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- **MEET NASA GRAND CHAMPION** MATT POWERS
- TRACK TUTORIAL: **MAZDA RACEWAY LAGUNA SECA**
- HOW TO ATTACK **THE 25 HOURS OF THUNDERHILL**

VOLUME 4, ISSUE 6 JULY 2015


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WILL FAULES
NASA NATIONAL EVENT MANAGER

Hello, NASA racers! I hope you are all having a fantastic season. It's that time of year already where many of us are full speed ahead on our plans for the 10th Annual NASA Championships presented by Toyo Tires. An entire decade of this prestigious event has gone by and with all the fantastic feedback from the two-event format in 2014, this year's events are certain to be exciting at Mazda Raceway Laguna Seca and Virginia International Raceway.

I always feel like a kid during the holidays this time of year. I'm excited to see who's coming to the big events. I love to see what changes people have made to their machines to make them more likely to take a step on the podium. Of course, the Championships still have the great social aspects we all love about our regional events: people camping and cooking out, sharing beverages from their corner of the country. Fellow competitors helping each other patch up hurt cars to make the grid. Except there is an elevated level of competition with everybody fighting to be crowned a NASA Champion.

Moving this event every year has presented huge challenges, but it's all for the best that we put the event in different regions each year so that competitors aren't required to tow all over the country to compete at one of two staple tracks. Now everybody will get to see how they stack up against their out-of-region rivals, at their own home track as well as in their rivals 'territory.' By making the event more accessible to more regions each year, we hope to spread the willingness for competitors to travel to their neighboring regions, to go "steal some trophies" and, of course, take home the title of a NASA Champion.

Mazda Raceway Laguna Seca is a special place for the Western States Championships. Not only is it smack in the middle of our two biggest West Coast regions, but it's such a historic track that is extraordinary to race on. It's difficult to describe the feeling of driving through The Corkscrew. Eleven turns over 2.2 miles of fast and technical track promise to make for exciting competition to crown our Western NASA Champions.

I ALWAYS FEEL LIKE A KID DURING THE HOLIDAYS THIS TIME OF YEAR. I'M EXCITED TO SEE WHO'S COMING TO THE BIG EVENTS.

If you don't have a lot of experience at Mazda Raceway Laguna Seca, be sure to check out two features in this issue.

"One Lap Around" will help you learn the finer points of getting around the track quickly. "Motorsports Tourist" will help you find your way around town and figure out where to stay and where to eat. Monterey has a lot to offer in addition to a fantastic racetrack.

Site of our Eastern States Championships, Virginia International Raceway also has a long and rich history. VIR, might be one of the coolest tracks in the country to do a big NASA event. From the time of arrival, until departure, there is almost no reason to leave the track. There are three different levels of lodging right at the track. There's a rental go-kart track, rally course, drift course, shooting ranges, and of course the famous Connie's Pub. Oh yeah, and all that is just in case the world-class 3.27-mile road course isn't enough to keep you occupied for the weekend. There is a fantastic mix of low speed, high speed, and technical sections, good elevation changes, and a monster straightaway. All this with a huge paved paddock make for a great experience coming to VIR.

For all those coming to our big events this year, I wish you the best of luck. I can't wait to see the show you all put on. And for those of you who are not coming, I hope you follow your friends along their journey to becoming a NASA Champion while you make plans to join us at a future NASA Championships event. See you at the track! SN

Talent Versus Skill



BY GARY FAULES
NASA DIRECTOR OF MENTORING

How many times have you heard someone say, “Oh, that guy’s a natural.” Well, is he, or has he simply been given awesome instruction? Years ago my Olympic shooting coach told me how he enjoyed getting students who had little or no experience versus those who had been learning bad habits, and thought they knew what they were doing. We spent hours discussing how the latter would say things like, “Well, that doesn’t feel right to me,” or “That’s not the way I do it,” or “That’s not what my last coach taught me.” On the other hand, students who were “blank slates,” when given good instruction, progressed quicker and with better results.

Recently a good friend asked me the difference between skill versus talent when speaking of racing cars and how to make the most of each. It’s important to remember a talent occurs only in a limited number of people. A skill can be acquired by anyone who has the capacity, potential and willingness to learn. This is where NASA comes in. That’s not to say there are no talented NASA drivers. Quite the contrary. It’s because of the plethora of talent within NASA’s ranks, from years of racing and instruction that so many people have been able to benefit and learn, thus creating even more great drivers.

Talent is somewhat rare. Some people have it and others do not, but talent can be developed and improved over time with instruction and training. Consistent improvement of any ability or craft provides an advantage for any individual. This also can be said about a skill. Unlike a talent, a skill is an ability that is learned and practiced for a period of time. A skill is an acquired or obtained ability, which often is the result of constant performance and improvement on a particular task.

Having instructed and observed many student drivers over the years, I find it interesting that I can see the difference between talent and skill in a student driver’s ability to perform well on the track. It’s easy to see who has talent, but even a talented driver cannot perform until after he or she has been given proper instruction and training. However, with proper instruction and training, even someone without natural talent also can become a great performer.

EVEN A TALENTED DRIVER CANNOT PERFORM UNTIL AFTER HE OR SHE HAS BEEN GIVEN PROPER INSTRUCTION AND TRAINING.

NASA can assist drivers using skill or talent to help them achieve success and fulfill a life goal. Skill is no substitute for talent, nor is a talent a substitute for skill. Like anything else, a skill requires instruction, time, training and practice to actually learn. The training involved in developing a skill, such as performing well in a racecar also can result in positive attributes, such as hard work, perseverance, dedication and excellence.

We know people are born with different tendencies and traits, but that knowledge is still largely academic. Schools do not distinguish us by our natural talents. In the eyes of the education system, we are all equals, blank slates whom are judged by and rewarded for our hard work. Something I love about NASA is that the instructors are some of the best around, all of whom have been racing long enough to know what’s lacking in each new driver and can fix what’s broken or lacking faster than most other racing organizations.

One of the most beautiful things to watch is when you see a student driver who has skill and talent at the moment when they “get it.” The instructor teaches, the student listens, and then works at it until that magic moment when the switch flips and the student becomes the teacher. SN

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BRETT BECKER
EDITOR

Piecing it all Together

Before I started working on Speed News, I worked for a couple of publishing companies that produced titles on everything from women's golf to wakeboarding. Upon learning what I did for a living, people often would ask, "What does a magazine editor do every day?"

A colleague of mine at one of those publishing companies would tell the people asking to hold out their hands, palms up, and close their eyes. At that point he'd take a magazine, put it in their hands and tell them to open their eyes, saying, "That's what I do every day."

I suppose that was a clever way to respond to the question, but I was never convinced that it answered the question. So, in the space I have here, I'll try to explain how a magazine comes together.

Briefly put, it comes together in pieces. Lots and lots of pieces.

Because Speed News is digital, we're working on a given month's issue the month before. Not printing "the book," as we call it, saves us about two to three weeks time. Usually around the first of the month, I go to the editorial calendar, which is planned a year in advance, and start filling in the "run sheet" for the coming issue. If I have assigned writers properly, their features usually begin to arrive in my inbox around that time, too.

When you look at Speed News, realize that every letter you see represents a keystroke. Every photo involves coordinating with a photographer or a Regional Director or a Series Leader. Some photos involve travel to get the shot. Some involve digging into our archives. "I know I have a shot of that car from Road America … somewhere." Every headline has to be written — and sometimes rewritten. Every piece of quoted material results from an interview, either in person or by phone. Every interview recording needs to be transcribed. I have tried dictation software, but none of works well enough to save me any time. Maybe someday. Every story, caption and headline has been read, edited and proofread several times over to make sure they say what they're supposed to say. And that's just the editorial side.

All those photos don't just install themselves attractively on the pages for you to read. Our art director Ashley Horne has to pull the copy, captions, photos, videos and graphics from a shared online server and lay them out using the Adobe software InDesign. She makes corrections in PhotoShop to ensure each photo looks its best. The quality of her layouts and photo work often surprise even me. She's that good.

The run sheet I mentioned is nothing more than a spreadsheet hosted on Google docs. I fill in all the boxes so that Ashley knows what stories go where and what each department will be covering that month. Once I have it all filled in, we go over it by phone. Then we take that "punch list" and start plugging away at it. When I turn in a story and photos, I mark it on the run sheet and move on to prepare the next one for layout.

I try to knock out the features first, then start tackling the "departments," which appear each month. All the while, the Regional Directors and Series Leaders are sending in race reports from around the country. I really enjoy seeing lots of regional reports in Speed News, because the magazine really is for you and about you, the NASA member.

Naturally, there are always the little "fire drills" in the production process. Missing photos. Things I forgot. Things that come up at the last second. As stressing as they can be, they're part of the process, as is writing this column. It's always the most pleasurable yet difficult thing to write in the whole issue, and now that it's done, it's time to move on to the next item on the run sheet. That's what a magazine editor does every day. SN

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Dave Martis
K&N Engineering American Iron Ford Mustang
Track Record, Laguna Seca AI 2014 (Driver Ryan Walton)

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SHUTTER SPEED





The Calm Before the Storm

The stillness of dawn at Virginia International Raceway gives no indication of the melee that is about to take place. NASA Mid-Atlantic's annual HyperFest changed venues for 2015 to VIR, and the event hasn't missed a step in the transition. VIR also will be the location for the 2015 Eastern States Championships in September, but we're getting ahead of ourselves. For all the action from HyperFest, see Speed News' coverage, beginning on Page 58.

PHOTO BY CHRIS SCHUTZE/ FINISHLINEPRODUCTIONS.NET

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K&N Engineering's road race-prepped Mustang initially was intended for other purposes.



COVER PHOTO
By Sam Wang



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SHUTTER SPEED









Must Be HyperFest

If a black Monster Energy Mustang and an Infiniti M45 are disappearing in a cloud of smoke in front of a crowd of people at a NASA event, it must be HyperFest. This year's event took place at VIR and the action on track and everywhere else certainly lived up to festival's reputation as "The Automotive Amusement Park." For all the action from HyperFest 2015, check out "A Change of Venue," on Page 58.

PHOTO BY CHRIS SCHUTZE/ FINISHLINEPRODUCTIONS.NET

NASA's YouTube Channel Hosting "Survive the 25"

NASA's 25 Hours of Thunderhill presented by Hawk Performance is a long race — the longest closed-course race in North America. It's challenging. It's unpredictable. It's prestigious, even for the pros.

NASA's 25 Hours of Thunderhill presented by Hawk Performance has become a staple of endurance racing, drawing top competitors and teams from all around the world. The changing weather, the deep field of competitors and taxing track layout make the event especially exciting for teams, drivers and fans.

"Survive the 25" is a documentary that chronicles the struggles and triumphs of four teams as they battle through the 2014 NASA 25 Hours of Thunderhill presented by Hawk Performance. The show originally aired on MavTV June 2 at 5 p.m. EST. The teams featured in the show include Davidson Racing, Crowd Strike-One Motorsports, SP Racing, and JFC Racing.

If you happened to miss the original and subsequent television airings in June, NASA also will be hosting the show on its YouTube channel here: https://www.youtube.com/watch?v=Lokmojcy3sE .SN





Soundstream and Precision Power Partners With USTCC

Audio-visual giants Soundstream and Precision Power will partner with the Nitto Tires U.S. Touring Car Championship for the 2015 season beginning with round two taking place in Salt Lake City, Utah. This event is part of the big weekend hosted by Lucas Oil Off Road Racing and will take place at the Miller Motorsports Park on June 20-21, 2015. Soundstream will provide prizes for the Soundstream Award at every race this season.

Soundstream has been the leader in mobile audio engineering and performance for the past 20 years.

Precision Power's engineering prowess has set new standards in the automotive electronics industry. By applying new technologies like SMT production techniques, advanced board topology and premium grade output devices it has provided the best-in-class sound quality at reasonable retail prices. Both brands are recognized worldwide as a leader in the audio/visual world for automotive electronics.

Soundstream Technologies and Precision Power both operate under the umbrella of Epsilon Electronics Inc., and specializes in the automotive electronics audio/visual industry. Dating back more than 30 years, Epsilon Electronics, Inc. has been a pioneer in the audio world, with visionary products for the home and vehicle. With a foundation established in 1983, Epsilon has a history rich in this arena, specializing in the automotive audio industry. In 1996 Epsilon became only the second U.S.-based manufacturer to enter the automotive video category. SN



Winding Road Racing Named New Official Motorsports Equipment Supplier of NASA

NASA is thrilled to announce Winding Road Racing as the new official motorsports equipment supplier of NASA. Winding Road Racing is one of the leaders in motorsports equipment retail, offering a wide range of driver safety gear, performance components, setup tools and racing lifestyle products online at www.windingroadracing.com and trackside at many NASA events.

"Winding Road Racing has worked hard over the years to establish itself as a dominant force in the area of motorsports equipment and it will be great to have them on board to offer meaningful new programs to the NASA membership that each can truly benefit from!" said Jeremy Croiset, NASA Director of Business Development. "WRR has a fantastic reputation for excellent customer service in our industry, which will serve our members well. Much of their insight into motorsports is due to the fact that they themselves are racers in our Texas, California and Great Lakes regions."

Not only does Winding Road Racing offer all of the above, but it also builds racecars at its headquarters location in Austin, Texas. Many Winding Road Racing employees compete in sprint and endurance races each year. Car building and racing provide their staff with valuable first-hand expertise to assist customers.

"All of us at Winding Road Racing are proud to partner with NASA, which will allow us the opportunity to further connect with the racing community," said Thomas B. Martin II, owner and president of Winding Road Racing. "Through member benefits programs, including the Winding Road Racing contingency sponsorships, we can continue honoring the achievements of amateur racers, while supplying the gear racers need to go faster. We are excited to do so online, in our retail store and trackside at local and national NASA events."

For more information on Winding Road Racing or to order motorsports equipment, visit www.WindingRoadRacing.com or call 512-994-0656.



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SMART PHONES, SNAP HERE:

Ask National

Q Why doesn't NASA use a splitter person like other organizations?

A A splitter is a person that stands at pit-out and points the race cars either left or right, alternating, to tell them what side of the track they will start on. In the 1990s, NASA Executive Director Jerry Kunzman took two of the road racing groups to race at a small local circle track, where the regulars there just lined themselves up. Kunzman figured, "If they can figure it out, our guys can, too." There were no issues after the rule change to eliminate the splitter. In fact, it solved a few other problems, like cars dropping out on the pace lap.

Q Are passengers younger than 18 allowed in HPDE sessions?

A Typically the only time a minor is allowed as a passenger is when they are registered participant for that event and it is intended as part of their curriculum. The driver of the car should be their assigned instructor or group leader.

Sometimes regions will have off hours parade laps at special events. These are done at slow speeds without helmets and the entire family can enjoy a tour of the track.

NASA National staff? Send them to SpeedNewsEditor@drivenasa.com. SN

CLICK nasa TO WIN

Our NASA Speed News June "Click to Win" contest winner is John George, who won the OTC wire crimp tools featured on our "In Gear" pages in our April issue. Congratulations, George! To claim your prize, send an email to SpeedNewsEditor@ drivenasa.com. Don't miss your opportunity to win a set of OTC brake pin tools this month. Make sure you look through the "In Gear" pages and find the "Click to Win" icon and enter for your chance to win. This contest will continue for the next several issues, so enjoy the scavenger hunt and good luck!. SN

Big Cash Rewards in New Ford Performance Contingency Program

The National Auto Sport Association recently announced the Ford Performance Contingency Program for NASA competitors in 2015. The new program will provide fantastic cash awards to NASA competitors competing regionally and at either NASA Championships event. The program provides awards to competitors in the American Iron Series, Spec Iron, Super Touring, Performance Touring, and Super Unlimited classes.

Spec Iron competitors are eligible for up to $1,000 in cash awards for regional top-three finishes! Additionally, Spec Iron along with the other classes in the American Iron Series, Performance Touring, Super Touring, and Super Unlimited classes are eligible for $2,250 in cash awards for finishing in the top three of their respective Regional Championship. To sweeten the pot even further, Ford Performance will offer NASA competitors at either Championships event in these same classes the chance to collect $4,250 in additional cash awards!

"This new contingency program being offered by Ford Performance is extremely lucrative," said Jeremy Croiset, NASA Director of Business Development. "This program shows that Ford means business and is really putting its best foot forward to support the NASA membership."

The contingency program is available beginning immediately to all NASA competitors in these respective classes at each NASA regional and Championships events. For complete information on the contingency program, please visit http://www.nasaproracing.com/contingency. SN

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[GOPRO MOVE OF THE MONTH]

How this one escaped our eyes for so long is a mystery, but this is a great move by NASA Northeast racer Frank Ferrara. In the last round of racing at New Jersey Motorsports Park's Thunderbolt course in October 2014, Ferrara came up on a couple of cars dicing for position and attempting to get through traffic, when it all went wrong in Turn 3. Ferrara let the scene play out till the last second, then darted to the right of the spinning car, and picked up a position.



Do you have video of some great driving, crash footage, or awesome racing moves? Edit them down to less than a minute, upload them to YouTube and send the link to us. We'll pick the best of the best and publish it in Speed News for all your NASA friends to see. Email links to: *SpeedNewsEditor@drivenasa.com*



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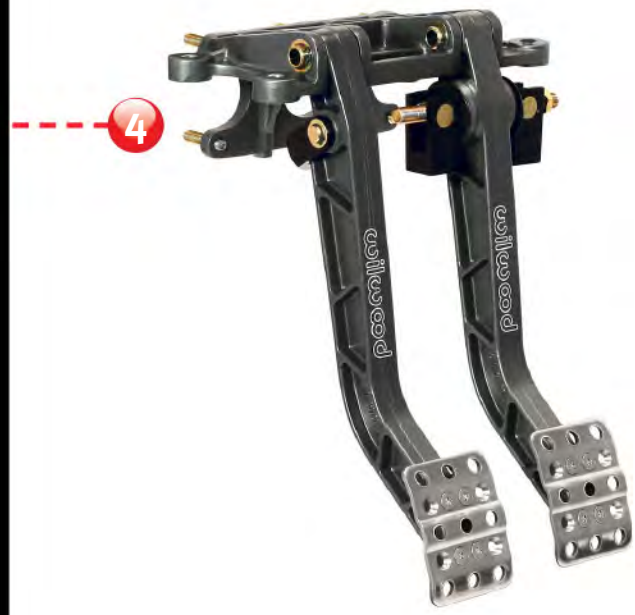
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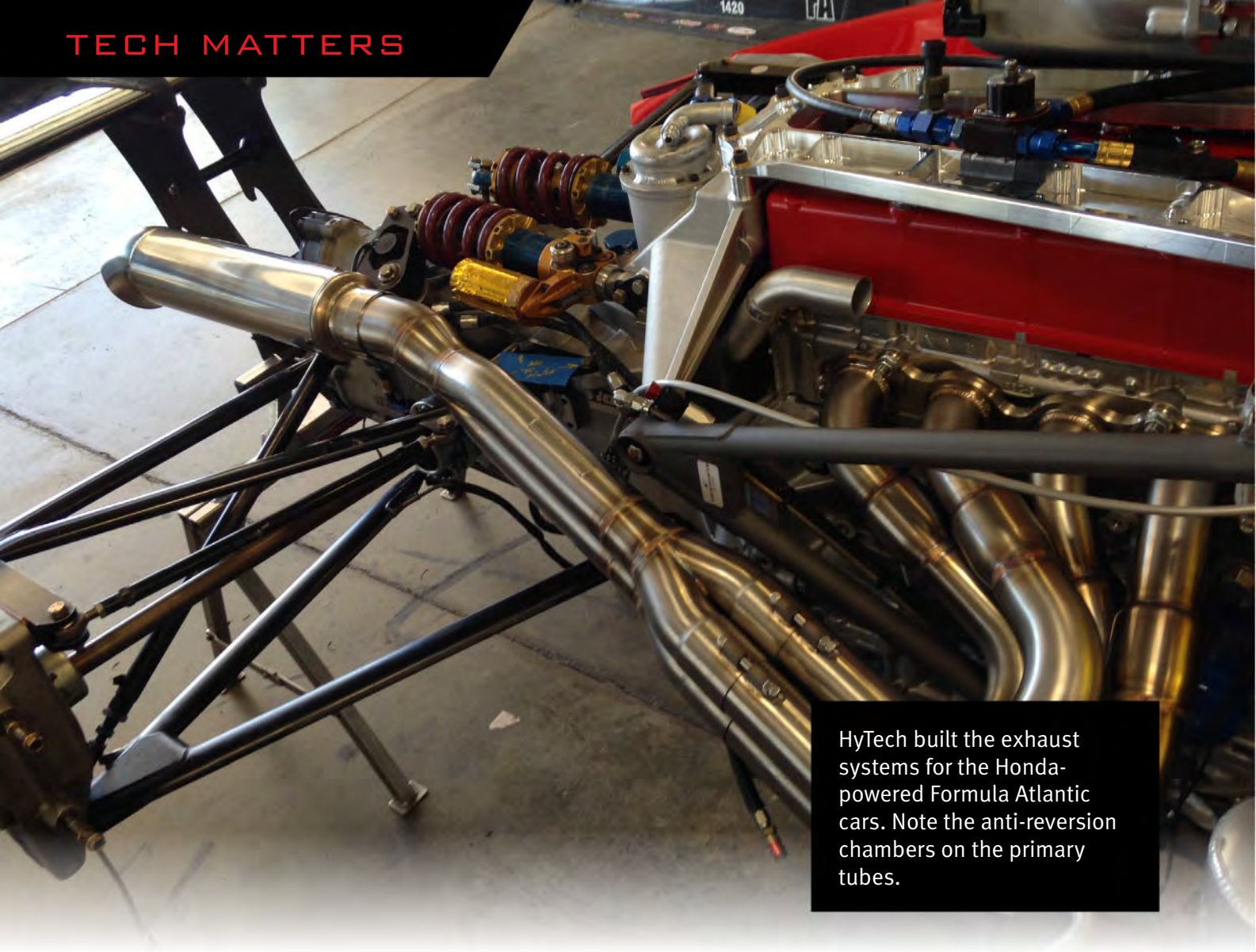
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MOTORSPORTS DEVELOPMENT

*Based on SCCA data as of April 1, 2013

mazdamotorsports.com



HyTech built the exhaust systems for the Honda-powered Formula Atlantic cars. Note the anti-reversion chambers on the primary tubes.

