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NATALIE EVA-MARIE

BACK TO SCHOOL PISTON 101
P.72

+

FORMULA D TAKES ON HOTLANTA P.52
HELLAFLUSH SITS LOW IN SOCAL P.54
MEGUIAR'S HONDA CR-Z P.22

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CONTENTS

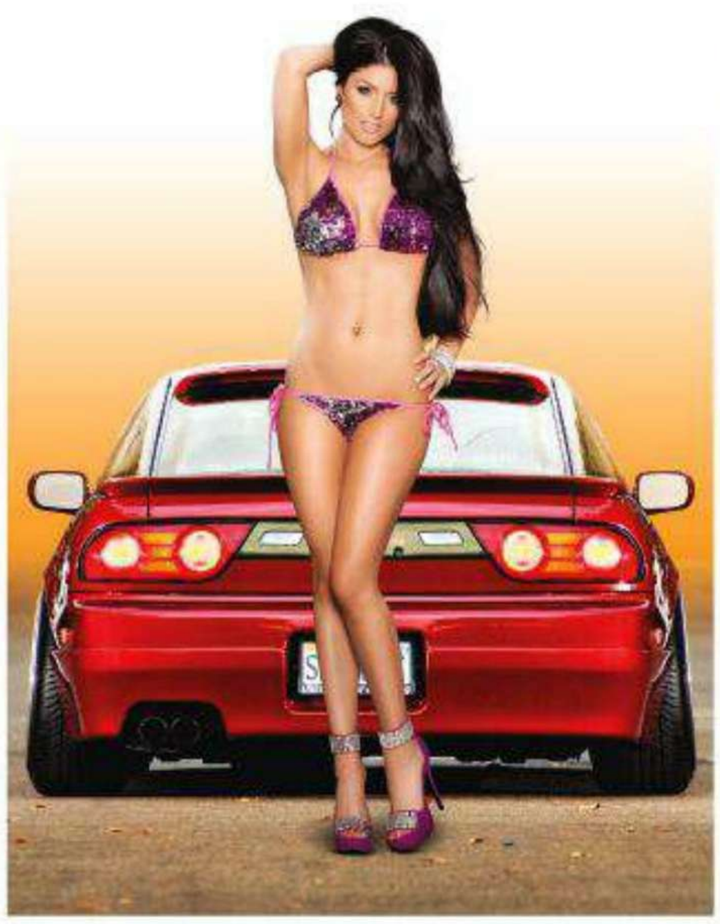
OCTOBER 2011

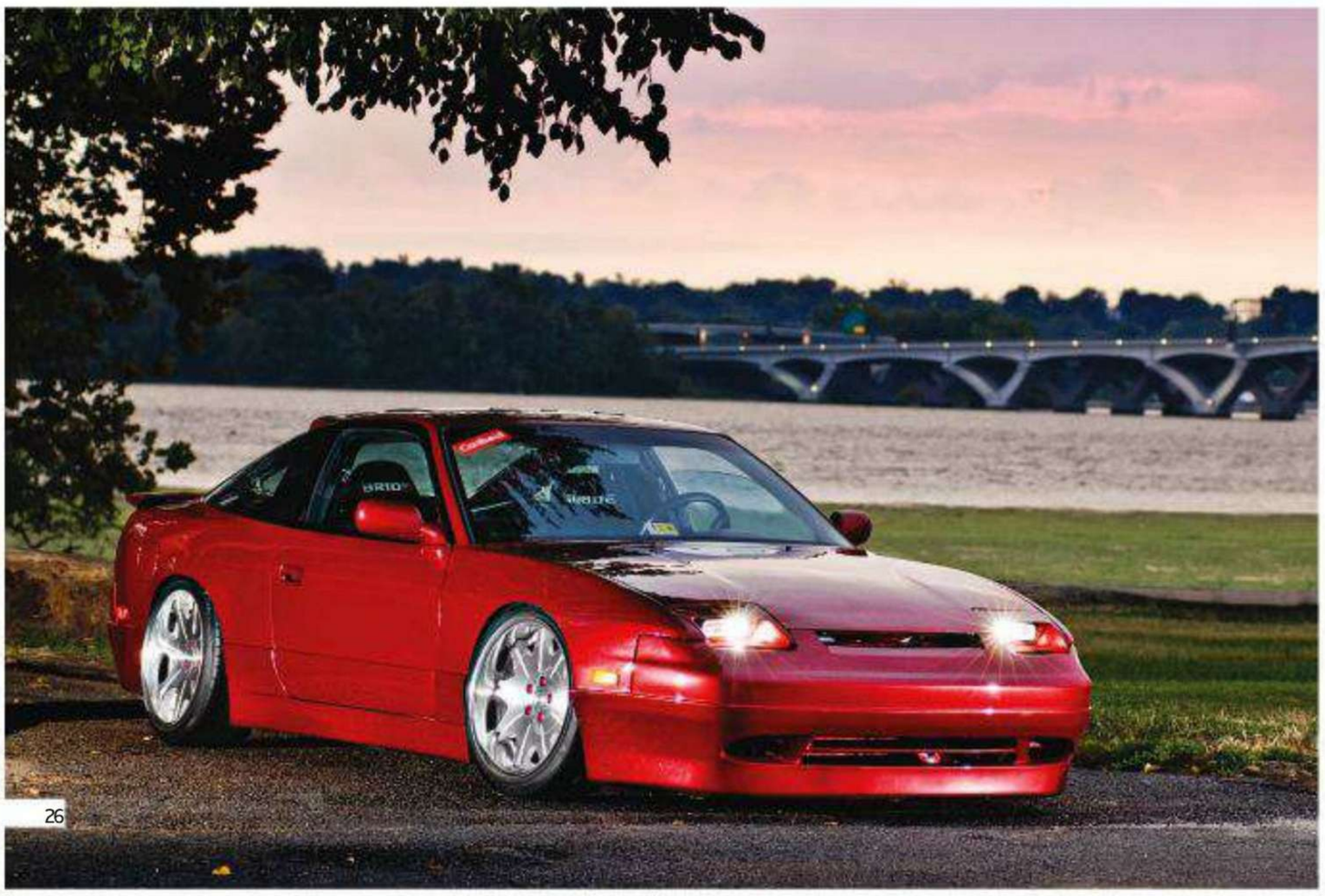
COVER SHOOT

PHOTO
KYLE CRAWFORD (CAR)
CHRISTIAN ARIAS & SLICKFORCE STUDIO (MODEL)

STYLING
SARAH ELLIS

MAKEUP
GABY RAMOS





FEATURES

22 IT'S A WRAP
WRAPTIVO HONDA CR-Z

26 COVERSTORY
NISSAN S13 240SX

34 TOO CLEAN
TOYOTA AE86 COROLLA

38 ALL THINGS GOOD
ACURA DC2 INTEGRA

44 VEILSIDE COMBAT
NISSAN SKYLINE GT-R

66 MODEL
NATALIE EVA-MARIE

EVENTS

48 EIBACH HONDA MEET
CORONA, CA

52 FORMULA D
HOTLANTA, GA

54 HELLAFLUSH MEET
SANTA MONICA, CA

56 RACELINE TRACK DAY
CHUCKWALLA VALLEY RACEWAY, CA

60 DRIFT SOAPBOX
RED BULL RACE, PART 2

TECH SUPPORT

18 FACT OR FICTION
ALIGNMENT VS. POWER

72 PISTON ANATOMY
ALL YOU NEED TO KNOW

78 BUILD LOG
MAZDA NA6CE MIATA

82 POWER PAGES
MITSUBISHI LANCER

THE USUALS

06 INITIAL TIMING
EDITOR'S LETTER

08 UNDER THE HOOD
INSIDE THE INDUSTRY

10 GOING POSTAL
YOU SHOOT US, WE SHOOT BACK

12 411
YOU FOUND OUT FIRST

16 QUESTION IT
ERIC HSU FIXES WHAT YOU BROKE

88 POWER GEAR
FOR YOUR EYES AND EARS

90 LONGSHOTS
DO YOU HAVE WHAT IT TAKES?

#151 it.
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ENDLESS SUMMER

For car culture, summer is the season for everything. Car shows and races keep us busy just about every weekend throughout the summer. This issue gives you some of the hottest cars we've seen this past summer. From the Canibeat meet on the East Coast, we found one of the cleanest S13s we've seen in a long time. Our cover car is done up not like your typical ratty, beat-up drift car. Instead, the owner treated it like most Honda enthusiasts: wire tuck, shaved engine bay, and several custom-plated and colored engine parts. The engine bay alone has more customization than most full cars. On the outside, it rocks one of the most notorious body kits in the 240SX scene: Super Made's Instant Gentleman. I don't think it even matters what this kit looks like; people would buy it for the killer name alone.

On the Honda front, we were able to attend a few Wekfest events this summer. At one of which we spotted an Integra with the traditional Mugen and Spoon fashion, but with more style and appeal than a boring JDM'd Honda. No 9-inch-wide staggered wheels for this true Honda enthusiast.

Bringing up the old-school department, we found an AE86 lover who's been keeping his car a secret from the world for years. Like a true AE86 fan, the chassis was never compromised for fender flares, or the firewall for a 20V swap. Instead, the car was kept simple but done with baller parts like Volk TE37 rims and Toda Racing engine parts.

Summer's now over. So here's our recap of some of the newest builds we've seen in the last few months.

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MY TOP 10 DRIVING PET PEEVES

With gas prices at an all-time high—and more vehicles on the road than ever before—drivers are bound to be more irritated as they get behind the wheel for a weekend road trip or the daily commute. Take, for example, drivers who leave their turn signals on for miles or who drive slow in the fast lane. Unfortunately, there is no shortage of people who drive like idiots and make you want to literally jump out of your car and strangle them.

I'm like a different person behind the wheel, a person who will break your nose for doing any of the things mentioned below. Otherwise, I'm a nice dude.

SENIOR EDITOR
SCOTT TSUNEISHI
scott@importtuner.com

Here's a Top 10 list of the most annoying driving habits that make me rage:

1 People who do really stupid things on the roads while driving, like running red lights. They come close to a near death accident and when you look at the driver to see what kind of idiot is driving, you see that he has a stupid smile on his face like it was fun.

2 We don't expect you to drag race at every green signal light, but think about the fact that there are about 25 cars behind you that just maybe would like to make the light and not sit there another five minutes because it takes you three blocks to get up to the posted speed limit of 30 mph!

3 You're on a two-way street and some guy decides to make a left turn. Harmless enough, right? Wrong! Instead of trying to leave ample room for cars behind them to pass, he/she swings the vehicle to the right then stops to prepare for the left turn. WTF! You're not driving a semitruck! There's plenty of road for you to move further to the left so others could pass, while you wait for a break in oncoming traffic.

4 No-blinker-using jackasses who attempt a sudden lane change just as you enter their blind spot.

5 People who suffer from acute tunnel vision while talking on cell phones and driving. They are completely unaware of a lot of things that they're not looking at directly, including traffic signs or pedestrians crossing the road.

6 Old people and/or Asian drivers. Hey, I'm not downplaying my fellow Asians or disrespecting the elderly. I'm simply stating the facts. Some people shouldn't own drivers' licenses or, in better judgment, a car.

7 The driver in front of you hits the gas when you hit the brake, then when you hit the gas they hit the brake. This goes on for several blocks.

8 Drivers who pull out onto the main road, cutting you off, and then don't speed up.

9 Those who stop on a freeway on-ramp to check and see if it's safe to merge, and/or slow down to 15 mph while approaching a green light, forcing you to slow your speed behind them.

10 Hybrid owners driving 10 mph below or 40 mph above the speed limit. The slow drivers are so engrossed in maximizing their fuel economy that they spend more time staring at their ECO gauges than the road itself.

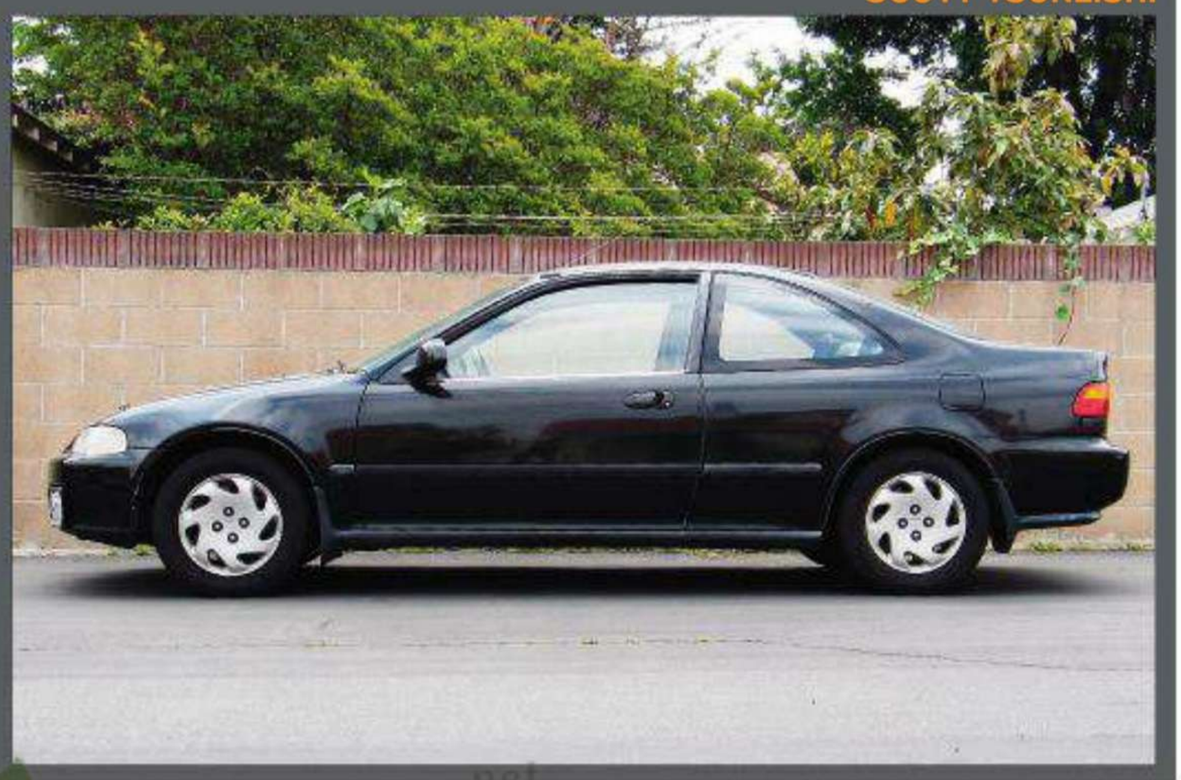
LIVING it.

RIDING SHOTGUN WITH THE EDITORS

'95 HONDA CIVIC

While browsing images on my hard drive, I came across a photo of my Civic taken back in '05. The car looked surprisingly clean before years of wear and tear took its toll on its paintjob. Perhaps a quick DIY paintjob is the next order of business to freshen up the car.

SENIOR EDITOR
SCOTT TSUNEISHI



NEW TWO-CAR GARAGE

My weeks have been spent in the garage, wrenching on Project Miata, gathering engine parts for what's next for the DC2 Integra, ruining perfectly good jeans and T-shirts in the process, and trying not to trip over the neighbor's cat. For more, flip to page 78, or stay updated with the blog spot of importtuner.com. Hopefully we'll see an image of smoke rolling off the Miata's rear tires next month!

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LUKE MUNNELL

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YOU SHOOT US, WE SHOOT BACK

This month's letters are all uncharacteristically good and deserving of rewards, especially the one from veteran (and tuning O.G.) Corey who wants to *give* you his car. Alas, in the name of neutral cynicism (because we're too broke to be hooking everyone up), we're sending J, from Ontario, a copy of the calendar he never knew existed, and Jason, from WA, one we stole from Café Lu, that might get him divorced should his wife walk into his office and find it in place of his monthly *2NR*. Thank us later, fellas!

+1 FOR TECH 101

Just wanted to write in and say thanks for the Turbo Tech 101 bit you guys did in your Mar. '11 issue. I'm new to the import scene and cars altogether, and basic tech articles like this really help. Give us more!
-Jeff Stowalska, Portland, ME

Hey, I was just catching up on the issues (I've been pretty busy lately and haven't been able to read it much) and was reading the Turbo Tech 101 section in the Mar. '11 issue and wanted to say that the article is great! I never knew the specifics about the internals of a turbo before, so thanks a lot for schooling me on it!
-Eric Frank, Cincinnati, OH

Turns out we've been getting more feedback on that feature than we expected, which means you can expect similar "Tech 101" articles in the very near future—stuff you want to know about cars, but are afraid to ask for fear of us making fun of you!

HEY GUYS, GOT A SUGGESTION . . .

Import Tuner should create and release a 2012 *Import Tuner* Calendar. I've looked all over the web to find a good tuner calendar and found nothing!
-J, St. Catherines, Ontario, Canada

You mean something like the 2010 calendar we sold with the Jan.'10 issue, or the 2011 calendar we sold with the Dec. '10 issue on newsstands? Both featuring the ultrahot girls of Import Tuner*? Hmm . . . great idea!*

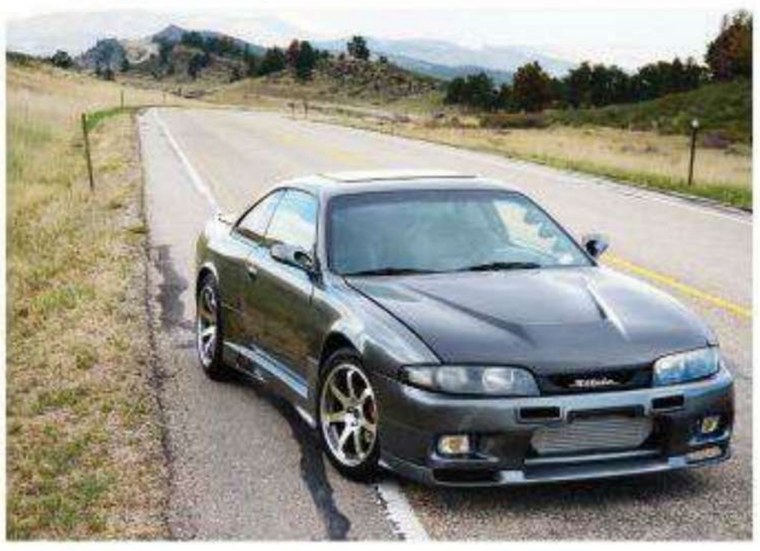
THAT WAS EASY

What are the requirements to be a featured model in your magazine? Thank you!
-Jhoanna, Fremont, CA

1.) Be hot
2.) Be cool

WANT A (NEARLY) FREE CAR?

I'm a U.S. Marine who's donating a fully built S14 for charity. I just posted shots and specs of it in the "Rides Tuner Show Off" section of your site (http://bit.ly/lMilST). The car's being raffled off, with proceeds contributed to any one of 15 charities of the entrant's choice. The car took me six years to build and I hate to part with it, but I feel this is a good way to do it. It's an S14 with a CA18DET pushing 322 hp at 18 psi of boost, and has R33 headlights, a molded widebody, S15 instrument cluster, and many more mods. Thanks for getting the word out!
-Corey Adamy, Fort Collins, CO



Lookin' good, Corey! We actually tried to do something like this with Project Miata a while back, but no one was interested. We dropped the price of raffle tickets to $0 and still nothing. Strange . . . Somehow we think you'll do better!

+1 FOR GIRLS 101

Hey guys, love the mag! I look forward to it every month, and even display each one on the wall of my office once I'm done reading—It's a little easier to walk into work when I know there will be a large display of eye candy on the wall. Oh, and Fact or Fiction is amazing! I love getting real answers and solid proof to tech questions, instead of advice from "suprtoonr420" on some forum.

Now then, I have a female-related complication in my life. A chick problem. I'm a married man, and am pretty damn lucky. I can't remember ever having a nasty argument with my wife; she skateboards with me, is constantly my D.D., likes my friends, is truly amazing, and puts up with a lot. However, she absolutely does not understand my obsession with cars. She tolerates my passion (recently even loaned me money for my VF39 turbo!), but she absolutely will not partake. She doesn't want to go to car shows, the track . . . nothing. I have no idea how to get her interested in cars, which sucks because summer is here. I love cars and I love her, but I just wish all three of us could hang out!
-Jason Workman, Redmond, WA

Ah yes, the one universal question that's been on every car guy's mind since the advent of cars themselves: "How do I get my girl to like these things?" The truth is very simple: Girls like fun. If her experience with your car is it always breaking down, or you devoting more time to working on it than your relationship with her, or you leaving her at home while you're out with the crew, she's never going to like that. Our advice: Make your car fast, then take her out for some late-night canyon carving or down the strip for some quarter-mile test 'n' tuning, or bring her to some meets and introduce her to the crew (and, ideally, their girls). Guess what? You'll have fun doing all this stuff with her, too.

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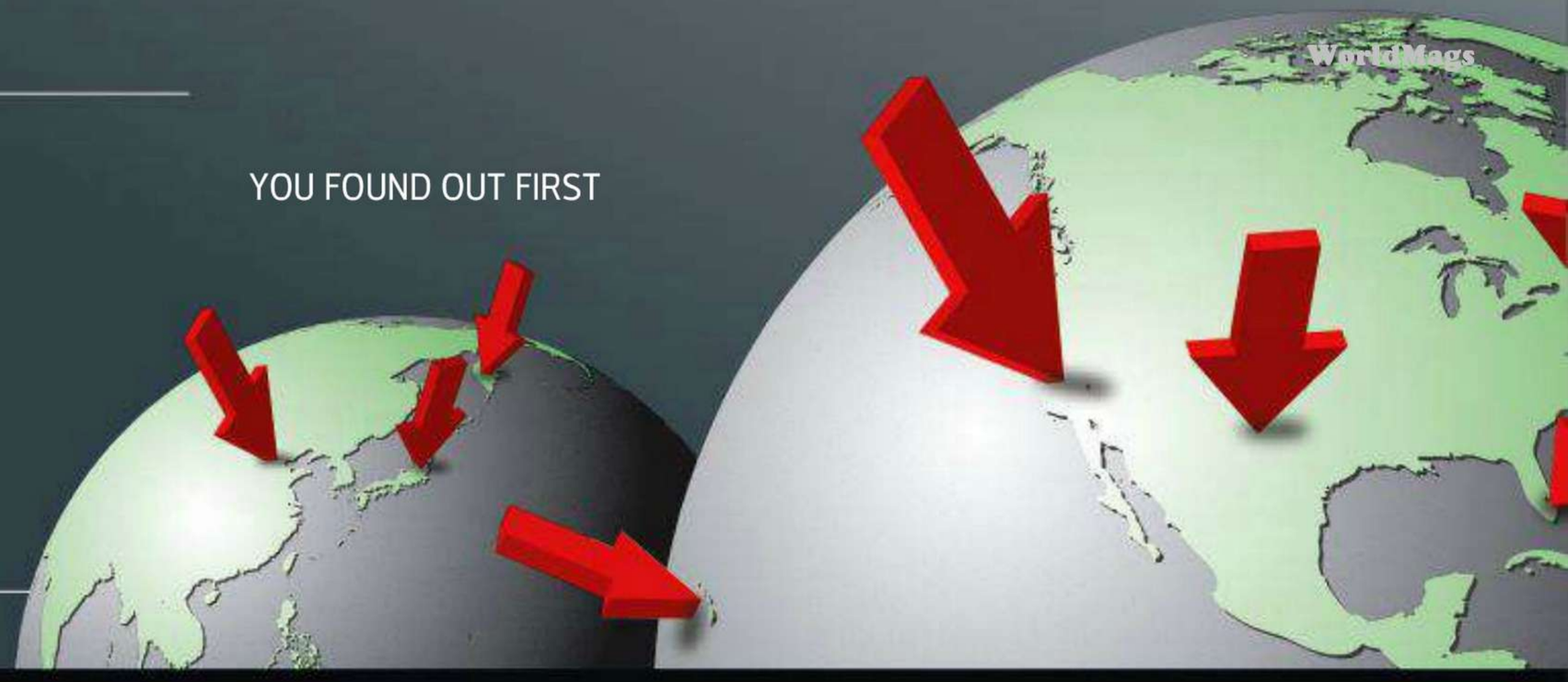
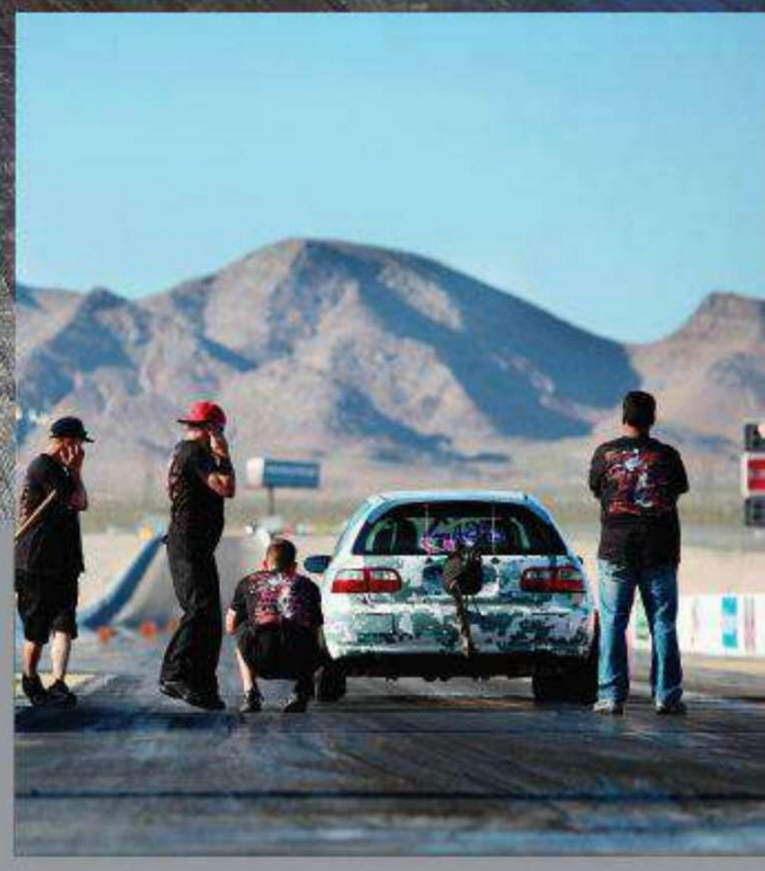


MILLER DEFENDS FWD DRAG TITLE, BUYS SLURPEE



As if the grassroots, anyone-can-enter drag racing and show competition Import Faceoff brings to the country nearly every weekend of the year wasn't awesome enough, they've gone and thrown something better, inviting the world's two fastest Outlaw FWD drag racers to a grudge match and shot at the title (and over $7K cash!). Texas DC2 Integra pilot Tony "T1" Palo—the first person to drive a unibody (Outlaw) FWD to an 8-second quarter-mile, and NYC's Chris Miller—reigning Outlaw FWD record holder, clocking e.t.'s as fast as 8.37 seconds in his Civic hatch—had never officially met in competition. Until they recently

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faced off amidst Import Faceoff competition at Las Vegas Motor Speedway. The idea was straightforward: a good, old-fashioned heads-up drag race. But when the DC2 blew beyond repair, and the Civic thrashed some welds on its intake manifold, Chris took off on the open road (in the slicked-down race car) to borrow a welder at a local speed shop, pick up a Slurpee from 7-Eleven on the way back (in the slicked-down race car), and eventually win the bout with a bye run . . . expect a rematch soon! www.importfaceoff.com

GHOSTRIDER 2.0!

Regular readers may recall "Sportsman's Struggle" in *2NR*'s May '11 issue, chronicling the destruction/rebuild/destruction epic of the SoCal-based FCS Fab Outlaw SFW drag Integra, dubbed "Ghostrider". Well, we're happy to report that it's back in full effect after its brutal '10 season-ending crash. Kind of. This completely rebuilt, fully acid-dipped, stitch-welded, battle-ship gray, 1,1000hp second coming is actually a second car altogether—one that Jason Park, Chris Cook, and the extended FCS Fab crew brought to life in 10 sleepless days and shook down at the Vegas IFO event above. It's gone as fast as a 9.50 e.t. letting off, with data logging showing only room to grow. Peep the official *Import Tuner* Facebook for fan-exclusive content!
www.facebook.com/importtunermag
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PHOTO: ADRIAN GUERRERO

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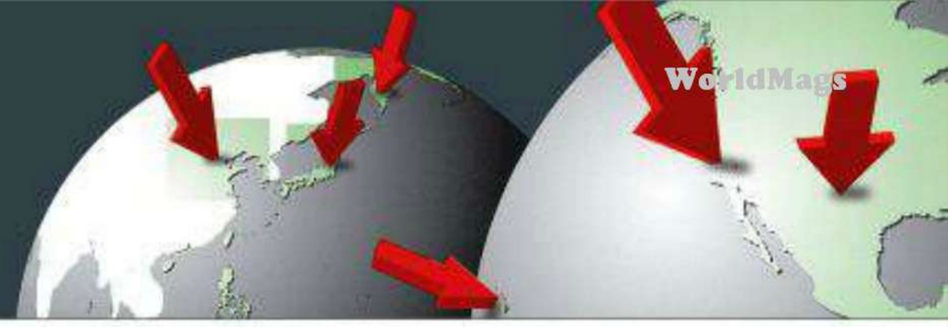

FALLOUT FROM JAPAN: RISE OF THE DOMESTICS . . . AND HYUNDAI, KIA

When the world's automakers released April sales figures—the first full month suffering the impact of the infamous Tohoku quake/tsunami—for fans of Japanese cars, it might have been easy to think the sky was falling. Mazda and Nissan took 50 and 49 percent hits in home-turf sales, respectively, Toyota dropped 75 percent, and Honda a whopping 81 in the wake of Japanese labor, material, and distribution shortages, enough for the U.S.' bailout beneficiaries—GM, Ford, and Chrysler, in that order—to top the sales charts for the first time any of us can remember. Hyundai/Kia rose to the Fourth spot and gained 10 percent of new-car sales in May for its first time ever. Company execs may be quick to credit its "strong lineup of fuel-efficient compacts amid the high global oil prices," but we suspect its strong U.S. production base might have something more to do with it. The Japanese "big three" are taking cues, cutting production in their homeland to keep plants in the U.S., Canada, and abroad meeting global demand. So this is how the Japanese economy will recover: slowly, and only after (if) the rest of the world's does.

MAZDA, FORD TO GO FROM "IT'S COMPLICATED" TO "SINGLE"

Though the United States is Mazda's largest market territory, it's the only one in the world where the automaker loses money—blame it on an increasingly strong Yen that hurts Japanese export sales and a high cost of producing cars in the Flat Rock, Michigan-based plant it has jointly occupied with Ford for the past 20 or so years. Their solution? Possibly dump Ford and head south . . . to Mexico, where Mazda may begin building an all-new plant which will drop operational costs to a fraction of what Mazda spent at the UAW-manned Flat Rock plant, while—since Mexico is covered under NAFTA—avoiding importation tariffs on its products for the U.S. market.

IN OTHER NEWS...

- Honda's Fit was recently voted "Most Fuel-Efficient Subcompact" by *Consumer Reviews.*
- Nissan Japan announces it will not produce the Spec V trim of the R35 GT-R past the '11 model year.
- At the urging of U.S. senators, Apple bans all apps that disclose the location of police/DUI checkpoints (TraWEpster, PhantomAlert, and the like).

