Tokyo Marui MK23 LAM unit LED upgrade.

by Jon Moss

This is a guide to internally modifying the Marui mk23 LAM unit to take a high power Cree LED module and convex lens.

This modification retains the original reflector and therefore your LAM will look just like the stock unit but will be much more powerful and effective as a tactical weapon light.

Be aware that this modification will require removal of material from inside the unit so must be considered permanent and not reversible.

So, you will need the following parts and tools:-

1. A donor LAM unit, obviously.
2. A small flat blade jeweller's screwdriver or similar.
3. A good quality soldering iron and solder.
4. Junior hacksaw and a small file.
5. A pair of small side cutters (wire cutters).
6. A hot glue gun.
7. A convex upgraded lens (available from me, Jon Moss via Facebook)

8. A 120 lumen Cree LED module as detailed here. This one is designed to run at the correct voltage range.

Don't be tempted by any higher power output, you will melt your LAM from the excessive heat generated!!

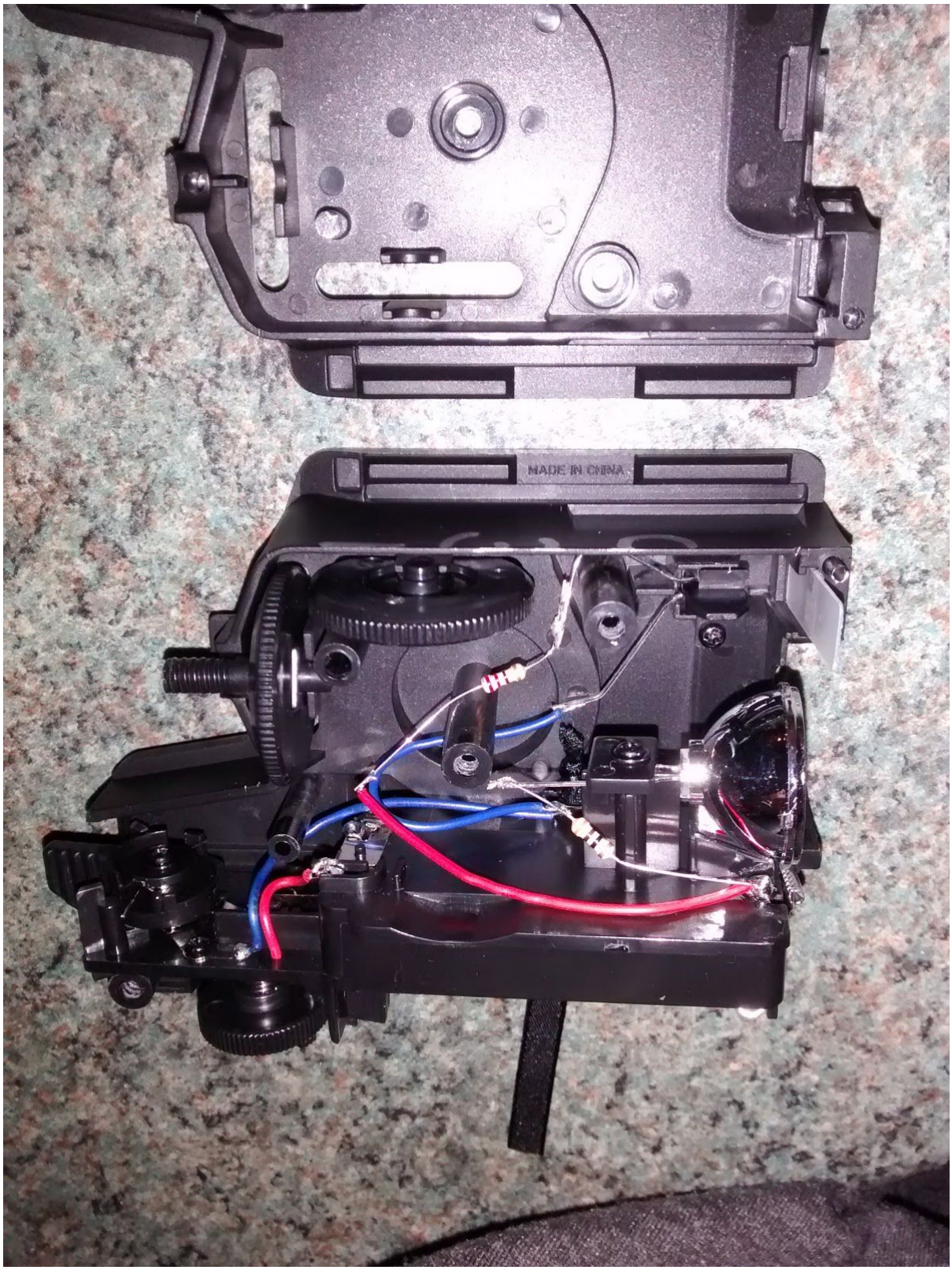
http://www.thetorchsite.co.uk/TTS-1_Watt_Cree_Petzl_Bulb.html

