

## Installing dual FIAMM horns on BMW airhead

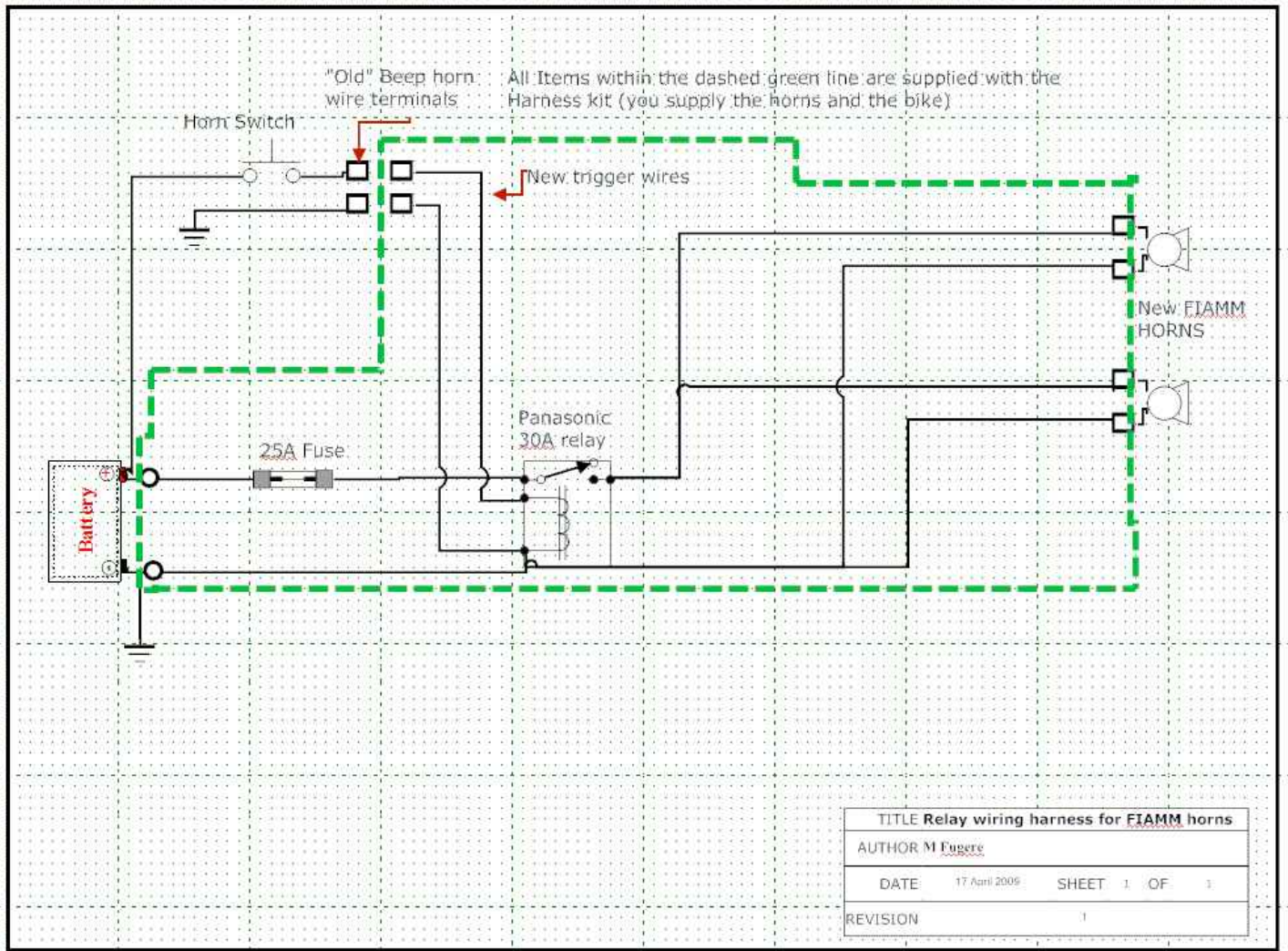
The time had come to replace the original stock “beep-beep” horn on the 1982 R65LS with something more attention grabbing. Like many BMW owners, I am fond of the dual FIAMM high/low tone setup – these horns are LOUD, and in my opinion, very classy sounding, as befits a BMW bike!

I had ordered a pair of FIAMM horns through the internet (Amazon.com) as they had a really good price deal going on. These horns are available in numerous places, so shop around for the best price. There are models without the “snail shell” trumpet cover, but I like these as they keep the water and grit out of the horn mechanism pretty well if you are not installing them behind a fairing or grille of some sort.