ONLY IN JAPAN

Nissan Chief Creative Officer Shiro Nakamura—the man who penned the 350Z, GT-R, Juke, Leaf, and Cube, among a host of others—has a new book. In *Stories on Shapes of Japanese Cars*, he elaborates on his publicly voiced convictions that design should follow emotion, describing his processes for designing different cars for different global markets, and revealing why his designs often "incorporate diverse images such as bumblebees, shoes, and even video games." We're hoping he proves us right about our theory that the 370Z's head and taillights are skewed half "Z" logos, but we may never know. There are currently no plans to translate the book into English, or even sell it Stateside.
http://bit.ly/mwV6rS

EVENT SCHEDULE

Suggest an event: postal@importtuner.com
FD PRO AM, NorCal: 8.10
XDC DRIFTING, Evergreen, WA: 8.14
FD PRO AM, Nashville, TN: 8.21
FORMULA D, Las Vegas: 8.26-27
FD PRO AM, Willow Springs, CA: 8.27
FD PRO AM, Evergreen, WA: 8.28
IMPORT FACEOFF, Kent, WA: 9.4
XDC DRIFT, Saint-Eustache, Canada: 9.4-5
FD PRO AM, VIR, VA: 9.10
FD PRO AM, E-town, NJ: 9.10
JAPANESE CLASSIC CAR SHOW, Long Beach, CA: 9.10
SEVENSTOCK, Irvine, CA: 9.14
IMPORT FACEOFF, Columbus, OH: 9.18
IMPORT FACEOFF, Tulsa, WA: 9.18
MOTION SHOW, Long Beach, CA: 8.21

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TRICKS OF THE TRADE

HELPING YOU WRENCH

RADIATOR HOSE INSPECTION

BY SCOTT TSUNEISHI

With the summer days upon us, your engine's cooling system should be inspected, flushed, and refilled with fresh coolant. One area of cooling systems that even do-it-yourself mechanics overlook is checking the radiator hoses. A quick visual inspection could uncover a weakened hose that could leave you stranded if remained unrepaired. If you've never inspected radiator hoses, we offer this simple guide.

1

Upper and lower radiator hoses, along with the heater hoses, should be checked for deterioration, leaks, and/or loose hose clamps every 3,000 miles. When checking the hoses, make sure the engine and cooling system are cold. Begin by visually inspecting for cracking, rotting, or collapsed hoses. Firmly squeeze both the upper radiator and heater hoses. They should feel firm, stiff, and rigid. A hose that feels very hard or makes a "crunch" when squeezed is an indication of age-related hardening or deterioration and should be replaced immediately. Oil is another enemy of rubber hoses. A swollen, soft, or spongy hose could be caused by transmission fluid leaking in the coolant or an internal engine oil leak breaking down the composition of the rubber hose.

2

Next, you want to finish inspecting your car's hoses with a warm engine. After driving the car, turn off the engine and immediately open the hood. If a weak, swollen, or ballooning effect is present on any part of the hose, it should be replaced.

You also want to look for small, damp spots or trails of coolant at the hose ends. Dry coolant tracks, often greenish or pink in color, depending on the type of coolant, leaking downward from the hose ends, thermostat housing, firewall, or radiator, may indicate a damaged radiator neck, or a leak caused from a hose clamp that was overtightened, causing the hose to separate and tear on either side of the clamp.

3

Silicone hoses such as Samco Sport's are an excellent replacement, and are designed to operate at much higher temperatures and pressures, are chemically resistant to oil and fuel, and are more durable than OEM rubber hoses.

HOTBOX

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Following these simple inspection tips only takes a few minutes, and can save you a great deal of stress and costly repairs in the long run.

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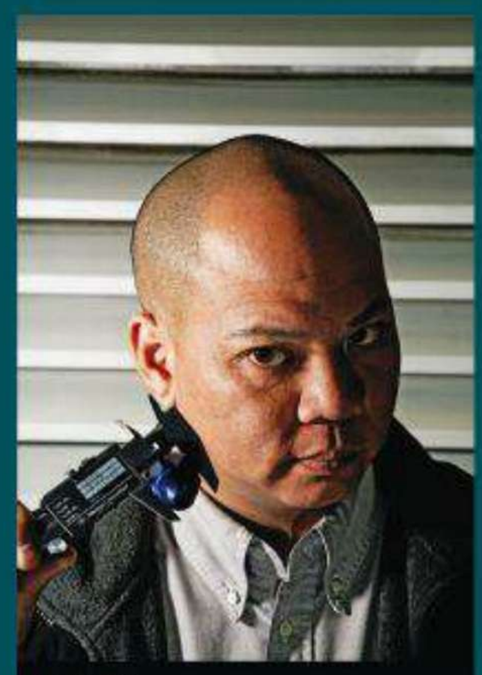
QUESTION it.

FIXING WHAT YOU BROKE

As you read this, chances are the World Time Attack Finals just went down outside Sydney, Australia, where Eric Hsu hopefully tuned the Sierra Sierra EVO to Unlimited AWD victory. Some other Eric Hsu facts:

- The staff of King Taco pays Eric Hsu $0.69 for each additional 1.5-ounce red sauce he consumes. He's earned as much as $346.38 in a single sitting.
- Eric Hsu wasn't born. He was forged.
- Eric Hsu invented the lint roller.
- *Man v. ECU* was a reality show set to air on the Travel Channel, until Eric Hsu was cast as the lead, at which point "ECU" lost in every conceivable circumstance.

Wanna know what's up?
questionit@importtuner.com



ERIC HSU
WWW.BEYONDTHEDYNO.COM/BLOGS/ERIC

THIS MONTH'S WINNING LETTER

ENGINE SWAP DEBATE

I just read July's Question It that covered an individual's 1JZ/2JZ tranny dilemma. I'd like to follow it up with a question of my own between the 1JZ and 2JZ, and ask which parts can be swapped between the two, such as the water pump? I've noticed that these engine swaps have become more frequent over the past few years and I've considered following in the footsteps of those who've done them. Will the 1JZ hold up to 600 whp or retain the same reliability as the 2JZ? I know 2JZs are more expensive, and am wondering if the 1JZ is a worthy contender as an engine swap for my '90 RX-7, unless you feel that a 4G63 is a better choice—another engine I've considered, since I have one sitting in my garage.
-Juan Mueses, via importuner.com

Before you consider an engine swap, understand that there's nothing wrong with the 13B rotary engine. The problem is that most people don't know how to build them correctly for big power duty, so I can understand why people swap other engines into rotary engine cars. What I don't understand is why people want to swap 1JZ/2JZs and RB25/26s into cars that were designed to have small, lightweight engines into them. Don't get me wrong; I love Japanese straight-six engines and own many myself, but cast-iron straight-sixes were only worth a damn in the cars they came in. Swapping them into anything that wasn't designed around a cast-iron straight-six is dumb. Since we are in 2011 and can benefit from the 110 or so years of internal combustion engine advancements, why not swap in an all-aluminum V-6 or V-8? If you're a JDM fanatic then I can see the appeal of the JZ or RB, but remember that these engines ruled in the early/mid '90s. Neither the 2JZ nor RB25/26 are especially cheap engines. Nissan VQ35s are a dime a dozen on Craigslist. I'm talking $400-600 for a complete engine that is larger in displacement, lighter in weight, and offers superior weight balance and center of gravity advantages over the 2JZ or RB engines. You can find complete swaps for $1,500 with a six-speed trans, harness, ECU, and more. From the money you save, you can fabricate or bolt on a turbo system, and even on the stock VQ35 internals you'll make the same power as a stock turbo 2JZ or RB with the boost cranked up. The only difference is you're able to make loads more torque from 2,000 to 4,000 rpm when compared to the 2J or RB at a much lower boost level. If you get serious and build the VQ35 with forged internals, it'll do 600-plus whp all day long if built and tuned correctly. I'm not a fan of Chevy LS engines in an import chassis, but call me a purist. The LS3s or LS7s are also good alternatives for a swap, regardless of my beliefs; at least they are superior to any 1JZ/2JZ or RB25/26 swap. The 4G63 is OK too, but it isn't going to make 600 whp very long on stock internals. Plus, it is a heavy lump of iron that was originally designed in 1973. Once again: Why not take advantage of our cheap advanced technology in 2011?

THE ULTIMATE ALTIMA

I own a '94 Nissan Altima GXE with a five-speed manual transmission, and would like to get some performance out of it. Having previously owned a '96 240SX, I know that the KA24DE has serious potential and is probably more affordable than an engine swap, however, would it be worth it to build and possibly boost the KA24 or would it just be better to invest in a swap, like an SR20DET?
-Carlos,
Orlando, FL

You're going to save some money and get quicker results with the turbo'd KA24DE that's already in your Altima. I don't think there's very much aftermarket support for front-wheel-drive Altimas, but try your Nissan forums for some information on turbo setups. Since your car is a '94 non-OBD model, you can use some of the old-school methods for your boosted fuel system. Look into simply running a Vortech FMU, high-pressure inline fuel pump, and by keeping the boost moderate (i.e. 4 to 6 psi) along with a good intercooler—you can make some good reliable power (230 to 260 whp) all day long on the stock engine. Or better yet, contact Jim Wolf Technologies (JWT) and have them rework your ECU. Swapping in an SR20 is another option, but prepare to spend a lot of time figuring out the wiring to your electrical system and dashboard. Plus, you'll need to make custom power steering and air conditioning hoses, which can get pretty expensive.

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SNAKE OIL

I was browsing the web and came across a product that claims to increase fuel economy by 40 percent and increase engine performance. This product sounds too good to be true and is marketed by the manufacturer to be better than turbocharging your car! I wanted to get your opinion to see if this really works or is just bull.
-Anonymous, via importuner.com

Whatever the product is, it is utter and complete BS. Certain adages are way overused, but in the tuning world, "If it sounds too good to be true, it probably is," has got to be the most applicable statement in existence.

SLEEPER CAR

I own a '96 Infiniti G20 with a stock SR20DE and have wanted to do an SR20VE (NEO VVL) swap for a while now, but I have a few questions: Can my stock transmission bolt right onto the VE engine? Will I have to wire up my car for the VVL like you do with a Honda non-VTEC to VTEC conversion? Do you guys know of any shops around the L.A./San Bernardino area that might be able to sell me an engine and possibly install it?
-Erick Rodriguez, via importuner.com

Yes, your transmission will bolt on. Yes, you will have to rewire the car for the VVL. You will also have to do some rewiring at the ECU connector to be able to run a JDM VE ECU. Try contacting LS Automotive of Huntington Beach, CA, for the swap. They're busy running drift cars in Formula D most of the time, but are one of the few I would trust for that kind of work.

VTEC POWER

I own a '93 Honda Prelude with an H23A1 engine and bolt-on parts. Unfortunately, the car has become boring and slow. I was thinking of turbocharging it to become powerful enough to be respected on the streets and the track, but still stay strong and balanced enough to be daily driven. My automotive knowledge is average, so I wanted to ask you which setup/parts would you recommend to have a balanced, all-around build that would smoke faster cars. I should also mention that the engine has some serious mileage on it. My budget is around $3K to $5K, although I'm willing to spend a little bit extra for the adequate setup if you have any referrals or a reputable tuner in the Orlando area.
-Luis
Orlando, Florida

If you want me to lie to you and tell you that $3K to $5K is enough to rebuild an engine with serious internals, turbocharge it, and then have it tuned by a reputable tuner, then you've asked the wrong person. You'll probably spend another $2-3K on the engine with no assembly labor. You might be able to find somebody to put it all together for $5-6K, but I probably wouldn't trust a shop that would charge you any less. I recommend you double or triple your original budget if you really want all that work done. If you're down with that, let us know and we'll point you in the right direction.

TRANSMISSION GENIE

My understanding is that most Hondas and Acuras did not come with a transmission filter prior to 2005, and that is the main reason why their transmissions fail so often. Being an Acura CL Type S owner, I did some research and found that the transmission oil feed lines would get clogged and murder the transmission. In my attempt to find a solution to help my transmission live a wonderful and fantastic life of heavy acceleration, I found an inline magnetic transmission filter that costs about $40. Do you have any experience with these and, more importantly, do they work?
-Andrew Ha, via importuner.com

I have no experience with that part, but keep in mind that all of the material in the transmission would need to be steel for that filter to be effective, since it is magnetic. In an automatic transmission, the clutches that wear and the worn material that could clog lines and orifices are not metal. It might catch some small chips and burrs here and there, but if you ask me, that part sounds like it would be no more effective than a factory filter. The trick would be to set up an industrial stainless steel mesh filter that can specifically handle the pressure and flow requirements of your transmission, but it might be more of a hassle than it's worth.

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FACTORFICTION

DEBUNKING TUNING MYTHS

BY **LUKE MUNNELL**

We're all guilty of it: With the numerous maintenance and legality issues that accompany owning a less-than-new car these days—especially one that's constantly going under the wrench for upgrades—maintaining a proper alignment often falls to the wayside. We all know how poor alignment can hasten tire wear and impede safety, but some would argue that it can even be robbing your car of power.

THE CLAIM: AN IMPROPER ALIGNMENT CAN DECREASE POWER.

The argument is a rational one. Power can most efficiently be directed toward forward motion when a car's wheels are both facing perfectly forward—with any degree total of toe-in or toe-out would come a corresponding amount of power lost to in- or outward motion, resulting in overall power/torque loss. But just how significant would these losses be? And would changes in camber present any change in power/torque?

BASELINE
140.2 whp
127.5 lb-ft of torque

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With our DC2 Integra's frontend alignment set to near-perfect spec as verified by a laser-guided alignment rack (0.2 degrees toe-in, left and right; 1.5 degrees negative camber), and it secured to the DynoJet rollers at Honda/Acura specialists (and Mazda, and Lotus, and Harley-Davidson, and more) MD Automotive in Westminster, CA, we determined a three-run baseline power average. Implementing the procedures of DIY alignment adjustment laid out on the *Import Tuner* website (bit.ly/kIJHlb), toe-in and camber were changed, and the car was retested for power.

TEST 1: TOE-IN +4 DEGREES

-5.7 whp

-5.3 lb-ft of torque

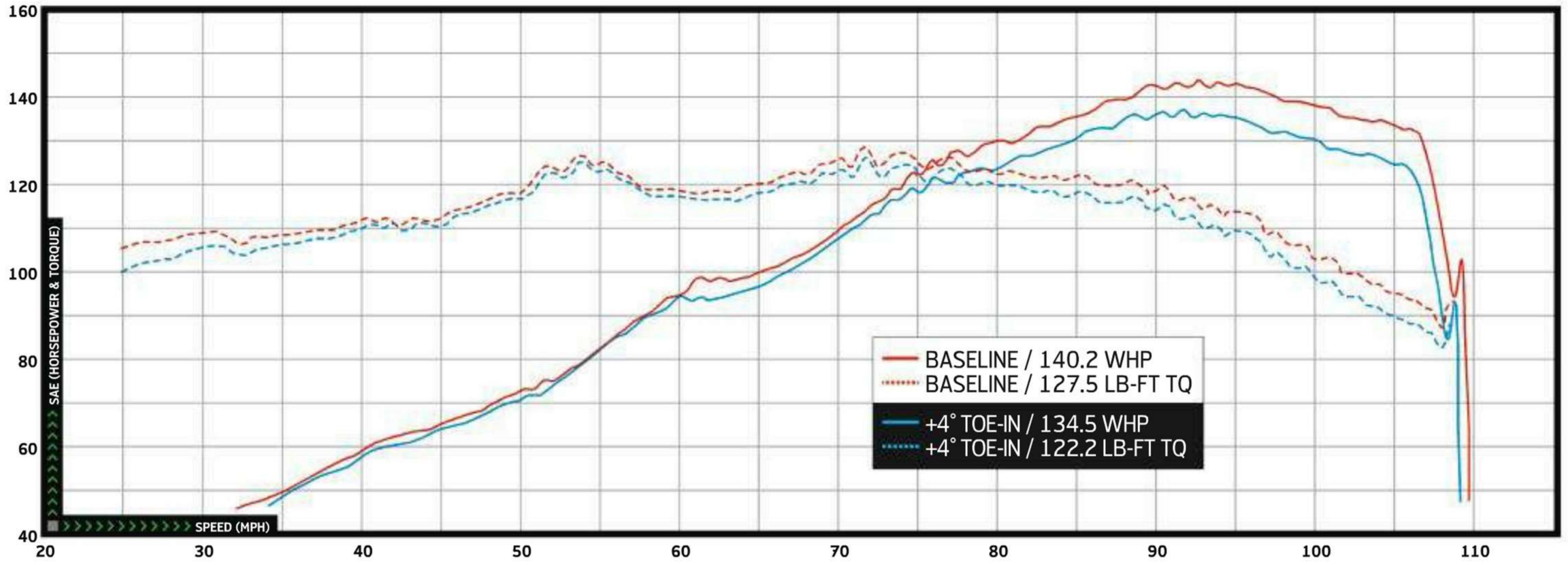
Testing recommenced after the DC2's toe-in had been increased by 4 degrees in total (+2 degrees left and right)—a pretty drastic amount, but was done to better show changes in power.

TEST 2: NEGATIVE CAMBER +3 DEGREES

-0.3 whp

-0.1 lb-ft of torque

With the DC2's frontend still misaligned from the previous test, we dialed in an additional 3 degrees of negative camber, with our KSport adjustable upper camber plates, and retested. This time (as we suspected) power/torque losses were negligible; enough to be considered standard chassis dyno variance.



THE VERDICT: For changes in toe, the logic hypothesized before held true, almost to a predictable amount: If at zero degrees all available power could be put toward forward motion, and at 90 degrees (both wheels pointing completely toward or away from each other . . . not possible, but bear with us) no power could be put toward forward motion, we could assume about a 1.1 percent power/torque loss per degree of total change in toe. Camber was different. Sure, it might also hasten tire wear and marginally decrease safety, but it won't hurt power. Bottom line: While $75 might seem like a lot to spend on a frontend alignment, it's a small price to pay considering the consequences of forgoing this step of vehicle maintenance. it.

TEST 1: FACT

TEST 2: FICTION

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TEXT AND PHOTOS BY **LUKE MUNNELL**

'11 HONDA CR-Z

BACK

MEGUIAR'S WRAPTIVO COVERED HONDA CR-Z

Poor vinyl. It's developed a horrible reputation to a lot of us. One need look no further than the circa-2000 import scene for proof: vinyl-painted interiors, two-toned vinyl seats, played-out vinyl manufacturer roll calls under side mirrors . . . and *Fast and Furious*/Troy Lee-style exterior graphics that are still, *still,* to this day mistakenly used to identify us. It's not that vinyl's all bad, either—it makes our lives easier in ways few of us realize. It just never seemed to find a place in our circle. That is, until Meguiar's dropped their matte-black Wraptivo CR-Z at this year's SEMA show in Las Vegas.

You should already know who RJ DeVera is. As the very first show registrant of Ken Miyoshi's legendary Import Showoff held in SoCal over 15 years ago (way before HIN), RJ's been in the scene literally since day one. From big-budget, corporate-sponsored show-car builds, to RO_JA wheel development, to the aforementioned Hollywood flick, and even a little drifting and road racing, he's done it all. Needless to say, he and vinyl go way back. So when RJ greeted us at Wraptivo's SEMA booth—where this CR-Z held a crowd for four straight days—and broke down its mods and the advantages of its exterior appearance in plain-speak, we were sold.

Yes, this car is wrapped entirely in vinyl. But not just any vinyl—high-performance vinyl developed by 3M, perfected by the car-care specialists at Meguiar's, and adapted by the enthusiasts at Wraptivo to do virtually anything paint can, but better and easier. "It's not like ordinary vinyl," RJ says. "First, it's easier to apply. Wraptivo is way more flexible than traditional vinyl, is shrinkable with a little heat, and is actually porous to let air out during application. Plus, it holds up way better to sun, cold temps, rock chips—whatever."

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IN BLACK

But why would anyone want to wrap their car in the first place? “It just doesn’t make sense to repaint a car with perfect paint to begin with, and be married to the new color,” he says. “With Wraptivo, you can change colors in a day—no sanding and buffing, either.” But the two biggest bonuses might be the most overlooked. “The track guys love it because it’s easy to replace. You never need to worry about color-matching replacement parts or spraying that matte texture just right; wrap it and you’re good to go.”

He goes on to tell that the concept of the car was to invoke the notion of fun, which lies at the core of the CR-Z’s DNA. His use of genuine Honda accessories, along with other aero components from Rando/Tracy Sports Japan, is complemented with a design package created to give this concept a special uniqueness; more aggressive, yet still in an image that’s not too far gone from OEM styling.

That aggression carries over to genuine performance mods underhood, with an HKS-developed prototype GTS 4015 supercharger system and Silent Hi-Power exhaust that bring a serious bump in horsepower and, more importantly, for a 1.5L engine, torque—an increase of 88 hp and 95 lb-ft of torque, tuned by Hondata. Like the power gurus who worked the engine, flexmasters at Tein developed a full coilover system for the car, while an off-the-shelf (yes, for the CR-Z) Brembo brake package featuring six-piston calipers and two-piece floating rotors can now be found behind those lightweight Volk G2 alloys.

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The interior was refined accordingly. Red Recaro Sport seats, mounted by SPD Metalworks (builders of Dai Yoshihara's Formula D S13) can be found surrounding an HKS limited-edition shift knob and a bunch more genuine Honda optional equipment implemented "to give the driver a sportier experience for fun excursions," says RJ—excursions like time-attack, we're told. There's a reason he combined all those performance mods with removable audio components from PAC, Phoenix Gold, and Stinger: NASA HPDE drivers, as well as Japanese and European circuit junkies, are already racing CR-Zs regularly and dedicating classes to the new car exclusively. RJ's hoping he'll have a chance to enjoy this CR-Z in a similar fashion once all its media/show obligations have been fulfilled, proving all the performance benefits of Wraptivo. It just might be enough to legitimize vinyl in the minds of the purists, once and for all. it.

BEHIND THE BUILD

NAME.
MEGUIAR'S

AGE.
100

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2011 HONDA CR-Z

OUTPUT: 201 HP / 203 LB-FT OF TORQUE

ENGINE HKS prototype supercharger kit (GTS4015 supercharger, Super Megaflow Reloaded intake, tubing, injectors, self-contained lubrication system, F-Con IS, OS-C fuel management), Silent Hi-Power exhaust, Super Fire racing spark plugs, radiator cap, oil filler cap

DRIVETRAIN Open to suggestions

SUSPENSION Tein prototype adjustable coilovers

BRAKES Brembo two-piece, cross-drilled, floating-rotor system, six-piston mono-block calipers (front)

WHEELS/TIRES 18x8.5 +44mm offset Volk Racing G2 wheels; 215/35-18 BFGoodrich G-force Super Sport AS tires

EXTERIOR Honda Accessories front chin, side skirts, rear diffuser; Rando/Tracy Sports front lip, side sills, GT wing; Wraptivo Matte Black Designer Car Wrap (body), Carbon Black Designer Car Wrap (roof and partial hood)

INTERIOR Recaro Sport bucket seat; HKS limited-edition shift knob; Honda Accessories center armrest, compass rearview mirror, illuminated door sills; custom Alcantara-covered panels and trunk audio enclosure, Wraptivo Carbon Black-covered rear audio enclosures

AUDIO PAC VCI-MC1 rearview camera, SWI-RC steering wheel control interface; Phoenix Gold SD800.5 five-channel amplifier, Ti6CS 6.5-inch component speakers, 6.5-inch coax speakers, 12-inch subwoofer; Pioneer Bluetooth-equipped AVH head unit; Stinger SPP680 (x2), SPC505 five-farad hybrid capacitor, SPW14T four-gauge red and black wiring; SGP90801 80-amp circuit breaker, SGP38 80 battery isolator, SVMB digital voltage readout, SPS40 40-amp power supply, SCM digital monitor module, SPI6312 six-channel pro RCA

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TEXT BY **YUTA AKAISHI**
PHOTOS BY **KYLE CRAWFORD**

'92 NISSAN 240SX

NOT SO INSTANT

FOUR AND A HALF YEARS IN THE MAKING

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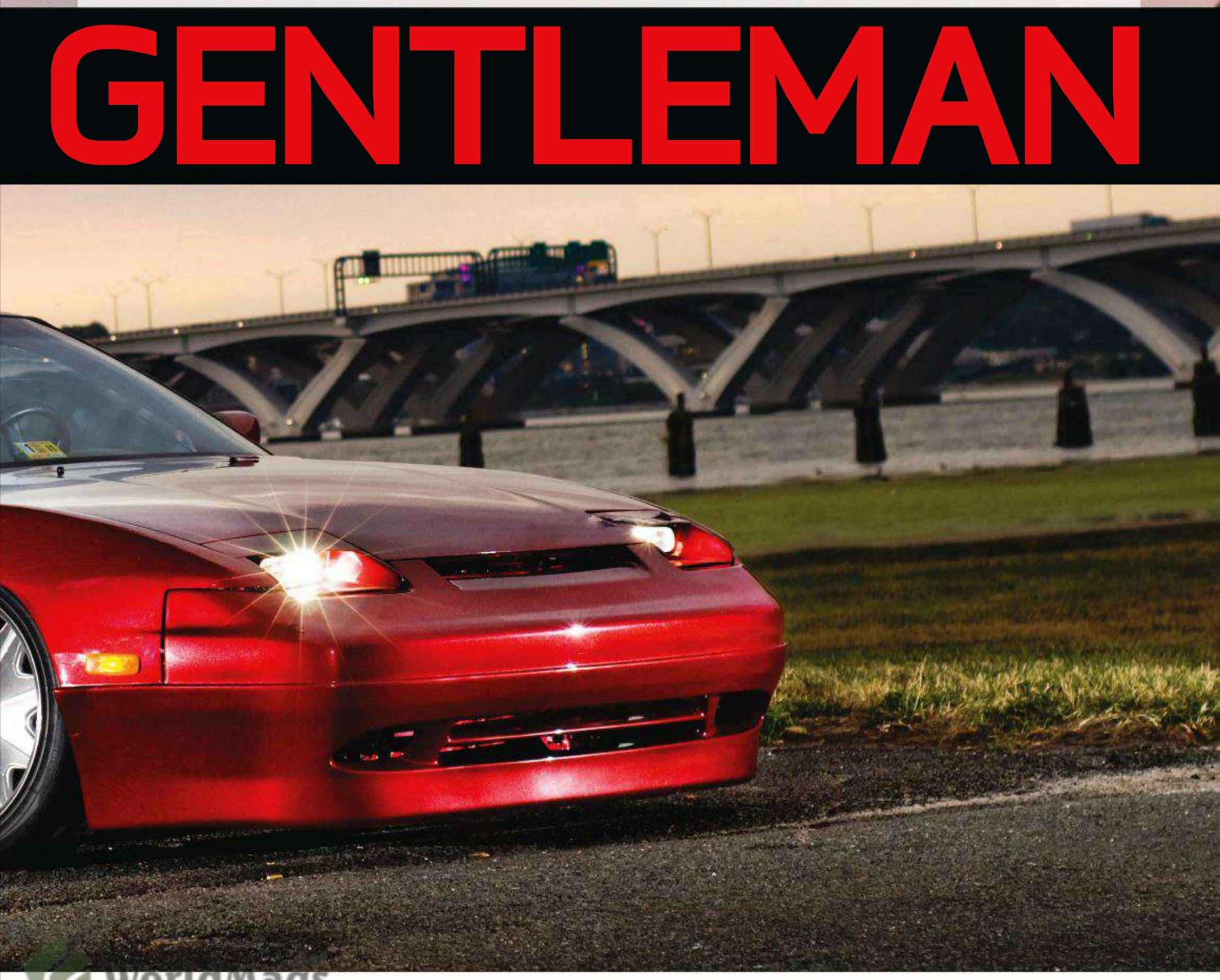
GENTLEMAN

It appears as though cars have been the victims of stereotyping lately. Certain makes and models practically have a template laid out dictating how they should be modified. This seems to be especially true for the Nissan 240SX, a car that many consider to be expendable, with the price of bare chassis—even running cars—dropping into the triple digits. Such factors have led to exponential growth in the popularity of the 240SX. It's everything anybody could want in a hobby car: cheap, guilt-free, mindless fun. Waldemar "Waldo" Bernedo, however, had a slightly (and by *slightly*, we mean *completely*), different mindset with this '92 240SX build. Before he chose the S13 to become the foundation of his masterpiece, he had a vision of the completed car and kept to that vision throughout the build, never wavering from the initial plan regardless of the cost or technical obstacles. That, in his own words, is what "separates a builder from a hobbyist; a builder has a vision and a plan even previous to the purchase of the vehicle. A hobbyist makes changes to the car as he goes."

If you've taken a peek at the specs and photos you may have noticed that all of its parts were manufactured by reputable companies, the majority being of Japanese origin and/or enjoying rare status, especially in the States. During our brief conversation, Waldo brought up a very interesting point: Companies in Japan are not only still producing parts for the S13 22 years after its introduction, but developing new parts as well; a testament to the S13 as a truly timeless chassis and proof that it's still possible to create a quality build that's unique from the masses. While there is nothing wrong with the typical "drift slut"—assembled with just enough cheap, China-made parts to hold the car together and drift half-decently—Waldo knew he wanted to go a different route, but he also knew that simply throwing expensive parts at a car wouldn't result in much better, save for a suffering wallet. Meticulous planning was absolutely necessary to build a car that flowed well aesthetically and allowed each part to complement the other and the car as a whole.

He started the process over four years ago with the enlistment of Van over at One Ton Garage, who undertook the task of securing an authentic Super Made Instant Gentleman aero kit, along with their



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headlamp assemblies; keep in mind, this was when most stateside distributors had yet to even hear of Super Made. The headlamp assemblies started as a two-piece design, but Waldo had them modified into a single unit (per side) to improve fitment with the hood and bumper. One aspect of the car that really impressed us was the addition of the GP Sports door caps. The Super Made bumpers and side skirts mount just high enough on the car to cover the lower body line from view, but still leave it visible on the door. Instead of just shaving the body line, Waldo opted to incorporate the door caps to not only cover the body line, but also to smooth out the transition from the side skirt to the door—impressive attention to detail. With such modern aero fitted to the car, updating the rest of the exterior was absolutely necessary. To meet that need, Kouki 180SX taillamps, quarter window glass, and a rare Nismo center garnish (yes, this is the carbon Kevlar unit) were also added, along with an exclusive 326 Power roof wing and fresh coats of Cherry Red Pearl laid down by Mr. Spoiler.

Careful planning is apparent under the hood as well; the engine bay was shaved of all its unnecessary brackets and holes before being repainted to match the rest of the car. To say this is visually pleasing is a gross understatement, especially when many of us are so used to the clutter that is usually found under the hood of an

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S13. The majority of the work done to the Blacktop SR20DET (carried out by Carlos Rivera) is basic; this engine really doesn't require much to be reliable and fun. Waldo and Carlos started with maintenance, replacing the water and oil pumps, gaskets, seals, and, of course, the timing chain guides and tensioner. This is far from the fastest S13 on the planet, but you'd be hard pressed to find more than a handful from around the globe that could provide you with peace of mind and smooth operation better than this, while simultaneously destroying your retinas and blowing your mind with its clean, cohesive styling.