STORY BY BRETT BECKER
PHOTOS COURTESY OF HYTECH EXHAUST

THE ART OF SCAVENGING

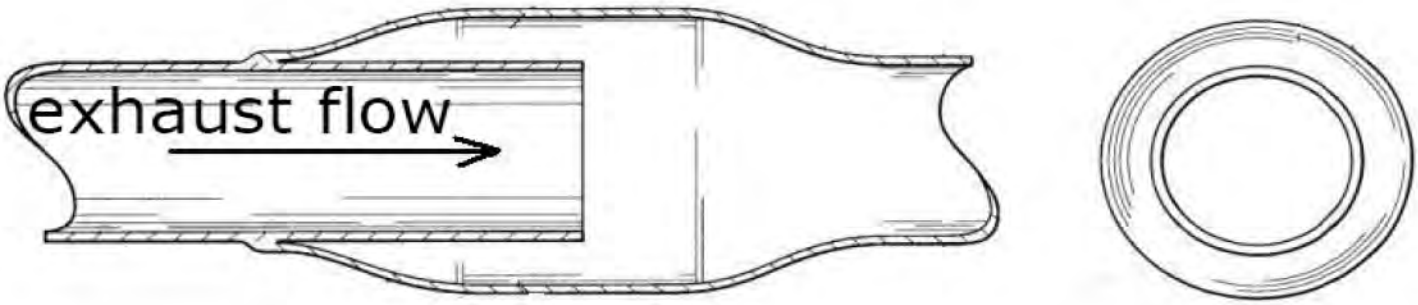
MYTHS AND METHODS OF GETTING BURNED GASES OUT OF AN ENGINE

For the longest time, the prevailing wisdom in the paddock with regard to exhaust was the bigger the pipe, the better. Bigger pipes let engines breathe better and, in turn, make more power.

That's not necessarily the case. To find out as much as we could about the dynamics of getting exhaust out of an engine, we spoke with John Grudynski, CEO of HyTech Exhaust in Irvine, Calif.

HyTech has been building exhaust headers and systems for more than 30 years, working with the likes of Honda Performance Development and Kia's Pirelli World Challenge racing team. The company also has worked in series as varied as Indy Car, sprint cars, Australian V8 Supercars, Formula Ford, Formula 2000 and Formula Atlantic.

Grudynski has a lot of experience in the industry, but he admits to the Socratic Paradox,



Anti-reversion Chamber

An anti-reversion chamber features a pipe that comes in from the engine side, and protrudes about an inch into the chamber, to act as a one-way valve.

that as much as he has learned throughout the years, there is still that much more that is still unknown.

"I think it's a black art, and that there are so many variables that we don't know how things work," Grudynski said. "We all have our theories and our ideas, but there's still a lot that happens that we don't know."

One of the reasons there are still so many unknowns that the characteristics of a header and exhaust are dynamic and changing. As the engine rpm changes, what the engine needs in terms of exhaust design also changes. The industry has theories, computer design programs and instrumentation to measure performance, but exhaust design still largely comes down to trial and error.

"I've seen the computer programs that design this stuff and most of them aren't close enough, in my opinion," Grudynski said. "We know what works for a Formula Ford because we've been doing those since the 1970s. So we know the header that works really well for those, but if you use the computer program, it's way off. It leads you in a bad direction. That tells me the programs are OK. They're generic. They still don't give you what the motor really likes, and really the only way to tell is through development. Build the stupid thing and build it where it's adjustable and then just throw it on the dyno and have at it."

It helps if you begin to look at engine exhaust as two elements instead of one. First, there are gases, the end result of the combustion of hydrocarbons. Second, and equally important is the sonic element of exhaust. The two elements have conflicting traits, which likely is one of the reasons exhaust technology is so difficult to pin down.

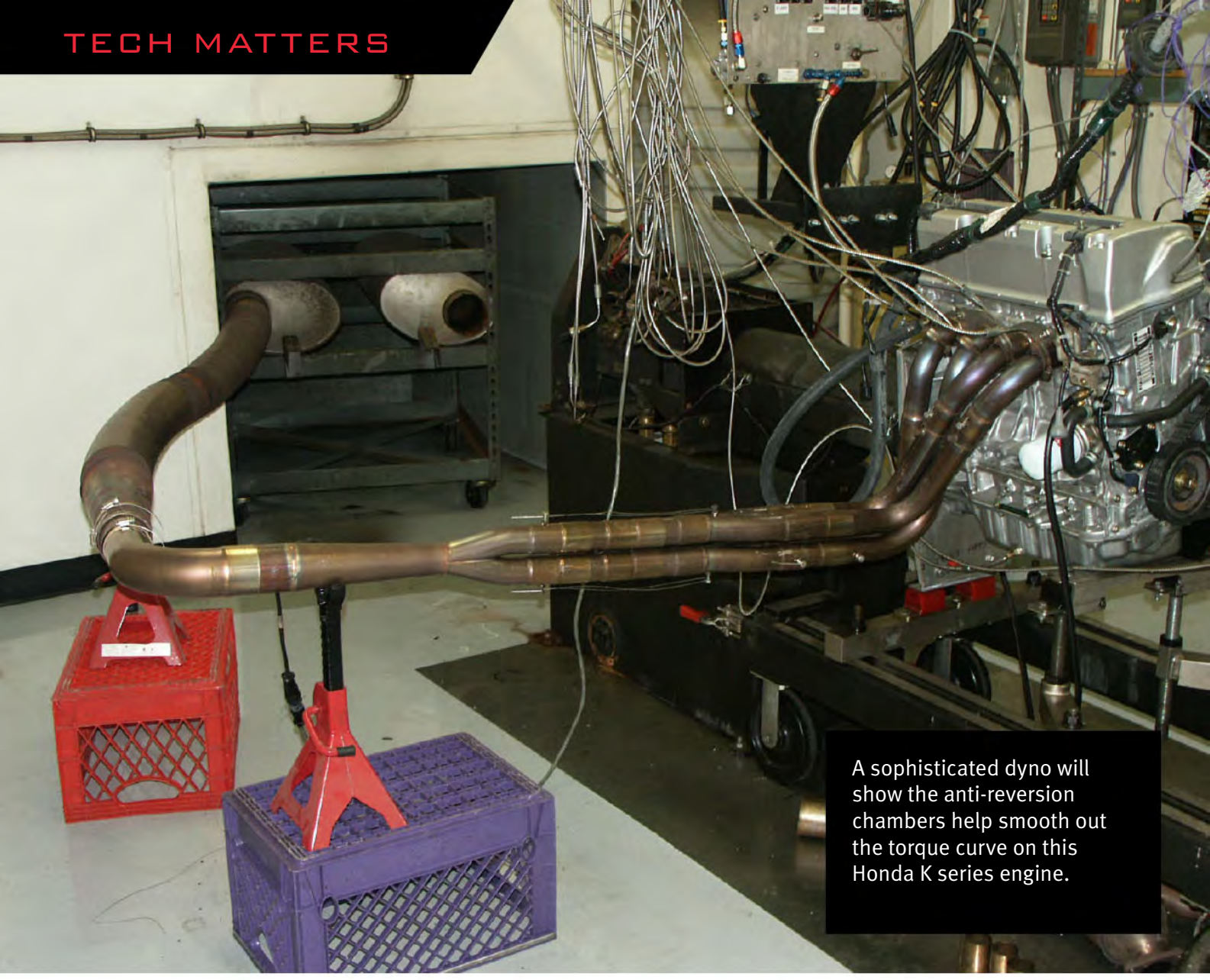
"You have the exhaust pulse, or wave, and then you have the exhaust slug of the particles," Grudynski said. "They travel a different speeds, because the exhaust pulses in a normal engine, they travel at about 300 feet per second, but the sound wave is traveling supersonic sometimes, so you have those waves playing against each other, and they are going back and forth over each other."

Another phenomenon within the exhaust system is what is known as reversion or a reversion wave. When the exhaust valve opens, a pressure pulse and wave are released. As soon as it hits the first opening, there is a reflecting wave, which is good because it aids in scavenging. But when the wave travels all the way to the collector, it comes all the way back in the form of a negative wave, which brings with it moving particles, inert and contaminated gases that cannot be burned again. That negative wave will travel back into the cylinder and it can actually make its way out through the intake manifold, which negatively affects the intake process.

To combat reversion, headers can be fitted with anti-reversion chambers. Early methods for controlling reversion were located in the header flange. Now they're most often located in the primary tubes. From the outside, they look like small bulges, but there is more to them than that.

"There are no moving parts. It's basically a chamber," Grudynski said. "The pipe that comes in from the motor sticks in about an inch, and the other one just gets butt-welded on and it's kind of like a one-way valve.

"It's kind of a misunderstood thing, and I don't get all of what happens," he continued. "I mean we try to figure this stuff out, but like I said, there's so much we don't know about what's going on



A sophisticated dyno will show the anti-reversion chambers help smooth out the torque curve on this Honda K series engine.

because it's constantly changing. It's not like it's steady state, where you could monitor all that stuff. It's just that with heat and temperature and speed, the gases are just doing crazy stuff. The chamber helps clean everything up."

Sophisticated dynos show that anti-reversion chambers help smooth out the torque curve. On the track, the car accelerates better, and on-off throttle modulation is much improved, which gives the driver a greater measure of control.

Another hot topic of debate is the collector, how it should be built, the diameter it should be, and so on. Grudynski spent years developing HyTech's collectors to the point where they now make all of them pretty much the same way. Rather than making them as big as possible, HyTech made the volume as small as possible without hurting power output. By stepping the collector down in size, you can keep the gas speed inside the collector higher. Collectors that are large for the sake of being large aren't necessarily better.

"That just kills the speed of the gases and that's what you don't want to do, because the faster you can make the gas move, without hurting it, it's going to scavenge better," Grudynski said.

Exhaust is often the last thing you think about when building an engine, but it's complex and it can add power if done right. When sourcing an exhaust system for your racecar, don't just go the "bigger is better" route. Turns out, there's a lot more going on in your exhaust system than you may be aware of. SN

RESOURCES:

www.hytechexhaust.com



HyTech also built the exhaust for a restored 1982 Gurney Eagle, which was driven by Dennis Firestone in the 1982 Indianapolis 500.

Finding the Limit

Q: *Is going "four off" necessary to learn the limits of my car?*

A: : Going four off is not necessary to do to find the limits of the car. All going four off is going to teach you is how to change that part you keep breaking faster. Going four off will develop bad habits, and a team owner will not like you for it when you get to the higher ranks.

The way to find the limit is to try rolling a lot of speed. If you notice you are pushing off, slow the car down, regroup, and try going a little slower the next lap. You can also think you are finding the limit, but you really could be running the wrong line. The best way to notice that is to turn in really late, get down to the bottom of the corner late and if you notice you have a lot of track out room, turn in earlier and earlier until you get the biggest arch with the most speed. The reason I say start with a late turn-in is because if you turn in early you will get big understeer at the exit that can possibly put you into a wall or off track.

When I show up to a brand-new track during an IMSA weekend, during the first practice I out-brake myself and the car without going four off. I will drive to the edge of the track, get the car slowed and make a mental note of where I began braking, the speed at which I went in, and how I approached the corner. I could have braked at the right spot and just turned in too early, so the next lap I brake at the same spot and turn in later.

You should never go four off to find the limit of a car. It's dangerous and isn't effective. Finding the limit can be done in many different ways, but going over the limit should only make you go to the edge of the track. Under the limit and over the limit is easy. Finding the limit is one of the hardest parts in racing. — Tyler Cooke

Tyler Cooke is a driving instructor with the Ford Performance Racing School and a professional racer in the IMSA Continental Tire SportsCar Challenge. SN



PHOTO BY CHRIS SCHUTZE/FINISHLINEPRODUCTIONS.NET

Finding the limit can be done in many different ways, but going over the limit should only make you go to the edge of the track.





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SEVEN POINTS ARE BETTER THAN FIVE

STORY AND PHOTOS BY ROB KRIDER

Racing harnesses meld the driver to the machine so the two can become one. The driver can use his or her arms and legs to give precise inputs into the vehicle as opposed to using those arms and legs to stay in the seat. A racing seat also can help with this process. Many NASA drivers in the Time Trial and HPDE ranks may not have racing seats, but would like the additional safety features of a harness system, as well as the melding component of those harnesses to help them drive the car. The problem is stock seats, designed for comfort and a three-point lap and shoulder belt, don't always allow for the proper placement of a harness system.

Understanding occupant kinematics and collision forces helps you appreciate the importance of a well-designed harness system and how important that system's installation is. With a racing seat, you have large holes for shoulder belts to pass through without any interference from a headrest. Racing seats have a hole in the proper position of the base of the seat for a submarine belt, so the occupant will not move forward during a frontal collision. Stock seats generally don't have these holes and so it is difficult to properly install a harness system. I have seen many people install a five-point system — two lap belts, two shoulder belts, one submarine belt — with a stock seat and the submarine belt is routed in front of the seat, far from the crotch of the driver. This placement of the submarine belt is incorrect per the instructions that come with



**7-point ›› ** Using a seven-point harness system allows the single forward belt keep the harness system correctly positioned on the lap while the shoulder harnesses are tightened. The second purpose is that the two rear attachment points of the three-point submarine belt will keep the driver from moving forward in a frontal collision. This is a great system to employ with any seat, racing or stock, but it pays bigger dividends with a stock seat, which doesn't have holes for the correct positioning of a submarine belt.

the harnesses. Other drivers have chosen to use a six-point system — two lap belts, two shoulder belts, two submarine belts — which connects the two-point sub belt behind the seat. This type of submarine belt is good for a formula car where the driver is in a laid back position but it doesn't work well for an upright stock seat. When the shoulder harnesses are tightened, the lap belt moves up to an improper position. With a lap belt too high up, a driver can be injured in a collision if the lap belt is running across the stomach, as opposed to the top of the thighs near the pelvic bone, a strong part of the body.

A solution for this problem, especially with a stock seat, is a seven-point system — two lap belts, two shoulder belts, three submarine belts. The three-point submarine belt has a single forward connection, like a five-point, and two rear connections, like a six-point, for combination that allows the best of both worlds. The forward belt ensures the lap belt is the correct position when the shoulder harnesses are tightened and the two rear belts keep the driver from moving forward in a frontal collision.

Autopower makes almost unlimited combinations of belt systems, giving racers the choice to pick and choose what sort of harness system they want, HANS shoulders, clip-in or bolt-in lap belts, three-point submarine belts, you name it. Autopower also will custom-build systems for specific applications. All Krider Racing vehicles use the seven-point harness system, even racecars that have full containment seats, based on the advantages of the three-point submarine belt. Most connecting systems are universal and you can upgrade your submarine belt without purchasing a whole new belt system.

If you have a harness system in your vehicle, especially one with a stock seat, take a good look at how your submarine belt connects to your lap belt and be honest with yourself: Is it the proper installation? Will it hold you in place in a crash? If the answer is "I'm not sure" then upgrade to a three-point submarine belt. Call Autopower and tell them you want the Krider Racing Special. SN

**Bolts ›› ** Pro-tip: When you are installing a set of lap belts in a production sedan, before you drill yet another hole through your floor pan, consider mounting the eye-bolt into the O.E.M. stock seatbelt mounting location. The threads on the eye-bolts from Autopower are the same as most seatbelt bolts. Using the O.E.M. bolt hole is a strong and tested location designed for the load.



**Cotter Pin ›› ** When installing clip-in seatbelts the first mistake made by racers is the failure to put a cotter pin in the clip-in mount. The cotter pin ensures the clip-in mount cannot fall off of the eye-bolt. NASA tech inspection officials find this oversight all the time while inspecting racecars.



**Eye Bolts ›› ** Here you can see we have installed our two rear position eyebolts for the placement of our three-point submarine belt. It is crucial to measure inside the interior and transversely also underneath the car to ensure a good location with room to install the washers and nuts before drilling through the floor pan.



**Gut Buster ›› ** Without a submarine belt, it is easy for the lap belt to move upward when the shoulder harnesses are tightened. This is a big problem because a belt in this position can cause serious injuries to the driver in a frontal collision. Anyone who has installed a harness system without using a submarine belt is at risk for making this mistake.



**Nice Fit ›› ** This what properly installed and positioned belts should look like. The lap belt lies across the correct part of the body. The three-point submarine belt will use the two rear mounts to keep the driver from moving forward in a frontal collision and the single forward mount of the three-point submarine belt keeps the lap belt in the correct location when the two shoulder straps are tightened.





**Not What You Think ›› ** This photograph is not what you think. We are not measuring the manhood of this driver. What we are showing here is that using a single sub belt with a stock seat means that your body can move 7 inches forward in a frontal impact before the submarine belt will do its job and smack you in the family jewels.



**Straps ›› ** Autopower is known for its massive catalogue of bolt-in and weld-in roll cages, but its safety equipment doesn't stop there. Autopower offers numerous configurations of harnesses, including a seven-point system with HANS shoulder belts as seen here. Autopower also will do custom orders, like this system, with red flaps to easily loosen belts and a three-point sub belt.

**Washer ›› ** These large washers help spread the load of a bolt through a floor pan. It is crucial that the washer lies flat. When a mounting hole is close to an obstacle you can use a grinder to take off some of the material to shorten the radius of the washer so you get a solid flat fit. Remember to use a lock washer or a Nylock nut to keep it from getting loose. We can cut off the excess thread to save weight.



**Wrong Position ›› ** A single sub belt system with a stock seat in a sedan doesn't work. Here you can see the sub belt is in the wrong position. Unless you are willing to cut a hole in the middle of the stock seat, this system will not work per the harness installation instructions.



SHARE RACE STREAM LIVE

NEW RacerConnect is bringing live-streaming to club racing events! RacerConnect offers a service called ***RaceCast!*** that enables drivers to broadcast video from their smartphone to the Internet. Your friends, family and fans will be able to watch the video stream sent from your car live on our event page.



RaceCast!

Easy To Get [Started | Setup] you can be live-streaming in less than 5 mins.
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STAYING SHARP

One thing that is difficult to do throughout a racing season is staying sharp between races. Usually your first race in a long time may take a few sessions to really regain your bearings and be able to drive your car to its limits. Not being able to test or run many races throughout the year has always been a struggle for me and for others. With track time being so precious, there are a few things you can do to keep your skills sharp to be ready for your next event.

I believe the number one thing you can do is spend time on a racing simulator between racing events. Whether it's a console game or a top-of-the-line simulator like iRacing.com, they can help you maintain your driving skill.

Practicing on the simulator a few times a week will absolutely keep your racing skills fresh in your mind. With track time and test days being so expensive, for the money you cannot beat a racing simulator. My favorite is iRacing.com. I believe it provides the most realistic racing simulation experience for the best price. With a wide range of cars available and great selection of tracks, iRacing really does a great job of making it as realistic as possible.

The tracks are laser scanned so developers can make the tracks feel as authentic as possible. Having driven on tracks in the game and in real life, I must say they do an amazing job simulating the real thing. For less than the price of a test day on the track, you can buy a very nice setup like a Logitech G27 steering wheel. The kit includes a force-feedback steering wheel that simulates the steering feel of a real racecar very well, giving you the feeling of understeer and driving on rumble strips. Throw in the H pattern shifter and gas, brake and clutch pedals for the money you can't beat a setup like this.

With a diverse selection of racecars like a Formula One car, NASCAR or an MX-5 Cup car, it really helps you practice different skill. For instance, driving a Formula One car will help you practice your reaction time by catching a loose racecar or an MX-5 Cup car will help you practice





BRETT BECKER

your consistency and driving a momentum racecar. Also to go with all this, racing side-by-side with other competitors online will help you practice your race craft as well.

Another way to stay sharp in between races is to visit your local indoor or outdoor karting track. There's no better way to practice your skills than to be behind the wheel of a racecar. So racing a go kart is absolutely the next best thing to give you the seat-of-the-pants feeling behind the wheel. Attending a kart track with friends or by yourself is a great way to maintain your race craft with there being a lot of wheel to wheel racing.

There are even a few ways you can practice your racing skills while driving a street car. A few things I love to do while driving every day is practice my left foot braking. I try to brake using only my left foot to make it feel instinctive to use my left foot to brake so it feels a lot more natural in my racecar.