First of all you need to open your LAM unit. Take off the front bezel by twisting off clockwise.

Open and remove the battery compartment lid. Remove the three Allen screws securing the body together.

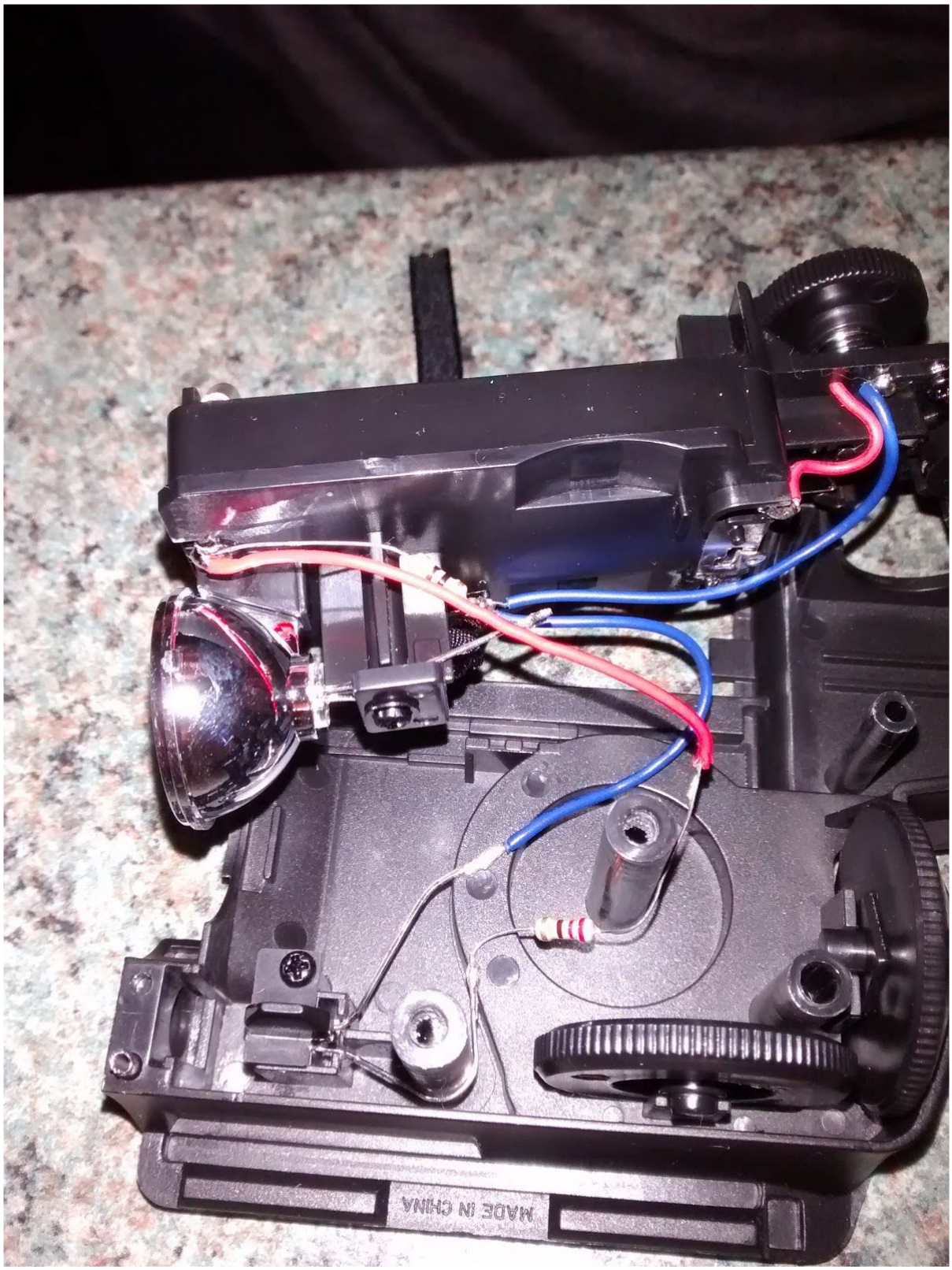
Carefully separate the two halves of the body by pulling them apart, carefully prying here and there with a very small flat bladed tool to aid separation, be careful to avoid damaging the plastic body.
You will start to see the friction pins that hold it together, keep prying and pulling near these pins until it's apart. It's a bit of a sod to do but persevere with it.