Although it's this exterior styling that first grabs the attention, Waldo spends the vast majority of his time with this car actually driving it. Inside is a myriad of the finest textures available, a literal who's who of elite Japanese automotive interior products. The most obvious changes are the seats: a Bride Vios III bucket for himself and a matching XAX II for the passenger, both in Bride's signature gradation, also applied to the door panels, armrest, glovebox, and even to the shift boot. Takata harnesses bring contrast to the sea of black, and Super Made checkered floor mats add a nice flair to a part of the car that is usually overlooked. Anybody who has attempted to sit comfortably in the back seats of an S13 knows that it is simply not possible, so why leave the 19-year-old tweed seats back there? Waldo opted to replace them with an Origin two-piece rear seat delete panel made of carbon fiber. Both the steering wheel and shift knob are race-inspired Key's pieces, with a quick-releasing Works Bell Rapfix II hub making entering the

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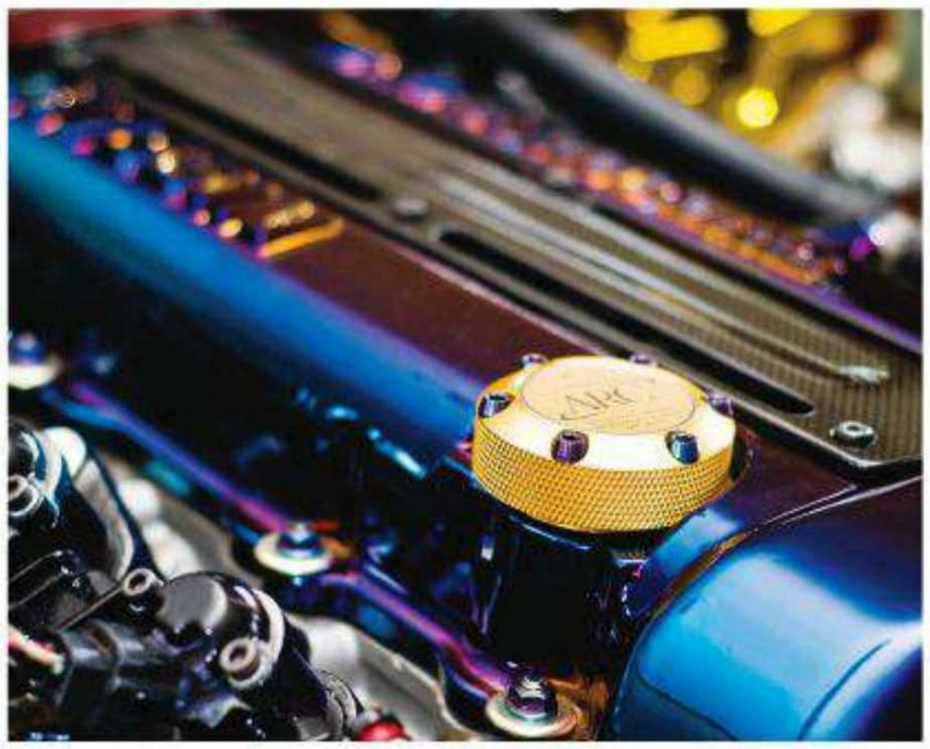
car pleasant, and exiting it a little less painful—as leaving an interior as clean as this no doubt would be.

The ride height, wheels, tires, and alignment setting can really make or break a car's visual appeal. Balancing aesthetics with performance and incorporating driveability into the mix is a whole new level of that equation. Lowering the car to get rid of wheel gap is a no-brainer, but how one chooses to go about doing that is a true test of skill. Kei Office XT coilovers provide the drop and do wonders to improve the handling; Cusco rear upper control arms, Battle Version toe arms, and Tein inner and outer tie rods drastically increase adjustability and replace the old worn bushings with spherical bearings; Cusco front and rear sway bars tighten up the suspension and reduce body roll; and a Next Miracle crossbar and Autopower four-point rollbar combat the flimsy chassis the S13 fastback is infamous for, the latter also allowing the harnesses to be mounted at safe angles. Finally, Ichiba five-lug conversion hubs replaced the original 4x114.3 hubs and aging wheel bearings, making the switch to Q45 brakes easier so Waldo could run those monster Work Varianzas without a hitch.

Waldo set out to build the ultimate daily driver. Coming from a lowrider background, his attention to detail and sheer quality of work is not surprising, but the results seen here are nonetheless impressive. When we spoke on the phone, Waldo shared with me the story of the night he and his best friend, Juan Castaneda, first fired up the car after working on it for so long: Having skipped dinner and with work the next morning, the logical course of action would have been to retire and snag a few hours of sleep. Instead, they continued to wrench away into the night, so that at 3 a.m., once every nut and bolt had been torqued down, they could do what any other enthusiast in their right mind would: fire up the car and drive it—with no bumper, no hood, no inhibitions—basking in the glory of a night ending in victory, a friendship, and a beautiful car.

If you ever come across this car at a show, chances are it won't be the first that catches your eye. However, you will find yourself returning to it to "take one last look" many times, maybe never realizing that stories like the one above—that forge the very soul of a car—intangibly present in its build, are what become apparent and capture your attention the more you look it over. Waldo, like us, hopes it would leave you with a lasting impression . . . and many more photos than you intended to take. it



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AGE.
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LOCATION.
FAIRFAX, VA

OCCUPATION.
MANAGEMENT ANALYST

HOBBIES.
MODIFYING CARS, DJ, B-BOY

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4.5 YEARS

FEEDBACK.
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MOTIVATION.
TO BUILD A CLEAN AND UNIQUE 240SX

'92 NISSAN 240SX

ENGINE Blacktop SR20DET swap; custom engine bay shaving, fusebox relocated to armrest, gold heat-reflective film; Dippedparts.com titanium burnt finish blacktop valve cover; ARC intake induction box, oil filter cap; chrome-dipped piping, radiator brackets, heat shield; black powdercoated throttle body, fuel rail, catch can; black Mishimoto powdercoated fan shroud, X-Line radiator; new OEM water pump, oil pump, timing chain guide, tensioner, gaskets, hoses; Motul tranny fluid; Durdan prefab wire-tucked harness; Techflex sleeves; Chase Bays brake line, clutch line tuck kit; Baller Bolts titanium burnt strut tower nuts, valve cover nuts; Kinetik carbon-fiber coil pack cover; Samco hoses; Touge Factory gold pulleys; Parts Shop Max high-mount intercooler kit; steel-braided high-pressure power steering hose; Greddy rocker arm stoppers, oil pan, powdercoated intake manifold; Nismo motor mounts; NGK Iridium spark plugs; Walbro 255-lph fuel pump; MR 3-inch downpipe; Catco 3-inch catalytic converter

DRIVETRAIN Nismo transmission mounts, clutch pivot ball stud; Exedy Stage 1 clutch

SUSPENSION Autopower four-point rollbar, harness bar; Kei Office XT coilovers; Cusco front and rear sway bars, rear upper control arms; Battle Version toe arms; Tein inner and outer tie rods; Next Miracle crossbar; Ichiba front five-lug conversion, rear five-lug conversion

WHEELS/TIRES Work Varianza D3S wheels (18x9 +5mm offset front, 18x10 +15mm offset rear); Kumho tires (215/40-18 front, 225/40-18 rear)

BRAKES Q45 two-piston front brake upgrade; Brembo Q45 front rotors; HKS Competition Teflon brake lines; PBR Performance brake pads

EXTERIOR Super Made modified one-piece headlight housings, front bumper, side skirts, rear bumper, trunk spoiler; PIAA P-3000 headlights; GP Sports modified door caps; 326 Power rear roof spoiler; JDM 180SX quarter windows, Type X taillights, carbon/Kevlar centerpiece; VIS Racing carbon-fiber trunk with rear wiper deleted; custom rolled and pulled fenders; shaved rear window nozzle; Cherry Red Pearl paint

INTERIOR Bride Vios III driver seat, XAX II passenger seat, rails; custom Bride-wrapped door panels, armrest, glovebox, shift boot; Key's Racing steering wheel, shift knob; Works Bell quick-release; Rapfix II hub; Takata seat harnesses, pads; Origin carbon-fiber two-piece rear seat delete panel; Super Made floor mats

GRATITUDE My family and lovely girlfriend, Ariel, for their support; my best friend, Juan Castaneda, because without him this car would have never existed; Jeremiah for his help throughout my engine bay project; Carlos Rivera, for his help with the motor; Work Wheels USA; Van at One Ton Garage; Dan at Mr. Spoiler; Mikey at Dippedparts,com; Chase at Chasebaysonline.com; Darren and Pete at Intense Power; Durdan Perfab; Ray at West Covina Nissan; Kyle Crawford for the great photographs; everyone at Canibeat.com (Cristian, Roy, Dave, and others) for their support; and the *Import Tuner* nation!

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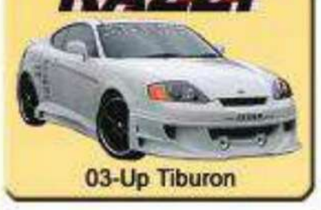
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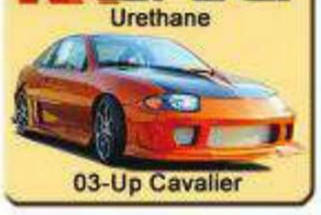
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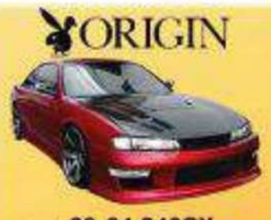
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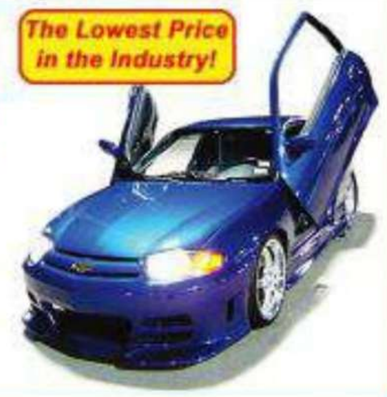

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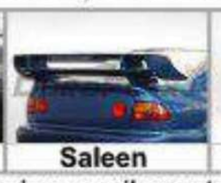
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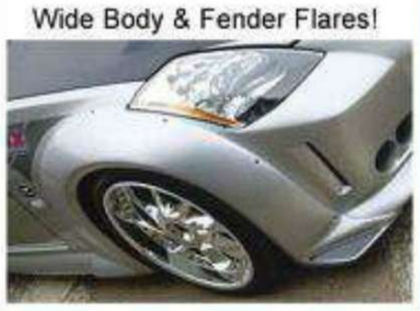

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TEXT BY **HENRY HANK NGUYEN**
PHOTOS BY **HENRY Z. DEKUYPER**

'85 TOYOTA COROLLA GT-S

BUSINESS CASUAL

STILL STANDING THE TEST OF TIME

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Building an AE86 Corolla is a lucid dream shared by many. Driven by the appeal of its lightweight chassis, FR configuration, and being one of the biggest icons in automotive pop culture, it comes as no surprise that its current cost and rarity has nudged this car into a category that some may regard as "unicorn" territory. There's no denying that anyone looking to build a fun car has had the AE86 pinned somewhere in their mental list of contenders. It's balance, handling, and subtle brick styling has us all on the edge of our seats. It's been a long 28 years since this '80s econobox debuted, and not only has its resale value continued to spike over the past five years, but new parts are still being researched and developed, proving that the chassis continues to be a reigning standard to the masses.

Jimmy Le knew all of this very well—the fun, the style, and the presence of the AE86. Ever since he was a kid, he's had his sights dialed on owning one. It was in 2006 that he finally bit the bullet on an '85 Toyota Corolla GT-S, beginning the money pit that currently sits in between your hands. Unfazed by the trends and direction of cookie-cutter Corolla builds, Jimmy went well out of his way to build his car up to his own standards and expectations. The car might seem like a pretty mild build at first glance, but the most impressive trait that this car flaunts is all very much in the details—in the nooks and crannies that most of us car guys tend to look past with our snooty eyes and peculiar tastes. A quick glimpse at the spec sheet sheds a little light as to where this Corolla might stand in the upper echelons of AE86 geekdom.

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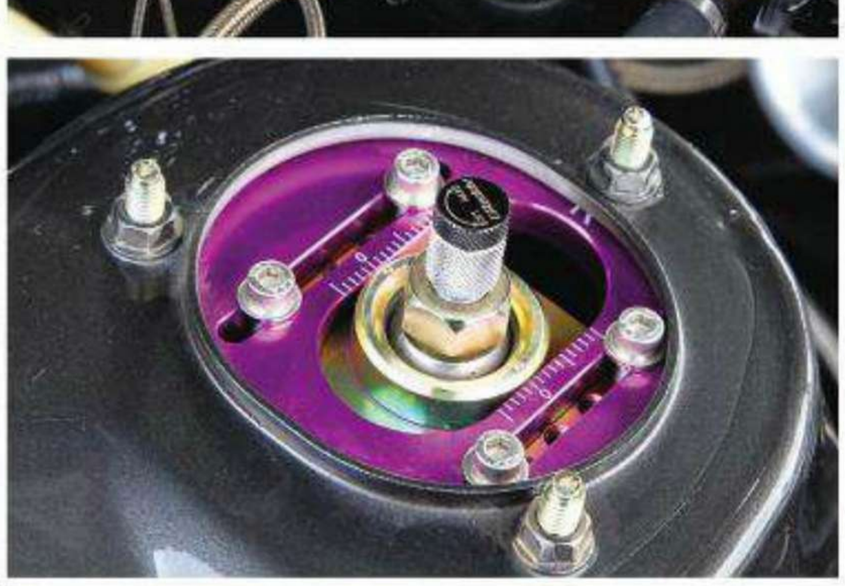

Being neither a show nor track car, he wanted to build a nice, clean, weekend car that can simply do his bidding, whatever and whenever the hell he wanted to do it.

I have to admit, my eyes tend to roll at the sight of seeing the everyday two-toned scheme. Maybe it's because it's been reproduced an infinite amount of times, or maybe because it's usually done by rattle cans with a hint of overspray—I'm really not sure . . . but it's definitely seen better days. So, taking a few steps away from the average Corolla, the whole car was repainted a solid color from the Toyota Supra: Anthracite Metallic. It's a bit refreshing and dare I say "unique" that a more modern paint scheme graces the full shape of this cult classic. To keep up with the gleam of this contemporary shade, the car adorns authentic Run Free aero. And in similar fashion, the rest of the car was brought back to life with all the lamps from the later (*Kouki*) model AE86, including redline taillights, signal lights, corner lights, and eyelids.

Just as you might have expected from the immaculate exterior, the interior of this car is just as pristine as the day it left the showroom floor. Not because the previous owner kept this gem hidden in a tightly sealed garage for all those years (though it might have helped if he did), but because he took it a step further and replaced many of the interior's creature comforts with brand-new OEM pieces that were sourced straight from Japan. There's fresh carpet, fresh mats, and it's fresh even down to the grit-like weatherstripping and window molding—all have been replaced with factory pieces. "This was probably the most difficult part of the build," Jimmy mentions. "I wanted not to just fix the car up, but to restore it."

In the front, to love and to hold, both seats were replaced with a pair of Bride Zeta III buckets clinging onto Bride Super Low rails. Keeping the connection between driver and machine pure and unprocessed is a leather Nardi steering wheel and a TRD knob spun onto a T3 short shifter. Combined with every bit of its factory interior pieces, this ride looks to be a pleasurable experience whether you're getting groceries or mid-turn during a spirited drive.

Staying true to the spirit of the car, Jimmy stuck with the 16V 4AGE. Though, as I'm sure you've noticed, his plans didn't stop there. Ray Gonzaga, of Ray's Toys, is responsible for the engine build, turning the once lively motor into a scream factory. Built with a host of Toda components and holding down the fort with a 10.7:1 compression ratio, this naturally aspirated engine benches in at 160 hp at 9,200 rpm and 118 lb-ft at 3,800 rpm. With the help of a T3 adapter plate and velocity stacks, air is fed through factory 20V 4AGE independent throttle bodies, while exhaust is spat out through a 4-2-1 TRD header and HKS Hi-Power exhaust. A Walbro fuel pump, a 4AGZE

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fuel rail, and its injectors are responsible for sending and receiving. And for added security, a large Koyo aluminum radiator keeps those temps safe and consistent.

Working behind the velvet curtain of induction and exhaust note, a Toda flywheel and clutch combo sends that power down to a Cusco LSD to be divided before hitting the ground. The damping, too, has had no expense spared. Greddy Type-S coilovers cradle this spoiled chassis, while 14x7+0 Volk Racing TE37s on 195/60/14 Falken Azenis tires keep this machine nestled tightly against the asphalt.

This car is wild! It incorporates pretty much all the factors that one would consider throughout a build and, more importantly, after a build. The stance this car has isn't exactly parallel to current trends, but it stands at a height that actually lets the suspension do its job. It was built with high-quality performance in mind, but unlike many other Corollas to have garnered our attention, it also bears the weighty burden of having to be a real, functioning car on the road. Whether it's the fun car that Jimmy wants to toss around at a moment's notice, or the comfortable and clean car he needs to drive around in with his wife and son, it's the car for the job, and it'll always leave a grin from ear to ear. This AE86 sits right in the middle of the spectrum. It isn't a dedicated track car, and it certainly isn't a show queen. It's business casual.

BEHIND THE BUILD

NAME.
JIMMY LE

AGE.
30

LOCATION.
CERRITOS, CA

OCCUPATION.
PRODUCT MANAGER (DC SPORTS)

HOBBIES.
WATCHING FORMULA1, MOTOGP, NBA, NFL, COOKING, AND SPENDING TIME WITH MY WIFE AND SON

BUILD TIME.
2.5 YEARS

FEEDBACK.
JIMMY@DCSPORTS.COM

MOTIVATION.
THE TOYOTA COROLLA (AE86) HAS ALWAYS BEEN ONE OF MY FAVORITE VEHICLES SINCE I WAS YOUNGER. WHEN THE OPPORTUNITY CAME UP FOR ME TO START THIS PROJECT, I JUMPED RIGHT ON IT.

1985 TOYOTA COROLLA GT-S

OUTPUT: 160 WHP / 118 LB-FT OR TORQUE

ENGINE 4AGE JDM Red Top 16V engine; Toda Racing 264 camshafts, valvesprings, retainers, cam gears, timing belt, head gasket; Toyota 20V individual throttle bodies; T3 manifold adapter and velocity stacks; Arias 10.7:1 compression pistons; EPN oversized stainless steel valves; Toyota under-bucket shims; ARP main stud kit, head stud kit, rod bolt kit; Cusco motor mounts; new OEM oil pan, engine gaskets, alternator, power steering pump; blueprinted 4AGZE injectors; NST pulley kit; custom stainless steel fuel lines; TRD header; HKS Hi-Power exhaust; NGK spark plugs; Koyo aluminum radiator; Flex-a-lite electric fans; DME oil cap, radiator cap; AEM EMS

DRIVETRAIN Toda Racing clutch and flywheel; Cusco 1.5-way LSD, transmission mount; ARP flywheel bolt kit; T3 short-throw shift kit

SUSPENSION Greddy Type-S coilovers; Whiteline sway bars

WHEELS/TIRES 14x7 +0 Volk Racing TE37 wheels; 195/60-14 Falken Azenis tires

BRAKES Hawk brake pads; slotted brake rotors; Earl's stainless steel braided brake lines

EXTERIOR Toyota Anthracite Metallic Paint (1A1); Run Free complete body kit; JDM *kouki* corner lights, eyelids, bumper lights, and taillights; Hella H4 headlight bulb conversion; PIAA headlight bulbs and windshield wipers; new OEM window molding

INTERIOR Nardi Challenge steering wheel; HKB steering wheel hub; TRD shift knob; new OEM shift boot, floor mats, hatch cover; Bride Zeta III bucket seats, super Low Max rails

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’99 ACURA INTEGRA GS-R

ALL THINGS GOOD

YOU AIN’T SEEN A BROWN BOMB LIKE THIS

TEXT BY **BIG MIKE**
PHOTOS BY **PATRICK LAUDER**

“I would never mix Mugen and Spoon parts.”

How many of us have heard someone say that statement or some synonymous variation of it? If you haven’t, you’ve invariably read it on one of the numerous Internet forums that are so popularly frequented, which can be a double-edged sword: On one side, with vast amounts of technical information and first-person experience available at the push of a button, and on the other, with hearsay and regurgitated disinformation from opinionated so-called “gurus” whose egos are driven by their post count and those who gauge their credibility accordingly. As unfortunate as it is, the general enthusiast population’s perceptions of what is “cool” and acceptable often begin and end right on a computer screen. Fortunately, for the rest of us, San Francisco’s Ditus Dela Cruz doesn’t give a damn.

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Within each niche community of car enthusiasts, certain procedural standards have come to exist, regarded simply as "the way it is", especially with the creation of the Internet. Some are common sense, such as not putting wider wheels in the rear of a FWD car (oh wait . . .), and others are more opinion-based rules created by purists dedicated to their particular brand of choice, like the aforementioned two in the Honda circle. Brand-specific threads have become forum mainstays, with their loyalists willing to pay truly obscene amounts of money to stay true to only the items their favorite manufacturer has/has had to offer. You just don't dilute dedication like that, or split it between two manufacturers, Right? Well, Ditus did.

In Ditus' words, "Integra is the best platform to build." His build began from the moment he picked this chassis up seven years ago. He went through various looks, ranging from a '98-spec USDM ITR, to the common JDM ITR, and then to a Spoon DC2 theme. But when it was all said and done, Ditus decided on a path that went against the grain, a proverbial "no-no" mix of Mugen and Spoon parts. He doesn't care what the forum trolls think; to him the combination is quite logical. "Mugen and Spoon are among the top Honda tuners. I built my car to have the best of both worlds."

Ditus' DC2 brings two words to mind: subtlety and contrast. Taking an authentic Mugen front bumper and side skirts, he had the exterior sprayed in Porsche Macadamia Metallic paint, which balances nicely with the signature bronze finish of the beautiful Mugen MF10s, all of which lend to the subtlety of the vehicle. The contrast begins with the red Bride Zeta III driver seat and Ergo passenger seat with green Takata harnesses, all of which are surrounded by a slew of JDM ITR interior pieces, and a Spoon Sports ITR gauge cluster. The engine bay and engine itself proves to be an interesting mix of the two prevalent values. First off, the bay is painted a "leather brown" finish to subtly contrast the exterior. A custom Rcrew header modified to take the OE ITR heat shield is on the exhaust side of the motor, while the intake side has an OE box with a Spoon filter. Continuing with the Spoon theme, Ditus used their head gasket, oil and radiator caps, and even ignition wires with a Kevlar wire cover signed by Ichishima-san himself. The motor was built by DNR to achieve 12:1 compression using PR3 pistons in the bottom end, with Toda Spec C cams and valvetrain being employed up top to output 215 whp. And what puts that horsepower to the wheels? An official Spoon Sports transmission with LSD, of course.

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/ ALL THINGS GOOD

From the beginning, it was evident that Ditus was going to be a different kind of enthusiast. "I was into cars at a very young age. Since I was a little boy I've been disassembling my toys to see what was inside of them, because I was curious as to how they worked. And then I would try to put the pieces back together." This hands-on approach stayed with Ditus as he got older, and even turned into a bit of a mantra. When asked what type of advice he would give to someone thinking of building a similar vehicle, he says: "Work on it with your friends in your garage and try not to always rely on the shops to do it for you." Make no mistake, though; this statement comes from someone who paid his dues. When installing the intake manifold, the coolant hose and the hose that goes to the charcoal canister got switched, causing the coolant to go into his gas tank. Rather than panic, the group simply drained the gas tank and switched the hoses back. Simple as that. Live and learn.

Even amongst the setbacks, Ditus was determined to create a vehicle that he would be happy with. When asked what the motivation behind the build was, he stated, "to build something I can be proud of." It's clear that Ditus is proud of his creation. When asked of his future plans, he simply said, "I dunno. A feature in *Import Tuner* has been what I wanted all along. That, and stirring the pot a little!" Well Ditus, mission accomplished.

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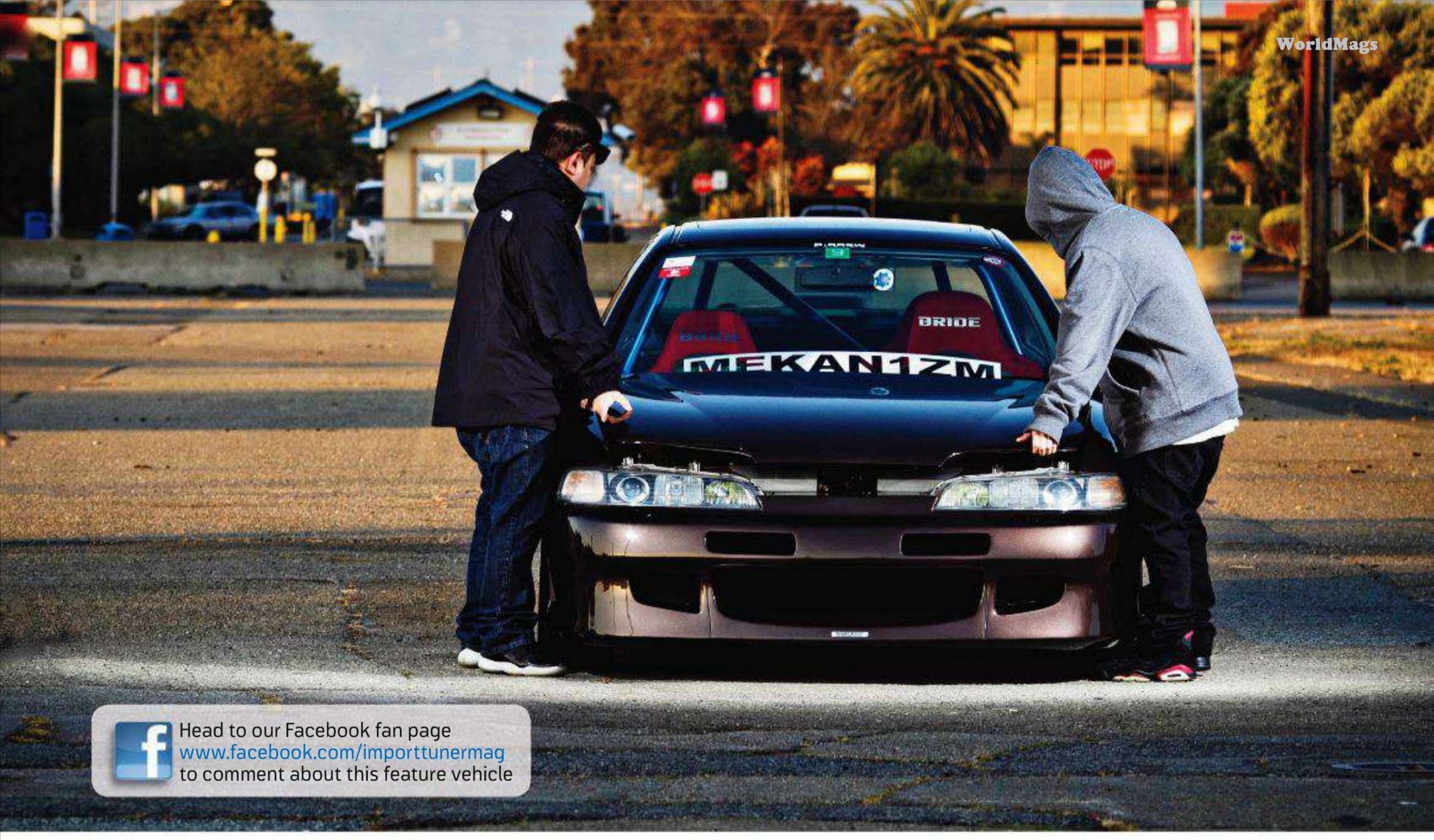

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BEHIND THE BUILD

NAME.
DITUS DELA CRUZ

AGE.
30

LOCATION.
San Francisco, CA

OCCUPATION.
TREASURY MANAGEMENT ANALYST

HOBBIES.
WORKING ON CARS WHILE DRINKING, COLLECTING SHOES, EATING OUT

BUILD TIME.
7 YEARS

FEEDBACK.
BUTULPAKWAN@GMAIL.COM

MOTIVATION.
TO BUILD SOMETHING I CAN BE PROUD OF

'99 ACURA INTEGRA GS-R

OUTPUT: 215 WHP/137 LB-FT OF TORQUE

ENGINE DNR-built B18C1; OEM Honda PR3 pistons; ARP rod bolts; Spoon Kevlar spark plug cover signed by Ichishima Tatsuru-san, ignition wires, air filter, oil cap, radiator cap, head gasket; Toda Spec C cams, valvesprings, retainers, cam gears, timing belt; Mekan1zm wire-tucked engine bay; Pivot water temp. controller, oil temp. gauge; ported intake manifold by A1 Autowerx; Yashio Factory Super Light R radiator; custom Rcrew header modified to fit JDM ITR heat shield and skid plate; Kakimoto N1 exhaust; polished Hasport motor mounts

DRIVELINE Spoon Sports transmission, limited-slip differential; Exedy six-puck clutch, 9.5-pound chromoly flywheel

SUSPENSION Spoon Sports front and rear strut bar, brake lines; Tein SS coilovers; Function7 ITR lower control arms; Safety21 rollcage; Rcrew subframe brace, traction bar; Techno Pro Spirits C-pillar bar; JDM ITR front and rear sway bar; Buddy Club front camber kit; ITR five-lug conversion; ARP extended wheel studs

WHEELS/TIRES Mugen MF10 wheels (16x7 +43 offset); Falken Azenis RT tires (215/45-16); Muteki Burning Blue Neon lug nuts

BRAKES NSX front calipers; Hawk HPS pads; Spoon Sports brake lines

EXTERIOR Porsche Macadamia Metallic paint with Leather Brown engine bay; JDM ITR HID front-end conversion, rear hatch; Mugen front bumper, side skirts; UKDM ITR taillights, rear foglight, side markers; shaved emblems, antenna, door handle keyholes, trunk holes

INTERIOR Bride Zeta III driver seat, Ergo passenger seat, rails; Takata harnesses; Spoon Sports ITR gauge cluster; Works Bell Rapfix II steering quick release, short hub; Personal Neo Grinta 330mm suede steering wheel; JDM ITR Gathers double-DIN faux carbon-fiber stereo, interior pieces, sunvisors, door panels, Type Rx pedals, armrest delete with Type Rx badge, ignition, keys, RHD combination light switch, foglight switch, CDM airbag delete tray

GRATITUDE My Mekan1zm family for the build, especially to Gen Baet, Josh Baet, and my brother, Nikki; my parents (Jun and Dida) for their support with my hobby; my sisters (Donna, Rica, and Dubs) for cooking yummy food; Dan at Rcrew Racing for trading parts for Balut; Dave at DNR Performance; and Riaz Choudary at International Auto Body

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510.783.5200
WWW.DNR-PERFORMANCE.COM

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TEXT AND PHOTOS BY **DINO DALLE CARBONARE**

'90 NISSAN SKYLINE GT-R

VEILSIDE COMBAT R

WIDER IS UNQUESTIONABLY BETTER

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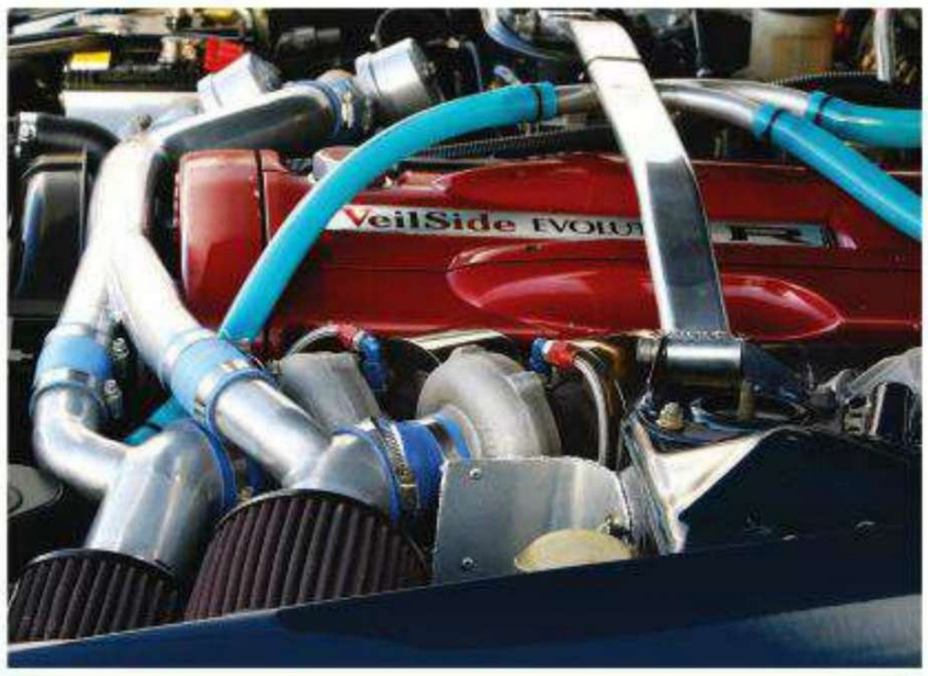

When Andy of Powervehicles.com moved out to Japan from Scotland, he probably had no idea he would find himself where he is today. Andy suffers from an incurable addiction to drifting, which a few years back forced him to relocate to Nihonmatsu, a small town in Fukushima-ken. Nestled deep in the Tohoku countryside, this little village is the home of Team Orange's Nobushige Kumakubo, who also happens to be the owner and creator of Ebisu Circuit, or "Drift Heaven", as it's locally known. The only way for Andy to quell his obsession and run his business at the same time is with a gold license that allows him to drift any circuit in the massive compound whenever he likes. But it's his job that will probably make you more jealous: On behalf of Powervehicles.com, Andy scours Japan looking for the best modified machinery he can lay his hands on, and sells them to passionate, well-funded lovers of everything and anything JDM.

