

# SEMA Show Special Part II

# CAR BUILDER

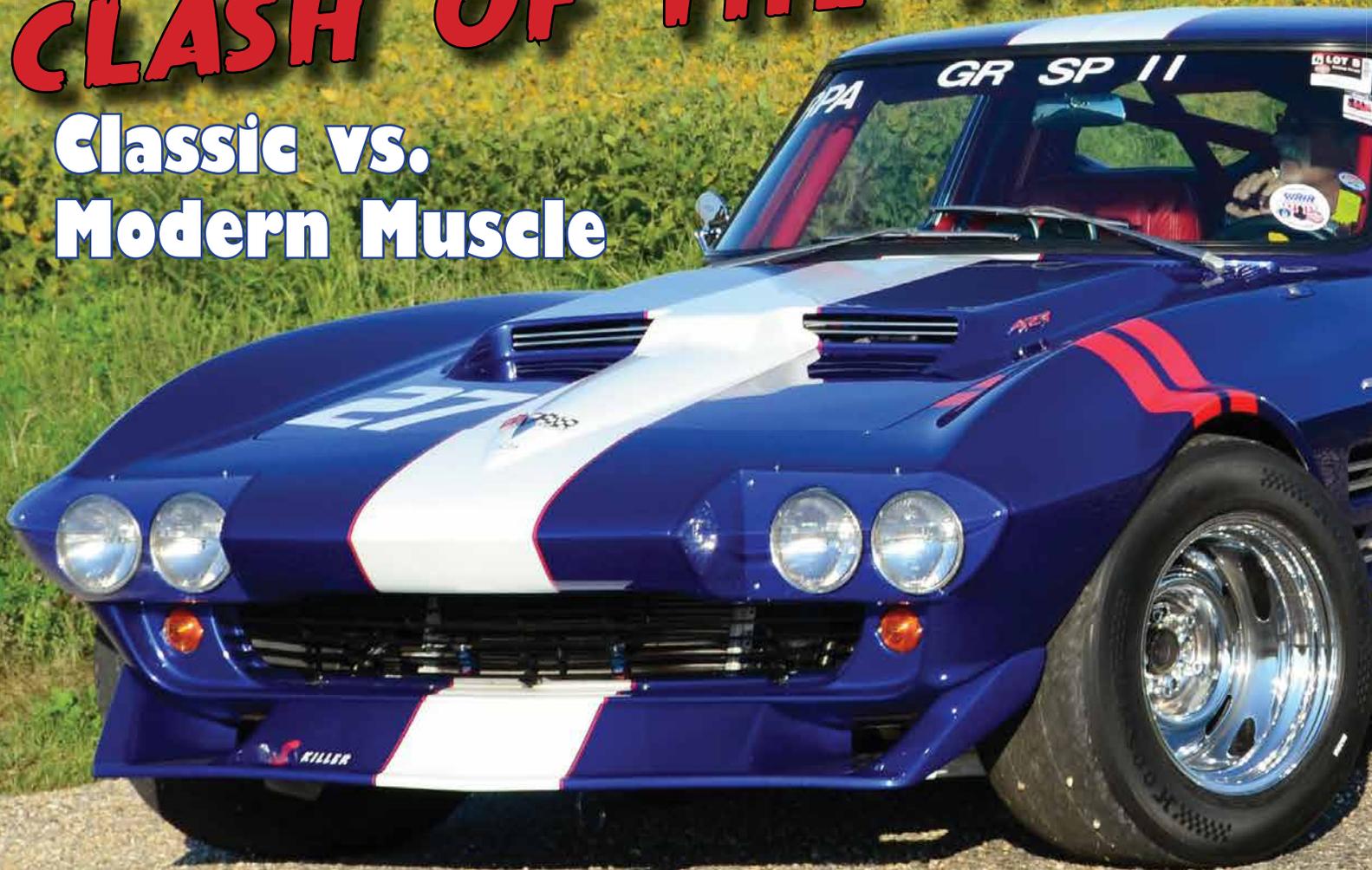


Exotic Camaro

January/February 2015

# CLASH OF THE TITANS

Classic vs.  
Modern Muscle



TIPS TO CUSTOMIZE  
YOUR  
COBRA



# CAR BUILDER



Exotic Camaro

January/February 2015

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Classic vs.  
Modern Muscle



# TIPS TO CUSTOMIZE YOUR COBRA



# 408 hp Attack GTR Kills Supercars



# Race-Ready Grand Sport Corvette



# 1000 hp Blown Hemi Hits the Street



# Corvette-Powered Cheetah

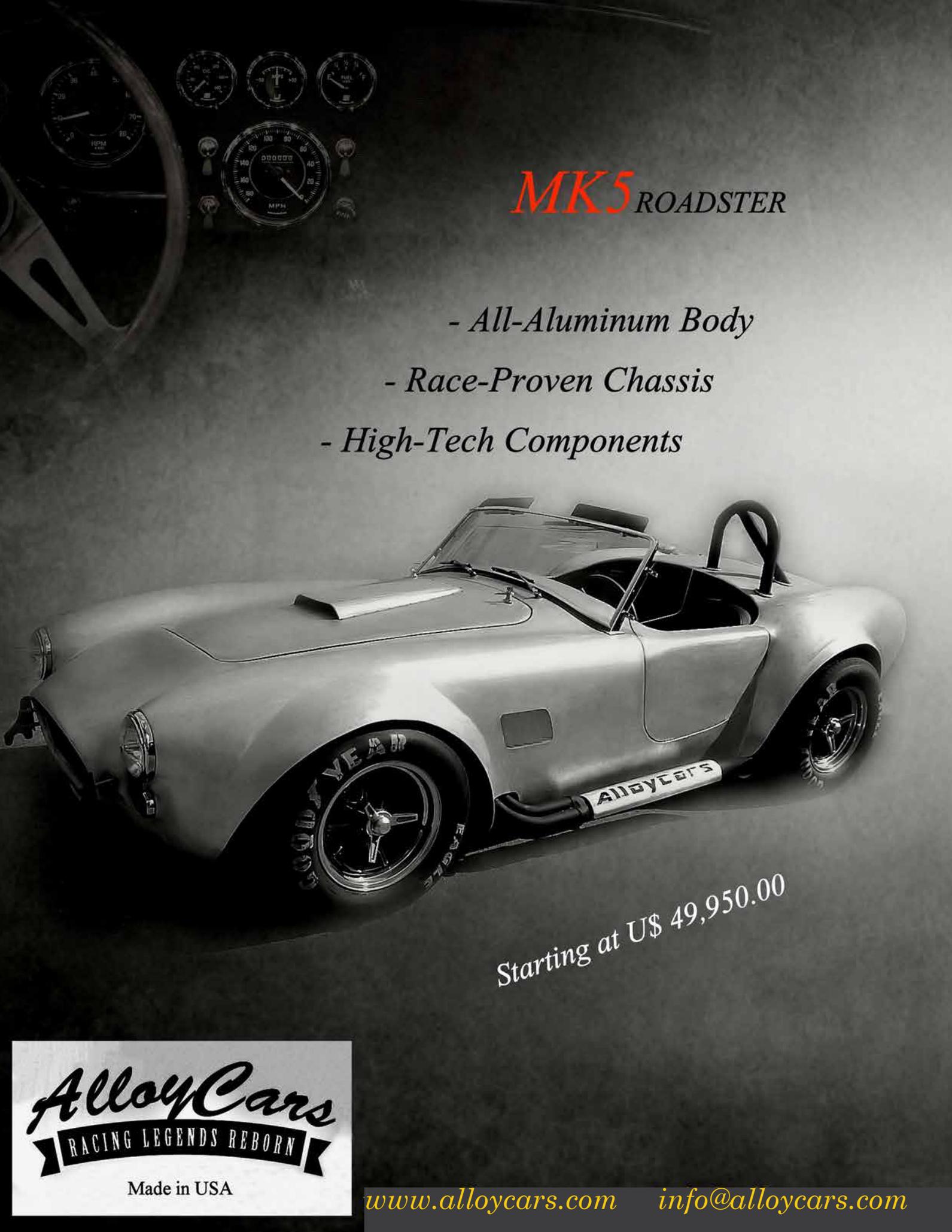
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A silver MK5 Roadster is shown from a front-three-quarter view. The car is a classic open-cockpit roadster with a roll-over protection bar. It features Goodyear Eagle tires and a silver side scoop with the 'AlloyCars' logo. In the top left corner, there is a close-up of the car's instrument cluster, which includes a tachometer, a speedometer, and several smaller gauges for oil pressure, water temperature, and fuel level.

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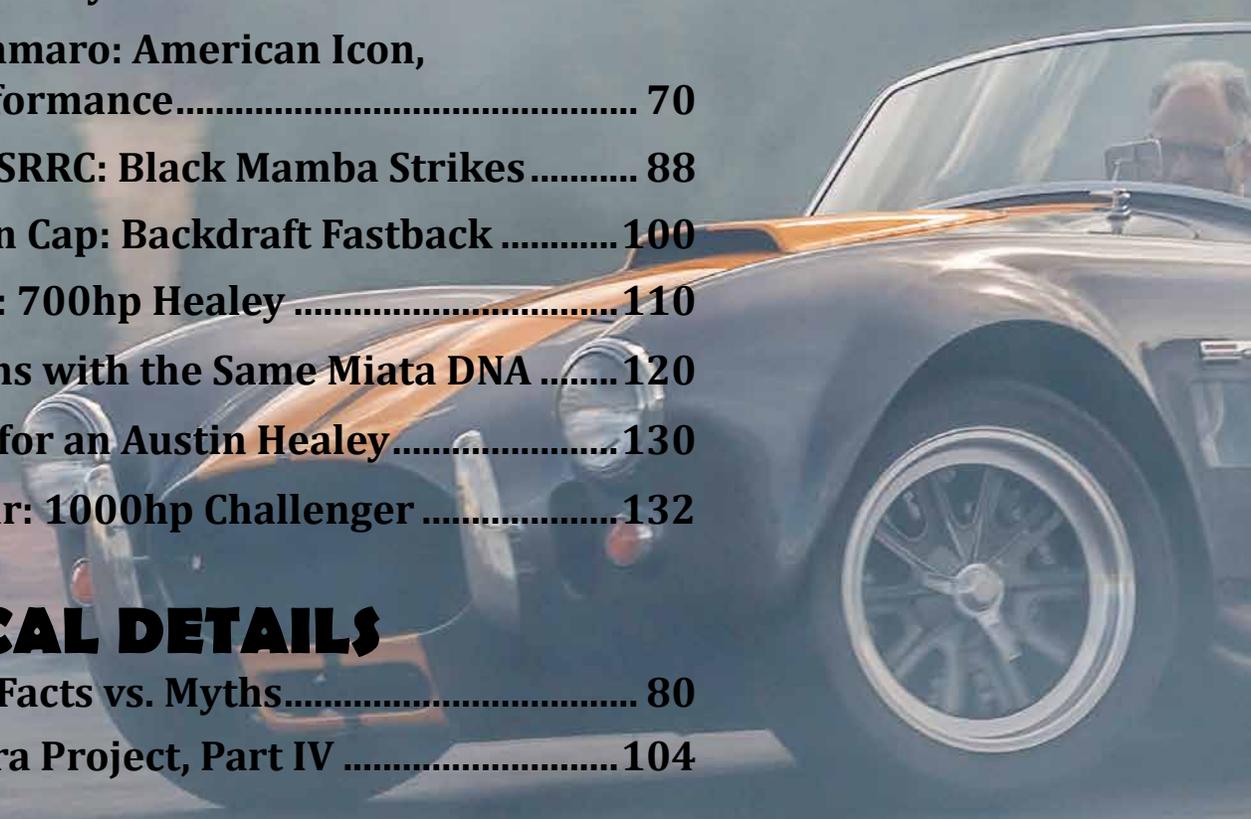
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# **CAR BUILDER**

**JANUARY / FEBRUARY 2015**

***Car Builder Staff:***

**Steve Temple - Editor/Publisher**

**Larry Weiner - Marketing**

**Deb Murphy - Art Direction**

**Tina Temple - Maven of Morale**

**Jim Youngs - Editor Emeritus**

**Denis Snow - Editorial and  
Advertising Manager, 310/614-2799  
dsnowmarketing@gmail.com**

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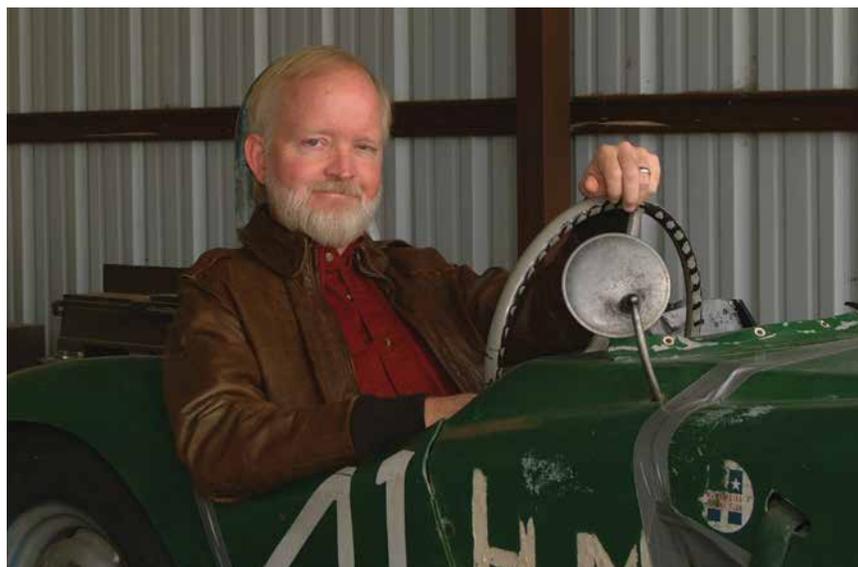
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**Editorial and Advertising inquires  
should be sent to  
[sctemple55@yahoo.com](mailto:sctemple55@yahoo.com)**

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Attack GTR, North Dallas Motorsports  
and Performance West Group.**

**Contents page photo courtesy of Factory Five  
Racing, with tire-smoking drift courtesy  
of David Smith**

# THROTTLE STEERING



Harold Pace, *requiescat in pace*

## One of Our Great Ones is Gone

I've just lost a good friend of the magazine, and a good friend in life. Harold Pace, our longtime and most knowledgeable editorial contributor, and a top-notch photographer as well, passed away from melanoma on December 1, 2014 at the age of 62. He's survived by his lovely wife of 26 years, Shelley Hilton Pace, and a large extended family.

I met Harold at my first editor's job in automotive journalism back in the early 1980s. He approached me about doing a series on the history of kit cars, which became a regular column called Kit Carchives (which he consistently penned

for eight years). He also provided numerous features for various magazines that I helmed later on, covering an impressively wide range of subjects, from rare engines to racing at Bonneville (such as the cover feature from our previous issue).

Through them all, he had an encyclopedic command of automotive subjects, so he became my "go-to guy" whenever I needed something covered in a thorough and competent manner. As a fledgling editor, I often told him that it was his job "to make me look good," which he willingly agreed to do with good-natured humility. In particular, his meticulous skills as an automotive photographer set a

standard in the field, and he was generous with his knowledge when I had to tackle a challenging shoot or needed help with a technical matter.

Harold's character and abilities hardly came as a surprise, considering the depth of his background. The quintessential car guy, Harold started playing with cars at the age of 13 when he began attending races at the old Green Valley Raceway near Fort Worth. He went on to restore classic cars and compete in SCCA and vintage road racing, drag racing and autocrossing. He was a hands-on enthusiast who worked on his own cars.

Over the years he owned more than 60 cars ranging from more

than a dozen '60s-era Mini Coopers to vintage Ferraris. Pace owned a commercial photography studio in Dallas from 1980 to 2000 when he happily made the switch to automotive photojournalism, contributing to more than 20 print and online car magazines during his career. He is considered to be one of the foremost experts in American specialty cars, and published a book, *Vintage American Road Racing Cars*, co-authored with Dr. Mark Brinker. In addition, he contributed to the *Beaulieu Encyclopedia of the Automobile*, for which he and the other authors received the Cugnot Award of Distinction from the Society of Automotive Historians.

His extensive knowledge of the automotive scene also made him

one of the world's top experts on American and European limited-edition automobiles, historic racing cars and hot rods. His personal research library included over 5,000 magazines, 700 books and hundreds of historic catalogs and sales brochures, and he was known for generously sharing information with other car enthusiasts.

Beyond my professional association with Harold, I gained something far more valuable along the way. His dry, contagious humor and sympathetic, gentlemanly demeanor endeared me to him. I always looked forward to joking with him on the phone or working with him at car shows. Whenever he encountered an odd or obscure car, he'd quip, "That's really ugly—I love it!"

My reliance on him

came to full fruition when we worked together on a particularly difficult custom-publishing contract for a well-known auction house (which will remain unnamed, due to my lingering resentment toward that company, and would become the subject of our mutual sarcasm for years later).

Harold's seasoned perspectives, solid integrity, and steely resolve proved to be invaluable in getting me through this underpaid project, and many others as well. For that alone, I will always be in his debt.

He is simply irreplaceable in my book, a standup guy with a heart as big and strong as a 426 Hemi V8. And I am heartsick over my loss.

- CB





## Carlisle Events Gears up for the 2015 Car Show Season

**A**fter a whirlwind 2014/40<sup>th</sup> Anniversary Season, Carlisle Events is already gearing up for its 2015 schedule. While the Carlisle Import & Kit Nationals held May 15-17 is of particular interest to readers of CAR BUILDER, the season kicks off in January with Auto Mania in Allentown, Pennsylvania. This event is Pennsylvania's largest indoor heated swap meet and is a great way

for enthusiasts to beat the winter blues by connecting to buy, sell and trade all things automotive. The all-weather event not only connects old friends and allows new relationships to be made, but also furthers family fun with a supporting farmer's market. In all, event #1 for Carlisle Events in 2015 serves as a great way to rev up for the New Year and new event season.

Up next for Carlisle

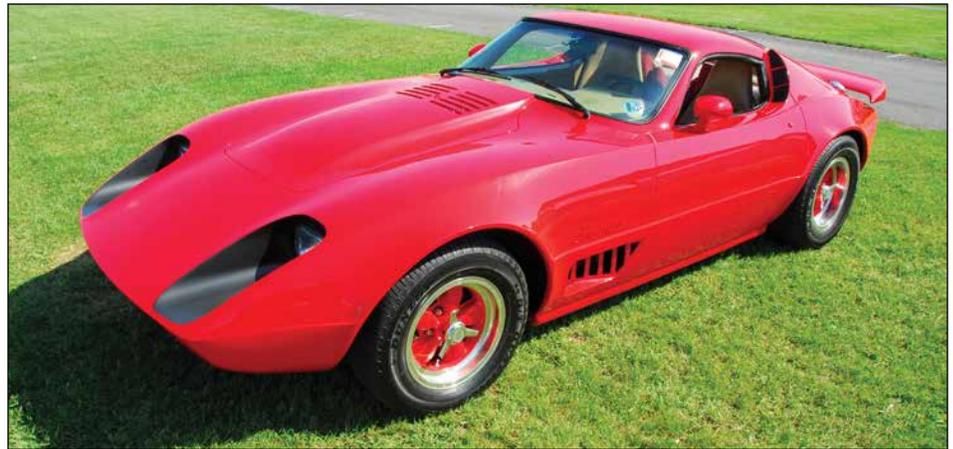
Events is a special feature and a happening not officially on the season schedule, but an important spotlight none the less. At the end of January, many of the Carlisle Events staffers will trek to the Philadelphia Convention Center for the historic Philadelphia Auto Show and will present the third annual Philly Face-Off.

The 2015 theme for this display is Import vs. Domestic. Cars built around the world and

owned by local and regional enthusiasts will be part of the display, which should feature about two dozen cars on each side. For Carlisle Events, this year's theme follows two which were wildly successful, Mustang vs. Camaro (2013) and Ford vs. Mopar (2014).

Just weeks after this fun in Philly, Carlisle Events is back in Zephyrhills, Florida for the final time ever for Winter AutoFest. The weekend fun runs February 19-22 and features a large swap meet and car corral, plus a collector-car auction of 400-plus vehicles, backed by Carlisle Auctions.

The Carlisle-based season ramps up with its home based schedule of events. The fun starts April 22-26 with Spring Carlisle that features a massive swap meet and car corral, a two-day auction offering backed by Carlisle Auctions, and the Hot Rodders of Tomorrow engine-buildup



challenge.

For readers of CAR BUILDER, the highlight of the year is the Carlisle Import & Kit Nationals, on May 15-17. This popular show hosts kits, replicas, imports and specialty cars from around the world. With enthusiasts visiting Carlisle from all over the mid-Atlantic region, they come not only to show and see rare and unique cars, but to also meet industry guests, listen to music, shop the large kit-car themed swap meet and to take a trip around the automotive world.

For 2015, Asian cars

are the main feature on the import side of the aisles, and the Passport Program returns too, allowing guests to earn prizes by walking the grounds and seeing all the cars. The Cumberland Valley region is also a popular draw for guests as the scenic back-country roads and covered bridges make for great afternoon car cruise options for those looking to take a break from the show itself.

