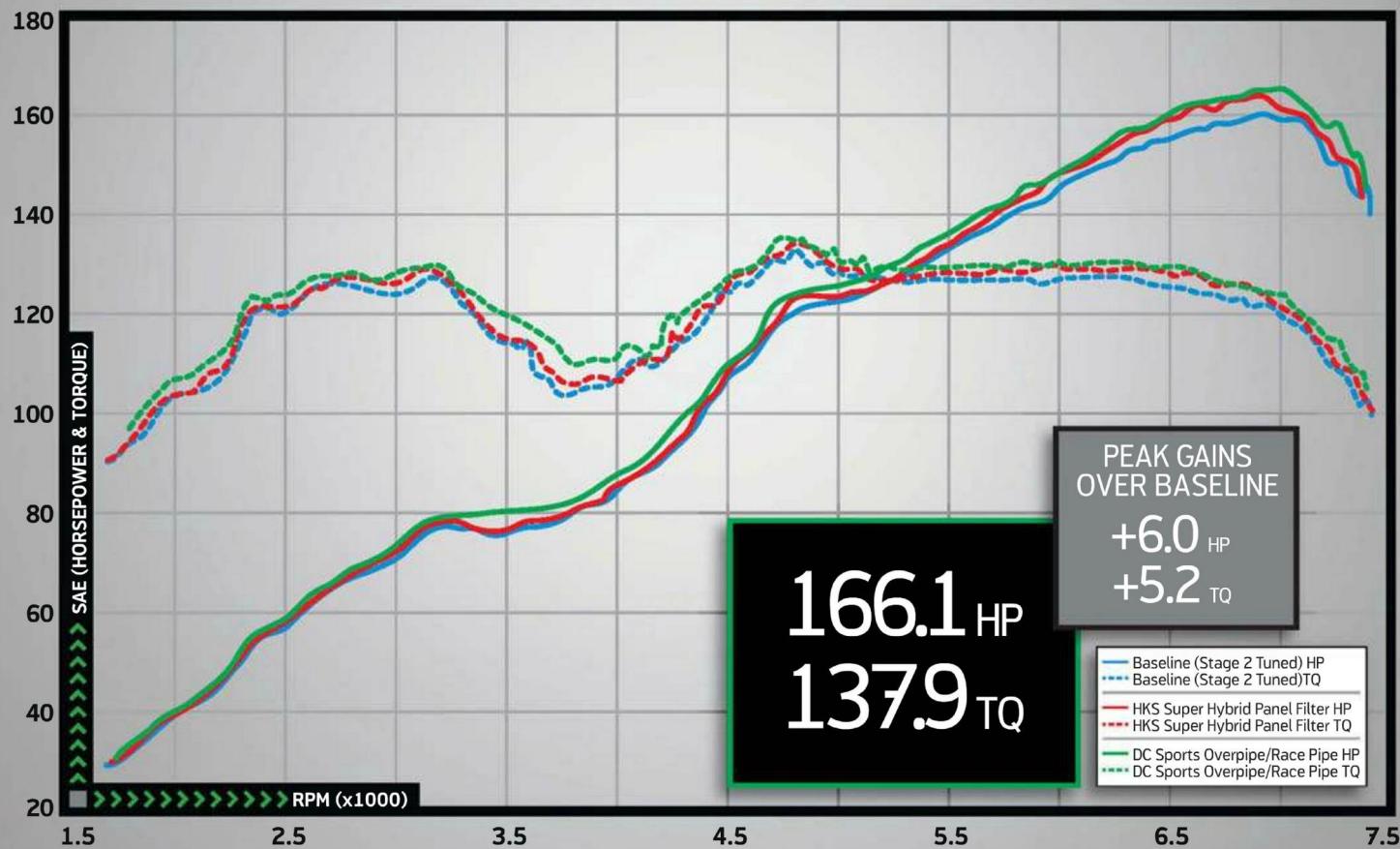
Your Source for the Hottest Wheels & Tires

