

**TWO GUYS FROM TEXAS / PART 8**  
By Bruce Fullerton and Robert Mace

Hard to believe two years has already passed since our first installment! As promised in the last issue, we'll discuss the electrical system, wiring up that Euro center rear light and a few other tidbits like 12 volt pizza ovens.



*Medium rare, please. A sight familiar to many of you, no doubt. With a trip to the hardware store, some soap and water and fresh shrink wrap, this harness will look and work like new again.*

Both Bruce and Robert's cars had fricasseed ignition wiring. Bruce's car also had a bonus 25 amp fuse in Position 6 in his fuse box, a flamed Bosch voltage regulator and a farkled Brand X replacement unit sitting next to the Bosch unit. The jury's still out on Robert's regulator but his harness was sportin' that patented fried green wire, too.

Take an Exacto knife and carefully cut the old plastic shrink wrap off, give your harness a bath in warm soapy water, replace the appropriate wiring and re-shrink the whole harness. Looks sharp when you're done. This is also the perfect opportunity to add a spare circuit or two for future electrical needs. The ignition side of the Isetta harness stands to take the most abuse if something buys the ranch. If that's your case, new wiring is available at your hardware store. Black, red, green and blue will fix just about any problem you have and keep those factory color codes in tact. A couple of deviations from the single color ignition wiring include a yellow/red and black/red wire, harder to find on the shelf. If you have to substitute a different color, do yourself (and perhaps a future owner) a favor here and note it on your car's wiring diagram and color code chart. You might even make a copy, put it in a Ziploc bag and attach it to the inside of the driver's side interior panel for future reference.

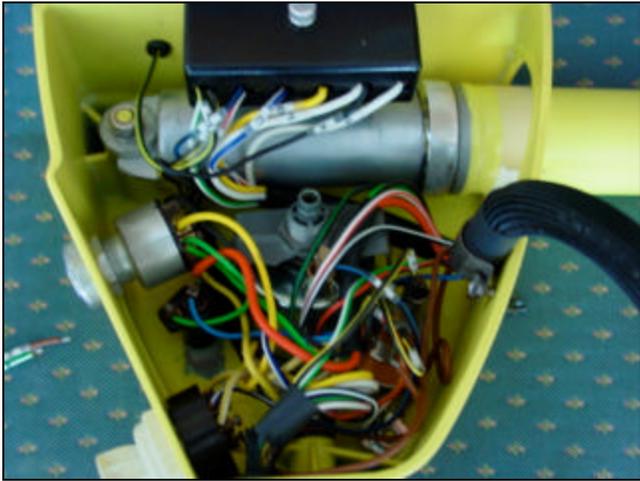
You've already noticed that all terminals on the terminal blocks are populated. This can be remedied by paying a visit to your local Radio Shack or European auto parts store and forking over a few of bucks for a longer Euro-style block. If nothing else, it would alleviate the log jam on Terminal Block 1, Position 10 where you have three tan ground wires (circuits 1, 35 and 36) fighting for one small connecting point. The no-cost way around this is to simply place two wires on either side of the terminal block instead of three on one side, one on the other. Additional terminals will allow you to accommodate such add-ons as a spare power receptacle, interior light, etc.



*Now here's an exciting shot. Original turn signal wiring has been hacked to death. Note trendy coax connector (!) on bottom wire.*

Bruce's instrument panel harness was a disaster. Looked like someone had used a wood burning kit and a chain saw for wire strippers and tried every conceivable wire to determine which one(s) to connect a Radio Shack beeper for the turn signals to. There was enough electrical tape under there to wrap a mummy not to mention a coaxial cable (!?! ) connector. Did Bruce have the world's only cable-ready Isetta and not realize it? The icing on the cake was the four holes drilled in the side of the instrument panel housing for no apparent reason. As long as you've got your wood burning kit lit up, might as well fire up the drill and swiss-cheese something.

A new instrument panel harness was ordered from Hans Rothkegel. Not only is this a beautiful piece of work, all colors are correct and the wiring is longer on the terminal side. It's a good thing because the shortest wire on the factory harness was the longest wire on the repro ... backwards, if you will. Fortunately, there was ample wire in the main harness to connect everything upside down.