<insert NewHornsinbox.JPG>

These horns can draw a lot of current, possibly as much as 10 Amps apiece, so it is NOT RECOMMENDED to try to simply replace the stock “beep” horn and use the existing wiring/switch setup. What is needed to avoid burning out your horn switch is to use a relay to transfer power from the battery to the horns, and use the existing horn switch and wires to simply activate the relay. Because the horns can draw so much current, it is best to provide them with a direct power connection to the battery through the relay with a large (14 or 16 AWG) wire and an inline, 20 Amp fuse, just in case something goes horribly wrong at some point and you don’t end up blowing your electrical system or causing a fire. Electrically, the schematic should look like this:



<insert pic#2> schematic

You can obtain the wires and relay and connectors necessary for this job at numerous places, but several people had asked me about pre-made horn kit wiring harnesses from a company called Eastern Beaver ([easternbeaver.com](http://easternbeaver.com)) who make a number of motorcycle wiring kits, so I decided to give them a try to also provide an evaluation of one of their products. I ordered their Dual Horn relay kit for \$39.95. The kit arrived in just over a week and I had forgotten that the company is based in Japan - kudos to them for prompt shipping!

Remove the fuel tank and (optionally) the seat and toolbox that sits over the battery, and we're ready to start. We will temporarily zip-tie the new relay onto the relay bracket in the "accessory" area so we can get the wires run and placed more or less correctly before trimming to length and tightening everything down.



<insert workarea.JPG>

The harness includes 14 AWG wire connections to the battery and a 25A inline fuse to the low profile relay. The relay has (2) 16 AWG “trigger” wires with male spade connectors that are a perfect fit for the stock female terminals on the standard BMW “beep” horn wires. The harness then has (2) pairs of wires with female terminals to attach to the new horns. It is also possible to use the same harness with horns and horn switches which only use (1) wire and use the frame for ground connections, but the stock setup on my 1982 R65LS used (2) wires and the number and sizes of all connectors were a perfect fit. However, as with any “universal” kits, there has to be some area(s) where things aren’t quite perfect. The harness as received would work OK as-is on the little R65, except that the power lead length was approximately 6 inches longer than necessary, the horn trigger wires were about 8 inches longer than needed, and the horn wires, for placement of the horns in the same location as the “beep” horn, were also about 6 inches too long. The Eastern Beaver folks anticipate the need to adjust the length of the horn leads and include a couple of their re-usable “posi-lock” connectors so one can shorten those leads as necessary (or even install new longer leads). The trigger leads and power leads were not equipped with these adjustable taps, but as I have on hand many different sizes and types of crimp terminals, it wasn’t a big deal to snip and recrimp and apply more heatshrink tubing for a neat installation.



<insert EB\_WiringHarness.JPG>

Remove old horn and disconnect the (2) wires – save the bolt as we will use it again to mount the brackets for the (2) new FIAMMs. The green wire dangling down in this picture is an extra ground I had added to ground the headlight bracket back to the frame – sometimes the wiring to the electrics on the triple clamp don’t provide a good ground return path and ground current ends up returning through the steering head bearings to the frame. While the voltages and currents are pretty low, it can contribute to electro-corrosion of the



rollers in the bearing assembly, accelerating their wear and eventual failure. An extra 16 AWG wire tied from the triple clamp or headlight bracket back to the frame with good electrical connection can prevent this – think of it like insurance – you don't want to ever have to use it, but it is helpful to have just in case. I will put an appropriate ring terminal and tooth washer to get good “bite” on the frame metal at the same point where we bolt the new horn brackets on.



<insert RemoveOldHorn.JPG>

I kept the original horn leads as is in case I ever wanted to put back the stock horn – highly unlikely, but if I go crazy and decide to try to enter this bike into a concours competition someday it would be easier to revert. The trigger leads from the EB harness have the proper spade terminals to mate with the original horn terminals, and the kit comes with some pieces of heatshrink tubing to cover things up afterward, but the wires in the harness are a bit long for a neat&tidy fit, so I ended up cutting the wires back and putting on new crimp terminals and heatshrink tubing.



<insert trimmingtriggerwires01.JPG>



<insert trimmingtriggerwires02.JPG>

I installed the (2) horns onto their brackets and used some automotive grade purple (service removable) Loctite on the nuts as they didn't come with lock washers. I connected one pair of horn leads to each of the horns and bolted the horn brackets onto the frame using the bolt which came from the original horn bracket. Point the horns generally downward (so they do not collect rain, etc inside). Move your handlebars from side to side to check that things like your brake hose don't get caught up on the edges of the horns when the bike is on its wheels and the fork is compressed. If entanglement seems likely, adjust the horn angle and/or bracket positioning inward to clear.



<insert newhorns\_front.JPG>

I also had to bend the terminals on the horns a bit so that I'd have clearance for the wire terminal around the frame cross tube given the placement of the horns I chose.



