

# ELECTRIFIED

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MG MIDGET

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## Electrified MG Midget

Purchased in 1997, the 1976 MG Midget was originally intended to be refitted with an RX-7 engine for SCCA autocross. Suspension and brake kits were purchased, and several trips to local autoyards resulted in doors, fenders, and boot lids with less damage than the original panels.

Some progress was made, but the project was delayed and eventually abandoned in favor of converting it into an electric vehicle.

Work commenced on this second phase in 2005, but was delayed until 2013. This third revival of the project has seen significant progress and substantially increased motivation and commitment.

Without the generous support of the household, a project like this could not have been stored for the length of time involved. The patience and understanding of everyone (Ken Easton and all the kids) is greatly appreciated, especially since at least one-third of precious garage space has been taken up by the MG Midget, with little to nothing to show for it.

The first order of business was to dig the car out from underneath a large amount of stuff. The car has been stored in the far left bay, which has its own garage door. Since it's out of the line of fire of the two-car section of the garage,

it's very convenient to think of the car as a very large platform for storage. I anticipated this step taking several days, but the work was accomplished in just



*Garage cleaned and organized*

one, on 26 May 2013. Another project accomplished in the same time-frame was the installation of a garage sound system. Paul Williamson integrated a bluetooth receiver, speaker system, and amplifier to make the garage even more fun.

The order of operations wasn't clear. I knew I needed to complete the removal of the engine, but this part of the



*Garage entertainment option A.*

process had stalled out due to the bell housing bolts being almost completely impossible to remove. The damaged front suspension, which was the reason I got the car for an extremely low price, had already been removed during the second revival of the project, and suspension kits and replacement parts purchased, but I was concerned that I didn't know enough to safely rebuild them.

I needed help, but for a variety of reasons, the project was going to have to move forward under my own mental power.

It was then that I found a remarkable page.

<http://www.mikeamick.com/76midget/>

Every step of the suspension rebuild process was documented! A person after my own heart, Mike even discussed the really simple parts. He valued hand-holding just as much as I did. You never know when something totally obvious, totally isn't.

With that lack of knowledge partly solved with a step-by-step at my fingertips, I decided to build up some momentum doing some simpler things.

On 31 May 2013, I removed the fuel tank. The Haynes manual procedure seemed easy enough. It took about two hours. The fuel siphoned out of the tank was well on its way towards the land of varnish. It was disposed of evaporatively. The tank dropped almost perfectly, except for the flange hanging up a bit on the righthand shackles. With a bit of bending, it came free.

On 10 June 2013, I removed the seats and dash. The Haynes manual was clear and helpful concerning the seat removal instructions, but unhelpful with the dash removal.

After searching the internet, I found a very helpful video on YouTube.

[http://www.youtube.com/watch?v=OH2JA7\\_-IPc](http://www.youtube.com/watch?v=OH2JA7_-IPc)

This provided the visuals that allowed me to orient a wrench deep inside the dashboard, loosening the difficult-to-access nuts across the inside top of the dash.

It looked like the steering column was going to have to come out, but that



What would the car look like post-renovation? What color, what style? Decals? Flames? Circuits? Thevenins? Iridescent silver? British Racing Green? Old school? Star Trek? Old School Star Trek?

The possibilities were endless, but patience was not. A decision about style had to be made. Otherwise, the visual impact of the car would be "not quite completely stock."

And, while there is absolutely nothing wrong with the way the MG Midget looks, this was going to be a big renovation. It deserved to be reborn as something reimagined.

It began with the idea of taking the MG badge coloring it blue. A blue logo or badge is the current style for hybrid and electric vehicles. We could cut a completely new badge at MakerPlace, or refinish one of the existing ones that would be coming off the car in the repainting process.

This somehow led to the idea of remaking the car into a steampunk style vehicle. I have an interest in the style, a collection of books ranging from fiction to fabrication, and the car's basic lines and retro flair seemed to make sense as a foundation. Just look at the Moss Motors apparel and pin to the right. If this isn't steampunk, then I will eat that hat.