Carlisle's Summer of Muscle follows as the Ford Nationals, GM Nationals and Chrysler Nationals honor some of the best muscle cars of all time. In addition,





a nice array of tail fins and chrome are showcased too. For Ford weekend, the GT, Thunderbird and Merkur will take center stage, while

GM hosts a nice array of 5<sup>th</sup> Generation Camaros, the IROC Camaro, Fins of the '50s as well as a cool '80s music to compliment

the IROC reunion. Chrysler fans coming to Carlisle in July can honor the cars and individuals that have helped make history with the Mopar Hall of Fame. Event weekend also hosts Collector Car Appreciation Day, a Forward Look reunion, massive swap meet and more. In fact, the Carlisle Chrysler Nationals are such a draw that 2014 saw record showfield totals and is the biggest all-Mopar themed event in the country!

As the schedule

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approaches a grand finale, Carlisle Events shifts into high gear for four events in a six-week span. Carlisle Performance & Style continues to honor the hottest, newest and freshest trends in the hobby and will do so with an all-new date: July 17-19. Not long after, it's Carlisle Truck Nationals weekend where trucks, Jeeps, SUVs, Vans and more are showcased alongside Monster Trucks and Mini Trucks too. The Bloomsburg Nationals follow for what can only be described as an all-star event. This weekend, August 14-16 in north central Pennsylvania welcomes all makes, models, styles and eras of production.

Finally, Carlisle's specialty show season concludes with Corvettes at Carlisle. The world's largest

all-Corvette show focuses on the 1965 Corvette in 2015 with a special 50<sup>th</sup> Anniversary display and a patriotic Salute to Service. GM Engineers come back to Carlisle along with other great seminars geared directly at Corvette lovers and owners.

Carlisle Events ends its season much like it started, with a pair of swap meet, car corral and auction events. Fall Carlisle runs September 30-October 4 and Florida Fall AutoFest takes place November 12-15. Complete details on all 13 of the Carlisle Events shows as well as the Philly Face-Off at the Philadelphia Auto Show can be found on the web at [www.CarlisleEvents.com](http://www.CarlisleEvents.com) or by calling 717-243-7855.



[www.vdo.com/usa](http://www.vdo.com/usa)

## VDO PRT Tachometers – taking your ride to the next level

The new VDO PRT 10,000-RPM Tachometer adds style and performance to your ride. Featuring configurations for 4, 6 and 8 cylinder engine applications, it's available in a brilliant white dial face with silver bezel and an intense black onyx dial face with black bezel.

Through-dial lighting delivers excellent visibility. PRT features a resettable shift point and built-in shift light indicator, an adjustable mount for multiple mounting options and positions and a 4-wire hook up for fast installation.

Contact: [salesupport-us@vdo.com](mailto:salesupport-us@vdo.com)  
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[www.vdo-gauges.com](http://www.vdo-gauges.com)

# VDO

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## Super Cars, American Style

**T**rion Supercars (TSC) is a California-based automotive technology company that's developing high-end supercars with a variety of drivetrain options. Engine outputs range from 1400 to 2000 hp from twin-turbo V8s, plus hybrid and all-electric models rated at 1000 to 1200 hp. The Nemesis vehicle lineup consists of a Grand Touring (N1-GT) model, a hybrid model (N1-ER), and a fully electric model (N1-E), with pricing is in the seven-figure range.



Founded in 2012, TSC's objective is to challenge European dominance of the prestigious exotic super-car category. Last year, the

company said that testing of a prototype was scheduled to take place in 2014, with sales beginning in 2015. [www.trionsupercars.com](http://www.trionsupercars.com)

## Copter Kit

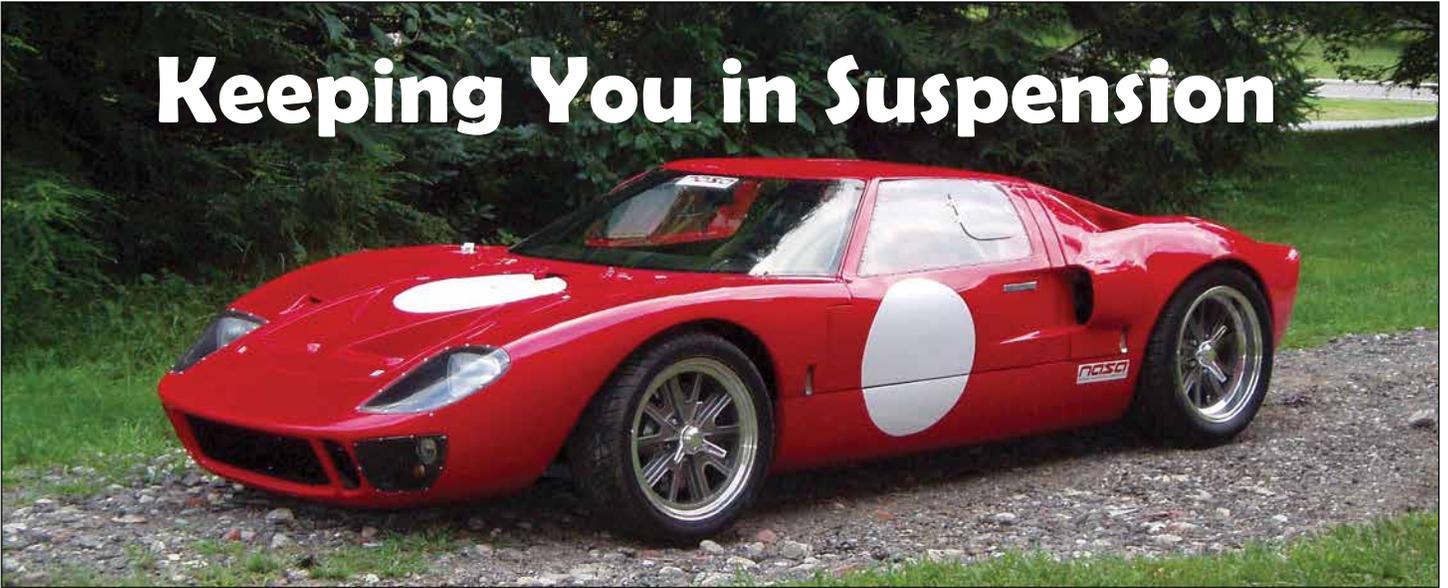
**H**ere's a way to take your builder skills to new heights—literally, with RotorWay's A600 helicopter kit. It's powered by a 147hp engine, for a 90mph cruise speed and a service ceiling of 10,000 feet. Based on more than 40 years of development, the A600 is designed with the amateur builder in mind. Everything required for the final construction and assembly of the A600 is included in the kit. All the major components including the airframe, body panels, tail boom,

engine, drive system and rotor system come preassembled from the factory and ready for installation. Also included are the technical prints, templates, manuals and specialty tools needed. Limited time offer on pricing is \$85,500.

<http://www.rotorway.com>



## Keeping You in Suspension



**T**o simplify the buildup of an Active Power GT kit, just bring your Corvette C5 suspension with you when you pick up the vehicle at the factory.

Chris Ardern and his staff can help you bolt it up and you'll be on wheels in a jiffy, ready to roll. He recommends that when you order your kit, start shopping

right away for the Corvette suspension. Type in "C5 suspension" on EBay and you'll probably find everything you need.

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

## Sport Bike Power in a Fastcraft

**P**owered by a first-gen Suzuki Hayabusa engine, the Fastcraft VortX RT features a full race cage and all safety requirements for NASA competition. In addition to motorsports, this Lotus Seven-inspired car can also be built for street use. Also available are a mid-engine LMP (LeMans prototype style) sport racer and the



new GM3 Sport Racer body option for the VortX RT range.

<http://fastcraft.biz>





## Superformance Grand Sport Corvette and Supercharged Coyote Cobra

Last year we featured a prototype of Superformance's Grand Sport Corvette, but it wasn't quite ready for prime time, since it was intended mostly as a display car. Now it is, as production versions

are arriving here in the U.S. from South Africa. Both coupe and roadster versions are available as turnkey-minus rollers, ready for install of a GM LS-series drivetrain. We plan to take a second look at the car in the near future. In the meantime, here's a sneak peek of the car.

Also in late-breaking news is a Superformance Cobra with a supercharged Ford Coyote. Initially used

as a show demo, prior to the blower being added, it was displayed in Ford Racing's outdoor displays at both SEMA and Barrett Jackson Scottsdale many times. It then returned to Hillbank Motorsports in California and was sold to its new owner, who had V'Automotive install a Paxton Supercharger and other modifications to the fuel system. It now makes over 700 horses on the dyno.

"It's one of the fastest



Cobras I've driven!" exclaims Superformance's Lance Stander. "It's light and very responsive. The Ford Coyote 5.0L Modular engine is nothing short of amazing."  
<http://superformance.com>



## Show Date for Fun Under the Sun

The Association of Handcrafted Automobiles will host its 36<sup>th</sup> Annual Fun Under the Sun Car Show on Saturday, April 18 at the Nethercutt Museum in Sylmar, Ca. The Nethercutt Museum contains over 120 Antique, Vintage, Black Iron and Classic Automobiles, and when combined with the Nethercutt Collection just across the street, adds another 50 cars in a palatial setting to one of the finest collection of Mechanical Musical Instruments in the world.

More information will be posted on the AHA website, as plans are finalized. Information packages will be mailed to past participants early in 2015. If you have any questions, please contact Dean Hornbacher (951)780-9332, Dave Martin (818)597-8797 or you can email: [info@replicarclub.com](mailto:info@replicarclub.com).  
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## Black-Hat 'Stang

Classic Recreations now has a bad-boy Mustang, fittingly named the Villain. Built by the company's new division, CR Supercars, this ponycar fuses classic styling from the golden age of American muscle with the latest high-tech engine and chassis components. Based on an iconic design but totally re-imagined for 2015, the Villain marks an exciting departure for Classic Recreations, a company known for its Shelby-licensed continuation cars.

The CR Supercars Mustang Villain starts life as 1968 Mustang Fastback.



CR Supercars then strips the car to a bare shell then updates the original sheet metal with new composite body panels that are crafted using the latest 3D mold making technology.

Accented with subtle carbon fiber trim, the design enhances the Mustang fastback's timeless lines,

while improving aerodynamics and reducing weight. Once the new panels are fit to the car, it undergoes a 2,500 man-hour transformation into a sports car that has the craftsmanship of an Italian exotic but with dependable Detroit mechanicals.

The Mustang Villain will

## Fix and Create

BluFixx, a new light-cured liquid plastic that was developed in the field of restorative dentistry, can quickly repair, model, seal off, insulate and even create parts. The product consists of an acrylic resin that adheres and hardens in just a few seconds when activated by BluLight, a proprietary LED. The non-toxic, solvent-free formulation works on most all surfaces—glass, plastic, metal, stone, tile, and wood, and even works under water. The cured material can be polished, varnished, filed, milled, sanded, drilled, enameled, and painted.

<http://shop.cornerstoneproductsgroup.com>





be offered in four models, each increasing substantially in power ratings starting with Ford Racing's 420hp all-aluminum DOHC 5.0L Coyote engine, mated to a Tremec T-56 Magnum six-speed manual transmission through a Centerforce DYAD clutch.

The Villain performs as well on a canyon road as it does in the quarter mile, thanks to a Detroit Speed

Engineering suspension system that includes a hydro-formed Aluma-Frame fitted with Corvette-based A-arms, a QUADRAlink 4-link rear

suspension and fully adjustable DSE/JRi coilovers. CR Supercars utilizes massive Wilwood six-piston 14-inch brakes at all four corners and sits them behind a cus-

tom set of 18-inch Grip Equipped Series Wheels by Forgeline.

CR Supercars division is developing other exciting advanced-technology tribute cars, so watch out for other industry-rocking CR Supercars to debut in the near future.

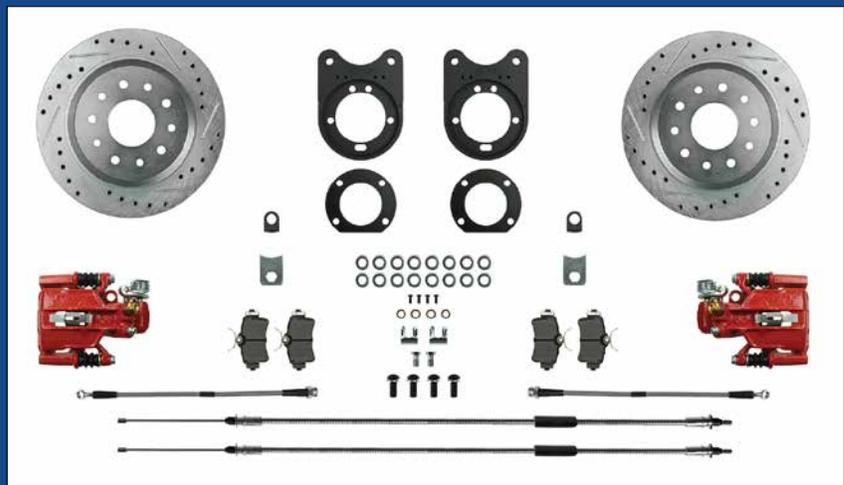
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## Disc Brakes for Ford 9-Inch

**W**ant to upgrade your 9-inch rear end to disc brakes? The Right Stuff Detailing is offering a new Conversion Kit addition to the company's Signature Series. This kit is designed to fit both old- and new-style large bearing flange.

<http://www.getdiscbrakes.com>



## Black Diamond is the New Black

Quick Fuel Technology (QFT) is well known for its innovative high-performance and racing carburetors, and most recently, for its show-winning Black Diamond heat-resistant coatings available on many of its carburetors and new QFI electronic fuel injection. To complete the package, QFT is offering a Black Diamond square bore, four-barrel intake manifold that fits '57-'86 (262-400cid) small-block Chevy engines and those equipped with '87-'91 L98 Corvette aluminum cylinder heads (non-EGR applications). In fact, this manifold can fit just about any small block Chevy engine with standard port and bolt-hole configurations.

The QFT Black Diamond manifold is a dual-plane, 180-degree design intended for hot street performance up to 5500rpm, designed to produce a wide power band and excellent throttle response. The proprietary



Black Diamond coating not only lowers inlet temperature by six percent, it provides a tough, scratch-resistant satin black finish that is impervious to fuel and under hood chemicals. [www.quickfueltechnology.com](http://www.quickfueltechnology.com)

## Hook Me Up

Tired of using the trial-and-error approach to attach your car trailer hitch? Durasafe takes the guesswork out of hooking it up with its patented Coupler Connect. This unit enables

a driver to easily guide the trailer coupling directly over the ball without a line of sight or light, while also preventing damage to the tow vehicle. A unique mounting bracket (fits standard 1-inch diameter ball shanks) accommodates a wide range of couplers and ball

mounts and allows for maximum vehicle turning radius.

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



## Cool Runnings

Developed for custom buildups, Mishimoto's Race Ready Aluminum Performance Radiator features a two-row, dual-pass configuration with tubes that can withstand more than 100 psi of pressure. Designed with flexibility in mind, this radiator features a female threaded inlet and outlet

for use with the company's interchangeable -16AN, -20AN, 1.25", and 1.5" fittings. This radiator is constructed from aircraft-quality TIG-welded aluminum and includes the Mishimoto Lifetime Warranty.



<http://www.mishimoto.com/mishimoto-race-ready-radiator.html>

## Lightning Strikes Miata

To demonstrate its new ev-Torque Box gearbox, Torque Trends has converted the hugely popular Miata into an electric vehicle. A restoration, customization and electric conversion all rolled into one, this e-Miata very fast roadster. Using a 150 kW, four pole, three-phase ac motor from AC Propulsion that spins up to 13,000 rpm, the car's acceleration from 0 to 60 mph is only 3.9 seconds, claims Torque Trends.

The e-Miata Roadster has a total energy storage of 22 kWh which comes from 100, 60-amp Nickel Manganese Cobalt Oxide cells. To preserve the Miata's legendary handling, the cells are split into three different battery packs to keep the weight low and balanced, which actually lowers the car's center of gravity.

With a 13,000 rpm motor that makes



near full torque from 1 rpm all the way to 8,000 rpm, the car does not need a conventional multiple gear-ratio transmission. Instead, the e-Miata Roadster runs the ev-Torque Box which offers a single forward speed. In addition to being very quick off the line, it's said to have a top speed in the triple digits.

<http://www.torquetrends.com>



## Smooth Operator

If you're looking to soften the ride of your rod, QA1 has expanded its offering of Street Star rebound adjustable shocks to include eyelet mounts on both ends of the shock in 7", 8" and 9" shock lengths.

"This additional offering fills a demand for the most popular shock lengths in the most common mounting style," said Dave Goldie, QA1's Street Performance and Racing Product Manager. Featuring 18 settings of rebound adjustment, QA1's smooth bodied Street Star shocks are made of high-quality 6061-T6 aluminum and are bright anodized to create a durable shine. With either bearing or polyurethane bushing mounting options, these shocks available in sizes as short as a 3" travel and as long as a 9" travel.

[www.QA1.net](http://www.QA1.net)

## Ramping Up

Placing a low-slung project car on a lift can be a challenge, but here's a product designed to make that task easier. The Car Lift Ramp consists of four interlocking pieces per side, making a total of eight pieces for the set and weighs a total of 80 lbs. These ramps are designed for assisting low cars to roll on scissor and 2-post lifts. Dimensions of the ramp are 185"H x 14"W x 4"H, to accommodate wheelbases from 85" to 115" and support up to 6,000 lbs. They are finished with a durable coating which prevents slipping, sliding or scooting on any surface, and won't scratch or mark up floors.

<http://www.raceramps.com>



## Brilliant Idea

**W**ant to put a shine on a small part? The Cosmichrome Mini System provides the same chrome plating as the Master System Select, but on a reduced scale. The Cosmichrome Mini System specializes in coating parts about the size of a hubcap or helmet. After opening, Cosmichrome chemicals are usable for up to 90 days, and are the only spray chrome chemicals guaranteed not to turn yellow from the sun.

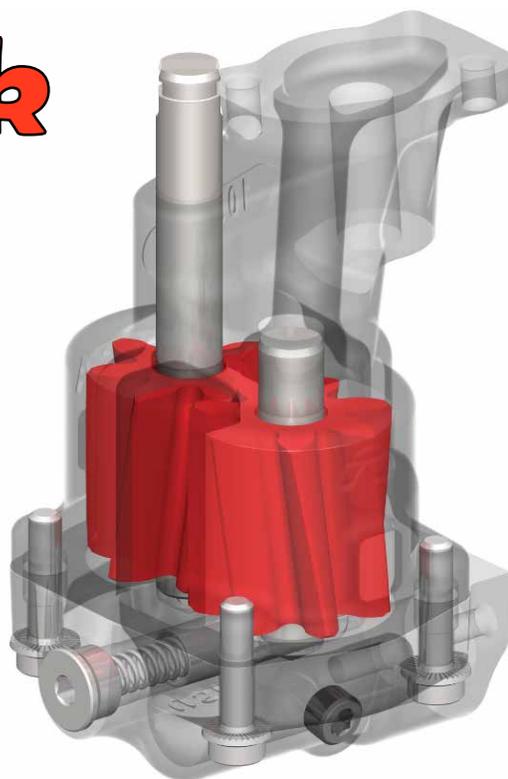
<http://www.cosmichrome.com>



## Shark Attack

**M**elling's new oil pump for small-block Chevys, dubbed the Shark, features asymmetrical, helical-cut gears for smoother output than a traditional spur-gear oil pump, along with reduced power requirements and higher volume output. The new gear design provides the engine with an improved flow of oil without the usual pulsing found in traditional gear pumps. The reduction in the pressure ripple from the pump can also provide benefits to the distributor and camshaft drive.

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





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Fiberglass Jeep Body*



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*Mahlon Miller, Colorado  
Miller Motorsports*



"I chose a Shell Valley mostly because of Dana's [salesman] reputation on the web from many posts I had read."

*John B., Indiana  
Cobra Replica*



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Daytona Coupe Series II Replica

Jag C-Type Replica

# 1-888-246-0900

# Cobra Customizing Tips

## For Making Your Snake Extra Special

By Steve Temple

Photos By Steve Temple, Harold Pace and Joe Greeves

**A** Cobra looks timeless when dressed in those classic hues of Guardsman Blue with a Wimbledon White skunk stripe. But what if you don't want your ride to be like everyone else's? Many car builders relate how they viewed their replica project as merely a starting point, a blank canvas upon which they could express their creative impulses. We certainly encourage this sort of innovation, since variety is the spice of life, right?

To highlight what's possible, we rounded up a whole slew of components for customizing Cobras, plus a few completed cars as well, to give you some buildup ideas for your own project, Cobra or otherwise. After all, there's more than one way to skin a snake. And let us know if you have some special mods to share as well.

## Aluminum Alloy Bodies

**W**hile the the majority of Cobra replicas today have a fiberglass body, that wasn't the case with the original. In a sort of a "Back to the Future" scenario, Ingo Poth of Alloycars proves that there's more than one way to skin a Cobra. With aluminum, that is.

Poth's company started in 1996 in Brazil making aluminum bodies for the fiberglass Cobra manufacturer Americar Veiculos, which he says made the best Cobra you could get in South America. Later on he built complete aluminum-bodied cars (including the chassis) for customers in both South America and Europe, about 150 units total. But he admits that initially the slightly wider body and the chassis were not close enough to an original setup to offer them to U.S. customers. And he also sold aluminum bodies to other manufacturers, which is why he didn't really start promoting his company Alloycars until 2008.