Insert newhorn\_back.JPG>

The (2) horn cables as I mentioned were a bit long for the mounting location I chose, but with the supplied "posi-locks" (basically re-usable, wire butt-splicers with screw compression ends) it was easy to slide back the extra length of horn wiring from the horns toward the relay, unscrew the powertaps and pull the horn wire ends out, trim back the excess cable jacket and wires and reinstall the cut wire ends into the powertaps again. I am not always a big fan of these types of connectors, but they come in very handy for this purpose. Time will tell if they remain reliable over the long haul. If I had mounted the horns on the frame downtubes on either side as on some bikes, the horn lead lengths would have required very little or no trimming.



<insert posilock.JPG>

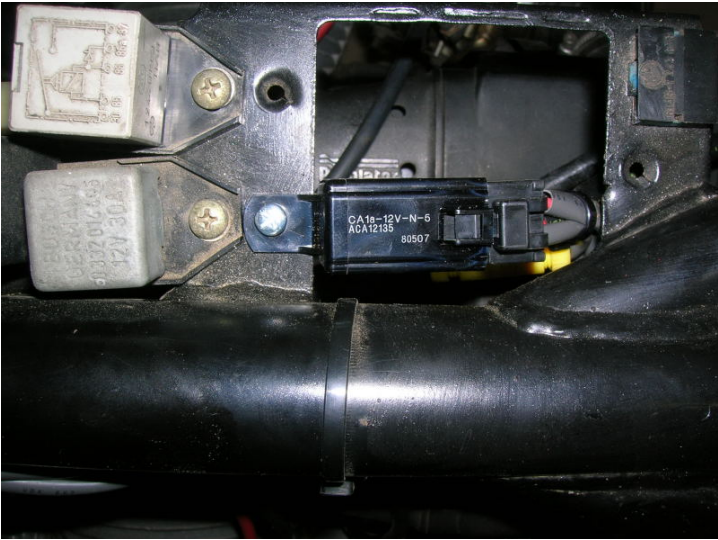
Once the posi-locks are back together, I tidied up the wiring from the relay to the front of the bike and held it all in place with new nylon zip ties – the new wiring of the EasternBeaver Harness are the (3) gray jacketed cables held against the frame backbone.



<insert cleanedupwiring.JPG>

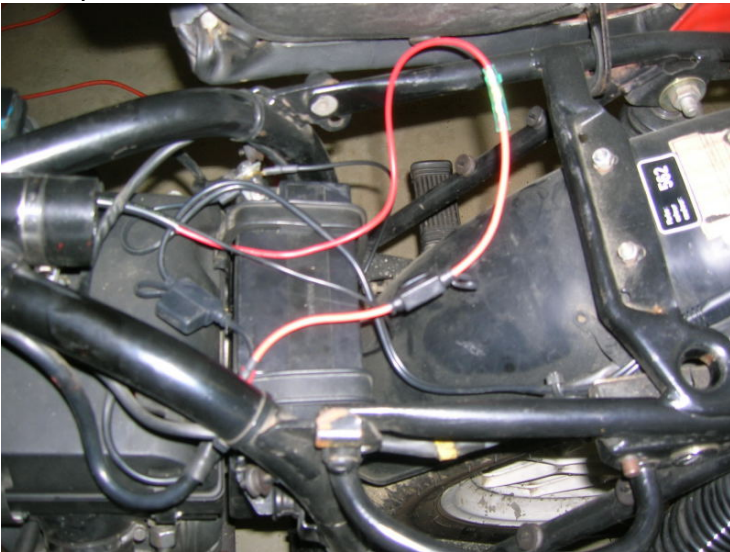
The supplied relay is a good quality Panasonic automotive grade sealed relay that is rated for up to 30 Amps. I used an M4 screw and small flat washer to mount the relay more permanently in its new location:





<insert NewRelayInstalled.JPG>

The power leads as supplied in the EB harness are rather long for the R65 – one could simply loop up the excess wire and zip-tie it as neatly as possible in the battery box area, but I already had extra wiring in their from my Battery Tender plug connection, so I ended up cutting back the black (ground) wire and putting a new ring terminal on it. I cut the orange (hot) power lead at the splice that is put on at the factory, cut back the red wire and the gray cable jacket to an appropriate length (about 6" removed), and crimped on a new butt splice connection and sealed it with heatshrink tubing. This picture shows the wires before trimming in the battery box area.



<insert powerleads.JPG>

Connect the power leads to the appropriate battery terminals, turn the ignition key to the ON position and give that horn button a press – I think that you'll be pleasantly surprised at the improvement !!!

The general quality of the Eastern Beaver dual horn wiring kit is quite good. While it could be possible to fabricate an equivalent harness for a little less money, a number of folks may not have all the necessary tools and connectors readily available to do so, and the time savings is also a plus. I would definitely recommend this quality pre-made kit for anyone with time constraints or who may not have tools or access to facilities to get the appropriate wire, connectors, fuse and relay themselves. With this premade harness, it is fairly easy to install new dual FIAMM horns on your airhead in an afternoon and still have time to go for a ride.