Built in 1990 by one Yokomaku Hiranao, nothing can properly prepare you for the visual impact of the perfectly maintained 21-year-old Skyline GT-R seen here. This BNR32 is a one-off Veilside creation that was built the first year Veilside actually opened for business—a testament to Yokomaku-san's forward-thinking nature. This R32 was one of the first steps in turning already great Japanese sports cars into beasts that resembled fully fledged supercars, which helped fuel the tuning boom Japan enjoyed during the '90s.

With only 35,000 km (21,750 miles) on the clock today, this Combat R's deep olive green still exhibits the same glossy finish it did all those years ago. The massively blistered front and rear fenders are hugely responsible for its presence, which when seen from the rear, really lets it known that the car means business. The front bumper remains stock but was modified to incorporate a lower lip section and N1-like square vents to help flow air to the top part of an HKS intercooler. The stock rear bumper remains, but with a low-set spoiler giving that unmistakable Veilside touch. Combat R aero mirrors replace the stock folding items, but it's the Work Meister S1 wheels that complement the whole look to no end, sized generously to fill out the widened track the car now boasts: 18x10s with 265/35-18 Advan rubber in the front, and 18x12s with 315/30 Advans in the rear, carefully chosen to have

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the same circumference so as not to create problems with the transfer case.

The Combat R exhibits a very period-correct stance, with the adjustable Bilstein dampers set a little higher than what many GT-R owners would run today, conveying that all-important aggressive look. The Veilside treatment continues in the interior with full two-tone leather and Alcantara upholstery, with dark green stitching and carpeting to match the body color. A few modern gadgets, like the HKS EVC boost controller and a more accurate Blitz boost gauge, join classic color-matched Veilside instrumentation.

Head to our Facebook fan page
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to comment about this feature vehicle

Popping the hood reveals the final piece of the puzzle: the fully tuned Veilside Evolution-R RB26DETT engine. At its heart, you will find HKS oversized pistons, H-section connecting rods, and a Brian Cower billet crank, which do the job of dealing with the fierce boost the IHI RX5 twin-turbo setup throws at the engine. The two old-school blowers are controlled by their own Trust external wastegates, while an equally old-style recirculating bypass valve layout is connected by custom aluminum piping, utilizing Trust valves. Two Bosch pumps send the required fuel to feed the six 720cc/min injectors, all handled by the F-Con V Pro ECU. Power is rated at 650 whp.

Out on the winding Higashi course, a circuit used for countless Hot Version battles, the Veilside Combat R certainly didn't lack performance, but really needed to be worked hard to keep the powerband on the boil. The twin RX5s seem more suited to fast road driving and the occasional drag launch than being put through their paces on the track, with nothing really happening until well over 5,000 rpm—proving their capacity for increased boost and power levels, should the car's new owner choose to go that path.

As Andy explains, the new owner (based in the U.K.) is already planning some upgrades underhood, though he's reluctant to elaborate more. The interior will also be getting updated, and though all the changes will most likely be for the better, it's hard not to feel a bit nostalgic when seeing a car that so perfectly reminds us of how things were done during such a golden age of import tuning. Andy is a little sad to see the Veilside Combat R go, but there is no doubt he will be finding plenty of equally stunning machinery to replace it. That is, if he can get himself away from all the drift tracks at Ebisu! it.

BEHIND THE BUILD

NAME.
POWERVEHICLES.COM

AGE.
PROVEN

HOMETOWN.
IBARAKI, JAPAN

OCCUPATION.
MAKING FAST LOOK GOOD

HOBBIES.
SCHOOLIN' FOOLS

BUILD TIME.
LONG

FEEDBACK.
WWW.VEILSIDEJPN.COM

MOTIVATION.
TO DO WHAT THEY DID

NISSAN BNR32 SKYLINE GT-R

OUTPUT: 650 WHP / 376 LB-FT OR TORQUE

ENGINE Veilside Evolution R engine, stainless steel exhaust manifolds, outlet pipes, front pipes, exhaust system, custom intakes, balancer pipes, intercooler piping, modified inlet manifold (12-injector type), fuel rail; HKS 87mm forged pistons, H-section connecting rods, 264-degrees/9.5mm lift cams, metal head gasket, intercooler, oil cooler, F-Con V Pro Engine Management; Brian Crower Crank; IHI RX5 twin turbos; Trust external wastegates (x2), blow-off valves (x2); Bosh twin fuel pumps; Earl's braided fuel lines, braided oil lines, adjustable fuel pressure regulator (FPR); Sard 720cc/min injectors; Koyo Racing radiator

DRIVETRAIN OS Giken triple-plate clutch, lightweight flywheel

SUSPENSION Bilstein adjustable suspension; ARC front and rear sway bars; Veilside front strut tower bar

BRAKES Veilside brake pads, Earl's braided brake lines

WHEELS/TIRES Work Meister S1 wheels (18x10 front, 18x12 rear); Yokohama Advan Sport tires (265/35-18 front, 315/30-18 rear)

EXTERIOR Veilside Combat R modified front bumper, integrated lower lip, bumper vents, front wide fenders, rear fender blisters, rear spoiler, aero side mirrors

INTERIOR Veilside 10,000-rpm tach, triple meter panel, leather seats, custom leather/Alcantara dashboard and center console, leather headliner, leather/Alcantara steering wheel, leather gear knob, leather handbrake and shifter boots, kick plates; HKS EVC boost controller; Blitz Racing Meter DC boost gauge; Addzest DB345 CD player

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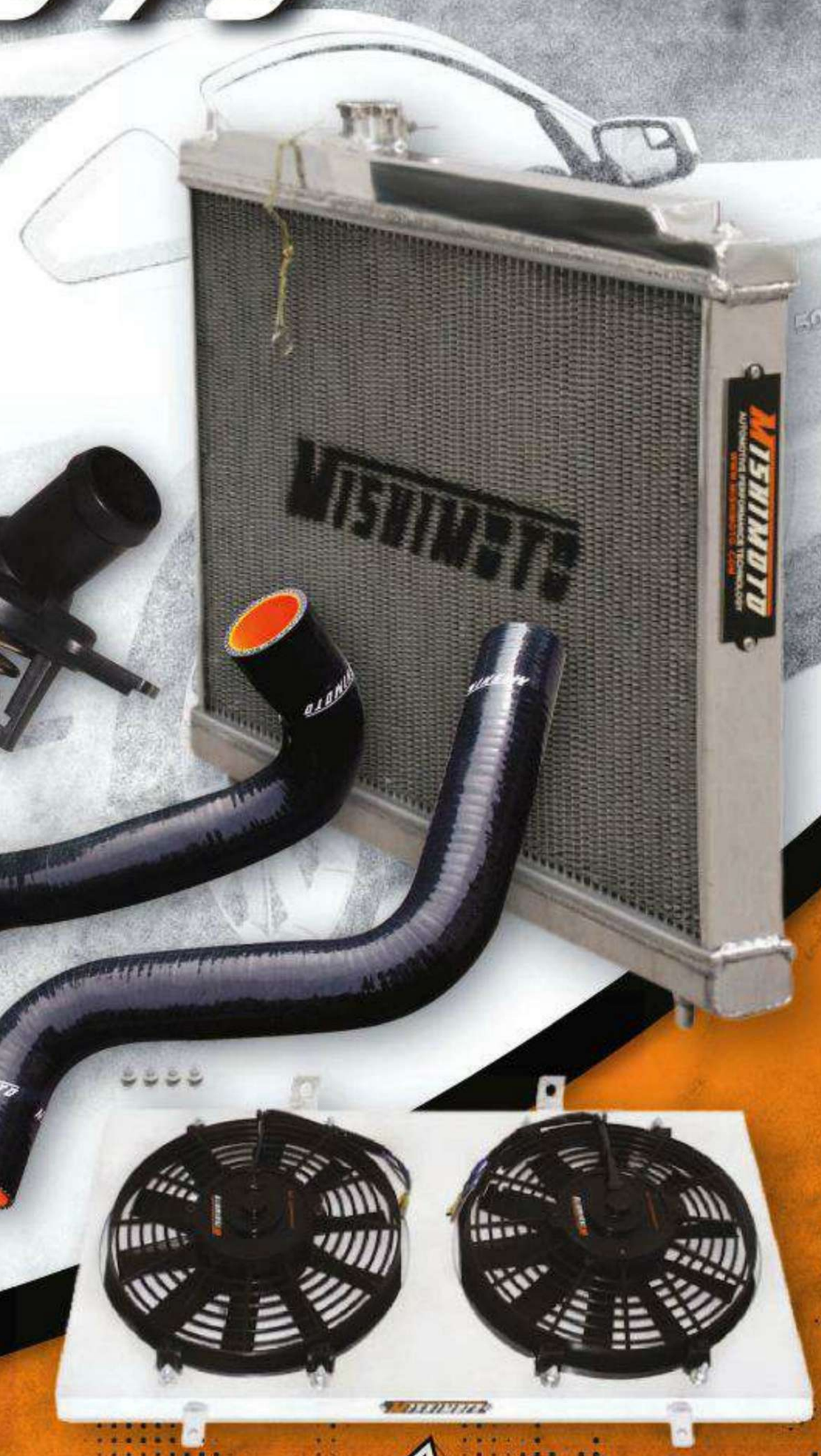

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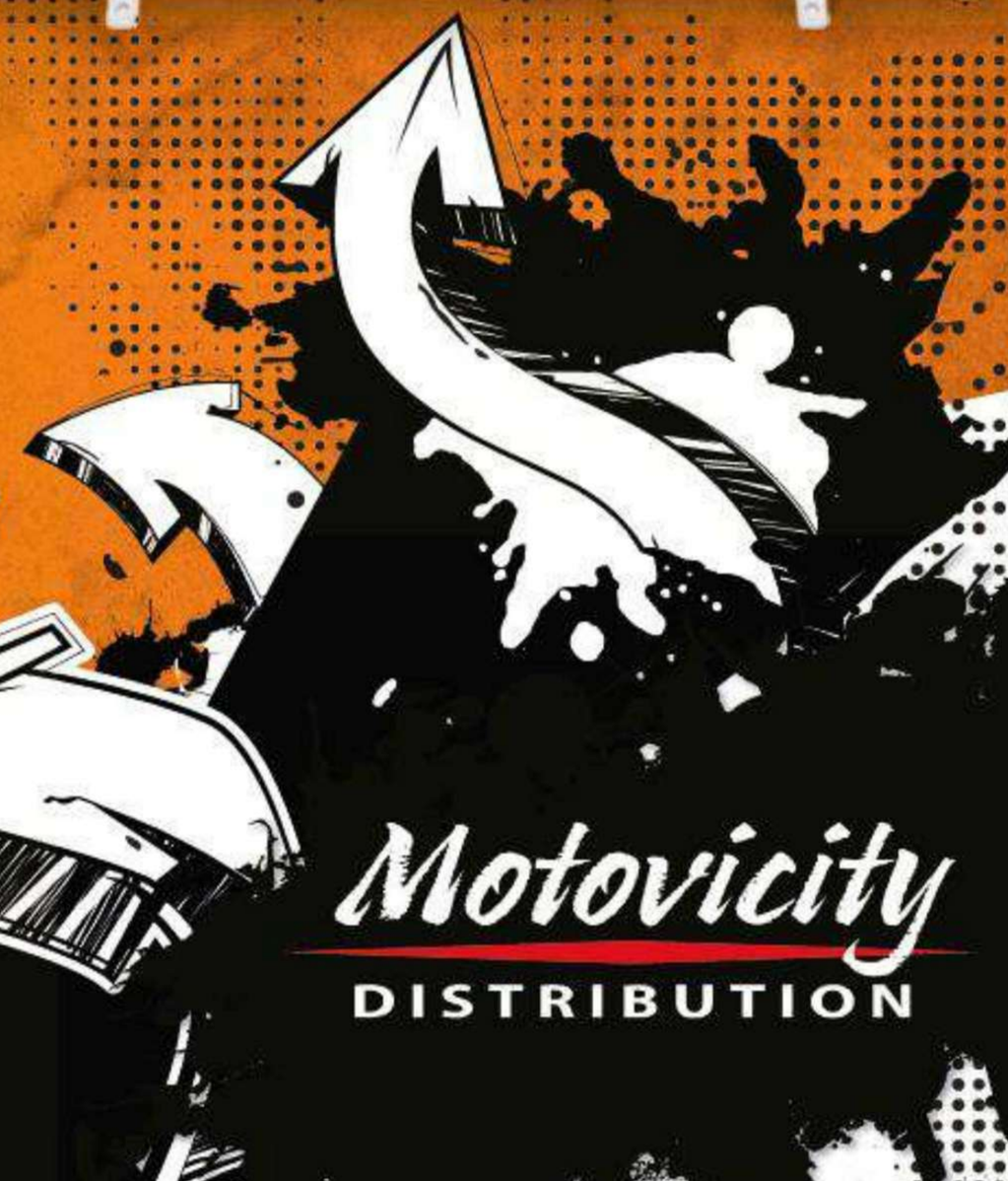

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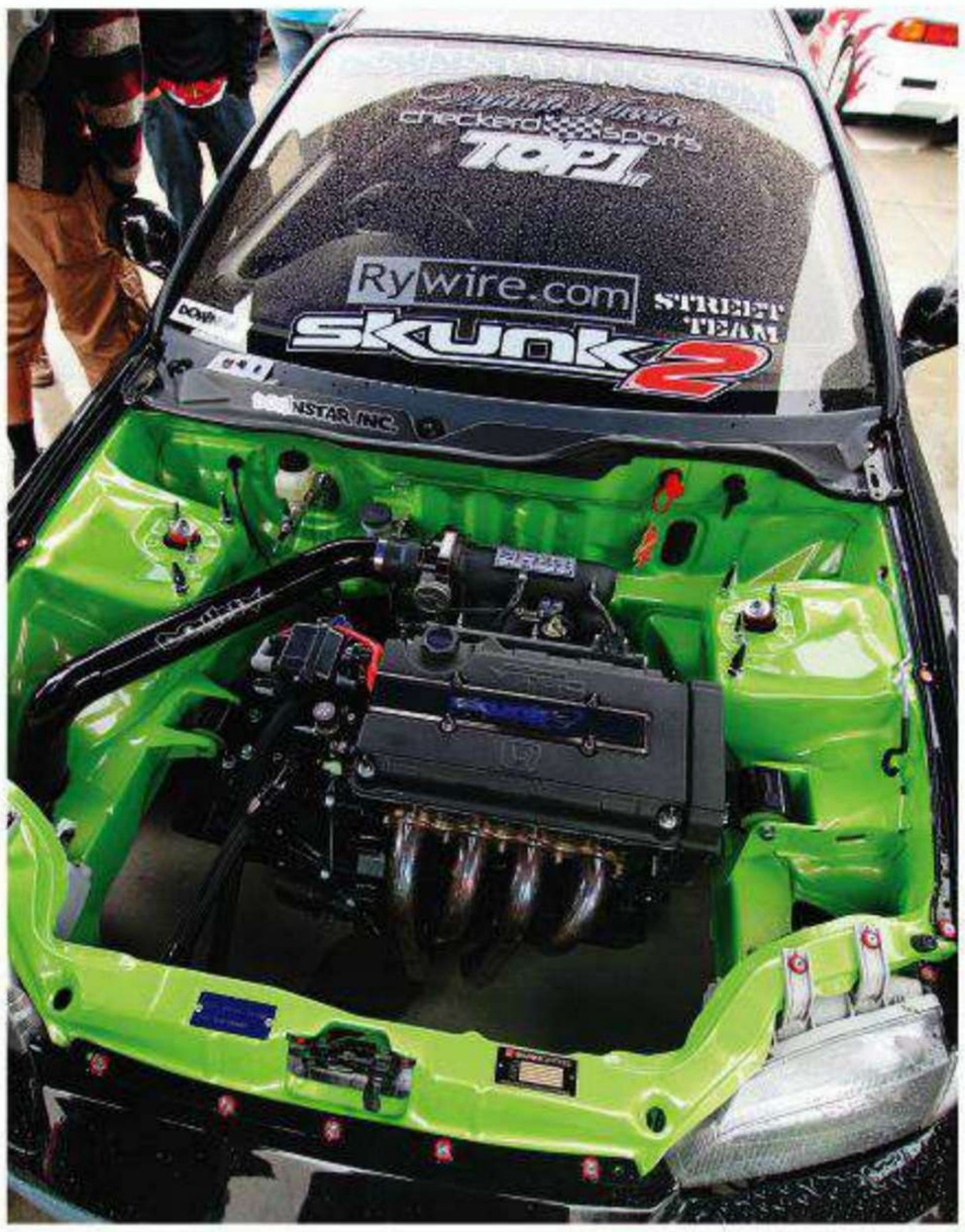
2011 EIBACH HONDA MEET

CORONA, CA

TEXT AND PHOTOS BY **LUKE MUNNELL**

Want a sneak peek at what the newest trends in the U.S. import auto scene will be? Go to a ~~track day in Japan, VW meet in Europe, lowrider show in East L.A~~, Honda gathering in SoCal. With NWP4life.com's annual Eibach Honda meet drawing 450 featured cars (three times as many were in the surrounding lots) and 15K spectators, it's probably the best example. After all, it's where we first saw the movement evolve from gaudy body kits and custom audio enclosures to stock body lines and gutted interiors, to accessory racks and flush-fitting wheels, to ultraclean paint with dipped/plated/polished hardware. Have a look at this year's forecast:

The crazy engine bay trend will evolve to insane levels.



Downstar Frank's two-tone B-series EG Civic bay, infused with Bolt Boys. Blacked-out engine treatment: clean. Hex-head bolts and washers: sweet. Spikes: not a fan.

Checkerd Sports' K-swapped Civic. Loving everything about this pic—even homegirl's bay-matching gray hair (specially done for the show).

Skunk2-affiliated EK, flexing adapted Toda ITBs, a Bisimoto header, and plenty of single-cam pride. Not too sure about that anime graff, though . . .

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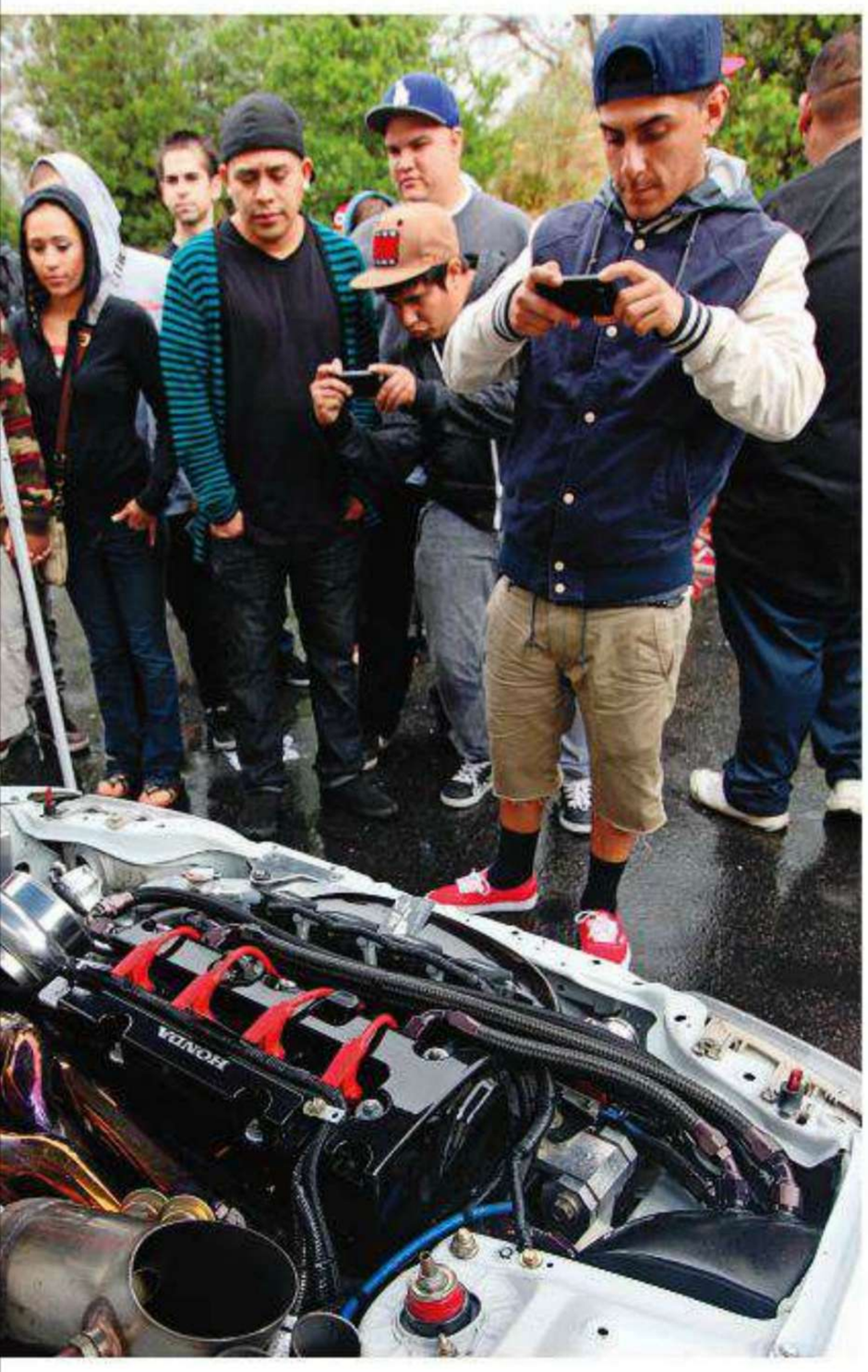
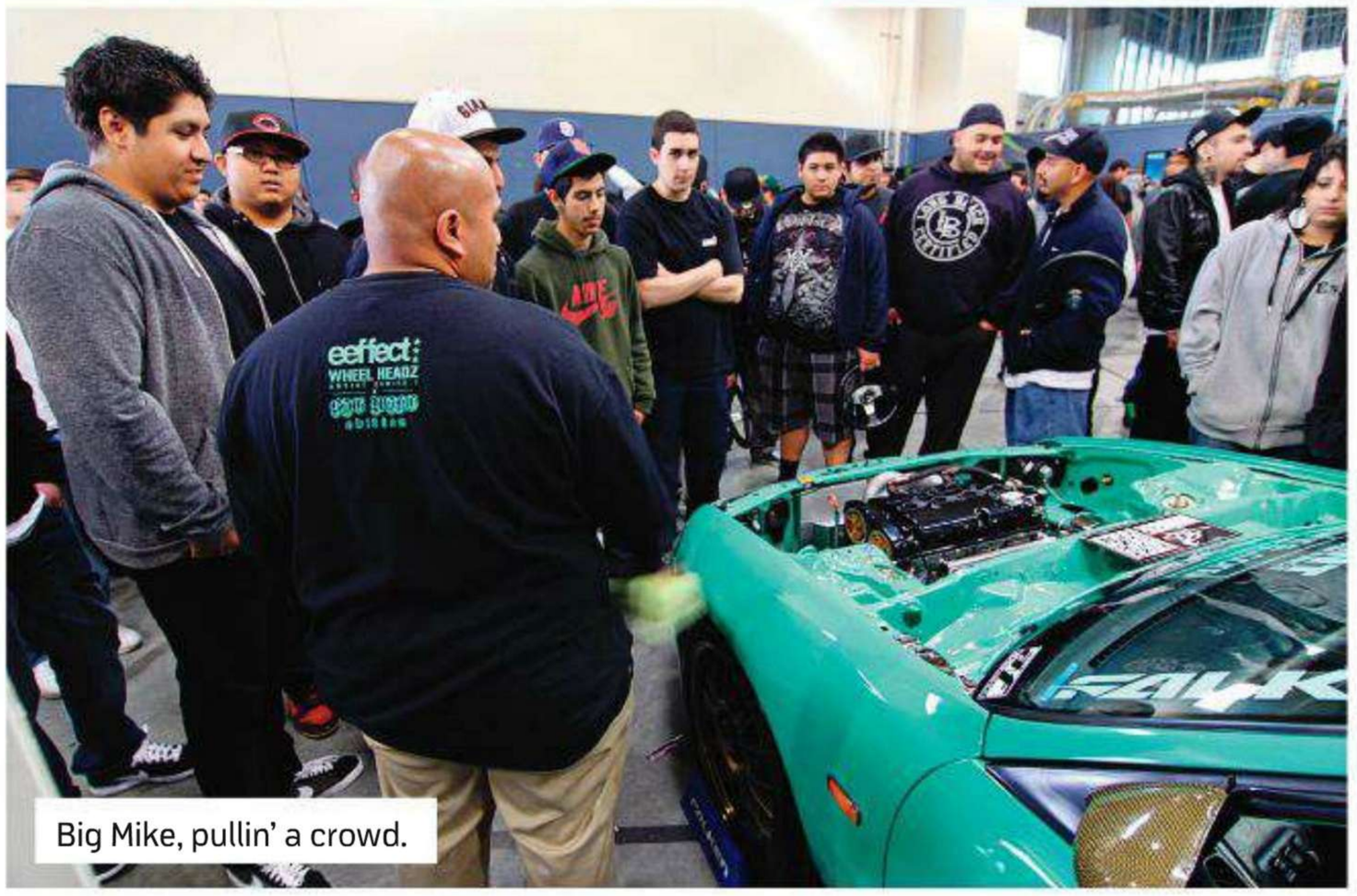


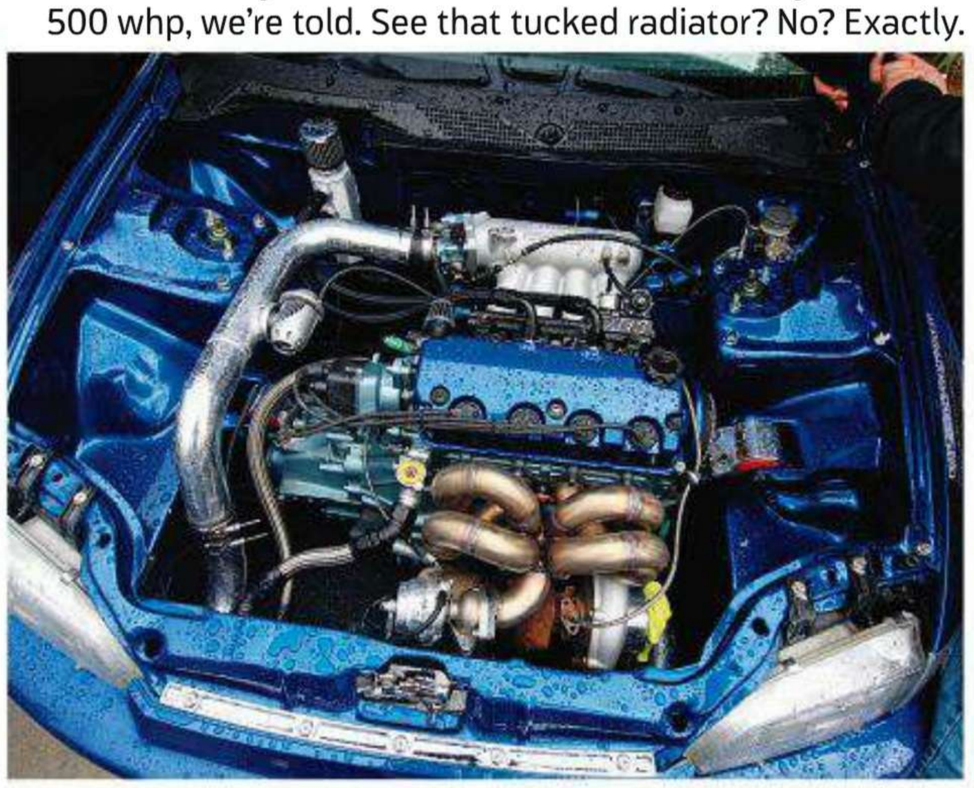


Big Mike, pullin' a crowd.

Vinyl pinstriping? Check. Color-matched (kind of) SSR Professor knock-offs? Check. Junkyard inventory number on the valve cover? At least something's legit here.

More single-cam love: This one's turbocharged to over 500 whp, we're told. See that tucked radiator? No? Exactly.

This guy's either really excited about sharks or huffing glue. We can't tell, either.



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2011 EIBACH HONDA MEET

New(ish) models will still have a place . . .

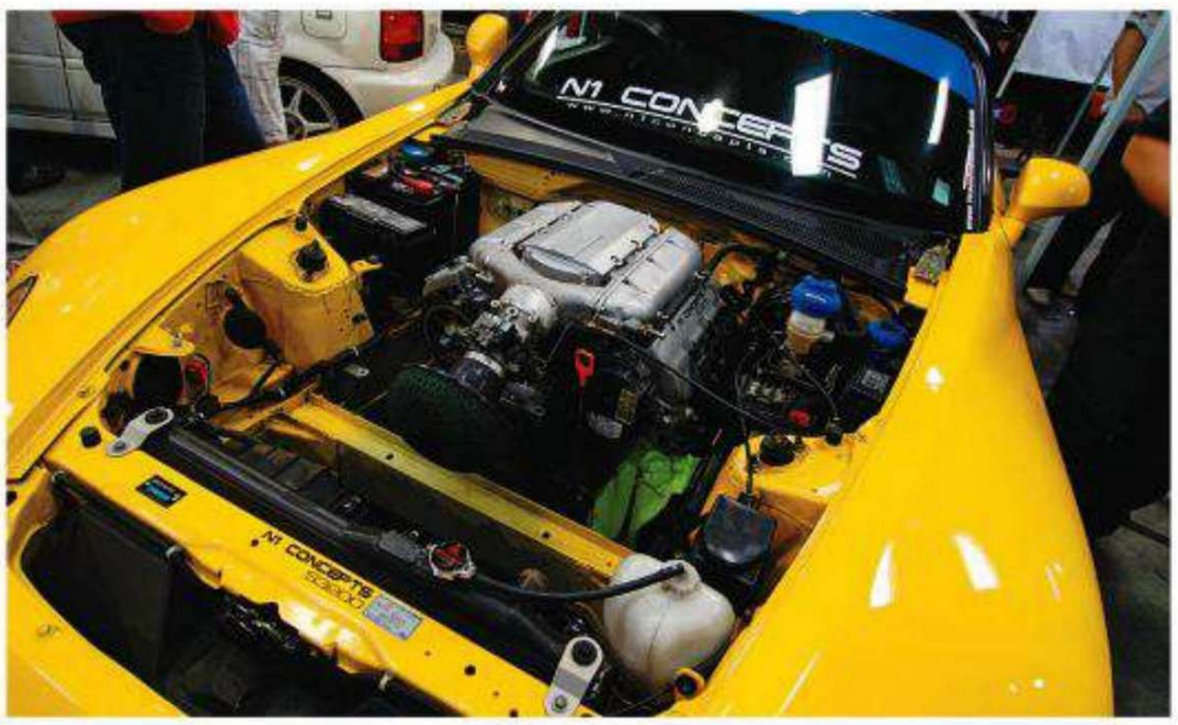
As evidenced by this Tjin Edition Fit . . .

. . . And this murdered-out Insight. Strangely, we like the raw barrel treatment.

Thankfully, performance isn't going anywhere:

Project Import's time-attack S2K

N1 Concepts' challenger, powered by a 3.2TL Type-S V-6 for better torque and weight distribution.



The infamous J's Racing DC2, disassembled, reassembled, and shipped across the Pacific yet again for your viewing pleasure:

. . . And some Outlaw K-series street/drag action.

But could the flat green treatment be the next big thing? [*Editor's note: only Luke hopes so*] Look at all these biters!