Noting the craftsmanship of aluminum-body fabricators in other countries, but unable to afford Brazil's 160 percent import tax, he decided to train his own metal shapers, passing on his knowledge that he acquired in Europe from older craftsmen who were building aluminum war planes. "Today it is impossible to find such guys anymore," he admits. But he also needed an edge to get into the U.S. market, after moving, his company to Ft. Lauderdale, Florida.

"Our competition is making very expensive versions of Cobras," he adds. "I knew that we could offer our MK5 Roadster for a lot less with the right setup. If I tell you that we can build a full body in one week only with one team, nobody believes it," he says. "But it is possible and we tested it already."

Alloycars actually has three teams of craftsmen now, so you can imagine how many bod-

ies the company can produce. "But making the body only, doesn't make a full car," he points out. "So we are actually setting up to do the rest here in our shop." He's using the proven and popular chassis design from Factory Five Racing (FFR), but modified to support an aluminum body, which requires an additional subframe.

"We have chosen an FFR setup as everything is professionally made. And the way they are making it, and the fact that they race their own cars, makes me very comfortable.

Actually Alloy Cars offers five different options for sale, so there's something

for everybody: a basic kit (\$50K), a roller (\$70K), and three different stages of complete MK5s, from Standard to Performance (with prices ranging from \$85K to \$99K).

In addition to these five options, Alloycars is offering an aluminum rebody for all FFR roadsters, with an estimated price in the \$20K range (which includes the body, subframe and mounting).

The body is made from 1/16th-inch aluminum 3003 series, TIG-welded (flame welding heats up all nearby areas too much, Ingo notes). "Also you can see the fusion between the metals much better."

How can he make them so fast? "The production

method is a little secret, as we found out how to produce those bodies extremely quickly," he says. "One thing I can tell is that pure manpower is required, so if someone wants to do some muscle training, here is the right place."

Alloycars also hammers out other aluminum bodies for exotic cars, such as replicas of the Ferrari P4, Mercedes SLR, and Porsche 550, but due to increased demand and production efficiency, Poth is focusing more of his time on the aluminum Cobra market.

**SOURCE:**  
**Alloycars**

<http://alloycars.com/index.html>



# Cobra Customizing Tips

## Pro Painter's Tips

**A** lot of work and goes into making your Cobra body look the way you want it to. Just ask Tom of Tom Weber Paint and Body. "Most bodies come very rough from the manufacturer," he points out. "There are many imperfections that need to be addressed."

The first and most important part is attaching everything on the chassis. You must put the body on and mount the doors, hood and decklid.

"I recommend fitting everything on the car," he notes. All the lights, bumpers, windshield, and roll bar. Once all panels are fitted the best they can be, it's time to block the body. This will show you where all the low and high spots are so you know what to fill and what to block down. All the seams need to be filled and blocked straight. The areas around the door openings as well as the hood and decklid take lots of time and patience.



After all the filler work is done it is time to prime the body. "A good quality 2K high-build primer is the way to go here," Tom advises. Once body is blocked and any areas that you may have missed the first



# Cobra Customizing Tips

round are repaired it is time to put another few coats of high-build primer. This layer will be blocked sanded out for paint. "At this point I remove the body from the chassis and place it on a body cart," he says. "The car is now ready for the paint booth."

With the body on a body cart and the hood, decklid and doors mounted on stands, you are ready to apply the main body color. If you are putting stripes on the car you will have to fit the hood and decklid back on body to tape off stripes so everything lines up on final assembly.

Once taped off, remove the hood and decklid and spray stripe color. Finding the center on body is crucial to have straight and perfect stripes.

Clearcoat the entire body and body panels. Once the car is dry you can do any wet sanding and buffing that may be necessary. Then you get to assemble the whole car, again. Like Tom says, it takes a lot of time and effort to get the job done right.

## **SOURCE:**

**Tom Weber Paint and Body**  
**phone: 513/907-3550**



## **Wood Rim**

**A** new "Cobra Style" steering wheel is part of the GT Performance Parts GT RETRO series. The wheel is manufactured using a laminated wood process called "book matching" (meaning you see the layered pattern in the grain from front to back) and includes sculpted finger grips. It features a 9-rivet design and hand-rubbed walnut stain, which is then sealed with a polyurethane clear coat. It is part #38-4247, retails for \$203.98, and has a 15-inch diameter and 1.75-inch dish.

## **SOURCE:**

**GT Performance Products,**  
**[www.GTPerformanceProducts.com](http://www.GTPerformanceProducts.com)**  
**phone 818/847-9611**

# Cobra Customizing Tips



## Classic Yet Contemporary Connection

**B**uilt as a dedicated track car, this Factory Five Type 65 coupe also serves as a test bed for an 8-stack fuel-injection system on a Ford Coyote crate engine. Scott Merrell purchased the car and completely rebuilt it. He was instrumental in developing the plug-and-play wiring harness that makes this system work in all Ford-powered kit cars, race cars, and custom hot rods, street rods and pickups.

“By installing the new 8-Stack fuel injection system, we have increased the horsepower rating, with no internal changes to the engine, from Ford’s advertised 410 hp to our verified 438 hp,” Merrell says. The whole concept behind this was to build a 21st-century tech-

nology engine with 1965 looks, and do it with a computer system that is plug-and-play. And the big deal is that there is no after-install tuning.

The only way that this concept could be utilized was by having a consistent engine supply with a consistent base, with no internal modifications. So the Ford coyote engine was the optimum choice, not only because of its newer technology, but also because Ford Motor Company came out and said that it

was going to be their performance-based engine for the next 10 years. And it also is going to be their production motor for Ford’s Mustangs and light trucks.—Dan Burrill

### SOURCE:

**Classic Connection, Inc.**  
[www.classicconnection.com](http://www.classicconnection.com)  
360/461-7248  
[scott@coupeconnection.com](mailto:scott@coupeconnection.com)



## In the Hub of Things

**T**rigo's adapters enable you to install wheels with real knockoffs on your Cobra project without any machine work or welding. These adapters bolt onto 4.50", 4.75" or 5.50" bolt-pattern hubs by using the company's unique pin nuts. They are available in either black oxide or gold iridite finish. Also, for street rod projects, Trigo Wheels has introduced a new 5 x

5.50" hub adapter for use on early Fords: 1935 and 1937-1948 model years. The hub adapters convert a 5-lug hub to enable the use of true knockoff wheels without any machine work or welding. The new adapter is available in a gold iridite finish and intended for use with Trigo's traditional kidney bean wheels or

any knockoff wheel drilled with a 5x5.50" bolt pattern.

### SOURCE:

**Trigo Wheels**  
**(818)248-7446**

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



## Smoothed Out

**W**hile side vents are a traditional feature on most Cobras, this one did without them. The effect is more modern than retro. Also different is using the egg-crate grille from a 289 street Cobra on a big-block body style.



## Light 'Em Up

**H**ere's a clever way to keep your brake lights current with the DOT's production-car requirements. Just recess some LEDs into your rollbar. Adds a nice visual touch too when you're leaving all those commuter cars in your dust!



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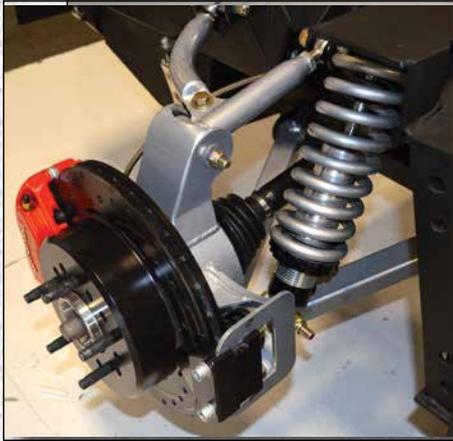
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## Lone Star's New Cobra Configuration



Everything's bigger in Texas—and now also better, too! At least at Lone Star Classics, which has just updated its Cobra replica in a number of significant ways.

Starting with the suspension, the front has new adjustable upper A-arms, and the rear has an innovative IRS configuration, using all brand-new parts. The half-shaft axles are custom made from Ford Explorer units, and the diff housing

is a sturdy unit from a Ford Explorer 4x4 as well, fitted with Eaton 3.73 gears. The coil-over shocks at all four corners are QA-1 rod-end style, 17-way, damping and height adjustable. The front sway bar is adjustable as well. Brakes are from Wilwood, using 12.4-inch drilled and slotted rotors with 4-piston calipers and single piston e-brakes.

The engine on this particular car is a 408ci stroked 351W from Prestige Motorsports. Although claimed to deliver 450 hors-



es, according to the dyno sheet it ran a max output of 480 hp 507 lbs of torque.

Lone Star blacked out many things on the engine to match the black and aluminum theme of this car. Backing up the hot mill is a twin-disc clutch with Lone Star's new hydraulic slave

# Cobra Customizing Tips

cylinder system. And the tranny is a Tremec 5-speed, with a Steeda adjustable shifter and a Quick Time bell housing which is shatter proof, and also more compact than the commonly used aluminum styles.

The brake lines are custom made to length, DOT-approved SS-braided 3/16" lines with pre-flared ends ready for installation. The fuel line is 3/8" flex hose. Both of the lines are new options from Lone Star. The fuel tank is thicker 17-gal unit with a NTP pickup point.

The new body, partly derived from an original Shelby Cobra but modified to Lone Star specifications for more driver comfort, has

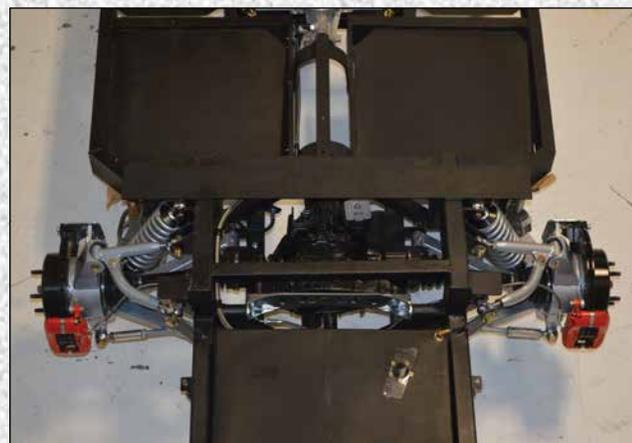
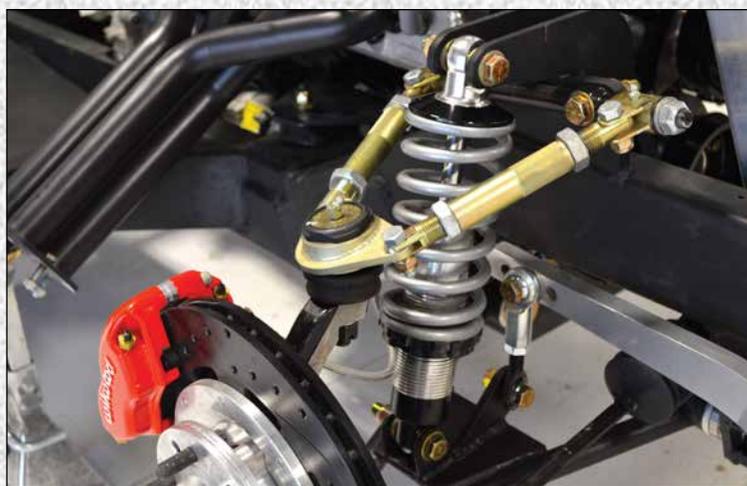
the additional legroom both forward and to the right. The steering column hole is now pre-drilled.

For visual impact, Lone Star painted the firewall/engine bay with Liquid Metal paint, and for personal convenience, also installed SS cup holders in the console. And a Quik-Latch release secures the air cleaner create a cleaner look and easier access. Lone Star's Brian Alexander feels that he has the best fastener package on the market, and likes to show it off. Details make all the difference when you're customizing a Cobra.

## SOURCE:

**Lone Star Classics**

<http://www.lonestarclassics.com>



## All Pro's All-Aluminum Coupe



**A** Corvette Grand Sport from Lee Benson at All Pro Cars was featured in a previous issue, and now he's done another racy classic, this one in aluminum, using a Shelby chassis (CSX7062). "I like to cover both sides of the Cobra Wars," he smiles.

Unlike the original's 289 engine, the block is a Ford 306 (basically a 302 bored .030 over) with a Scat

302 rotating assembly and World Products cylinder heads and a Comp Cams valvetrain. It's topped by a Weber intake with 48IDA carbs. David Kee supplied a 4-speed Toploader transmission. The chassis rolls on Trigo pin-drive wheels wrapped in Goodyear rubber. Paint is the traditional Guardsman Blue with Wimbledon White stripes. Like we noted at the outset, that

color scheme is timeless, even when the parts are all new.

Benson has just completed another Grand Sport as well, which we'll try to catch up with later on. The battle rages on!

**SOURCE:**  
All Pro Cars

<http://www.allprocars.com>

## Provocative Bulge

**T**he tall riser in the hood is not just for looks. It's needed for clearing the tunnel-ram setup on the engine. Note also the street-legal drag tires in the rear, and the covering for the side pipes to shield against a "snake bite." The color-matched tinted visors on top of the windshield are a different touch, and note how the Raydot side mirror is mounted on the post instead of the fender.



## Seeming Seams

Want the appearance of metal, but on a fiberglass body? Add some painted rivets and seams with shadows for an aircraft-style treatment.

## Recess Time

**W**hether you need to store a fire extinguisher or some other personal item, adding a recess in the center of the cockpit is a good way to keep stuff tidy.

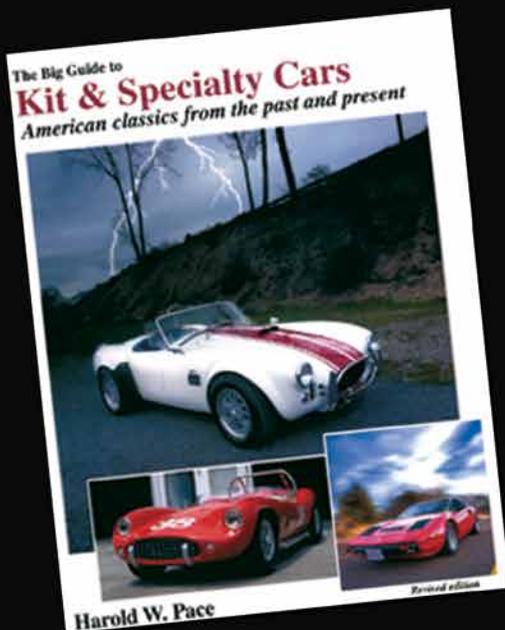
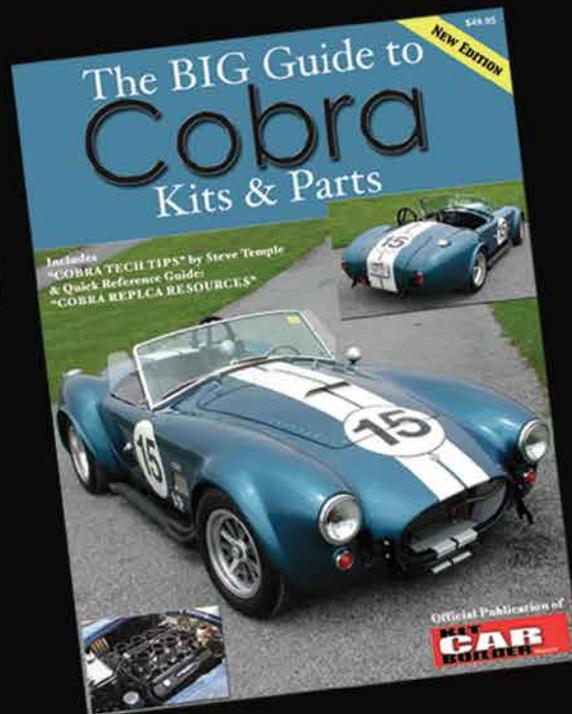


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## Way Kool!

**C**obras are known for being too quick, too short, too hot, too loud—and too much fun! Well, you can minimize a couple of those drawbacks (excess heat and sound) by installing Koolmat. And all without spoiling your fun!

Here are few tips, courtesy of Breeze Automotive and Koolmat. It is suggested that installation of the Kool Mat kit take place in the early stages of assembling the car, shortly after the aluminum panels have been riveted in place, and prior to the D/S foot box top is riveted in place (and preferably prior to the installation of the foot pedals).

When using Pt. No. # 97249 (Pre-cut 36.50 sq. ft. 14-piece Insulation Kit), the tools you'll need are a sharp razor knife, extra blades for razor knife, 3/8" dowel cut into 4 to 6" lengths, 18" steel rule, 36" steel rule, rubber hammer, 2 X 4 X 6" wood piece, craft/contractors paper, 1 gallon Weldwood Gel Contact Cement, 1 qt of solvent such as xylol/xylene.

Clean and wipe the metal surfaces clean with a

solvent. All pieces are numbered in order of installation, but pre-fit each piece prior to application. When making cuts for final fitting it is best to use a sharp razor knife, and when possible cut the mat with fiberglass side down. A marker is good on the silicone side.

You should coat fiberglass side of the KoolMat insulation liberally with contact cement or hi-temp spray as per manufacturer's application directions. Two coats are preferable. Do not apply contact cement to any mats that can't be installed within an hour.

Then pply a strip of contact cement on the aluminum panel toward the center. Align Kool Mat insulation piece on panel

then press onto the strip of contact cement. Next, pull one side of the piece back to the glued surface and apply contact cement, per directions from the manufacturer, to the remainder of the panel surface. Use a 3/8" dowel to keep the two surfaces separate until the contact cement is dry per manufacturer's instructions. Then remove dowel and then press the two surfaces together. For a few more install tips, contact either Pat at Koolmat or Mark Reynolds at Breeze Automotive. - *CB*

### SOURCES:

**Koolmat**

**704/662-9099**

**<http://www.koolmat.com>**

**Breeze Automotive**

**<http://www.breezeautomotive.com>**

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# GRAND DECISION



**One Simple Thought Led to  
Building a Race-Ready Replica  
of a Legendary Corvette**

As told by Mike Bell  
Photos by Steve Temple



**B**ack in 1987 I found a little 1:64 scale model of 1963 Corvette Grand Sport. Impressed by its racy lines, I thought to myself, “When I retire I would like to build me one of these cars.”

Of course, once I did retire, like most folks I knew I couldn’t afford one of the five cars that Roger Penske and others raced against Carroll Shelby’s Cobras. (After all, they’re basically built of “unobtanium”.) So I decided to see if I could find a

replica of a ‘63 Grand Sport.

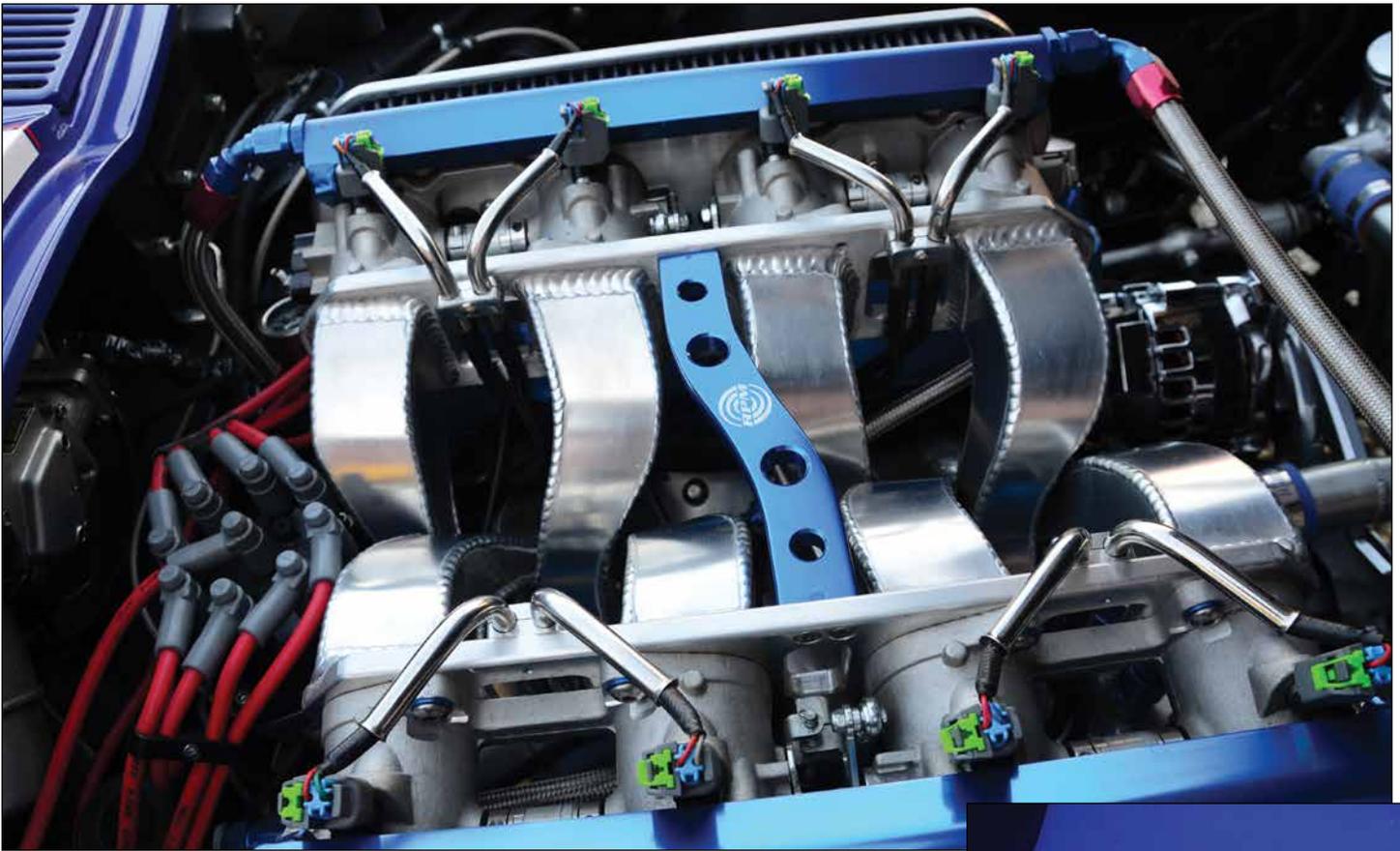
In late 2011 I moved to Cape Coral Florida for the winter months. I took my truck trailer, Harley and 1996 Corvette to the warm country. In Florida I rode my Harley and met several Harley guys. One day I was talking to one of my friends



and I was telling him about a car that I would like to build or have. He told me that he knew a friend in Pennsylvania who had a ‘63 Grand Sport replica for sale.