This is how it looks inside.

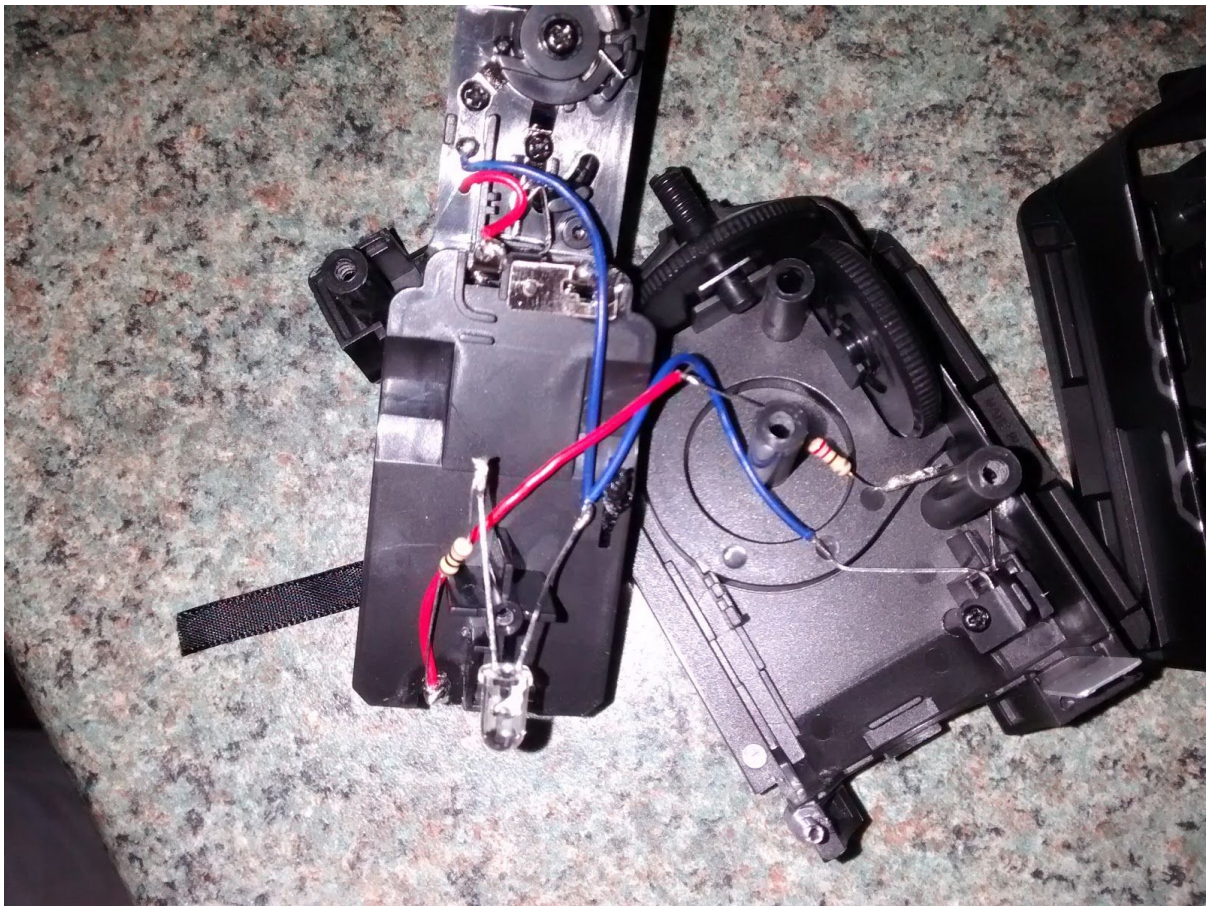

MADE IN CHINA

Now, we will be removing the LED from the lamp, both resistors and one blue wire. The LED 'fake laser' in the top will be disconnected out of circuit but can be left in place.

To make life easier, lift out the lamp reflector from it's mounting and keep it safe. The lamp and switchgear plate assembly can now be lifted out for better access.



Unscrew the small plate holding the legs of the LED to enable it's removal.



Ok, now using the side cutters snip off the first resistor leg (lamp LED) just where the red wire enters from the battery compartment.
Next, snip the other end of the red wire off where it joins the leg of the second resistor (fake laser).
Next, snip off the other leg of the lamp resistor from the blue wire coming from the switch assembly. Discard the lamp LED.