One thing I felt was always hard to do in a racecar is left-foot brake, so practicing it every day will make it feel more natural. You will learn to brake with your left foot effectively, without thinking too hard about it, which would always ruin my concentration and my run out of the corner.

Also heel-and-toe downshifting is something I also practice every day and it helps me downshift as smoothly as possible, so when I hop into my racecar that is not something I have to relearn for a session or two.

Now, the best thing you can do to stay sharp between races is to test. Even though those tests might be very expensive, they may be worth it. Because not only do they keep you fresh as a driver, but you also can figure out if your car is not handling or driving well prior to a race weekend. Giving yourself time to fix any problems prior to a race weekend. — Kyle Loustaunau

Kyle Loustaunau is the winner of the 2014 Mazda Club Racer Shootout. He is currently racing professionally in the Battery Tender Mazda MX-5 Cup series.



NISSAN 370Z NISMO

PHOTOS COURTESY OF NISSAN

Before the Nissan GT-R was ever a glimmer in the eyes of designers and engineers, the company's flagship sports car was the Z. In terms of the number you see on the road — and on track — the Z is still Nissan's mainstay performance car, and the alpha male of the Z lineup is the 370Z NISMO.

We had a chance to sample one at Willow Springs International Raceway during the Motor Press Guild's "Track Days" testing program.

The top-shelf 370Z demonstrates the NISMO spirit: race-proven engineering that is attainable, and once you learn the base price of the NISMO Z, you realize it really is something a lot of people can afford. Redesigned for 2015, the 370Z NISMO is the manufacturer's attempt to balance the needs of street and track in one car. That's no easy task, but the NISMO Z hits pretty close to the bull's-eye on both fronts.

New for 2015, the NISMO Z is offered as a "Tech" model, which features a standard navigation system and an available seven-speed automatic. The automatic features a manual mode and paddle shifters on either side of the steering wheel.

On the outside, the NISMO Z is fitted aero bits inspired by the GT-R. They are designed to optimize front and rear downforce. The car also comes with new 19-inch super lightweight NISMO forged aluminum wheels, and they present a nice contrast to each of the four colors available on this car: pearl white, magnetic black, brilliant silver and solid red. The colors, aero bits and wheels clearly set this car apart from the garden variety Z, and the red accent stripes really drive the point home.

Inside, the NISMO Z is fitted with seats co-developed with Recaro exclusively for this car. The driver's seat is adjustable eight ways and there is four-way adjustment on the passenger side. Your HPDE instructor will have to make do with that.

Material choices are a step up from the standard model. The car comes with an Alcantara-wrapped steering wheel with a red band at the top to indicate on center. The tach is dead ahead of the wheel, with its lofty 7,400-rpm redline, and the classic three-gauge cluster at the center includes an oil temperature gauge,

SPECIFICATIONS	
Engine:	3.7-liter DOHC V6
Horsepower:	350 @ 7,400 rpm
Torque:	276 @ 5,200 rpm
Front suspension:	Double-wishbone aluminum control arms
Rear suspension:	Independent aluminum multi-link
Transmission:	Six-speed manual, seven-speed automatic with manual mode and paddle shifters
Rear axle ratio:	Manual, 3.92:1; Automatic, 3.69, limited slip standard
Curb Weight:	3,372 lbs.
Base MSRP:	$41,990

volt meter and a digital clock.

Under the hood, the NISMO Z comes with a 3.7-liter V6 engine with "variable valve event and lift control," which seems like a fifty-cent way to say variable valve timing. The power plant is rated at 350 horsepower at 7,400 rpm, and that's 18 horsepower more than a standard 370Z Coupe. Torque output is decent at 276 pound-feet, which peaks at 5,200 rpm.

For the first time, two transmission choices are available on a NISMO Z. For track duty, the six-speed manual is the way to go, and if you haven't yet mastered heel-toe downshifting, don't sweat it. The NISMO Z can do it for you.

According to Nissan literature, "The close-ratio 6-speed manual transmission features standard SynchroRev Match, the world's first synchronized downshift rev-matching manual transmission, which allows rev-matched heel-toe-like downshifting. The SynchroRev Match function automatically controls and adjusts engine speed when shifting to the speed of the next gear position, essentially 'blipping' the throttle to smooth out any up/down shifts. This not only allows the driver to focus more on braking and steering, it improves the smoothness of gear shifts by reducing the typical 'shock' when the clutch is engaged. The system can be deactivated with a button next to the shifter for drivers who prefer to shift on their own."







There is also a newly available seven-speed automatic with downshift rev matching, adaptive shift control and manual shift mode with paddle shifters.

During the "Track Days" event, manufacturers can be pretty protective of their cars. Just ask the Ford guys why. They left with their test Mustang on a flatbed. As such, the cars are turned loose with all the electronic nannies on in full. NASA Director of Business Development, Jeremy Croiset, who built the first Spec Z in the country, took the NISMO Z for a spin.

"It was really hard to gauge true balance because you can't disable the stability control. Took a lot of the fun away from the car," Croiset said. "You can turn the traction control off and it will let you hang the tail out quite a ways. It likes to get sideways on throttle. It makes good power, and it has good brakes, but they are a little easy to overpower."

Starting at $41,990, the 370 NISMO Z is a veritable bargain. In the market for cars that can do double duty on the street and the track, it's certainly worth a look. — Brett Becker SN

ON A MISSION

STORY BY GREGG MANSFIELD

Joe Gaffey remembers the first time he met Matt Powers, who had come into his performance shop in Northern California wearing a sport coat, jeans and a bowtie.

It was attire that Gaffey had rarely, if ever, seen in his Performance Technic shop, especially since Powers was in his early 20s.

"If you're going to wear a bow tie, you have to really wear it and own it," Gaffey said with a laugh. "I thought he was about six years older than he actually was just by the way he carried himself. His confidence – just personally and later in the car – all goes together."

Gaffey would later recruit Powers to run racecars at special events and to coach some of the customers for the Dublin, Calif., BMW service and performance shop. It's a decision that has paid dividends and helped showcase Powers' skills in his quest to become a professional driver.

The 24-year-old took a big step in May when he won the inaugural Mazda Race of NASA Champions at Mazda Raceway Laguna Seca. Powers won it on the last lap, piloting his Mazda MX-5 past Corey Rueth of Manchaca, Texas, to become the first NASA Grand Champion. The victory earned him an invite to the Mazda Club Racer Shootout in November. Earning a full-time ride would be a dream come true for Powers, who has been racing since age 10.

"It's kind of what I hoped and dreamed, but didn't quite respect when I was younger," said Powers who lives in San Rafael and races in NASA's Northern California region. "Now I have a lot



NASA GRAND CHAMPION MATT POWERS HAS A MASTER PLAN TO BECOME A PROFESSIONAL RACECAR DRIVER

PHOTO BY BRETT BECKER



HEADONPHOTOS.NET

Powers won the Western States Championship in GTS4 in his E46 M3.

more respect for the process and understanding how big it really is."

Few drivers chasing the dream are going to outwork Powers, who is a full-time engineer for a civil construction firm and simultaneously pursuing a college degree.

"It's a good career if I didn't want to keep pursuing racing," Power said, later adding, "I think an engineering degree behind the driver is hugely beneficial."

Powers credits his late father, Michael, for getting him into auto racing at a young age. They attended an auto show in San Francisco where his father found a flier for a kart racing school.

"I was like, 'It's not really for me, Dad. I like watching racing but I don't think I really want to run a kart,'" Powers recalls.

Powers' father surprised him with a kart for his birthday and he was quickly hooked. He spent those summers racing in the Bay Area and as Powers got older, he started competing at kart events around the country. Powers also raced some kart events in Europe, where the field of racers was much deeper.

The highlight came in 2009 at Daytona Kart Week in the middle of the Daytona Speedway, where he found himself competing against NASCAR star Jimmie Johnson and the late IndyCar driver Dan Wheldon. Powers, then 18, finished third and the strong showing was the confidence boost he needed.

"I felt like all of sudden I can get into anything and I can win," he said. "I think that might have been a little soon, but it really gave me a lot of confidence to begin pushing."

The father-and-son duo stepped it up the following year, self-funding a formula car ride on the USF2000 National Championship series. Powers' first race was on the legendary street course in St. Petersburg, Fla., and competing on the same weekend as the IndyCars. His best finish was eighth place over the weekend, more than a minute off the leader.

Powers went on to race in other USF2000 races, netting a fourth-place finish at the Autobahn course in Joliet, Ill. It was an incredible learning experience for Powers, who had little trouble moving from 60-mph karts to a 115-mph formula car. Looking back on the experience, Powers did have one regret.

"I didn't see how much I needed to network," he said. "I didn't understand. I was engulfed with the environment, not with the understanding how to keep pressing and making connections that could last."

Just when the racing was on an upward trajectory for Powers, tragedy struck his family. The elder Powers was diagnosed with Stage 4 melanoma in 2011. Michael Powers died within a month.

"It was a bit of a shock," Matt said. "We talked about it during the time he was diagnosed and what an awesome year we

Powers was one of 20 NASA drivers to compete in the inaugural Mazda Race of NASA Champions.

got to experience together."

The death of his father hit Powers hard, but he also realized that he needed a college education in case his first career choice didn't work out. Powers focused on getting a job and started college while car racing took a backseat for the next two years.

Kart racing kept his skills sharp, but Powers wanted to get back into a car. That's when he approached Gaffey, founder and managing partner of Performance Technic, about possibly doing some coaching. Gaffey knew that Powers was a good driver but had not seen him in action.

Powers took Gaffey out on the track in one of Performance Technic's cars and Gaffey was an instant fan. Gaffey says he looks for speed, talent and the ability to convey clearly what the car is doing to the tech and engineers in potential drivers.

"I was just amazed at how smooth he was for how fast he was going," Gaffey said. "He almost had this raw, almost instinctive talent for driving."

Powers moved into the lead driving/coaching role for Performance Technic and Powers dominated nearly every race they entered.

"He was like one of those kids when you are on the slopes skiing, and they go flying by you with no poles and all they've got is a helmet on," Gaffey said. "That was Matt Powers. He had no fear at all. That's what I think makes him so fast."

Powers quickly adapted to his new role as a coach, working with drivers who have race cars that are supported by Performance Technic. One of those students is Shaun Webster, who races a Spec E46 built by the performance shop. Webster said Powers taught him the capability of the car and the mental preparation needed to compete during a race weekend.

Working with Powers over the past year, Webster has shaved more than 4 seconds off his lap times, but notes that his coach is still 2 seconds faster.

"Matt has made me better as a driver and helped me realize the car is capable of more than I realized," said Webster, a mechanical engineer. "He's instilled a



BRETT BECKER



Powers' racing career took a big leap when he entered the USF2000 Racing Championship series.

PHOTO COURTESY OF MATT POWERS

confidence that I can go through a corner at a certain speed."

Webster and Powers have embraced data analysis, a tool Powers got a crash course in when racing a formula car on USF2000 National Championship circuit. Using the powerful software, Webster can compare laps to those run by his coach on the same track. Powers' approach is to look at small sections of the track where Webster can reduce braking, take a better angle into a turn and improve acceleration.

"Matt's very analytical like an engineer and I'm an engineer," Webster said. "He's also positive and very patient. His knowledge on cars and car setup is incredible."

Powers applies the same analytical approach and preparedness to his own driving on the racecourse. Last year Powers won the 2014 NASA Western States Championship in GTS4 in his BMW M3, even though he hadn't competed at the Sonoma Raceway in six years.

Practicing two hours a day on a simulator and studying video of other drivers running the Sonoma track, Powers said the race "turned out like I had run the track yesterday." Powers credits the simulator time for helping him win the first NASA event he entered.

"It goes back to seat time. Any seat time is good seat time," he said. "They aren't equal all the time but simulator driving is … if you really focus on it, you can gain a lot."

Powers also emphasizes physical fitness and the importance of being in shape for the heat and demands on the track. He wants to have enough energy for the last few laps, where he earned victories in the Western States Championships and the Mazda Race of NASA Champions.

Powers does bicycling and cross fit to maintain his endurance, paying special focus on his neck strength. Healthy eating also is a big part of his regimen, since his mother is a nutritionist.

"There is no sense spending all that time and money on being in a car when at the end of the race you can't put it to use because your body is fatigued and your mind is no longer thinking about the task at hand," he said.

Powers' focus for now — in addition to a full-time job and college studies — is to qualify as a finalist for the Mazda Club Racer Shootout in December. As a semifinalist, he must submit a business proposal, which is judged by outside experts, to be selected for the Shootout. If he is picked for the Shootout, Powers will compete with a handful of other drivers at the single-day, winner-take-all event. The drivers are not only judged by their fastest lap speed, but they are rated in more than 10 categories including technical feedback, ability to analyze track data, PR skills and speed and consistency.

The purpose of the Mazda program is to provide drivers with the insight needed to develop business partners for a successful season in higher-level competition.

"My experiences after racing USF2000 gave me a real picture of what I need to do," Powers said. "I realized what

dedication really means to make something like this happen."

Gaffey is among those who will be rooting for Powers in the Shootout, calling the 24-year-old driver the complete package on and off the racecourse. Gaffey said if he could afford to field a team, Powers would be at the top of the list as his driver.

"Because I don't have the ability to fund a team, I try to expose him to as many people that are in the same hobby and keep him networking," Gaffey said. "We want to keep him in the cars so he can stay sharp on his skills, but also meet a lot of people and any opportunity that might come from that."

Webster will also be cheering on his coach in his quest to become a professional driver.

"Matt's entire life is trying to become a pro racer. He's more dedicated than most racers," Webster said. "He's the whole package. Hopefully this is the break that he needs." SN

Powers (middle) bested Jeremy Croiset (left) and Corey Rueth to become NASA's inaugural Grand Champion.



BRETT BECKER



COURTESY OF MATT POWERS



COURTESY OF MATT POWERS

POWERFUL ADVICE

Matt Powers, winner of the Mazda Race of NASA Champions, serves as a coach for Performance Technic Inc., a shop in Northern California. These are some of his tips for maximum performance on race weekend.

VIRTUAL PRACTICE

Buy a simulator and spend at least an hour a day driving on the track where you'll be racing. If a simulator isn't in the budget, watch YouTube videos and pay special attention to the driver's technique.

STAY FIT

Races aren't won on the first lap. That's why endurance is important. Lots of cardio weekly with a mix of weights will keep the skills sharp, especially in the chase for the checkered flag.

READY TO GO

The car should be ready to run when you arrive at the track. Wrenching on the car (except for minor adjustments) can zap a driver of precious energy.

EAT SMART

Food trucks at the track are tempting, but a healthy meal (chicken salad) and snacks should be on the menu during race weekend. Stay hydrated and limit sugary sport drinks (unless they are a sponsor, then drink away).

TRUST THE DATA

Analyze the data and make adjustments after each trip on the track. Small changes can often be the difference between the podium and chasing the pack.

NETWORK

Even if you aren't chasing the dream of professional racing, get out and meet company reps and the crew members from other teams. You might pick up a sponsor or pick up some major car knowledge. — G.M.

ONE LAP AROUND
MAZDA RACEWAY LAGUNA SECA

STORY BY GARY SHEEHAN
PHOTOS COURTESY OF MAZDA RACEWAY LAGUNA SECA

I am lucky to live in the San Francisco Bay Area. We have four major racetracks within a three-and-a-half-hour drive, with nine major tracks within a nine-hour tow. But Mazda Raceway Laguna Seca is special. There is so much history here it is almost palpable.

The circuit itself is a thrill ride, with massive elevation changes that make for a challenging track to drive at the limit. Blind corners, blind crests, steep drop-offs, off camber high-speed sweepers, this track has it all!

To talk about running a fast lap around Mazda Raceway, we need to go back to the last corner of the previous lap. A fast lap here starts before you get to Turn 11. drop-offs, off camber high-speed sweepers, this track has it all!

TRACK DATA - GENERAL	
LENGTH:	2.238 miles
DIRECTION:	Counterclockwise
TURNS:	11 (six left, four right, one ess)
ELEVATION RANGE:	929 ft. – 749 ft.
TRACK WIDTH RANGE:	50 ft. – 30 ft.

TURN BANKING			
TURN	TURN-IN	APEX	EXIT
Turn 1:	3.3%	11.9%	2.8%
Turn 2:	4.4%	3.8%	1.9%
Turn 3:	2.8%	3.2%	0.5%
Turn 4:	2.2%	2.6%	1.5%
Turn 5:	2.1%	8.5%	11.3%
Turn 6:	6.8%	9.6%	3.8%
Turn 7:	-1.5%	1.6%	NA
Turn 8:	6.6%	12.6%	NA
Turn 8A:	NA	11.4%	NA
Turn 9:	12.5%	12.5%	2.1%
Turn 10:	6.0%	10.0%	10.0%
Turn 11:	2.0%	2.0%	2.0%

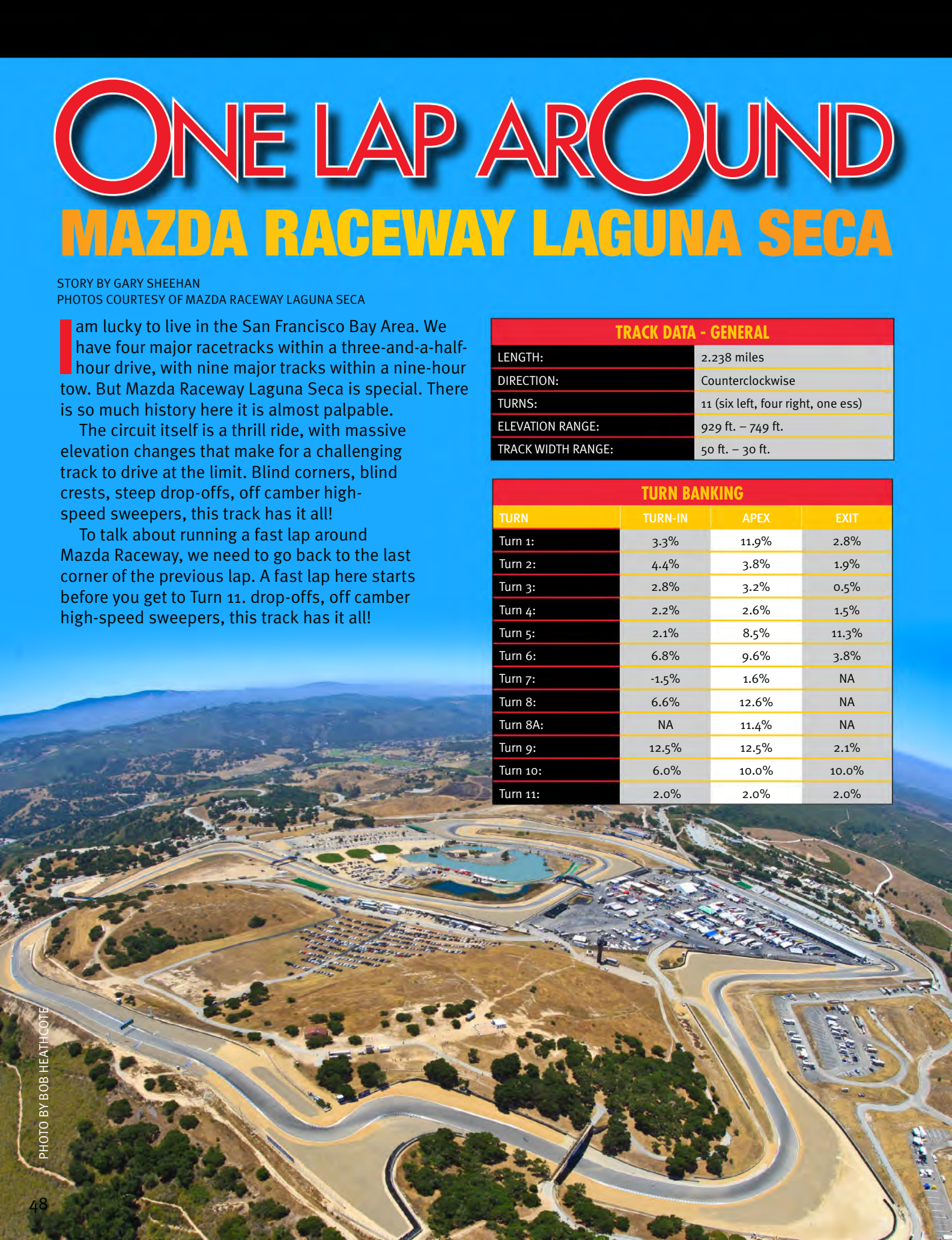


PHOTO BY BOB HEATHCOTE



TURN 11

This is a slow corner that eats fast laps for breakfast and spits out the remains of drivers' egos. It is easy to make a mistake here and ruin the lap you are on and the lap to come. If you are about to start a qualifying flyer, it is a good idea to sacrifice entry speed into this corner to get the car turned-in late and be on the throttle hard way before the apex to maximize exit speed and minimize the potential for a mistake as you come onto the longest straight on the track.



Turn 1 isn't much of a turn. Apex the kink just under the bridge, tight against the pit wall, then let the car come out to about half-track. More if you have a fast car.