In April of 2012, I came back to Indy and called





the man, hoping the car was available. The guy told me it was still for sale. I went to Pennsylvania and purchased it, and then brought the car back to Indiana and drove it on the street for about six months. It was just a street ride at the time, but had all

the makings of a race car.

Rather than consisting of all replica parts, this conversion uses a real '63 Sting Ray body and chassis, titled with a serial number of 30837S120399. The Grand Sport conversion was initially done in 2002 at Mid America Industries in Milan



Illinois.

The first owner of the car was Jim Prather. While there were two project cars leading up to this one, this third, special Vette was to be very unusual and unique. The builders wanted the Grand Sport configuration to be closer the real thing this time.

They were able to purchase a GM LT-4 engine and 6-speed transmission. Since they were using the 1996 engine and transmission, they



decided to go the complete route and paint the '63 grand sport to match the recent 1996 Grand Sport: Admiral Blue, Red Fender Hash Marks, White Center Racing Stripes and Torch Red Interior. Once it was finished, Vette Vues Magazine ran a cover feature on it July 2002.

After acquiring it, though, I decided to take the car apart, completely gutting it. I took out the stock LT-4 engine and transmission and installed a racing engine, a 427 cubic-inch stroker Dart block, backed by a heavy-duty T-56 six-speed transmission. It has a 10.7:1 compression ratio, and runs on 93 octane.

What really sets it apart is the custom, one-of-a-kind Holley induction system, a side-draft EFI with a MSD Digital-6 Plus computer system that plugs into a Dominator V2 vehicle management system.

This setup took several months to make, with a hand-welded intake plenum. Since it was the first one done by the Holley technicians, they weren't sure how well it would work. On the dyno it ran fine, but once installed in the car the engine spit,





sputtered, banged, and popped. But after some laptop tuning and 300 miles of driving, the computer “read” my driving style and took over. With the fuel management all settled in, this mill delivered 770hp (690 lb/ft) at the flywheel, and 680hp to rear wheels at 7900rpm (9500 peak). It’s got all the power in the world (way more than the original Grand Sport had back in the early Sixties).

The chassis has the factory four-inch tube frame with a 1989 Z51 Corvette heavy-duty suspension, except for Alden coil-overs up front and VBP monoleaf rear suspension. I also added Z26 Warrior slotted and drilled rotors from Summit Racing.

Next I sent the car to a



welder and had an 18-point roll cage installed, along with safety equipment that includes front and rear drive-shaft loops, and a

skid plate under the engine. After about a year of work, the car was now a full-blown vintage road racing car, certified to drive on the track. But it can also be driven on the street.

I have also taken this car to several car shows and won Best of Show a half-dozen times, among many other awards. I have raced it with the SCCA on the track and done very well, beating everybody in class at Roebing Road roadcourse in Savannah, Georgia. Although it’s really not intended to be a dragster, on the strip I’ve run 11.70 @ 128 mph. And I also cruise on the highway





with no problems at all.

On the street, everybody always wants to play with me, especially those guys in their turbo imports, but I



don't get into street racing. I just smile and wave, as I don't need to prove anything. I know what's under the hood, and what this car can do. And that's plenty good enough for me.

- CB

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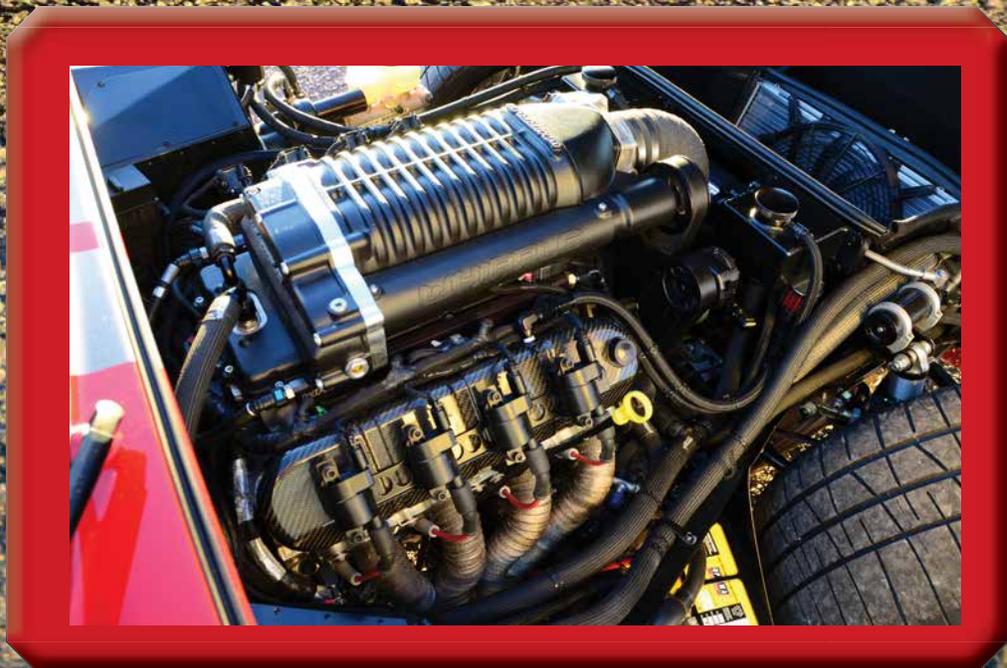


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**As Told by Bob Littlefield**  
**Photos by Steve Temple**

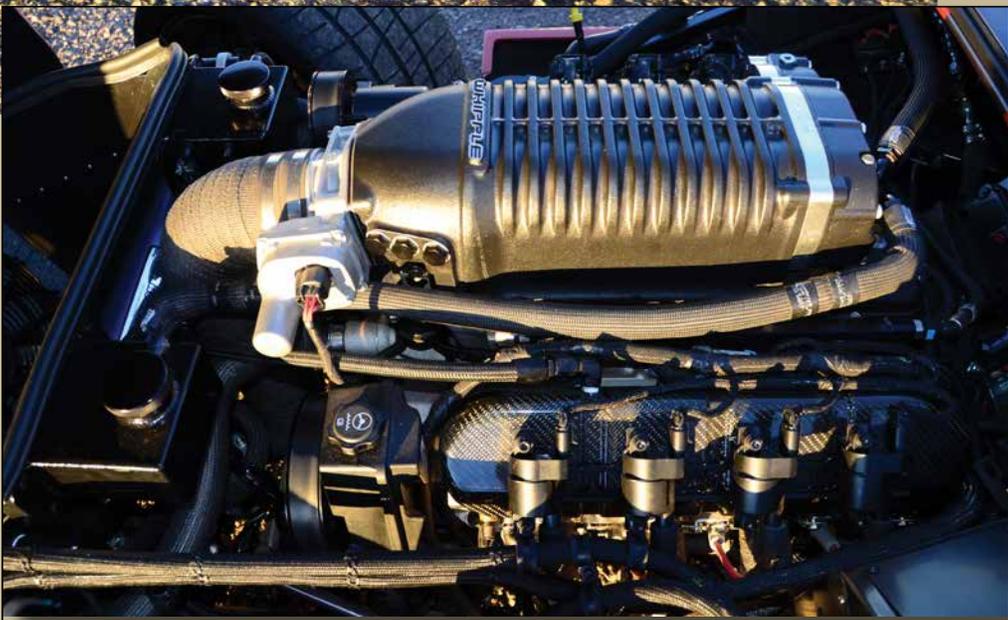
**A**t Littlefield Customs, I build one car at a time. I like to build high-horsepower, lightweight cars that you can actually drive.

So taking on the Factory Five Daytona coupe was an interesting project. (And not inexpensive, either, considering all the upgrades.)

With the cost of the kit starting at \$22,000, by the time we were done getting the carbon ceramic brake

package to fit the car, we had another \$20,000 just in the stoppers. At that point it wasn't a cheap-'n-cheerful kit car anymore—it was a custom supercar.

I like LS power (instead of the traditional Blue Oval block), so I used a GM LS3 from Mast Motorsports,





supercharged with a Whipple blower to make 820 horses and 712 lb/ft of torque. Of course, nobody makes headers for this application, so I had to build my own, fabricate motor mounts, and relocate the motor 3 1/2 inches farther forward to get a better

balance. The weight of the car is 2960 pounds, with 51 percent of the weight to the rear 49 percent to the front. Next we added in Davis Technologies traction control so we can actually get the horsepower to the road. I call it training wheels for a supercar!

Since debuting at the SEMA show, I took the car back into the shop to

integrate an iPad mini to run everything. Since the iPad mini runs the ignition system, you can turn it on and off wirelessly, using Bluetooth in your cell phone. And that also includes running the lights, sound system, and navigation.

I enjoy building one-of-a-kind supercars. With a little imagination and a lot



of money it's amazing what you can do with a kit car. There are so many custom features on this car it's hard to list them all I don't think anybody will ever see another one like it..

The car is scheduled to go to auction at Mecum January 24 5:30 PM, lot number S216. So I guess we will see what it will actually bring it auction. The build cost on the car is \$130,000, and my last one-off car

I built, a customized '69 Camaro, brought \$170,000 at Mecum. That's no guarantee, but I'm positive there's nothing else out there like this car when it comes to custom coupes.

– CB

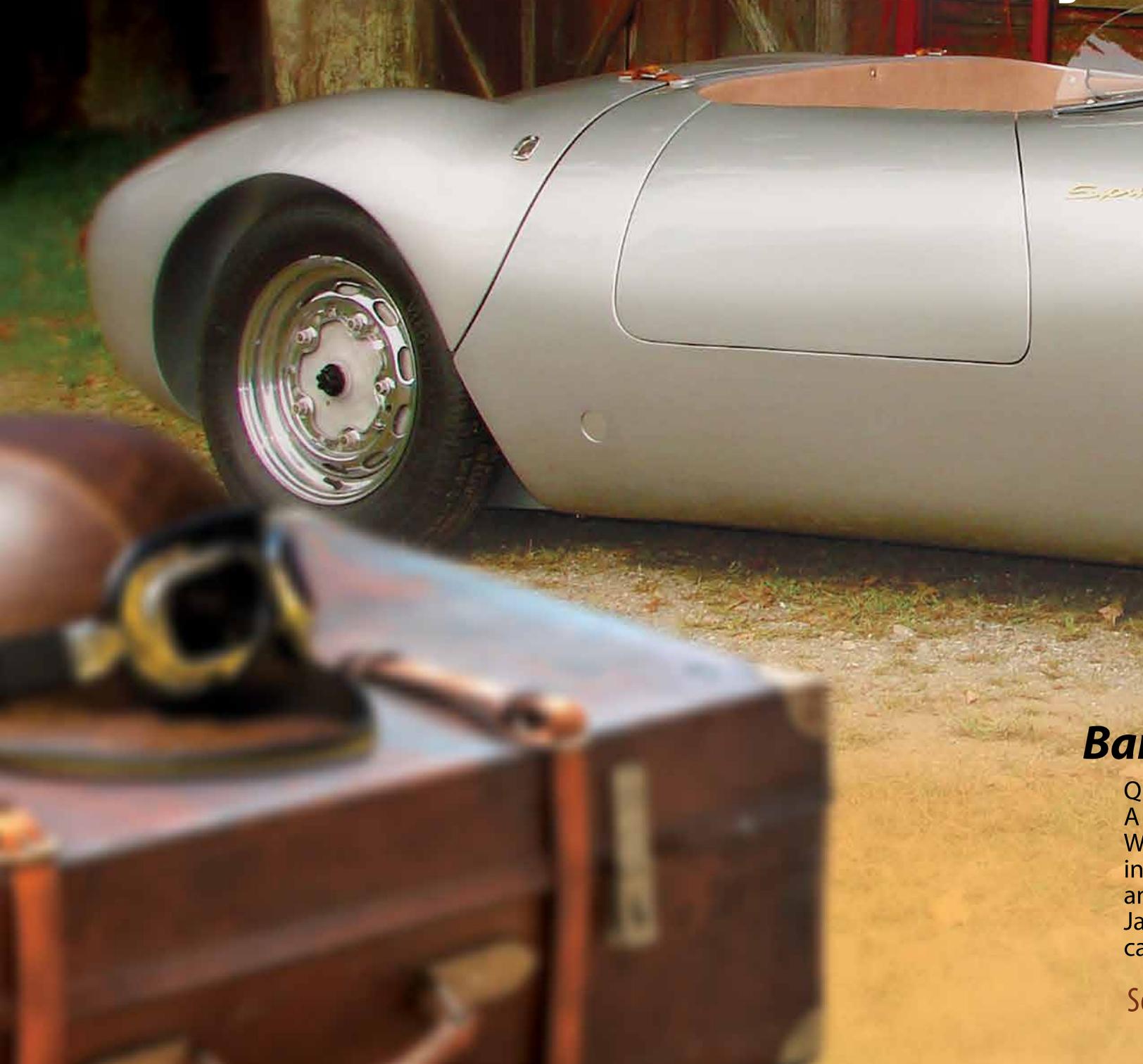


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# The Phantom Menace

**A Cobra Guy Turns to the Dark Side  
and Builds an Elusive Cheetah**



**EDITOR'S NOTE:** *The history of the Cheetah is an intriguing tale, how Chevrolet looked to Bill Thomas, a successful Corvette racer, to create a car that could skin a Cobra. It was a covert program, with financing provided by both Thomas and John Grow, a Chevy dealer in the Los Angeles area. Don Edmunds, lead fabricator for Thomas, sketched the frame design out on the garage floor in chalk, and built a wooden buck for an aluminum body.*

*Out of the nearly two dozen built in all (sources vary on the exact number), all but two of the bodies were made of fiberglass. The engine was a 327 Corvette, set way back on the frame to provide the weight balance of a mid-engine setup, but using a conventional transmission rather than a transaxle. The setback was so far, the cockpit was unbearably hot, and there was no driveshaft, only a U-joint between the transmission output and rear differential. The chassis was also bendy (like the 289 Cobra of that era), so handling was unpredictable at best.*

*Despite these peculiarities, the Cheetah went on to win a number of road races in '64 and '65, and few if any cars could touch it on a drag strip. For this brief, shining period, the Cheetah was one ferocious feline. What follows is an account of a modern-day variant in replica form.*



As Told by Brian P. Dunne

Photos by Lisa and Brian Dunne

Everyone knows that the most iconic car from the Sixties was the Shelby Cobra. It too was one of my favorites, so in 1995 I started out researching Cobra replica manufacturers. Two years later I finally took the plunge and built my first replica Cobra. I bought what was then called a stage III kit. The passion and enthusiasm for the Cobra led me



to build several more kits purchased from three different companies over the last 14 years.

Upon retirement from my corporate automotive management job I decided to take my passion forward by forming a small business building and selling hot rods and custom Cobras: North Dallas Motorsports.

During a visit to Shell Valley Classics in Platte Center, Nebraska I came across a roller kit that really caught my eye, a roadster version of the 1964 Cheetah. Ironically Shell Valley happens to be a well-known and prominent manufacturer within the Cobra replica industry.

I thought the sleek

lines and low-profile design of this car would definitely appeal to the bowtie enthusiast. It's powered by a Chevy 350ci/ 375hp engine with a Tremec TK0500 transmission. This cat sports a bright red paint scheme that really accents its curvy body and sleek lines.

The Cheetah was



built as a joint venture between North Dallas Motorsports and Wicked Custom Rods. The fit and finish, and completeness of the kit made the project fairly easy to build with very little modifications needed. The unique look of the completed car was a huge hit when we debuted it at the Good Guys Lone Star Nationals and Cruising the Coast car shows. Needless to say I think we'll be building more Cheetahs in the future, and possibly compete once again, side by side against Shelby Cobras.



**North Dallas Motorsports**  
214/789-3391  
<http://www.wickedcustomrods.com>  
brian@northdallasmotorsports.com

**Shell Valley Classic Wheels**  
<http://www.shellvalley.com>



# Stealthy Snake



**This Blacked-Out  
Backdraft is a Darker,  
More Menacing Cobra**

Text and Photos by Steve Temple

**S**helby's favorite Cobra number was 65. He never explained exactly why, other than to say he used it on a number of his successful race cars. So maybe it was good-luck charm or something for him.

How about going one better—literally?



That was thinking behind this #66 (65 + 1, get it?) replica from Backdraft, customized by Vintage Motorsports. Actually, the concept for this blacked-out bad boy was originally numbered 666, but it conjured up an evil association with Beelzebub, so the six was dropped. Now it's a more socially acceptable Route 66, or simply the 66

Edition.

This package consists of a paint scheme in Tuxedo Black Metallic with Black Stripes and Porsche Orange Outline Stripes. The interior is black leather and carpet with orange deviated

**COBRA**  
CUSTOMIZING





stitching.

The engine is the 2014 formula for the VMS 427X, built by Speed Logics and installed by Vintage Motorsports. Rated at 545hp, the chassis dyno indicated 465 rwhp at 5600 rpm, and 462 lb/ft at 4100 rpm (both figures STD corrected). Mated to this mill is a Tremec TKO-600 5-speed manual and Centerforce DF clutch.

Under the hood you can see the "VMS Prime" logo. It's a clever take on the USDA Prime mark, highlighting a very detailed install that includes hiding of factory wiring

and color coordinating engine components and trim, right down to the use of Hose Candy coverings to complete the look.

Other unique components of this build include the billet shift handle with the obnoxious shift knob (5th gear reads "Effing" Fast). The

headlights are full LED conversions with a Hi/Lo function and rubber trim on the headlight housings. The hood and trunk latch handles feature a newly developed line with Metro Molded Products that have a "hugger" lip around them for a more modern factory





appearance.

The car has been purchased by Tim Schreifels of Rogers, MN, who had Backdraft make a few changes that include the installation of a Diffsonline 3.73 LSD rear, a

passenger roll bar, and a dropped floorpan to accommodate his size-13 feet and 6' 5" frame. So maybe the digits describing his too-tall height are where the 65 number came from—plus going one better, just for good measure. - *CB*

**SOURCE:**  
Vintage Motorsports  
<http://vintage-motorsports.com>



# WORLD-CLASS



***A Red-Blooded American  
Pony Car Infused With  
Euro Performance***

Story and photos by Steve Temple

# CLASS CAMARO



**B**ack in the late-Sixties, American cars were all about quick acceleration and sexy sheet metal. Handling? Not so much. If you wanted to turn and stop, the Europeans

were way ahead of things back then. They emphasized roadcourse capability over dragstrip dominance.

What if you want your cake and eat it too? Why not build a world-class Camaro that's



competitive on both sides of The Pond?

That's exactly what Dave Brandt did with his '69. "I've always been a European car guy," he admits. While having an appreciation for foreign exotics, he didn't want to betray his all-American roots, either. So he had Steve Keefer of East Bay Muscle Cars put a staggering array of continental refinements into a Detroit-bred, mean-streets machine, so that it would drive as good as it looks.

Easier said than done, of course, especially when you know that when he purchased this 396, 4-speed Camaro, it was "in an absolute shambles," Brandt notes. Even so, Keefer took it to an unprecedented level of detail work, with the fit



and finish of this motorized masterpiece. It's subtle and sensational at the same time, with a conservative titanium color scheme.

That approach fits right

in with Brandt's profession as a model for prominent men's clothing stores, giving him a discerning eye for style and attention to detail. Considering all





the performance upgrades underneath, the visual impact of Tenacity (the car's moniker) is like a well-muscled thug dressed up in a fitted gray flannel suit. You can both dress it up and take it out for a ground-pounding ride.

This thrilling yet dignified experience comes courtesy of a 630hp LS3, a Mast Motorsports's Black Label SS 6.8L. Balanced and blueprinted, this aluminum LS3 spins a forged Callies crank with H-beam rods and Mahle pistons. The Mast heads are 12-degree CNC ported with ARP bolts and nitrided beehive valve springs. A Hogan's aluminum intake employs

GM's shorty injectors and 60mm throttle body, along with a Bosch MAP sensor. East Bay Muscle Cars fabricated the custom airbox.

