

MGA headlamp and vintage leather bonnet strap (owner: Jonathan Lamson)

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the editor's car

## In The Driver's Seat (Volume XV Issue 3, December 2007)

by: Curtis Jacobson

### Welcome Readers!

If this is your first introduction to The British V8 Newsletter, you're in for a treat! You've found the one and only magazine that's all about serious performance modifications for classic British sports cars. We also feature the British sports cars that originally came with V8 engines. Our mission is to provide a very diverse range of quality content: entertaining, educational, technical, and inspirational articles and photographs. Something for nearly every car enthusiast!

Our niche of the British car hobby isn't the largest, but it's the most vibrant and the fastest growing. The popularity of radical performance modifications is both out-pacing and complementing traditional restoration work. The term "restomod" captures the point: many of today's enthusiasts want to combine classic styling with modern performance, and they demand modern reliability. We're seeing bigger-budget projects and we're seeing lots more of them. If you're skeptical of these trends, consider this website itself. We reliably serve over 2000 visitors every day! That's up about 300 percent from last year. On October 22, we quietly launched a new online message board. By the time you read this, it'll have passed the 1000-messages-posted milestone.

### So What's New In This Issue?

#### Special Historical Section on the "Factory" MGB GT V8

Last summer I was looking over back-issues and something really struck me: somehow we'd managed to go fifteen years without ever including an article on the "factory" MGB GT V8 model. How did that happen? What can we do to correct it? Sometimes things fall into place like magic. The very next day, I was talking on the telephone with my friend Kelvin Dodd of Moss Motors, and someone walked into his office. "Oh, here's someone you need to meet."

Talk about an informal introduction, eh? Kelvin handed the phone to Ken Smith. At the time, I didn't realize who I was talking to, but I've since learned that Ken Smith is a veteran MG journalist, a passionate MG enthusiast, a dedicated historian, and a very generous man. If you've read any MG-specific magazine, you've probably seen his work. He's contributed to "Safety Fast", "MG Enthusiast", and "Abingdon Classics". He was the founding editor of "MGB Driver", he's the Editor of "Classic MG", and he's the Executive Editor of Moss's "British Motoring". He also authored the outstanding book: "Aspects of Abingdon".

Ken has been enamored with MGB GT V8's for years. Over that time, he's collected a treasure trove of articles, photos, remembrances, and correspondence about these special cars - all for a book project that never quite came together. In this issue of The Newsletter we're publishing "Part One" of Ken's collection! We'll have another big installment in our Spring issue, and perhaps one next Autumn. I haven't gotten anywhere near the bottom of the box yet!

This special section also includes three "Photo Reference" articles on factory cars. I'm very grateful to their respective owners for sharing detailed photos and information. (Readers, we're on the look-out for more - send us leads!)

#### Special Section on the Rover V8 (and cars Rover put it in)

As I researched the MGB GT V8, I became interested in knowing more about the Rover connection. This section is the result so far. I'm particularly indebted to Bill Wardlow of The Motorway Ltd. (a full service shop in Fort Collins CO), who gave me a detailed

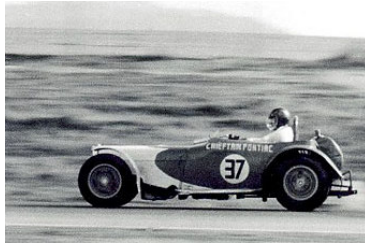
personal tour of a Rover P6 ("3500S"). I know you'll appreciate his insights too. David Gable contributed the original Rover press materials for this section.

To fully understand the genesis of the MGB GT V8 - in England and at BLMC - one also needs to know about the role of Ken Costello. It's not in this issue, but don't worry! We're planning a section specifically on Ken and his "Costello V8" cars for our Spring edition. (Readers: please send me anything you can share on these subjects!)

### How-It-Was-Done Articles

It just wouldn't be a "British V8 Newsletter" without our extremely popular How-It-Was-Done articles! The new crop of twenty-one articles certainly demonstrates the remarkable diversity of our community.

While all of these cars are wonderful, from my perspective one of them stands out as a must-read: Dr. George Snively's 1965 MGB was professionally converted to V8 power in 1966. That makes it the earliest-completed MG engine swap we've documented in this format so far. Of course we all know that MG V8 engine swaps date right back to at least the early fifties, and one MG-TC in particular actively raced with a Buick 215 V8 engine throughout the 1962 season. We're continuing a loooong tradition here.



## Congratulations!

### To John Targett for Winning MGVR's "Denver Cornett Jr. Trophy"

Folks who attended British V8 2007 will recognize John as the man who brought both an Aston Martin and a Jensen - as well as a trailer full of MGB racecar parts to sell. (He couldn't bring his MGB GT V8 because it's back home in England.) As the proprietor of Targett Motorsports, John is also an enthusiastic sponsor of The British V8 Newsletter... but outside of our circle he's better known as a keen driver. This year John raced his red MGB to strong finishes in eight race weekends - including a dominant performance at Watkins Glen in the rain. The Cornett Trophy was awarded at SVRA's "Zippo US Vintage Grand Prix" this September to John for being the top-placing MG driver.

### To Bill Guzman, whose 1967 MGB-GT is featured in Classic Motorsports' 2007 calender

Run down to the news stand and buy the January issue of Classic Motorsports. The free bonus wall calendar is a keeper... because Bill's V6-powered GT is drop-dead gorgeous! (It's on the February page. The calendar also includes a nifty race-prepped Sunbeam Tiger.) Bill is the proprietor of Classic Conversions Engineering, another of the vendor sponsors that keep "British V8" growing and thriving. Incidentally Bill has now sold over 300 MGB-V6 conversion kits!

### To Larry Shimp, whose 1968 MGB-GT is featured in the late-winter issue of British Motoring magazine

Good job Larry! Moss Motors' "British Motoring" magazine has recognized a point I made earlier in this article by prominently featuring Larry's immaculate, incredibly-refined Ford-powered MGB GT in a feature article entitled "MGB V8 Restomod". The article shows that the essential character of our cars can be developed and improved - not abandoned or destroyed - by installation of a better engine. Larry is a frequent contributor to The British V8 Newsletter, and he's active in our meets too.

This magazine relies on the generous support of readers like you! To contribute to our operating budget, [please click here and follow the instructions](#).

(Suggested contribution is twenty bucks per year. Feel free to give more!)

# British V8 2008 (July 13-16, 2008 in Port Washington WI)

Our annual British V8 meet is the best place to enjoy a large number of performance-modified and V8-powered British sports cars in their element, and you're invited! Please feel welcome no matter what kind of car you're currently driving. Please note that the name "V8" wasn't selected to exclude anyone. V6 and other engine types are totally welcome too. Also, please consider that many people have attended our meets to collect ideas, information, contacts, and inspiration before starting their own projects. We strongly recommend that.

This year's meet is being coordinated by Paul & Mary Schils and they're planning a diverse range of exciting activities. The full schedule will be published here on the British V8 website later in January. Keep an eye on the "Pub" section of the message board for the latest-breaking event news. As I get more concrete information, I'll also update the "Meeting Overview" page which is always easily accessed by clicking on the big "Meetings" button at the top of every single page of this website.

If you haven't booked a room, you'd be wise to act quickly. We have a good discount on a block of rooms, but it's filling up quickly. Here's the contact information for the host hotel. (Remember to mention "British V8 Meet" when placing your reservation to get the group-discount price of \$87.)

Country Inn and Suites  
350 E Seven Hills Rd  
Port Washington, WI 53074  
(262) 284-2100

Nearby Elkhart Lake is the home of the Road America race track. We'll visit the track during our meet, and also some of us will be staying over in Wisconsin a few extra days to enjoy the [Kohler International Challenge \(with Brian Redman\)](#). It's a full weekend of SVRA sanctioned vintage racing, plus associated activities such as a concours d'elegance. Our group discount for the race events is 20% off, and Road America will allow us to buy tickets at this discount when we visit the track.

## This Newsletter is a Volunteer Effort

The British V8 Newsletter and website represent the work of many people. I want to take a moment to recognize and thank all the folks who've contributed articles, photos, and information. Returning readers will probably recognize some familiar names including Martyn Harvey, Greg Myer, and Jim Blackwood. I also want to thank brand-new writers Simon Austin, Rob Ficalora, Steve Ward, Bill Wardlow, and David Willcox plus all the folks who've contributed "How It Was Done" write-ups and photographs, and Peter Mittler for photographs from his recent trip to England.

I continue to be encouraged by the generosity of readers. Since the last issue, we've been blessed with financial support from the following individuals: Tony Bates, Jeb Blanchard, Richard Bunch, Brian Clough, Graham Creswick, Lamar Crowell, Steve DeGroat, Michael Devenis, Gerrit Diepering, David Dillon, Barrie Egerton, Don Faber, Rob Ficalora, David Germain, Calvin Grannis, Bruce Harland, Martyn Harvey, Erik Henrichsen, Ken Hiebert, Rod Holderbaum, Jerry Jackman, Bill Jacobson, Jerry Johnson, Chris Jones, Larry Kelly, Bob Kilpatrick, Dale Knapke, Wayne Kube, Robert Lockwood, Mike Maloney, David Maples, Dan Masters, Jacques Mathieu, Bruce Mills, Robert & Susan Milner, Colin Ostergard, Donald Paye, Bernie Posey, Jack Renaud, Nigel Ricardo, Paul & Mary Schils, Terry Schulte, Les Shockey, Jim Stuart, Mark Trosper, Paul Waters, Nicolas Wiederhold, and Bill Young. You guys are wonderful! Your contributions will be put to good use expanding the depth and breadth of our coverage.

## Please Support Our Sponsors!

Here's a great performance tip: pick up your telephone and work through the list of companies in our [Vendor Directory!](#) It really pays to get to know these guys. I've been discovering that most of them offer more different performance parts and services than are advertised on their websites. I can honestly say that every one of our sponsors is friendly, knowledgeable, and will be happy to help you with anything they can. Keep in mind that our sponsors/advertisers are mostly small businesses with very limited advertising budgets. Please thank them for sponsoring "The British V8 Newsletter", and let them know that their \$40/year ads are reaching the right people.

### We welcome sponsors that are new with this issue:

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MGB V6 conversions and the parts so you can do them yourself.  
Conversions and suspensions / fabrications and design / mild to wild!  
British Automobiles are our passion... Let us share the passion with you!  
Specializing in TR7 and TR8 performance modifications, and Rover V8 engines.  
A dealer in quality classic British sports and race cars.

### And familiar companies that have renewed and increased their sponsorship:

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[All British Car Repair](#)

Advance Auto-Wire: Electrical reliability in a British car? Believe it!  
Distributor rebuilding and re-curving for all vehicles.  
MGA and MGB V8 conversions. Quality restorations and repairs.

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The MGB specialists where people are more important than parts!  
Custom built sportscars with a British heritage.  
MGB V6 specialists, including kits, plus MGB chassis upgrades.  
British sports car chassis and handling. Conversions, modifications and brakes.  
Ford V8 engine conversions for MGB, plus powder coating.  
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Struts to hold open the bonnet and the boot lid or GT hatch of your MGB.  
(aka: "RATCO") Triumph frames & performance chassis upgrades.  
Rover engine specialists. MGB V8 conversions and big brake kits.  
Sales service and restoration of fine British automobiles.  
Performance & racing: engine, tranny, wheels, brakes, handling & more.

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## Canadian Corner (Volume XV Issue 3, December 2007)

by: Martyn Harvey

### 25 Years? - 40 Years? - Worth the Wait!

In the late 60s and early 70s I was a teenager living in the UK. I loved cars then and I still love them today. Starting with an Austin Mini, a Morris Minor pick-up, and a Ford Cortina, I learned to drive at a very young age... and I couldn't wait to get my license and a car of my own. This is the story of how it took twenty-five years to get from there to the car I always needed, and why it was worth the wait.

I've also included a summary of [Key Events in the History of the MGB V8 Hobby in Canada](#).

You have to start somewhere I guess, and I started with a VW Beetle. I loved it. It was a grey 1962 model that I wanted to convert to a dune buggy. (Youthful ambition!) In those early years, I also briefly owned a black 1957 Beetle.

When I moved to Canada in 1973, the first car I got was a turquoise blue, oil guzzling, rust-bucket. A 1964 Mercury Comet certainly wasn't my first choice! I really wanted an MGB GT and I actually went to look at a used 1967 GT. But my very protective uncle with whom I was living was also my guardian, and he had already decided that a used British sports car would be a bad idea. In his role as guardian it was his duty to make sure I didn't get ripped off buying something silly (or British.) Ironically, he brought home the turquoise rust-bucket and tried to convince me it was a good deal for \$100.

However, it wasn't a good deal and I quickly moved on to my second Canadian car: a 1965 Beetle. It was on this car that I learned some basic auto mechanics. I tried to tune the engine one day and set the car on fire. My next car was a 1971 Renault "12". I enjoyed the front wheel drive, the comfortable seats and the excellent fuel consumption... but I still wanted an MGB GT.

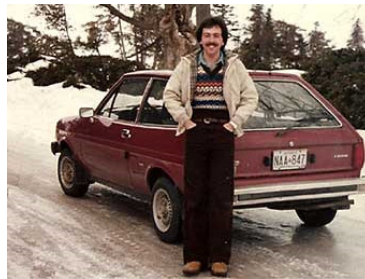
When my parents arrived in Canada they needed transportation and they decided to buy the cheapest new car available: a 1974 AMC Gremlin for \$2680. I inherited this car a couple of years later and drove it while rust consumed it. It wasn't a fun car to drive: it didn't really go and it certainly wouldn't stop!





When I became fully employed I managed to move back into the world of imported cars and bought a used 1976 Audi 100LS. It was a posh-looking car but also a money pit and I learned that it was impossible for me to tune up an early style Bosch fuel injection system. That was definitely a good thing, actually, since it prevented me setting the car on fire like the old VW.