TURN 1

As I bang through the gears and climb the hill leading up to the Start/Finish line, start to pull the car left to prepare for the slight kink before Turn 1. In a touring car, I apex the kink just under the bridge, tight against the pit wall, then let the car come out to about half-track. In a GT car and beyond, I let the car all the way to the right to provide the largest radius through Turn 1 as possible due to much higher speeds. At this point, all I can see is the track in front of me and clear blue sky. Just prior to the crest I start to pull the car to the left in preparation for the blind Turn 1 apex just on the other side of the hill as the track descends. The Turn 1 "apex" is alongside the pit-out lane at left, separated by cones and paint as they run parallel down the hill before splitting apart for the pit-out lane to bypass Turn 2. I let the car track out to the right to set the car up for the hard downhill braking zone into Turn 2.



TURN 2

Turn 2 is a double-apex corner that is a great passing zone. If I am unchallenged, I will trail-brake the car in deep, sacrificing the first apex a bit to keep a longer radius through the corner, giving me higher apex speed and a straighter shot out onto the short chute between turns 2 and 3 to carry more exit throttle. If I have a car badgering me, I come into the braking zone for Turn 2 around midtrack ready to defend to the left if needed, and tuck in tight to the first apex. Either way, I like to drive this corner with a long, constant radius center section, clipping the second part of Turn 2 late and ensuring a lot of room to unwind the steering wheel and squirt out of the turn using all of the exit curbing on the right. Most of the apex curbing and exit curbing at Mazda Raceway is flat and needs to be used to get the most out of the car.

TURN 3

Turn 3 is tricky because it beckons the driver to enter fast, but it is tighter than it appears on approach from Turn 2. I don't hustle the car to the left to bring the car across the track, but gradually bring it over diagonally from the exit of Turn 2 to the entrance of Turn 3. I start my braking on

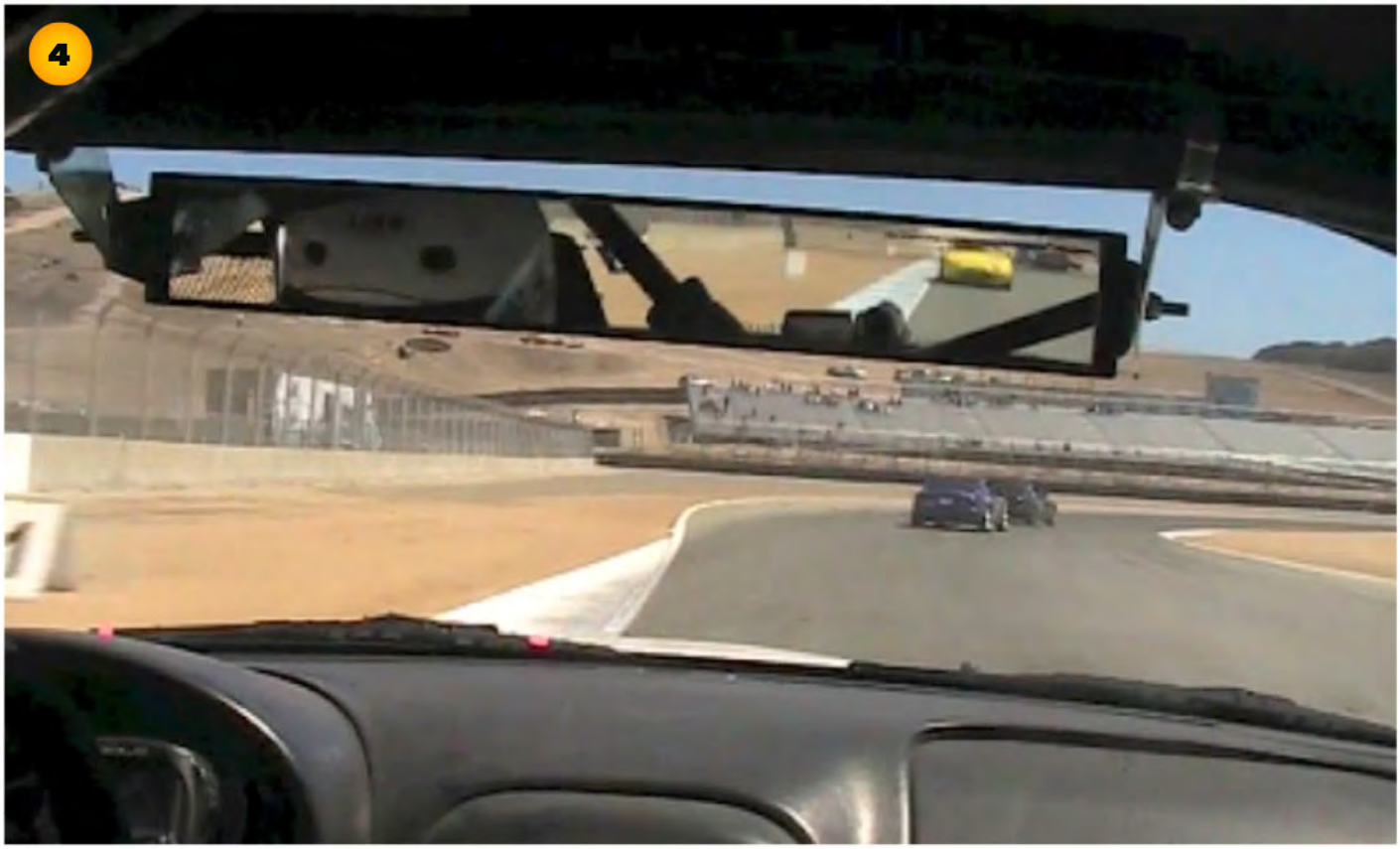


Turn 3 is tricky because it beckons the driver to enter fast, but it is tighter than it appears on approach from Turn 2.



DMT IMAGING

the diagonal, slowly ease in the steering late, and carry trail-braking deep into the corner, about halfway between turn-in and apex. I want to make sure I've got the nose pinned and have done most of my turning by this point, and have the car free to take a lot of throttle before the apex and make sure I have the right trajectory out of the corner. I use all the apex curbing on the right, right up to the red speed-bump that wants to rip off your right front wheel. Just prior to the apex, I'm unwinding the wheel, hard on the throttle and letting the rear tires steer the car around the corner with a bit more slip than the front. I let the car come all the way out to the very outside edge of the exit curbing, even hanging a bit of the tire off the edge.



TURN 4

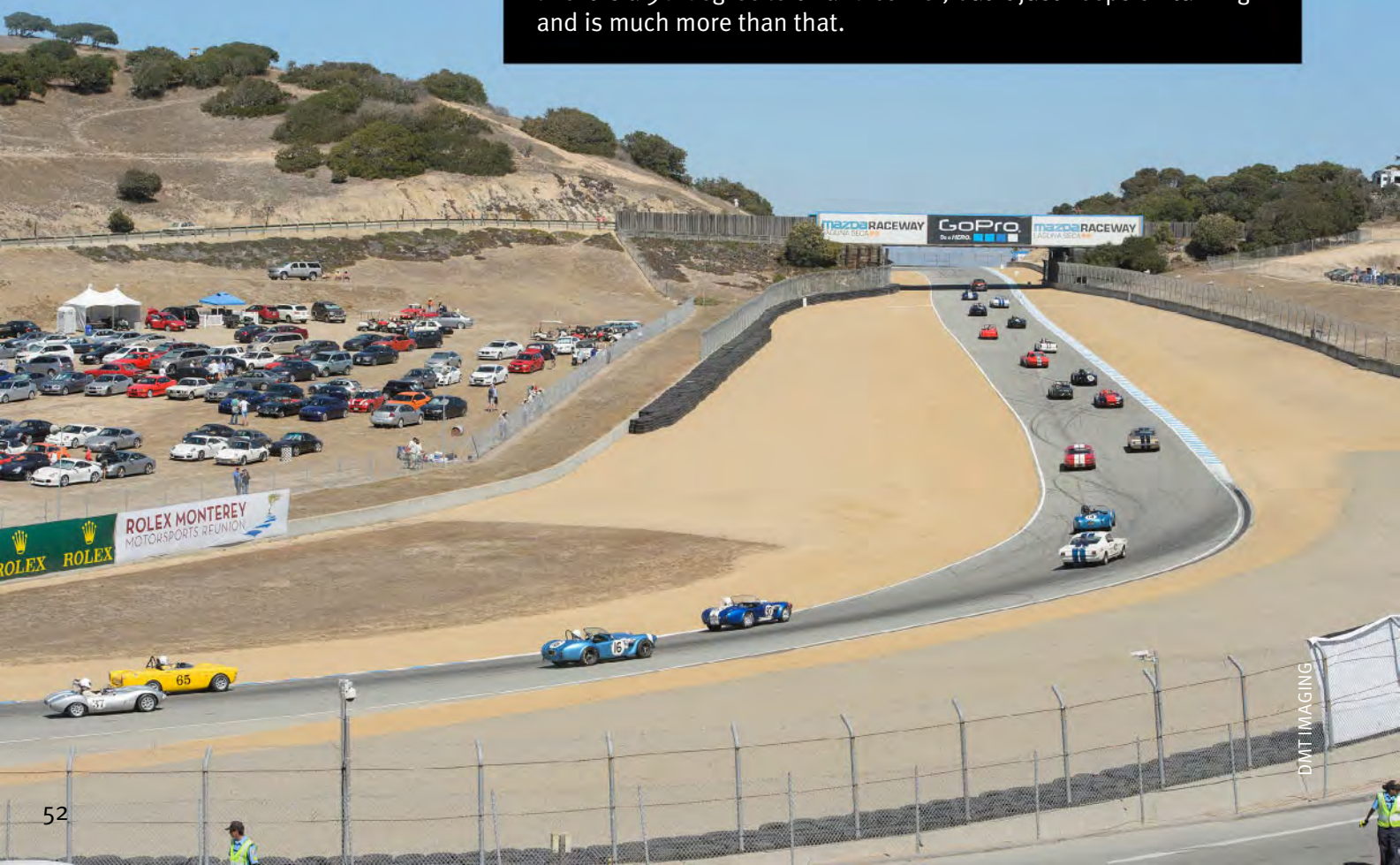
The exit curbing continues to the entrance of Turn 4, a fast right-hand sweeper. There is a lot of time to be made here if you can keep apex speed high and prevent understeer on exit. I come just off the curbing between turns 3 and 4, then get back on the curbing on the left to set up for Turn 4. I like to make this radius as large as possible to carry the most speed I can. I give a short lift off the throttle to plant the front tires and then initiate turn-in. I want to get my steering in quick while I'm off the throttle so the front end has bite, then immediately get back to full throttle and simultaneously unwind the wheel a bit. I am back to full throttle way before the apex with the car settled and on a trajectory that puts me all over the inside curb just shy of the red speed bump and carries me out all the way to the outside edge of the exit curbing, with tiny oversteer corrections with the steering wheel that let me keep my foot to the floor. This is one of the more exciting corners because the car is dancing at high speed right to the edge of the track and the reward is nice exit speed that will quickly gap someone behind.

TURN 5

Turn 5 is one of the trickiest corners at this track, because it looks like it is a 90-degree left-hand corner, but it just keeps on turning and is much more than that. There is a long entrance curb on the right and I put the right tires all the way on it with a few inches of safety margin as I begin my braking. This is a fast entry into a medium-speed corner, so getting my braking point right is critical. I trail brake about a third of the way into this corner, then slowly transition to throttle as I approach the apex. Again, all over the inside curb up to the red speed bump. For me, the trick to this corner is patience. It is easy to get on the throttle too hard and then run out of room at the exit as the track goes off camber as the car tracks out. Lifting here will kill exit speed and really hurt the run uphill to Turn 6. I slowly feed in throttle as I go past the apex, hugging the left side apex curbing a bit longer than typical, then roll into full throttle and let the car track out and get a little light at the exit, once again using all of the exit curbing. Beware of going a bit too far, though, because dropping a wheel or two here tends to suck the car off the track quickly and an ill-timed correction can send you across track and into the inside barrier.



Turn 5 is one of the trickiest corners at this track, because it looks like it is a 90-degree left-hand corner, but it just keeps on turning and is much more than that.



DMT IMAGING

TURN 6

As I climb the hill to Turn 6 and approach the bridge, I steel myself for what is to come. This is such a great turn. Blind crest, high speed, blind apex, high risk, and it all happens quickly. This turn more than many others demands perfect timing and precise car placement. Right at the bridge I start a very short braking zone and do a quick downshift. I don't trail brake this corner, but I trail throttle until just after I have initiated my turn-in, then I get right back to full throttle. Here is where the timing and precision comes in. When done right, the car is on a trajectory to take it just past the apex on the apex curbing without touching that nasty red speed bump. There is a lot of camber in the corner there, and it compresses the suspension and hooks the car around and spits it out toward the apex and over the exit curbing with no room to spare.



It is over so quickly, and done right, the car can carry a massive amount of speed up the hill. But if the timing or precision is off and the apex is missed, even by as little as a foot, the outside tires will be just outside that apex camber and there is nothing to help get the car around the corner. At that point the car has way too much speed to stay on the track without that help from the camber, and drastic measures must be taken to keep the car on the pavement or risk going off track on the right at a high rate of speed. Neither option is good and a lot of time will be lost in gathering up the car. The exit of Turn 6 is a mosaic of crisscrossing skid marks going from right to left that record journey of many cars making their way across the track to pay an unexpected visit to the inside barrier.

TURN 7 AND 8, THE CORKSCREW

As I resume breathing after Turn 6, I slowly ease the car to the left as I climb the steep hill up to the crown jewel of Mazda Raceway, the famous Corkscrew, which plummets down from the highest point of the track. For me, the Corkscrew is all about the entry into Turn 8. As I come up the hill and all I can see is sky, I put my left tires on the left curbing before initiating a gentle cross-over for Turn 7. I start braking just before the crest of the hill and put my right tires way onto the right curbing to open up the entry to Turn 8 as much as possible. As the car crests the hill, it gets very light and the car loses braking efficiency, so I'll let off the brakes just slightly to compensate until the weight comes back down. I initiate turn-in with relatively slow





steering wheel rate, but I keep adding in steering while trading off braking, trail braking all the way to the apex and onto the apex curbing. All of the action for me is from the crest of the hill to the apex of Turn 8, delicately balancing the car on the edge of oversteer while shedding speed and increasing cornering. Once I hit that apex, the excitement of the Corkscrew is essentially over for me. Once I am on the apex curbing, I straighten up the wheel, put in a bit of throttle and plunge straight off the precipice. Once the car noses over I put in a little bit of right steering and roll into full throttle. The right tires go over the 8A apex curbing and the car tracks out nearly all the way to the exit curbing.

TURN 9

Now it is time to confront what I think is the scariest corner on the track. Turn 9 is a downhill, left-hand, high-speed sweeper with a difficult and misleading entry that is tough to find solid reference points for. After exiting the Corkscrew, the hill flattens out a bit before dropping off again after turn-in. I set up for Turn 9 by bringing the car out to about two-thirds of the way to the right. Just as the track starts to drop away again I initiate a slow turn-in. At this point the apex of the corner is still far away and hidden behind the inside wall of the corner, so the trajectory in feels vague. I maintain constant throttle as the car comes around the corner.



About halfway through, the apex finally reveals itself. I make sure I get the car over on the apex curbing to give me the widest exit possible. Right at the apex I have progressively transitioned back to full throttle on the way to the exit, fighting for grip the entire way as I continue to plummet downhill. I tend get up to the exit curbing here but stay off of it to give myself a bit of safety margin.



TURN 10

There is no time to rest because the car is moving fast, and Turn 10 gets big really quickly. This turn can be deceptive because it is quite a bit faster than it looks while bombing down the hill. Right at the apex, the downhill transitions to flat, which will catch the car and allow a lot of apex speed. Plus, it looks like a 90-degree right, but it is quite a bit less. I have to hustle the car to the left to set up to brake for Turn 10. I stay off the entry curbing on the left because Turn 10 doesn't need all the entry radius to be fast, and the downhill makes it hard

to get the car all the way across the track to the apex because the car is light. I brake less than it looks like I should and downshift quickly, then turn-in off throttle, pick the throttle back up lightly and float speed into the apex. I pick up full throttle again before the apex, trusting the flattening of the track and physics to give the car more grip using all the curbing at the apex and avoiding the red speed bump. The tires bite and hook around the corner, taking full throttle and shooting the car out onto the rumble strips of the exit curbing with exhilarating velocity.