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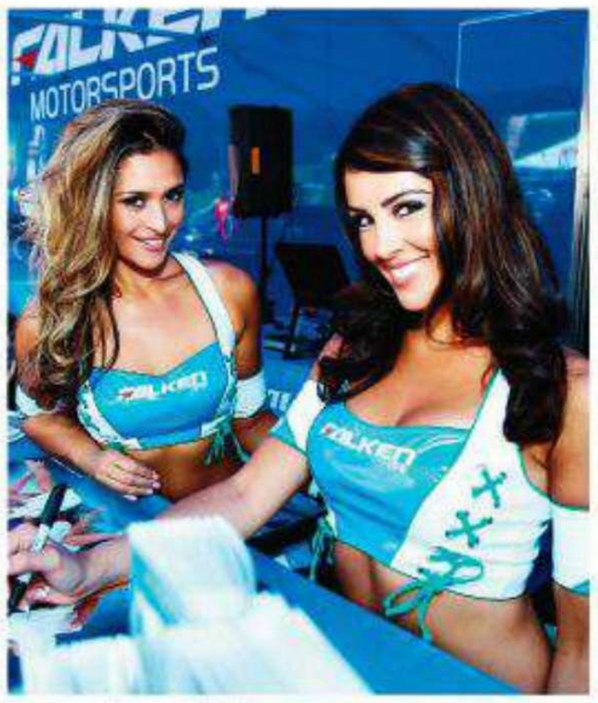
FORMULA DRIFT ROUND 2

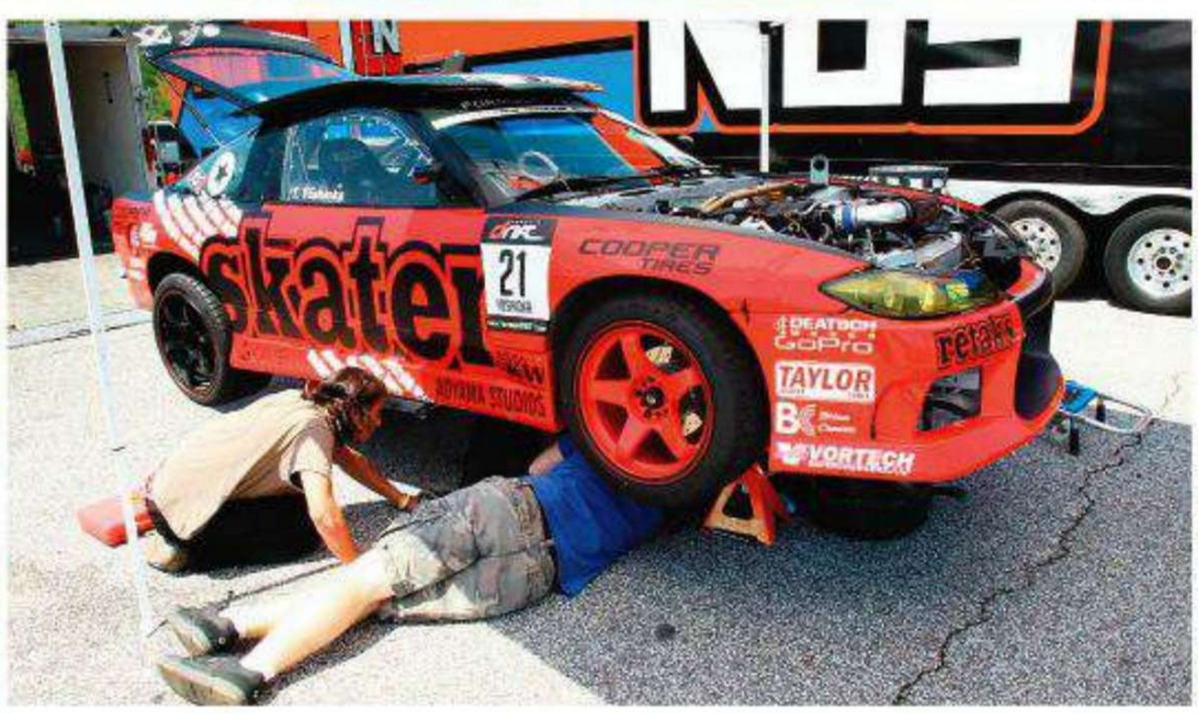
ATLANTA, GA

TEXT BY **LUKE MUNNELL**
PHOTOS BY **HENRY Z. DEKUYPER**

Think of Formula D's second round at Georgia's Road Atlanta like that first semester in college—kick-back and nowhere near as stressful as the second one, when you have to bust ass and pick up your grades. After a busy season opener in Long Beach each year, Round 2 in "Hotlanta" is easily one of the more relaxed, easygoing events, making the track a favorite among drivers, photographers, and spectators alike. Its downhill drag-race entry breeds triple-digit speeds, drifters battle to kick up the signature orange clay lining the track without going off, and celebrate creatively as they wait for a tow out of the "kitty litter" that guards the cars from walls when they do. This year was just a little bit different.

Most notably were the new faces and cars. Fans who missed Ryan Tuerck and his tried-and-true Solstice at the Round 1: Long Beach event got to see both in Atlanta: Ryan in his new Chevy-sponsored Camaro, having handed down the roadster to Eric O'Sullivan. Norwegian champ Kenneth Moen's story is similar: The past repeat-champ AEM 350Z he bought from Tanner Foust got held up in customs for LBC (probably at the port of Long Beach to add insult to injury), but made its debut in Atlanta, joining fellow countryman Fredric Aasbo who traded his Supra for what might very well have been Foust's new tC.





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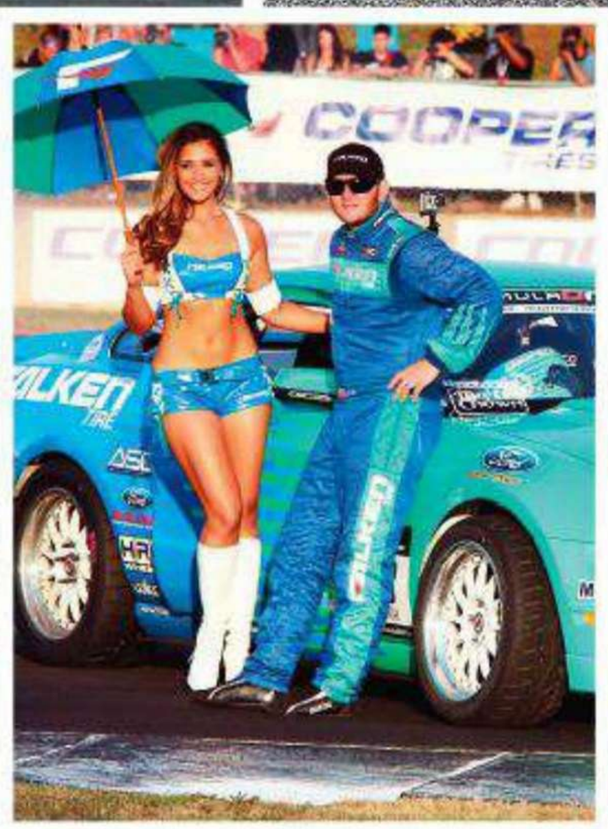
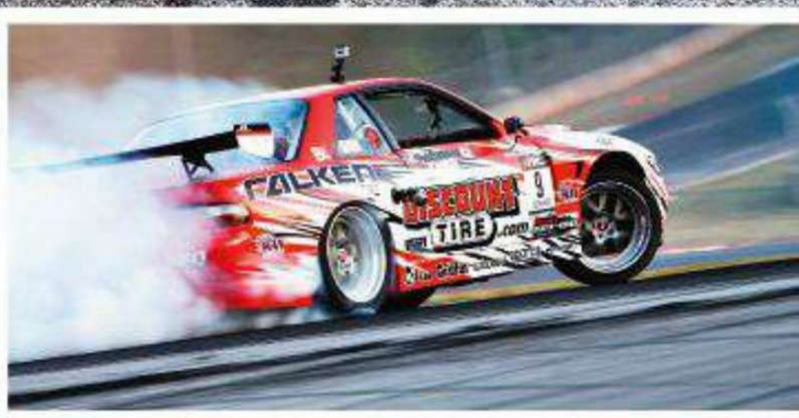
Of interesting note is the qualifying order. While qualifying high earns points, winning an event earns more, and one of the often-stated difficulties with qualifying high is that you're paired with a low qualifier come Top 32 competition, whose speeds and lines are often unpredictable and hard to match. A look at the middle of the qualifying grid in Atlanta reveals a lot of the big names we've come to associate with winning—coincidence?

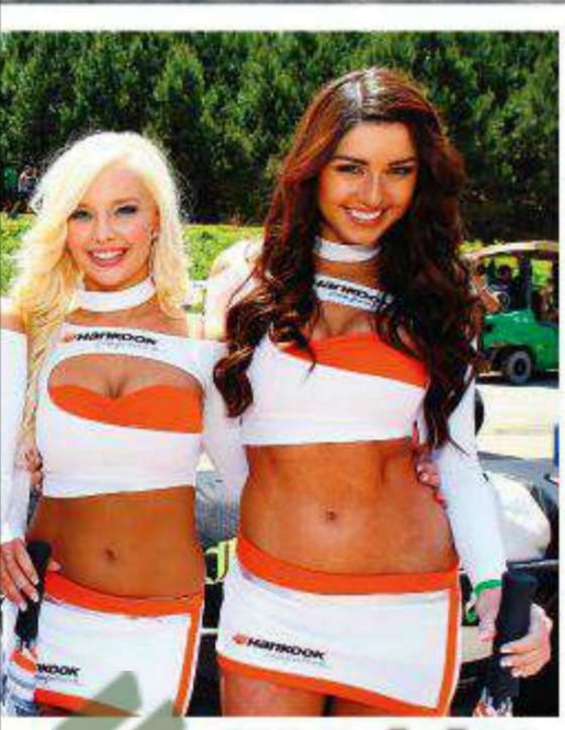
Top 32 began with number-one qualifier Conrad Grunewald (Camaro) handing 32-seated underdog John Russakoff (Hachi) the advance (see?), and continued with Eric O'Sullivan smashing into Kyle Mohan's RX-8 (a result of Mohan blowing a rad hose . . . and his chances of success), Michael Essa's Z4 sliding into Pat Mordaunt, Taka Aono blowing his 2AZ motor during a burnout, and assorted other carnage.

Top 16 continued with Russakoff lucking out again, this time when Waldin lost momentum at the top of the course in his Helix 350Z, allowing his 32-seated challenger to advance to Top 8. More crashing occurred in Top 16 when Matt Powers plowed his Need for Speed S14 into Darren McNamara hard enough to dislodge his Sky's door for the remainder of a very stylish run. Still, the WTF moment of the event occurred during Gushi versus Mordaunt, when Gushi's tC broke at the line, giving a bye run advance to Mordaunt—a run during which Mordaunt blew his 350Z's motor and went *del fuego*, earning the advance, but leaving him unable to continue to Top 8, allowing Toshiki Yoshioka and his Retaks (or "Skater" on the flip side) S13 to take his place.

Top 8: Russakoff versus Chris Forsberg. Russakoff advanced yet again when Forsberg uncharacteristically spun his 370Z during his follow run. Russakoff would go on to spin in his final-round run against Dai Yoshihara. You might have noticed that we've been quiet about Dai this whole time. There's a reason: He drove the Discount Tire/Falken S13 flawlessly throughout the entire event. After his Russakoff win, he moved on take down D-Mac, earning his second Atlanta win and fifth overall in his career. Now only a few points from the top, something tells us Dai won't be slacking off next semester.







RESULTS

FORMULA D ROUND 2: ATLANTA

1ST: DAIJIRO YOSHIHARA

2ND: DARREN MCNAMARA

3RD: TOSHIKI YOSHIOKA

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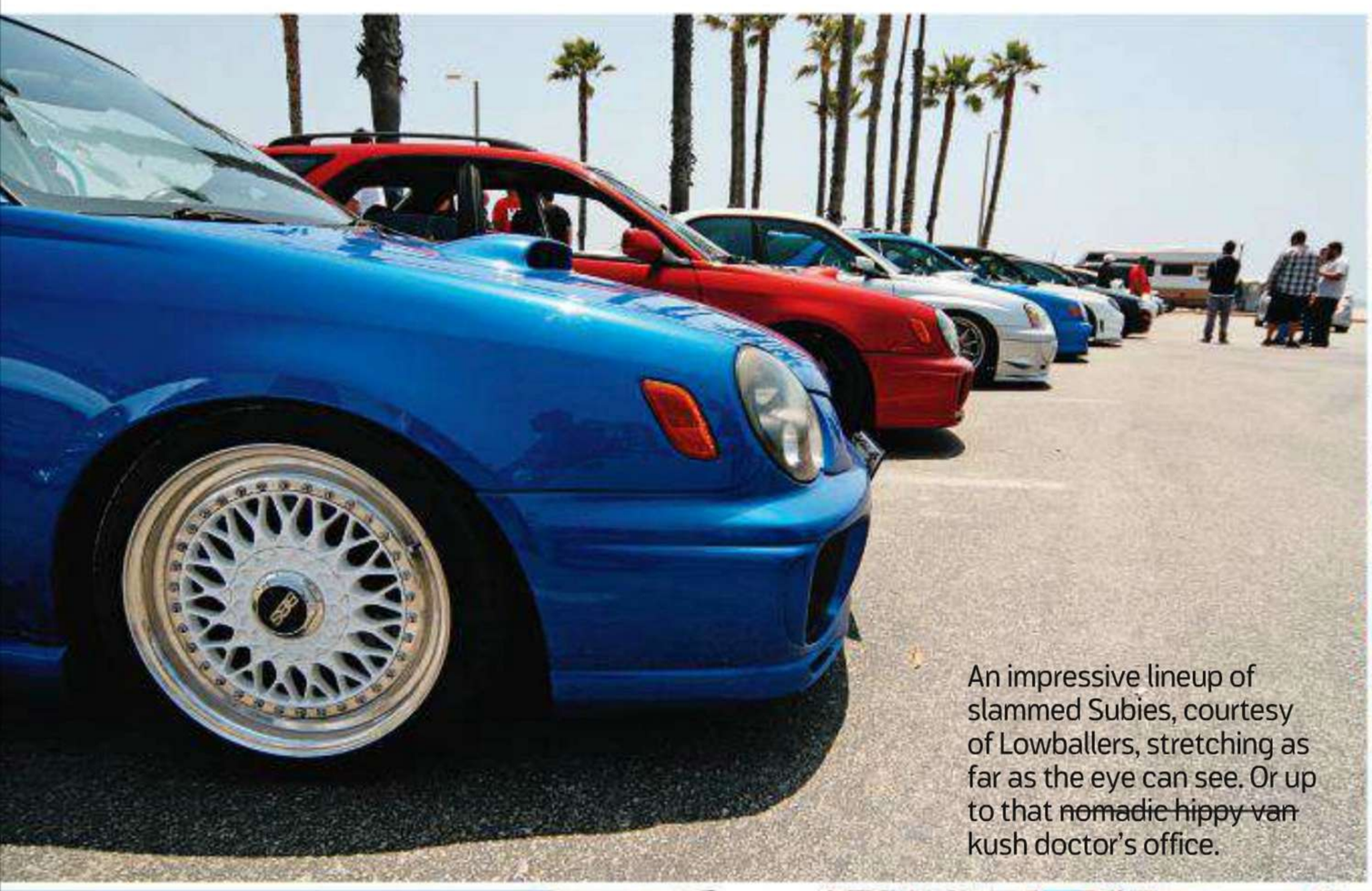
HELLAFLUSH

VENICE BEACH, CA

TEXT AND PHOTOS BY **LUKE MUNNELL**

If there's any part of Southern California like San Francisco, it's Venice Beach. And if you've never ventured out to this particular end of the earth to immerse yourself in the freak show, allow us to describe it for you: awesome. We all know Hellaflush (who hails from S.F.) is awesome, so it should come as no surprise that the recent Hellaflush: Venice Beach show was two times as, well, awesome. Until the cops came and kicked everyone out and over to the ItsJDMyo.com meet. Typical Venice. Here's some of our favorite stuff:

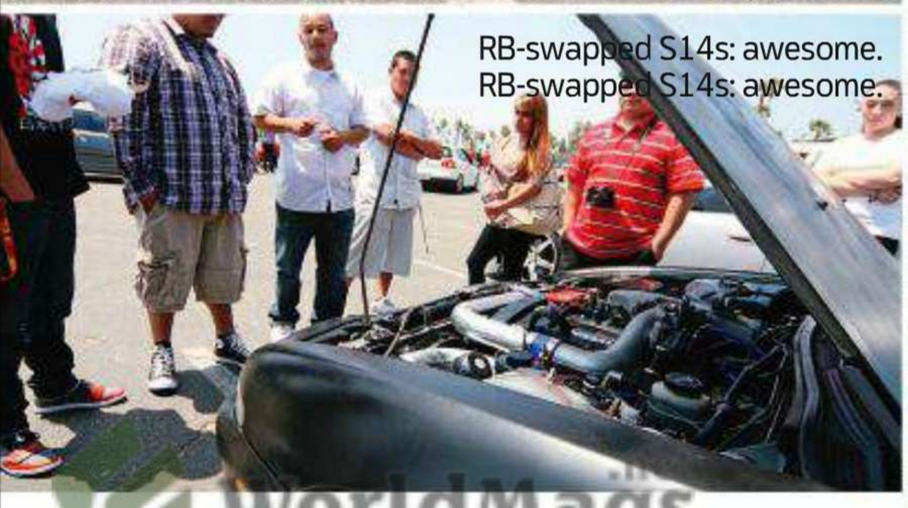


An impressive lineup of slammed Subies, courtesy of Lowballers, stretching as far as the eye can see. Or up to that ~~nomadic hippy van~~ kush doctor's office.

Old school? Check, thanks to this first-gen E10 Corolla with a 16-valve 4AG swap from an AE86.

Honda love! Color-matched S2K and street bike.

Outlaw drift Nissan S-chassis involvement: awesome. Coolant leaks: not so much.



RB-swapped S14s: awesome. RB-swapped S14s: awesome.

Slammed Miata? We want one . . . that runs.

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Our pick of the litter: This "Still Flossin" GD, flossin' Advan RGs.

Beater R32? We want one!

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RACELINE TRACK DAY

AT CHUCKWALLA VALLEY RACEWAY

TEXT AND PHOTOS BY **ANDY HOPE**
SPONSORED BY PROJECT MU

On May 15, 2011, a new chapter began in the story of time-attack competition. Raceline USA hosted its very first track day, and did it at California's newest racetrack: Chuckwalla Valley Raceway. The event, sponsored by Project Mu to showcase their new line of Club Racer brake pads and rotors, drew close to 80 vehicles. Just getting that many imports together at a racetrack is quite an accomplishment, but the guys at Raceline took things a step further. They locked down a combination of contingency sponsorships that will help manufacturers, shops, and racers support each other, making everyone more successful in their future racing endeavors.

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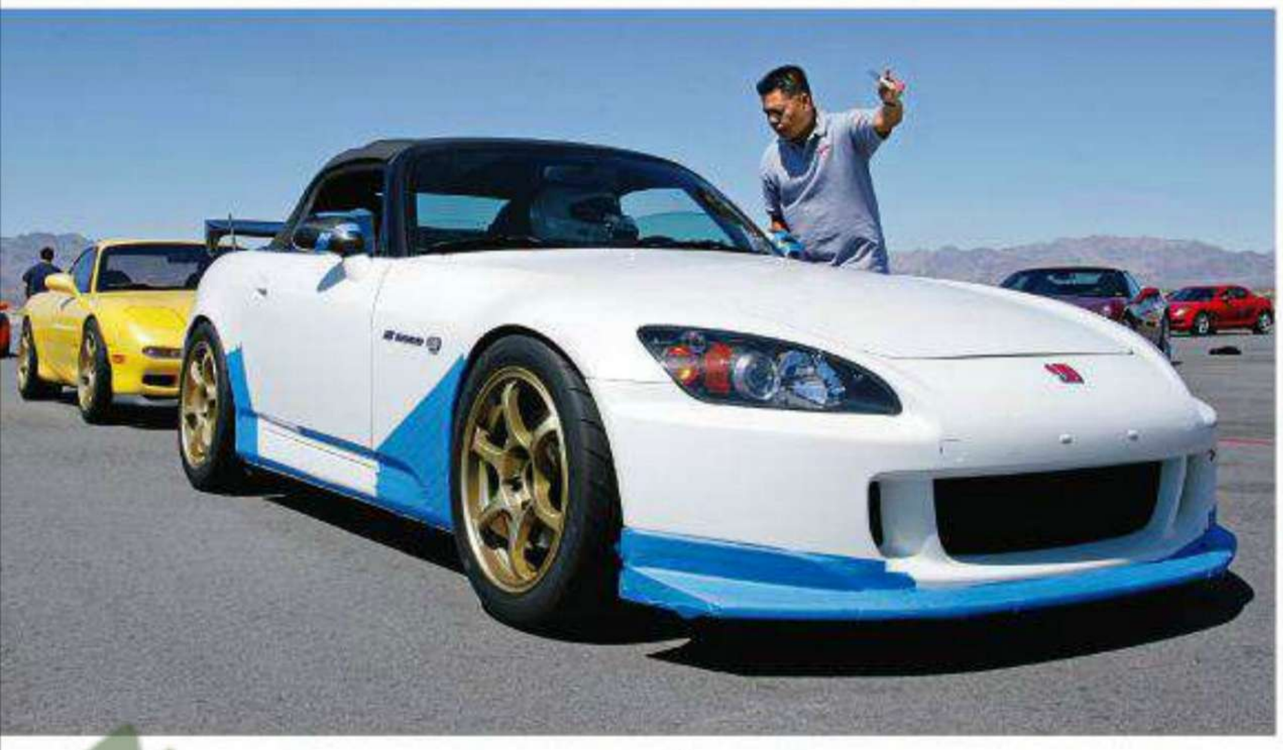
Despite the annual Eibach Honda meet taking place the same day, just 150 miles away, a majority of the cars attending CVR were VTEC-equipped. If you're familiar with Raceline USA, located in Temple City, CA, and their Honda/Acura-influenced business, the VTEC-eccentric attendees at the first CVR track day comes as no surprise. What was refreshingly surprising, however, was that there was no bitterness among the Honda, Mazda, and BMW drivers like you'd frequently find at other track days. Everyone, from the first timer to the more experienced driver, was amazingly respectful of each other, both on the track and inside the pits. There were no car-on-car incidents, and very few spins—a good thing since carting someone off in the ambulance would have left the rest of us waiting around for a long time until the track went green once again.

Chuckwalla is located 180 miles east of L.A.—just a few valleys north of the site where C-3PO was bum-rushed by sand people. Well not really, but the landscape looked eerily similar. It is an especially unforgiving environment epitomized by the raceway mascot: a half-run-over lizard. It gets so hot that the facility completely closes down during the summer months. We were there before the triple-digit temps hit; still, the wind and dust were relentless. At one point the track had to be shut down for half an hour due to poor visibility. Taking a trip to the raceway is certainly not easy, but once you get out on the track, it's absolutely worth it.



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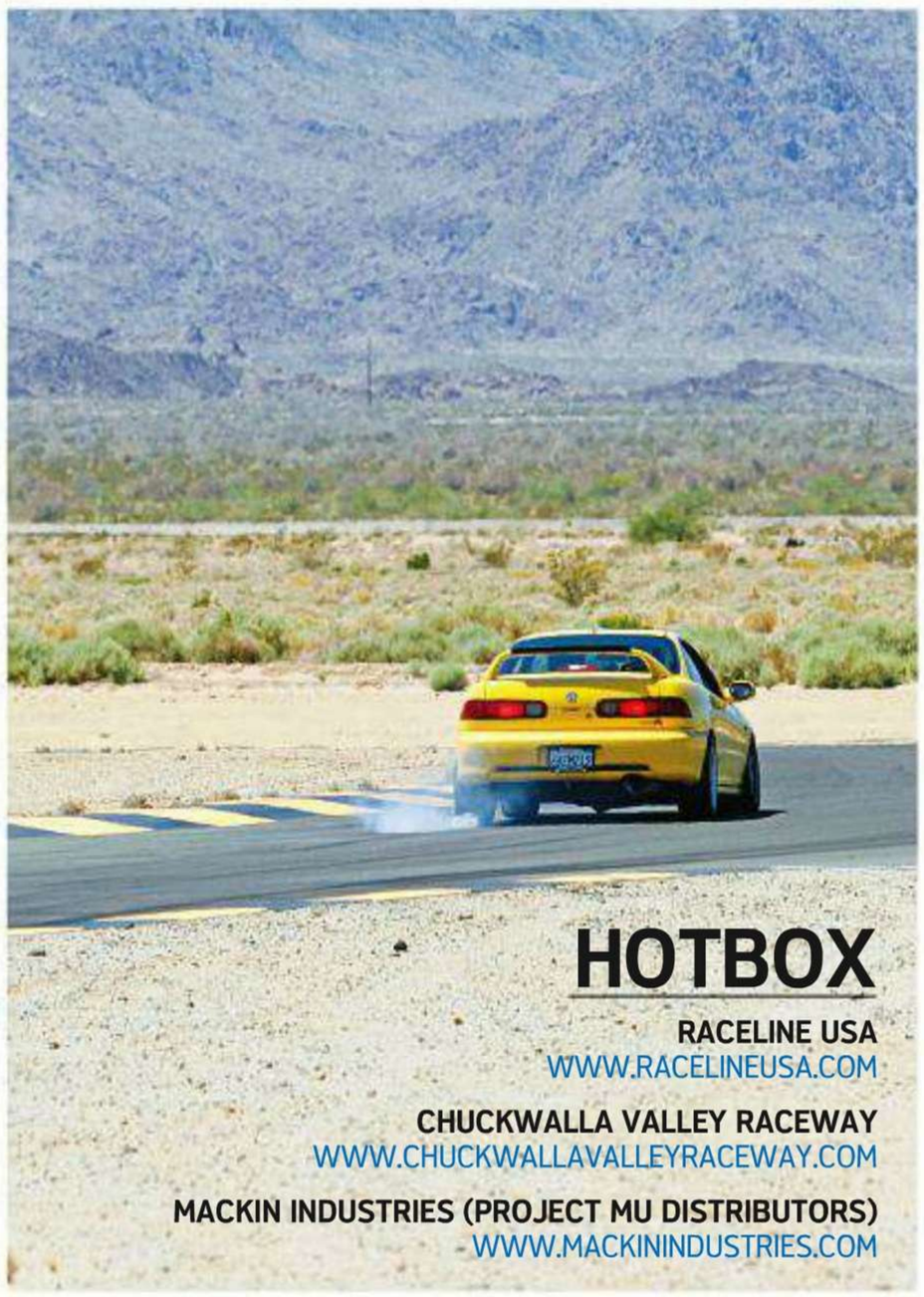
RACELINE TRACK DAY

There's nothing like fresh pavement. The butter-smooth surface of CVR allows drivers and tuners to get every last bit of grip out of their tires and suspension. This would be the perfect place to test the argument that Japanese spring rate theory only applies to Japanese tracks that are so well maintained. For me, though, it's all about the curbing. They nailed it. The apex curbs are smooth, wide, and tall. Hit them low and you'll leave speed on the table. Hit them high and you'll be up on two wheels. Similarly, the tiger teeth of the exit curbing take away a progressive amount of traction the farther you run out on them. Setting lap records here will require delicate steering over the painted curbing and heavy use of the pedals on the grippy tarmac. Throw in a couple of blind transitions, a high-speed bowl, and a front straight that bottlenecks into a braking zone and you have a course that will be extremely rewarding for the few who master it.

The top drivers of the day are already enjoying the spoils of victory. Several L.A.-area shops not only came out in force, but also offered prizes for the class winners. This included gift certificates from Kaaz USA, Streelightz.com, Gspot Auto, and Ballade Sports, as well as services such as free tire mounting, corner balancing, and race alignments from shops like Pit Crew Motorsports, Platte Forme a.g., and Temple City Auto Repair. Of course, what everyone really wants is to clock the fastest time in their class; at the end of the year the top driver in each class will receive an invitation to the Super Lap Battle Finals at Buttonwillow. The results from this event are already in the books. If you think you can knock one of these guys out of their slot, you've got two more chances to do it later this year. Be sure to check out www.racelineusa.com for a scheduling of upcoming track events.