In 1978 my dad helped me to buy a brand new Ford Fiesta. It was truly a fun car to drive and it was also a sensible car. However, it was small - very small - and not fast either. It was probably the need for speed that led me to the purchase a brand new 1983 "T-roofed" Mercury Capri 302 5-speed. This car was a monumental diversion from family practicality and it got me hooked on V8 power plants. It was a lot of fun, and it was fast, but it just didn't handle the way a sports car should. That point was driven home to me when I drove a friend's 1980 Triumph TR8. My life was changed forever. I finally knew that I didn't just want a British sports car - I needed one - and I decided to take action.



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That decision led me to the purchase of an MGB. My top three reasons for choosing the MGB were:

- (1) It seemed to be the quintessential British sports car, (in other words, it looked good),
- (2) It was cheap to buy (affordable),
- (3) It would be cheap and easy to maintain (durable, and with low operating costs).

There was a fourth reason too: I wanted to learn how to maintain my own car and the B seemed simple enough to be a good start. This "fourth reason" turned out to be very true. The first driving trip in my 1972 MGB resulted in a broken U-joint and a very slow limp home! The first tune-up I attempted on my 77 MGB resulted in a cross-threaded spark plug and some expensive machining on the cylinder head. For some reason these problems didn't turn me off MG cars in the slightest. Strangely enough, they created that special bond MGB owners have with their cars. The bond kept growing stronger and by 1995 it had grown into a bit of an obsession that led me to complete a V8 conversion.

I had already owned and enjoyed my red four-cylinder MGB Roadster for about eight years when I first laid eyes on a black MGB that left an indelible mark in my mind. I was smitten and I decided I just had to have a shiny black "B" with alloy rims, chunky tires and an overdrive gearbox.

A few months later I was driving home my new possession: a sixteen-year old 1979 MGB LE. The car was in good original condition, still sporting the factory paint, biscuit interior, and single Stromberg carb. The factory dash plaque recorded her as car number 54 of



100 imported into Canada. The odometer showed just 86,000 original kilometers and the Ministry of Transportation records indicated three previous owners. The last owner had parked her in a barn beside a Healey 100 for some time, although he did drive her occasionally. He had oil sprayed the chassis every year and this had kept the rust away. She was solid but in need of some TLC. She was also in need of more horsepower!

During the eight years I owned my red '72 B, I had learned to fix minor mechanical problems and to enjoy making minor performance enhancing mods. I added adjustable shocks, thicker sway bars, alloy rims, wider tires and exhaust headers. That car was a lot of fun to drive around the country roads of South-Western Ontario. In comparison, the LE was a slug and I was determined to do something about it.



(At right: BritishV8 autocross hot-shoe Graeme Harvey in the driver's seat. His brother Andrew waits for a turn.)

The black MGB that had "caught my eye" the previous year was quite a special car. It was a Rover V8-powered machine. I was determined to own one too. Of course this meant building my own BV8 since at that time it was almost impossible to find such a car for sale in Canada. I wasn't sure if I was up to the challenge since I had only been tinkering and playing with my '72 B - basically changing oil and performing routine maintenance tasks. As I researched the project, I discovered to my surprise a couple of other MGB V8s in South-Western Ontario. Don Smith of Cambridge and Keith Childs of Hamilton had independently built Rover-powered MGBs. (Both of these cars still reside in Ontario and they're both show-cased in the British V8 website's MG Photo Gallery.) I also discovered a factory MGB GT V8 in Toronto, owned by Dave Plummer. This car was brought over to Canada by Dave when he emigrated from England. I was thrilled to purchase a brand new factory V8 tachometer from him that continues to operate in my current car: "HARV8".

In 1997 then, twenty-five years after purchasing my first car back in the UK, and twenty-five years after Ken Costello produced his first MGB V8, I started driving my first MGB V8 roadster. I wasn't disappointed with my efforts or with the money it took to build the car. I'm just as smitten today with the whole MGB V8 hobby as ever!

In fact, the MGB V8 hobby in Canada just keeps getting better and better. I've recently started a construction of another MGB V8 to enjoy in my retirement, but this one will be an MGB GT - the car I wanted in the beginning except better!



Martyn's MGB LE V8 (aka "HARV8") and his '74.5 MGB GT V8 project car.

## Key Events Related to the History of MGB V8's in Canada

Year	Activity
1962	First MGB ("G-HN3 101") was produced at Abingdon, England.
1968	Earliest known MGB V8 conversion within <b>Canada</b> is offered for sale. A 1967 MGB GT with Ford 289 was offered by Gulliver Motors in Hamilton ON for \$3500. If you have additional info about this or any other early conversions please contact us!
1967 - 1969	Abingdon produced the MGC (4,542 roadsters and 4,457 GTs).
1971	Ken Costello introduced his MGB GT V8 in the UK press.
1972	Costello shipped a left-hand drive MGB GT V8 (w/ automatic) to a <b>Canadian</b> customer.
1973 - 1976	Abingdon produced 2,591 "factory" MGB GT V8s in the UK. (Note: actually 2,600 if you count the pre-production engineering & marketing builds.)
1976	MG ceased production of the MGB GT V8 in the UK.
1980	MG produced their final MGB at the Abingdon factory.
1992 - 1994	Rover produced approximately 2,000 MG RV8s in the UK.

- 1993 MG V-8 Newsletter launched by Kurt Schley in Ohio.
- 1997 - 2003 **Canadian** MGBV8 Register website launched by Martyn Harvey in Ontario.  
In 2003 there were 39 Canadian members listed.
- 1997 First MG V-8 Annual Meeting held (in St.Louis MO)
- 1998 Brooklands Car Company of (Kitchener ON) **Canada** produced their first "350S".  
(The Brooklands 350S was an MGB-based special powered by a Rover V8 engine.  
Brooklands has developed a succession of MGB-based V8 sports cars since 1998.)
- 1997 - 2007 Growing #'s of **Canadian** V8-conversions attended British V8 Meets:
- 1997 (St.Louis MO) - no Canadian cars in attendance
  - 1998 (Annapolis MD) - 1 Canadian car (Martyn Harvey)
  - 1999 (Champagne IL) - no Canadian cars in attendance
  - 2000 (Westlake OH) - no Canadian car in attendance
  - 2001 (Sebring FL) - 1 Canadian car (Martyn Harvey)
  - 2002 (Grand Rapids MI) - 2 Canadian cars (Pete Smith & Martyn Harvey)
  - 2003 (Townsend TN) - 1 Canadian car (Martyn Harvey)
  - 2004 (Grand Rapids, MI) - 2 Canadian cars (Chris Trace & Martyn Harvey)
  - 2005 (Terra Haute IN) - 2 Canadian cars (Pete Smith & Graham Creswick)
  - 2006 (Townsend TN) - 6 Canadian cars in attendance!
  - 2007 (Willoughby OH) - 10 Canadian cars in attendance!!!
- 2000 - 2007 ~1/2 dozen **Canadian** V8s gathered annually at the Bronte British Car Day, Burlington ON.
- 2001 Dan Masters began uploading British V8 Newsletters to the internet (in PDF format).
- 2006 Curtis Jacobson moved the British V8 Newsletter entirely online and made it free.
- 2007 Now that 15 years have passed, it's feasible to import and register an MG RV8 in **Canada**.
- 2010 ? Proposed **Canadian**-Hosted British V8 Meet.

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Greg Myer takes us along for an inside look at a few local machine shops!

## Machine Shop 101: an introduction to the basic processes

as published in *British V8 Newsletter*, Volume XV Issue 3, December 2007

by: Greg Myer

What happens at a machine shop? What do we need to know before we take our parts to the machine shop? Does it even matter? Maybe we just want our block bored and to get on with the build. Well it depends very much on what your goals are, what the intended use of the engine in question is, how much horsepower you intend on producing and how long it's designed to last.

The more knowledgeable one is going in, the more intelligent questions you can ask and then the result should be a better build when you get all your parts back. We will look at a number of areas starting with some very basic information so you can see how these things work together. They do work together. Never forget that there are relationships, many and varied, between all the functioning and nonfunctioning parts of your motor.

### Relationships

No, I'm not going Dr. Phil here. First there are mechanical relationships. Piston to bore clearance for example measured in thousandths of an inch. Many different dimensions need to be considered. Some will be built into the new parts and need to be checked and others will need to be machined to specifications. Other relationships are when things happen. In engines these are usually measured in degrees of a circle, which has 360°. Spark timing, for example, might be expressed: in degrees "Before Top Dead Center" (BTDC). Some of these relationships are affected by the machine work. A third relationship is ratios. An "over-square" bore to stroke ratio for example. These mostly fall under the design stage of planning the build rather than the machining process. Also included in ratios are volumes. Intake port volume and combustion chamber volume come quickly to mind. These are affected by various machining jobs performed on the head. Theory and planning will determine the direction of your build. The machine work will make it possible.

Lets start with the block. We'll use a V8 block for reference. (This is British V8 after all!) Buick, Rover, Chevy or Ford; doesn't matter to the machinist. We'll talk generic here as it makes little difference. The block has eight cylinders, composed of two banks of four in a 90° "V" pattern, as viewed from the front. The crankshaft rides in the journals at the bottom of the block and the heads are bolted to the "decks" above the two cylinder banks.

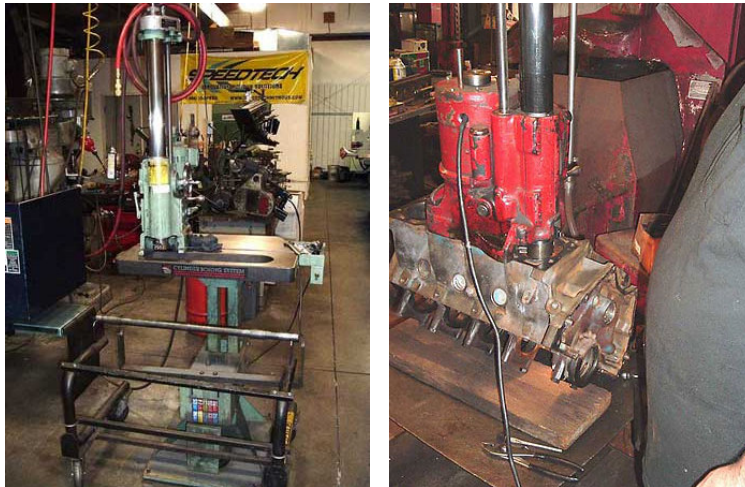
First, you disassemble your engine. If there's little wear on the cylinder walls, and little or no ridge at the top, pulling the pistons should be easy. If there is a bit of a ridge, use your ridge reamer to remove it so the piston rings won't get caught. If it's not worn much, you can use a glaze breaker and just put new rings in it, using the same pistons. You should thoroughly clean everything and use new bearings, etc. Look at the lifter bores too. If they're glazed from high mileage you can use a brake cylinder hone to make a finish that the new lifters will work with better. You are using new lifters, aren't you? Here's a law: always use new lifters on a new cam. Even if you have what appears to be a good used cam, you will be miles ahead if you install new lifters on it. (Besides, lifters are relatively cheap.)

When the bores are worn and new pistons are needed, the bores need to be enlarged. Pistons come in "oversizes" and the block needs to be bored to match. If the new pistons are 0.030" inches larger in diameter, then the bore size needs to be increased by a like amount. The new pistons will come as a matched set. The machinist needs them in hand to bore your block. He will also need the old ones to press the old pistons off and the new ones on. This calls for knowledge as the pistons may have different valve relief notches to match the pattern in the head. Some piston sets also have the pin bore offset to the thrust side of the engine. Your machinist will know how all that needs to be put together. The rods should be marked by number and need to go back together on

the crankshaft in the same sequence and same direction.



At the shop the block will be inspected and the cam bearings removed, as well as the freeze plugs and galley plugs. Then it's into the cleaning solution. These vary. Hot tank with strong chemicals or a high pressure cleaning using a strong soap that's bio-friendly are two of the most common. (Aluminum can't be hot-tanked!) The cleaning is for more than aesthetics. There will be a build up of crud that needs to be removed from the oil galleys as well as water passages. Since the freeze plugs and pipe plugs will be removed before this process begins, you'll need new ones.



Boring bars vary in design. A small local shop may have what's know as a portable boring bar, this type is less expensive and it mounts off the block's deck. This is acceptable if the deck is square and parallel to the crankshaft bore. If, however, the deck is closer to the crank at the front of the block than the rear, the new bore will start right but end up angling towards the rear of the block. Bad news! If assembled this way, there may be excessive loading on the top front of the piston and lower rear skirt as well as the rods riding on the crank pins. This type of bar is fine as long as the operator does all the checking he needs to first.

A boring bar that mounts off the crankshaft bore prevents this problem. That's the second type. It's also known as a portable boring bar. It may not look portable, but the one in Bill Cannon's Garage was recently taken on board a work boat and used to bore a large diesel engine. Not an easy task, but less complicated than pulling that motor. There are many of these types in use around the country. They can provide a good, consistent job. Again, the operator needs to be familiar with his equipment and make all the checks, but the boring bit is always at a 90° angle to the crankshaft. That's a good thing!





The third type is a boring machine. It's not portable, no matter how large you are. The Rottler unit at the local NAPA Machine Shop is a good example. These are large units that are designed for a long life of heavy use. With periodic maintenance and sharp cutting bits they can do a fine job for many years. These mount the block off the crank bores too and are quite accurate. This is what most of us can hope to find in the local machine shop. If that's what you see, you're in good hands.

The fourth type of machine used for boring is a CNC Machine (CNC stands for: "Computer Numeric Control") and they are state-of-the-art! This is the one that all the fuss is about. The example in the photo is at Bill Cannon's Awesome Engines. It's a four-axis, computer-controlled machining center. It can perform a multitude of tasks, not just bore a block. While it's doing these complex jobs it holds tighter tolerances than is possible with the other types of equipment. That's great! It's also a very expensive piece of machinery. It requires software and/or someone very astute with both computers and machinery to program it. You will understand if the charges for this type of machine work are above and beyond other, more common shops. You get what you pay for.