The screenshot shows the homepage of the 2012 Ultimate Wheel & Tire Guide. At the top, there's a navigation bar with links for WHEELS, BOLT PATTERN, BRANDS, TIRES, and TECH TIPS. Below the navigation is a section titled "YOUR SOURCE FOR THE HOTTEST WHEELS & TIRES" with a small image of wheels and tires. The main content area features a "Wheel Finder" section with dropdown menus for Vehicle, Make, Model, Year, Brand, Manufacturer, Size, Diameter, Category, and Segment. It also includes a "Bolt Pattern" search section. To the right of these are four numbered boxes: 1. WHEEL FINDER, 2. BOLT PATTERN, 3. BRANDS, and 4. TIRES, each with a brief description. Below these are links for "More Ultimate Wheel & Tire Guide Site Tools" (including TECH TIPS ARCHIVE and PLUS SIZING CALCULATOR), and a "POPULAR NOW" section showing five different wheel and tire combinations.



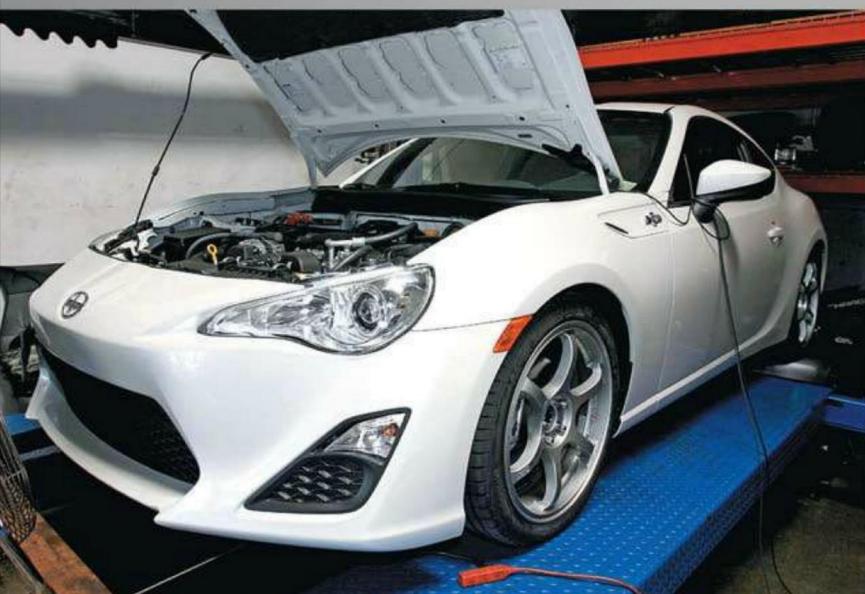
ultimatewheeltire.com





CONCLUSION

	HP	+HP	TQ	+TQ
BASELINE	160.3		132.7	
HKS SUPER HYBRID PANEL FILTER	163.9	3.6	134.7	2.0
DC SPORTS OVERPIPE/RACE PIPE	166.3	2.4	137.9	3.2
FINAL	166.3	6.0	137.9	5.2



CONCLUSION

What began as a baseline dyno run of 160.3 hp and 166.1 lb-ft of torque was revamped with a gain of 6.0 whp and 5.2 lb-ft of torque. Although our final power numbers were on a smaller scale, we suspect some additional tuning could find gains all around. Still, representing close to a 10 percent jump in horsepower gains were solid for any naturally aspirated engine. With additional modifications, including ECU tuning and some cylinder head mods, such as camshafts and porting, we are confident our FR-S is more than capable of eclipsing the 200-whp levels in the near future. Until tuners find a way to crack the ECU and tune for power, we have to wait patiently to extract the true horsepower potential of the FR-S. ■