Set back eight inches for an exact 50/50 weight distribution, this mill is mated with a Tremec T-56 Magnum six-speed that funnels all the power to a quick-change Winters rearend with 4:12 Posi gears.

That's all well and good for a solid punch off the line, but how about the handling? To give the Camaro a truly serious suspension, Keefer customized an Art Morrison



MaxG chassis, Designed with FEA (finite element analysis), the front clip is markedly stiffer yet significantly lighter than the bulky OEM unit. It boasts reduced unsprung weight, forged aluminum C6 Corvette control arms, a shortened front-view swing arm, modified caster, and adjustable coil-over shocks. In the rear is a three-link setup with a Watts linkage, all of which makes for a tenacious grip when



carving corners, while Exotic Air lifters ensure a glove-soft ride.

All these performance upgrades required a commensurate treatment to the body and cockpit as well. The Camaro's classic shape was massaged in numerous areas, with a three-inch body drop,

custom wheel tubs, wider A-pillars, modified spoiler and rear diffuser, and a unique fuel filler in the center panel. The turn signals flash sequentially, flagging it as a truly unique creation.

The doors, quarter panels, front spoiler and valence were all

extended as well. Exterior obstructions, such as door handles and drip rails, were shaved off, for a look as smooth as the fit of custom-tailored Italian suit.

As for the interior, it too received a complete going-over, using a '67 Camaro dash extended four inches, plus a Cadillac CTS console.

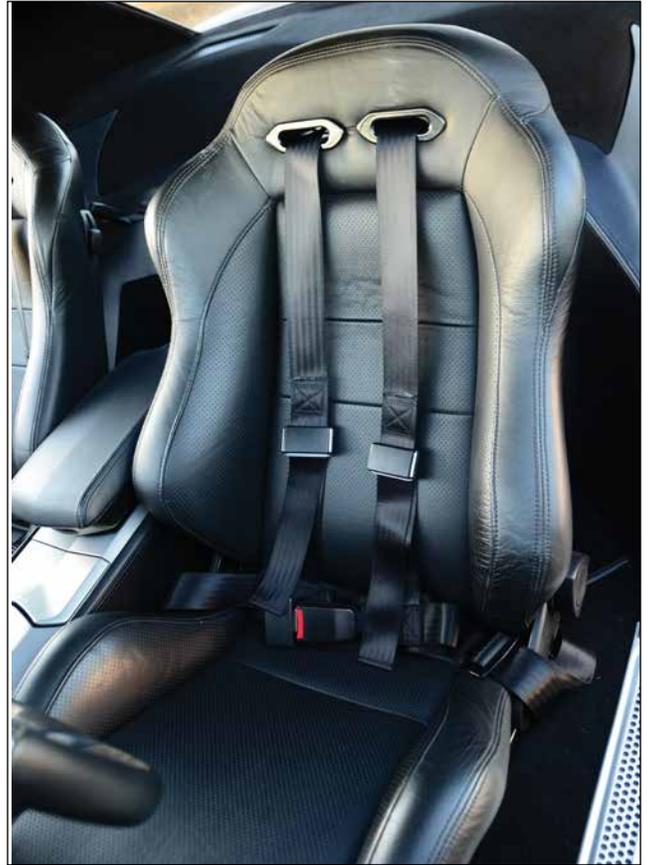


Numerous panels were custom molded, and the Recaro seats modified as well.

All told, "The concept was to incorporate influences from the exotic car world without losing the iconic '69 Camaro features," notes East Bay's Keefer. "We wanted it to stand out, but at the same time to give it a more refined euro look, kind of a Ferrari-meets-Camaro

blend."

So every square inch of this car received some personal attention and exotic enhancement. Exactly the level of a persistence and passion that you'd expect from a Camaro called Tenacity. - **CB**



# Spec Box

## **BUILDER**

East Bay Muscle Cars  
560 Valdry Ct., Brentwood, CA 94513  
925/516-2277

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

## **TECH SUMMARY**

**Frame:** Art Morrison MaxG modified by East Bay Muscle Cars

**Suspension Front:** Corvette C6 forged aluminum A-arms

**Suspension Rear:** 3-link assembly with TMI Watts linkage

**Brakes:** Baer 14-inch, cross-drilled and slotted rotors with six-piston calipers

**Tires:** F: Michelin 285/35ZR19

R: Michelin 335/30ZR20

**Engine:** Mast Motorsports Black Label SS 6.8L LS3 630hp

**Body & Paint Manufacture Color:** PPG two-stage Audi lava gray/matte titanium

**Interior:** Camaro dash extended four inches with custom Cadillac CTS console and removable transmission tunnel, molded cockpit panels, Momo wheel, Recaro seats, leather and micro suede upholstery

**Audio:** Pioneer CD/DVD/receiver with LCD screen, Memphis amps and component speakers,





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# WEBER CARBS

## *Dispelling the Myths From Facts*

By Jim Inglese

**T**oday, just like back in the Sixties, any engine with Weber carburetors automatically commands attention. It's really hard to walk by one without staring for a few seconds—maybe even

a few minutes. Some 50 years after these enigmatic, visually fascinating carburetion systems saw their heyday, we still view them with respect and awe. That's partly because they look just so downright impressive on a V8, with gaping stacks thrusting upward like eight hungry mouths.

Weber carbs are a true "bolt-on" package that, within hours, can visually transform any ho-hum utilitarian powerplant into

an engine that looks like it belongs in a race car. And let's face it, there's a little bit of Walter Mitty in all of us—we like driving something that looks and runs like a race car.

The best part goes beyond the visual; driving a car with a Weber-carbureted V8 under the hood is pretty exciting. The instant throttle response, quick acceleration, and all that low and midrange torque become downright addictive.

Webers on Factory Five's new USRRC Cobra replica. But those filters on top of the stacks can be a problem. The foam inside them restricts airflow, and will eventually dry out and crumble, falling into the carburetors and the engine. The rule is never use a filter element on the velocity stack. There should be an air space above the stack for the carburetor to breath properly.

There's also a certain thrill that comes with knowing you're running the same engine in your car that was the state-of-the-art in the Sixties. Feeling the same rush that legendary drivers felt when they stomped the throttle pedal to the floor makes the whole experience of owning one of these cars that much more visceral, and very real.

The interesting thing about Weber carburetors is how basic they are. They're 100 percent mechanical, no software needed. You tune them with a screwdriver and a handful of jets. Down the road you go—done, nothing fancy, no laptop required. And changing jets is something anybody can

do in a few minutes. All the jets are accessible from the outside, and you don't need to take the carburetor apart.

So, what's with all those stories we hear about Weber carburetors, all those things that "they" say. Such as, "Aren't Webers really miserable to drive on the street?" And, "Won't you be sorry for installing them?" Or, "If Webers are so great, then why are there so many bad stories out there if they aren't true?"

Well, let's separate fact from fiction. To start with, when Weber carburetors were the induction system found on every serious race car, the tuners and engine builders of the Sixties didn't care much about how they worked under 2000 rpm, and they most certainly weren't concerned about how the cars would drive

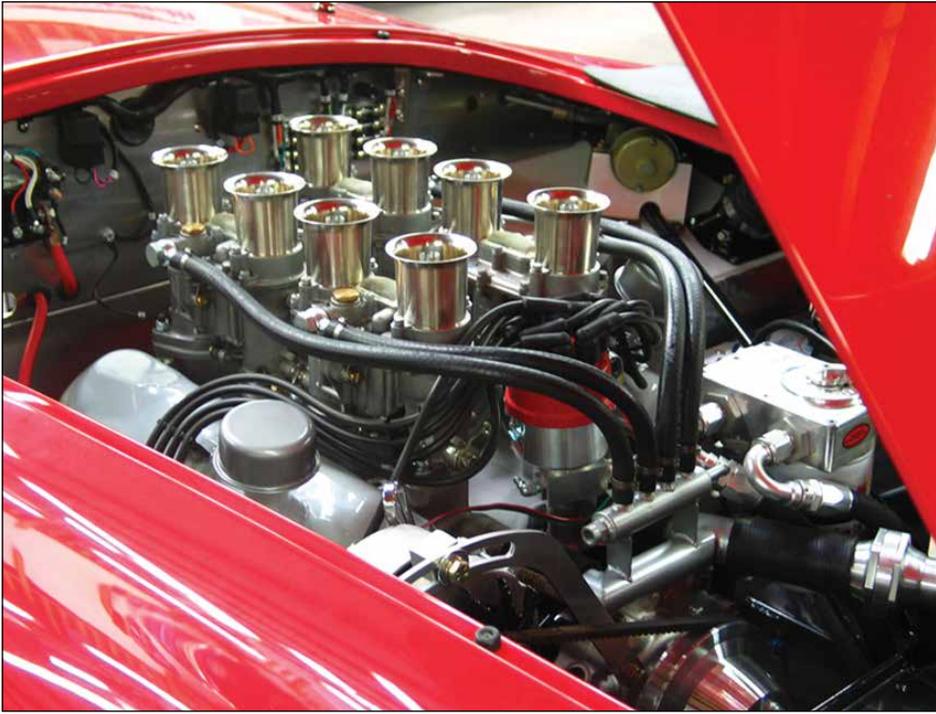
on the way to the office every day, or how they behaved in traffic. Those race engines just had to make power, and that's what they did.

One of the reasons Webers got a reputation for being difficult is simply that nobody really understood them back in the old days. They were racing carburetors. The engines were set-up on dynos and they made their power by finding the right combination of main jets and air correctors. When the horsepower numbers were acceptable, they dropped the engine into the car and they went racing.

Truthfully, Webers can be extremely unforgiving—but only when not set up properly in the low-speed circuit. They have to be jetted exactly right. Later on, a lot of guys who tried



ERA's 289 Cobra replicas are often fitted with Weber carbs.



One of the most recognizable Weber carburetion systems is the 4x48IDA layout, shown replicated here on an FIA Cobra replica. The fuel log water-neck with “octopus” fuel lines was a race-only configuration.

running Webers on the street suffered because of it, giving up and selling them in utter frustration. Things like fuel pressure, float levels, ignition timing, low-speed jetting, and emulsion tubes—it was all too much for the average guy who just didn't have a complete understanding of how to work with these carburetors. And, there was really nobody to ask.

The Weber is a tuner's carburetor. It can be made to do just about anything. But back then, nobody realized the float levels were not pre-set at the factory. To this very day, you can't take a Weber carburetor out of the box and bolt it on. It doesn't work that way.

The float level is just one small detail that could make the engine miserable even if everything else is right. And who knew that Weber carburetors are designed to run at a maximum of only 3.5 psi of fuel pressure? Weber doesn't now, and never did, include an instruction sheet in the box. The company expected you to buy a factory manual. Nobody did, of course.

Meanwhile, race teams were running an aftermarket high-performance mechanical fuel pump, and sometimes they ran those big, pounding Stewart Warner 240A electric pumps, all of which were putting out well beyond 3.5 psi. Most fuel pumps typically put out

anywhere between 9-12 psi of fuel pressure. Unfortunately, the Weber needle and seat assembly, being designed for a lot less pressure, were lifting off their seats from excessive fuel pressure. So, lots of those Sixties-era race cars had carburetors that dripped at idle and they had to deal with the engines loading-up at low speeds—but after the race started, who cared? Once the engine was operating at the higher rpm's, it cleared-out and pull hard.

In those days, sometimes a driver would shut the car off in the pits with the fuel lines over-pressurized and a hot engine compartment, so the carburetors would immediately start dripping. When the engine was fired up again, it would take some clearing out, and if there was a backfire through the carbs, there might even be a fire. Fuel pressure is very important, and that's why there is such a thing as a

fuel pressure regulator.

Those racing carburetion systems made their way through different hands and eventually, they were the ones that ended up on street cars. Now, picture the average Joe trying to drive that engine at low speeds on the street. It was worse than miserable. Pretty soon, he'd had enough. Time to sell those damn Weber carburetors and install a four-barrel.

Fast-forward to the present day. Weber carburetors might not be the induction of choice for a modern, high-tech, race engine. But remarkably, they are still the induction system of choice for any Sixties-era sports or race car that represented the "high-water mark" in racing and performance during the era, if you want authenticity. (Editor's Note: Check out the Webers on some of the Cobras featured in this issue.)

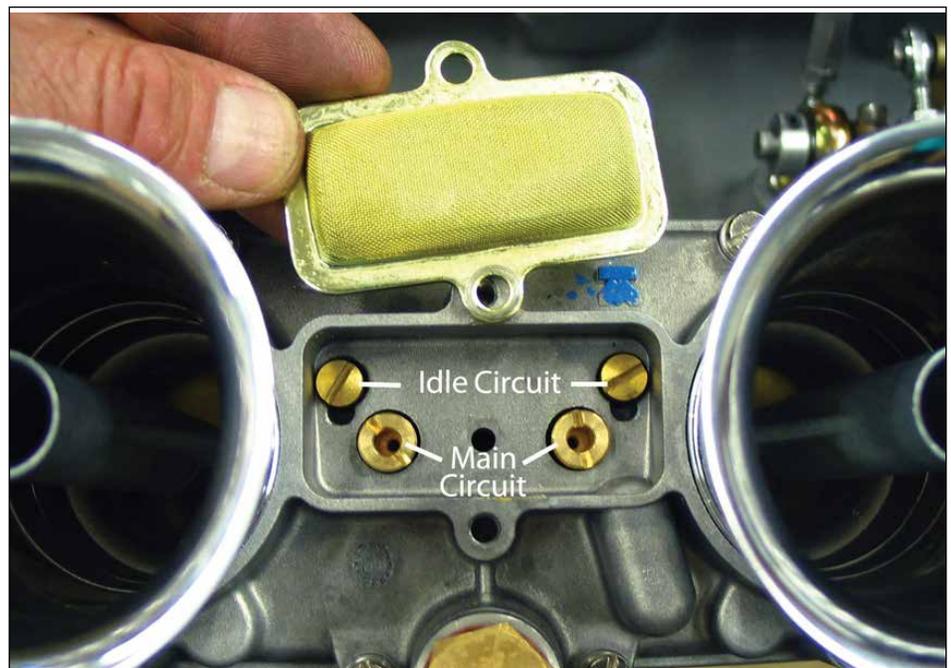
Gaining any real level of an understanding of these carburetors and making

them streetable really didn't happen until the early Eighties. By that time, many of the Sixties-era race cars had been long sold-off, retired, or just pushed into the corner and covered-up. Around the late Seventies and early Eighties, a lot of these carburetion systems were available used, and they could be bought fairly cheaply at swap meets. Understanding them, and getting them to drive on the street was entirely another matter, but they sure looked great. All it took was the time and patience of a few people who took a genuine interest in them at that time, and who saw a ready market for them in hot rods. Weber carburetion tuners were few and far between, but a few shops popped-up

that actually specialized in them. Today, there are even some "old timers" left who have been doing it since then.

Make no mistake, Webers are a 100 percent tunable carburetor, so whatever the issue may be, there's a solution to the problem. A carburetor is simply a device for the balance of fuel and air. You just have to understand the carburetor. Every circuit in a Weber carburetor can be addressed separately. Today, we know that the fuel level is oh-so-critical, so we pay a lot of attention to how the floats are set. And fuel pressure is the other huge factor. We know we have to run a special, low-pressure regulator, usually set at 2.5 psi.

On the Weber 48IDA, jets are changed by removing the screen on top of the carburetor, making jet changes simple and fast.



Here's what the jetting system looks like after removal, with each piece separated. These components are responsible for the Weber carburetor's personality.

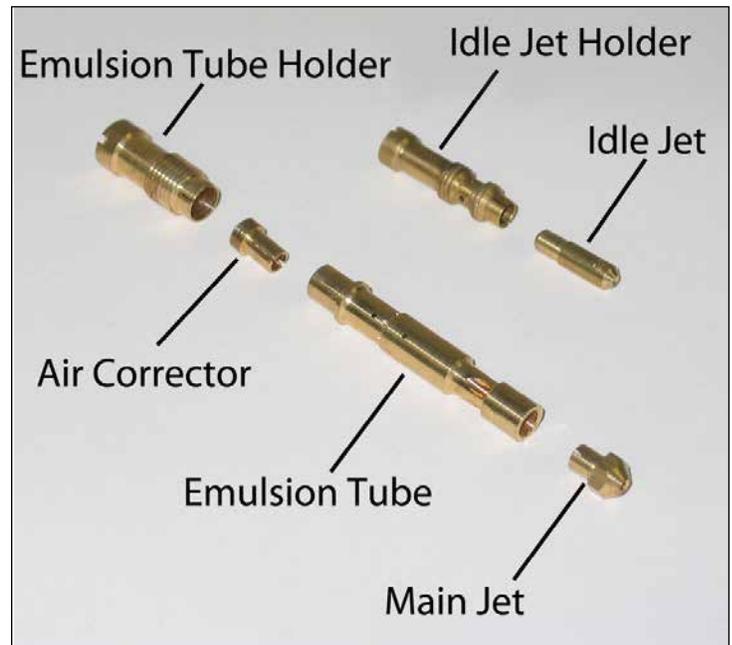
Compression ratio is very important when the size of the carburetors is considered. Some engines need 44mm or 45mm carburetors, while other engines are more suited to 48mm carburetors. For instance, if you have a mild engine with 9.5:1 compression, forget about running 48's. You need 44's. If you run the 48's, you'll be complaining about soggy throttle response—but the 44's will wake the engine right up.

As you would expect, one of the biggest complaints about Weber carburetors is that the engine may run badly at the lower speeds. There may be a lot of popping, blubbering, and possibly a flat spot. That's a function of several factors, and the combination of jets and ignition timing are critical.

The thing about Webers is that they're so unforgiving of not having the jetting package exactly right. With independent-runner manifolds, there's

no plenum to serve as a "central mixing and correction area." Each cylinder has its own dedicated carburetor barrel, and the cylinders don't get to borrow anything from their neighbors. The jetting and timing have to be exactly right.

The independent runner manifold makes for an extremely efficient engine; essentially, each cylinder is tuned individually. The idle jet, idle jet air bleed, emulsion tube type, and the ignition timing must all be in the right combination for any given engine's specifications. It isn't difficult to get all of it correct after a bit of road testing, if you are working with an experienced tuner, but for somebody just coming into it, trying to get it just right, starting from scratch, it can take a very long time to find the right



combination for a given engine. It's a lot like trying to re-invent the wheel.

Today, it's possible to supply your engine specs and other details, and just have a Weber carburetion system built for you that you can drive on the street and have some fun. If there's a detailed tuning manual from a reputable builder who provides a lot of setup information, it becomes as close to foolproof as you can get.

With Weber carburetion, 95 percent of the work is done on the bench. The installation is the easy part. A Weber carburetion system has to be built to match the engine it's going on, and should be shipped to you pre-adjusted for a fast and easy startup. You

should not have to add any parts, take the carburetors off the manifold to correct linkage issues, or figure out how to finish assembling the linkage. The mixture screws and idle speed settings should be pre-set for you to ensure the engine will fire-up quickly and idle for you.

If you have the ignition timing set properly, once you have fuel pressure, you should be able to pump the throttle twice, hit the key, and the engine should light-off instantly and idle for you. If you spend all afternoon trying to get the engine to run, you either set the timing wrong or you bought the carburetion unit from the wrong place.

Admittedly, it's not easy

to build a streetable Weber carburetion system from scratch if you don't have a lot of experience doing it. The linkages are very tricky to assemble and can be confounding, and it's easy to make a mistake that requires the entire unit to be disassembled in order to find the problem and make a correction. If any of the levers on the throttle shafts have just a few thousandths of play on the shafts, the unit will be impossible to keep synchronized and the engine will come off idle feeling rough, and it will idle rough as well.

So, if you're thinking about Weber carburetion for your engine, the best advice is to do your homework. Get online

and ask questions about the Weber carburetion suppliers in the forums. Talk to other guys who have bought them, ask where they got them, and most of all, ask how they were treated by their supplier if they called with any issues or questions following the sale.

Even a "cheap" Weber setup isn't cheap, and will still cost thousands of dollars. Be sure to call and speak to the people who are going to assemble it for you, and be sure to make a list of questions, like how complete the unit is when you get it, whether it is custom-jetted for your engine, what work is done to the carburetors, what is not supplied, and what you'll have to do or supply on your own.

Be sure to ask whether it arrives fully assembled and ready to drop onto your engine, all ready for startup. Most important, make sure there's a complete set of detailed instructions



The ultra-exotic SBC cross-ram system, with DCOE (side-draft) carburetors. These were first developed for the Corvette Grand Sport race cars. A new unit is shown here.



All 4x48IDA systems can be equipped with short stacks, like the Daytona unit shown here. That's how Shelby American got them to fit under the Daytona's low-profile hood.

to the grocery store, ticking off every mile with a smile.

- CB

to guide you through the installation, starting, and setup procedure—or you'll be entirely on your own when you install it. If no instruction manual is supplied, will you be comfortable installing one of these systems and getting it set up all on your own?

The drivability of a properly tuned Weber-carbureted engine is no different than with a four barrel. The engine should idle smoothly and come up through the rpm range smoothly. Throttle response should be explosive.