While "electricity" and "steam" don't immediately appear to be compatible, there are large swaths of steampunk fiction devoted to interesting electric

# Steampunk

## Electrified MG Midget Style!



innovations, and several well-documented projects like the Tesla Gun that successfully explore the interplay between electricity and steam and clockwork power.

The availability of old electronic gear in and around San Diego meant that there would be plenty to experiment with.

A large variety of themes and compositional elements were now on the table.

Instead of a car horn, it's now an auditory hallucination generator, or a sonic assault canon.

Instead of a fuel gauge, it's now a probability engine thermometer, or a potential field force indicator.

The essential ingredient in steampunk style is fun. While functionality has never been a necessary component in the style, in this case functionality is a requirement. All steampunk stylings will support a real function of the vehicle.

Plus, the soul of every British Car already has the ultimate Steampunk demon, factory installed. Lucas, the Prince of Darkness provides the necessary Machine Spirit for steampunk success.

Instead of hiding Lucas away, this car was going to proudly and gloriously fly his banner.

turned out to be unnecessary. Which, was a good thing, because the allegedly captive nut (one of three, with the others being entirely accessible) simply wouldn't cooperate. If the column ever has to come out, there might be a problem.

The wiring harness was disconnected and the dash wiggled out past the steering column. Spatial relationship skills test #21352... passed!

The seats were in bad shape, but I wasn't sure how bad they would have to be in order to justify replacing them. They could be refurbished, but the amount

of rat chewing, rust, age, and wear was substantial. The household voted in favor of junking them and buying new seats.

New MG Midget seats are available, and while expensive, as part of an entire interior kit, the household felt it was an understandable expense. Other possibilities for seat replacements were mentioned by friends following the projects. Robert Rotzler and several others suggested Recaro seats, and a search of the forums on various sites turned up the Miata MX5s seats as an almost-drop-in replacement.

Because the original seats were close enough to steampunk to consider replacing, the entire question of what and whether to buy was tabled for further study.

Any excuse for browsing through endless collections of steampunk art for further inspiration!