***Slight improvement! It's cozy in there but goes together pretty nicely if you have everything wired prior to installation. Triple check that wiring diagram and make sure you got it right!***

There are a couple of things to do prior to installing your panel harness. Attach your ignition and headlight switch to the harness before you put it in, ditto for the fusebox. Make sure that your steering column swivel has a light coat of bearing grease, is tightened down and has a cotter pin installed. Next, install your speedometer followed by the flasher. This bolts to a small stud towards the front light switch side of the panel. Be sure to place your tan main ground wire on the stud first with the flasher on top of it.

We've heard that the Isetta took a special kind of flasher but, quite frankly, we didn't find that to be the case. Bruce used a small \$3.50, two-pole unit with a double spade lug on the output side to connect the wires leading to the indicator light and on out to the turn signals. You can also use a three pole flasher but you'll just use two of the poles. For an extra buck or two, you can also get an "extra loud" unit and bypass that Radio Shack buzzer upgrade that some folks have opted for. JC Whitney has one that plays "Love Me Tender" for under \$10. With all due respect to Elvis, one would think that after a while you do nothing but drive in a straight line to keep from going completely nuts. "Inna Gadda Da Vida" would have been a much better choice here.

Now, you can drop your harness into the panel and bolt the fuse box down making sure that the wires coming out of the rear of the box exit straight down and out towards the front of the panel. These wires will be under the door piston.

Now, you can drop the piston in and bolt it down and secure your light and ignition switch. Be sure and tighten that ignition switch down using the large thin nut on the *inside* of the panel so your

paint doesn't get scratched. Next, you can screw the bulb holders for the hi/lo, turn signal and generator lights into their threaded bezels. Keep those chrome bezels stationary while you're turning those holders to avoid paint damage.

Tighten the clamp that holds the conduit that leads out of the panel. Now you can hook up those dash lights. That should just about do it for the instrument panel.

As previously mentioned in an earlier TGFT episode, the two brake light switch wires, circuits 12 and 13, were attached to the switch prior to placing the body back on the chassis. Spade lugs were soldered on to the ends of these wires and run through the hole in the floorboard. The wiring coming from Terminal Block 1 had female connectors installed in order to make hookup plug-n-play.

Before you lay your main harness back in place, why not take a small amount of heat shrink and cover those tabs on the floorboard to help protect the harness against vibration and cutting once you bend them around your harness? Just takes a few minutes and is cheap insurance.

The horn, you say? This was another colossal mess. It's a wacky setup to say the least and took us a while to figure out three years ago. Most of you have probably found that the brass ring that's mounted on the steering column was loose due to the fact that the original cardboard insulator gave up the ghost many moons ago. Your carbon brush was probably shot if you even had one. You may have also found that the wire that runs up the center of the steering column from that brass ring was either disconnected or gone.

Let's start with the brass ring. Head for the hardware store, go to the electrical section and pick up a "skirt" for a candelabra style light fixture. In plain English, this is nothing more than a short, thin hollow white plastic tube that covers the bulb base in many light fixtures, an aesthetic part if you wish. This is a one dollar item and should be almost exactly the correct diameter you need. Take your brass ring to verify the size. Cut a section out of it just slightly wider than the ring. Bingo You now have your new ring insulator and one that will long outlast that old cardboard job. You may want to put a thin coat of epoxy around the inside of this ring when you permanently mount it so it doesn't turn or slide down. The bottom of that ring should be positioned at the top of the hole where the horn button wire passes through and line up with the carbon brush mounted in the cast aluminum steering column.

Next comes the main wire that goes up the steering shaft to the horn button. This is a little tricky since you have a very small target to solder it to on the brass ring. The key is to put your solder joint as close to the bottom of the ring as possible so your carbon brush has a full, unobstructed 360 degrees of contact as you turn the wheel right and left. Make sure you have a good hot soldering iron when you make the attachment. You don't want to have to do this again.

A new carbon brush and brush holder came from Isettas-R-U's, the horn button was polished up and the small wiring harness that connects the horn to Terminal Block 1 was cleaned up. Just to be safe, terminals were soldered to the two wires that connect to the horn. On the steering column end, run the tan wire, circuit 56, out of the hole in the front of your instrument panel along with the high/low beam and turn signal wires and over to the brush holder.