Do you need this amount of accuracy? Well, there's no such thing as being too accurate! On the other hand, if you're building an average, daily-driver type motor, your local plain-Jane machine shop will probably work just fine for you, at an affordable cost. Going racing? Planning to use nitrous or a turbo? You'll need higher dollar parts to begin with, and top-quality machine work could very easily be exactly what's needed for all those pieces to live together and retain their performance edge longer.



Whichever machine does the boring, it won't open the cylinder all the way up to the specified diameter. Rather, it stops short and a honing machine is then used to take the cylinder to the correct size and crosshatch finish. This is for seating the rings. There are several types of machines to do this task. There are several approaches to the job too. The honing machine at my local NAPA is a good example of what is used in many shops. High performance machine shops carry this operation one step farther by using a deck plate bolted to the deck to simulate the stresses the head will exert on the block after assembly.





One point we need to understand is that whatever equipment is used, the machinist needs to be familiar with it and know its proper set-up. My local machine shop is Bailey's, in Pittsville, MD. The owner, Kevin Bailey, has been a friend of mine for years. He's done a lot of my machine work and I've done some porting for him. It's a one man operation, and he gets friends he knows well to help out when needed. The shop doesn't look like the ones you'd see in the magazines like "Engine Masters" or "Hot Rod". It might even scare newcomers, if they didn't know what they were looking at. Don't be put off. It's organized in Kevin's own way... and it works! He knows what he's doing. In fact he built the engine for the 2006 NHRA Summit Pro Bracket World Champion, Phillip Truitt of Parsonburg, MD. Things like that don't happen by accident!

Let's watch him as he performs some routine jobs. First the block is hot-tanked in a 180° chemical solution. After removing and flushing the chemicals off, the machine work can start. Kevin sets the block on a work stand and checks it. The deck is important as the boring machine squares off of it.



The machine anchors to the main bearings so nothing changes position once the boring starts. He begins by using a micrometer to set the diamond dressing tool for the correct diameter. In this case, an Olds 425 that has a stock bore of 4.125" is being opened up 0.030", so the tool is set for 4.155". In reality it's slightly less as Kevin will finish the final dimension by power honing.

Often, we read about certain skirt clearances for racing pistons, etc. that sound like a trick set up. Don't ask for your machinist to give your pistons skirts that clearance. He can't. The piston skirt clearance is built into the piston. The bore is for the top of the piston and the rings should match.

## Honing

This can vary. In Kevin's shop almost everyone is using Moly rings so he finishes the bore with a 300-400 grit stone in his Sunnen 4 blade hone. The hone has 2 stones and 2 wipers to maintain it square at all times. Honing oil is used for this process.

Your machine shop will need to know what type of rings you are going to use so they can properly finish the bore surface to make it so the rings seat. This is important. Many racing engines using the latest technology in the ring package need little or no time to seat. They are ready when assembled. For example, the crew at Bill Cannon's Awesome Engines Machine Shop run new engines on the dyno to check how everything functions together for the first time and to run them through a heat cycle to temper the metals. The only problem he's run into recently is with roller lifters. They need oil with zinc in it, and without it they can have problems, which is easy to understand considering the high valve spring pressures that racing profiles need to run.





Another phase of the machine work that involves boring and honing is sleeving. If a block has damage to a cylinder wall, it may be able to be saved by boring the cylinder in question oversize so a sleeve can be pressed in. Usually a step or lip is left at the bottom of the bore for the sleeve to butt up against so it can't move. This may differ if the block is aluminum and had sleeves in the first place. Once in, the sleeve needs to be finished to the size of the piston and rings.

### Rod Preparation

Back to Kevin's for the next step: the rods. Kevin uses a Sunnen Rod Machine. First, the old pistons are pressed off the rod. Then the rod is checked to see if the big end is out-of-round. If needed, it is resized. The bolts are pressed out and the mating surfaces on both the rod and cap are ground down 0.001" each. The new bolts are pressed-in and torqued to spec. Then the machine hones the opening to the proper size. This machine has several mandrels for various applications. Each mandrel uses one stone and 2 "shoes" for alignment. Rods can have the casting lines ground off their beams and then polished to reduce stress risers and improve their fatigue life. Rods can also have the side clearance on the big ends opened slightly. This can be done on a belt sander. It reduces drag without any oil pressure loss. For stock engines about 0.010" can be removed when measured with both rods that mount on the same journal are stacked side by side. For performance motors up to 0.040", measured the same way.



Once they're ready, the small end is put into an oven or heater and warmed up to 1100°. The pin which goes into it has an interference fit. That means it's too small for the hole. When up to temperature Kevin can now mount the piston and pin into the rod

by hand. Yes! The pin slides in that easily, and when it is cool, seconds later, it is locked in place.



Depending on your piston choice, you may want full floating rods. That's where the pin slides in the rod and uses C-clips, rings, or circlips in grooves in the piston to keep it in place. To do this with press fit rods, the small end needs to be bored to the proper size and bronze bushings with an oil hole are pressed in. After this you could assemble the pistons and rods at home. However, if you decide to try that, please make sure you know what you're doing! The rods have different faces on the sides of the big end. One to mate to another rod and one that's beveled to fit the fillet of the crank throw. Also to be considered is the orientation of the piston. The valve notches, if there are any need to match where the valves are and even if you are using dished pistons, the pin will be offset as the pistons have major and minor thrust sides. Your machinist will mount them correctly. Just make sure you fit them in the correct position when reassembling the engine. (I once bought a set of 'almost new' TRW pistons inexpensively because a young



man had put them in the block wrong and bent most of the brand new intake valves in his 302 Chevrolet.)



One more important note about the rods: use new bolts! Many times these are overlooked. They can cause very rapid destruction of the crank if they fail. One long time drag racer I knew said he never saw a rod bolt break. Well, they do break, but mostly they fatigue and stretch. Then what? The clearance on that rod bearing opens up. More oil rushes past and oil pressure drops. That's the first sign of trouble. It won't last long as the rod bearing will soon spin because there isn't enough crush to hold it in place. The crank and rod will be destroyed very swiftly thereafter. If the rod breaks, it can hole the block. Stock replacement bolts are better than old fatigued ones, and aren't too pricey. There are many others to choose from too, and no matter what the cost, it's cheap insurance in the long run.



## Other Machining Processes

There are other things to consider while the block is undergoing its surgery. How about grooves for o-rings in the deck? Depending on the compression you plan to run, or if a turbo or nitrous is to be used, it may be a very important step. Turbos and nitrous oxide use create extreme cylinder pressures and can overpower the head gasket if everything isn't exactly right. O-Ringing the block (or head in some cases) and using the proper gasket, and following the manufacturer's recommended torque specs and sequence can go a long way to keeping the motor together.

While we are discussing the deck, there are a few points to note. If, for example, the block needs one or more sleeves, or there was warping or for some other reason the deck was in question, it will need resurfacing. (This is also the case when you want to "Zero Deck" your motor during the build.)

Usually, with most cast iron blocks, the machine shop is all set to "shave" the deck. They've done it often and know what's needed. However, with some aluminum blocks, using either iron or aluminum heads, and many late motors, there are special considerations. Check the instructions on the headgasket! You may find that a certain roughness average (Ra) in microinches is specified. The old "iron block, iron head" combination with a composition soft-face gasket needs 60 - 120 microinches Ra, while an aluminum head on iron block with the same type of gasket calls for 20 - 50 microinches Ra. Some newer OEM engines with multilayer steel head gaskets require even smoother finishes (perhaps 20 - 30 microinches Ra) and there are even a few that recommend 7 - 15 microinches Ra. Check with the manufacturer before scheduling the work. Do not assume the shop knows what type of gasket you are going to use.

New cam bearings will be driven into their respective positions. If you've seen a cam bearing driver and are tempted to try it yourself, remember; the bearings get smaller as they go from front to the back of the block. The size difference isn't great so you need to pay attention or you could damage one. Also, I like to 'clock' the bearings. That is rotate them in reference to the bottom of the block. Looking at the cam from the front of the block, I like the oil holes at about 4 o'clock. That way the oil is heaviest where the pressure is the greatest on the bearing.





Balancing is something that needs to be done here too. New pistons weigh a bit different than the old ones. That calls for changes somewhere. Resizing the rods changes their weight too. All of the pieces need to be weighed individually, and matched to the lightest in the set by removing material. The crank is then spun with bob weights on the rod journals that equal the combined weight of the rods and pistons to determine how much needs to be added or removed from the crank throws. Removing weight is done by drilling. Adding weight requires putting a heavy metal ("Malory metal" is denser than steel) in the throws. This is a critical step for high-revving engines, whereas components that are similar-to-stock put into a stock motor may not always need balancing. Ask your machinist if you have any questions.

Align boring is when the main caps are treated in a similar fashion as the rod caps were. Material is removed from the mating surfaces and then the caps are torqued in place and bored the length of the engine, assuring a straight seat for your crankshaft. This has to be done if you bought a new set of 4-bolt main caps for your 2-bolt block. The other 2 bolt holes will need to be bored and tapped on each cap at this time too.

Crankshafts are part of this shortblock package that we've been discussing. The machine shop can check yours for straightness, and straighten it if necessary. The main and/or rod journals may have wear and need to be turned undersize. When that is done most shops supply the properly sized bearings when the crank is returned. Polishing the journals will help it move smoothly on the oil film layer between the crank and bearing. Getting the crank "indexed" can be helpful with some factory cranks. That's where all the throws are checked and offset ground as needed to be 90° or 180° from the others. I know, that's the way they should come from the factory, but it ain't necessarily so. If the throws are off by a few degrees, well, there all sorts of relationships will be messed up too! Where will the piston be when the intake valve opens or the plug fires at what's supposed to be 36° BTC at 5500 RPM? What effect will it have on exhaust scavenging if the piston is several degrees late getting to TDC compared to camshaft events? Go ahead Dr. Phil, just try to answer that one.

That about wraps up the machine work on the short block. Oh, there are other things that can be done, but this is just to cover the basics. If you want to get even deeper into machine work and engine building, you might like to check out some of the books or magazines out there that specialize in just that.

**Editor's note: We would like to thank Bailey's Machine Shop, on Main Street in Pittsville Maryland (phone 410-835-2241) for their help with this article.**

**Disclaimer: This page was researched and written by Greg Myer. Views expressed are those of the author, and are provided without warrantee or guarantee. Apply at your own risk.**

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## Visiting the "Awesome Engines" Machine Shop

as published in *British V8 Newsletter*, Volume XV Issue 3, December 2007

by: Greg Myer

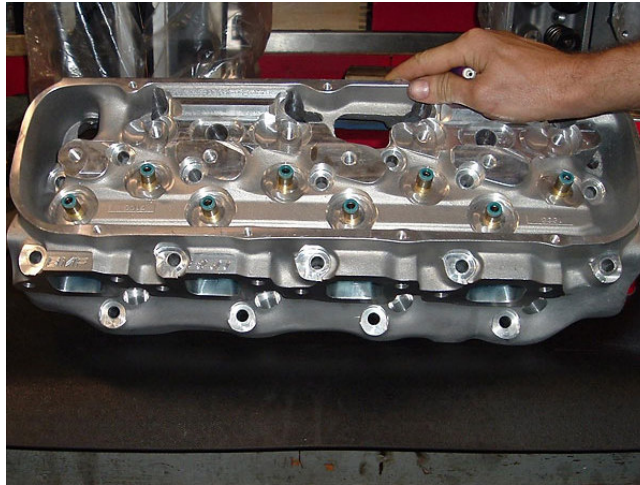
While visiting the machine shop of Awesome Engines recently, I happened to spy quite a few aluminum engine parts. They were obviously newer and a good bit bigger than the Buick 215 parts laying around my shop...

I asked a few questions, and decided to pass along the answers here. A "Big Block" Chevy will fit in an MGB, as we've seen... (refer to [Tom DiCenzo's "How It Was Done" article](#) from the April 2007 issue of *The British V8 Newsletter*.)

A lot of work, it's true, but it can happen. Well, how about an all-aluminum Big Block Chevy!?!



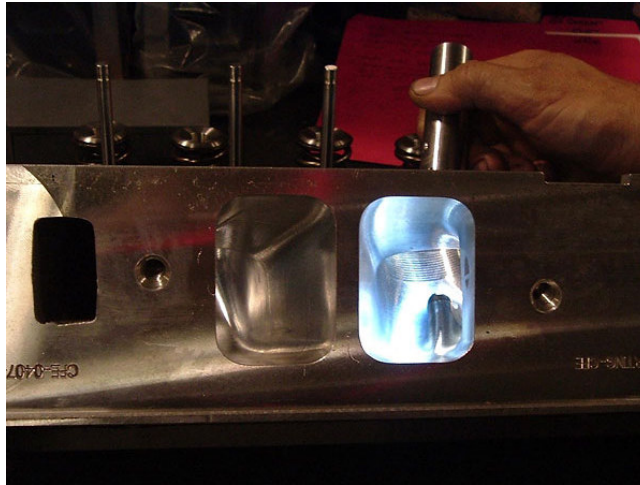
This is an aluminum "BBC" engine block sitting on the corner of a cardboard box.  
Why isn't the box crushed? The aluminum block only weighs 120 pounds.  
It can be bored-out to 4.600 inches. With a 4.250 inch crank, that's 565 cubic inches.  
Even with a very mild hydraulic cam... well just imagine!



Two different types of BBC aluminum cylinder heads. The "Big Chief" aluminum heads for a Big Block Chevy (top picture) feature eleven degree valve angles for better flow and combustion. They're about \$10,000 a set though, so start saving.



Here is a closer look at the combustion chamber and intake port...



Intake port, viewed from the manifold end. Humongous!



The exhaust port is a thing of beauty! Looking at it from the header side, you can actually see most of the back side of the valve.



Awesome Engines makes sure all their engines produce whatever they're supposed to before shipping. Here's a Big Block Chevy on the dynamometer. Take a look at the dyno print-out below.