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UNLIMITED FWD	OPEN		
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LIMITED RWD	HENRY TORRES	2:09.094	HONDA S2000
LIMITED FWD	JASON KAPLAN	2:06.255	HONDA EG CIVIC
STREET AWD	RAYMOND DU	2:28.584	SUBARU WRX
STREET RWD	TERRY LIU	2:08.498	BMW Z4 M COUPE
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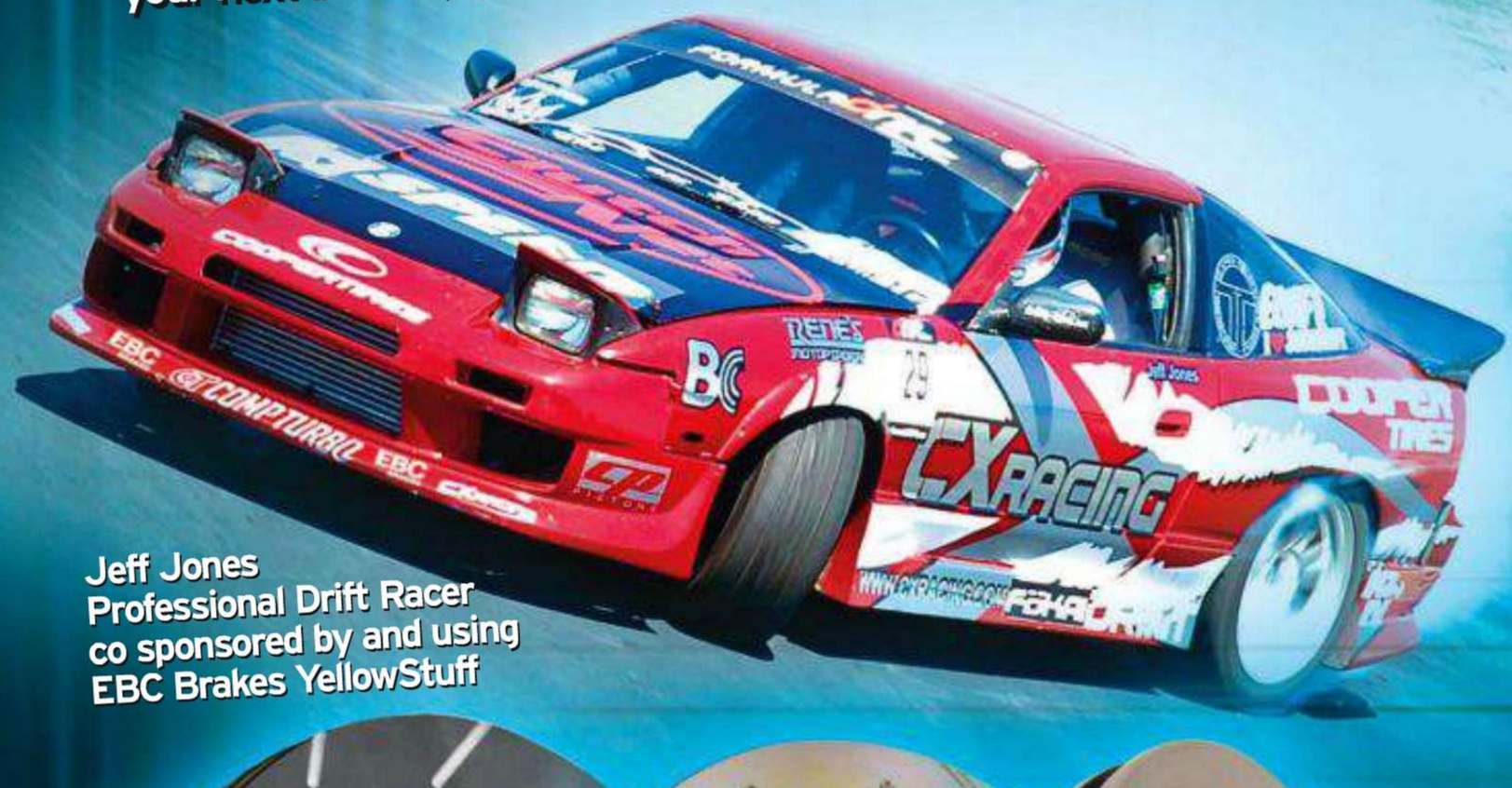

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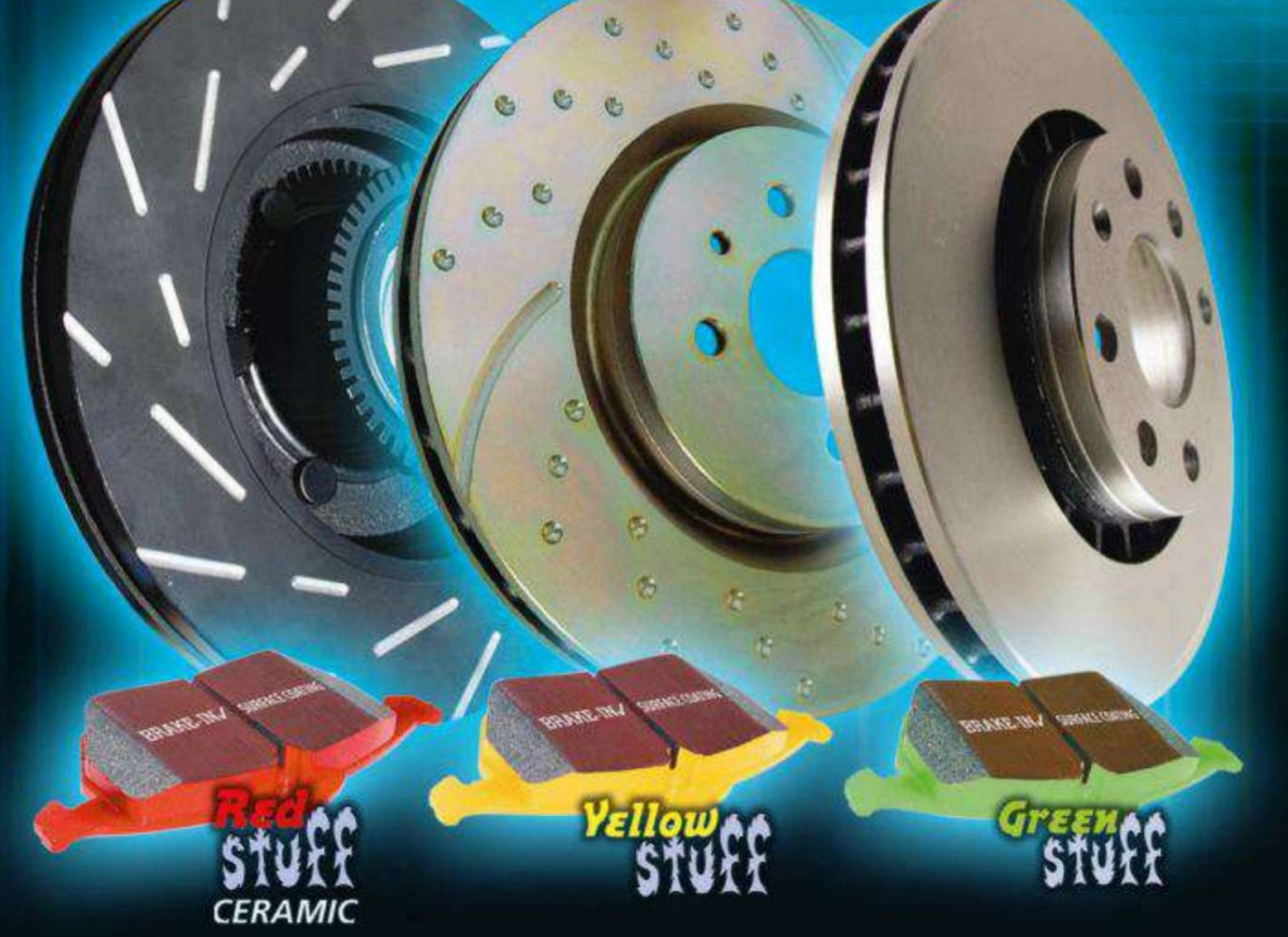

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PROJECT *IMPORT TUNER* PART 2

RED BULL SOAPBOX CHALLENGE

TEXT AND PHOTOS BY **STAFF**

A gathering of 115,000 spectators lined the streets along Fifth Street and Grand Avenue in Downtown Los Angeles to witness 40 teams and their gravity-powered soapboxes compete in the Red Bull Soapbox Derby. Outrageous soapboxes, ranging from a Mexican *Paletas* (ice cream) cart to a more sophisticated Jurassic Park mobile, competed against the clock in a downhill race through a challenging course filled with jumps, tight chicanes, and a monstrous 90-degree bank that was responsible for causing several spectacular crashes throughout the day. Team scores were based on three criteria: speed, showmanship, and creativity, with a maximum combined score of 50 points. Team *Import Tuner* Magazine's soapbox was a collaborative effort between Five Axis and Design Craft. It was inspired by the Japanese anime series called "Initial D," which centers on *touge* (mountain pass) racing and drifting, and was driven by Formula D competitor Daijiro Yoshihara. The team worked around the clock for four weeks straight to construct what we consider the most intricate and over-engineered soapbox in the history of Red Bull competition. The soapbox's body, designed by Five Axis of Huntington Beach, CA, was based on the original Scion FR-S sports coupe concept, which debuted at this year's N.Y. Auto Show. All of the styling cues of the original concept car were retained—but re-proportioned to a toylike scale. Chassis fabrication duties were under the direction of Gary Castillo of Design Craft Fabrication, of Westminster, CA. Follow along as we detail the final stages of our build, as we prepared for competition at this year's Red Bull Soapbox Derby.

> The conceptual design behind the chassis was something I came up with in my head as we were building," Gary says. "The only guidelines I had to follow were the dimensions of the body that Five Axis supplied and how big of a chassis I could build. The original plan was to make the chassis rigid with no suspension, but lo and behold, the crazy guy in me wanted to get all custom on the suspension and chassis dynamics."

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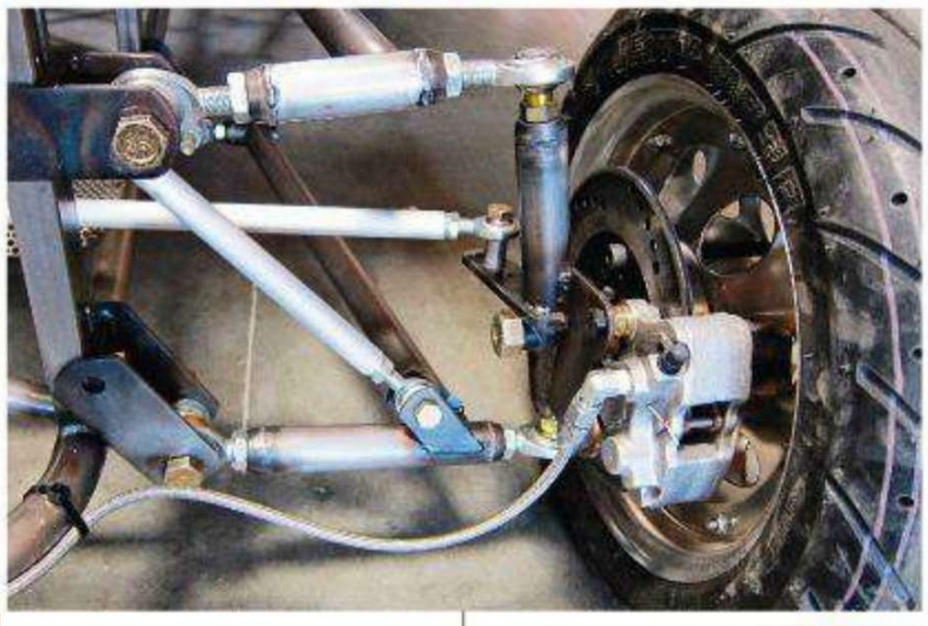
Philip Chase of Tein and Scott aided Gary in fabricating and machining parts for the chassis.

Mild steel tubing was used to construct the chassis, while Summit Racing provided the rod and tube ends for the suspension.

The mountain bike suspension and spring rates weren't exactly what we wanted, but were closest to what we were looking for to make the soapbox rotate through the turns.

Multiple spacers were added between the rod ends to allow for caster adjustment, while the upper and lower control arms were fully adjustable to allow for camber changes. Gary claimed the adjustable suspension components, including adjustable roll center, would allow for navigating through a tight course and improving handling.



"We knew the chassis and body combined were going to be heavy, so we installed a custom e-brake setup, Wilwood dual-piston calipers, and a set of cross-drilled disc brakes," Gary says. The Wilwood brake calipers were not designed to bolt onto the moped wheels, forcing us to fabricate custom brackets to adapt to them.

The look of enlightenment as the team spent late hours at the shop.

One advantage of the pushrod suspension was its ability to adjust ride height. Since we were stuck with the provided spring rates, designing our custom suspension gave us the ability to adjust the motion ratio to compensate for the weight and suspension travel of the soapbox. Mike Kojima, of MotoIQ.com, graciously donated a go-cart seat for the cause.

Design Craft's custom e-brake setup.

We handcrafted a Japanese *shoji* door for our intro skit, using über-expensive maple wood and drafting paper.

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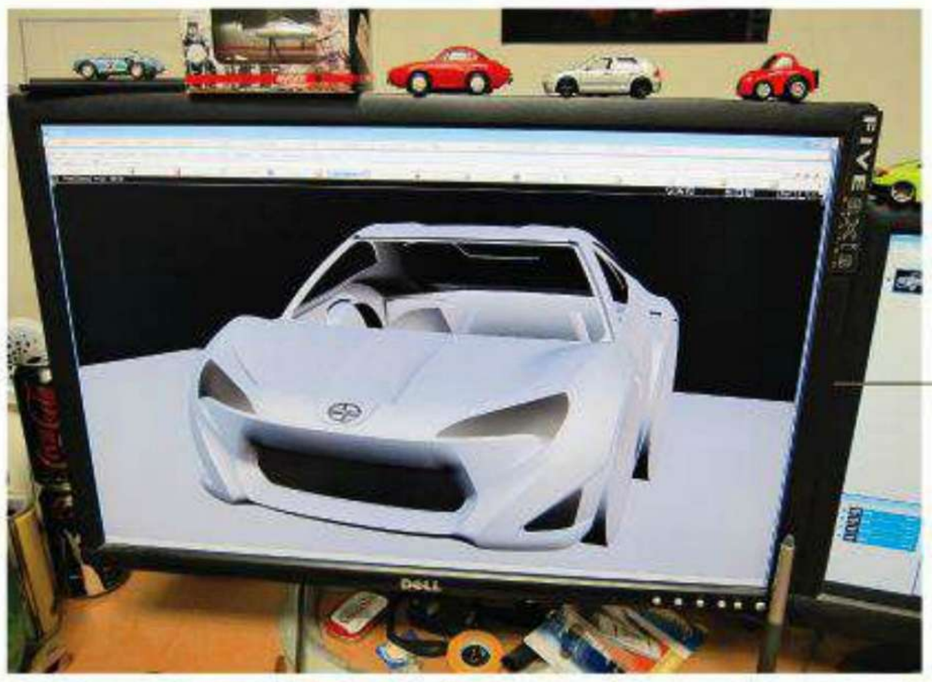
RED BULL SOAPBOX CHALLENGE



Five Axis used the same methods they use on all their show cars to create the body of our soapbox, by starting with a CAD model.

The five-axis machine was used to mill the body molds out of foam.

Five Axis then hand-laid the fiberglass body using the molds, beginning with the driver-side body panel and roofline.

With the fiberglass composite complete, the body was wet sanded and prepped for paint.

For the color, Troy brewed up a similar three-stage candy paint formula that was used on the FR-S Concept debuted at this year's N.Y. Auto Show, except he spiced it up a little by adding a coarser metalflake for some extra flair.

MDF was used for the skeleton on the tires to give it that authentic look, while Five Axis' ingenious design of removable wheel bottoms ensured enough ground clearance when barreling down the hill and jumping off ramps.

Instead of making real 3-D wheels, Five Axis chose to use high-res pictures of the real wheels from the FR-S concept and mount the images to some fake tires. They even had another set of wheels Photoshopped to look like they were spinning to put on the car when it actually raced. The illusion was awesome!

Dai returned from judging a drift competition in Thailand the day before the event.

Roaming the streets of Huntington Beach, we found a hill that was steep enough to shakedown the soapbox.

We took advantage of our testing to adjust the caster, camber, and alignment of the soapbox to increase our downhill speed.

"The basic concept was to build the soapbox chassis more narrow than the body, but in the end, the chassis ended up nearly the same size and the body barely fit," Gary says. "The front end of the body lifted, allowing the driver to gain access to the cockpit like a Funny Car."

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We began sizing up our competition during the mandatory load-in process, and came across this contraption themed the "Care Bears" soapbox. During competition, this cotton-infused soapbox surprisingly scored higher than us, including a set of perfect 10s from the female judges—go figure! "Knowing what we know, next time I'll dress up as Hello Kitty, if that helps," Troy says.

The Angry Birds–themed soapbox.

Red Bull soapbox rules allowed a group of five team members to partake in the competition. Upon further investigation, we found a loophole in the rules allowing us to replace Gary with the more eye-pleasing import model Michelle Sanchez, to play a role in our creative skit before the vehicle was launched downhill.

The team consisted of driver Dai, Troy in the Japanese outfit, Phillip as Godzilla, Michelle playing the model in the Japanese schoolgirl outfit, and Scott as the mechanic.

Crazy antics that excite the crowds in and around the pits are a large part of the Red Bull soapbox event.

Perhaps providing a hot model played a large part in the massive crowds gathering around our pit area throughout the day.

Five Axis employee and fellow competitor Geoff and his Wayne's World team in the AMC Pacer experienced steering problems after plowing through bales of hay, forcing them into early retirement.

It's showtime!

Troy made a quick costume change into a photo vest to play up a theme symbolic of *2NR* magazine and mimicked a photo shoot with our model and the FR-S as our cover car, as the *F&F 3* theme music played in the background.

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RED BULL SOAPBOX CHALLENGE

Cue the classic Godzilla theme song, as Phil tore through our makeshift Japanese backdrop and proceeded to chase Michelle and Troy. Dai came to the rescue as the FR-S launched off the podium to get help down the hill. Yeah, it sounds like a cheesy 30-second skit, but was creative nonetheless!

The impact from the first jump caused all four wheel covers to explode off the soapbox—the crowd screamed in approval.

The judges sat directly above the artificially banked 90-degree turn, which was deemed the most dramatic portion of the course. Even Dai, with nerves of steel, felt the jitters when asked to take the bank at full speed. "I'm a professional drifter and don't get scared often, but that bank gave me sweaty palms." Many competitors fell victim to the bowl as their soapboxes crashed and tumbled off the monster in destructive fashion.

In the end, Team Lakers' purple semitruck soapbox came in First, with Team Angry Bird Droppings, based on the popular iPhone app, placing Second. Third Place went to The Flying Scotsmen.

We collectively gathered all our belongings and made our way to the "soapbox graveyard" to retrieve our vehicle.

Although our run was successful, in the end our team failed to podium. We held our heads high, though, as Dai was able to walk away in one piece and the soapbox suffered only minor cosmetic damage. "People would rather watch extreme wipeout videos or shows like *Jackass* so why should the Soapbox audience want any different? Troy asked. "It's all about smashing your soapbox and making a spectacle of yourself that gains the most points." Regardless, being able to build such an innovative soapbox car and be a part of such an amazing race was definitely a win-win situation for all of us.

After the event, we asked Gary, Phillip, and Troy if they would do it again, if given the chance. All three replied with an emphatic "hell yeah!" Troy best summed it up by saying, "We have some ideas but can't spill the beans just yet. There is also the Red Bull Flugtag . . . I'd be down for that, too! But most importantly, thanks to Red Bull, *2NR*, my crew, my teammates, and our supporters for creating an awesome memory!"

HOTBOX

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EVA-MARIE

TEXT BY **LUKE MUNNELL**
PHOTOS BY **NICK SAGLIMBENI**
AND **CHRISTIAN ARIAS** FOR **SLICKFORCE STUDIO**
MAKEUP BY **GABY RAMOS**
HAIR BY **AL INGRAM**
WARDROBE STYLED BY **SARAH ELLIS**

Meet Natalie Eva-Marie. She lives in Hollywood, works at one of the hottest nightclubs, has acted in some of the hottest TV shows, and models. Typical, right? Wrong. A SoCal transplant from the San Francisco Bay Area (with a little Arizona in the mix), this Mexican/Italian beauty is anything but. She's not a partier. She ranks her family's approval far more important to her than fame or fortune. Most impressively, attention isn't something she craves—leading up to this interview, she never even saw the need for a Facebook or Twitter account. Yes, there are some girls who need no introduction, others who direly do, and some to whom it really makes no difference, like Natalie. Funny how they seem to be the ones who go the farthest.

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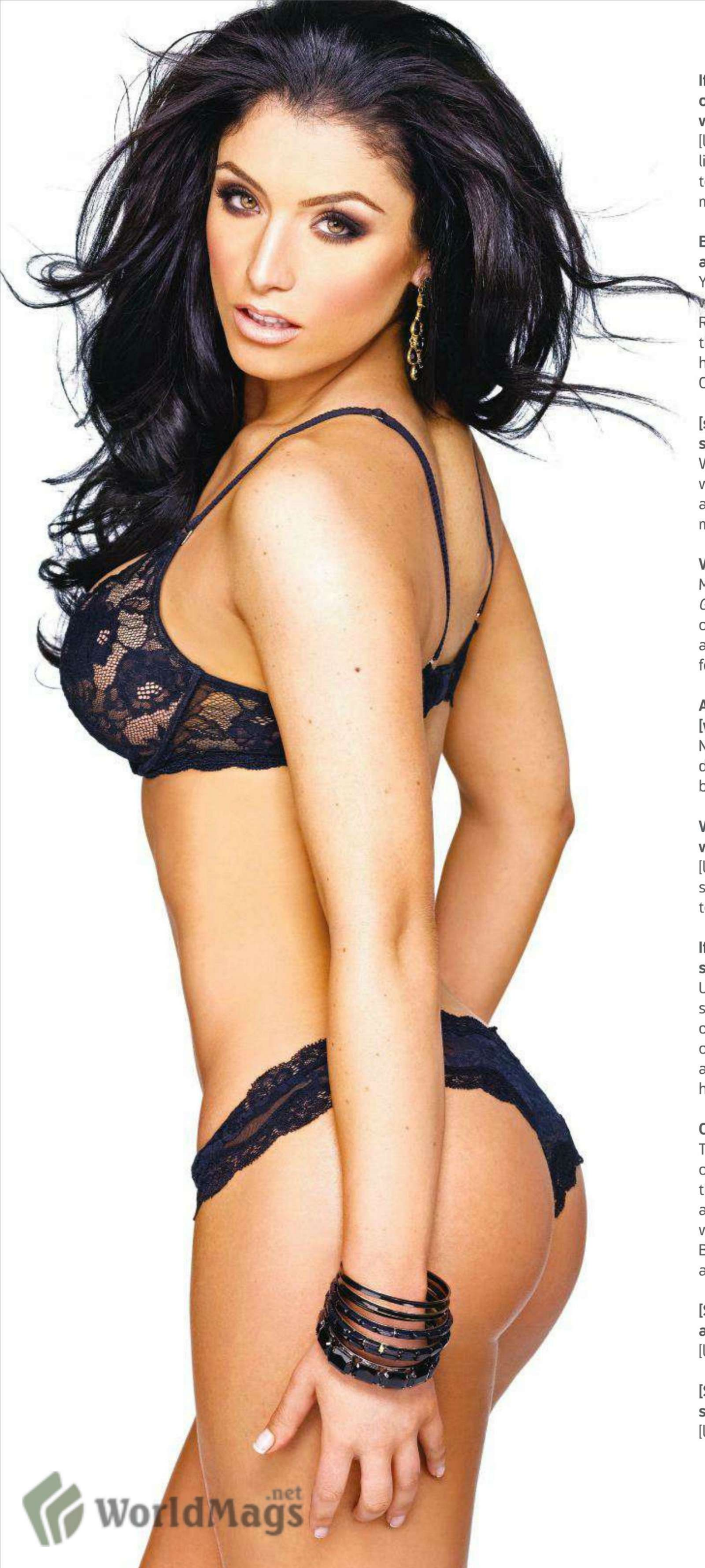

If we were to tell you that you're unlike any other SoCal-based model/actress we know, would you take offense to that?
[laughs] Not at all! I get it all the time. I guess I'm a little more laid-back than most. I've been really trying to focus on slowing down, taking things easier, and making the most of each moment while it's here.

But you stay pretty damn busy! You model, act, and hold down a regular job, right?
Yea, I do bottle service at Playhouse in Hollywood, which is where you'll see me most weekend nights. Rihanna and her entourage had some of my tables the other night, after the BET awards. And then I saw her the next night in concert, which was awesome! One of the best sets I've seen in a long time.

[shameless segue] Entourage, huh? You've done some work with *Entourage*, too, huh?
Wow! That was a good one! [laughs] Yes, *Entourage* was actually my very first gig. I tried out for it, got a small part, and ended up liking the experience so much that I started trying out for different stuff.

Where else might we have seen you?
Modeling for Red Chapter Clothing, I did *America's Got Talent* with Taio Cruz, *CSI: New York*, and a few other things. I actually have an audition for a lead in a feature film later today, then I'm going back home for the weekend.

Awesome! Remember us when you're at the top [winks]. Where's home?
Near San Fran. I moved down here for school and just decided to stay. Scottsdale, AZ, for a little while, too, but I think L.A. is the place for me right now.

We hear you call yourself a tomboy. What's up with that?
[laughs] Totally! I played soccer all through high school and college—I'm super competitive and love to feel that pressure and drive to win!

If we were to poll past boyfriends, would they say you're a fighter?
Um . . . probably! [laughs] But it's not like I like to start drama, or go around looking for a fight. I just can't be with someone who's afraid to voice their opinions, or who can't butt heads once in a while. I'm a straight shooter, and I think a bit of that spark is healthy in any kind of relationship.

On the other hand, what's a relationship killer?
The complete opposite. Someone who's too passive, or who needs to be taken care of or who expects that from me. Confidence and ambition are the most attractive qualities to me, and knowing what you want and being up-front about it is a big part of that. Bad breath, too—total turnoff. You will be getting no action if you have bad breath! [laughs]

[Speaking aloud] Note to self: skip onion bagel at next Natalie Eva-Marie interview.
[laughs] No, you're fine!

[Speaking aloud] Note to all: Natalie Eva-Marie says we're fine. As in *fine*.
[laughs]

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How do you fill that competitive void these days? Do you still play sports, or just go around picking fights with everyone?
Jerk! [laughs] No, unfortunately I just don't have time for it. Plus, I can't get beat up too badly and expect to still land acting and modeling gigs. Life is competitive enough, trying to stay motivated while still remembering to slow down and enjoy each moment.

Are you the type of person who can enjoy a Sunday, or do you think too much about what you have to do on Monday?
Both! I hate it. But I'm getting better. I think the secret is to be conscious of it—really tell yourself, 'OK. I need to enjoy this before it's over.'

What have been some of your more notable moments, as of late?
The Rihanna show, for sure. I was at the USA versus Mexico soccer game at the Rose Bowl—that was awesome! Drake, too. I hadn't been to a show where I was like, 'I don't want this to end!' in a long time before the Drake show.

So hip-hop's your thing?
Yea, but I love all music.

Even dirty white-boy music?
[laughs] You're kidding, right? Go to the House of Blues here in Hollywood and see Steel Panther sometime. They used to be called Metal School. Their shows are awesome, and Ralph, their lead singer, does some stand-up—a little vulgar, but really funny. You'll feel like you stepped right back into the '80s with that crowd—leather, torn denim everything, big hair. You'd probably like it. [winks]

All right—you got an audition to do. Let's wrap this up. Favorite food?
Hot Tamales. Yes, the candy . . . [laughs] I'd eat them everyday if I could.

What do you drive?
I just bought my first big-girl car: a new BMW 535i. But I have a long history of crappy cars: an Astro van my parents handed me down . . . Oh! Even a drop-top 5.0 'Stang like Caine drives in *Menace II Society* [laughs hard].

So life's been good to you, lately! We'll be hoping it stays the same.
It will. I know what I want. I'll get it.
[winks . . . confidently]

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NATALIE EVA-MARIE

Height: 5'8"

Measurements: 34C-26-36

Ethnicity: Mexican, Italian

Birthday: September 19

Sign: Virgo

Hometown: Bay Area

Websites: www.facebook.com/natalieevamarie
www.twitter.com/natalieevamarie

Thank you list: my parents, Josie and Barry who are truly my inspiration; my brothers Neal, Nate, and Nick for always being there to support me no matter what; the entire Slickforce Studio team—they are unbelievably amazing; the crew at Red Chapter Clothing: you guys rock; and the rest of my family and friends who are all so positive and supportive—you know who you are. Also to Chris for being a huge motivation in my life! I love you all!

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TEXT BY **SCOTT TSUNEISHI**
PHOTOS BY **JE PISTONS** AND **SCOTT TSUNEISHI**

PISTON ANATOMY

BACK TO BASICS

If you're like many of us, you don't spend a lot of time thinking about the pistons in your engine. Most of the time you don't need to, but there are times when burnt, scuffed, or cracked pistons need to be replaced or upgraded. If you're rebuilding your engine, chances are you're probably upgrading to a set of forged aluminum pistons. But which alloy should you go with? And should you buy into new technologies? Here are some tips on choosing the proper pistons for your engine.

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2618 VS. 4032 ALUMINUM ALLOY PISTON COMPARISONS:

No matter which type or brand of piston you decide to use, they are all made from a combination of both aluminum and silicon, and almost all forged aftermarket pistons are manufactured from either 4032 or 2618 aluminum alloy. It is the amount of silicon, though, which determines the piston's overall strength versus wear resistance properties.

2618 ALUMINUM ALLOY

A 2618 aluminum alloy has a higher overall strength and can ultimately take a bit more abuse than 4032 alloys. A 2618 piston is ideal for forced-induction engines that experience higher temperatures and/or any racing application. In comparison to the 4032 alloys, 2618 with its low-silicon alloy requires larger piston-to-wall clearances due to its higher coefficient of thermal expansion, which causes the piston to grow more when exposed to heat.

Pros
- Fatigue life
- High-temperature strength
- Conductivity (heat transfer)
- High strength

Cons
- High expansion rate (more clearance required)
- Poor wear index (lower silicon content)
- Piston rattle or slap due to larger piston-to-wall clearance

4032 ALUMINUM ALLOY

A 4032 aluminum alloy is designed for high-performance applications where a strong and quiet piston is required. A 4032-alloy piston requires less initial piston-to-wall clearance than 2618 due to its higher silicon content, and is ideal for street/strip applications.

Pros
- Wear index (good at resisting wear due to higher silicon)
- Low expansion rate (less clearance required)
- Low density (lightweight)

Cons
- Limited temperature strength (lower strength at high temperatures)
- Notch sensitivity (brittle)

VERTICAL GAS PORT

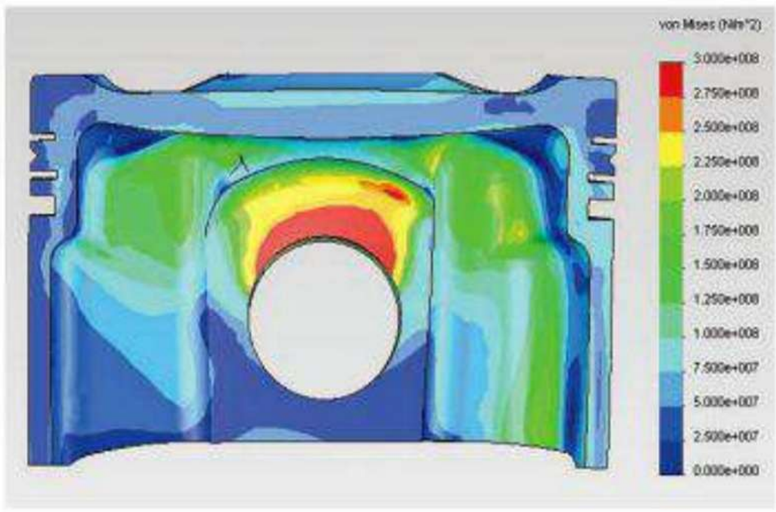
GAS PORTS

Gas Ports are small holes drilled into the top of the piston crown or on the sides of the top ring land that lead to the back of the top ring groove. When gas ports are used, pressure is directed to build up behind the compression ring and seal it against the cylinder wall. As a result, less pressure can leak past the top ring and more horsepower is generated. Generally, lateral gas ports (*right*) are drilled through the bottom side of the top land and extend to the back wall of the ring groove and are used for endurance or road racing. Vertical gas ports (*left*) have the holes drilled from the deck of the piston into the top ring groove and behind the ring, and are mainly used for drag race applications, which accelerates ring wear from the increased pressure on the ring face. Gas ports work best for race engines that are torn down and rebuilt often, and are not recommended for daily street cars.

LATERAL GAS PORT

WRISTPINS

The piston's wristpin is arguably the most highly stressed part in an engine, as shown by the red areas in the FEA (finite element analysis) image shown here. The expansion of burning gases in the combustion chambers applies tremendous force on the piston top. That force is transferred to the connecting rod via the wristpin. To give you an example of how much force is applied to a wristpin in race applications, consider the inside of an 850hp NASCAR Sprint Cup engine running at 9,000 to 9,500 rpm: A great deal of stress from both cylinder pressure and inertia loads applies crushing force equivalent to six tons, hammering each wristpin about 77 times each second. This punishing, cyclical load can last up to 600 miles in some races.



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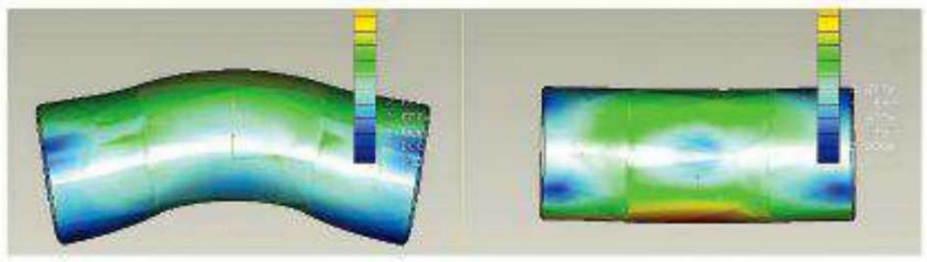
TECH·KNOWLEDGE

The FEA image below shows the pin under firing pressure (power stroke) on the left, and inertia loads on the right (just after TDC on the intake stroke, where the pin is being yanked downward). The bending is exaggerated, but shows the type of stress on the pins. If too thin of a wristpin is used, the pin will bend. If the wrong material is used, it may not be able to handle a high-stress environment for extended periods and could fail. It is critical to select the proper wristpin thickness for your application, to prevent excessive bending to support the piston.