Anything less can be sorted out with some tuning.

Bottom line, when you drive a car with Weber-carburetors, there's no reason why you shouldn't be able to drive that car to work every day or to take it

### **SOURCE:**

Jim Inglese

Weber Carburetion  
2 Ledge Wood Drive

North Branford, CT 06471

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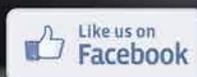
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# *The Black Mamba*

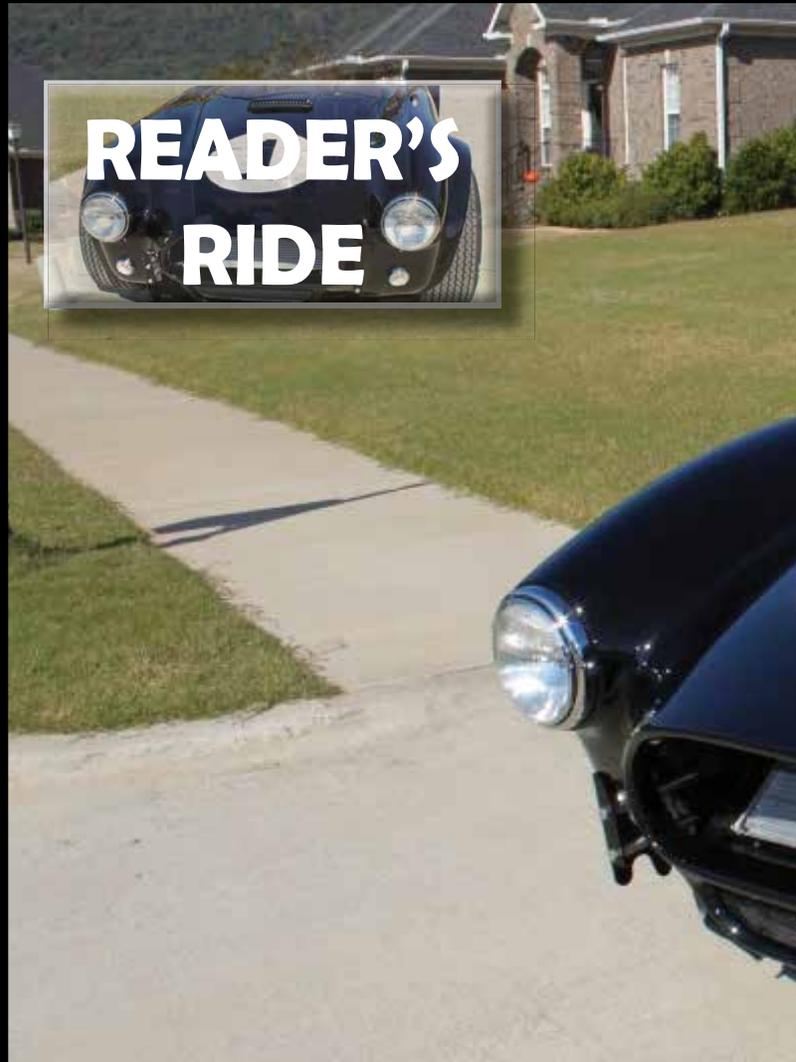
## *A Name That Says it All*

As Told by Erik Treves

I first was introduced to the Factory Five family by an Army buddy back in 1999. Following the discovery of Factory Five, I was the happy owner of a Roadster Mark I. I kept that car through several deployments and after 11 years I decided I had the itch to build again.

After meeting Wayne Presley from VeryCoolParts.com (who became my best friend), he convinced me to sell my Mark I and start over. Little did I know that this step would propel me on a journey that ended with the car that I have now, The Black Mamba.

Following the sale of the Mark I, I built a Mark 3.1 roadster with crazy, over-the-top



# umba Strikes



horsepower. The notoriety I received from this build allowed me the opportunity to participate in the Factory Five episode of the Car Warriors TV show. I was off and running after that. I built the first Factory Five 818S as a beta customer and then decided I needed

to clean out the garage!

I was informed by Factory Five that they would be releasing the long awaited 289 FIA Replica version of their roadster. As a child, this is the car that I had pictures of all over my room. My favorite was a black one. The scene had

been set. I needed to sell both my other Factory Five cars before starting another – rules of the house.

Factory Five President, Dave Smith, informed me that if I wanted to own customer car #1 that he would make it available to me. That was enough for me



and I was first in line at the open house in June 2014.

Mostly because of the Forums, and to stand out a bit, I name my builds after some sort of theme. I had “The Green Lantern”, “The Flash”, “The Side Kick” and so on. I needed something for the 289 FIA.

The 289 FIA in my mind anyway, required me to build the car shown here as close to the original as possible. Make it a true classic!

My last Roadster was a hot rod and there is a difference. So, I needed to make it a classic, it needed to be black and it had to be as period correct as I could make it. Since it was going to black and it is a Cobra (snake), I was going to name it “The Black Mamba”.

I now needed to find an original car to pay tribute

to, one that I also liked in color and layout. A tall order for sure, since there were very few 289 FIAs ever produced.

After about a week or so on the internet and spending countless hours looking through books, I came across CSX2001. This car was the first 289 FIA production car. The only thing that could make this car even better for me was that it was black. Upon review, CSX2001 was in Black, First Production 289 car and very well documented.

Couple this with Factory Five Chassis 8335, Customer car #1, of their First Production 289 FIA Replica and the fact that I wanted it all black with no stripe, it seemed as though this was a perfect match—too much to be just

a coincidence. It was fate. I knew I couldn’t hold back now.

I received my kit the last week in June of 2014 and set out to not only build a tribute car to CSX2001, but now I needed to have it ready for mid Oct 2014 in support of SEMA 2014. I spent a few months prior to delivery accumulating key parts and built those items that were not available.

I also took some liberties in my build to update some of the older/less reliable parts with performance parts. The 289 bullet was replaced with a 347 stroker, but I retained the period-correct Webers. The hose clamped fuel lines were replaced with black anodized –AN fuel lines. The generator was replaced with an alternator encased in a generator housing. Some details were also borrowed from other CSX cars since I was discovering that no two Cobras were identical.

My goal was to build a “clean” non-flashy tribute car. There isn’t one detail in my opinion that stands out. I just touched every part and modified each one in some way and when you add up all those parts together you end up with a very elegant and detailed

build.

These details ranged from complex—making valve covers and T-5 mid-shift linkage—to relatively simple, the dash layout and painting every nut and bolt head. In the end, as I step back and now look at the car sitting in my garage, it looks exactly how I envisioned. I built it to my likes and tastes, but I think paid tribute and respect to the car and designers of the true original.

I will never be in a position to ever own a true classic. For me this is enough. Somebody very recently asked me “What is so special about your build?” I thought about it for a second and responded, “I built it.”

I am a simple guy who happens to have built a

total of five Factory Five kits. I honestly believe I will have one in my garage the day I leave this earth. I challenge myself to make each car better than the last. I am thankful to Factory Five for allowing small guys like me to fulfill their dreams of owning and/or building their dream cars. I have been lucky enough to done it five times. The journey continues! – *CB*

### **SOURCE:**

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

## ***BUILD DETAILS***

Factory 5 289 FIA Complete Kit  
Powder coated chassis, roll bar and aluminum 3-Link 3.27 rear end  
Disc brakes all around  
Blueprint 347 stroker  
VeryCoolParts.com  
Tuned 48 IDA Webers with weber specific cam  
AVIAID 8 quart oil pan  
Crane Ignition  
Custom fuel cap splash guard  
Premium carpet  
Foot box blowers  
Speedhut gauges (SW Fuel pressure gauge)  
Heater with defroster  
Wipers with self-park  
Hydraulic clutch  
Custom made: reservoirs, valve covers, T-5 Mid-shift linkage, modified dash, hood prop, and alternator/generator bracket  
Hoosier Quick Time DOT tires  
289 FIA Knock-off wheels  
Custom made Fuel Log (VeryCoolParts.com)  
Raydot mirrors with custom mounts  
Custom Paint by Wiggins Kustomz Collision Center





# The GTR's Tactical Maneuvers for Battling Supercars

as told by Petr Benes

# ON THE ATTACK





*Editor's note: the cover of our premiere issue of CAR BUILDER Magazine featured the Attack, a Czech design that our editor emeritus Jim Youngs had a long and interesting association with, both here and abroad. We asked the current manufacturer, Petr Beneš, if he had a high-performance version available, and he*

*sent us some compelling images of the GTR model shown here, along with more info on his background that was not included in the previous article. Due to language differences, some of his descriptions and technical terms might sound a little foreign to U.S. readers, but we think you'll get the basic point—this is one ferocious Attack!*

**P**robably like every other car guy, I dreamed since childhood about creating my own design, one that would be both beautiful and fast. An original car that you could not buy at a dealer's showroom, but still compete with the best exotics in the land.

As a young man, I went to a dealer showroom and bought a new, limited-edition sports car. For the first days I owned it, it was the only one on the road. I'm happy, I have a rare car. But as times goes on, I see many other owners of this same special car. What

was once exclusive is now common, the fate of any limited-edition car that suddenly becomes popular. That's why I have only one choice: building my own design.

Is it possible to fulfill this dream, I wondered? A question that would become an obsession. There was not a day when I stopped thinking about it. It simply could not get it out of my head.

But how to implement such a demanding process? Some glimmer of hope was in the construction of a kit project. My homeland, the Czech Republic, is a country

with absolutely no kit car history. It's a country where most people don't know the meaning of those words, a country where most people think you're crazy if you talk about building your own car. Almost daily I encountered sympathetic glances and smiles, and even doubts about my mental health. It was a big challenge to overcome.

An important milestone occurred in 2006 when I bought my first kit K-1 Attack from Dick Kvetnansky (of K-1 Styling and Tuning). It was followed by hundreds of hours of construction,



modification, and improvement, trying to understand the philosophy of structures that are changed over time in new technical solutions.

My business relationship with Dick changed to friendship, and in 2011, I founded B-racing. With

moral support from Dick, my company began production of the K-1 Attack after a few years absence, bringing it back to the foreign market.

Because I was still not happy with the design work on our new model, and time flies inexorably

fast, I decided that my boyhood dream needed to be realized. Because the company B-racing is an owner license and has design rights for manufacturing and sale of kits K-1 Attack, I decided to use it as a base car for building the Attack GTR.

I did not want compromise, nor be constrained by regulations for using the car on the roads, so the racing area was a clear choice. I spoke to Dany Tmka from the Type-R team about my intentions. He was thrilled. Thanks to our many years of cooperation, and Dany's rich experience of racing environment, plus our shared love of the Honda K20 engine, we agreed on the selection of the drive unit.





A few days later we began to think about how to turn ideas into reality. For maximum efficiency, we divided the project by specialization. B-racing addressed any problems about the Attack, while Dany handled engine management, transmission, brake and telemetry.

The first sketches were created in early 2013, which was a month later supported by calculations on torsional rigidity. The result is a secure, closed

frame of thin-walled tubes, whose garrison part (cockpit subframe), simply said, is identical with a protecting frame of a racing car.

The rear section was remodeled for direct acceptance of the K20 engine, including the gearbox, to the frame. To save weight, we eliminated part of the axle originally from the Honda Accord and modified stabilizing elements that are mounted directly to the frame. The front section has undergone

a technical point of view only, with relief and preparation for the new steeper steering.

To reduce the possibility of an extreme car (ride height 40 mm), we had to go through modification of the front and rear axles. Both axles are also adjustable in all directions, including reclining.

Based on last year's testing of the cabrio version of the atmospheric K20A2 with regard to the

need for precise driving characteristics, we have developed new dampers, a circuit version with external containers and adjustable height, bound and rebound.

Much of the work was carried out on the body kit modifications. The result is a closed design, with more space for the garrison area and the possibility of using two racing shells in XL size with head protection. The rear coupe design also serves as a cooling compressor to flow air through the roof chapel and expel warm air from the engine compartment.

Of course there are other functional aerodynamic elements such as the rear diffuser and wing, which take care of the downforce of the car at higher speeds. Through the use of special technology during production, we reduced weight by 57 percent compared with the



standard body kit.

Already the first test on a closed circuit showed tremendous potential of the car. During the season of 2014 we held six tests on a closed circuit to focus on the optimal settings for geometry and aerodynamics. Testing will continue in the next season and we want to attend a sharp race.

We came to a lot of

positive conclusions from testing the car. Thanks to this fact, in 2015 B-racing will start sales of the next-gen K-1 Attack GTR, built on the platform Honda Accord 7 Generation. More about this new model will be covered in upcoming issues of CAR BUILDER Magazine.

Looking back, I spent the last nine years of my life on K-1 Attack cars. Along the way, I worked with technical universities, racing teams, and private development centers. Now I have my own team.

As for those inescapable automotive dreams that I had as a young man and couldn't get out of my head, they're now being fulfilled. It doesn't get any better that! - **CB**





## TECH SPECS

**Engine:** Honda K20  
with Eaton compressor  
+ E85 fuel

**Power:** 408 hp/1000 kg

**Transmission:** 6-speed  
DogGear kit without  
synchros + sequential  
robotic shifting, LSD  
differential 2-way

**Front brakes:** 6-piston  
calipers with 332/32 mm  
discs

**Rear brakes:** 4 piston  
calipers with 330/30 mm  
discs

**Wheels:** Braid 7" x 17"  
front and 8" x 17" rear

**Length:** 4040 mm

**Width:** 1860 mm

**Height:** 990 mm

**Wheelbase:** 2440 mm

**Weight distribution:**  
41.1 % front; 58.9%  
rear

0-100 km/h for 3.3 sec

Overload acceleration

1.12 G

Overload brakes 1.42 G

## SOURCE:

Attack GTR

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

email:

[petr@b-racing.cz](mailto:petr@b-racing.cz)

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# New Headgear From Backdraft Racing That's Both Stylish and Functional

Text and Photos by Joe  
Greeves

One of the biggest challenges for Cobra replica manufacturers is to create something new without departing from the original design. Backdraft Racing, headquartered in Boynton Beach, Florida has produced more than 1,400 of these iconic roadsters since 2001, regularly introducing new versions that retain the flavor of the Sixties cars while adding innovative refinements to the design.

The company's latest, the MK3 Fastback top and aero package, takes the Sixties profile into the new millennium. Not

# SHAKE



**COBRA**  
CUSTOMIZING



# SKIN CAP





six attachment points with two on the windshield, two at the door, and two in the rear.

Through some careful design choices, the twin-bubble roof design is not only compatible with the roll bar(s) without disrupting its aerodynamic profile, but also allows

unencumbered access to the trunk.

When we photographed the car, the top was without side windows (still in the design phase), and there are also plans for small side windows that will increase visibility. Even if endurance competition is not your goal, the new top will increase the opportunities to use your Cobra, whether it's keeping out the rain or extending drive times in hot or cold weather.

Following the same plan of achieving higher speeds with the same horsepower through applied aerodynamics, the car uses an abbreviated chin spoiler that is stylish on the street and functional on the track.

top was designed and the results were dramatic. Significant increases in speed were achieved using

the same horsepower and the cars traveled further on the same amount of fuel.

Building on that concept, Backdraft Racing has taken the original approach and given it a new spin. Since many Backdraft customers enjoy endurance racing, a smooth-flowing top was the first step in lowering the car's coefficient of drag. The MK3 Fastback Top shown here is the first one out of the mold, made from carbon fiber and light enough so that two people can add or remove it easily. There are

only that, the engine and suspension improves on the original in every significant way.

Quite apart from style or weather protection, early FIA-style fiberglass tops on Cobras originally appeared as a way to enhance aerodynamics to what essentially was a blunt object, bulldozing its way through the air. (Shelby once quipped that the Cobra roadster was about as slippery as a shoebox.) To make early Cobras more competitive on high-speed circuits, a fiberglass



Vented flares stretched over fat tires help with both airflow and brake cooling. And their aggressive look is a bonus!

Early Cobras went through a succession of engines with each adding to the power and legend of the cars. While production of the original Cobras may have stopped in '67, engines produced in the new millennium are significantly lighter, faster, more fuel efficient, and more reliable than ever before. Backdraft chose a Roush-modified, all-aluminum Coyote crate

motor boasting four valves per cylinder, variable cam timing, fuel injection, and a supercharger that not only produces 630 hp, but also comes with a two-year/24,000 mile, limited warranty. The Tremec T56 six-speed trans is an ideal match.

Additional custom options retain the original flavor while embracing new technology. LED headlights turn night into day with minimum electrical draw. Also, the elegant Backdraft interior incorporates black leather bucket seats with

an optional carbon dash and seven-gauge package of Auto Meter GT Carbon instruments. A Sparco steering wheel on a billet column creates an optimum tactile connection.

Altogether, it's clear that Backdraft knows how to build a Cobra that brings it forward. - *CB*

**SOURCE:**  
Backdraft Racing  
<http://www.backdraftracing.com>



# SUMMIT MEETING, PART IV



**COBRA**  
CUSTOMIZING



Getting to this stage of prepping the body for paint requires a substantial amount of work and there's still more to be done. The exterior trim and hardware, test fitted during the "putty phrase" will have to be removed. Also, sealers and coats of primer need to be applied prior to painting

## ***Body Prepping on a Factory Five Cobra***

Text and photos by Steve Temple

**W**ith the chassis and drivetrain portions of Summit's Cobra buildup completed, the next step is preparing the fiberglass body for paint. Keep in mind that there are some fundamental differences between fiberglass and sheet metal in both the techniques and materials used. For instance, you'll first need sand off the "parting lines" (ridges of excess gelcoat left over from the fiberglass molding process). Also, while Bondo is a common product used to smooth out imperfections on metal, other types of fillers adhere better to a fiberglass laminate.

Body shops and car builders vary in

their approaches, and have individual preferences as to products and techniques, but they all agree on one basic point: when it comes to painting, it's all about the prep work. Skimp on the foundation and initial coatings, and no amount of paint will correct any imperfections. So be extra thorough and take your time sanding and blocking and filling—and even repeating that same process, too.

Even though today's filler/primers make the job go faster, how much time are we talking about for a quality job? That depends on your expectations and budget, but on this particular project, SKJ Customs sanded the body several times, and used three different types of fillers and coatings, all supplied by Summit Racing, plus three coats of primer, to get premium-grade results. During that filler process, SKJ installed and aligned the hood, doors and trunk lid, and then test-fitted all of the



This closeup of the front fender, as the body comes from Factory Five, shows the parting line from the molding process. This ridge of excess gelcoat is not structural. It's simply extra material from the seams in the fiberglass mold, and needs to be sanded down smooth.



exterior trim and hardware.

Why not fit the trim before painting is done? "There's nothing worse than taking a file or drill to a brand-new paint job," says Factory Five's Nate Smith. "It's a nightmare if you mess it up." He speaks from experience, having attempted this shortcut once, but never again.

SKJ wholeheartedly agrees, and fits on all parts during the putty stage, so any adjustments can be made right then. The first stage, however, starts with a 80-grit sandpaper on



The crew at SKJ Customs uses a DA (not orbital) sander with 80-grit paper to remove the excess gelcoat.

Some areas require sanding with a flexible block in order to ensure a smooth contour. Block sanding will be used later on in the prep process as well.

a DA sander (not orbital, as that can grind through the gelcoat) to remove the parting lines. Then the body workers apply Plyo Grip, an epoxy-based filler.

Along with using increasingly higher grades of sandpaper to smooth the surface (as fine as 800 grit or more), they follow that filler with U-POL 0714 Dolphin Glaze to fill pinholes, followed by even more sanding, and lastly an epoxy sealer. While the sealer is still drying, SKJ uses a wet-on-wet application of primer, three

coats in all. A final spray of a dark "guide coat" reveals any dips or imperfections, removed by wet sanding the primer. Only then is paint applied, and finished with multiple clear coats.

#### **SOURCES:**

**Factory Five Racing**  
[www.factoryfive.com](http://www.factoryfive.com)

**Summit Racing**  
<http://www.summitracing.com>

**SKJ Customs**  
[www.skjcustoms.com](http://www.skjcustoms.com)



Areas with a tight radius, such as the fender lips and cockpit coaming, require hand sanding with a smaller block.



To achieve this ultra-smooth level of prep surface, several different approaches can be used to build a barrier between the gelcoat and layers of primer. In addition to a filler putty specifically designed for fiberglass, body shops often use a glaze or feathering agent, along with an epoxy-based sealer. (Bondo, typically used on sheet metal, is not recommended for fiberglass, because it doesn't have any structural fibers and expands and contracts at a different rate than the underlying fiberglass.)

Exterior items such as this gas cap should be test-fitted during the “putty phase”, so mounting holes can be checked, repaired or tweaked as needed. The cap will be removed prior to spraying primer and paint.



In addition to the parting lines, the entire body will need to be scuff-sanded with 80 grit to remove the slick, glossy surface, so the fillers can adhere properly.





The hood, doors and trunk lid are mounted in the during the prepping phase. SKJ uses a paint stick wrapped in sandpaper to check the gap between the panel and body.

**TOP LEFT:** The windshield in particular requires pre-fitting, to ensure that the post holes don't require any filler for possible gaps.