Awesome Engines  
Custom Built Race Engines  
36389 DuPont Boulevard  
Selbyville, DE 19975  
Phone: 302-436-4200  
[www.awesomeengines.biz](http://www.awesomeengines.biz)

## **Test Information**

Customer Name & Date & Phone	
Address, City, State, Zip	
Engine Make & Model	565 PRO BULLET BBC
Bore / Stroke / Crank / Rods	4.6 X 4.25 = 565" AERC CRANK & MANLEY 6.535" RODS W/ARP 2000
Engine Testing Conditions	SOME OF THE WORST
Car Marque, Model & Use	
1/4 mile / 1/8 mile Bracket or Heads Up	
Special Notes	INITIAL BREAK IN AND RUN IN OF ENGINE
Engine Specifications	
Nitrous Oxide Usage	UP TO 300 W/PROPER FUEL & TIMING RETARD
Intake Manifold and Spacer	PROFILER SNIPER MATCH PORTED
Cylinder Head and Valve Size	350 BMP 2.3X1.88
Compression W/CC's	14/1
Carb & Jetting	1150 QFT OTBOX
Fuel & Pressure	C12 VP RACING FUEL 7LBS
Camshaft Specifications	TOP SECRET
Distributor & Ignition Timing	38 DEGREES TOTAL TIMING
Spark Plug & Gap	AR3934 .035
Oil Type	10W30 MOBIL 1
Vacuum Pump	MOROSO 3 VANE SEE SHEET
Header & Collector Size	2-1/4 X 2-3/8 STEP WITH 5" LEMONS HEADER MUFFLERS

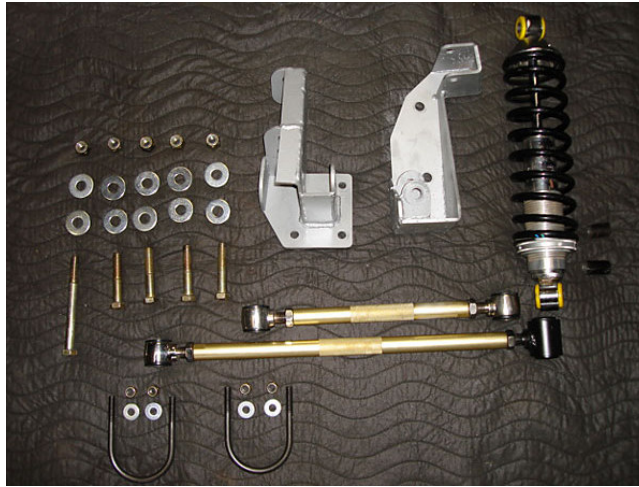
## **Peaks**

Peak Power (6/21/2007 Sweep *****)	878
Peak CorrHP (6/21/2007 Sweep *****)	961
Peak Torque (6/21/2007 Sweep *****)	733
Peak CorrTorq (6/21/2007 Sweep *****)	802
First Valve Position Press 4 (6/21/2007 Sweep *****)	13.68%
Peak Power (6/21/2007 Sweep *****)	867
Peak CorrHP (6/21/2007 Sweep *****)	964
Peak Torque (6/21/2007 Sweep *****)	765
Peak CorrTorq (6/21/2007 Sweep *****)	851
First Valve Position Press 4 (6/21/2007 Sweep *****)	13.68%

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## New MGB 4-Link Rear Suspension from Classic Conversions Engineering

The British V8 Newsletter, Volume XV Issue 3, December 2007

by: Curtis Jacobson

### Background

What are the weakest links of the original MGB? Many critics would answer the rear suspension. It's not a question of durability - the main issue is ride quality. Looking over old MGB magazine reviews (including most of the MGB GT V8 articles we've reprinted in this issue of the Newsletter) you'll notice that complaints about ride-quality were one of the biggest and most persistent gripes about MGBs in their day. Especially at low speeds, road shock comes right up through the leaf springs and into the driver's spine. The problem is worse when an engine transplant is performed. Stock leaf springs are ill-equipped to deal with increased engine torque. The usual result is noticeable "axle tramp" on acceleration. As the front sections of the leaf springs wind up and unwind, they're also subject to premature sagging and/or leaf breakage.

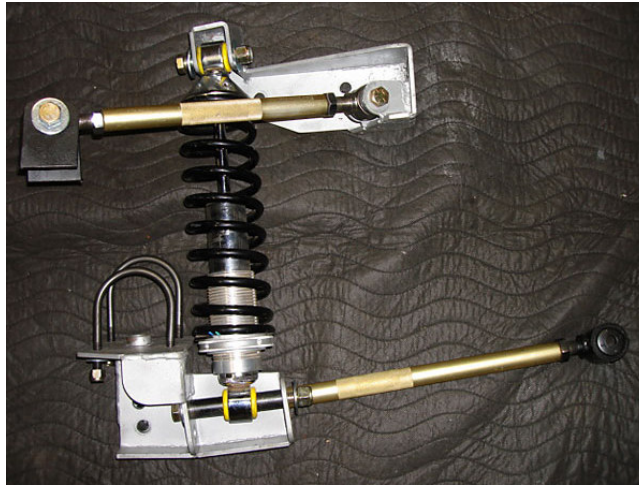
MG was aware of the ride issue long before the first MGB was even built. According to an interview of MGB designer Don Hayter (which I found in Ken Smith's excellent little book "Aspects of Abingdon" as published by MG World, copyright 2006), the very first MGB prototype was fitted with a trailing arm and coil spring rear suspension that included a Panhard rod for side-to-side axle location. A similar suspension had been installed on MGA developmental vehicles. The factory engineers preferred coil spring suspension over leaf springs to achieve a smoother ride. Ultimately though, MG engineers were unable to overcome a slight steering effect caused by fitting a too-short Panhard rod. The "ox cart" leaf spring suspension they ultimately carried over from the MGA was "cheap and cheerful", but many of us have been tempted to upgrade or replace it.

Beyond ride quality, there may be other good, valid reasons to modify your MGB rear suspension:

1. It's difficult to finely adjust ride height on a leaf spring suspension.
2. It's a pain to readjust ride height as the leaf springs sag over time.
3. Easy ride height adjustability makes rubber-to-chrome bumper conversions easier.
4. Maybe you'd like to tune "corner weight" loading to balance the car side-to-side?
5. Today's stickier tires let us corner harder, which calls for better side-to-side axle location.
6. Our taller, wider tires may rub against our fenders unless we improve side-to-side axle location.
7. Leaf springs are heavy. (Insert your favorite Colin Chapman quote here... Besides, the heavy weight of the leaf springs and axle forced MG to use uncomfortable shock dampening characteristics in the first place.)
8. If we have axle tramp, we're losing acceleration potential and we're risking dangerous leaf spring failure.
9. If we fit low profile tires, we don't get as much shock absorption in the tire sidewall.
10. With hi-torque engines and overdrive, we need to change axle ratio and we want a limited slip differential.
 

The most economical way to get these is usually a narrowed American-made axle. When we fit that narrowed Ford, GM, or Dana axle we'll probably need to adjust axle pinion angle too.

The all new Classic Conversions Engineering "4-link" rear suspension addresses all these issues quite elegantly, and it even addresses them without a Panhard rod.



## Features of the Classic Conversions 4-link Rear Suspension

The Classic Conversions 4-link rear suspension features coilover shock absorbers in lieu of heavy leaf springs and the MGB's original Armstrong knee-action shock absorbers. As soon as your UPS guy delivers the box, you'll know there's a big weight difference! The suspension's creator, Bill Guzman, advises us that the Classic Conversions 4-link suspension weighs about 47 pounds less than a stock MGB rear suspension.

As soon as you see the coilover shocks and their mounting brackets, you'll understand another of his suspension's biggest selling points. It facilitates exceptionally easy adjustment and fine-tuning of ride height. Ride height can be adjusted by placing the shock in either one of two mounting holes on the axle bracket. The lower position nominally places the car 1" below stock ride height. Subsequently, ride height can be precision adjusted by rotating the threaded lower spring perch on the coilover shock absorber's body. According to Bill, with the spring perch threaded to its lowest position, your car's static ride height should be two inches below a "chrome-bumper" MGB's factory-original ride height.



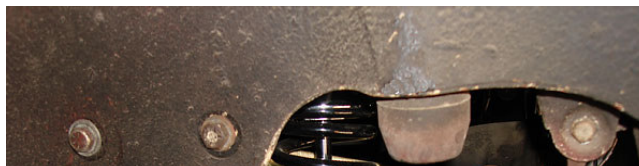
These two photos show the suspension's lowest and highest static height settings.

Bill also advises that Classic Conversions will introduce a new, matching MGB front suspension next spring that will be similarly adjustable at the front of the car. Although most of us are content to just level (and lower) the ride height and leave it at that, easy adjustability at all four corners will allow some of us to equalize "corner weights" to get the very most traction out of our tires (for competitive autocrossing, etc.)

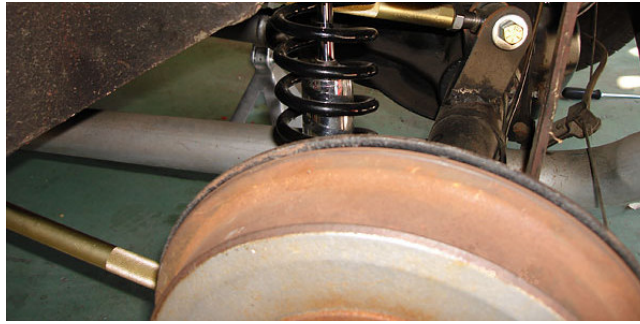
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(Suggested contribution is twenty bucks per year. Feel free to give more!)

The Classic Conversions Engineering 4-link rear suspension also facilitates four wheel alignment. In other words, you or your alignment shop can easily adjust the suspension to make sure the rear axle is tracking straight. You can also easily adjust the rear axle's pinion angle, or dial in a little bit of anti-squat characteristic to the rear suspension.

Want easily adjustable shock absorber valving too? The coilover shock absorbers that are standard equipment with the kit are made by Carrera, but Alden aluminum adjustable coilovers are available at an additional cost.







The Classic Conversions 4-link is designed to be simple to install. Only a minimal amount of welding is required, and the welds in question (shown here) are of heavy gauge brackets to the top of the axle tubes. If you're not comfortable welding, this job wouldn't be very expensive to farm-out locally.

## Easy Installation - Suits a Broad Range of Applications

The Classic Conversions 4-link rear suspension is designed to be installable in one afternoon. (Whether this is really possible will depend on what's in the way. You may have to alter your exhaust system, etc.) The design utilizes the MGB's front leaf spring mounting holes, and the bolt holes for the old knee-action shocks. Just to set the record straight for purists: this installation is completely "reversible".

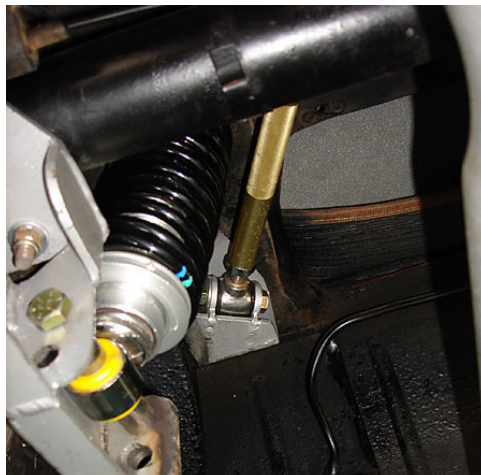
This design should also work equally nicely with all the popular stock and aftermarket axles: either MGB's "banjo" or Salisbury axles, and with either lugged or splined hubs, plus also narrowed Ford, GM, or Dana axles.

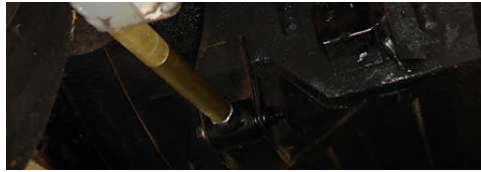


Designed for serviceability...

Although the system is durable and intended to last for years without modification, it's also designed to be easily serviceable. Spring changes, for example, are just a matter of unbolting the bottom bolt of the shock, unscrewing the spring-perch nut, and replacing the spring.

The coil spring for the GT has a nominal rating of 160 lbs per inch, and the coil spring for the roadster has a nominal rating of 140 lbs per inch. Both GT and roadster kits utilize the same shock absorber valving.





Top links are angled inward...

All four of the suspension links are custom made out of gold anodized 6061-T6 aluminum. The links feature 5/8" threaded stainless-steel rod-ends with urethane bushings, and they have right-hand threads at one end and left-hand threads at the other for easy adjustability. So long as the rod-ends don't bind up, the rods can only be loaded along their axis, in tension or compression. The rods are sufficiently strong to eliminate axle tramp (assuming that the rear axle itself is rigid).

## How Does It Function?

Notice in the photos that the top pair of links are angled-in toward the center of the axle. This design was chosen to make a Panhard rod unnecessary. Working together, the two links should positively locate the axle from side-to-side. Of course there will be some side-to-side motion due to compliance in the rubber bushes, but compared to the original MGB suspension the car should feel more secure on turns, tire scuffing on the wheel wells or fender-lips should be avoided, and you may be able to fit wider tires.

Let's digress and review for a moment what a Panhard rod is and how it functions. A Panhard rod is a single link mounted parallel to the rear axle with one end mounted to the axle and the other end mounted to the frame or body of the car, usually for the sole purpose of keeping the axle centered. Panhard rods can be made to work great, and they're both simple and cost-effective - but they can also cause problems! Think for a moment of the axle end of the Panhard rod as being positively fixed in space, with the rest of the rod free to pivot around it. When the car goes over a bump, the body end of the Panhard rod must move up and down relative to the axle. Since the rod is rigid and has a fixed length, the body also gets shoved a little bit side-to-side as the rod-end swings through an arc. A longer Panhard rod induces less side-to-side motion for a given amount of up-and-down motion. (Take a ruler and compass to some paper if you need to prove this to yourself.) Thus, Panhard rods should always be as long as feasible!

By not using a Panhard rod, the Classic Conversions 4-link has avoided the induced steering effect on bumps that MG engineers reportedly had with their coil-sprung rear suspension prototypes.