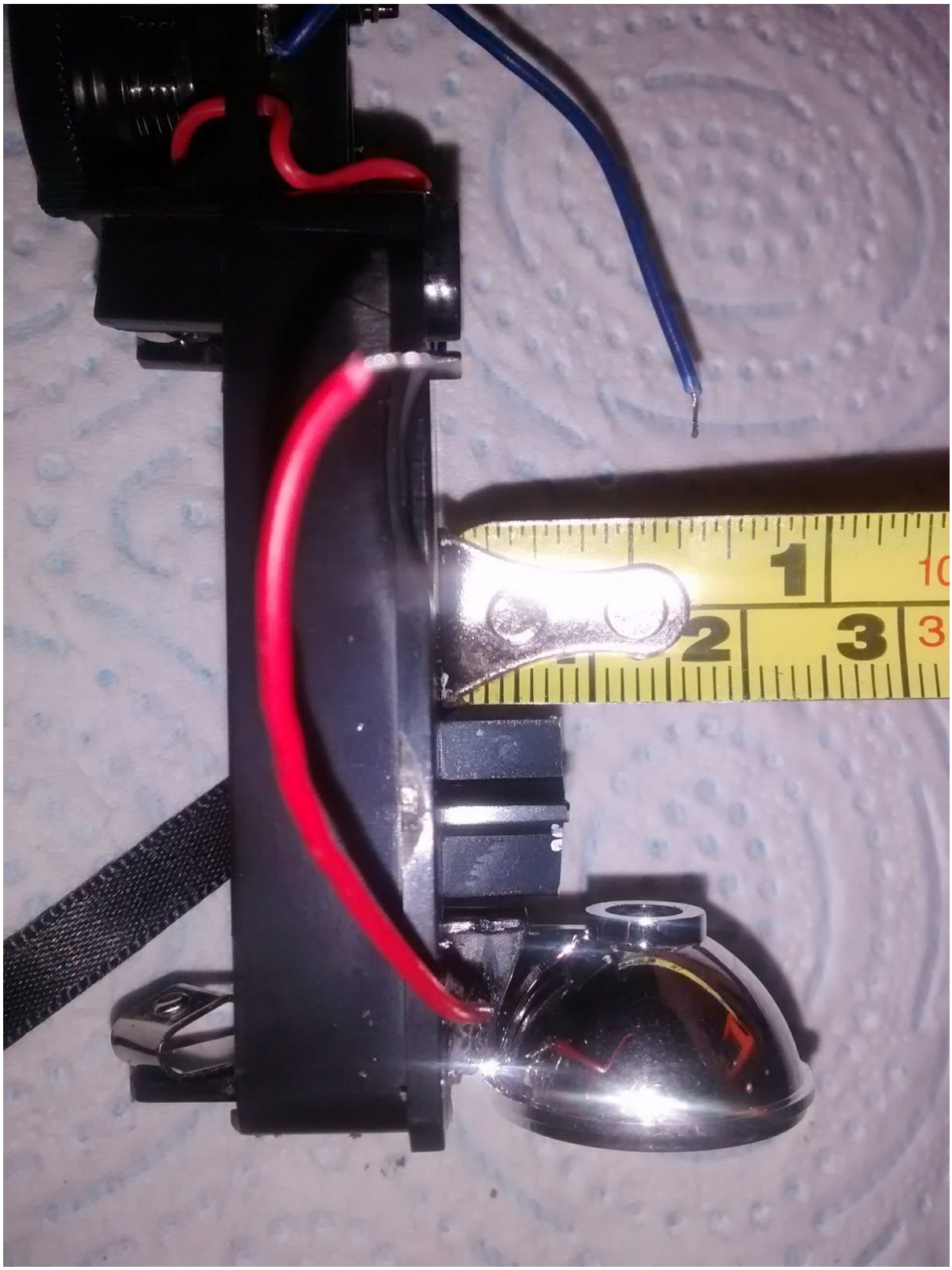
Now the second resistor and other blue wire can be snipped from the 'fake laser' or alternatively just tucked up out of the way.
With me so far?

You should now just have the red wire entering from the battery compartment and the blue wire coming from the switch assembly.
You might have to strip off a little of the insulation from the ends.

Here's another shot.

Now we reach the point of no return. From here we start with the permanent modification and cutting of material from the unit.
Ready? Good.