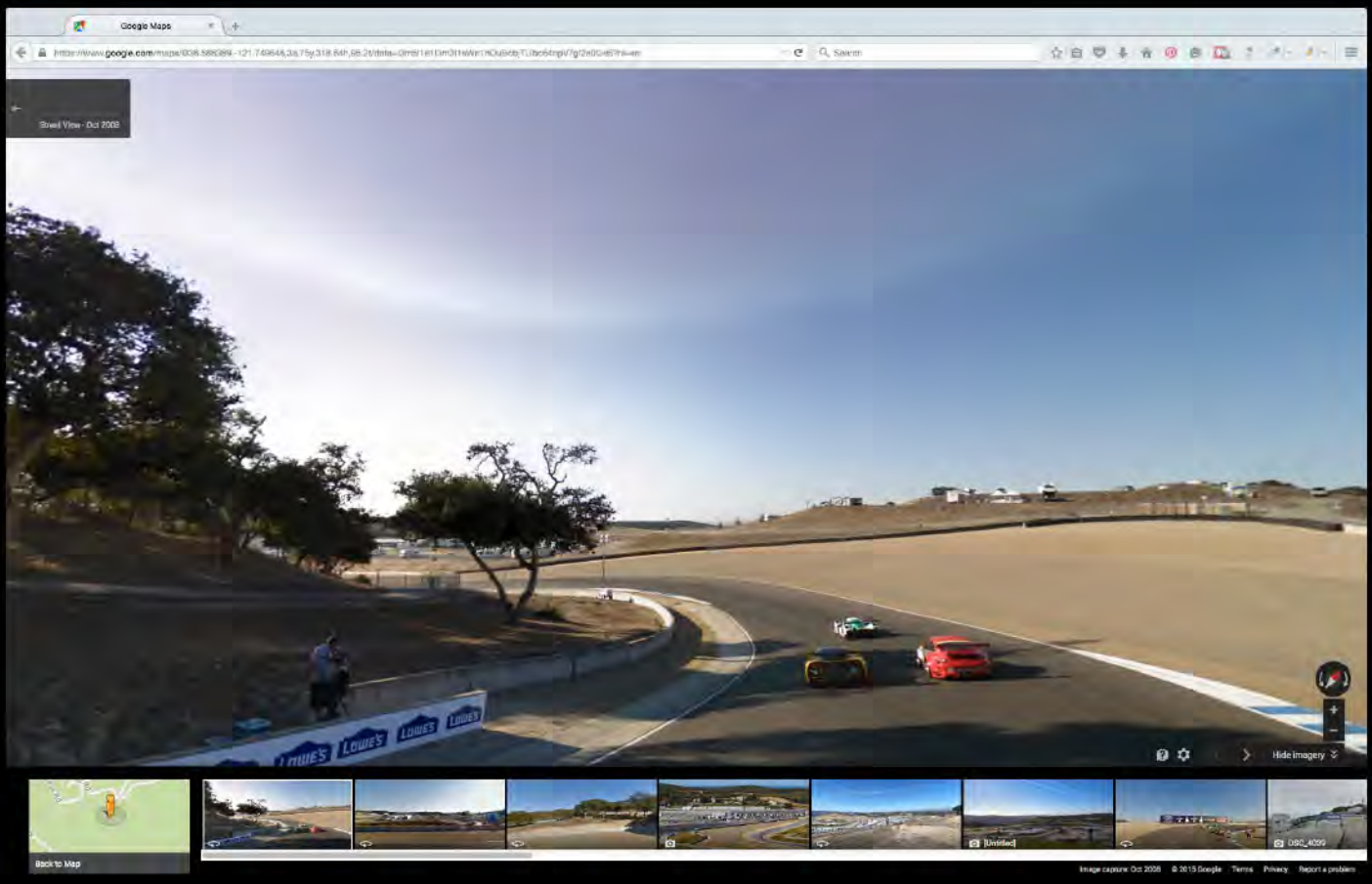
TURN 11

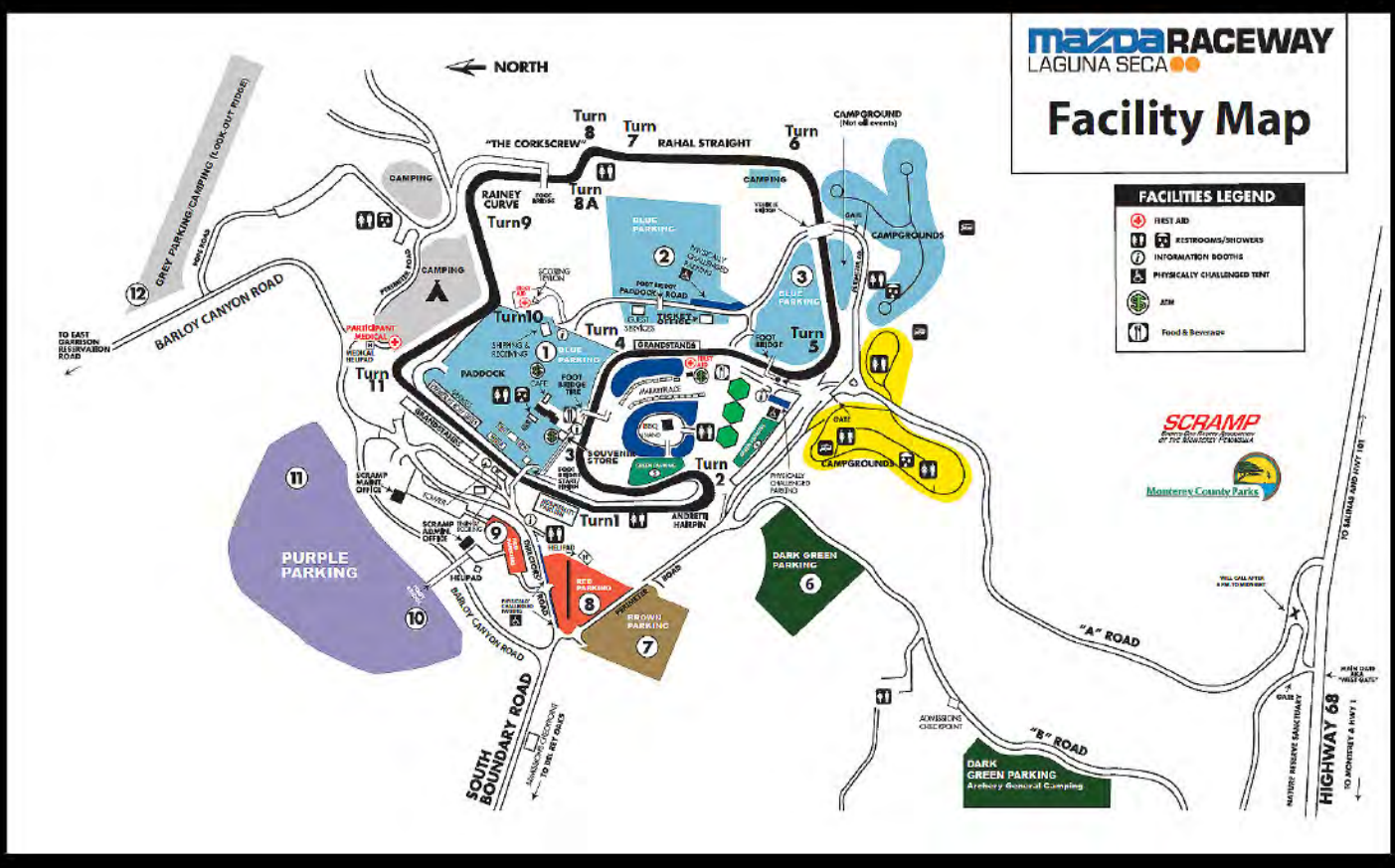
I approach the slowest corner on the track with a razor-sharp focus. I hustle the car over from the left side exiting Turn 10 to the right to give myself a nice straight braking zone for this corner. I put the right tires all the way onto the entry curbing rumble strips to give me a nice wide entry. It is so important here to get the car slowed down enough to get to the apex and have a strong shot out of the corner. Miss the apex, or apex a bit too early, and that lap time is toast. I turn in late and trail brake about half-way to the apex while cranking in steering, then transition to throttle, slowly at first but accelerating the rate of pedal speed as the rear tires pick up grip from weight transfer. I cheat the exit a bit by going over the exit curbing and using a bit of asphalt on the backside, but quickly pull it back up onto the curbing when fully exited. If the car goes too far off or stays off for too long, the right side tires will hit the AstroTurf laid down, which wants to suck the car off the track to the right due to additional drag and reduced drive on the right side of the car.

If done well, Turn 11 rewards with strong entry speed onto the front straight, which can be the difference between a couple miles an hour for the length of the entire straight. SN

ABOUT GARY SHEEHAN

Gary Sheehan has competed in Grand Am, World Challenge GT, Red Line Time Attack, Global Time Attack, United States Touring Car Challenge, NASA, SCCA, Vintage Can Am, Trans Am, European VLN and more. The last time he raced at Mazda Raceway was during the Nitto Tires U.S. Touring Car Championship race in 2014 where he put the Gogogear.com Hyundai Genesis Coupe on pole by 0.1 seconds and brought home the race win in the Touring Car class, on his way to winning the 2014 USTCC championship.


Google Maps
Street View - Oct 2008
LOWE'S
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mazda RACEWAY LAGUNA SECA
Facility Map
NORTH
FACILITIES LEGEND
FIRST AID
RESTROOMS/SHOWERS
INFORMATION BOOTHS
PHYSICALLY CHALLENGED TENT
ATM
Food & Beverage
"THE CORKSCREW"
Turn 8
Turn 7
RAHAL STRAIGHT
Turn 6
Turn 8A
Turn9
RAINEY CURVE
CAMPGROUND (Not all events)
CAMPGROUNDS
CAMPING
GREY PARKING/CAMPING (LOOK-OUT RIDGE)
BARLOY CANYON ROAD
TO EAST GARRISON RESERVATION ROAD
Turn10
Turn 4
Turn 5
Turn 11
Turn 2
Turn1
GRANDSTANDS
PADDOCK
SOUVENIR STORE
ANDRETTI HAIRPIN
PURPLE PARKING
BLUE PARKING
RED PARKING
BROWN PARKING
DARK GREEN PARKING
SOUTH BOUNDARY ROAD
"A" ROAD
"B" ROAD
HIGHWAY 68
TO SALINAS AND HWY 101
TO MONTEREY & HWY 1
ADMISSIONS CHECKPOINT
SCRAMP
Monterey County Parks

mazda RACEWAY LAGUNA SECA

Click the screen at left for a Google Earth tour of Mazda Raceway Laguna Seca, or view the video below for a unique look at a fast lap of this racetrack.



DMT IMAGING

A CHANGE OF VENUE

STORY BY BRETT BECKER

AFTER 13 YEARS AT SUMMIT POINT, HYPERFEST MOVES TO ITS NEW HOME AT VIRGINIA INTERNATIONAL RACEWAY

It can be risky to move. Just ask any business owner who has changed locations. There's always that lingering question whether customers will follow.

You also could ask NASA Mid-Atlantic Regional Director Chris Cobetto, who this year moved HyperFest from its home of 13 years at Summit Point Motorsports Park to its new location at Virginia International Raceway — a 4.5-hour drive away.

"There was some anxiety in making the venue change due to the fact that we've been at Summit Point for 13 years," Cobetto said. "You go to a new market, to a new venue, you don't know how it's going to be received. So we had some trepidation, but when we made the announcement, it was received very well from people in that region."

Summit Point served HyperFest well for 13 years, but Cobetto noted that as the event has grown, Summit Point began to present limitations.

"Summit Point does a lot of training for the U.S. State Department. They do a lot of evasive driving training," Cobetto said. "It's a huge business for them. We had a lot of space when we first started doing HyperFest, but over the years, the real estate around the facility started being used up by the State Department. They'd build buildings or they'd take over a track or whatever. So, as we are trying to expand, it got to the point where it was very intimate, but I was running out of room. The move to VIR, it's huge, and while we had a lot of people in there, it can still take a lot more. There's a lot of space for us to expand."

As Cobetto points out, VIR's facility, which is more than 900 acres, is much larger than Summit Point. VIR's location doesn't hurt, either. It's more centrally located on the East Coast than Summit Point.

Some HyperFest regulars,



PHOTOS BY SAM WANG

people who attended each year, made the trip this from as far away as Pennsylvania and Maryland, Cobetto said. The good news is that HyperFest enjoyed the return of many sponsors. For example, the U.S. Marines, Monster Energy, Exedy Racing Clutch, Koni and Eagle One all made the trip to VIR.

Of course, there were all the usual activities that make HyperFest "the automotive amusement park." Spectators could pay to ride along in a drift car on the Patriot Circuit with pro drift drivers Vaughn Gittin Jr., Chris Forsberg and Ryan Tuerck. There were also HyperDrives, ride-alongs in a GT3 Cup car courtesy of Taggart Autosport, which also brought its Rally Fighter Pro off-road car. There also was burnout contest, car shows, autocross, karting, rally rides and even helicopter rides. Those come in addition to the spectator games such as hot pepper eating contest, the Hippity Hop races and a pit man challenge in which competitors rolled stacked tires. Cobetto even added a Ferris Wheel this year.

Then, of course, there was the action on track. Some 400 NASA HPDE and Time Trial drivers and racers took to the track for the weekends at the track we all know and love. There were more than 100 HyperDrivers, 25 drivers from NASA Rally Sport and 45 to 50 drifters. You add it all up, there were close to a 600 cars in event, and that doesn't include the car show, at about 100 or so, which also turned out.

One spillover benefit that also came with the move to VIR is that the event took on a more family friendly vibe. People came, watched the exciting action on track, maybe took part in the spectator games, then went back to their camping spaces and relaxed.

"VIR is such a nice facility that people have a tendency to respect the grounds more," Cobetto said. "VIR's staff is very adept at handling large crowds because they have premier events there on a regular basis. The tone is set from the beginning. We try to set the tone that this is about motorsports. It's a party, but it's a motorsports party."

This year's HyperFest boasted attendance numbers similar to pro sports car and pro motorcycle racing events. Cobetto wants HyperFest to become an event similar to the 12-Hours of Sebring or the Daytona 500 or Sturgis. He wants it to become one of those events you just have to see at least once in your life.

"We'd like to see 30,000, 40,000 people coming to the event," he said. "And it's certainly possible because it's location is smack in the middle of the East Coast. And we're going to try to do it a little later in May next year. If you take a look at what we're providing, it's a taste of almost everything on wheels.

"We wanted to create more of a family environment," he continued. "We continue to bring the bouncy houses, we got the Ferris Wheel. Kids got in for free. We had autograph signings. The idea is to have the families enjoy it, but also to introduce at a young age people to NASA and to road racing." SN





A FULL WEEKEND OF NASA RACING WAS A TREAT FOR THE SPECTATORS. FULL FIELDS SHOWED THAT AMATEUR RACING IS JUST AS EXCITING AS THE PROS.

CHRIS SCHUTZE/
FINISHLINEPRODUCTIONS.NET








Coca-Cola
Coca-Cola



CHRIS SCHUTZE/FINISHLINEPRODUCTIONS.NET



PHOTO BY SAM WANG



CHRIS SCHUTZE/FINISHLINEPRODUCTIONS.NET

SPECTATORS AND FANS LINED THE PATRIOT CIRCUIT TO WATCH THE DRIFTING ACTION, WHICH INCLUDED THE "SLIDE ALONGS" AND EVEN SOME DRIFTING IN A NEW FORD F-150, AND TO VIE FOR A CHANCE AT A T-SHIRT FIRED FROM A CANNON.



CHRIS SCHUTZE/FINISHLINEPRODUCTIONS.NET



CHRIS SCHUTZE/FINISHLINEPRODUCTIONS.NET



HYPERFEST AT VIR FEATURED MORE OF A FAMILY ENVIRONMENT. NASA MID-ATLANTIC RENTED BOUNCY HOUSES, AND EVEN A FERRIS WHEEL THIS YEAR. KIDS GOT IN FOR FREE, AND THERE WERE AUTOGRAPH SIGNINGS. "THE IDEA IS TO HAVE THE FAMILIES ENJOY IT," SAID NASA MID-ATLANTIC REGIONAL DIRECTOR CHRIS COBETTO (WITH MICROPHONE), "BUT ALSO TO INTRODUCE AT A YOUNG AGE PEOPLE TO NASA AND TO ROAD RACING."

PHOTOS BY CHRIS SCHUTZE/FINISHLINEPRODUCTIONS.NET


92
PORSCHE


IMPULSE
IMPULSE







EVERY KIND OF CAR YOU COULD IMAGINE WAS AT VIRGINIA INTERNATIONAL RACEWAY, SITE OF HYPERFEST 2015, AND THIS YEAR'S EASTERN STATES CHAMPIONSHIPS. TAGGART AUTOSPORT WAS SELLING RIDES IN A LAMBORGHINI CONVERTIBLE TILL IT BROKE. THEN THEY STARTED GIVING RIDES IN A PORSCHE CUP CAR. TAGGART EVEN BROUGHT ALONG ITS RALLY FIGHTER PRO CAR AND WAS SELLING RIDES ON VIR'S RALLY COURSE. VAUGHN GITTIN JR.'S RTR DISPLAY INCLUDED THIS FLARED 1969 MUSTANG.

PHOTOS BY SAM WANG



PHOTO COURTESY OF TAGGART AUTOSPORT

MAZDA RACEWAY LAGUNA SECA





PHOTO BY BRETT BECKER

MONTEREY COUNTY AND MAZDA RACEWAY LAGUNA SECA WELCOME THE NASA WESTERN STATES CHAMPIONSHIPS

STORY BY JOHN LINDSEY
PHOTOS BY SEEMONTEREY.COM

When you talk about famous West Coast tracks, the name probably most often mentioned is the home of the 2015 NASA West Coast Championships, Mazda Raceway Laguna Seca. There is good reason for that, and it begins with the history of sports car racing on the Monterey Peninsula.

HISTORY

Road racing on the Monterey Peninsula got started with the Pebble Beach Road Races in 1950. After successful runs on public roads around the legendary golf course, the racing moved out to Mazda Raceway in late 1957, making a similar transition to formal road courses as did the racing in Elkhart Lake, Wisc., at Road America and Watkins Glen, N.Y., when the street circuits became too hazardous.

Mazda Raceway has seen nearly every major series in the sports car and motorcycle world and plays host to the famous Rolex Monterey Motorsports Reunion every year during Car Week, where the finest vintage racecars are used as originally intended in full-blown competition. Mazda Raceway is managed by the Sports Car Racing Association of the Monterey Peninsula and brings in major revenue to the local economy and the park system as the track is located within the Laguna Seca Recreation Area, a Monterey County park. Uniquely, all profits from the track are donated to other volunteer groups as SCRAMP is a not-for-profit entity.

GETTING THERE

Mazda Raceway lies just east of the city of Monterey, Calif., which is one of the most popular tourist destinations in the state.

Unfortunately, the airport in Monterey (MRY) has fairly limited capacity, with service from San Francisco International (SFO), Las Vegas (LAS), Phoenix (PHX), San Diego (SAN) and Los Angeles (LAX). Rental also cars go quickly, but reasonable alternatives are just flying into one of the major airports near Monterey and then driving in. San Jose (SJC) is closest, and Monterey is about two hours from the San Francisco Bay Area airports at San Francisco (SFO) and Oakland (OAK).

If you're driving in, access is good from U.S. 101 via Highway 68, which takes you through Salinas and to the front gate of the track.

STAYING THERE

Hotel rooms can be pretty spendy and tough to get on the Peninsula because of the sheer volume of tourists. Hotel rooms are booked up often well in advance, but a good alternative is to look on VRBO or Airbnb to find a rental house that meets your needs. During Monterey Car Week in 2014, I found a nice house that fit my family comfortably for about half of what we would have paid at a hotel.

With regard to what city to stay in, this is a matter of personal preference but the location we had in Pacific Grove was pretty ideal in terms of access to Highway 1 and also an easy stroll to reasonable dining options downtown. A bonus of staying in Pacific Grove is that Asilomar Beach is a very short drive or walk from most of Pacific Grove and there are beautiful views and tide pools to explore all along the Sunset/Ocean View Boulevard route that follows the shoreline. Pacific Grove is also close to the Monterey Bay Aquarium and downtown Monterey.

Because it is in a county park, Mazda Raceway also has plenty of campsites ranging from rustic sites with few amenities to full-service sites equipped with hookups for RVs. Many of the sites have excellent views of the track, so this can be a great option if you don't mind roughing it a little.

EATING THERE

The Peninsula is full of excellent dining establishments but several really stand out. One of my favorites close to the track is the Baja Cantina on Carmel Valley Road that has a neat gearhead theme and excellent Mexican food. Another prime choice is to enjoy a meal at Clint Eastwood's Carmel Mission Ranch Hotel. The scenery and the food are excellent. If you want something a little simpler and more casual, Gianni's Pizza in Monterey is a great family friendly place to grab a pie or calzone.

You also have a whole host of options in downtown Monterey on the city's famous Cannery Row. In terms of chain restaurants, there is the Bubba Gump Shrimp Company, an El Torito and a Chart House. For world-class steaks, the Whaling Station is a fine choice, but shower up before you go. It's that nice. The Fish Hopper also is great, with terrific steak and seafood options in a dining room perched over Monterey Bay.

DRIVING THERE

The first time I went around Mazda Raceway, I was in the back seat of a Mercury Grand Marquis driven by a Shelby Club instructor showing the newbies the line around the track. The track is located in a valley surrounded by steep hills that unload and load your suspension in quick succession, which nearly made



everyone in the big Merc hurl as we lurched around. The most legendary turn and my personal favorite is the Corkscrew where you aim the nose of the car at a certain oak tree just off the track while you hold on for dear life as you drop five stories through the turn. You also gain some major speed from Turn 11 to Turn 1 after you cross the finish line, which makes for some interesting passing opportunities as you play the game of "who is going to brake first" while you hurtle downhill toward the Andretti Hairpin.

As to services, there are usually tire vendors onsite and the local towns have plenty of auto parts stores and car dealers that can supply spares. Salinas is a better bet than Monterey for finding automotive solutions. There are also specialty automotive shops that can help with welding or other repairs on the Peninsula and in Salinas.

Get your plans arranged soon because the 2015 Western States Championship is going to be a monster and you don't want to miss your chance to cross another dream track off your bucket list. SN



The front straight at Mazda Raceway Laguna Seca is fast and tricky, with a blind rise, then a hard-on-the-brakes downhill scamper into the Andretti Hairpin.



Most of the turns at Mazda Raceway Laguna Seca have lots of camber to keep your car planted, but many turns also lead to uphill stretches of track.

THE FACTS

Mazda Raceway Laguna Seca
1021 Monterey-Salinas Highway
Salinas, CA 93908
www.mazdaraceway.com
http://www.co.monterey.ca.us/parks/lagunaseca.html
831-242-8201

Baja Cantina
7166 Carmel Valley Rd.
Carmel, CA 93923
www.carmelcantina.com
831-625-2252

Carmel Mission Ranch Hotel
26270 Dolores St.
Carmel, CA 93923
www.missionranchcarmel.com
831-624-6436

Gianni's Pizza
725 Lighthouse Ave.
Monterey, CA 93940
http://mbom1.tripod.com/monterey/giannis.html
831-649-1500

Bubba Gump Shrimp Company
720 Cannery Row
Monterey, CA 93940
831-373-1884

El Torito
600 Cannery Row
Monterey, CA 93940
831-373-0611

Chart House
444 Cannery Row
Monterey, CA 93940
831-372-3362

The Whaling Station
763 Wave St.
Monterey, CA 93940
831-373-3778

The Fish Hopper
700 Cannery Row
Monterey, CA 93940
831-372-8543



If you can schedule some leisure time into your trip to the Western States Championships, the drive south on Highway 1 offers some spectacular scenery.

LODGING

Laguna Seca Recreation Area
1021 Monterey-Salinas Highway
Salinas, CA 93908
http://www.co.monterey.ca.us/parks/lagunaseca.html
831-755-4899

Monterey Marriott
350 Calle Principal
Monterey, CA 93940
831-649-4234

Embassy Suites Monterey Bay – Seaside
1441 Canyon Del Rey Blvd.
Seaside, CA 93955
831-393-1115

Comfort Inn Monterey
Peninsula Airport
1200 Olmsted Rd.
Monterey, CA 93940
831-372-2945

Quality Inn
2075 N. Fremont St.
Monterey, CA 93940
831-373-5551

Rodeway Inn
2041 Fremont St.
Monterey, CA 93940
831-373-2911

Monterey Bay Travelodge
2030 N. Fremont St.
Monterey, CA 93940
831-373-3381

Ramada Limited Monterey
2058 N. Fremont St.
Monterey, CA 93940
831-375-9511

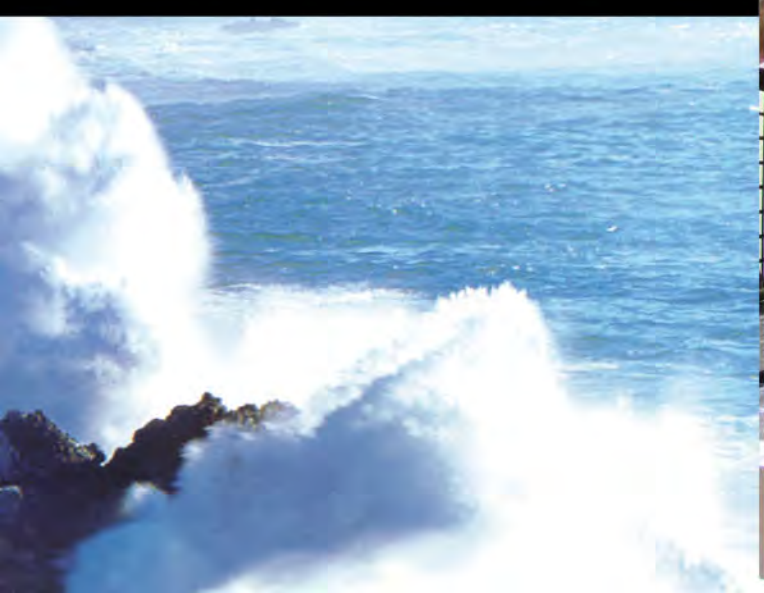
Super 8 Monterey
2120 N. Fremont St.
Monterey, CA 93940
831-372-6066

Economy Inn
1131 Fremont Blvd.
Seaside, CA 93955
831-899-2700

Discovery Inn Monterey
1106 Fremont Blvd.
Seaside, CA 93955
831-394-3113



Downtown Monterey is home to many great attractions and restaurants, including The Fish Hopper and the Whaling Station steak house.