Another inherent feature of the new Classic Conversions suspension is "anti-squat". Bill tells us that the suspension links have been deliberately angled to counteract compressive force at the rear springs as the weight of car shifts rearward. The result will be added traction and improved acceleration when exiting corners.

Speaking of cornering, how does the suspension react to body roll in turns? Does the geometry of the suspension cause the rear axle to cock slightly to one side, thus causing "roll steer"? When just one rear wheel hits a bump, will the driver need to make a steering correction due to "bump steer"? If there is indeed a roll steer effect, how strong is it? Does the effect tend toward "under steer" or "over steer"?

Bill advises that the Classic Conversions 4-link has a slight roll steer characteristic which is in the direction of over steer. In other words, as the body pitches in a turn it will tend to cause the car to steer a tighter line.

Later model MGB axles were equipped with a rear anti-sway bar. It was mounted just above and parallel-to the axle and its two arms extended forward to mounts on the body. ([Click here to see what these anti-sway bars looked like.](#)) If your car is equipped with this style anti-sway bar, it will need to be removed before the top links of the suspension can even be installed. The new 4-link rear suspension was designed to be used without a rear anti-sway bar.

Bill has rigged up a static roll-test and been unable to induce binding in any suspension pivot through the full travel of the suspension. All of the bolted joints in the suspension are in double-shear. The suspension is provided with all the SAE Grade-8 hardware required for installation.

The Classic Conversions four-link rear suspension kit is priced at \$1,228, plus shipping. Through March 31, Classic Conversions is offering a special introductory discount price of just \$1103, plus shipping. With optional Alden shocks instead of the standard Carrera, add \$180.





The upper chassis mount uses the old shock absorber mounting holes.



Stock bump stops and rebound straps can be left unchanged.  
(For added safety, when you weld the mounting tabs onto your axle you may want to weld a simple reinforcement strap or two between them to reduce the likelihood of fatigue cracking in the welds.)



The Classic Conversions 4-link provides a full range of suspension travel without binding.  
(The lower end of the shock absorber has been disconnected for this demonstration photo.)

**Disclaimer: This page was written by Curtis Jacobson based on information provided by Bill Guzman. Views expressed are those of the author, and are provided without warrantee or guarantee. The author has not tested the suspension in question. All suspension and chassis modifications are made at the reader's own risk.**

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Bill Guzman, proprietor

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Bill Guzman, proprietor of **Classic Conversions**, presented a complete line of specially engineered MGB performance products at the 2006 British V8/V6 meeting, including V6 Engine Installation Kits.

Learn more about Bill's own MGB-V6 here:  
[www.britishv8.org/MG/BillGuzman.htm](http://www.britishv8.org/MG/BillGuzman.htm)

Learn more about Classic Conversions' New  
[4-Link Rear Suspension Kit](#)

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## How To Install Fiberglass Fender Flares

### (specifically: how to install the MG Owners' Club "Sebring" flares)

The British V8 Newsletter, Volume XV Issue 3, December 2007

by: Simon Austin

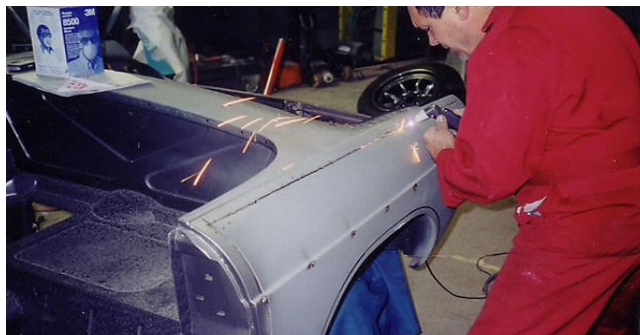
This article provides detailed description of the work involved to install ready-made fiberglass fenders on a sports car. The installation steps and techniques shown in this article apply to other styles of fiberglass fenders and flares, to products from other vendors, and even to installation of flares on other car models.

I purchased my "Sebring style" fender flare kit from the MG Owners' Club ("MGOC") in the UK. For just over \$1200 (Canadian) including shipping, the kit included two complete front fenders and two rear quarter-panels from the top of the fender down. The Sebring kit is offered in roadster or GT versions, and obviously I chose the roadster version, but the installation process is similar. (The fenders differ near the windshield "A-pillar".)

The styling of these particular flares was clearly inspired by the fenders on the two famous MGC GTs that successfully raced in the 1968 "12 Hours of Sebring" race. These original MGC race cars were actually built with riveted-on aluminum fender flares fabricated by a "panel beater" at MG's Abingdon works (not by Pressed Steel, the company that provided MG with stamped steel body panels.) The MGB GT that MG raced in a smaller-engine class at Sebring in 1968 wasn't fitted with flared fenders.



Let's start with the rear quarter-panels, as their installation is somewhat easier than the front fenders. Each quarter-panel was laid up against the car for sizing and to get an idea how much fiberglass would need to be removed.





Warning: always wear eye protection when operating a plasma cutter!

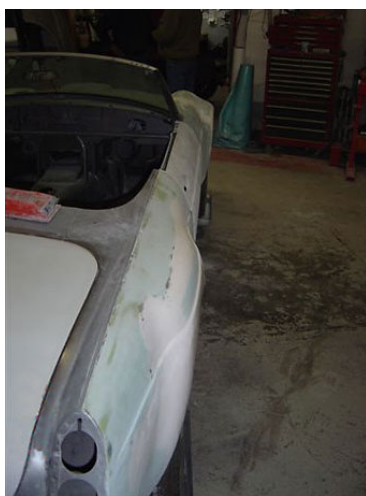
Since my car's body was in such good condition and since I was planning to use its original doors, my body man and I decided to leave the steel quarters intact where they met the door, the top of the fender and near the taillight. This would ensure that gaps stayed true and the fender strip at the top was undisturbed. A plasma cutter was used to remove the steel quarter panel about an inch in from the edges.



From this "template", the fiberglass quarter panel was laid against the steel quarter. From inside the car, we just drew a line on the fiberglass panel for future cutting.



The intent of mounting the fiberglass panel to the steel panel was never to overlap one over the other but to "butt" the two together. A metal strip would be attached to the backside of the two surfaces and this became the "overlap". Attaching the strip to the steel quarter was simple enough with welding. Two-part industrial adhesive was used to attach the fiberglass panel.



With the rear panel "glued" in place, work began to smooth out the imperfections or scuffs in the fiberglass panels. The area in front of the rear wheels was a particularly bad area for getting the fiberglass smooth and some had to be removed and then rebuilt with new cloth and resin for a finished look.





That pretty much takes care of getting the rear quarters to a "primer stage".

There was only one area that needed a little bit of further modification: because of the addition of about 3" of flared fender, there was a large gap inside the inner wheel arch. Here we added strips of metal, bonded to the fiberglass panel and welded to the metal arch. With a test drive, I discovered that the rear wheels rubbed (rather loudly!) on the metal inside the arch. I took the car back to my body-man and he removed a section of metal about 8" long inside the arch and replaced it with fiberglass, suitably rounded off to accommodate the tire. With about 5000 miles on the car since this modification, no rubbing issues have been detected.

Now let's talk about the front fenders. These presented a much more challenging project, in that they are not the finest moulded fiberglass fenders made. Sure they look like MGB fenders in these photos - but looks are deceiving! Once the steel fenders were removed (and sold, because I thought I wouldn't need them anymore), the fiberglass ones were placed on the car.



As can be seen in the pictures, I've added the ST spoiler so this had to be blended in with the fenders. Also, my car started out as a "rubber bumper" (post 1974) model, but I planned a "chrome bumper" conversion - so those changes need to come together too.

The most difficult area to fit properly on these fenders was at the rear top where the fender meets the windshield frame. When you order this kit, you specify whether you want the GT or roadster. After much cutting and rebuilding in the windshield-to-fender area, I don't think it would really matter if you got the wrong fenders for your project. The problem here is poor fit quality. The curve of the fender had to be cut out, fiberglass added in to reshape and then the curve added back in to follow the car. The overall fit of the fender is good in that it sits in the correct position, but it does take a lot of reshaping in small areas to make it look like it came with the car. The turn signal light area is shaped and easy enough to cut out for your lights. Remember to add a ground wire from the light housing to a good ground on the car as the original housing just grounded itself by being attached to the steel fender. The headlight housing is mounted the same way. Cut out the fiberglass, mark your mounting holes for the bucket and all the associated light fittings and you're set.





As many MG owners will already know, the rear of the original steel fenders mount to the car by use of a steel vertical panels that are welded to the fender and then bolted to the car. The fiberglass fenders have their own versions of these panels, but they're totally useless. They're not in the correct position, so I removed them. In the picture above, you can see how an inner brace was made to replicate this panel. This bracket was bonded to the fiberglass fender. Then I used the original holes on the car to mount the fender.

This area is hidden behind the stock MGB splash panel that installs in the factory location with the only addition being some metal added at the bottom to fill the gap created by the flare. The outer edge of the splash panel has a rubber weather-strip and it seals against the fiberglass fender nicely.



Inside the engine compartment, holes are drilled through the fiberglass fender to install the bolts to hold it to the car. Mounting the fenders at the front involved adding small panels to replace the vertical ones on either side of the grille that were attached to the steel fenders.

You can just see the original panel mounts for the fenders. The easiest way to attach the fiberglass fenders is to source some old steel fenders, cut off the small panel that attaches the fender to the car and attach these to the fiberglass ones. Then sculpt the fiberglass around the grille opening to the proper shape. Having a grille to use makes this step much easier.







The last step before the final bodywork, primer and paint is to reinforce the wheel arch lip of the fenders. As shown above (here and also three photos up where the inner brace was shown) the arch lip is literally a sharp edge. Some may elect to leave it like this, but adding strength here will prevent someone from leaning on the fender and cracking it. My body-man came up with some foam strips that he attached to the lip, built it up with resin and then fibre-glassed under the arch to give the lip a "horizontal" edge. To give further strength to the fender (and to prevent rocks and debris off the tires damaging the underside of each fender), we chose to apply spray-on truck bed-liner material under each fender. This product was used on the rear fenders as well. Now that the car is done, it's hard to tell that the fenders are actually fiberglass.

Looking back on this project, the only thing I'd do differently is to not use the complete fiberglass front fenders. Installing the fiberglass front fenders certainly isn't as simple as just bolting them on (as you may have gathered.) If you have or can procure a reasonably straight set of steel fenders, I'd recommend bonding the flared sections of the fiberglass fenders to them (much like the fiberglass rear quarters are attached.) Installing complete fiberglass fenders seems appropriate for repairing a car with extensive collision or rust damage, but if available I think it'd save considerable work and avoid hassles to use steel fenders as a foundation.





Genuine Minilite wheels (Made in Britain!) complete the authentic vintage-performance "look".



For more information and photos, please see [Simon Austin's "How It Was Done" article](#).

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## MGB Roadmaster (aka "Project BADASS")

as published in British V8 Newsletter, Volume XV Issue 3, December 2007

by: Jim Blackwood

### Project Overview

This is the first of a series of progress reports on the Roadmaster project, so a little background is in order. As a group project by long-term British V8 participants and others, the Roadmaster project was conceived as a means of "educating the public about the synergies between American and British technology, particularly as they related to sports cars..."

Well, not exactly! What really happened is that I was on the "V8Buick" internet message board, participating in a discussion about how small and light the big block Buick engine is and was tongue-in-cheek trying to persuade some guy to put one in his friend's MGB. The more we talked about it, the more it began to look like it really could be done, and end up with a perfectly streetable car.

From that small beginning last spring, the project just snowballed. Almost immediately we had embarked on a group project and people began donating components to make it happen. Pretty soon I could see that this was developing into an organization and the car should rightfully belong to the people involved, and the only way to do that was through incorporation, but it struck me that making individual donations deductible as charitable contributions might help us finance the project, so the BADASS, NLC (Non-profit Limited liability Company) was formed.

There is one possible misconception that I'd like to clear up here. Because it is a non-profit, all assets of the company belong to the public, including the car. This means that if at some future date the company is dissolved, we need to provide for how the public is to have the benefit of the car and other assets, such as perhaps by donation to a car museum for example. In the meantime, our plans for use and display of the car do not change. It's a pleasant little place in automotive history that we're carving out for ourselves with this project, and the first time that a non-profit has sponsored a group project for the development of a special automobile.

With so many MGB V8s having been built using the smallest V8 engine ever produced by Buick, we decided to go full circle and build one using the largest Buick V8, the 455. This was anything but a whim. The Buick 455 is perhaps the lightest and most compact big block engine, and has the same general layout as the 215 or Rover V8.

Measurements and test fitting showed that the engine will indeed fit, and weighing indicates that the change in vehicle weight with the conversion should be in the range of -10 to +200 lbs at the front of the car, depending on optional lightweight components used. That's well within a safe margin for the MGB chassis. Naturally we would prefer to stay toward the lighter end of the range. Even greater weight reductions would be possible in the near future but were not deemed necessary for this car.



Steve DeGroat reviews a trial installation of the big block Buick engine.

The GT body was chosen to give an added safety margin for body rigidity since this is the first swap of this type. Contributors donated major components and work began in the summer of 2007, as well as incorporation of a non-profit entity to take ownership of the project. At this point the stripped down body shell is mounted on a rotisserie and has the engine and transmission mounting brackets in place, the steering modifications largely completed, much of the rusted panels removed as well as the undercoating, and is close to being ready for replacement sills and other panels.

We have two engines, one of which is on a stand and used for test fitting and the other in the process of being transported for teardown and rebuild. A Jaguar IRS has been donated and fitting it to the body has begun.

The timeline calls for completion of a rolling chassis for display at the 2008 British V8 meet in Michigan, and completion of the car for the 2009 meet. Upon completion, a rotation schedule will be set up among the contributors who wish to participate and the car will pass from one member to the next for a stated time period, during which the member will take custody, drive the car, take it to local, regional and national shows and in general display it to the public, thereby fulfilling the goals of the organization. But most importantly, we'll bring it to the British V8 meets and give everyone a chance to see how it feels to ride in it and if possible to drive it as well.