# Fuel Tank Removal

Two Hours



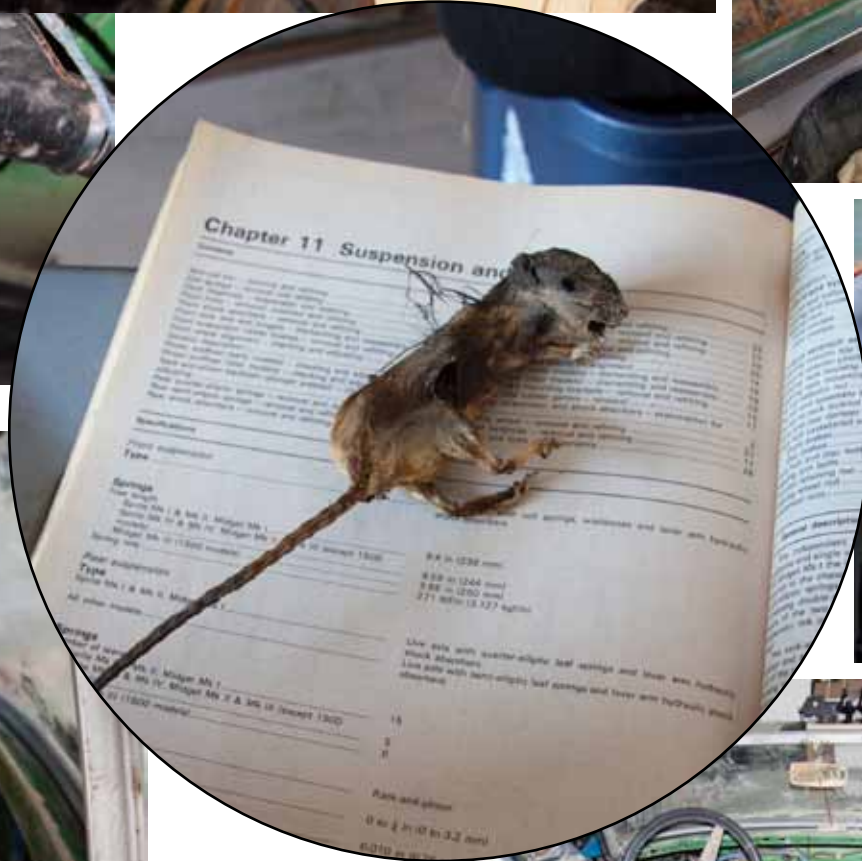


# Seat and Dash Removal

Four Hours







**Seat and Dash  
Removal Continued  
from previous page**







# Suspension

Trip #1 to O'Reilly's

## Wheel Bearing Removal

### hub assembly disassembly

The wheel bearings came out with some percussive persuasion. A trip to O'Reilly's auto parts was made for supplies, and the computer listed the correct wheel bearings. However, at nearly \$70, I decided to look around. I found the correct wheel bearings at Moss Motors for about a third the price.

Following the procedure in the Haynes Manual, the hub was separated from the rotor, and the inner and outer wheel bearings removed.







# Suspension

Order #1 and #2  
from Moss Motors



# Wheel Bearing Replacement

Towards the end of August, I attempted to put the hubs back together. I had new wheel bearings and instructions. What could possibly go wrong?

Well, I trashed one of the bearing sets by hammering it back in with the wrong sized tool. I had to re-order a wheel bearing. The second set seemed to go in A-OK.

Along with the order came this Moss Motors magazine. It had an article about a charity drive car based in Arkansas, and a female racer describing how it was to run the Nürburgring. The pins are Lucas themed, and the key fob will hold something important I'm sure. Below the magazine is the print version of the catalog.







## Inspiration from Friends, Comic-Con, and Art

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### Concerning Proper Attire

Long projects are very difficult to maintain without external reinforcement. Whether achieved through deadline, by competition, or due to some damn fool idealistic crusade, motivation is worth its virtual weight in gold. In fact, gold is the best motivation, hands down. The threat of loss of salary is responsible for the vast majority of day-to-day work, especially of the scut kind.

Concerning the steampunk mindset, not much can be coherently said. It's a style that one can recognize without thinking through the theory, or even being forced to decide on a definition. It's pattern matching without rigor or repercussion.

Hallmarks of steampunk are the aura, whether real or faked, of hand-made splendor. Things that are worth doing are worth doing fancy, but without sac-

rificing functionality. Unless the sacrifice involves a commensurate increase in the amount of times people stop you to tell you how awesome that brass blunderbuss is.

That's why it was so amazingly motivational to get a gift from a friend early in this project. In order to be properly attired, PH sent me a hat. The rest of the driving outfit will naturally fall from this peak of milliner achievement. Thank you PH! I now have a goal to be worthy of the fashion faith.

I had not been to Comic-Con since 2005, when I went with a beloved friend. She passed away the next year, and I had not been back since.

I returned, and it was the best possible time to do so. I took my two daughters, and we celebrated a long joyous day of being with our fellow tribe members.

With the popularity of steampunk, there was plenty to observe for the project. Gears, guns, goggles, (and top hats) were



thick on the ground.

Above are wings made from brass using a water cutter.

The style of Steampunk Scientist Explorer appeals to me the most for this project, due to the prevalence of dials and gauges. Since cars actually dials and gauges for sensing and safety purposes, it's a reasonable fit.

After contemplating all I saw and absorbed during 2013 Comic-Con, I have to say that I most enjoy gears and widgets when they are actually doing something in the steampunk design. When they are stuck together or used simply as decoration, they are still quite cool - but there is an element missing. It's the necessary (but not by itself sufficient) element of functionality.

To me, steampunk puts the fun back in functionality. I certainly have my designer's work cut out for me on the Electrified MG Midget in terms of executing a design that makes sense, and is something above and beyond merely decorative.



Since there was a delay from the wheel bearing oopsie-do, I used the resulting opportunity to attempt to put together the parts that go onto the A-frame, and ran into another small issue. The cotter pin wouldn't go past the lower fulcrum arm.

















by Abraxas3d

[www.delmarnorth.com/electrified](http://www.delmarnorth.com/electrified)