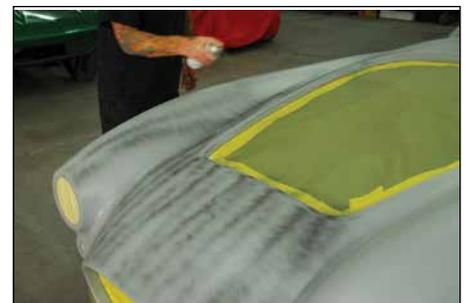


**TOP RIGHT AND BOTTOM:** Mounting holes for hinges need to be checked with mounting screws during the prep phase, and reworked if necessary.



**LEFT:** Once all the primer coats have been applied and sanded with 600 or 800 grit paper, SKJ sprays a guide coat as a final check for any imperfections in the surface.

**RIGHT:** Wet sanding the guide coat smooths out dips and high spots prior to applying the color and clear coats.



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## As told by Robert Weiss

**T**he basic premise was simple, but the execution was not. Bob Andrews of West Allis, Wisconsin, a longtime car collector, wanted to build a ride with the highest power-to-weight ratio of just about any car on the road.

After all, he's no stranger to high performance, owning both a Corvette and a Viper, but this would be on an all new level, truly untested territory. Especially considering the performance parameters of some of the street beasts

out there. Besides the extreme power-to-weight ratio he wanted, it also had to be compliant, easily drivable, and stunning in appearance. Like we said at the outset, easier said than done.

Andrews chose Bennett Coachworks for the project, noting its reputation for handling complex builds, precision craftsmanship and innovative engineering. Andrews also wanted Bennett because of Bob Bennett's personal history (note sidebar), along with his association with Arntz Engineering, creators of the first Cobra

replica, which included both its development and manufacture (along with a number of other Cobra projects). If anybody knows how to seriously compete head-to-head with a Cobra, it'd be Bob.

The platform Andrews gave Bennett to work from was a replica of a '62 BJ8 Austin Healy, a Classic Roadsters Sebring done in red gelcoat. It was already fitted with a 350 Chevy small block, turbo 350 Transmission and 4-lug Ford rearend.

First job was to figure out if and how it could be fitted with a monster

# ECLECTIC CAR BUILDER

**I**n a career that spans over 38 years Bob Bennett and Bennett Coachworks LLC have played a major role in some really rare and revered rides.

For instance, he did the complete restoration of the Ferrari 410 Super Fast

on his own, including the manufacture of rare and unobtainable parts. This is the one-off darling of the 1956 Paris Auto Show is now worth millions of dollars. It recently made another appearance at Pebble Beach, still carrying his original



engine, yet still be something close to drivable. The second job was to take the cute little car all apart and rebuild it into a ferocious roadster.

The mill chosen was a 572ci, big-block Chevy crate motor rated at whopping 701 horses, fitted with a Holley 850 CFM 4 barrel and backed by an Art Carr, 200-4R Transmission. Obviously the size of this lump and new trans configuration required a lot of reengineering to the frame and suspension components, as well as some creative mods for the engine bay and



undercarriage. These included adding extra cross members and outer frame rails tied to existing members for reinforcement,

and reinforcing the rear axle's front spring perches.

Bennett also adapted new motor and trans mounts and made some

restoration work some 30 years after the fact.

There are many other early, rare Ferraris to his credit: A 250LM, 250GT Berlinetta Lusso, 250 PF Cabriolet, 275 GTB4, 365 GTB4, and so on. There have been a string of Iso Grifos, too, including another Paris Auto Show car, the 1962 Iso prototype A3L, as well as a one of seven Series 2 coupe, that he performed automotive archeology on to reconstruct the chassis. (His plans from this project are now used by other restorers as well).

Adding to his list of projects are



Lamborghinis, Maseratis, and a myriad number of Cobras and Cobra replicars. And also Corvettes, hot rods, customs, Pro-Street, Pro Touring and race cars. Not to mention antiques and classics

accommodations to the engine bay to accept the 572. In addition, he fabricated new mounting brackets for additional accessories such as the new alternator, radiator and fan and the transmission cooler.

New headers were also fabricated, creating 2 1/8-inch tubes flowing through 3 1/2-inch tubes to stainless steel, Borla muffler and collector. The tailpipes were made from 3-inch oval tubing for added ground clearance and slashed tips for appearance.

Obviously the brakes had to be upgraded, so Bennett

used Wilwood four-piston calipers on 12-inch rotors. For the ideal stance, a solid hookup and ground hugging nose, three-inch inch springs were added, along with Caltrac split mono-leaf springs and traction bars.

As for rolling stock, it features Weld forged aluminum wheels painted from polished to black, and Mickey Thompson tires (Sportsman SR 26 X 8.00 - R15 LTs front and P25560R15 ET Street Radials, "Sticky Micekeys" rear) finish off the corners.

Instrumentation was upgraded beyond the

standard package, to include an oil temp, trans oil temp and vacuum gauge. An extra sump was added to the gas tank with new braided teflon fuel lines feeding an Aeromotive pump, filters and regulator.

Bennett kept the red color and the cool looking black vintage "hot rod" top that came with the car, and fits neatly over the six-point roll bar that was added. The exhaust tips were painted black to match the wheels and to continue the clean and subdued, tough look. The car has just the right amount of bright work,

like the Talbot Lago, Hudson and Pierce Arrow. Even a rat rod made from a '49 International Harvester Fire Truck, historically significant cars like the Shelby Cobra, chassis number CSX3003, one of five 427 Cobras chosen for homologation by the FIA.

Bob was in-house research and development tech for the first Cobra replica company, Arntz Engineering,

of San Francisco, CA. Bob was the first person to ever show a Cobra replica at the prestigious SAAC (Shelby American Automobile Club) Convention, with its introduction coming at the 1982 SAAC Convention in Dearborn, MI.

He went on to prototype the Excalibur Cobra replica, including building the prototype, producing the tooling and fixtures and first 10 sets of steel, all



very little chrome and tan leather seating.

To top it off a functional hole was added to the hood for air flow and cooling. Originally, the design called for a scoop, but Andrews liked the way the specialized air cleaner shows just above the hood line. "It looks like a piece of art in the center of the



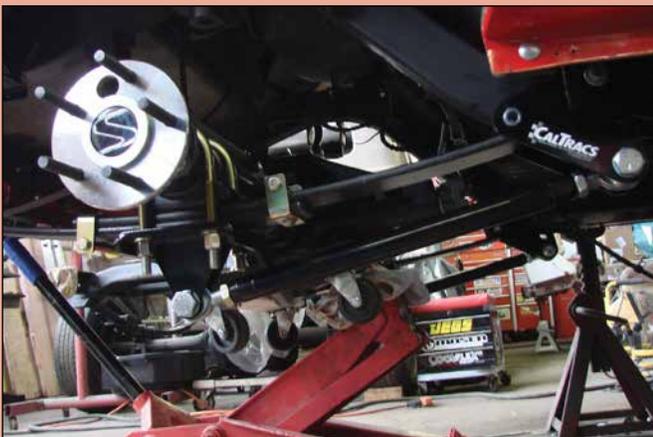
singlehandedly.

Bennett was also tapped by Concept Coach Builders, Milwaukee, WI, to be Director of Operations for the company's Rolls Royce limousine series, stretching Rolls Royce Silver Shadows and Silver Spurs.

As a driver, and a veteran of a variety of series and classifications, garnering track records and class championships,

Bob Bennett has developed a unique understanding of power, performance and handling. This particular skill has given his firm a well-deserved reputation for building winning race cars, with a particular strength in the Datsun and Nissan, "Z" car arena.

In the natural progression of an industry artist of Bob's stature, he has released a car of his own design: The



hood,” he says, so it was kept that way. All told, with the exception of the factory top, there wasn’t any part of this car that was left untouched.

With its tremendous power and light weight you’d think you could never drive it, but actually, because of the relatively long wheelbase for this small car, some ingenious engineering on Bennett’s part, and enough tread width, it’s really pretty stable. And nothing short of an incredible stoplight to stoplight car.

While Bob Andrews wanted a very fast car, since he’s used to speed, he did not want a race car. And it had, “to look like something you would actually drive,” he insisted.

As noted at the outset, the goal was to create the highest power-to-weight ratio of any road-going ride. Do the math: The total weight of the car with five gallons of gas in the tank is 2,691 pounds, resulting in 1 hp for every 3.838 pounds. Compare that with a 2015 Corvette Z06’s 5.42 pounds per hp. So even if he didn’t hit the ultimate goal, it’s pretty darn close.

What kind of guy goes for that sort of thing? Andrews is a 74 year-old retiree who still feels the need for speed, loves his new car and enjoys it whenever he can, weather permitting. Regarding the build, he says, “These guys really know their stuff, they have their own projects, they’re real enthusiasts.”

The car has been pretty much driven daily around town and the suburbs since completed and has responded beautifully, not only on the streets, but on track testing as well, at both half and full throttle for regulated bursts during the engine break-in regimen. That experience gave Bob quite a kick, literally. Of course, he loves to bait other unsuspecting drivers who don’t realize what’s lurking under the hood. Any takers? – **CB**

## **SOURCE:**

**Bennett Coachworks**  
[www.hotrodbuilders.com](http://www.hotrodbuilders.com)  
414/ 298-2068

Bennett ZX-1, a radically transformed Corvette that was prototyped, developed, production tooled and sold exclusively by Bennett Coachworks LLC. Beyond the basic body conversion, Bennett’s ZX-1 offers an array of performance and appearance enhancements. Designed for both high performance and stunning visual excitement, the ZX-1’s main component is a totally redesigned body built to fit any C6 Corvette chassis. Altogether, Bennett can cite an impressive automotive resume. – **CB**



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# *Fraternals* **Twins**

Text and photos by Rob Hawkins

**W**hen it comes to open-top motoring, a car with no windscreen appeals to a select group of madcap motorists. The cars seen here represent two extremes of the al fresco market. That is, vehicles that require a pair of goggles to be worn and your mouth closed when diving at any reasonable speed.



The Exocet XS and FMEV  
Replicars Don't Look Even  
Remotely Related, but  
They Share the Same Miata DNA





**UPPER LEFT:** Authentic aluminum flat dash covers MX-5 instrument pod, allowing donor car gauges to be used.

**UPPER RIGHT:** Replicar interior looks encased, but you actually sit up higher and feel more exposed than in the XS.

**RIGHT:** Not as much engine access as the exo-skeletal XS, but still as much room as an MX-5 mill.

Under the skin, however, they are very similar, with the majority of the mechanical components from a Mk1 or Mk2 Mazda MX-5. Both can be built by removing the MX-5's body, leaving two rolling subframes with a

driveshaft and length of aluminum (known as the power plant frame, or PPF) connecting the two together.

Next, bolt a MEV steel sub-chassis on top followed by a large expanse of fiberglass (in the Replicar's case, or a

handful of panels for the Exocet XS), then finish off with fitting the lights, an interior and connecting up the standard MX-5's electrics. Both cars also use the MX-5's fuel tank and all sorts of standard MX-5 items, such as the safety brake cables,

steering column and pedal assembly.

The design influences and origins of the cars seen here each have their own story to tell. The Replicar is a recreation of the Aston Martin DBR1, the DBR being an abbreviation for David Brown Racing. Back in the Fifties, Aston Martin was owned by David Brown, which was an engineering and manufacturing company that started in 1860 and has made everything from tractors to gearbox cogs for submarines.

In 1956, the first race car with the DBR badge was created with a magnesium alloy body, a spaceframe chassis and a 2.5-liter, straight-six twin-cam engine connected to a five-speed transaxle. Aimed at the World Sports Car Championship, DBR1 as it is now known competed at Le Mans in the 24 Heures, with Tony Brooks and Reg Parnell at the wheel, but retired after 21 hours (246 laps) due to gearbox failure.

The DBR1 had a more successful



Replicar wire wheels sit on MX-5 hubs, whereas XS alloys are a popular after-market item.



Aside from the roof bars, the Replicar chassis in the foreground is similar to the XS chassis in the background.

season in 1957 with a larger 2922cc engine and new team members



Years apart in looks, but both kits share the same MX-5 donor components underneath their fiberglass exteriors.

including Roy Salvadori. The car finished first overall at the 1000km

Nurburg-ring and two cars finished first and second at the Spa Grand Prix for sports cars. Stirling Moss and Jack Brabham claimed a similar victory at the Nurburg-ring in 1958.

During 1959, the aim was to win at Le Mans, and with Carroll Shelby and Roy Salvadori at the wheel, the DBR1 claimed a first. That same year, David Brown decided to divert his racing to Grand Prix events. However, the DBR title had been born and continues today with the well-

known DB models from Aston Martin.

MEV's re-creation of the DBR1 isn't exact, but that's mainly down to the limitations of using the MX-5 donor components that result in an easier build. However, the differences haven't dissuaded customers from placing orders and Stuart Mills at MEV usually has a long line of people wanting to speak to him whenever he visits a classic car show. The decal on the side that advertises a kit price at £4999 (about \$7900, not including freight and import duties) attracts lots of attention, especially among classic-car fans who struggle to buy a roadworthy MGB roadster for that sort of money.

That's the base package, and a Replicar kit priced at just under £6000 (about \$9500) includes those authentic looking wire wheels at £884 (\$1400), which can be bolted onto standard MX-5 hubs. Stuart estimates a Replicar build should cost around £7000 (\$11,000 or so) if you sell off unwanted donor parts, such as the shell, hood and wheels. As he observes, "MX-5s are, it seems, worth far more in parts than they are a complete car!"

By comparison, the Exocet XS is a revised version of the popular Exocet. The predecessor is a no frills exo-skeletal kit car, which seems more angular in appearance compared with the XS that has a sleeker and narrower front end and lower

side rails. There's also a full roof and frame for a screen, although the race-spec Exocet already has an MSA spec roll cage, which looks similar. The Exocet has two hoops at the rear with a curved rear cover, whereas the XS has a flatter rear cover instead,

as there are no hoops to blend into it.

With the Exocet kit priced at £2595 (\$4000 or so), the XS is only £200 (\$315) more, but extras such as the lighting are somewhat cheaper. Build times are similar at around 100 hours, depending on



**UPPER LEFT:** Remove the combined hood and nose cone and you can work around the entire engine on the XS.  
**UPPER RIGHT:** MX-5 instrument pod sits inside fiberglass surround, a less expensive way to fit gauges.  
**LEFT:** Roof bars help with feeling of sitting inside the XS and the seating position feels suitably low.



bars around your head.

As for road use, there's little difference because both cars are civilized. We test drove them on MEV's track, which includes a few undulations and uneven sections of tarmac, but the standard MX-5 suspension on the Replicar and XS soaked it all up.

Possibly the only difference to consider is rain. In the Replicar, you're going to get wet, whereas the

XS can be equipped with a little more protection. Builders have several ideas to consider, including a flat laminated windscreen, polycarbonate gullwing doors and even a soft top.

If money is a consideration, as it usually is, then the XS is cheaper to build, but from what MEV has already seen, resale values of the Replicar are higher. (The XS is too new to quote resale

values, so secondhand values of the Exocet the only bases for comparison here.)

The XS and Replicar represent designs that are some 50 years apart, but it's reassuring to see they can be brought together with the same donor components. All told, using modern, reliable, and readily available parts is an essential aspect of any project car, whichever style excites you. - **CB**

## TECH SPECS

### MEV Replicar

**Engine:** Mazda MX-5 Mk1 or Mk2 1.6-1.8-liter twin cam with fuel injection

**Gearbox:** Five-speed manual

**Bodywork:** Fiberglass with aluminum floors, center tunnel and interior paneling

**Chassis:** Mazda MX-5 front and rear subframes with additional full length **steel spaceframe**

**Brakes:** Mazda MX-5 dual circuit, servo-assisted system with single-piston calipers all round, vented front discs and solid rears

**Suspension:** MX-5 coilovers all round with upper and lower wishbones and anti-rollbars

**Weight:** 650 kg (1,433 lbs) approx

### MEV Exocet XS

**Engine:** Mazda MX-5 Mk1 or Mk2 1.6-1.8-liter twin-cam with fuel injection

**Gearbox:** Five-speed manual

**Bodywork:** Fiberglass with aluminum floors, center tunnel and interior panelling

**Chassis:** Mazda MX-5 front and rear subframes with additional full-length steel spaceframe and full cage

**Brakes:** Mazda MX-5 dual circuit, servo-assisted system with single-piston calipers all round, vented front discs and solid rears

**Suspension:** MX-5 coilovers all round with upper and lower wishbones and anti-rollbars

**Weight:** 600kg (1,323 lbs.) approx

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# A Rocky Road - But Eventually Happy Trails

As told by Duane Hewitt

I was going to a consignment shop to look at an MGA, but my wife and I saw this Austin Healey replica from Classic Roadsters that we both liked, so we purchased it instead, even though it needed a lot of work.

That's when things went

sour. We had a builder from Livonia, Michigan pick up the car for several upgrades. I would call once a week to check on progress and everything the shop was telling me sounded right. But the builder would never send me updated pictures of the work.

Finally after going through surgery and getting

out of the hospital, I went to the address where we were sending the checks to, and asked to see the builder. The owner of the building stated that he was trying to locate us as he had





locked the builder out of the building. Some of our parts had been taken off our car and put onto another one.

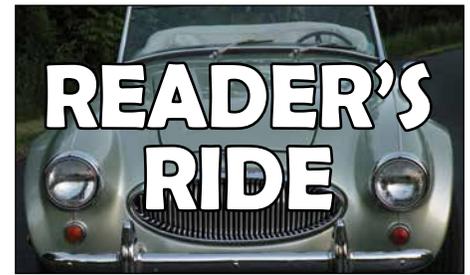
The owner of the building gave us the name of another company that could get our car back to roadworthy condition. We contacted this firm and had the car put back together, and then had more work done at Essex Customz, here in Grand Rapids. We ended up paying a little more, but at least we have the car back. Whew, what a road to go down!

We started by replacing the front end with a tubular Mustang II IFS, and added disc brakes both front and rear. We also put on some Dayton wire wheels for a more period look.

To give it a more authentic treatment, a few years later we installed real Austin Healey trunk

hinges and latch. But not everything is original style, as we improvised with some aftermarket parts and older OE stuff too. We added a Lokar shifter, 1950 Pontiac lower taillights and upper Lucas taillights. And then had the car painted Opaline Metallic Green.

Next we turned our attention to the very tired, oil-using 400 SBC. Butch's



Complete Car Care removed and replaced it with a Jasper remanufactured 350 SBC that pumps out 300 horses, backed by a TH400 trans.

This past summer we won three trophies and and two plaques. Looking ahead, this winter we are hoping to upgrade the interior and rag top. This car sure has been a lot of fun and will be even more so with the newer engine and a March power steering assembly.

BTW the mag has been great! - **CB**



# MONSTER



# R MOPAR



## *Terrorizing Both Street and Strip in a 1000hp Hemi Challenger*

As Told by Larry Weiner  
Photos by Larry Weiner,  
Toshi Akatsuka and Bill  
Scharing

**B**ill Scharing is a hardcore Mopar enthusiast. He has two late-model Challengers, a Kenne Bell supercharged SRT-8, and his over-the-top Mr. Norm's GSS-R that was the development vehicle for the 1000-horsepower program. His GSS-R Challenger is the

Bill Scharing lights up the tires on the Mr. Norm's GSS-R Challenger in the burnout box at Irwindale Speedway prior to a run.



ultimate dual purpose street/strip machine and proves that you really can have your cake and eat it, too.

Bill drives the Challenger to the track, installs a racing tune on the car's computer, changes the wheels and tires, and then hits the track. When he's done racing, he restores the street tune, puts the street

tires and wheels back on, and drives home. Simple enough, eh?

In case you were wondering how he does all this without a trailer, Bill leaves the front-passenger bucket seat out of the Challenger so that he has room to carry all four wheels and tires in the car, along with an aluminum floor jack, tools, a couple of

containers of E-85 racing fuel and his racing helmet.

Bill recently drove 150 miles from his home in Southern California to Famoso Dragstrip in Bakersfield and raced at this legendary track where he broke into the nines with a 9.97 @ 139.79 mph. A couple of months before that, Bill raced his Challenger in the Mojave

Mile, an unlimited speed contest where he ran over 191 miles per hour and is planning to crack the 200mph barrier the next time out. Bill and his Mr. Norm's Challenger are living proof that you can have it both ways, and then some!

What's it take to unleash a grand worth of horsepower from a Hemi? The Mr. Norm's GSS-R Challenger is the brainchild of both Jim Bell, owner of Kenne Bell Superchargers, and "Mr. Norm" Kraus, a legend among Mopar enthusiasts since the Sixties. The Mr. Norm's GSS-R Challenger is a direct response to the Shelby

1000, for which Kenne Bell provides the superchargers. Make no mistake, the Shelby 1000 is a very serious Mustang, and has amazing capabilities.

The problem was, there wasn't a Challenger that offered the level of performance necessary to face off against the Shelby 1000. Leave it to Mr. Norm to level the playing field, working with Kenne Bell, along with some of the best and the brightest in the Mopar performance world to come up with a Challenger that's more than ready to even up the score.