Carl Floyd begins disassembly of the MGB GT

We are just now at the cusp of asking sponsors to step up to the plate. And we think we have an almost irresistible package for them which we are doing everything we can think of to make even more attractive. A vendor presentation package is in the works which demonstrates the power of this program to bring enthusiasts together with vendors, and to entice new enthusiasts.

There can be no doubt that there is a fairly large group of guys out there who always have been and ever will be Big Block enthusiasts. Very few in that group have ever considered the MGB to be a suitable vehicle for one of these massive engines, even though they have gone to great trouble to reduce the weight. Even as we speak, [TA Performance](#) is developing an aluminum block for the 455 Buick and already has heads and intake available.

The Roadmaster is scheduled for completion before the new block will be available however so we'll have to be satisfied with about a 420 lb engine. Still the point is, that these big block enthusiasts will see how well that engine nestles into the MGB engine bay and how well mannered the car is and they will want one. They'll lust for it the way we all lusted for a Hemi-Cuda, or a 427 SS Camaro, or a Shelby GT-500. The difference is, they can have one. This is certain to swell the ranks of our sport, bringing with it increased growth, more parts and accessories, and greater prosperity for all of our vendors. In turn we will see better products at more favorable prices than ever before. I've been in this sport for three decades and we are better off now than at any time in the history of the MG that I know of.



## The MGB GT bodyshell - in the early stages of preparation.

The other thing this will do is to renew interest in the Buick engine line when considering a conversion. It's no secret that Ford 302 and GM "sixty-degree" V6 engines have made considerable inroads into what was once strictly Buick and Rover territory - and for good reasons. The Ford conversion makes an excellent high-powered machine and the narrow V6 (in displacements from 2.8 to 3.4 liters) provides bang-for-the-buck and a no-cutting, no-welding installation.

There's room for other excellent Buick engines in this paradigm. We have Small Block Buicks (SBB) and Big Block Buicks (BBB) and even a special case of SBB, the ninety-degree Buick V6. (Think "Buick Grand National"! ) All of these engines have excellent performance histories. In the SBB line, starting with the 215/3.5L we have the basic conversion choice, a lightweight alloy engine with excellent power output and the mainstay of the conversion industry.

The next step up is the 1964 Buick 300, with its cast-iron block and aluminum heads. This engine is in many respects similar to the 215, but it does have a 5/8" taller deck and weighs an extra 80 pounds. It has been used in several MGB engine conversions. With some machine work, the 1964 Buick 300 heads and crank can even be fitted to a 215 block (to produce a lightweight mid-size option.) This has also been used in several MGB conversions. The Buick 300 block and all later SBB's use a "BOP" bellhousing bolt-pattern rather than the BOP/R 215 bolt pattern, making transmission choices simpler.

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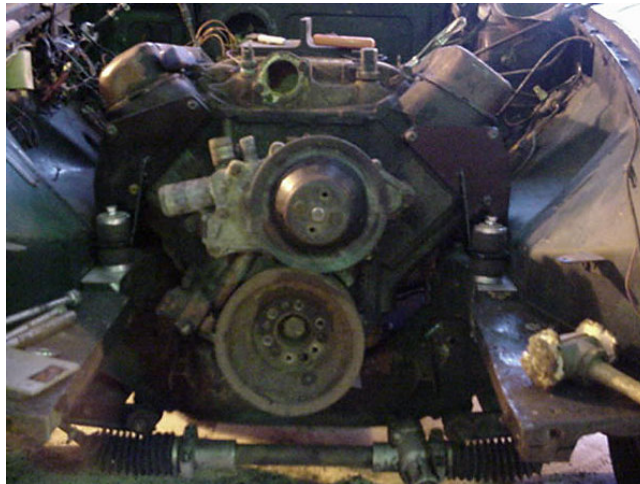
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(Suggested contribution is twenty bucks per year. Feel free to give more!)

The post-1964 Buick 300 with iron heads and intake manifold adds yet another 80 pounds, but the heads flow better. To my knowledge, nobody has swapped one into an MG. Next is the Buick 340. This somewhat odd engine, built for only one year, is the same as the cast iron 300 but has a still taller deck and longer stroke. There is only one person planning to use this engine (me) and that one will be supercharged and fitted with 1964 aluminum heads. The only real advantage this engine has, other than displacement, is that the same headers that fit the 215 will fit the 340.

At this point we transition to the most popular and well known SBB of them all, the 350. Cranked out in incredible numbers over a long production run, the 350 was the mainstay of the Buick line for well over a decade. Dimensionally it was identical to the 340, but it had a 0.050" larger diameter bore. It also had redesigned heads. It can't use Buick 215 (or Rover) headers, plus it uses a different cam. A couple of years from now TA Performance is planning to offer aluminum heads and intake for the 350, bringing it down to about 80 lbs heavier than the 215. Consider that the 215 is 30 lbs lighter than the stock MG B-Series engine. That means a 350 swap with only a 50 lb weight penalty, and the availability of many desirable performance parts.

I believe that could give it a technical edge over the Ford swap, although the Ford swap is unlikely to diminish much in popularity. It has earned a place, and there will always be Ford fans who would like to have one.



Trial installation of a big block Buick engine and newly fabricated motor mounts.

That brings us to the BBB. The amazing thing about this engine is that it weighs only some 40 lbs more than a Buick 350. Not only that, but the stroke is only 0.050" longer as well. Where the 350 is a relatively long stroke small block, the BBB is a short stroke big block and gets its displacement increase from a half inch larger bore. Naturally the engine is wider and longer, but it's not really much taller. In fact, we have considered one configuration where we could close a stock hood on it, and that could still happen. Aluminum heads and intake are available from several sources. The TA aluminum block is in the works and there may be another aluminum block already on the market. When you consider that the Fast Cars front suspension is 80 lbs lighter than the stock front suspension, it is pretty plain that a car that weighs 80-120 lbs less than stock in the front is a very real possibility. Couple that with a lightweight 8" rear axle and you're suddenly down in the realm of a sub 2000 lb car with excessive power! Now, take your Hemi-Cuda, SS Camaro or Shelby 500 and shed 1200 lbs from it and that's about what you've got. Except that it handles like an MGB. What's not to like?

But we aren't going to build that car; we're just here to point the way. What we need to do, and do well, is to build a car that is pleasant to drive as well as having outrageous power. The car is destined to be an icon. The first of it's kind! All that come afterwards can point back in their lineage and say that they are descended from the BADASS MGB "Roadmaster".

---

## Progress Report

As of December 2007, the drivetrain had been fitted to the car, motor and transmission mounts fabricated, steering relocated, header openings cut and the Jag IRS fit into position and prepped for narrowing. The GT body had been mounted on a rotisserie, pressure blasted, and stripped down for bodywork and paint. The 1970 Buick 455 engine was broken down and sent out for machine work and some primary sponsors had been approached for help on the big ticket items.

Our immediate goal is to have a rolling chassis to display at the annual 2008 British V8 meet on July 13th in Port Washington, Wisconsin. That will leave us one year to finish paint, interior trim, and tuning prior to the 2009 meet. From that point the car will go on tour on a rotational basis between the contributors who choose to participate. Those participants will in turn take custody of the car, attend shows and meets within their region, display the car and promote the objectives of BADASS, NLC. In this way, passing from on participant to the next the car will make its way around the country, returning each summer to the annual V8 meet where its condition and need for maintenance will be assessed.

---

## Officers

### President

Jim Blackwood: Prototype developer, patent attorney, machinist and fabricator, business owner and founding member of Idea Soup. The driving force behind the project, Jim is a long time MGB owner and converter, creating one of the earliest US conversions and certainly the most instantly recognizable car of them all. Never resting, Jim's roadster is slated for an upgrade to a supercharged 340 Buick with alloy 300 heads, a 2004r transmission and a custom built IRS conversion in the near future.

### Vice-President

Carl Floyd: The quintessential fighter pilot of the back roads, Carl is renowned for his skills behind the wheel, be it on the "Tail of the Dragon", the autocross course or the race track. Having honed his skills to a fine edge Carl is a formidable foe. Yet a more affable fellow or a better friend was never found. Taking subtle refinements to an exact science, Carl's understated mount has surpassed the best of the best under his experienced hand.

### Secretary/Treasurer

Steve DeGroat: An individualist of the highest order, Steve's approach can be seen to take unexpected turns that yield unusually satisfying results. With his wife beside him and matching trailer in tow, Steve's air conditioned, V-6 powered GT can be expected to turn up almost anywhere. Contributor of the MGB-GT that the car is based on, Steve has proven a stalwart supporter of the project.

---

## Contributors

Our contributors are too numerous to give detailed accounts of their involvement. Those listed below are the Founders of the British American Deviant Automotive Sports-car Society (BADASS, NLC), parent organization of the MGB Roadmaster project and a Non-Profit Limited Liability Company.

John Ayers	Michael B. (Woodie)	Dan Blackwood	Jim Blackwood
Steve Carrick	Brad Carson	Kelly Combes	Tom Craddock
Graham Creswick	Steve DeGroat	Michael Domanowski	Eric Enneking
Rob Ficalora	Carl Floyd	Bill Guzman (Classic Conversions)	Rick Ingram (Pieces of Eight)
Curtis Jacobson (BritishV8)	Dan Jones	Ted Lathrop (Fast Cars Inc.)	Jimmy Litterell
Allen Mandeem	Pete Mantell (Mantell Motorsport)	Dan Masters (Advance Auto Wire)	Dennis McIntyre
Peter Melborne	Ted Nagel	Dale Spooner (Motion Machine)	Spring Grove Sheet Metal Co.
Dave Tetlow	Edd Weninger	Denny Williams	Bill Young (Service Garage)

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At Mantell Motorsport, we harness the latest technologies to give you the performance, look and feel you deserve.

When it comes to MGB V8 conversions, it's about "The Power". Whether you need more power for competition or just appreciate professionally-engineered, high-performance in an MG, Mantell Motorsport can give you what you deserve. We'll help you specify, build, and tune the modern small-block Ford "5.0 liter" (302cid) engine to your very specific requirements.

Please take a moment and have a look at several recent examples of our work:

[Pete Mantell's Ford 5.0L V8 powered MGB](#)  
[Dave Kirkman's Ford 5.0L V8 powered MGB](#)  
[Jack Pease's Ford 5.0L V8 powered MGB](#)

Be honest. It's about "The Look" too. At Mantell Motorsport we're also expert in Media Blasting and Powder Coating.

Media Blasting involves the stripping and preparation of various surfaces for paint without damaging underlying material. The process is similar to sand-blasting, except we carefully select from a range of abrasives to assure the best results.

Powder Coating is a superior alternative to painting or plating for many metallic automotive parts and for other items that require an especially tough, attractive protective coating. Powder Coating is essentially a baked-on plastic finish. It's available in an almost unlimited range of colors. The application process is considered very environmental because no solvents are released into the air. The process also yields a more consistent coating thickness - free from drips, runs, or sags. But from our experience, the biggest selling point of Powder Coating is the superior durability of the finish in terms of chip-and-scratch resistance, solvent and fuel resistance, and color stability.

Whether your MGB needs refinishing, the snowblower is looking a little worn, or even if your kitchen appliances don't match your new ceramic tile, Mantell Motorsport can help.

### Mantell Motorsport

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Mantell Motorsport Ford V8 Powered MGB



Hi-Performance Ford V8 Engine

Read notes from Pete's **British V8 2006** tech session:  
["MGB Ford 302 Engine Conversions"](#)

Read notes from Pete's **British V8 2007** tech session:  
["Powder Coating 101"](#)

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## A Visit to the MG Owners' Club in Cambridge

as published in *British V8 Newsletter*, Volume XV Issue 3, December 2007

by: Rob Ficalora

In the last issue of the Newsletter, Curtis wrote about visiting Abingdon and also the British Motor Heritage facility at Witney. In late October I was planning a business trip of my own to England, and Curtis suggested I might enjoy visiting the MG Owners' Club (MGOC) headquarters in Cambridge.

I contacted Richard Ladds, who is Editor of the MGOC magazine. He was more than happy to have a visitor from the British V8 community. When he realized he'd be away on holiday during my visit, Richard arranged for MGOC General Manager Richard Monk to be my host. With my business schedule, I only had about a half day free. Nonetheless, I had a great visit! I only wish there had been more time to visit and explore.

I arrived in the UK at Gatwick airport, which is one of the two major London airports and is due south of the city. (The other airport is Heathrow, which is to the west.) Cambridge, on the other hand, is due north.

The drive to Cambridge was both easy and scenic. It took about two hours, starting with the beltway around London and continuing up the M11 motorway north through countryside, woodlands and farms, and past some charming small towns. I arrived a bit early, so I drove around the famous University of Cambridge and enjoyed its awesome architecture. There are also great museums and plenty of other points of interest. If my wife had been with me we'd certainly have enjoyed spending a few days in Cambridge, and dining in some of the many quaint restaurants on quiet side streets.



MGOC Headquarters, Cambridge England





MGOC General Manager - Richard Monk

The MGOC Headquarters is a relatively small facility, but the unassuming structure masks a tremendous range of operations. From the headquarters, they run essentially four businesses:

1. the MG Owners' Club magazine - "Enjoying MG",
2. a complete repair and restoration facility,
3. a parts business,
4. an insurance company.



The MGOC - and their magazine "Enjoying MG" - now embrace V8 conversions.

Enjoying MG is a full color magazine. It's roughly a 90 page publication and it's packed with information. There are articles to suite any MG enthusiast. The October issue, for example, had a great article about a recent track day event; another article celebrating the 50th anniversary of EX181 (a special MG that set a Bonneville salt-flats speed record in 1957); a detailed historical piece about the MG Midget production line; and another covering the restoration of a '73 MGB (in Portugal). But for me the most interesting article in the October issue was about a V8 swap project, complete with pictures of the motor mounts being welded in and the "bulkhead" (firewall) being modified around the steering u-joint. In other words, their own version of a "How It Was Done" article!