During Car Week, the city of Monterey fills with vintage racing cars of all kinds, with many of them offered at auction.



LIKE CLOCKWORK

STORY BY ROB KRIDER
PHOTOS BY BRETT BECKER



HOW TO TAKE ON THE 25 HOURS OF THUNDERHILL, FROM THE FOLKS WHO HAVE DONE IT AND WON IT

The 25 Hours of Thunderhill. You have read about it in magazines and watched YouTube videos of insane night driving stints. A guy in your region flew to Northern California and did it, and now he won't stop talking about it. You know the pros show up to compete. The 25 Hour likely has been on your racing bucket list for a while now. Thanks to NASA's endurance classing, chances are you have a car with a roll cage sitting in a trailer at this moment that is nearly ready to compete. You know the trophy is shaped like a clock and you desperately want one on your desk at work. Yes, this means the Thunderhill clock is literally ticking away right now as you read this. There are plenty of excuses not to enter the 25, but they are just that: excuses. The question is, why haven't you done it yet?

So, what is required to take on the mighty 25 Hours of Thunderhill? To help you along the way to the greatest adventure of your life, the staff at Speed News has interviewed teams and key players that have been successful at



There is just enough time left for you to prepare for the 2015 25 Hours of Thunderhill.

competing in the longest closed-course road race in North America. We wanted to find out what it takes to get there, what it takes to finish — and what it takes to win.

Our first stop was at the top. We talked to last year's overall winner, Ron Carroll, the team manager and crew chief for Davidson Racing. "This race is incredibly addictive. From the crew, the drivers, you name it, nobody I know has only done the race just one time." Ron Carroll has worked professionally in racing for years and has contacts all over the country that he pulls in for The 25. He uses crew members from IRL, World Challenge, and Grand Am, and drivers who have raced Daytona and Le Mans. "For the pro drivers, this is the most diverse race because of the darkness at night. Daytona at night is essentially driving in the daytime because they have so many lights on that track. The differential speeds at The 25 are way larger than the pros see in different series. Running alongside the amateur drivers and the weather changes, the pro drivers love it and I have a waiting list of drivers who want to race every year for Bob Davidson's team."

We also spoke with Peter Guagenti, chief of El Diablo Motorsports, who has won the Eo class two times. "You invest your life into this race. As the crew chief, I am up for 40 hours straight and it can be a thankless job. The driver gets a trophy, and the crew gets sleep deprivation." Peter Guagenti compares his experiences at the 25 to the experiences pro teams face at LeMans. "I'm a motorsports competitor and a fan. I've been to Le Mans. When you watch the documentary "The Truth in 24," which follows the Audi team to their Le Mans victory, that experience as depicted in the film, is the exact same experience I get from The 25 Hours of Thunderhill."

To round things off, we spoke with Rob and John Gibson, chief principals and drivers of RJ Racing, who are three-time winners of the popular and competitive E3 class. According to Rob Gibson, deciding to take on the 25 Hours is like trying to decide if you want to have a kid. "Don't wait until you think you are ready, because you will never be ready. Just do it. Jump in with both feet." His younger brother John says the 25 is the chance for amateurs to feel what it is like to run a professional race. "There is assigned paddock parking, you have media there. Last year, Al Unser was running. I raced in the same race as Al Unser! Can you believe it?"

The conversations with the different teams were structured around advice, tips, and strategy to help a new team come to the event, enjoy the experience and maybe even win the darn thing. We talked about vehicle choice, budgets, crew members, lodging, food, car preparation, strategy, brakes, tires, driver options and bad luck. The 25

Hours of Thunderhill encompasses all of those issues and the team that can best overcome them leaves with a new clock for their desk. Ron Carroll's words of wisdom, "If you want to win the race, you have to take no chances."

We publish this story now, in the July issue, because there is still enough time for you to prepare for this wonderfully grueling endeavor.

PLATFORM

The car you choose to compete with ultimately will decide your endurance class (ESR, ES, E0, E1, E2, or E3) and more importantly it also will decide your fate. Deciding on what platform to begin with can be the most important decision you will make. El Diablo Motorsports uses a tried-and-true 1992 BMW E36 M3. "You want to run a chassis that people have already raced, so you know where the problems are," Guagenti said. "This car has a lot of aftermarket support and lots of shops understand them and can give you good advice on what to do, but more importantly what not to do." According to Guagenti, showing up with an unproven vehicle doesn't correlate to a solid finish. "I've seen teams show up at Thunderhill with brand-new cars, straight from the factory, and it has never worked out well."

Carroll agrees with that sentiment and has had races where cars didn't finish because of unproven platforms. "We showed up with a car that wasn't finished. We shouldn't have brought it. It wasn't ready. We had a delay from an engine builder and got the engine two days before the race. During testing, the engine sucked a valve and blew up. Lesson learned, come prepared or don't show up." Carroll came back with a vengeance, redesigning the car from the ground up, testing it extensively, and won the overall title.

RJ Racing also uses a tried-and-true platform, a Mazda Miata. "We know the Miata is tough and can last. But we prepare the car and go through every system before the race. You don't want to show up at Thunderhill with a big question mark on the roof of your car. You don't want any doubt about its ability to finish the race." The results don't lie. The Mazda Miata has been the only vehicle to win the E3 class, ever.

SPARES

The 25 Hours of Thunderhill likes to break stuff, even brand-new stuff. Each team discussed what they bring to the event for insurance. Carroll brings everything. "Minus the chassis itself, I bring a spare of everything. Suspension for every corner, ready to bolt on with alignment settings already built into the units. Engines, trannys, complete front noses, splitters, you name it, we bring it." It is important for Davidson Racing to bring all of its spares because it competed in the event in a BMW powered Norma M20F, a specially built, one-of-its-kind-in-the-U.S. racecar.



Bring a spare of everything when you compete in the 25 Hours of Thunderhill. This team filled an enclosed trailer with spares and tools. Some teams even go so far as to bring a whole spare car.



The number of tires you bring varies with the type of car you are racing, but expect a sizeable tire budget to get through the 25 Hours of Thunderhill.

Miata teams can run to Pick-n-Pull in Chico, Calif., for a lower control arm, but you won't find Norma parts at a junkyard.

Even though Miata parts are plentiful, RJ Racing still brings plenty of spares, according to Rob Gibson. "We always have a spare coil pack, spare hubs, spare brakes, and a backup transmission. My brother, John, organizes our spares and charts them, we not only have bins with labels on them, for example 'right front spindle,' but in that bin we will have the installation instructions and torque specs listed so whomever is doing the swap won't have to look up the information. It's all right there."

The trick to bringing spares is two-fold: know your vehicle's weak points and bring a spare vehicle. That is what El Diablo Motorsports does according to Guagenti.

"We have our endurance car on track and we have a sprint car in the paddock in case we need a spare part. Even though we bring specific spares, like coil-overs, ready to go, body panels, front splitters, etcetera, we still bring the entire spare car. In the past, we have allowed other BMW teams to borrow parts from the car. Later in that same race, we desperately needed a welder and the same team that borrowed parts from us, loaned us their welder and got us back into the race which we were able to win. Sort of like a racing karma." But even brand-new parts can fail, and it has happened to El Diablo. "We have seen brand-new and rebuilt half shafts fail. We have found that non-O.E.M. parts often lack the O.E.M. build quality." Not only can parts fail, but parts can get bent by someone else. Oftentimes, with different closing speeds among six classes, the 25 can be a contact sport. Having parts at the ready will help the team overcome an unforeseen situation. "Prepare for everything," says Ron Carroll. "Because everything will happen."

TIRES

At the top end of the spectrum in the ESR class, Davidson Racing brings 16 to 18 sets of tires, plus 6 to 8 sets of softer-compound tires for night racing, and rains, just in case. "We do four tires every pit stop," Carroll says. "We run a softer compound at night, which wouldn't last a two-hour stint during the warmer temperatures during the day." In the middle of the spectrum, the Eo class, El Diablo Motorsports runs only four sets of tires. "We run the Hankook racing tire," Guagenti says. "We get BFG tire performance with a Nitto tire longevity, which makes the Hankook tire optimal for the 25 hour race. We can get eight hours per tire based on our rotation schedule." Cars running in the E3 through Eo class range can only change one tire per pit stop on pit lane. If a team wants to change more tires, they will have to drive behind the wall into the paddock pursuant to NASA enduro racing rules.

When RJ Racing was asked if they prefer the strategy of going behind the wall for a four-tire change versus a single-tire change after fueling during a pit stop, the brothers got real quiet. "Um, you'll have to come to the race and watch what we do to find out. We don't want to give everything away here." RJ Racing runs Hoosier Tires on its Miata and it is always the right front at Thunderhill that needs replacing first. RJ Racing brings four sets of Hoosiers for the race plus a fifth set for testing and spares. Their budget just for tires is around $3,000 for the race.

CREW

All of these extra sets of tires don't jump onto the cars themselves. That requires a pit crew, a 25-hours-around-the-clock pit crew to be specific. Davidson Racing pays professional crew members to go over the wall. Their fueler and their tire changers are from Grand Am or IRL, and they are fast. Additional crew are full-time employees of Carroll, and together they manage the race strategy and logistics. Crew size for Davidson Racing: 35 members.

El Diablo uses 12 crew members who are all volunteers from the BMW community who have raced together for years. "Our team is the family and friends



Cross-training crew members so they can do lots of jobs on the car is key.

group," Guagenti says. "Our crew is dedicated. Even though we schedule them time to sleep, they want to stay up and see the race through." RJ Racing runs a lean 8- to 10-person crew and cross-trains each member for everyone's job, so if a member is missing, anyone can fill in. "Our crew is comprised of all engineering students from local universities," says Rob Gibson. "NASA had an event called 'Pit Crew For a Day' at California Speedway a number of years back. We connected with a few enthusiastic guys from that and they have been with the team ever since." RJ Racing has a formulated pit crew rotation schedule to ensure their team members get some rest. "Our lead fueler becomes the second fueler, and the second fueler can hit the trailer and sleep."

One thing that came up universally while talking to each of the teams was the utilization of spreadsheets. While asking the teams about their crew sizes, we heard things like, "Hold on, let me pull up the spreadsheet and tell you exactly how many we had." Or, "Just a moment, I have that here in my spreadsheet." Organization is clearly a component of success at the 25. Excel is your friend. If you are good at rebuilding cylinder heads, but lack computer skills, then grab a nerd and get him on your team to keep track of the important statistics.

MEALS

Just like he leaves the pit crewing and the driving to the professionals, Carroll also leaves feeding the crew to the professionals. "I've used the Thunderhill Grill catering service and I've used Nancy's Diner in town (Willows, Calif). I'm thinking of bringing in a food truck and parking it at the end of my stall



Napoleon Bonaparte famously said, "An army marches on its stomach." The same is true of a race team at the 25 Hours of Thunderhill. Have lots of warm meals on hand to keep your drivers and crew fed.

to cook for the crew all night."

El Diablo Motorsports has a team mom named Gina, who prepares meals weeks in advance. "She never lets the crew get hungry," Guagenti says. "She makes soups and stews to keep the crew warm at night, easy to prepare and it keeps the budget tight. She has been doing it for our team since our very first 25 Hour.

RJ Racing has a hospitality chief named Jennifer who keeps their crew fed and happy. "She comes out every year for The 25 Hour and takes care of everyone," said Rob Gibson. To borrow a quote from Napoleon Bonaparte, "An army marches on its stomach," and it can be argued a race crew works off its stomach, too. So, keep the crew warm and fed, and they will be happy to replace the second splitter you knocked of during an off in Turn 1.

LODGING

Having a place for the crew to rest is as important as food. They may not want to sleep away eight hours of the race, but they don't want to nap freezing to death in a fold-up chair from Wal-Mart, either. Sure, Saturday night a lot of people stay up all night, but that doesn't take care of Thursday night after practice, Friday night after qualifying and for a lot of team members, Sunday night to completely crash after the adrenaline wears off.

Davidson Racing rents four bunkhouse trailers and sets them up at the track to house the people Carroll flies in to crew. Local hotel rooms will house fulltime staff and drivers during the week. During the race, one of the bunkhouse trailers will be for drivers only.

El Diablo Motorsports uses local hotels during the week for lodging and then rents RVs for the crew and drivers during the race. The crew double-bunks, and drivers get their own rooms. They have one RV assigned to crew and one assigned to drivers. "I don't want crew members leaving the track during the race to go to a hotel," said Guagenti. "I have had situations in the middle of the night where I needed a full crew immediately. Once we needed to replace the entire nose of our BMW. I had eight guys jump on the car, and they got the job done in seven minutes, which was amazing, and we won the race. If they were at a hotel, we never could have replaced the nose as quickly with only two or three people and we would have lost."

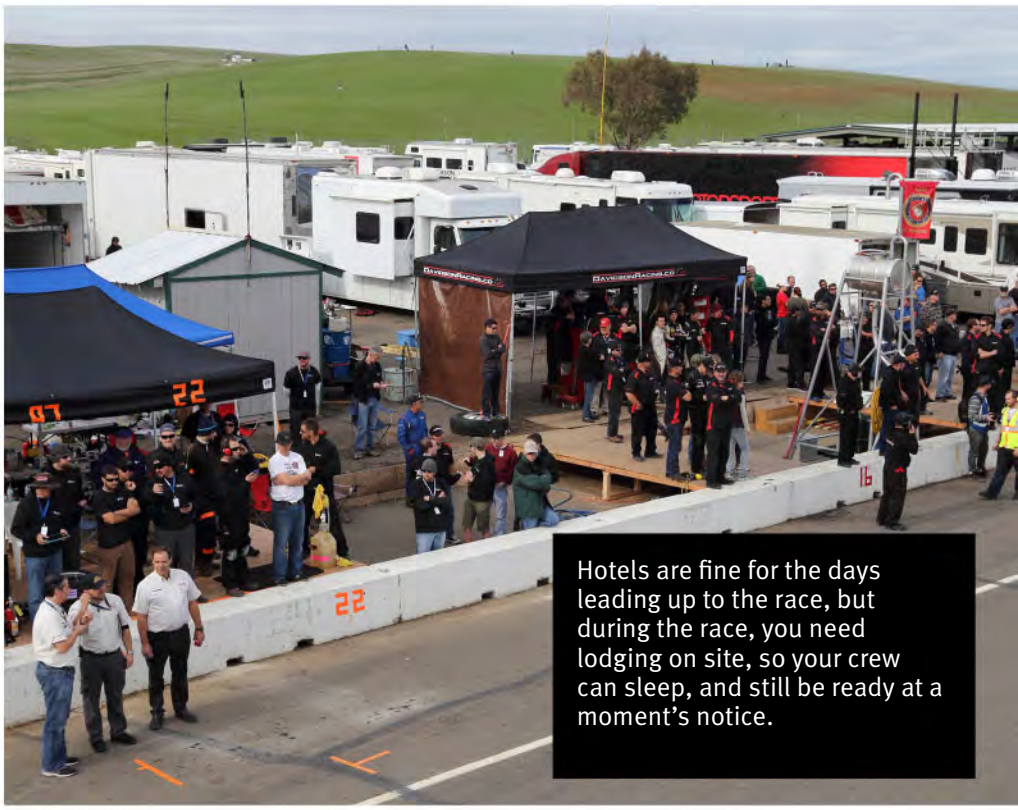
RJ Racing runs a tighter ship for its crew, literally. "We use the Navy hot bunk system," says Rob Gibson. "Once one crew member jumps out of a bed in our RV at the track then another crew member can jump in."

PIT STRATEGY

"Being behind the wall is not good pit strategy," says Guagenti. "I've learned, well, we have all learned, from watching Audi at Le Mans: less time in the pits equals racing success. We have the fastest pit stops in the lane, and a lot of our success comes from that. We can track exit, dump two 5-gallon jugs — the max allowed during one stop in theE3 through Eo classes — and be back on the track in 40 seconds."

RJ Racing uses a similar strategy. "We can get our driver in the car during the same amount of time it takes to dump two jugs of fuel," says Rob Gibson. "This way we can make a driver swap and it isn't a strategy decision regarding a longer pit stop, we can put a fresh driver in without adding time to our stop, and be more competitive on track."

According to Carroll, the drama of the race is in the pits. "It is mind-blowing. I love watching different



Hotels are fine for the days leading up to the race, but during the race, you need lodging on site, so your crew can sleep, and still be ready at a moment's notice.



All teams interviewed for this story have won their class and overall. They all said the same thing: Find a brake setup that lasts the entire race.

scenarios play out on pit lanes. It is interesting to see what other teams are dealing with during the 25 hour. Essentially the 25 Hours of Thunderhill is an entire season of sprint racing in one night."

BRAKES

While discussing pit stops, the subject of brakes came up, and all of the winning teams had the same strategy and advice: one set. Having to change brake rotors and pads can be time consuming and difficult under race conditions because brake components are incredibly hot. Each of the teams have found brake combinations — rotors, calipers, and pads — that can last the entire race. RJ Racing uses Porterfield Brakes with a pad they refer to as "The RJ Racing Special," which will last through practice and the race. El Diablo Motorsports uses Brembo brake calipers with Performance Friction pads and they also can get through the entire race on one set.

BUDGET

Here is where the conversation about the 25 got a bit sticky. Nobody really wanted to talk dollars and cents. It could be because if anyone added it all up they might have a coronary. But Carroll's statement that the 25 Hour is an entire season of racing helps you understand how costly the race can be. This sentiment was shared by Guagenti, who indicated running El Diablo Motorsports for the 25 Hour weekend cost about as much as an entire season of sprint racing. After some prying, we estimate — not including the car — that to run an E3 Mazda Miata with a volunteer crew would be approximately $7,000 to $15,000. An Eo BMW ride would be between $15,000 and $25,000. And ESR? Chasing the overall win? Paying professional drivers and crew? That number wasn't even hinted at. Data from previous ES winners running GT3 Porches on Michelins were in the neighborhood of $200,000. Does that sound like a lot to you? Does it sound like a house to you? The crazy and awesome part about that amount is that The 25 Hours of Thunderhill is so difficult, that kind of money doesn't, by any means, guarantee a win. Nobody can buy a win here. It must be earned, the hard way.

DRIVERS

Obviously, due to the cost of the event, funding the party isn't easy. A lot of teams are comprised of pay-to-play drivers, which help defer the overall financial hit. This concept is used by a majority of the teams at the event. Each of the teams interviewed agreed the optimal number of drivers for a car is four. That number gives each driver plenty of seat time and plenty of rest. Any number

Having pay-to-play drivers helps defer the costs of running the race. A majority of the teams at the event use this model. Each of the teams interviewed agreed the optimal number of drivers for a car was four.



below four means drivers have to do extra stints, every number above four means drivers get limited track time. The question was how do you pick the drivers? Many teams have horror stories of last-minute drivers who had a nice check to help cover the team's costs, but were a disaster to work with. Some were rough on equipment, not on the same page with the crew chief — out solely to set the fastest lap in the car as opposed to helping the team win — or worse, totaled the racecar.

"Nobody drives an El Diablo car that we don't know personally or hasn't been vetted by someone we trust," said Guagenti. "We don't use anyone that is an unknown quantity." RJ Racing talked about not just who they pick to be a driver on their team, but where they use them. "We want our drivers to be comfortable," said John Gibson. "Some people don't like racing at night so we use them in the day. But that does complicate our schedule. We have a comprehensive driver's agreement that our drivers have to sign (the Gibson brothers are attorneys), which gives the crew chief the ultimate decision to pull a driver from the seat if it will benefit the team."

Davidson Racing doesn't have the same sort of issues with their drivers. "Pro drivers are used to being directed and so they listen," said Carroll. "I have a specific meeting with my drivers after NASA's drivers meeting Friday night. I tell them what I want and how I want to run the race. Our biggest issue is driver's missing yellow flags."

The one thing that all of the teams agreed on was that they wanted a driver with a brain in his or her head. Nobody wants a driver who is going to do something stupid and put the entire race at risk and end up on the trailer.

SPOTTERS

Spotting is an asset to a driver, especially in crowded races like The 25 Hours of Thunderhill, with upward of 70 cars on track and six different classes all running different speeds. Davidson Racing uses a spotter in the tower for the entire 25 hours. "We try to rotate the spotter out every two hours," said Carroll. "It can be a long night up in the tower and I have six guys to rotate in and out. Regardless of having the spotters' assistance, I make my drivers run with their headlights on during the entire race and direct them to flash their lights during passes. Spotters can warn drivers of slower cars, yellow flags, and stupid problems. They are invaluable."

El Diablo Motorsports had a completely different strategy, "Spotters are useless at night," said Guagenti. "We keep one radio in the pits to talk with the driver. If we are really chasing down the leader in the morning we might go on the hill and help spot. Other than that, it is up to our drivers to have situational awareness." RJ Racing was in the middle on the spotter issue. "We run one at the beginning of the race when it is really crowded and one at the end of the race. Other than that it is a single radio at the pit wall."

Teams interviewed for this story differed on the use of spotters. Some felt they were valuable. Others, not so much.