A BASIC GUIDELINE FOR SELECTING THE PROPER WALL THICKNESS FOR YOUR WRISTPINS:

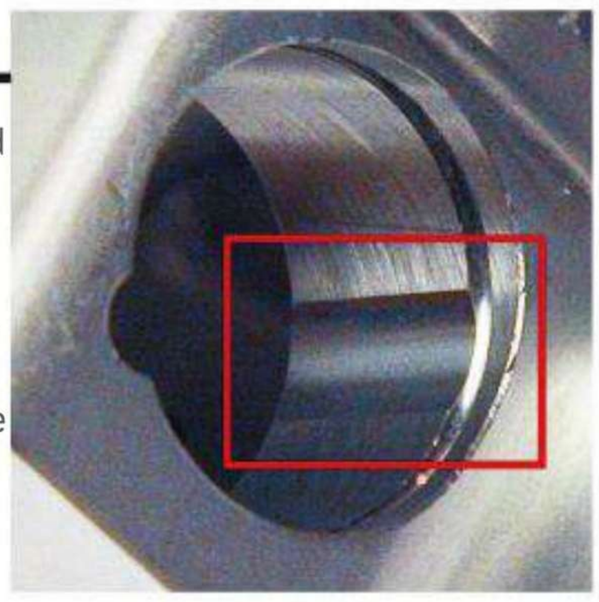
.150-inch wall
Up to 100 hp per cylinder

.180-inch wall
Up to 150 hp per cylinder

.210-inch wall
Up to 250 hp per cylinder

WRISTPIN OILING

It's important that a thin oil film remains between the wristpin and piston pin bore. There are several methods of distributing oil to the wristpin. One that piston manufacturers use is called forced-pin oiling, which utilizes one or two small holes in the oil ring groove that connect to the pin bore itself and "force" pressurized oil to the wristpin. The second method is the use of "broaches", or small rounded notches that run parallel to the wristpin. These small reliefs allow the oil splashing in the crankcase to reach the wristpin from the inside of the wristpin boss. Forced-pin oiling is more commonly used with over-the-shelf pistons.



WRISTPIN INSPECTION

Because the wristpin is essentially a bearing, a polished finish on the OD is critical to preventing wear and failures. One area often overlooked is the ID finish. A large amount of bending stress is concentrated within the wristpin, therefore a smooth finish on the inside is also critical.

Even if the bores in the piston's pin towers measure out right, never assume they are straight. The test for this is relatively straightforward: Insert the wristpin in the bore in one pin tower and see how easily it spins. Now slide the pin so that it extends into both pin towers. Sometimes, you can feel the wristpin catch as it enters the second pin tower. Also, if it's more difficult to spin when it's in both towers versus a single tower, that's a good sign the pin bores aren't correctly aligned and additional honing or replacement is required.

VALVE RELIEFS

Valve reliefs are the notches on the crown of a piston that provide clearance for the intake and exhaust valves. Valve relief diameter, location, and depth vary for every application. Engines with oversized valves and racing camshafts may require a larger diameter and deeper valve relief in the piston crown to provide the necessary clearance. Fortunately, many aftermarket piston manufacturers design their off-the-shelf pistons to accommodate these modifications.

OIL JETS/SQUIRTERS

Oil jets are used on many modern high-performance engines such as the 4B11, 2JZGTE, SR20DET, 4G63, and others. In Formula 1 engines, as many as six oil jets per cylinder are used. Although oil jets are not a piston feature, they do play an important role in keeping the piston cool and well lubricated. If the piston alloy can't stand up to the rigors of the application, the piston can soften and lose strength at high temperatures. This process is called annealing, and can significantly reduce the strength of the piston and eventually lead to failure. Oil jets spray a stream of cooler oil to the piston under-crown that reduces the overall piston temperature during operation.

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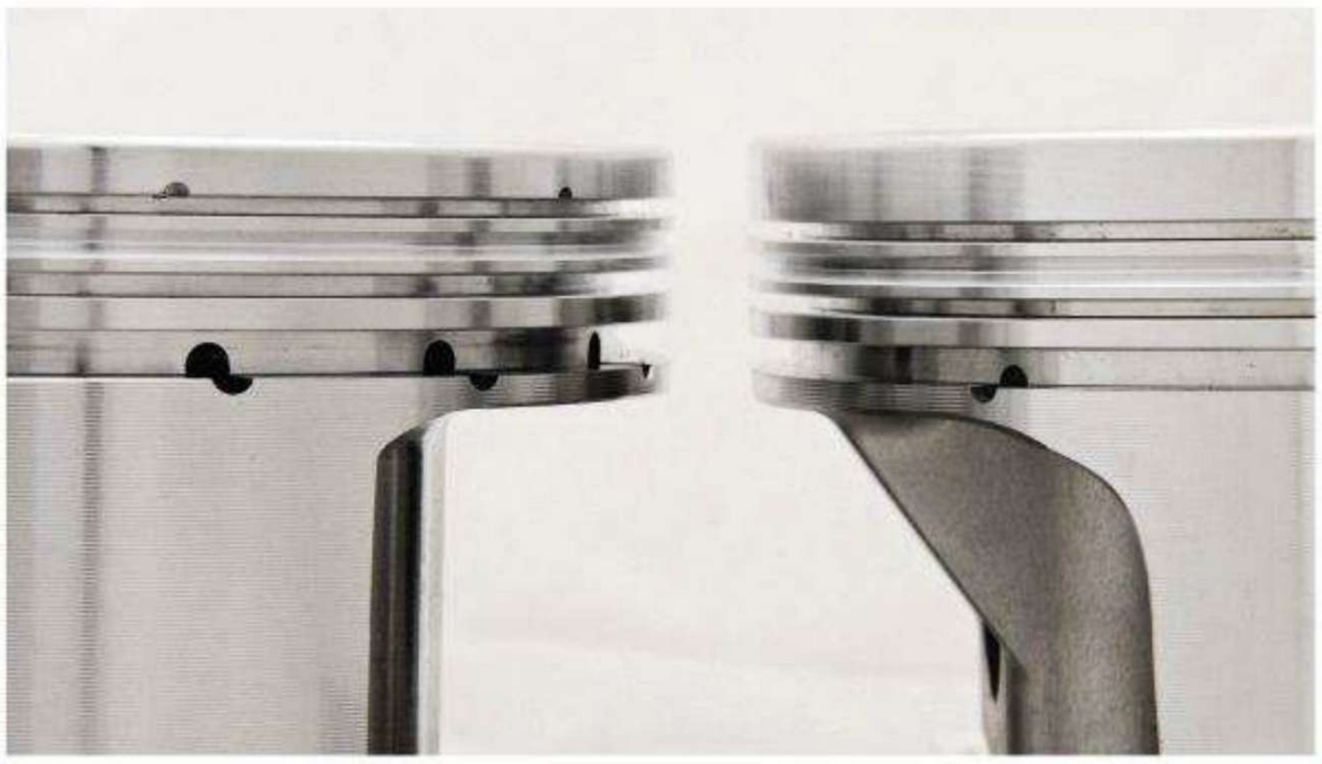


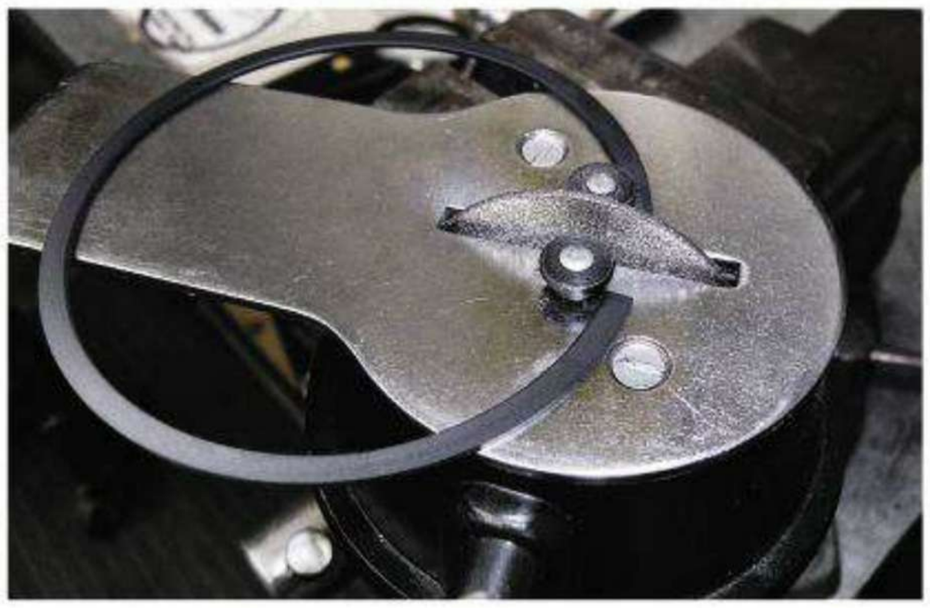
RING LAND THICKNESS

Ring lands are the "bands" above each piston ring. The thickness of the lands depends on the piston's intended purpose. Higher-horsepower applications require thicker lands to provide the proper strength. The top land on the Subaru EJ257 turbo piston (*right*) is thicker and designed to handle up to 300 hp per cylinder compared to the normally aspirated piston on the left with the thinner land, designed for up to 65 hp per cylinder. But don't assume the thicker the ring land the better. If it is too thick (over .300-inch top land), the engine can lose its efficiency and power output. A higher ring location is more efficient and will typically make more horsepower on NA applications, but in turbo applications, using a piston with a higher ring location (and small top land) is a recipe for piston failure. A turbo piston needs the extra strength from a thick top land.

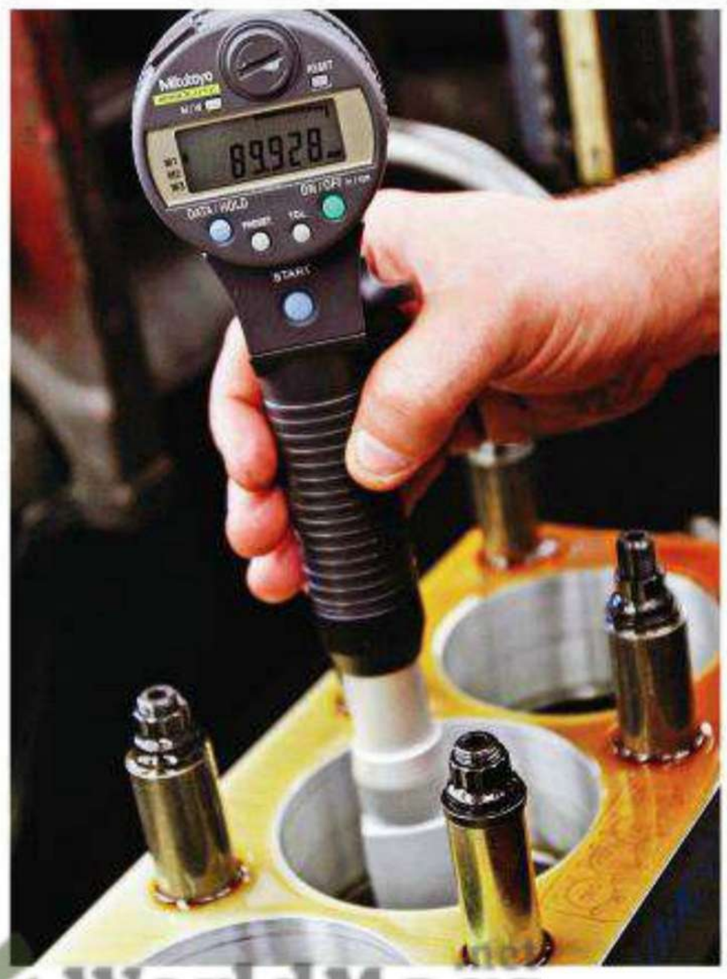
RING ENDGAP

Piston ring endgap provides the necessary room for rings to grow when exposed to heat. Because every engine is different, the proper ring endgap varies for each application. Variables, such as power output, bore size, ring material, and more, can change the required gap. Insufficient ring endgap will lead to contact between the ends of the rings causing damage to the rings, cylinder walls, and pistons, and can potentially destroy your engine. If the ring gap is too large, the ring will not effectively control the combustion chamber's blow-by gasses and cause a loss in power. Remember, a few thousandths too big is much more desirable than a few too small. Some people gap rings by hand, using a file and a vice. However, for greatest accuracy using a ring filer is the correct way, as the grinding wheel will evenly grind material away from both sides of the ring. Here is a recommended guideline for ring endgap:

RECOMMENDED RING GAP	MINIMUM GAP PER INCH OF BORE		
	Top Ring	**Second Ring**	**Oil Ring Rail**
Vehicle Application	Bore x	Bore x	Min. Gap
High-Performance NA Street/Strip	.0045 inch	.0050 inch	.0015 inch
Moderate Turbo/Nitrous	.0050 inch	.0055 inch	.0015 inch
High-Power Street Turbo/Nitrous	.0055 inch	.0057 inch	.0015 inch
Turbo/Nitrous Race Only	.0060 inch	.0063 inch	.0015 inch



PISTON-TO-CYLINDER WALL CLEARANCE



Piston-to-cylinder wall clearance, like ring endgap, is dependent on the environment to which the piston will be exposed. Engines that generate higher cylinder pressures will typically transfer more heat into the piston, therefore requiring more clearance to the cylinder wall. Normally aspirated engines will see significantly lower cylinder pressure/heat and require less initial clearance. Another factor that effects piston-to-cylinder wall clearance is the actual piston design. Depending on the location of the aluminum within the piston, it will expand differently in each area. This factor is typically taken into consideration by the piston manufacturer's clearance recommendations.

PISTON COATINGS

Pistons can be coated with three different systems: dry film lubricants, thermal barriers, and oil shedding coatings. All these coatings can be beneficial as they protect the piston against damaging heat transfer. By retaining minimal heat on the surface of the piston, less heat is transferred to the incoming fuel mixture, leading to a reduction in preignition, or detonation. The coatings can also allow heat at the surface to move more evenly over the surface, reducing hot spots or evens reflecting heat into the chamber for more efficient combustion of the fuel and less thermal expansion due to a reduction in the heat absorbed. Many piston manufacturers offer various types of coatings, including this JE Subaru WRX FSR piston with a thermal barrier coating applied to the crown and skirt.

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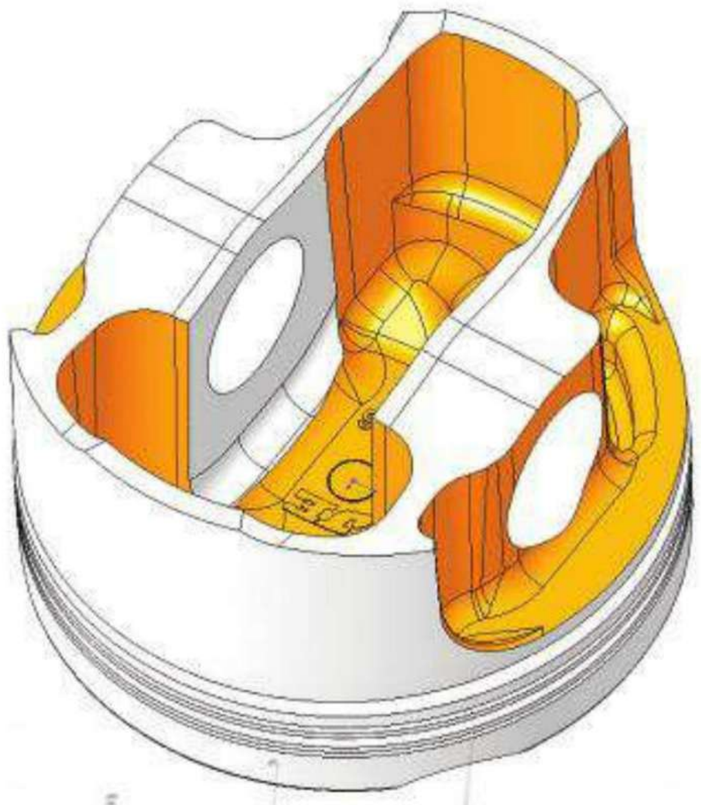
ASYMMETRICAL PISTON

ASYMMETRICAL VS. ROUND DESIGN PISTONS

JE Pistons recently released an asymmetrical forged piston that utilizes two different-sized piston skirts, giving it the "asymmetrical" piston design. Asymmetrical piston designs can be found in many professional-level racing engines competing in Formula 1, ALMS, and NASCAR, and have been kept a secret until JE began designing the first aftermarket asymmetrical forging in 2010.

Both the asymmetrical piston and "full round"—otherwise known as standard piston designs—are available for most popular applications. In general, both pistons will perform their function in any sport compact application if designed properly. However, the asymmetrical piston design has a significant advantage over traditional round designs, including reduced skirt width on the minor thrust side to help minimize piston contact with the cylinder wall, which causes friction and power loss; a shorter wristpin that reduces overall weight; internal/external bracing to provide more rigid construction; and most importantly, a significant weight reduction due to a combination of all three previously mentioned. A quick weight comparison between a Mitsubishi 4G63 traditional round piston and asymmetrical (both weighed with wristpins) showed a difference of 15 grams per piston, which is a huge deal in the performance world.



ROUND DESIGN PISTON

To date, the asymmetrical-designed piston has been successfully run in applications ranging from daily driven vehicles to the infamous 800-whp AMS Performance time-attack EVO X and Titan Motorsport's 2,000-plus horsepower Supra drag cars. it

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BY **LUKE MUNNELL**

THE MIATARTICLES

I never liked the Miata.

Yes, I'm well aware that it's the most commonly modified and track-driven car in the world. When it debuted, it was the only car in production that combined a 50/50 weight balance, low center of gravity, front-engine/rear-wheel-drive layout, and a double-wishbone suspension with classic roadster styling and small-car agility—I know. And according to the faded sticker on the left, front quarter-glass of mine, *Motor Trend* voted it "Car of the Year" right off the bat.

The British loved its performance and the fact that it was styled after their own Lotus Elan. The Japanese loved it for the same reasons, but also for its friendly, caricatured, nonthreatening appearance—the exact reasons I didn't. Inarguable performer or not, I just couldn't get past how *girlie* the car looked.

But then I actually drove one.

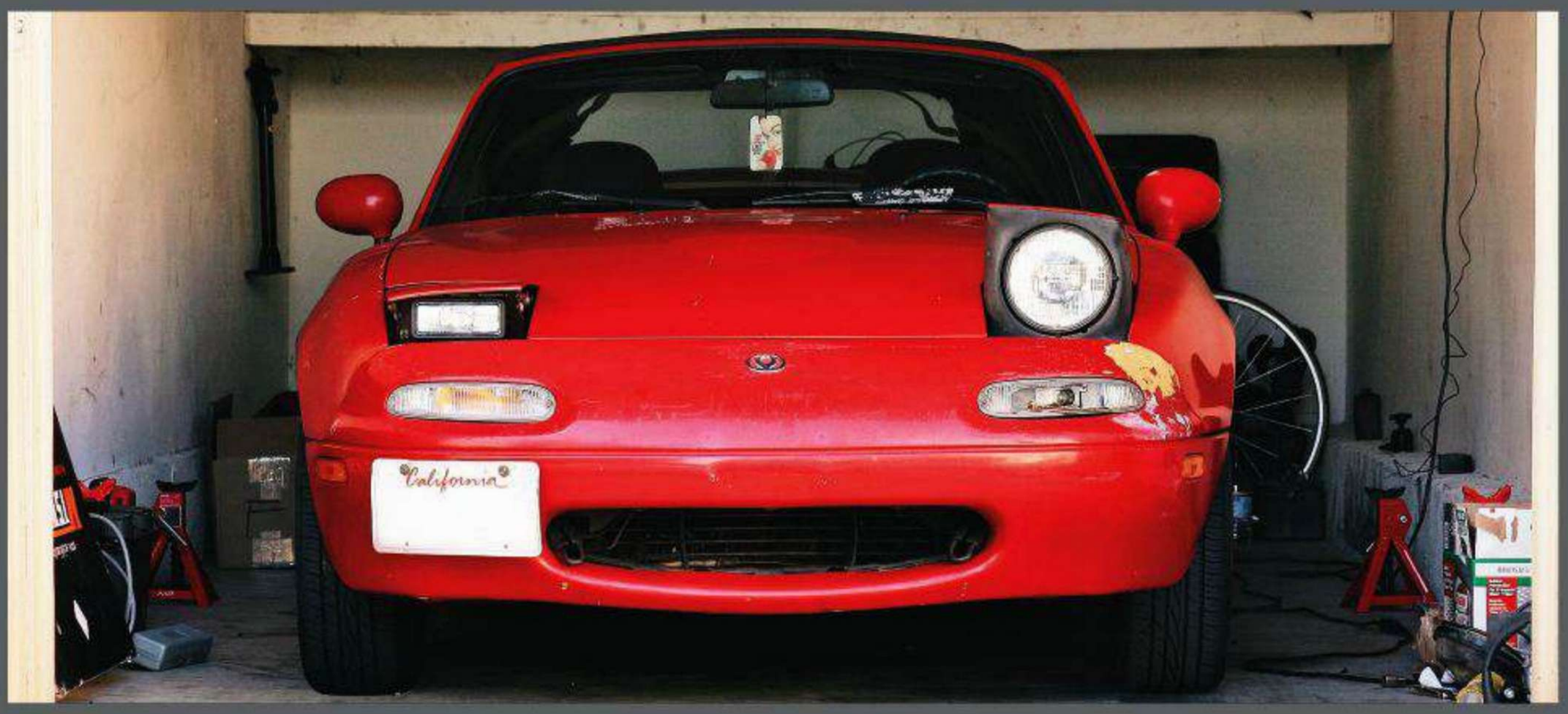
The first-generation NA6 Miata is as raw as it gets. Little more than a motorcycle with two seats and four wheels, part of its charm stems from the fear of impending doom you'll feel driving one amongst today's SUVs and nearly as big domestic sports cars. Another is that from the shifter, to the pedals, to the wheel, to the seats, you'll feel it respond to every input you give it. Spend more than 10 minutes behind the wheel, and you'll feel the car morph into an extension of your very being. You'll feel exactly where every inch of it is, and where it will go, no matter what you do. And the Miata's lack of a roof—even if mine did have a functioning one, or a stereo to match (what do you expect from an $800 car?), I'd never use either.

In stock form the Miata is slow, has a washy suspension, brakes to match, and is borderline dangerous with virtually no rollover protection. But it's strong enough in one redeeming quality to make you forget nearly all of its shortcomings: soul. It just doesn't have enough of it to make you feel like any less of a hairdresser while driving it.

Fortunately, we have the aftermarket to fix that. Even better: we can do it for surprisingly little coin, if spent cautiously.

STEP 1 HEADLIGHT CONVERSION: $75

The Miata's large, round headlights—you either love them or hate them. Coupled with its gawking grille, they're pretty damn hideous. Not to mention difficult to see the road over, especially if you're slouching in your seat, trying not to be seen driving/riding in a stock Miata. Using some hardware from Lowe's, a pair of driving lights from AutoZone, plug-and-play HID retrofits from eBay, some common tools, and a little ingenuity, we converted our Miata's pop-ups to low-profile fixies in one day, for a slightly less anime-character look.



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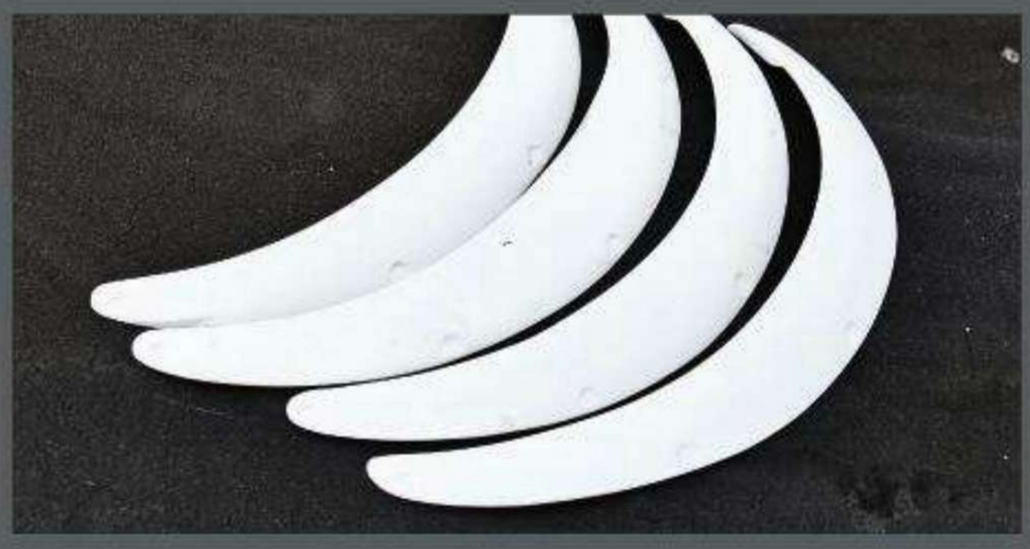
STEP 2

STANCE: $1,796

The Miata is blessed with beautifully stretched fenders front and rear, but like most Japanese cars, it came stock with narrow, boring wheels in way-too-conservative offsets. It's also blessed with one of the best suspensions in the game, but cursed with sky-high stock ride height. We had our work cut out for us.

Our first call was to BC Racing for a set of their BR-Type coilovers: inverted monotube design, aluminum body construction, full ride-height adjustability (all the way down to super slammage), spring preload adjustability, included aluminum top hats, 30-level simultaneous compression/rebound damping adjustability, choice of spring rate, and even available damper re-valving to match, all for under $1K. Stock spring rates are 8kg/mm front, 6kg/mm rear. We opted for 10/8s.

Next up, we needed to fill out those wheelwells. As much as we love the look of stock-fendered Miatas slammed on wide, flush-fitting wheels with stretched rubber and death camber, the whole combo only looks proper when done just like that. We still wanted to keep the option of wider tires, proper camber, and a slightly higher ride height for rub-free track days. Our solution: 15x8 0mm-offset XXR 002 wheels, 195/50-15 General Exclaim UHP radials (for the street—something in a 225 width for the track), and Racing Lifestyle fiberglass flares.



Say what you will about inexpensive USDM wheels, but we won't cry when drifting one into a curb costs us $85 and a trip across town to replace it. Likewise, at about $64 each and available anywhere, our General UHPs offer everything we need in a street tire, including increased width over the stock 185s and ridiculously long tread life. And those flares, while not cheap, are also easily replaceable in the event of unforeseen gnar. Win, win, win.

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STEP 3

SAFETY: $495

It's unlikely for a small, low roadster like the Miata to flip over, but it does happen. And when it does, if that roadster isn't equipped with a worthy rollbar, its occupants usually don't fare too well. This is why organizations like the SCCA and NASA (as well as virtually every track in the country) require one to be installed in any Miata that sees a track. Hard Dog manufactures track-compliant bars in a variety of options for many different vehicles: Constructed of mandrel-bent 1026 steel tubing (1.75-inch outer diameter, 0.120-inch wall thickness), the M1 Hard Core double-diagonal one we added to our Miata is easily the best out there. It's heavy, the installation is a bitch, but it just might be the single most important mod you make to your roadster. Plus, it looks badass.

MODIFICATION LIST AND PRICES	
Rally Manufacturing Ultra Beam driving lights	$29.99
Miscellaneous hardware	$15.00
Xenon Vision H3 HID conversion kit	$29.99
BC Racing BR-Type coilovers	$999.99
XXR 002 15x8 +0mm wheels (x4)	$340.00
General Exclaim UHP 195/50-15 tires (x4)	$256.00
Racing Lifestyle Café Racecar flares (x4)	$300.00
Hard Dog M1 Hard Core rollbar	$495.00
TOTAL:	**$2,465.97**

We tackled the first round of upgrades with our car way back in the August '08 issue, via a trio of bolt-ons for Power Pages. Upgrades shown here further increase performance, and also prep the car for track duty, giving it a more menacing appearance in the process. Best of all, every step was taken with a real-world budget and resources in mind. No fab shops, professional installers, or thousands of dollars thrown away on ultra-rare JDM whatever—just proven, effective, low-cost products installed in our home garages, by us, with common tools. Be sure to visit importtuner.com for the step-by-step install process of every modification above, as well as some additional tech and photography.

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THE DYNO DOESN'T LIE

2008 MITSUBISHI LANCER ES

DYNAMOMETER MODEL: SP ENGINEERING DYNOJET
TESTING FACILITY: SP ENGINEERING
TEXT AND PHOTOS: SCOTT TSUNEISHI

BASELINE

PROS

When thinking of the Mitsubishi Lancer, most car enthusiasts envision the turbocharged Evolution X tearing up circuits or canyon roads. The '08 Lancer ES we tested is considered the middle trim level of the front-wheel-drive Lancers, slotting between the basic DE and the more sporty 2.4L GTS model, which has greatly improved from past generations, in both styling cues and handling.

CONS

Although the Lancer sports similarities with its EVO X sibling, including aggressive styling features like a "shark nose" fascia, these vehicles were built on two entirely different levels of performance. The underpowered 2.0L Lancer ES engine produces plenty of growl but has little bite and makes this vehicle not particularly entertaining to drive. We seized the opportunity to power test three bolt-on products with the goal of creating additional power.

NOTES

The '08-10 Lancer DE and ES models are powered by a naturally aspirated 2.0L MIVEC 4B11 engine producing 153 hp and 148 lb-ft of torque, except for California models which have been detuned to 148 hp and 143 lb-ft of torque for Partial Zero-Emissions Vehicle (PZEV) certification. Our baseline dyno figures were unexpectedly high—we're assuming that this Lancer is a non-California model, equipped with the more power-friendly 4B11.

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BORLA EXHAUST

PARTS
Exhaust, instructions, sticker

TOOLS
12 and 14mm sockets, 12 and 14mm open-end wrenches, ratchet, extension, crescent wrench, WD-40

INSTALLATION TIME
35 minutes

PROS
The Borla axle-back muffler uses a patented multi-core, straight-through muffler design to increase exhaust flow while delivering a smooth and deep sound. The individually handcrafted stainless-steel T-304 exhaust system is finished with a 4-inch polished tip and is backed by Borla's million-mile warranty. A quick weight-in comparison revealed that the stock exhaust scaled at 40 pounds, while the Borla exhaust weighed only 10 pounds.

CONS
Installing the Borla muffler using the factory OE spring-loaded exhaust bolts required us to use additional washers to ensure a tighter fitment and leak-free seal.

NOTES
Dyno testing the exhaust revealed an increase in power and torque throughout the powerband, with a healthy gain in the midrange and top end from 4,200 rpm to redline. Keep in mind that this exhaust system still uses the factory mid-pipe and catalytic converter to keep the vehicle smog legal.