## MGOC Repair and Restoration Facility



The Paint & Body Room at MGOC

The MGOC repair and restoration facility, like the headquarters building, is relatively small: there were three lifts and room for about 5 cars to be worked on at any given point. The paint and body room could handle one or two cars at a time. I didn't get to chat with any of the mechanics, but I was impressed by the expertise they have in diagnosing and repairing anything MG. Few places in the world have that sort of singular focus and such depth of experience.

The MGOC parts business shouldn't be overlooked by North American MG enthusiasts. MGOC bought up much of the original MG tooling, and therefore they have the service parts that fit right. They have also updated parts where that made sense. Many of these parts are directly applicable to our hobby: performance modifications!



The MGOC retail sales desk serves walk-in customers.



Wood & leather steering wheels, and hubs to make them fit!



MGB front crossmembers with modifications for power steering.

A few examples I saw while walking through the facility with Richard were:

- complete RV8 suspensions,
- coilover suspensions for both front & rear,
- some great shifter knobs,
- pre-louvered hoods,
- drilled and drilled/slotted brake rotors,
- Momo wood & leather steering wheels, and the hubs to make them fit!

Regretably, my camera was acting up terribly. Most of the photos I took aren't downloadable.



Over 95 percent of MG parts are still available.



MGOC keeps 17,000 different MG parts in service.

There were a ton of other parts to drool over too. Talking with Richard, I learned that MGOC provides about 95 percent of the parts an MG owner could want - and about 17,000 different part numbers! Very few MGB parts are on their "No Longer Available" list. With 2.5 million pounds sterling in-inventory (i.e. about \$5.0 million US\$), they most likely have the parts you're after in stock.

North American MG enthusiasts are a steadily growing segment of MGOC's customer base, apparently because more and more customers are now comfortable with purchasing restoration and repair parts online.

MGOC's insurance company isn't licensed to do business in the US or Canada, but while talking about it, Richard did share that the MGOC has about 40k members worldwide. The vast majority, about 37k, are in the UK. About 900 are in the USA, and the remainder is spread around the rest of Europe along with a few members in other countries.



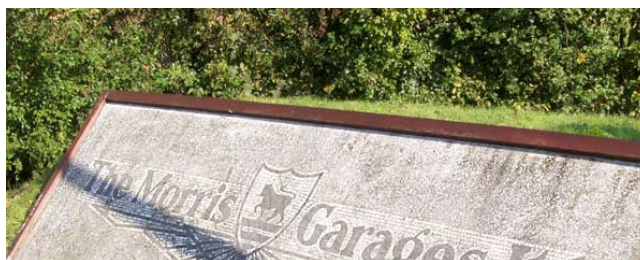
In 2001 this "MG ZT XPower 500" show car was built with a 500hp Ford 4.6L V8.



"MG Rover Group" was bought by state-owned Chinese automaker "Nanjing Automobile Corporation" in 2005.

We also chatted about Nanjing Automobile Corporation. The MGOC has a very pragmatic view of Nanjing's purchase of The MG Rover Group (and reintroduction of the MG ZT and TF models, etc.), believing it will breath new life into the marque. They hope that reintroduction of the MG brand will renew interest in restoring and enjoying classic MG's, both by generations that grew up with them and also by people who are too young to know about our cars. Nanjing recognizes that the MGOC can be a tremendous asset to them as well; they've met with MGOC employees on several occasions and have had members of the MGOC headquarters participate in reestablishing the marque in Britain.

I'd like to thank Richard Monk for spending several extremely informative hours educating me about the MGOC. I'd also like to thank Richard Ladds for arranging my visit. If you get the chance to go to the UK, the MGOC Headquarters should definitely be one of your stops.





This is the old threshold all visitors crossed to enter the "Morris Garages Ltd." show rooms on Queen's Street in Oxford. (Note the image of an ox crossing a ford... hence "Oxford".) MGOC acquired this from a rubbish pile after the building was demolished in the 1970s.

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## Rob Ficalora's MGB V8 Project - Progress Report

The British V8 Newsletter, Volume XV Issue 3, December 2007

by: Rob Ficalora

I've been working on this project for about 18 months now, and I thought I'd share where I am. You might think I'd be further along, but a typical work pattern is a few hours work one day, then none or maybe an hour here or there for a few weeks due to work and family focus.

The basics - my project is a Ford 302 (5.0L) / T5 swap into a rubber bumper ('76) MGB.

Additional features include:

1. Fast Cars IFS (by Ted Lathrop)
2. Todd Budde IRS
3. A/C (with evaporator hidden behind the dash)
4. Early style metal dash conversion
5. Chrome bumper conversion on the front
6. Sebring valance and early style tail lights on the rear
7. Dodge Omni fender flares, front and rear

**Engine** - Ford Racing 302 Crate motor (M-6007-XB3) purchased via eBay but from a local Houston body shop (so I was able to go look at it before bidding on it). The motor was purchased for a T-Bird project they had, but the customer ran out of money so they were selling off all the stuff they'd not used already.

Getting the engine set up was the most difficult part of the project so far - not because there wasn't a proven solution, but because I screwed up when placing the motor. A "normal" 302 installation requires modifying the front suspension crossmember but no firewall modifications. Doing it that way, which I did initially, didn't leave enough room for the alternator and A/C brackets I wanted to use, and I couldn't find any suitable alternative brackets (suitable to me meant chrome or polished with the accessories positioned where they'd fit). So, I moved the motor back and modified the firewall as follows:





I got the clearance I needed for the accessories at the front, but I mis-measured and the net result was that the harmonic balancer landed in interference with the steering rack, rather than slightly behind the rack where I wanted it. I didn't want to move the motor any further back (didn't want to eat up driver side pedal space in particular). I researched modifying the cross member to move the steering rack, but wasn't confident enough that I wouldn't introduce bump steer or other problems, so I punted and bought Ted's front end. I'll admit it is very nice, but was also way more money than I wanted to spend.

**Transmission** - T5 from a SN95 ('94/95) V8 Mustang. This tranny is about an inch longer than the normal Mustang T5 which helps align the shifter right at the stock MG hole. The shift fork is also rotated lower so there's more room to mount and get at the slave cylinder. Gears are as follows:

1st	2nd	3rd	4th	5th
3.35	1.99	1.33	1.00	0.68



The first picture above is from Leonard Marshall's car (with a regular T5), but it shows how the slave mounts. Once verified to be working, the fork is cut off and a simple plate is mounted over the access hole as a dirt shield. (Note: Leonard didn't mention any problem bleeding his clutch, but I think I'll try to mount mine with the bleeder valve pointed more upwards).

As shown in the second picture, I'll have to modify the transmission crossmember that I got from Ted with the 302 mount option on his IFS. Because my tranny is a bit longer than what he uses, I'll need to weld some metal on at the edge and lengthen the holes. I haven't done it yet, but it should be an easy fix, although looking at the picture I think I'll cut off the flanges that mount to the rails and replace them with longer ones rather than modifying the area where the transmission mount is.



**Rear end** - Once again, I opted for the hard way. Spending time on this slowed my project, but it will add "cool factor" if nothing else. Rear end is a custom developed unit designed and built by Todd Budde of Custom Rod Works. I have what Todd calls his "Generation II" unit, and Todd worked with me to modify his basic design to support the wider track and 5 x 4.75" lug pattern I

preferred. (Custom Rod Works is now offering a Gen-III design. Custom work is their specialty, so special versions of their IRS are no problem.)

Here are some of the specifics:

1. JDM (Japanese Domestic Market) 1996 Nissan Skyline limited slip differential (3.31:1 gears, although I may swap this for a differential with 3.54 gears; we'll see.) Note that this solution uses the same CV joints as a 1994 Infinity J30, and that it's also compatible with any Nissan R200S differential.
2. Halfshafts are from the Nissan Skyline, re-splined at outer end to match '88-97 S-10 4x4.
3. Outer CV yokes and hubs are '88-97 S-10 4x4 (non-ABS version).
4. Rotors are from an '88 Corvette.
5. Calipers/outer brake parts are '94 Camaro Z28.
6. Bushings are "Pete & Jakes" heavy-duty black urethane.
7. Hub-to-hub width is 54 1/4", which is quite wide (probably an inch or two wider than I should've had them make it.)

The picture above is from one of the test fittings. The unit bolts into the stock MGB shock mount points at the top and the front MGB spring perches at the front. Todd modified the upper shock mount and added a battery holder after this photo was taken. The second picture shows those changes. Final product was powder coated and is ready for installation.



**Front End** - I started with Bill Guzman's coil over and Wilwood "big brake" kit, which I really liked. Here are some pictures showing that kit installed on my 302 modified cross member. The first picture shows the cross member modification to clear the Ford 302 oil pan.

Essentially, the section shown above is cut out; about 1 1/2" has been cut off the bottom of the removed piece, then it's welded back in with 1/4" plate on the sides. My brother-in-law is a professional welder and he did this welding for me since it is an important structural piece.

Second picture shows Bill's kit installed on the cross member;

As noted above, after getting this suspension completed (even cleaned and painted it), I moved the motor further back and ran into clearance problems with the steering rack. I got great advice for how to modify the rack mounting location down, flip the tie rod mounts over, etc., but frankly, that intimidated me, so I punted at that point and bought Ted's front end. I've since sold Bill's coil over and brake kits, but I'd recommend them to anyone. They were very well thought out and had excellent fit and finish. I do still have the modified cross member if anyone is interested.





Here's what Ted's IFS looks like. I decided to bite the bullet and get the optional Ford motor mount option. At the time I was thinking that I'd have time to finish the car pretty quickly.

**Body Mods** - I've done a bunch of body mods - none of them required for the engine swap but driven by my choices around the following:

1. where to place the motor and radiator to make room for polished front engine accessories (alternator, A/C compressor, etc.)
2. swapping the front bumper for a chrome one. (There's plenty published on that, so I haven't included it here, plus I apparently don't have any pictures of what I did there.)
3. swapping the dash for an early metal one, and putting the A/C evaporator behind it.

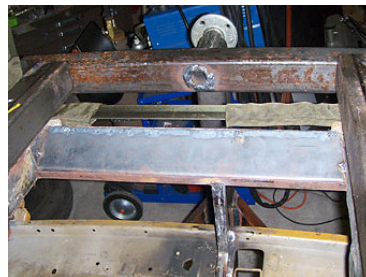


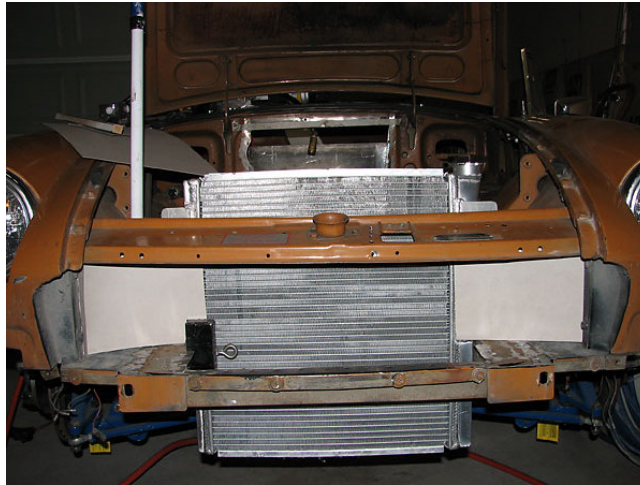
Before starting the extensive body mods though... I built a rotisserie. It's a really simple one, but it works just fine, and it was a project my 11 year old could help with which really excited him. He did about half of the welds on it! I used the rotisserie to flip the car over to weld up the under side of things I'd not been able to easily do with the car on stands.

The changes to the engine bay were the most extensive. I modified the firewall as noted above. I also modified the panel that the oil cooler normally goes on and made a new support for the slam panel so the radiator could go right up against the slam panel with the A/C condensor in front of it.



This shows the firewall modifications while "in progress". The changes on the left/right are to provide clearance for the cylinder heads with the motor moved back. The heater shelf mod is not required for the motor to fit. I did it simply to provide a bit of an air gap at the back of the motor to help get hot air out of the engine bay. I also did a mod to the frame rails that gives a little room on each side of the motor block. Again, this is only needed if you push the motor back and down a little compared to where it goes with early Comet motor mounts.





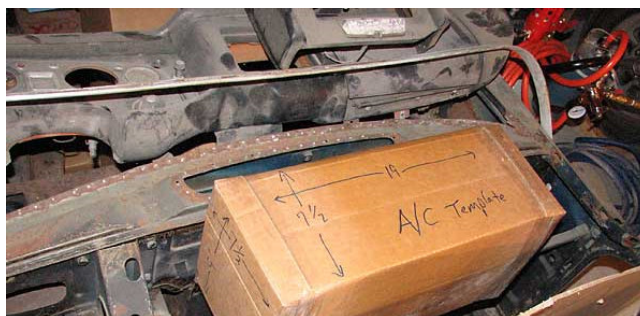
And, here are the oil cooler shelf and slam panel support changes for the radiator. I used 16 gauge for this to help ensure rigidity.



At the rear suspension, I made two modifications. First, I cut out the extra inch or so where the bump stops are. MG added that piece when the rubber bumper cars were raised up. Since my car will be at CB height, removing that piece gives the rear suspension the full travel. I'm going to weld up the seams to keep moisture out and still have to put the bump stops back on but the picture above shows the current status.

The 2nd change is to make changing the shocks on the IRS possible. Todd used his GT as the development mule, and he didn't realize that the shelf behind the seats on the roadster is lower than the shelf on a GT. The upper shock mounts are too close to the bottom of that shelf for the bolt to come out unless they're installed with the head down and even then, there's precious little room to get a wrench on the nut. To accommodate this, I'm making access holes (and covers) for access from above.