BANKROLL

HKS SUPER HYBRID PANEL FILTER	\$60
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DC SPORTS RACE PIPE	\$TBD
RACELINE DUAL CANISTER EXHAUST	\$TBD
TOTAL:	\$TBD

HOTBOX

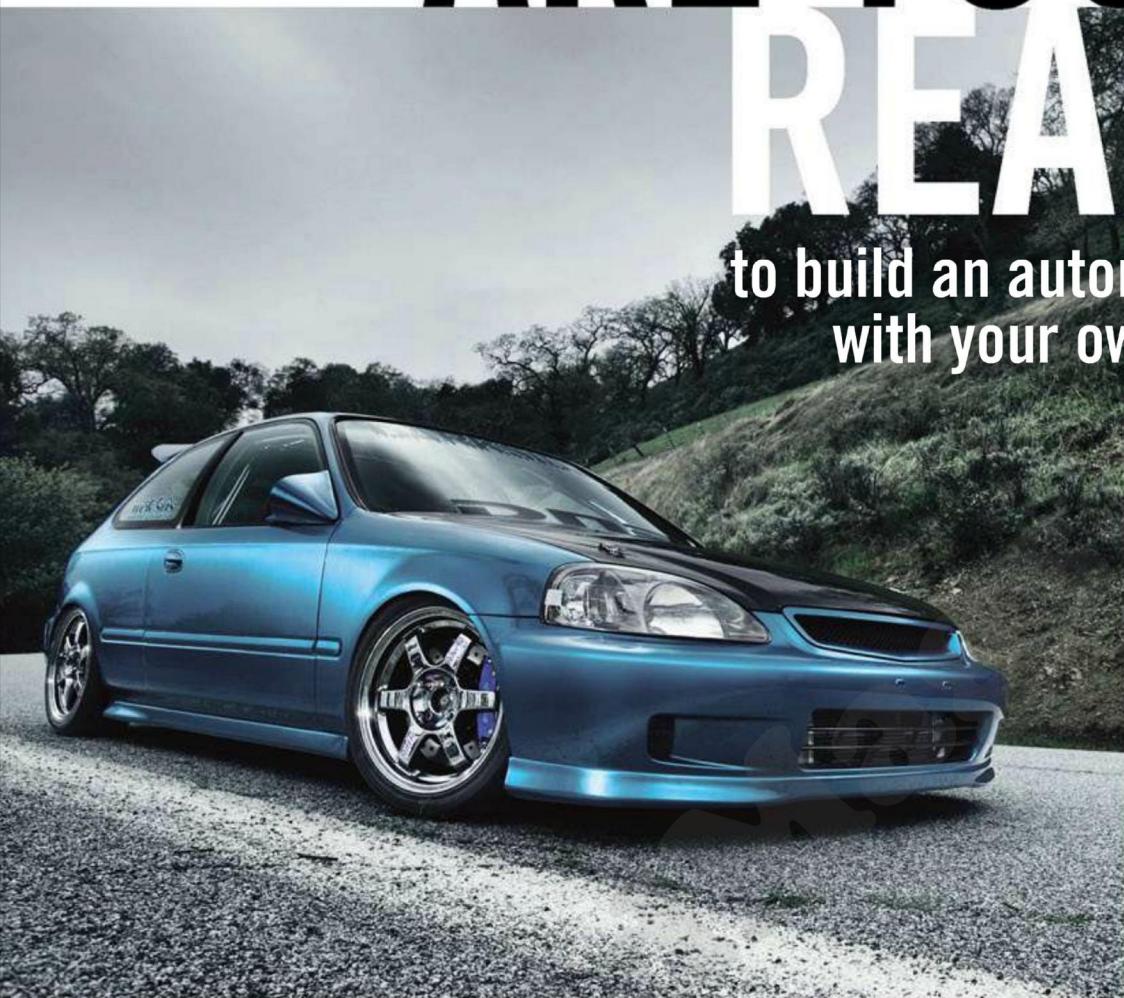
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