RACE PACE

RJ Racing has won its class three times and they have never had the fastest car in E3. Their strategy is to bring a prepared car, run consistent laps, have solid quick pit stops and finish the race strong. This strategy has worked well for them. El Diablo Motorsports has a different strategy: 25 hour all-out-sprint. In the Eo class, the fastest car wins the class and therefore their pace is hard and aggressive. In the ESR class, finishing without a major mechanical problem is everything. When you look at the statistics of 25 Hour finishes for ESR cars, easily the fastest cars on the track, they have rarely have won overall. ES class Porsches hold that record, and the first-in-class ESR car is often beaten by Eo, E1 and E2 cars simply due to too much time behind the wall. You can't win this race while sitting on jack stands.

ADVICE FOR THE NEW KIDS

We asked each of the teams what sort of advice they would pass down to a new team thinking of taking on the 25 Hours of Thunderhill for the first time. Guagenti from El Diablo Motorsport said, "Come in with a positive outlook. Don't be afraid to fail. You are not going to win on your first time out. The car needs to be built, done and ready to go before test day on Thursday and all of your drivers need to have driven it. If you are fiddling with the car at the track, you are done."

The Gibson brothers of RJ Racing said, "It is the ultimate team challenge. There is no one single thing that is the key to success. In this race it is everything that is the key to success. Bring the car across the finish line in one piece and that will guarantee you a solid finish. Our philosophy is that we do things a particular way. There is the right way, the wrong way, and the RJ Racing way. This race is hard. We work on it all year long. Everything we do during the season is prepping for the 25."

Carroll admitted he actually hates this race, but still comes every year. "I do, I hate this race. It is very difficult and I always come to win. I stress out about everything. I'm on edge. I don' t sleep at all. I stay up for 38 hours. The race is so unpredictable you just never know what it's going to throw at you."

In December 2014, what The 25 Hours of Thunderhill threw at Carroll and Davidson Racing was the overall victory — a victory Carroll has been chasing since the inception of the endurance event. While talking to him, it was obvious the event has taken its toll on Ron. He'll never forget the race he won, but he'll also never forget the races he lost. Especially the ones that were close.

The 25 has that effect on people. For racers, it is a pilgrimage, an Everest, a moon landing. It is a goal to be conquered. Just finishing the race is an accomplishment. Standing on the podium is an enormous achievement. And winning, well, it is the ultimate triumph. The question that remains, where will you finish? On December 6, 2015, NASA will crown an overall winner and six class winners. Will you be one of them? SN

TEAM BIOs

DAVIDSON RACING

Davidson Racing is owned by Bob Davidson, who runs the Davidson Academy in Reno, Nev. The team is managed by Ron Carroll, no stranger to professional motorsports. The team won the 2014 25 Hours of Thunderhill in a BMW-powered Norma M20F. The car was a hill climb champion in France, purchased by Bob Davidson and completely transformed for endurance racing.

EL DIABLO MOTORSPORTS

The team name comes from the property near Mt. Diablo in Northern California where the team of friends and family built and maintains their BMW E3 inside a barn. The team is owned by Scott Smith and Lance Boicelli and is run by Peter Guagenti. The team has won the Eo class of the 25 Hours of Thunderhill twice.

RJ RACING

The initials RJ Racing come from brothers Rob and John Gibson, attorneys out of Southern California who have won the 25 Hours of Thunderhill E3 class three times in four years. Their orange and blue (or is it blue and orange?) Mazda Miata has been a strong platform for the team. Their ultimate goal is to make it to LeMans someday and these two brothers are just motivated enough to pull it off.



DAVIDSON RACING



EL DIABLO MOTORSPORTS



RJ RACING

REPURPOSED PROJECT

STORY AND PHOTOS BY BRETT BECKER



K&N ENGINEERING'S ROAD RACE-PREPPED MUSTANG INITIALLY WAS INTENDED FOR OTHER PURPOSES

When K&N took delivery of this "body-in-white" 2014 Ford Mustang GT, the company's goal wasn't to build it into a road racer. It was going to be something completely different.

Initially, the intent was to fit it with an EcoBoost engine from Ford. K&N had plans to make the car as light as possible, run it on E85 fuel, and make it as fuel-efficient as possible, then maybe have a celebrity drive it from K&N's headquarters in Riverside, Calif., to the annual SEMA Show in Las Vegas. However, the project never really got off the ground, according to Dave Martis, R&D manager for K&N Engineering.

"The logistics of the whole thing — the EcoBoost wasn't out yet — and getting all the parts and pieces we needed to do it, we would have been better off buying a car with a four-cylinder in it and gone from there," Martis said. "But the fact we just had a bare tub made the challenge almost insurmountable."

Because it was delivered as a body in white, the car had no VIN, which meant it couldn't be registered to drive on the street without going through the "special construction" build process with the state of California. The state only allows so many of those a year, so the idea was scrapped and the car ended up sitting untouched.

"The body in white sat around for a year, and finally I just went to my boss and said, 'Hey, look if we're not going to do anything with this car, let me build it into a road racer and let's get some exposure.' He said if you can do it and not 'spend



K&N ENGINEERING 2014 FORD MUSTANG GT	
Weight:	3,548 lbs. w/driver
Engine:	5.0 Coyote
Transmission:	Tremec Magnum XL
Suspension Front:	Cortex SLA
Suspension Rear:	Cortex torque arm with Watts link
Tires Front:	Toyo RR 275-35-18
Tires Rear:	Toyo RR 275-35-18
Brakes Front:	Baer 6R caliper
Brakes Rear:	Baer 6R caliper
Data System:	AiM Series II MXL, AEM Infinity engine management system
Sponsors:	K&N Filters, Ford Racing, Cortex Racing, AEM Electronics, Bassani Exhaust, Optima Batteries, G Stream, RTR, Hawk Performance, Baer Brakes, Eibach, Racetech, NASA, Toyo Tires.

the world,' then that's fine."

Martis spent the next three months lining up sponsoring companies to supply parts. They had to purchase many components, too, because a body in white comes with, well, nothing. No engine, transmission, axle, suspension, among other things. Just a bare tub with fenders, doors, and glass. They don't even have seam sealer. Before they began installing the parts and pieces, Martis and his team started by removing as much unnecessary metal from the tub as possible.

"We basically started off removing a bunch of sheet metal because a body in white comes with all the inside door panels and kick panels and a lot of sheet metal that you really don't need in a racecar," Martis said. "So we cut the roof off of it and cut basically all the interior sheet metal out of it. We took probably 450 pounds of sheet metal out of it before we started."

Martis and the team at K&N used the project as "filler work" between other projects in the shop. They built the cage and infrastructure for different systems, such as the fuel cell. Once they had that work completed, they sent the car out for paint. Contrary to the name, the car wasn't white when it arrived. It was dipped in zinc chromate, that olive drab primer all bodies go through before the paint process at the factory.

They then fitted the car with a factory-fresh Ford Coyote 5.0-liter V8, a Tremec Magnum XL six-speed transmission and a custom rear axle built at Curry Enterprises in Corona, Calif. Curry Enterprises welded thicker axle tubes on the differential housing because the factory tubes can bend or flex. Curry also added approximately 1 degree of negative camber and an eighth inch of toe out. The setup employs full-floating axle shafts








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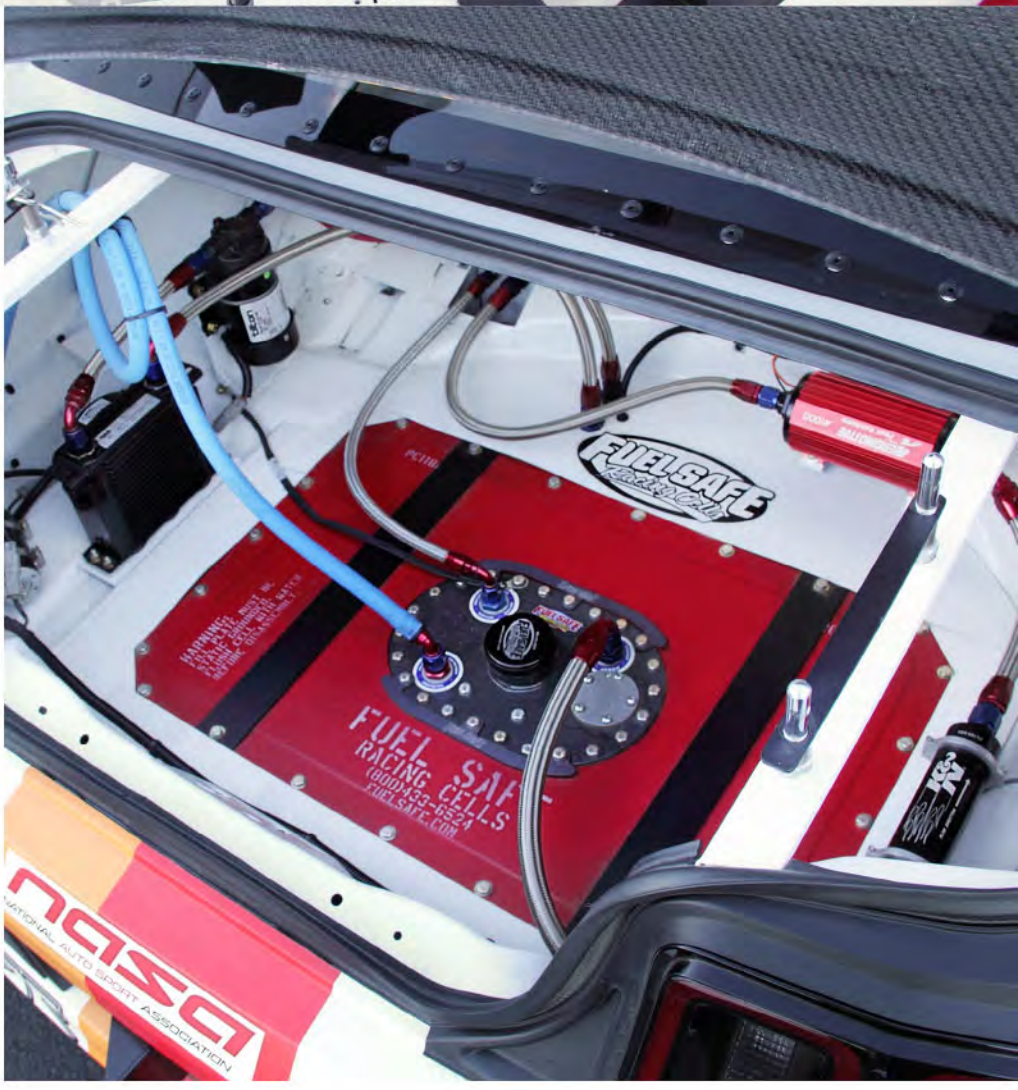


with splines on each end. Basically the hub and the spider gears are splined, and the axle shafts are conically splined so they don't bind due to the angles imposed on the axle tubes. Martis tied it all to the chassis with a Watts link and torque arm system from Cortex Racing in Sonoma, Calif.

"It makes the car turn in and handle a lot better, especially on a stick axle car," Martis said. "On a technical track, it really shines. The car is more predictable. You can run it on the edge a lot more. As far as tire wear goes, it's not so bad. You end up burning the rear tires off the car before they scrub out. The car is making 400 horsepower. As heavy as it is, it's very easy to spin the rear tires."

In stock trim, the S197 Mustang uses McPherson front struts, but a body in white doesn't include any suspension components. For the front suspension, Cortex also supplied a full K-member, to which all the components of the short-long arm suspension fastens.

"It's pretty much a bolt-in deal,"







Martis said. “We didn’t have to do any welding on the car.”

Given the long relationship between the two companies, K&N tapped AEM to develop the engine management system for the new racecar. AEM needed a test car to develop its new Infinity system for Ford Coyote applications. In addition to fuel and timing curves, the Coyote engine also benefits from variable valve timing, all of which can be fine-tuned with the AEM Infinity system.

“Our Ford was the first racecar that had the Infinity tuning system on it, as far as Coyote engines are concerned,” Martis said. “It’s basically plug and play and it worked out well. I really can’t say enough about those guys. They really helped us out.”

In its first season of racing, the car came close to winning the American Iron title at the 2014 Western States Championships. In one of the best races of the weekend, K&N driver Ryan Walton diced with Agent 47’s Corey Weber in an epic battle. Walton missed a shift about midway through the race, which allowed Weber to slip by. Walton never could find his way back to first, and ended up finishing second.

“It was going well. I was in the lead,” Walton said. “I missed a shift going toward the Carousel and that’s when he got by me. I stuck with him and we kind of fought through traffic together, but it wasn’t meant to be, I guess.”

The K&N car isn’t competing this year because there was no budget allotted for racing. Martis thinks it’s only a matter of time before it’s back on track.

“The car’s not going anywhere,” he said. “It’s ready to go on the trailer and go racing next weekend if we had to. We spent quite a bit of time and money on it. I certainly don’t want to see it sit and become a hangar queen.” SN

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JASON STANLEY

Age: 29
Region: Southeast
Hometown: Fort Worth, Texas
Racing Class: 944 Spec
Sponsors: Fantasy Garage, U.S. Army Reserve
Day Job: Company Commander and UH-60 Pilot, A Company, 1st Battalion, 169th Aviation Regiment, USAR, Ft. Bragg, NC.
Favorite Food: Crystal's Stuffed Shells
Favorite TV show: "Firefly"
Favorite Movie: "The Big Lebowski"
Favorite Book: "Band of Brothers"
Favorite Track: Circuit of the Americas
Dream Racecar: Mark Donohue's 1971 AMC Javelin Trans Am



United Jason Stanley leads the Southeast Region's 944 Spec class with military precision, and he is always thinking ahead. It might have something to do with his day job, in which Stanley pilots Army Black Hawk helicopters and must plan for the unexpected at 140 mph.

When Stanley joined the Army as a commissioned officer, he knew that moving was part of the job, but he still wanted to race. So he studied the classes in NASA and decided 944 Spec had the best prospects no matter where he lived in the U.S.

"I surveyed what kind of classes were popular, and I wanted a good representation in different portions of the country where I would go," Stanley said. "Based on my survey, it was the 944 Spec class."

Stanley is now on a mission to grow the 944 Spec class in the Southeast Region after taking over as the Series Leader. Leading a group of racers who already have a strong camaraderie, Stanley is promoting education, preparedness and financial incentives to build the ranks. Fellow racers say Stanley's enthusiasm is noticeable, especially his willingness to help the racers improve their performance on the racetrack.

"(Jason) will wrench on other guy's cars or share his video and racing line and shift points with anybody," said Pete Yousko of Rock Hill, N.C., who competes in the 944 Spec series. "I don't want to say it's unique, but I don't think everybody wants to do that."

Stanley was practically born to race cars while growing up in Texas. His father raced a Formula Ford and his neighbor was a drag racer. He was attending races by age 8.

"My dad has pictures of me sitting in his Formula Ford before I can even remember," Stanley said.

He raced go-karts as a youth, but gave it up so he could focus on academics after entering the ROTC program at Texas A&M University in College Station. "I got to wear a uniform to class everyday — it's military lifestyle living—but on the weekend you're a normal college student," Stanley said. "It was the best of both worlds."

While attending flight school after college, Stanley was participating in high-performance driving events in a Corvette he purchased from his brother. After blowing out a tire and destroying the rear fiberglass panel, Stanley decided it was time to buy a dedicated racecar.

Stanley bought a race-ready Porsche and quickly had one of the faster cars in the 944 Spec series. It's not a surprise since flying a Black Hawk helicopter requires fast reflexes and a steady hand under pressure.

"Being able to anticipate things that are developing is a large part of being successful as a pilot and as a racer," Stanley said.

Stationed at Army's Fort Bragg base in North Carolina, Captain Stanley is the Company Commander of a reserve unit that has eight UH-60 Black Hawk helicopters and 70 soldiers. He still regularly pilots the twin-engine, four-blade helicopter ferrying high-ranking officials, moving



PHOTO BY ERIC TILLOTSON/AWOLPHOTO.COM

large equipment and providing support to troops on the ground.

With his military background and strong organizational skills, Stanley's peers tapped him to lead the 944 Spec class in NASA Southeast. Stanley has jumped into the job with gusto and a long-term plan to grow the class.

He's pushing to get at least 10 cars to each race so the 944 Spec class can have its own start and more drivers can reap the benefits of NASA's contingency program. Ideally, Stanley would like at least 15 regulars, so the class is self-sustaining. Stanley also holds driver development programs during race weekends and shares the contingency prizes he's won — tires and brake pads — with his fellow competitors. He'll even jump into their cars to help them squeeze out added speed.

"He hit the ground running and has put a ton of energy into it," said Jim Pantas, NASA's Southeast Regional Director. "He really works hard at trying to get more people in it."

Stanley believes that if the racers are having fun, that will attract more drivers to the class. That's why he stresses to the group to make repairs to the cars before showing up at the track. In turn the drivers will see improved lap times and are more likely to return, he said.

"With my background … it's be prepared and come to the track prepared," Stanley said. "Rather than having a late Friday night to get ready for the race, get the work done at home and make the race that much more enjoyable."

One of the existing programs in the Southeast Region's 944 Spec class is where new drivers are invited to the "Chicken Shack" garage in Georgia, and the seasoned drivers get together to work on a newbie's car. It's this camaraderie that Stanley says only helps the new-driver recruiting process.

Although the drivers are friendly in the pits, they are competitive on the track. Stanley emphasizes to the drivers to make smart decisions on the track and leave a proper distance between cars.

"At the end of the day, if we're all going home with the cars in one piece, does it really matter what the finishing position was if we all had fun?" he said. And Stanley has fun whether it's in a Black Hawk helicopter or on the racecourse.

"What I like about both flying and driving is integrating with the machine and getting the most out of the machine that you can," he said. "They both have their rewards and satisfaction levels." — Gregg Mansfield SN

NASA Northeast GTS Kicks Off 2015 at NJMP

The first event of 2015 brought out 24 racers for the German Touring Series, six in GTS2, nine in GTS3, eight in GTS4 and one in GTSU. The entire weekend in GTS2 turned into a back-and-forth battle between Luke Pardi and Michael Sousa. Saturday turned out to be Pardi's day, with him winning the pole and finishing on top in the race. At the end, Pardi was one short second ahead of Sousa. On Sunday, the roles reversed and Sousa managed to get the pole and held on to the win in the race. David LeBlanc could have challenged the dominance of Pardi and Sousa, but an engine failure took him out of the battle barely into five laps of the Saturday's race. Hugh Stewart dominated GTS3 both days, even though Luiz Serva made an attempt to steal it from Stewart, especially on Sunday, when he managed to out-qualify his teammate. But Stewart's experience paid off and he finished ahead with a good margin both days. Frank Ferrara finished third both days. In GTS4 on Saturday, Mathieu Lussier ran away from the field, finishing nearly 11 seconds ahead of Michal Kuna and more then 1 second better per lap. New to NASA Northeast, driving a Porsche Cayman, Rob McInerney finished third. On Sunday, Lussier didn't run, and in his absence, Jeff Segal took charge, not only by winning the race, but also by putting down the GTS4 lap record time of 1:10.081. Rob McInerney managed to finish second just ahead of Michal Kuna this time. Both races went clean, which marked promising start to the busy season of 2015.

For round two of the 2015 season, NASA Northeast returned to NJMP to run the Thunderbolt course with the chicane. This event brought a total of 35 drivers pre-registered for the weekend in GTS. On Saturday, Michael Sousa took pole in GTS2, running fast 1:33.083, followed by Dan Harnick and Aaron Turek. All three cars are E36 M3 BMWs running with restrictor plates. The entire race was nose to tail between those three drivers, entertaining to watch and keeping the audience on the edges of their seats.



MIKE WOELLER/WINDSHADOW STUDIOS

No. 530 Michael Sousa split wins in GTS2 with Luke Pardi at the NASA Northeast season opener at New Jersey Motorsports Park in April.



Shaun Ashley finished in second on Saturday at round two of the NASA Northeast season at New Jersey Motorsports Park. He took pole on Sunday and went on to win GTS4.

MIKE WOELLER/WINDSHADOW STUDIOS

Unfortunately for Sousa, in the heat of battle and defending the position, he attempted an inside pass on a lapped Miata in Turn 1, which didn't work very well, sending the Miata off, resulting in minor bruises to the front bumper of his car and a DQ, which gave the win to Dan Harnick, who finished .040 seconds ahead of Aaron.

In Saturday's Thunder race, GTS had its own start as a second wave. Hugh Stewart was untouchable in his somewhat restricted but very fast E46 328i/M3. No one could seriously contest Stewart during the race and he ran away from the rest of the GTS3 field with the best lap of 1:29.8, finishing almost 15 seconds ahead of Luiz Serva and Robert Jakowitz.

The GTS4 field was dominated by Michal Kuna in his wide-body E46 M3, running the best lap of 1:29.75. Shaun Ashley was getting comfortable in the newly built E46 325 with an M3 engine and sequential box. He was improving from one session to another, finishing second in the race 7 seconds behind Kuna. Jack Haberman and Mathieu Lussier kept the tensions high, running bumper to bumper through the entire race. Kudos to both – run close, but clean and with respect to each other and everyone around, finishing third and fourth respectfully.