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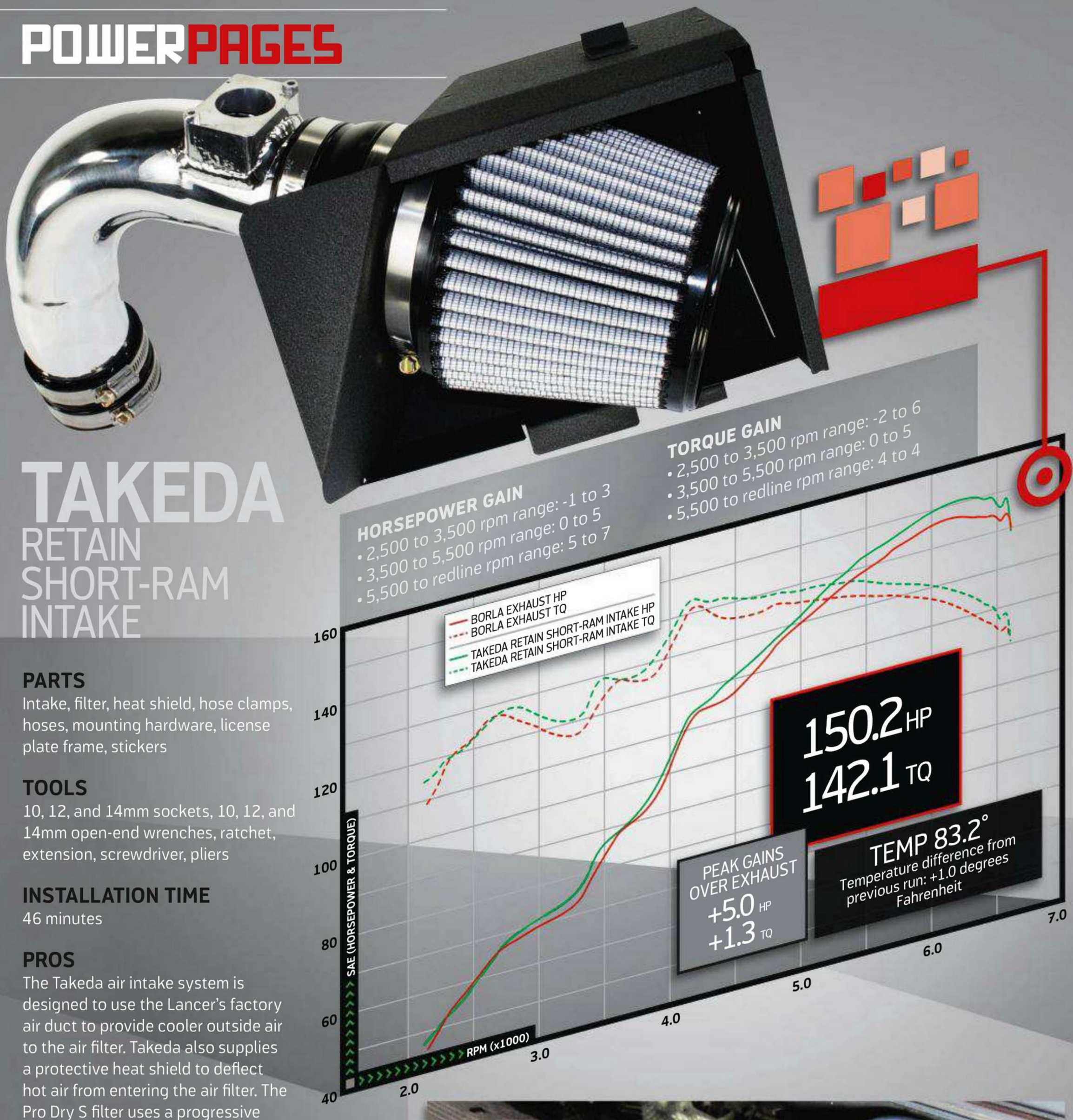


TAKEDA RETAIN SHORT-RAM INTAKE

PARTS
Intake, filter, heat shield, hose clamps, hoses, mounting hardware, license plate frame, stickers

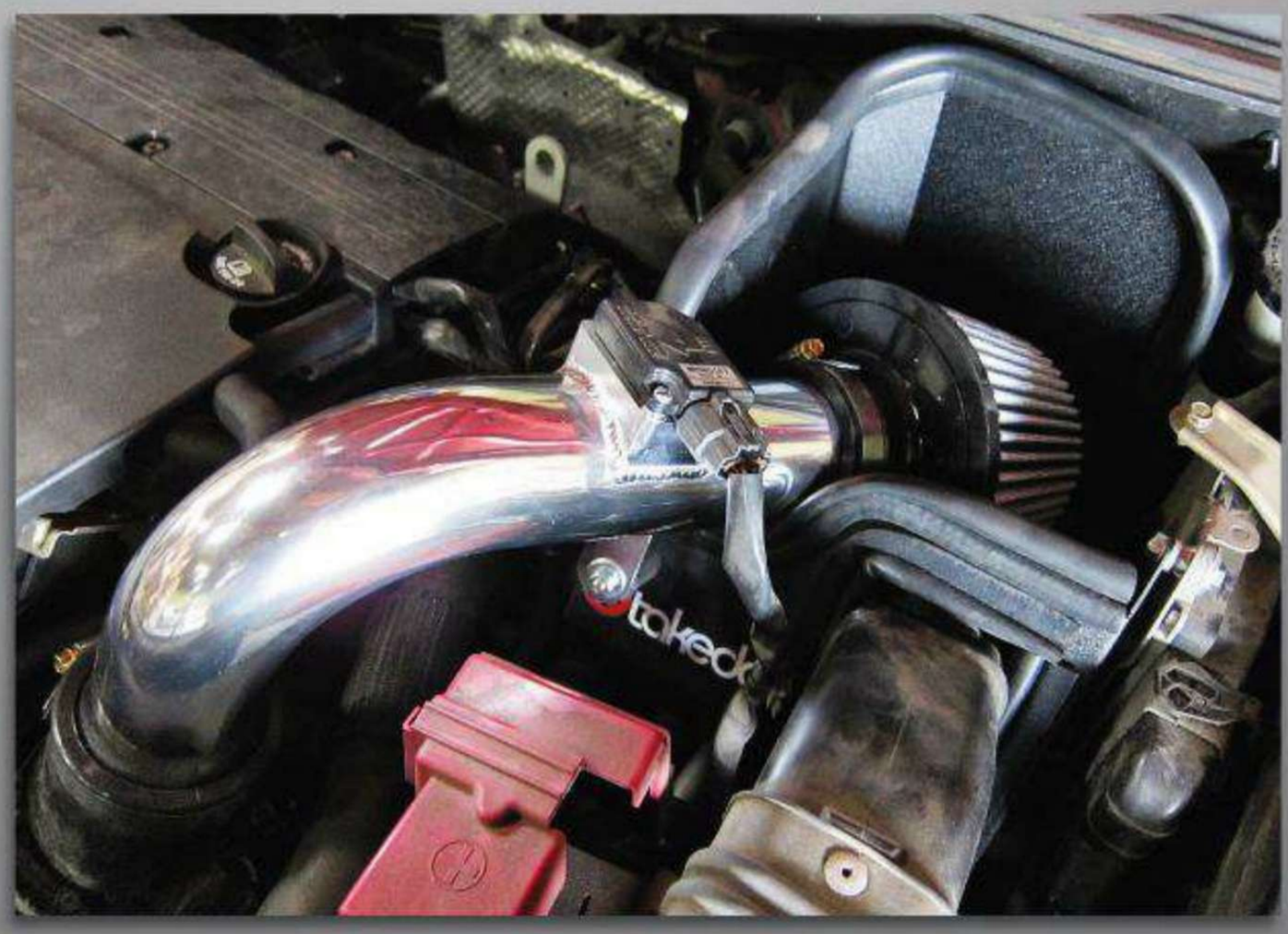
TOOLS
10, 12, and 14mm sockets, 10, 12, and 14mm open-end wrenches, ratchet, extension, screwdriver, pliers

INSTALLATION TIME
46 minutes

PROS
The Takeda air intake system is designed to use the Lancer's factory air duct to provide cooler outside air to the air filter. Takeda also supplies a protective heat shield to deflect hot air from entering the air filter. The Pro Dry S filter uses a progressive synthetic media, requiring no oil when servicing for maximum convenience and filtration.

CONS
Installing the new intake required us to fiddle around with the Takeda-supplied 90-degree silicone hose to correctly position the intake tube between the throttle body and air filter. The silicone hose slipped off the throttle body on numerous occasions, requiring some tight-fisted clamping to keep it in place.

NOTES
Dyno testing revealed a peak gain of 5.0 hp and 1.3 lb-ft torque over our previous run. The new air intake system increased both horsepower and torque throughout the powerband, as the Lancer saw a consistent gain of 5 hp and 7 lb-ft of torque from 5,200 rpm to redline.



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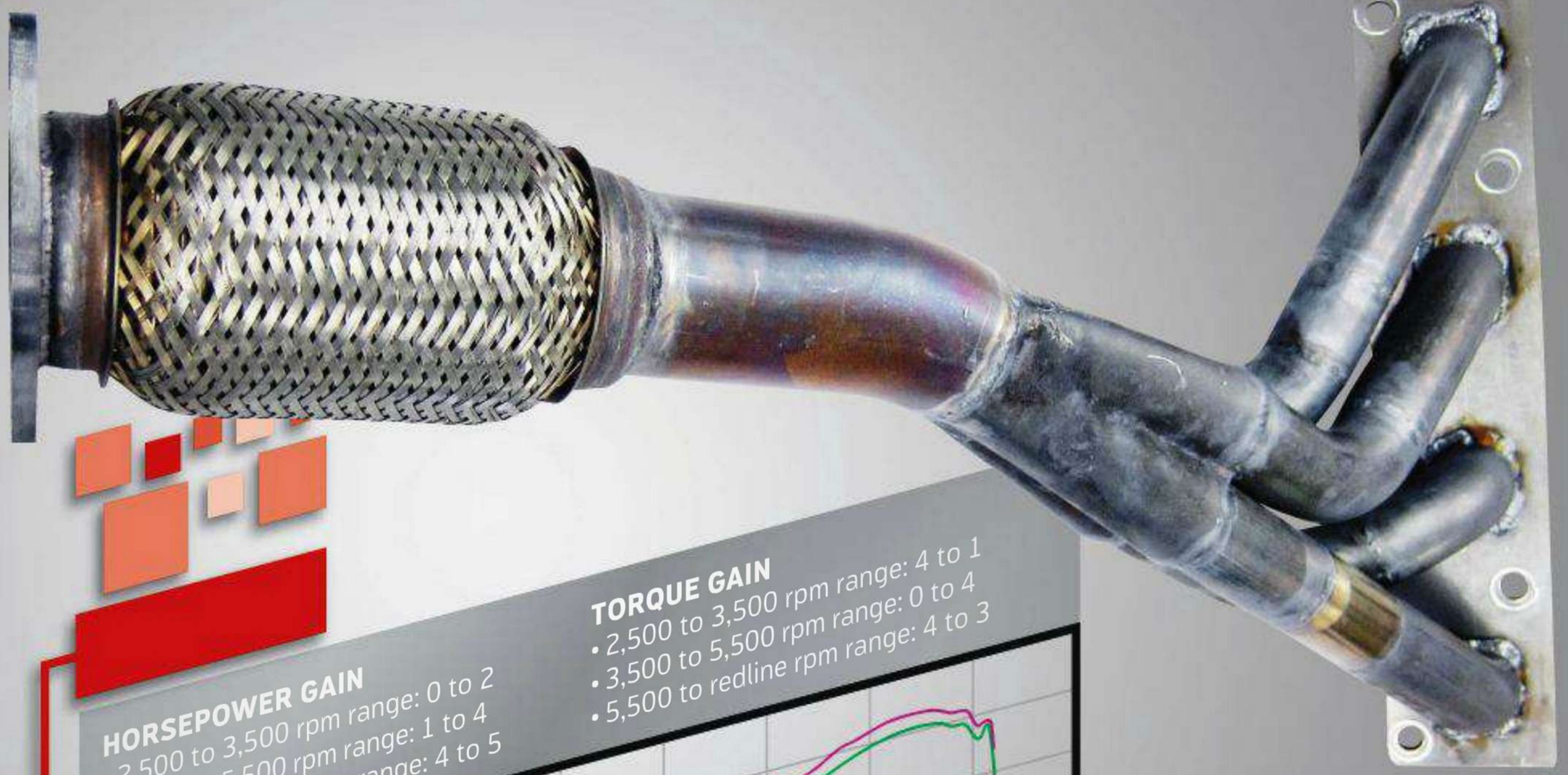

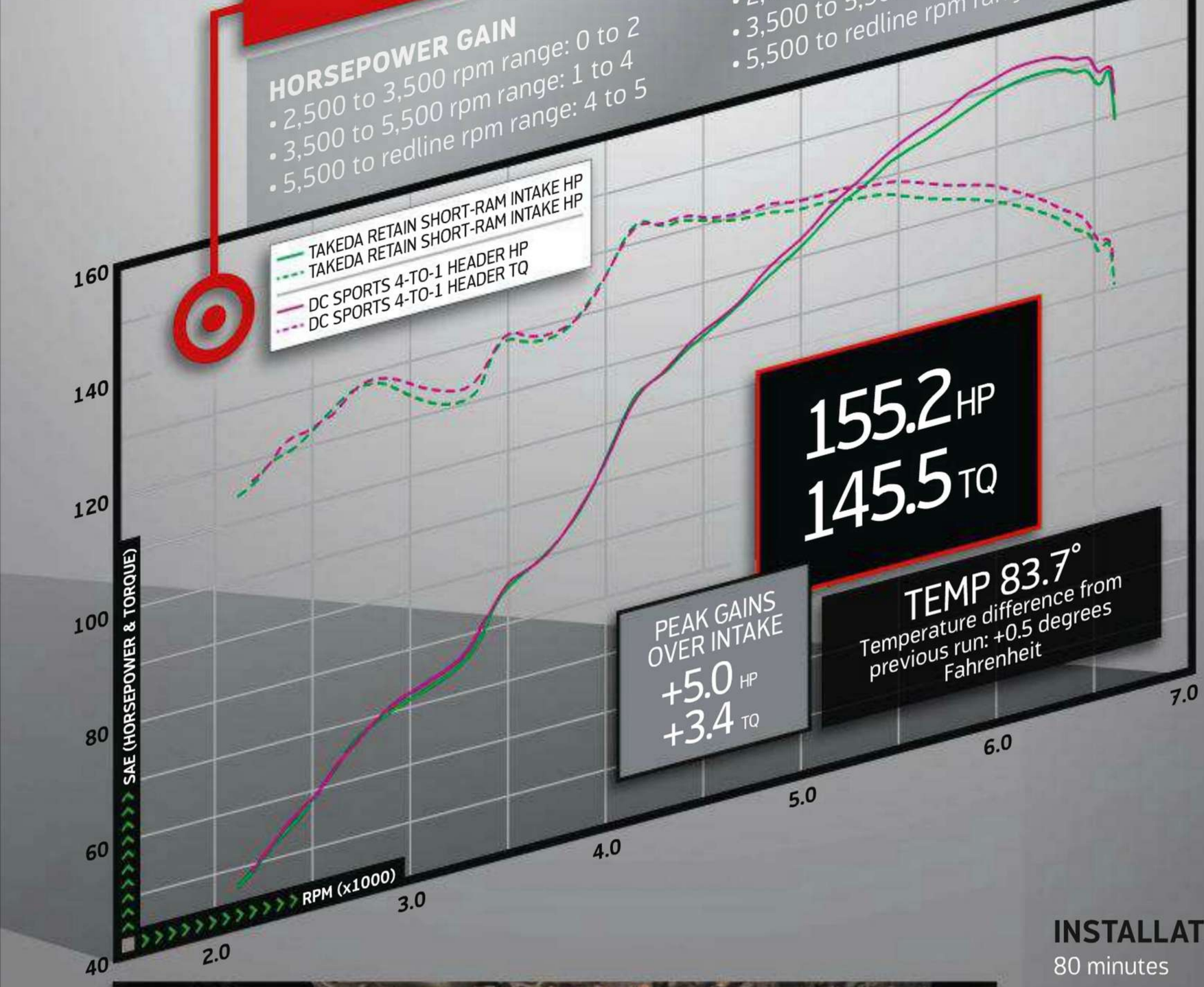

DC SPORTS 4-TO-1 PROTO-TYPE HEADER

PARTS
Header, mounting hardware, instructions, stickers

TOOLS
10, 12, 14, and 17mm sockets, 10, 12, 14, and 17mm open-end wrenches, ratchet, extension, swivel sockets, screwdriver, pliers

INSTALLATION TIME
80 minutes

PROS
DC Sports offered us their newly developed Lancer header to test. The prototype DC Sports 4-to-1 header uses a one-piece construction for easy installation, and built-in flex pipe to allow ample engine movement without causing stress cracks in the header pipes. The header will be available in either ceramic-coated mild steel or stainless steel construction by the time this article hits newsstands.

CONS
Removing the OEM two-piece header requires accessing numerous bolts from under the vehicle. A swivel socket and ratchet extensions helps speed up the removal and new header installation process.

NOTES
With the newly installed header in place, the Lancer delivered mostly top end power, with a gain of 4 hp and 3 lb-ft of torque from 5,500 rpm to redline.

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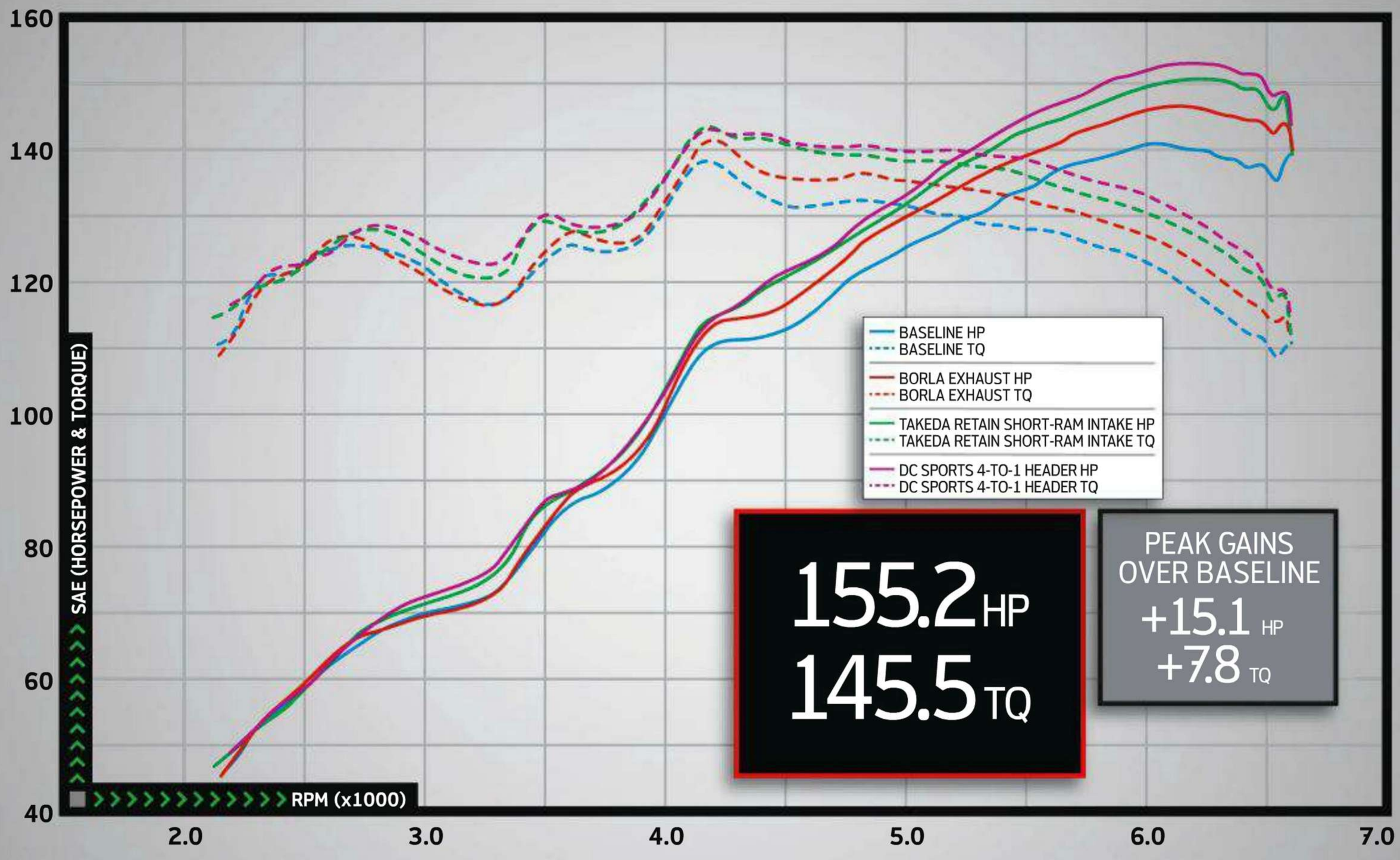
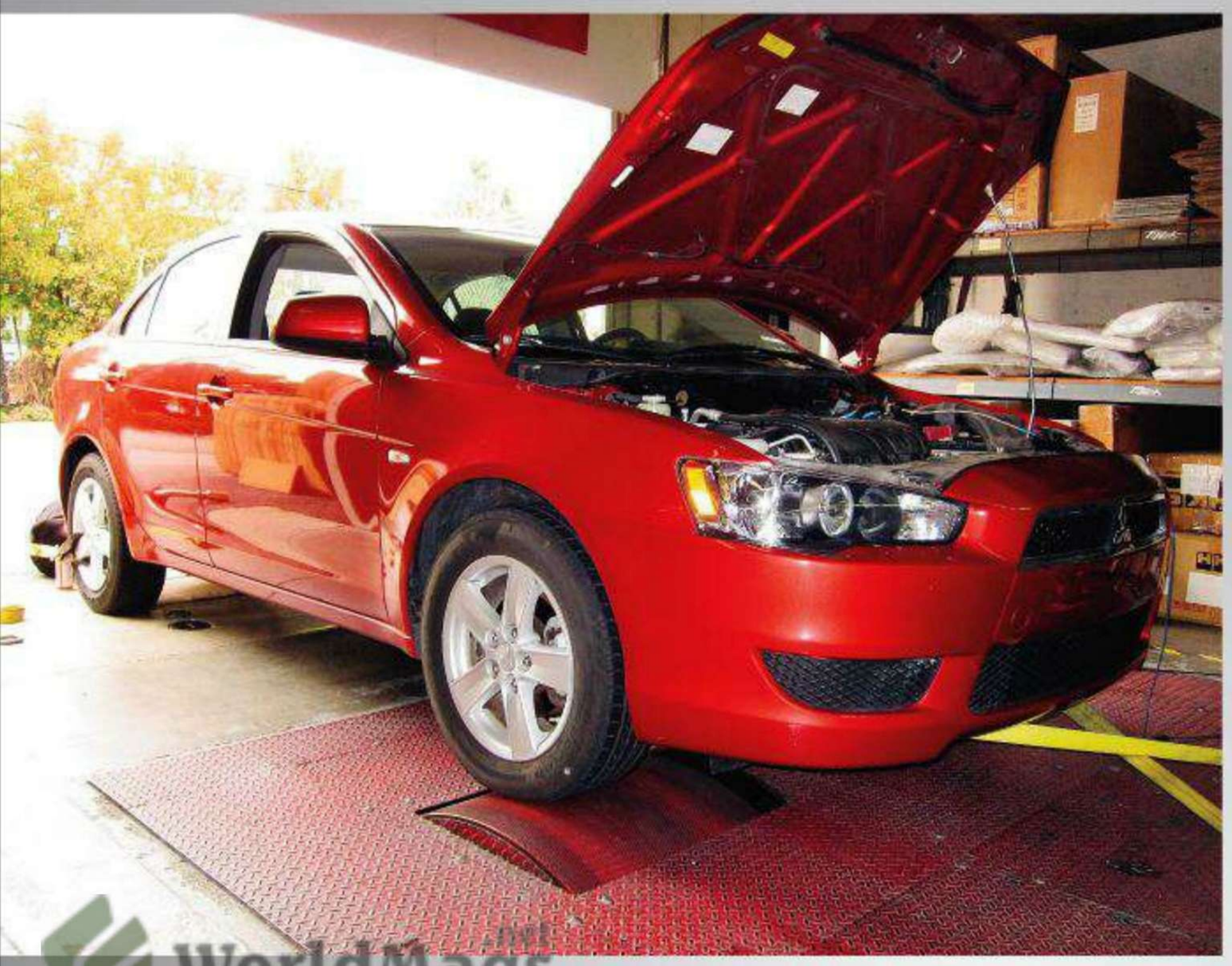


CONCLUSION

	HP	+HP	TQ	+TQ
BASELINE	140.1	–	137.7	–
BORLA EXHAUST	145.2	5.1	140.8	3.1
TAKEDA RETAIN SHORT RAM INTAKE	150.2	5.0	142.1	1.3
DC SPORTS 4-TO-1 HEADER	155.2	5.0	145.5	3.4
FINAL	**155.2**	**15.1**	**145.5**	**7.8**

BANKROLL

BORLA EXHAUST	$511.00
TAKEDA RETAIN SHORT RAM INTAKE	$249.00
DC SPORTS 4-TO-1 HEADER	$501.33
TOTAL	**$1261.33**



CONCLUSION

Testing our '08 Mitsubishi Lancer with three basic bolt-on products netted us a gain of 15.1 hp and 7.8 lb-ft of torque over our baseline run. The Lancer responded well to our modifications and acceleration was noticeably improved on the street. With used-car pricing (KBB) of $14 to $15K and an estimated 22 mpg city and 29 mpg highway efficiency, owning the EVO X's little brother might not be such a bad thing after all. it.

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AD INDEX

Andy's Autosport Integrated Str	32-33
CMI Clutch Masters	71
Continental Tire	C4
Deatsch Werks	59
Design Engineering	71
Discount Tire Corp.	43
EBC Brakes USA Inc.	59
EDO Performance	7
Falken Tire	5
Go Pro	9
Harbor Freight Tools	65
Japanese Classic Car Show	71
Motovicity Distribution	47, 55
Palmer Performance Engineering	87
Performance Racing Industry	25
Phoenix Systems	87
Pro Motion Distributing	51
Scion	C2-3
Tanabe Racing Development USA	C3
TSW Alloy Wheels	20-21
Ultimate Products Corp.	81
Universal Technical Institute	11
Wilwood Engineering	25
XDC Events Inc.	77

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01 CUSCO ZERO-3X COILOVERS

Cusco's top-of-the-line Zero-3X Honda Civic Type R (FD2 chassis code) coilovers feature three-way, 24-step independent rebound (bottom), low-speed (red) and high-speed (gold) damping force adjustability to dial in your custom setup for any track/driving condition. The inverted mono-tube dampers feature an external reservoir design for larger oil capacity, a redesigned inner piston valve for smooth damper engagement, pillow-ball upper mounts, and camber plates for adjustability, making the Zero-3X ideal for circuit driving, gymkhana racing, and endurance type motorsports.

Cusco / 714.907.0033 / www.cuscousainc.com

02 TURBOSMART ULTRA-GATE38 WASTEGATE

Turbosmart's brand-new Ultra-Gate38 is a 38mm external wastegate packaged in a smaller, compact design that delivers maximum flow for street and racing applications. The new Ultra-Gate38 is smaller (3.71 inches versus 4.44) and lighter (1.79 pounds versus 2.37) than the previous model. It features Turbosmart's unique locking collar design for reduced size and quicker spring changes, and a stainless steel valve to withstand abuse.

Turbosmart / 909.476.2570 / www.turbosmartusa.com

03 AEM AQ-1 DATA LOGGER

AEM introduces the AQ-1 Data Logger, an easy-to-use and install vehicle data acquisition device designed for racers and performance enthusiasts of all types. The AQ-1 Data Logger offers accurate data-logging capability, with rates of up to 1,000Hz (1,000 samples/second) per channel and 2GB of logging memory, standard. It features an internal three-axis accelerometer, external sensor, and digital outputs, and compatibility with any four-channel UEGO controller or AEM Series 2 EMS. The AQ-1 Data Logger interfaces via USB connection to a laptop to record and store vehicle data so that it can be downloaded and analyzed at a later time to help users improve vehicle tuning, setup, and driving ability.

AEM / 310.484.2322 / www.aemelectronics.com

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04 NY-TREX PROGRESSIVE NITROUS CONTROLLER AND DATA LOGGER

Ny-Trex, a division of Design Engineering, introduces a new progressive nitrous controller and data logger for tuning of nitrous systems through a Windows-based graphical interface, providing a wide range of data-logging aids for precision tuning, including throttle position, multiple inputs and outputs, rpm, and vehicle speed. This advanced nitrous controller and data logger also provides independent control of two stages of nitrous oxide injection and complete data-logging capabilities to help analyze critical data to quickly tune any nitrous system for maximum performance.

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05 XTREMEMAC WIRELESS AUTO BLUETOOTH

XtremeMac announces its new InCharge Bluetooth (BT) series that allows users to simultaneously charge and wirelessly stream from an iPod/iPhone through a car's stereo. The InCharge Auto BT simply plugs into a car's line-in jack and provides three unique functions in one compact device, including hands-free calling, wireless audio playback, and 10 watts of charging power. Through its one-touch, multifunction button users can answer calls and play/pause music via a Bluetooth connection. Additional features include a self-resetting fuse to protect devices, and a standard USB connection for maximum compatibility with most USB mobile devices. InCharge Auto BT includes a 4-foot, 30-pin-to-USB cable for charging.

XtremeMac
866.392.9800
www.xtrememac.com

06 KICKER SOLO-BARIC L3 SUBWOOFER

Kicker's Solo-Baric L3 series debuts its square-designed subwoofer for increased cone area and air displacement over previous models. Utilizing Kicker's most advanced cone design, the Solo-Baric L3's SoloKon technology ensures strength for reliable performance and accurate response using an ultra-rigid design with vented, 360-degree back-bracing, long-lasting Spiralead tinsel leads, and high-temp dual voice coils to handle the extreme power and temperatures transferred through the motor structure and cone.

Kicker / 800.256.5425 / www.kicker.com

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LONGSHOTS

DO YOU HAVE WHAT IT TAKES? BY **LUKE MUNNELL**

"Again, with the one shot thing? How am I ever going to get into Longshots like this?!" you ask? Yea . . . turns out you're just going to have to step your game up. Like Los Angeles' own Julian Morales, who explains his disgustingly lit (in a good way) shot of this CCW'd, Spoon-infused Honda S2000:

2006 HONDA S2000

PHOTOGRAPHER: JULIAN MORALES
LOCATION: LOS ANGELES, CA
SHOT LOCATION: EL MONTE, CA
EQUIPMENT: CANON EOS 40D, 17-55MM F/2.8 LENS; ALIEN BEE B800, VAGABOND II BATTERY PACK; SILVER UMBRELLA (SOME SHOTS); MANFROTTO TRIPOD; ADOBE BRIDGE, PHOTOSHOP CS4
SHUTTER: 13 SECONDS
APERTURE: F/13
ISO: 125
FOCAL LENGTH: 17MM
SUBJECT-CAMERA DISTANCE: 20 FEET
CAMERA HEIGHT: 1.5 FEET
CONNECT: WWW.FLICKR.COM/JULIAN_MORALES

FROM THE ARTIST

As with many darker/nighttime automotive shots, the lighting is the biggest factor in making or breaking the picture, and artificial lighting via flashes or strobes is a great way to control that. Starting out, I was never satisfied with my results with controlled lighting, until I started shooting with artificial light and utilizing the techniques of light painting and post-process compositing.

For this shot, I found a location, imagined how I'd shoot a car there, and then did my best to set up what I imagined in real life. Next came thinking about the lighting. I knew I wanted the car to "pop" from the background, so I decided to underexpose the background (moderating shutter speed), and artificially light the car with my Alien Bees strobe for a proper exposure (moderating intensity with the light, and aperture of the lens with the camera). The only problem was: I only had one strobe.

With my camera secured on a tripod and kept in one place the whole time, I made five different exposures, each while positioning the strobe in different places to light different parts of the car, either stationary, or moving it over the car using only its modeling light and an umbrella, for the duration of a long exposure (13 seconds, on average). Those different exposures were then opened up in Photoshop, and the parts of each that I wanted to use were merged together via layers and masks. Next, the background was evened out, the lighting on the ground was faded and blended, and I made some adjustments to levels and color balance as I saw fit.

I've gotta give credit to a good friend of mine: photographer Clifford Sutrisno (www.timeatk.com), who really taught me this lighting technique and helped me get it down. Maybe the best advice I can give is: Learn from the best! it.

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Advantage SSR STEP RIM

What is the benefit of step rim?

A Step Rim is structurally stronger than a Reverse Rim due to its unique design. Because angular structures have greater structural integrity than a flat plane, the ***strength*** and ***rigidity*** are far greater than the run of the mill Reverse Rims. For a 3 Piece rim, Step Rims are ***lightweight*** because they allow for a compact, lighter face which will effectively reduce the overall weight of the wheel. With a tire installed, a Step Rim holds more air than a Reverse Rim, meaning lighter overall weight and a more ***comfortable ride***.

With the 1" smaller face, much of the overall volume is air, aiding in keeping the overall wheel & tire weight down.

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SP3

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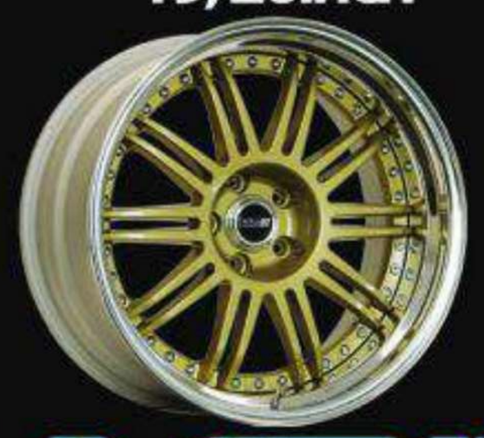
MS1

15, 16, 17, 18, 19, 20inch

SP1

15, 16, 17, 18, 19, 20inch



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