When it comes to people





like Mr. Norm and Jim Bell, the old saying “great minds must think alike” rings true. When Norm spoke to Jim about developing the GSS-R, it turned out the Jim Bell was already working with Bill Scharing, whose 2010 Challenger SRT-8 is powered by a 1000 horsepower Kenne Bell supercharged Hemi, backed up by a powertrain that

mirrored what Norm had outlined for the GSS-R. In fact, all of the tuning calibrations were done and the Challenger had been thoroughly

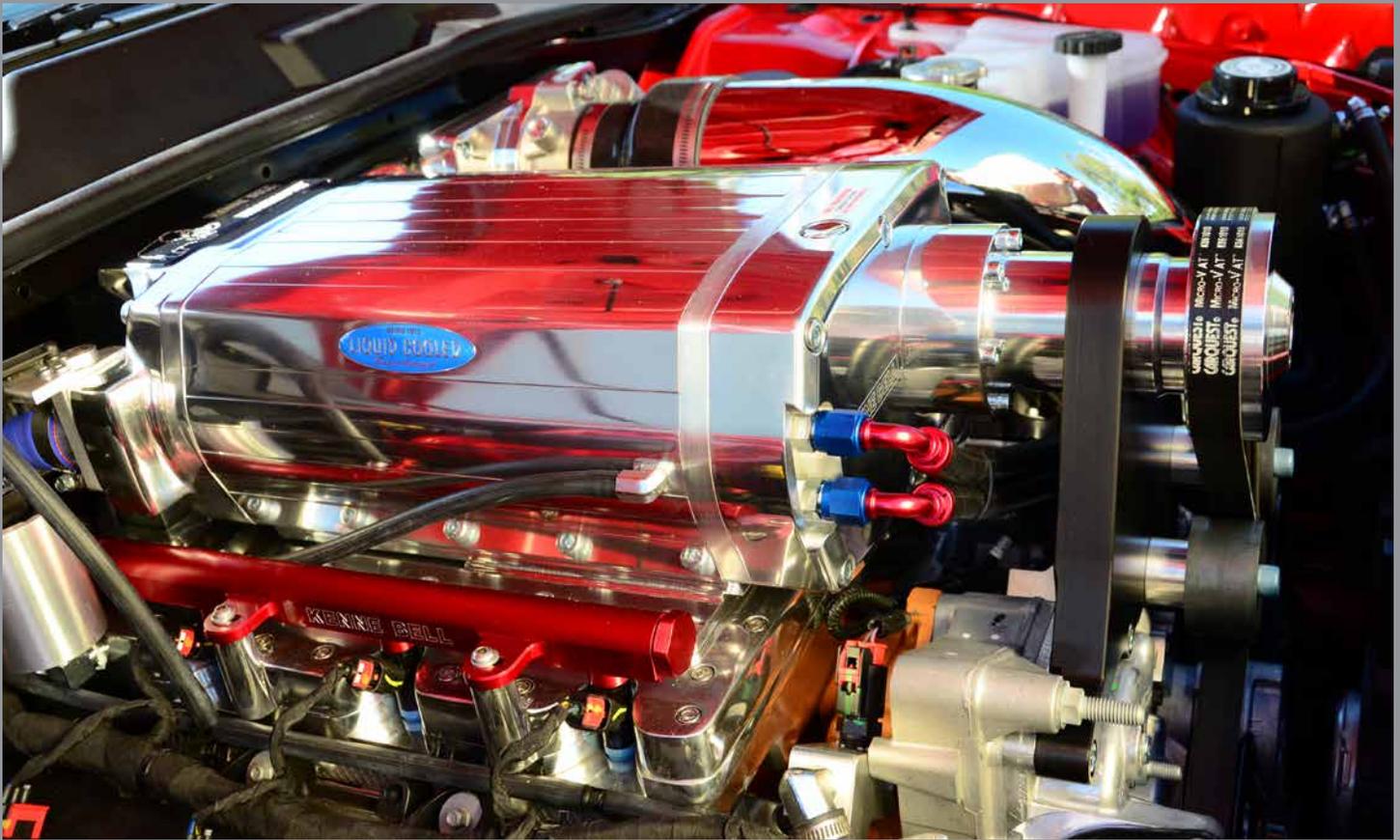
tested on the track where it was running consistent low 10’s in the quarter.

Armed with this information, Norm and Jim decided that the timing was perfect to offer the 1000 horsepower combination as a new Mr. Norm’s Challenger performance package. A TorRed

2014 Challenger SRT-8 was chosen for the first production GSS-R. For the purpose-built supercharged Gen III 426 Hemi engine, Mr. Norm and Jim Bell chose to work with Chris Seidle at Seidle Motorsports.

Chris starts with a 6.4L Hemi crank case, sonic tests it to check for cracks, machines it, and then adds nothing but the best parts. At the heart of the engine build are Scat’s 4340 stroker crank and H-beam rods with ARP 2000 rod bolts and 10:1 compression, plus Diamond custom pistons with Trend H-13 tool steel wrist pins. Also included are Total Seal AP steel rings, a Comp Cams hydraulic roller, non-MDS lifters, Cometic head gaskets, coated main and rod bearings, ARP head





studs, and an ATI damper.

On top of the short block, Jim Bell recommends using the earlier 6.1L Hemi heads, as they have more material than comparable

6.4L heads, making them better suited to high-boost applications. The heads are ported and polished so that they will flow enough volume to

handle the demands of as much as 23 pounds of pressure, and are finished off with a competition valve job. A Kenne Bell 3.6L liquid-cooled twin-screw supercharger provides the boost.

Not enough? Kenne Bell 4.2L and 4.5L Liquid Cooled superchargers are available options and all amazingly, fit under the stock Challenger hood. When it comes to lubrication, Kenne Bell recommends Lucas Synthetic Oil for the supercharger and engine.

The end result is a 426ci Hemi that produces 1000 horsepower on the ground at 23 lbs. of boost running



on E85 fuel. If you want to run on 91 octane pump gas, the engine can be built with 9.3:1 compression pistons and the boost is set at 15 to 17 pounds. When it comes to making max power, Kenne Bell recommends running E-85 because of the higher octane it offers, especially when compared to pump gas.

Backing up the engine is a transmission built by Paramount Performance. This is a completely custom built unit that features extensive machining to reroute the fluid, including enlarged passages for greater fluid volume and proprietary clutches in place of the stock components. Paramount also provides a 3000rpm stall torque converter. In addition, a custom driveshaft and half shafts are also sourced from Paramount. For those of you who prefer to shift your own gears, a built six-speed Tremec by Rockland Standard is an available option.

A complete Mr. Norm's 50<sup>th</sup> Anniversary package dresses up the TorRed Challenger GSS-R. On the outside, the Challenger features contrasting signature side and hood graphics, side scoops and

chrome GSS-R fender badges. Inside, a Katzkin custom leather interior with special 50<sup>th</sup> Anniversary embroidered logos and a serialized dash plaque remind everyone that this is a very special Challenger, while a Mr. Norm's Pistol Grip Shifter handles shifting chores.

Keeping the Challenger firmly planted on the pavement are Hotchkis Performance lowering springs and sway bars. The springs lower the Challenger 0.375" (10mm) in the front and 1.250" (32mm) at the rear. The front sway bar is 110 percent stiffer than stock, while the rear is 105 percent stiffer. Rolling stock consists of a staggered set of BF Goodrich G-Force Sport Comp 2 tires, with 245/45ZR20 on the front and 275/40ZR20 on the rear, mounted on Hurst Stunner alloy wheels,

size 20" x 9" on the front and 20" x 10" at the rear.

The supercharged Challenger GSS-R follows in the footsteps of a long line of high performance Dodges that Mr. Norm has developed over the years. These include the big-block 1967 H-Code 383 and 1968 M-Code 440 GSS Darts and the 1972 supercharged GSS Demon.

In addition, Mr. Norm is well known as one of



the leading pioneers in the development and evolution of the super fuel funny car category with his nitro burning, supercharged Hemi powered Coronets, Chargers and Challenger. And with the launch of the supercharged Challenger GSS-R it's obvious that Mr. Norm is not resting on his laurels.

Like all Mr. Norm's limited edition vehicles,

each Challenger GSS-R is entered into the Original Grand Spaulding Dodge Registry, and issued a Certificate of Authenticity that's signed and sealed by Mr. Norm personally.

All told, this monster Mopar is bad to bone. There's just no other way to describe the 1000hp Mr. Norm's GSS-R Challenger. Not for the faint of heart, it's a hot-blooded, fire

breathing beast that's ready to lay waste to nearly anything that pulls up next to it, anytime, anywhere.

- CB

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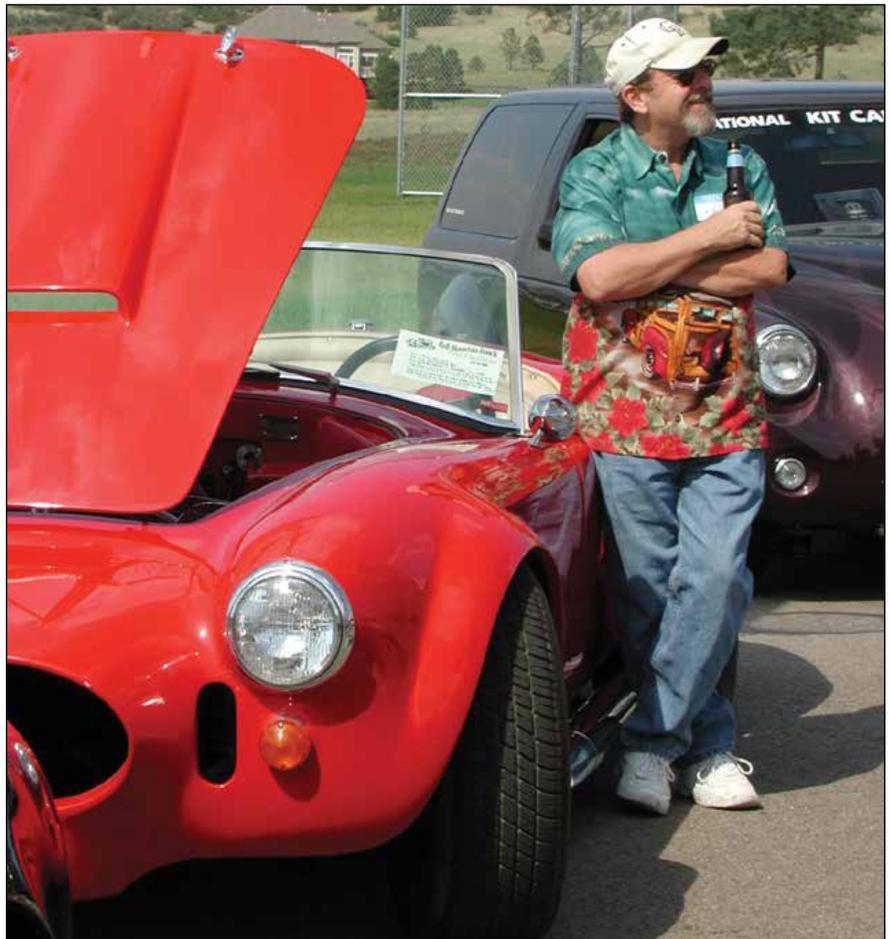
# Snake Charmer

*Looking Back on Some Memorable Cobras*

By Jim Youngs, Editor Emeritus

Sometimes popularity has its drawbacks. Since Cobra replicas are by far the most common model of specialty car, the bane of any kit-car journalist is “Cobra burnout” (pun intended). Meaning that it’s sometimes a challenge to choke out a thousand more words about yet another Guardsman Blue snake with Wimbledon White stripes.

That may be the reason that I tend to seek out the more unusual snake builds. And isn’t that the beauty of building a specialty car in the first place? The ability to tailor it to one’s



whims and fancy, instead of just copying what ‘ol Shel came up with back in the Sixties? I think so. (But that’s not meant to detract from those of you who appreciate the traditional approach to building a Cobra replica.)

As a teenager in the early Sixties in Inglewood, California, I was just a stone’s throw from Shelby American’s facility, and spent time watching Shelby guys flogging the cars on an old airstrip in Marina del Rey. With all the Cobras looking similar, with just a few colors available back in the day,

Shelby racer Allen Grant’s car was a real standout for me, and probably my favorite, just because it was significantly different than the rest. You might recall that his racer was painted bright yellow with distinct black graphics designed by George Lucas of Star Wars fame. You may also remember that we did a cover story (KIT CAR BUILDER, Feb. 2013) on an exacting Unique Motorcars-built replica of that particular snake, the 2012 London Cobra Show raffle prize.

Several distinctive Cobra replicas come

to mind when I consider standout cars I've encountered during my tenure as a specialty-car journalist. I suppose the whole distinctive-Cobra attraction started with the first kit car I built—an Elegant Motors snake, which I traded for a boat.

Around 1990, shortly after Temple took the helm of Petersen's Kit Car magazine, he asked if I'd be interested in writing some features. I didn't know much about that corner of the automotive world, but my love of cars and a willingness to learn turned into a two-decades-plus total immersion in the hobby. Like anything I've ever written about, it helps to be an owner and have firsthand experience with the subject matter.

When I was writing heavily about boats, I became a boat owner many times over. When I wrote about motorcycles, I rode

two wheelers. And so on. So it made sense to me that if I was going to write about car building, I needed a kit project.

Though Elegant Motors, and its subsequent iterations, is long gone, at the time the company offered one in particular that caught my eye, not only because it was different, but also afforded a hot-rod approach. It made sense to me, too, as its foundation seemed a bit more modern than what was being offered as traditional Cobra fare, since it took full advantage of a mid-Seventies Corvette chassis and components.

So I bought a 1977 Vette, stripped off all the unwanted components, added a few aftermarket tricks and hauled the refreshed chassis to Indy for Elegant to add the body and give me some firsthand tips on building the sports car.

I took a hot rod approach to the build by chroming up the L48 Chevy mill, adding Centerline alloy wheels, keeping the automatic trans, shaving all exterior trim and hardware, and generally eschewing anything even closely resembling Shelby touches. It was a fun car to build and even more fun to cruise in.

Another unique Cobra that immediately comes to mind is Darren Freidman's over-the-top custom show car. I didn't particularly care for the car, but I give him major props for building a spectacular show queen whose tires probably never made a full revolution on pavement. The car was loaded with custom touches including air suspension, flip-front clip, impressive paint job, exotic skin upholstery and more chrome and polished components than can be described. From that car



on, Darren progressed to more mainstream snake replicas—albeit also with lots of custom touches—direct from the aluminum-skinned replica offerings at Kirkham Motorsports.

Also off the top of my head, I really appreciated another trailer queen, Tim and Deb Booth’s Vurple, a “very purple” Shell Valley Cobra replica with matching upholstery, matching display EZ Up tent, and owner’s clothing. It was powered by a ZZ430 GM crate engine, and while it was moved around in

its early show days on Saran-wrapped wheels, I actually got to drive it one time in a memorable stint with the late Rich Anderson, former owner of Shell Valley/Midstates. The car was beautifully built and deserving of all the accolades it received. We did a feature story in our October 2003 issue.

The cover of one of our best selling issues (June 2006) showed a stunning photo of Mike Brown’s Classic Roadsters snake, photographed by Martin Bydalek against the

nighttime Seattle skyline to illustrate a story on “Boomer-Sized Cobras.” That beautiful car was an award winner at the prestigious invitation-only Grand National Roadster Show.

Bob Bondurant was the guest of honor a few years back at the annual London Cobra Show where he had the opportunity to run a bunch of snake replicas through an eighth-mile straightaway on Main Street in London, Ohio. I overheard him talking to several Cobraphiles afterward about his seat time. He raved about one replica in particular, an oddly quiet Everett-Morrison, owned by John Spina. That Buick Grand National turbo V6-powered car is wickedly fast and plastered a semi-permanent grin on Bondurant and his wife’s face for the duration of the event.

Those are just a few of the snakes I’ve seen over the years that really stand out. There were many more of course, but space prevents me from recalling all of them. – **CB**

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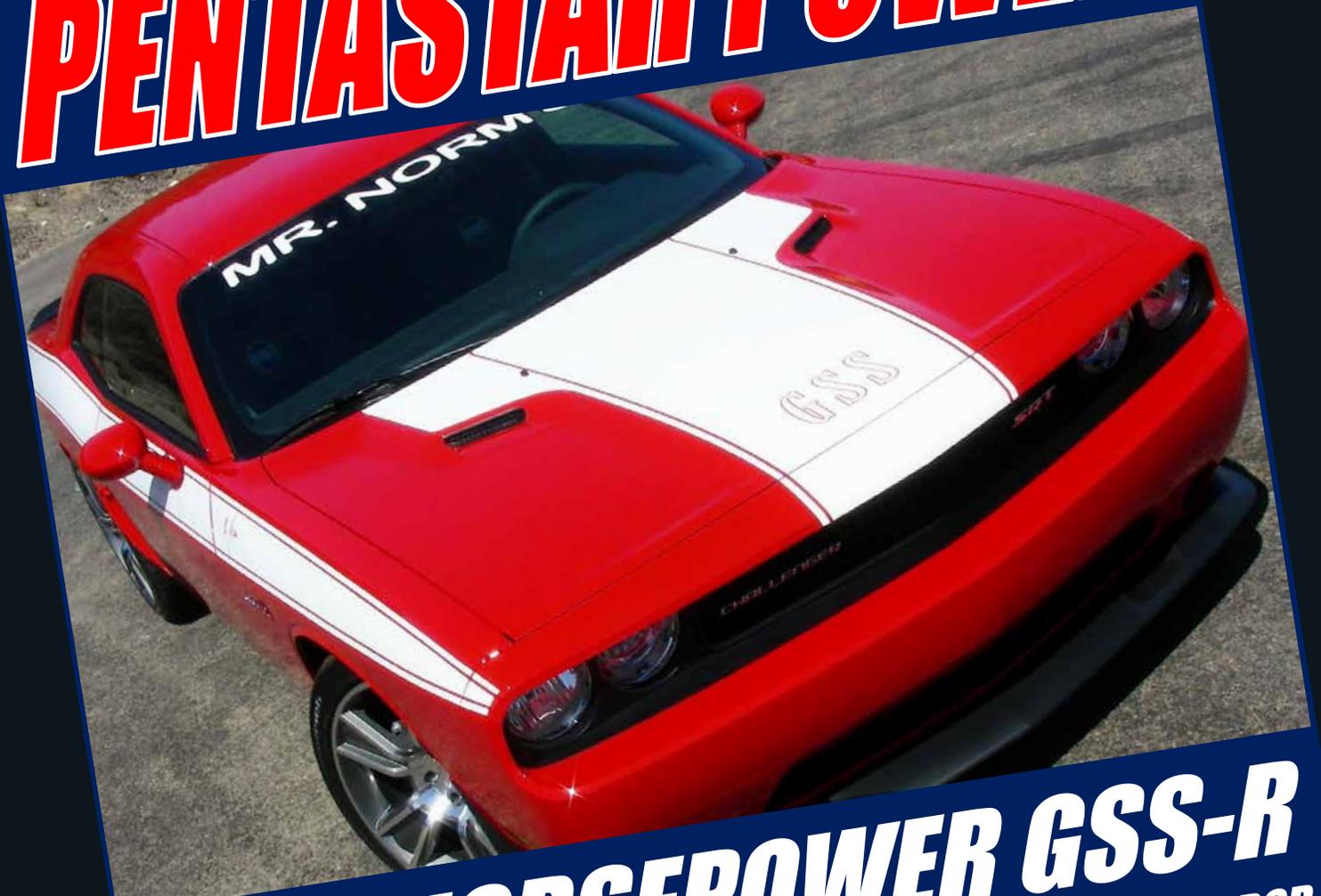
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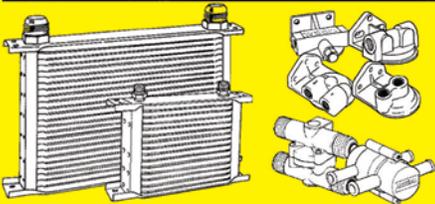
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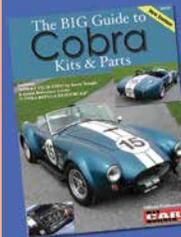


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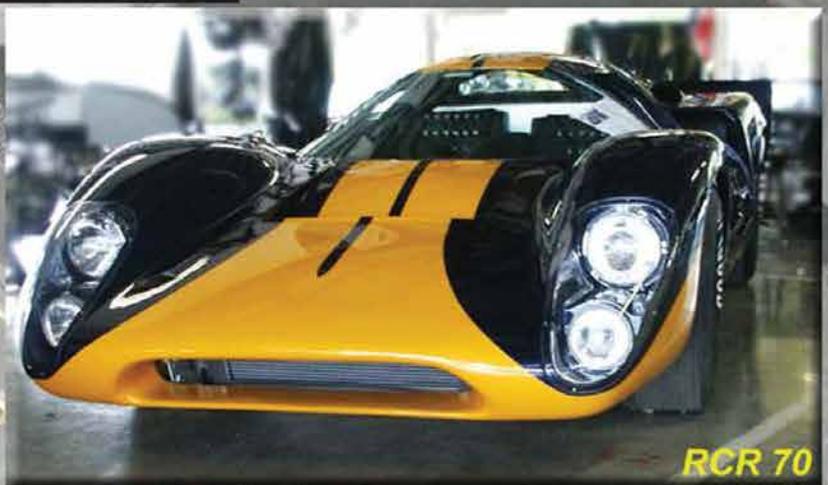
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