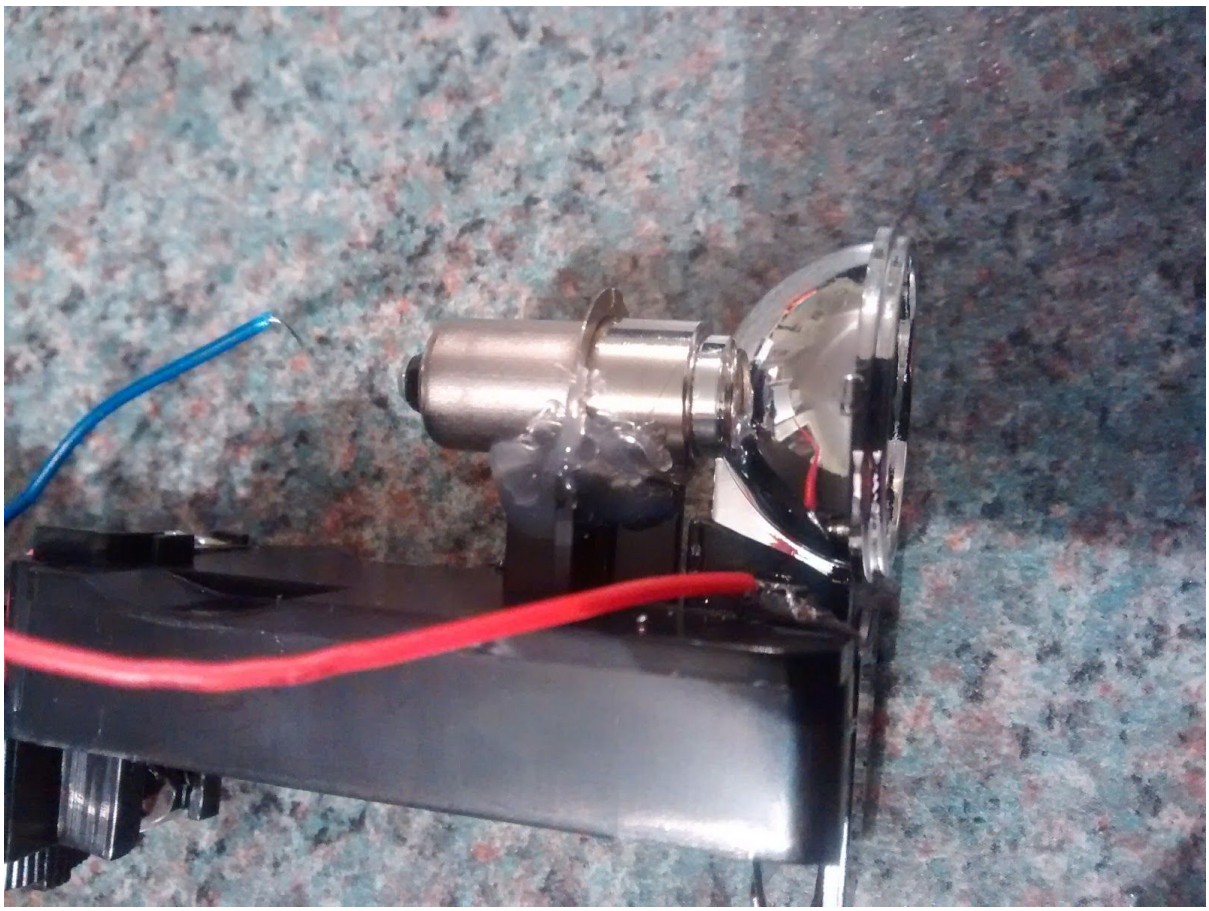
The cross shaped post that held the lamp LED needs to be cut down in height in order to accommodate the new Cree LED module.
Use the hacksaw to cut it down to a height of 8mm, then neaten up with the file.
The post must be as flat and level as possible to achieve correct lamp alignment, this is critical, take your time.