**Dash swap and A/C evaporator** - I started trying to figure out how to fit an A/C evaporator behind the dash. I did a bunch of research on the various aftermarket evaporator boxes and on boxes from some small cars too. A couple of production cars probably have boxes that would fit, but I couldn't find dimensions published anywhere and I didn't have the time to search salvage yards. VintageAir, SouthernAir, and HotrodAir all publish dimensions of their products so I focused on them. I ultimately selected VintageAir because everyone I talked with that used them was happy. Their Gen-II Mini looked like it'd fit a hair better than either of the other two company's equivalent sizes. (It's longer, but a hair narrower). It still wouldn't fit completely!





Here's a picture of a box I made to do initial mock-up using a rusted out body shell I have.

The cowl is proud of the firewall by about an inch, but the evaporator box is still about 3/4" to 1" too wide. Plus, the '76 dash curves so that area isn't as deep as it could be. About that time I came across an early metal dashboard. I used to have a '67 roadster and I've always liked the metal dash look. I also noticed that the metal dash is straighter across than the padded ones, so it gives about an extra 2" of clearance behind it. I decided to swap the dash over killing two birds with one stone (albeit a heavy "stone" as far as mods go).



If you look close, I have a new panel in the firewall behind the evaporator box. I initially cut that piece out, intending to install the evaporator box like Ted Lathrop does. Later I changed my mind for two reasons. One reason was that I decided I prefer to have the evaporator box better insulated from engine compartment heat. Secondly, I may decide to use the cowl vent for cowl induction at a later point.

I still have some fabrication work to do on the body shell:

1. Finish grafting in the metal dash cowl (I didn't weld it in before taking the car to the media blaster)
2. Install some reinforcing pieces like the typical one that runs from the forward rear spring hanger to the "frame" structure and some pieces that will help reduce any twist, plus probably a piece or two to make jacking the side of the car easier (I never liked the MG style jack).
3. Install the Omni flares. I was able to find a few Omni's around me and got all the flares I could from them. This will be a big job - especially the rears which need to be tied into the tubs.





## Wheels and Tires

1. Front - 15x7, 3 1/2" backspace American Racing 427P wheels; 205/55/15 tires. I probably could have fit 215's and they'd line up a bit better I think, but decided to go narrower because I know they'll work (they're what Ted used on the red car on his web site).
2. Rear - 15x8, 4 1/2" backspace American Racing 427P wheels; 225/50/15 tires. I would really have liked 245/50/15's, but I had Todd make the IRS too wide. As it is, I'm probably going to have to modify the Omni flares to make them about 3/4" wider than they are - Doh! - (this is a reason to start with a tube axle that's way easier to modify until you're sure how things are going to line up.)

Then I loaded the shell on a trailer and took it to a media blaster (sand for the bottom; soda for the rest).

That's it for now. Lots to do still, but I'm making progress. My goal is to have it done in time for British V8 2008 in Wisconsin!

**Disclaimer: This page was researched and written by Rob Ficalora. Views expressed are those of the author, and are provided without warrantee or guarantee. Apply at your own risk.**

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## Like a Phoenix: the Story of Steven Ward's MGB V8 Project

as published in British V8 Newsletter, Volume XV Issue 3, December 2007

by: Steven Ward

The difference between the sexes could be defined when my wife and I spotted this MGB on a used car lot in Montreal. She saw a cute little car that we could buzz around town in, and I saw the monster car it could be! That was the beginning.

For 19 years, the MG remained virtually original. However, lurking in the back of my garage was a 1962 215 cubic inch Buick V-8. (During my formidable years I owned both a '62 Olds Cutlass convertible and also a '62 Buick Special.)

I raced our 4-cylinder MGB at 13 British autocrosses, winning all but 1 of them and actually setting a lap record at one of them. I thought I had a fast little "B". My wife referred to it as "The Little Engine that could."



I eventually took the "B" to Texas Motor Speedway in the exhibition class (translation: gentleman's class - no passing in the curves.) Not that I had to worry as I was racing against a Lotus Elan, Shelby GT 350s, a big block Corvette, and a 427 AC Cobra, just to mention a few. After being black-flagged "Give Way!" (Like I had a choice!) On the front straightaway the 427 Cobra and the big block Corvette flew by me on either side. They lapped me three times in a 20 minute period. I swore that it would never happen again!

I got home from the races and dusted the cobwebs off that Buick V-8. I studied it for awhile. I measured the space I had to work with. I searched on the computer for conversion sites. Eureka! I found "The British V8 Newsletter" page - and the sacred chart of engine comparisons (in an article by Dan Masters, which included Buick, Ford and Chevy V8 weights and dimensions.) That convinced me that a Chevy was the way to go. The Buick motor was pushed back into the dark corner of the garage.





Steve's Chevrolet 350 LT-1 engine, from a 1995 Corvette.

My choice of engines was a second generation 350 LT-1 from a '95 Corvette. For the next three years I worked just about every day designing and building the parts to make my dream come true. I completed the project April 24, 2004 at 2:30am. I showed the B at All British Car Day in Dallas at 12:00pm that same day!

The following week I revisited Texas World Speedway, this time looking for vengeance. I was 13th on the grid of 26 cars - a few of them my old nemeses. In just a few laps, I moved through the pack to find an old friend - the big block 427 Corvette. I followed him through several left and right hand curves until we found ourselves on the back straight, where I drag raced him and left him behind. How sweet it is!

A few laps later, 2 more old friends were within my reach and I took my shot. There on the banked front straightaway, I passed between a pair of 65 Shelby GT 350s. This day was mine! I now lead the pack. However, the B being automatic, I did not have the luxury of downshifting going into the curves. Tried it once, not again! So I had to rely on my Wilwoods to slow me down. Eventually, it was too much even for them, as my pedal got soft and went right to the floor. I slowed down for 3 laps and the brakes recovered and I finished 3rd overall.

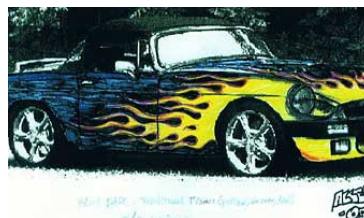
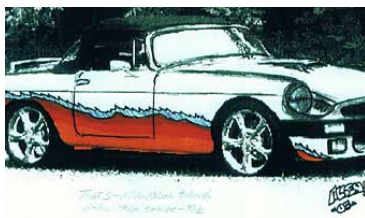


107 days later, just 3 days before I was to leave to go to the 2004 British V8 convention in Grand Rapids, the B caught fire in my garage. Brake fluid got spilled onto the headers! I had taken it for a couple shots in a secluded part of my neighborhood - drove into the garage and closed the garage door behind me. Several months of dealing with insurance companies, I was ready to start again. However, this time I could build it bigger and better!

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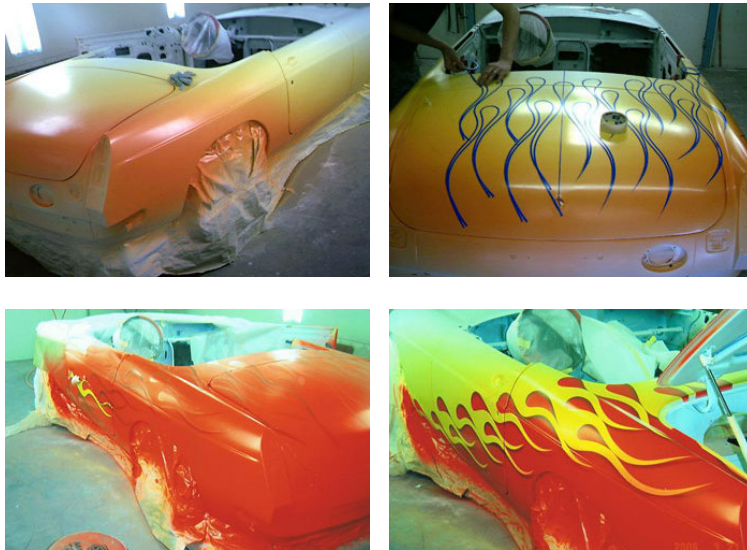
I stripped the body to bare metal, removed all the chrome, trunk rack, welded up and removed the body seams, removed the air cowl in front of the windshields, removed the heater box, and closed up the hole, and installed a mini Generation II heat/AC/defrost unit behind the firewall.

Next was a new paint scheme. First time around it was Arctic White, over-sprayed with Violet Pearl. Beautiful, but missing the pizzazz factor. Hence, several artist renderings, resulting in the obvious choice!





The entire car was initially sprayed Arctic White, then over sprayed with Silver Pearl, and then a base clear. Base clear was used between each level of the paint process so that if something went wrong, it would not have to be stripped all the way down. The "Oh So Yellow" and the "Orange Glo" were shot, followed by base clear. The flames were laid out using the blue fine line tape. A clear masking sheet was then laid over the flame design. The back end of the car was shot with "T-Rod Red". The masking sheet and fine line were removed to expose the fading flame design. The car was then sprayed with base clear. A hand-painted purple enamel pinstripe was used to outline the flames. It was then cleared with three coats of polyurethane. The pinstripe was sanded until it was flat with clear. The entire car was shot with Amber Glo" and then cleared with two additional heavy wet coats of polyurethane clear. The "B" was then color-sanded using 1200, 1500, 2000, 2500, and 3500 grit wet sandpaper and then compounded and polished.



The final product, I showed at the 2007 British V8 meet. It was a painstaking three years (twice!) of restoration, but well worth the time.



British V8 2007 participants Graham Creswick, Dave Burstyn and Bill Jacobson enjoying Steve's completed MGB V8.

For more detailed specifications and photographs please refer to [Steve's "How It Was Done" article!](#)

**Disclaimer:** This page was researched and written by Steven Ward. Views expressed are those of the author, and are provided without warrantee or guarantee. Apply at your own risk.



"Banner Class" Example - 2007 Contest Winning Photo by Susan Milner

## Announcing The Second Annual British V8 Photo Contest!

as published in **British V8 Newsletter, Volume XV Issue 3, December 2007**

One benefit of moving The British V8 Newsletter online was to facilitate sharing colorful photos of the cars we love. If you poke around on this website you'll find about 5000 photos so far, and we add more almost every day. Cool! But frankly, in my humble opinion, two things could improve. Number 1: I'd really like to see more photos of PEOPLE HAVING FUN with their cars. Number 2: I could really use some help finding glamorous photos to keep the main pages of the website looking "fresh" for frequent visitors and to spice-up general-interest newsletter columns.

These two selfish desires are the impetus behind the two classes of our 2nd Annual **British V8 Newsletter Photo Contest!** The rules will be simple, the judging will be arbitrary, the prizes will probably be almost non-existent... but there's still a big reward for participating: we'll all have some great photos to look at! Interested?

### Here Are The Rules

"General" Class:

The theme for this class is "People Having Fun With Performance-Modified British Sports Cars." To be a winner or runner-up in this class, photos must include both people and cars. No exceptions. Second rule: it must be possible for a "reasonably knowledgeable enthusiast" to spot some detail of the car that's modified from "original". Either the people or the cars can be the emphasis of the photo. Points will be given for composition and craft... but also for how much fun the people are having and for how cool the performance mods are. Winners will be selected at the discretion of the judge or judges.

Most of the photos on our website are displayed 600 pixels wide by 450 pixels tall. The photographer needn't be concerned about this, but the judge or judges will be asked to give preference to photos that look good when re-sized or cropped to this size. (Please see the General Submission Guidelines.)



"General Class" Example - 2007 Contest Winning Photo by Martyn Harvey

"Banner" Class:

The theme for this class is "Performance-Modified British Sports Cars." To be a winner or runner-up in this class, photos must show the modification in a glamorous way. Showing a badge, decal or painted logo that indicates or suggests the existence of a modification counts too. The photo doesn't need to contain people. Points will be given for the photographer's creativity, composition



and craftsmanship. Winners will be selected at the discretion of the judge or judges.

Photos submitted for the Banner Class should look great when cropped or resized to 700 pixels wide by about 200 pixels tall. (See above for an example.) The photos may be cropped before submission, or the actual cropping may be left to the judge's imagination. (From my personal perspective, as editor and not as judge, the latter is actually preferable. Please see the General Submission Guidelines.)

### **General Submission Guidelines**

You may submit your photos however is most convenient for you, including e-mail. Our contact information can always be found here: <http://www.britishv8.org/British-V8-Contact-Info.htm> If you're submitting the photos as digital files, then "the higher the resolution the better". If you submit the photos by physical mail, please indicate whether you want them returned. (It wouldn't hurt to include return postage.) You may submit however many photos you like. If you submit a photo that meets the criteria of both classes, it will be judged separately in both classes.

No matter how you submit your photos, we ask that you document them as follows:

- a) Please specify your full name, how we should credit you, and how we may contact you. (Include this with all submitted materials.)
- b) Please only submit photos that you took yourself.
- c) Please advise us the names of any people who appear in the photo, if you know their names.
- d) Please advise us the owners of the car/cars that appear in the photo, if you know their names.
- e) Please advise us the make, model, and year of the cars. (Generally, the more info the better!)

Some photographers like to develop their own film. Others like to alter their photos digitally. The contest rules neither restrict nor prohibit this, but we don't particularly want to encourage it either. Generally, high resolution un-altered images are what we prefer to receive. Please note, however, that we routinely modify photos before showing them on our website. For example, we use several optimization tools and techniques to reduce digital file size. We also frequently crop, re-size, and brighten photos. We have a weird habit of airbrushing out at least one or two digits from license plate numbers (unless they're vanity plates).

Participating in this contest implies that you're making the photos available to The British V8 Newsletter for use at our discretion. We will credit you as the photographer, but we will claim copyright rights on any and all photos that appear on our website or in our newsletter. If you don't own a photo or if you're uncomfortable with our having the right to display it, please don't submit it.

### **Judging, Awards, and Deadlines**

Judges have not yet been volunteered to judge this year's contest.

We're still working on identifying potential prizes. (Contact me if you'd like to sponsor the contest and provide awards!) The deadline for all entries is July 1, 2008. Winners will be judged and announced at the British V8 Meet, later in July!

**DO NOT PUT THIS OFF! SEND IN YOUR PHOTOS NOW!**

I wish everyone good luck and hope everyone who participates enjoys this informal competition!

Sincerely,  
Curtis Jacobson, editor

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