Sunday morning Shaun Ashley (GTS4) was on pole of the GTS group with qualifying time of 1:30.1, joined by Hugh Stewart (GTS3, 1:30.6), followed by Kuna (1:30.9) and Jeffrey Segal (1:31.0), both in GTS4. Ashley ran away and never looked back, feeling much more comfortable with the new car. Segal was piloting Josh Smith's old car, which he acquired in off season, (the car that Smith won two National Championships in GTS 3 back in 2011 and 2012, now upgraded for the GTS4 class). He is a fast driver in a fast car, but sometimes still struggles with consistency in the heat of the battle. On lap seven, he was too hot in Turn 5, dropped two wheels off, attempted to correct, couldn't catch it, spun and collected Hugh Stewart on the way, who was an uncontested leader of the GTS3 at the time.

To everyone's surprise the double yellows never came. The track was doing hot pulls and the entire field was navigating around wreckers for a good portion of the remaining race. Kuna finished second in GTS4 followed by Jack Haberman. With Stewart out, the battle for the win in GTS3 was between Frank Ferrara, who took the lead after the incident, and Luiz Serva, who got stuck behind Haberman for a few laps. Serva got around Haberman and caught Ferrara at the Octopus one lap before the end of the race. Luiz was in a better position at the exit of the Octopus, taking advantage of traffic slowing down Ferrara, passed him and never gave it back. At the checkered flag they were separated by just .137 seconds!

The Lightning grid was a repeat of Saturday: Sousa, Harnick, Turek. On lap seven, Harnick suffered with the flat tire and dropped out. Aaron Turek challenged Sousa, but at the end Sousa came out on top by .4 seconds. — Michael Gershanok

FOR RESULTS CLICK HERE

Stepanian Takes Points Lead at Auto Club Speedway

The 2015 NASA SoCal Spec E30 racers roared into Fontana, Calif., for round three. Temperatures in the high 70s welcomed 16 teams who came ready to duke it out on the high banks of Auto Club Speedway.

As they have done all season, the top qualifiers shattered the existing track record, ensuring that the pace for the weekend would be exciting. Michael Mihld took the pole for the first race of the weekend with the fastest time of the weekend, laying down a 2:00.780 lap, besting the track record by more than a second! Steve Stepanian qualified on the outside pole, besting his fastest time by a full 2 seconds. Row two had Sean Aron in Q3 with new comer Gavin Bristow, from the U.K.-based Mini Challenge on the outside in Q4. From the drop of the green flag, Mihld and Stepanian worked with each other to gap the field and then battle it out. However, once they got a nice size lead, Stepanian made a costly error in Turn 9, giving Mihld a large lead. Mihld went wire to wire for the win. Stepanian finished second, and taking third was Allan Hauser, who started from the back of the field due to his missing qualifying. Positions four through six were filled by Andrew Clark, Hubert Young and Jerick Javier, respectively.

There was no qualifying race Sunday, so the Race Director chose to invert the top six qualifiers just to make things interesting. That put No. 17 Javier on pole with JoJo McKenzie's No. 15 outside him. Steve Agoston started behind the pole sitter and Clark started fourth. The Spec E30 group took their traditional standing start as the fourth wave. Being that late in the field, the green dropped just as the majority of the pack was getting in position. Some were caught sleeping, but the front of the pack got away clean. Coming off the banks and turning into the infield, Agoston took the early lead with Hauser, Clark, Javier and Stepanian nose to tail, giving chase. Agoston and Hauser raced for three straight laps with Stepanian close behind. On lap four, Hauser tried to out-brake Agoston going deep into Turn 5. Stepanian capitalized on their battle and slid under the two of them to take the lead with Clark and Charles Buzzetti in tow. As the clock ran down, Stepanian held on to take the win and moved into the lead in the SoCal points standings. Clark finished second with Hauser snatching the last podium spot. Agoston finished in the fourth spot and ironically, Young and Javier repeated their Saturday finishes in fifth and sixth, respectively. — Shawn Meze

FOR RESULTS CLICK HERE



No. 00 Steve Stepanian leads the pack into the infield at Auto Club Speedway. Michael Mihld won on Saturday, and Stepanian took the win Sunday, moving him into the points lead.

PHOTO BY CAL PHOTOGRAPHY.COM



Filippi On Top in Spec Miata At Auto Club Speedway

Teen Mazda Challenge West kicked off its season in Southern California May 16, and the big fields produced some intense racing on the high banks of Auto Club Speedway.

Starts always produce some chaos at Turn 3, where the superspeedway empties into the infield portion of the racetrack. On lap one, everybody got through OK, but three laps later the field was still pretty tight. Roy Fulmer Jr. got bumped in the braking zone, which pinged him off Robbie Rodriguez and John Mueller, ending his race then and there. The rest of the field made it through and the race resumed. By that time, the three leaders separated from the pack for a while, but as Teen drivers Matt Million, Will Rodgers and Mason Filippi battled for position, the rest of the field had bump-drafted efficiently enough to catch the leaders. As the race progressed, there was more carnage in Turn 3 and still more in Turn 5. Late in the race, double yellows came out, bunching up the field for what would result in a green-white-checkers finish.

"I got a pretty good run and Matt Million ended up making a mistake going into 3," said Rodgers, who finished second. "Mason Filippi ended up going off into the grass, because he got a little nervous about Matt and I was able to slot into the lead position for almost a whole lap."

Meanwhile, Justin Casey had been methodically clawed his way through the pack to finish third, after starting from 15th of 28 cars. "I worked with my teammate Matt Cresci and did some strategic bump-drafting, and after one quick restart, finished third overall," Casey said. "First time here at this track and I'm really happy with how I did."

On the last lap, Filippi had a mishap going into the infield, but was able to find his way back to the top step of the podium. "On the restart, we went out and then everyone went really deep into Turn 3 on the restart," Filippi said. "Matt and I went in the dirt and Will came out first, and Cresci was on the left in the grass. We came out and I was following Will through the rest of the track, and I got a little bit better run out on the banking and I ended up drafting and passing him at the last second before the checkered flag."

Sunday's race start was mired by a crash caused by a missed shift at the front of the field. Crews weren't able to clean up the front straight in time, so the race never really started, and finished under double yellow. — Brett Becker

No. 21 Mason Filippi leads the field through Turn 13 on his way to win the first Teen Mazda Challenge West race at Auto Club Speedway in May.

FOR RESULTS CLICK HERE

German Touring Series Jams at Road Atlanta

The Southeast region of the National Auto Sport Association descended upon Road Atlanta the weekend of June 5-7. The German Touring Series featured marks from three different manufacturers, and GTS was represented in the Thunder group with GTS3 through GTSU cars and in the Lightning group with GTS1 cars. GTS1 featured a close battle between Patrick Laughton's Audi A4 and Larry Helm's Porsche 944. Laughton and his Audi took the win both days, but the margin of victory on Sunday dropped from 15 seconds on Saturday down to 3 seconds on Sunday. Helms, in his Porsche, dropped 2 full seconds from his fastest time on Saturday and was consistently faster on Sunday to make this a battle for the top spot.

In GTSU, running unopposed, David Richardson and his Porsche 997 Cup car started from the final spot on the grid Saturday and Sunday. By doing so, he went on to win the Sunoco Hard-Charger award, by driving himself from last to a top five overall finish both days. The Thunder group featured a split start both days, with GTS starting in the second group to take the green, so even though Richardson has an impressive car that out-matched most of the field, being able to run through most of the cars out there clean and in only about 25 minutes of green-flag racing was an exceptional achievement in a car that is very new to him.

GTS3 saw only one car entered with Phillip Franz and his E36 M3 running solidly on Saturday. He took the win both days despite breaking a lower control arm bearing, which came off and punctured a hole in the oil pan. With quick reactions, he pulled his BMW off the track before he did any real damage to the car and the engine. He was able to complete nine laps to the leaders' 14, so he came away with first-place points.

GTS4 featured a battle between a seasoned veteran and a fresh-out-of-competition-school rookie. Bob Hahnemann and his Porsche 951 turbo took the win on Saturday and Sunday, driving a fast and clean race both days. Jimmy Scott's BMW E46 SMG M3 had an issue with the second throttle position sensor located underneath the intake plenum, but with some help from some guys around the paddock, his own team and Joshua Hoffman, he was able to make the race Saturday. On Sunday, with a car that worked well all day, he was able to qualify and mix it up with Hahnemann. — Joshua Hoffman

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No. 93 Bob Hahneman picked up two wins in GTS3 at the June Jam at Road Atlanta. No. 06 David Richardson won the Sunoco Hard-Charger award, by driving his GTSU 997 Porsche Cup car from last to a top five overall finish both days.

PHOTO BY ERIC TILLOTSON/AWOLPHOTO.COM

Espinosa and Whitinger Split Wins at Carolina Motorsports Park

Saturday qualifying saw Sandro Espinosa at the top of the charts with a blistering 1:51.3, the second fastest time ever for a SpecE30 at Carolina Motorsports Park in May. Youngster Alex Barroso and Spec E30 veteran Bill Zawrotny started second and third. In Saturday's race, Zawrotny aced the start and took the lead with Espinosa in hot pursuit. While Zawrotny and Espinosa dueled in front, Ryan Whitinger and Colin Fabeny moved quickly to close in on the leaders. After several lead changes, the race turned into a Whitinger/Espinosa battle — a common sight in Spec E30 — with Fabeny holding a solid third, and hoping to pounce if the dicing race leaders got too "enthusiastic." With 15 minutes remaining, Whitinger had managed to pull a 2-second lead, but then Espinosa started to close the gap.

Working through traffic, Espinosa caught Whitinger at the 10-minute mark and took the lead. But those last 10 minutes saw another epic battle between the two leaders, with Espinosa managing to cross Start-Finish a mere 0.948 seconds ahead of Whitinger for the win. Barroso, a newcomer to Spec E30 drove a solid race to snag the last step on the podium. Sunday's race again saw great weather and some fast lap times. Whitinger took the pole position with Barroso and Zawrotny starting second and third, with Fabeny less than a tenth of a second behind in fourth. Sandro Espinosa had missed the qualifying session so he started at the back of the 15-car field. Whitinger took a clean start and led the pack from green to checker for the win. Barroso, Zawrotny and Fabeny likewise held their positions for most of the race. That is, until a charging Sandro Espinosa, doing his own version of the traditional Spec E30 inverted field unlimited challenge, worked his way through the entire field to move into second place by the time the checkered flag fell. Congratulations to the entire SpecE30 field for the weekend of hard but incident-free racing. — Fred Switzer

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No. 32 Sandro Espinosa came out on top Saturday, but because he missed qualifying Sunday, he started from last and finished second. No. 414 Ryan Whitinger led from green to checkers to take the win Sunday.



PHOTO BY ERIC TILLOTSON/AWOLPHOTO.COM

Nonstop Action at USTCC Buttonwillow Season Opener

The Nitto Tires United States Touring Car Championship teams started the 2015 season with the most difficult race of the year, a day-into-night, two-hour-long enduro at Southern California's Buttonwillow Raceway on April 18, 2015.

In a race that started with the pole sitter's time being disallowed for non-working GPS data, the action was nonstop for two hours. It seemed like many cars had mechanical issues and more than a few suffered flat tires and some ran out of fuel. At the end, Jason Alexandridis ended up finishing first in the TC class in the TNI Racing BMW M3, but he was disqualified for being underweight after the race. The win then went to Beau Borders in the Comp Clutch/Hawk BMW M3. Second was the team of Patrick Chio and Andrie Hartanto. Third place went to Karl Chicca in the second Comp Clutch/Hawk BMW M3.

In the GT class, Mike Holland/Steve Lisa finished first in the Mendeola Powertrains Factory Five GTM just seconds over V.J. Mirzayan and his Achilles Motorsports BMW M3. Due to a timing and scoring issue during the race, Mirzayan was granted 10 additional points after the race. Daniel Akhromstev finished third in the Red Star Racing BMW M3. Overall, USTCC winners collected about $10,000 in prizes. — Ali Arsham

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Beau Borders (middle) won the GT class in his Comp Clutch/Hawk BMW M3. Second was the team of Patrick Chio and Andrie Hartanto (left). Third place went to Karl Chicca in the second Comp Clutch/Hawk BMW M3.



REZA ARSHAM



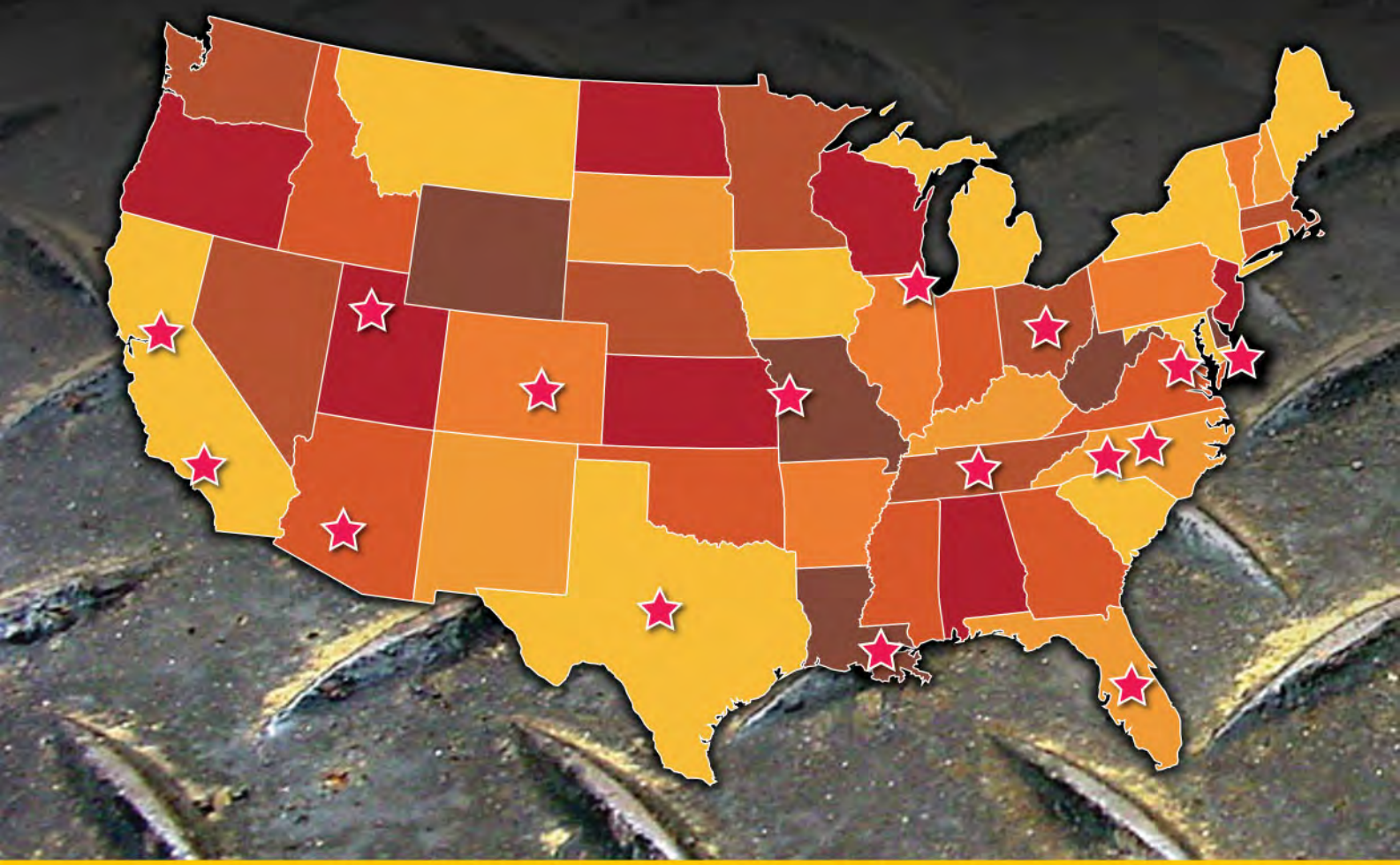
The United States Touring Car Championship kicked off 2015 at Buttonwillow Raceway Park with a day-into-night, two-hour endurance race.

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FEATURED CONTINGENCY PROGRAMS

TOYO TIRES driven to perform

- Regional Enduro
- Regional RS1
- Regional Championship
- Championships Open Tire
- Championships Spec Tire
- Championships Time Trial
- Championships RS1
- 25 Hours of Thunderhill

Ford Racing

- Regional
- NASA Championships

AST Suspension

- Regional Racing
- NASA Championships

BFGoodrich Tires

- Regional Open Tire
- Regional Spec Z
- NASA Championships Non-Spec
- NASA Championships Spec Z

Frozen Rotors

- Regional Racing

tilton

- NASA Championships

Honda Racing HPD

- Regional Racing
- Regional Championship

Hoosier Racing Tire

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- NASA Championships

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- Regional Racing

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Maximum Motorsports

- NASA Championships

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2015 REGIONAL CALENDAR

NATIONAL CHAMPIONSHIPS	
Jul. 31-Aug. 2	Western States, Mazda Rcwy Laguna Seca, CA
Sep. 4-6	Eastern States, Virginia Intl. Raceway, VA

ARIZONA REGION	
Oct. 10-11	Inde Motorsports Park, AZ
Nov. 7-8	Wild Horse Pass East, AZ

CENTRAL REGION	
Jul. 4-5	Brainerd Intl. Raceway, MN
Aug. 1-2	Road America, WI
Aug. 15-16	Motorsports Park Hastings, NE
Sep. 26-27	Kansas Speedway, KS
Oct. 17-18	Mid-America Motorplex, IA

FLORIDA REGION	
Sep. 4-6	Virginia Intl. Raceway, VA
Oct. 3-4	Sebring Intl Raceway, FL
Oct. 31-Nov.1	Daytona Intl. Speedway, FL

GREAT LAKES REGION	
Jul. 17-19	National Corvette Museum Motorsports Park, KY
Jul. 31-Aug. 2	Road America, WI
Sep. 19-20	Autobahn Country Club, IL
Oct. 2-4	Mid-Ohio Sportscar Course, OH

MID-ATLANTIC REGION	
Jul. 17-19	Virginia Intl. Raceway, VA
Aug. 8-9	Dominion Raceway, VA
Aug. 15-16	Summit Point Motorsports Park, WV
Sep. 4-6	Virginia Intl. Raceway, VA
Sep. 12-13	Dominion Raceway, VA
Oct. 10-11	Virginia Intl. Raceway, VA
Nov. 7-8	Summit Point Motorsports Park, WV

MID-SOUTH REGION	
Jul. 18-19	National Corvette Museum Motorsports Park, KY
Sep. 26-27	Memphis Intl. Raceway, TN
Oct. 31-Nov. 1	Barber Motorsports Park, AL

MIDWEST REGION	
Jul. 17-19	Natl Corvette Museum Motorsports Pk, KY
Jul. 31-Aug. 2	Road America, WI
Sep. 19-20	Autobahn Country Club, IL
Oct. 2-4	Mid-Ohio Sportscar Course, OH

NORTHEAST REGION	
Jul. 3-4	Lime Rock Park, CT
Jul. 24-26	New Jersey Motorsports Park, NJ
Aug. 3	New Jersey Motorsports Park, NJ
Aug. 21-22	Thompson Speedway, CT
Sep. 25-27	Palmer Motorsports Park, MA
Oct. 16-18	New Jersey Motorsports Park, NJ

NORTHERN CALIFORNIA REGION	
Aug. 29-30	Thunderhill Raceway, CA
Sep. 26-27	Sonoma Raceway, CA
Oct. 24-25	Sonoma Raceway, CA
Dec. 5-6	25 Hours of Thunderhill, CA

NOLA REGION	
Jul. 11-12	NOLA Motorsports Park, LA
Sep. 12-13	NOLA Motorsports Park, LA
Nov. 21-22	NOLA Motorsports Park, LA

ROCKY MOUNTAIN REGION	
Jul. 4-5	Pueblo Motorsports Park, CO
Aug. 15-16	Motorsports Park Hastings, NE
Sep. 19-20	Pueblo Motorsports Park, CO
Oct. 9-10	High Plains Raceway, CO

SOUTHEAST REGION	
Aug. 1-2	Road Atlanta, GA
Sep. 26-27	Roebling Road Raceway, GA
Oct. 9-11	Virginia Intl. Raceay, VA
Oct. 31-Nov. 1	Daytona Intl. Speedway, FL
Dec. 5-6	Road Atlanta, GA

SOUTHERN CALIFORNIA REGION	
Oct. 10-11	Buttonwillow Raceway, CA

TEXAS REGION	
Sep. 26-27	Motorsports Ranch Houston, TX
Oct. 17-18	TBA
Nov.	TBA

UTAH REGION	
Jul. 17-19	Miller Motorsports Park, UT
Aug. 7-9	Miller Motorsports Park, UT
Sep. 25-27	Miller Motorsports Park, UT
Oct. 23-25	Miller Motorsports Park, UT
Apr. 25-26	Hallet Motor Racing Circuit, OK
Apr. 25-26	Hallet Motor Racing Circuit, OK



TOOL TIME

Tim "The Tool Man" Taylor would be proud of the assortment of tools on the bench at 7's Only Racing in Buttonwillow, Calif. The variety and type of tools present on this one bench are an indication of the variety of work that racecars require, and the investment shops must make in their tool collections. We have no doubt you have invested a lot in your tool collection, too — because that's what it takes to go racing.

PHOTO BY BRETT BECKER

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