Once you have this unit all wired up, note that the back of most horns (BMW used several vendors for this part) has an adjusting screw that functions as a volume control. We're not given to horn honking but, we chose the loudest, most obnoxious setting just in case some blue-hair backing her Roadmaster Wagon out at the shopping center isn't paying attention or can't see anything but headliner in the rear view mirror. Keep in mind that over or under adjusting that screw will cause the horn to stop emitting an audible sound. Play with it and you'll see what we mean.

One thing to look for if your horn doesn't honk is the presence of a gasket between the resonating plate and body of the horn. It will probably be a thin paper job and may have deteriorated enough to short the two parts together. A quick, cheap fix is to put masking tape around the flange on the horn body. Then you can put that resonating plate on, tighten it down with two or three of the screws and give it another try. If that solves the problem, you can then make a nicer gasket from gasket material and be done with it.

If you really want to make your presence known, check out the Hella units at Griot's Garage ([www.griotsgarage.com](http://www.griotsgarage.com) or 800-345-5789). Ask for their part number 77573. This is a pair of bright red steel clad horns that run \$70.00 for the matched pair. One horn honks at 300Hz, the other at 400Hz at a decibel level that's right up there with a Motley Crue concert. If you use both horns, you'll have to jumper them together and modify your mounting bracket. Just looking at these bad boys should get some attention.

Remember that Euro center light kit we mentioned earlier? We've seen two slight variations of this light but they essentially hook up the same way. It's sorta like adding another string of lights to the Christmas tree. When you clean up that rear harness, add an extra wire leading from the driver's side tail light over to the license plate/center light. One end of your new wire will connect to circuit 46 (the green and white wire) on the left tail light. If you have the Hella repro center light, it has an upper screw terminal that also connects to a lower spring clip. You'll want to connect your double ground wires (tan) from the right tail light here. This will provide ground for both top and bottom lights simultaneously. Now, connect your new wire to the center light terminal to complete the circuit. The license plate light gets the wire from circuit 44 (red & white) per the factory wiring diagram.

If you should have the type of center light that has a ground and hot terminal for *each light*, you hook it up the same way with one exception. Make a short jumper wire from the ground side (circuit 41/42) of the center light down to the license plate light. The wire should be around 4" long. That's all there is to it.

One final word on the function of the center light. Notice we didn't call it a center BRAKE light? On European Isettas, that was its function. Wired the way we've described, that center light will always function as a running light. This light uses the same type of single-filament "festoon" lamp that the license plate uses and is either on or off. In another words, that center light doesn't light up with your brake lights which use *dual-filament lamps*. We've heard varying suggestions about wiring that center light to function as a brake light. In our feeble electrical minds, we maintain that with only a single filament, it's a limitation of the center lamp itself, not the wiring technique. If you know differently, please contact us via email and we'll 'enlighten' everyone.

As far as your lighting goes, why not upgrade to halogens for a few extra dinero? Sylvania Cool Blue 7" sealed beam halogen headlights (model number H6024CB) run \$16.00-\$18.00 a copy at your auto parts store. They use the industry standard three-lug configuration and plug right in to your Isetta headlight harness. Sylvania guarantees, in writing, that these lights are street legal in all 50 states, by the way. Check out Sylvania's Web site at [www.sylvania.com](http://www.sylvania.com) and click on "Automotive Lighting" for more info than you care to know. If you want a pair of 'really-blue-and-street-legal-too' headlights, Auto Zone has their own house brand that will accomplish the task for you. In regards to your tail lights and turn signals, check out the Xenon bulbs that are available while you're getting your headlights.

Now your car will show up nicely on those cool night-time NASA satellite photos.

Another option you may want to consider is a battery master cutoff switch, another Hella product. Click your way over to Classic Garage ([www.classicgarage.com](http://www.classicgarage.com) or 845-940-1900) and check out their part number HE-87181; under \$20.00. Should you develop a potentially disastrous electrical short, you can just flip the key and eliminate your battery from the electrical system. It's also a theft deterrent device and one more unmarked control lever to totally confuse everyone.

The only real issue here is mounting your new switch. It makes sense that under the seat in, or just behind, the seat panel would be the logical place to put it to allow for quick, external access. One suggestion might be to fasten an L-bracket to the bottom switch post on the switch side and secure the other end to the frame grounding stud. The negative battery cable could then be attached to the top post to complete the circuit. The L-bracket approach would solve both mounting and connection issues as well keep you from having to buy another cable. To finish the job, you'll need to modify your under-seat panel to accommodate the keyway.



*Here's that Hella cutoff switch mentioned above. It's 2 1/4" in diameter and just under 5" deep.*

Meanwhile, back at the voltage regulator, Bosch discontinued the original Isetta part (Bosch part number 0-190-219-003) some time ago. An Austin European parts house was able to locate one via special order a couple of years ago for a pittance of only \$530.00. Next contestant! How about checking out a new unit that Isetta John Wetzel has for you. They're manufactured by Nosso in Brazil, a company that is rumored to also manufacture many of Bosch's electrical parts as well. Check us out on that blurb if it matters to you. These units should run under \$200.00 and work like a champ. They differ slightly from the original Bosch units in that they are a bit wider (which means that they don't fit the Bosch mounting tabs on the floorboard) and the B+/30 terminal swaps places with the 50 terminal, not a

bad idea since it keeps the positive battery cable and the Dynastart main cable separated by one terminal. Terminal designations are included with this unit so connecting it needn't be a worry. Just pay attention when you hook your regulator up, regardless of brand name!



*New Nosso voltage regulator from Isetta John along with new ignition wiring harness. The VR is just slightly wider than the factory mounting brackets but can be fastened securely on one side. This also gives an extra margin of clearance between the terminals and that heater with plenty of clearance on right for the seat.*

Make sure you put shrink tubing on the ignition-related wire terminals up as far up towards the screw holes as you can. Should any of the wires on your voltage regulator come loose and turn to either side, you'll be protected from ugly short circuits. Also, splurge and buy a large rubber band to place around and over all screw connections (not shown in the above picture) to protect from anything, like a coin or screwdriver, from shorting between terminals. It's happened before and it'll happen again. Matter of fact, why not just drop by a bicycle shop and see if they've got a old, flat inner tube? Just cut a section or two out of it and get one (plus a backup) for zero dollars. It needs to stretch to a bit over 3" wide should be about 1" deep from front to back.

Moving on to the engine area, there are three components that come into play. One is the starter cable coming off of the voltage regulator and terminating at the starter post on the Dynastart. Second is the ignition wiring harness which includes leads from the regulator to the coil, points and Dynastart windings. Finally, you have a harness that continues back to the tail lights, license plate light and center brake light if you made that upgrade. Be sure and install new rubber grommets in your firewall to protect those cables.

Bruce split his ignition wiring out from the main harness to isolate it in case of an electrical problem on the VR/Dynastart end of things. Another mod was the installation of quick connect spade lugs on the three leads going to the Dynastart. Should it ever need to be serviced, it can be quickly unplugged and removed.



*Fresh ignition wiring harness with quick connect spade lugs. Note terminal that has been soldered onto starter cable. A 6mm bolt and lock washer secures the cable, ala BMW 600. This is done in lieu of placing cable through hole in side of post.*

The list is virtually endless for the electrical goodies you can add to your car. For instance, JC Whitney has items that range from simple auxiliary power receptacles for cell phones and the like to 12-volt pizza ovens to under car neon lights. Come to think of it, it might be kinda neat to have one of those neon lights mounted under the rear parcel shelf should you have to do any engine troubleshooting in the dark, which it always is under there anyway. You could just flip a switch and, 'bink', your engine compartment would be lit up. Or you could just fire 'em up and mess around with someone's mental health at a red light late some Saturday night. We'll leave the artistic license in your hands.

Well, we're off again, in more ways than one. Next issue, let's look at fine tuning, a few more tips we may have forgotten to mention, a tale or two from life back on the asphalt and a shot or two from the 2002 National Microcar & Minicar Meet in Duncanville, Texas.

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*And what have we here? Looks like the TGFT Isettas!, Bruce's on the left, Bubba's on the right, UFO over power lines in background. This shot was taken in Duncanville, Texas at the 2002 Microcar & Minicar Meet on September 28<sup>th</sup>. More pix in the next installment.*