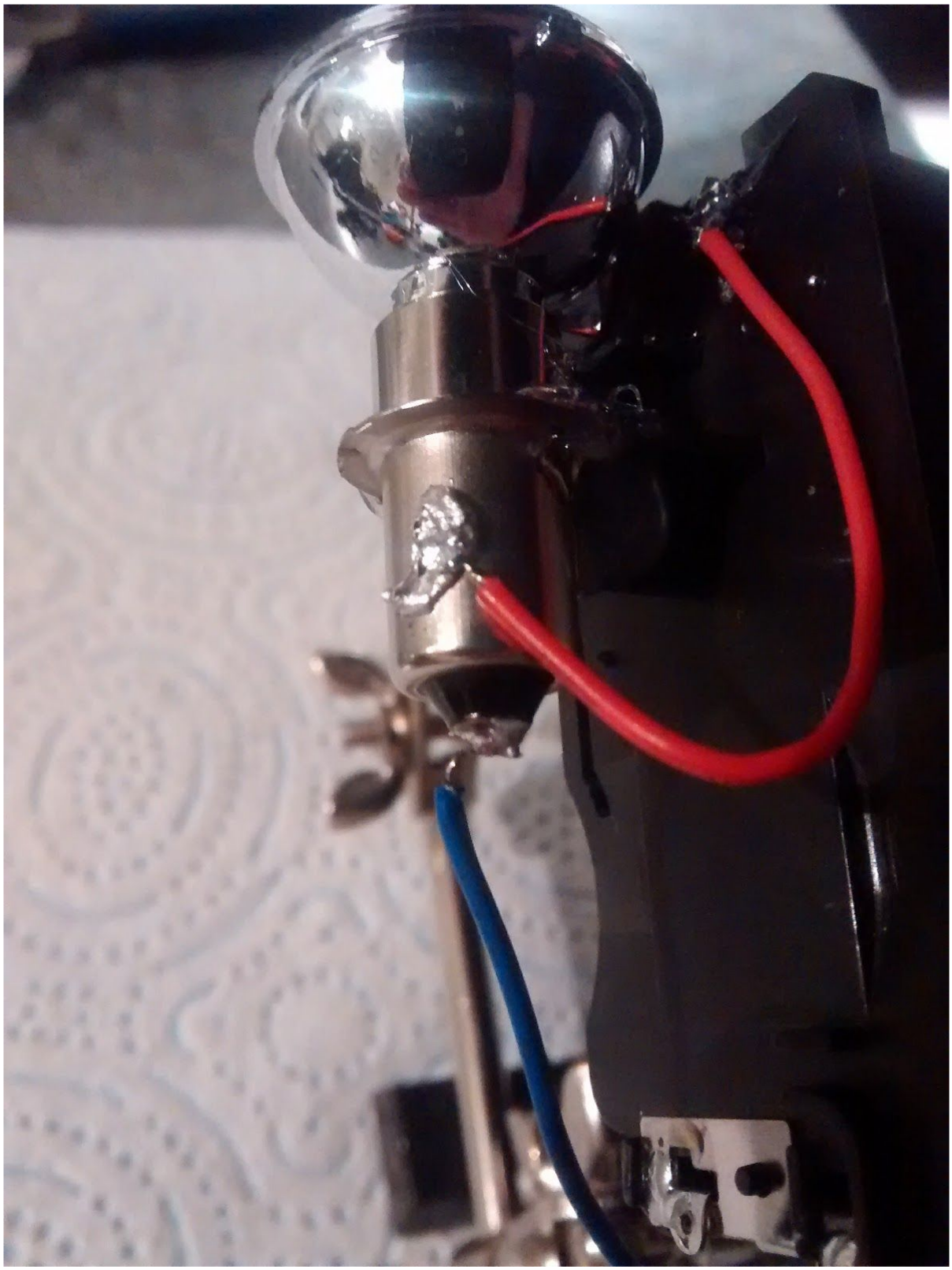
Now, get the hot glue gun warmed up ready to fit the new LED.

Put the reflector back in place, if you removed it and test fit the LED in behind it on top of the post. It should be pretty well centred inside the reflector hole looking from the front. Minor post trimming might be needed here to get it centered just right.

Glue the LED module in place securely and let the glue cool and set hard - go and grab a cup of tea or something!



Now we're ready to get soldering, so warm up your iron.
Solder one wire to the main body of the LED module and the other to the tail cap.



I haven't been specific here about which way round to connect red and blue because the LED I linked to at the start is non polarity, so it shouldn't matter. You can now fit the batteries temporarily and test the light.

If nothing happens you may have an LED that has polarity and your wires happen to be the wrong way round. Just desolder, swap round and try again, it should now work.
Pretty bright eh?

That's the main bulk of the work done, we can now start reassembly.

Refit the completed lamp and switch plate assembly back into the LAM body, making sure to thread the battery puller ribbon in place.
Double check the plate is mounted correctly so the reflector seats correctly in LAM aperture.

Align the top half of the LAM body over the bottom, double check the body pins are engaging correctly and firmly shut the two halves back together. Secure with the Allen screws.

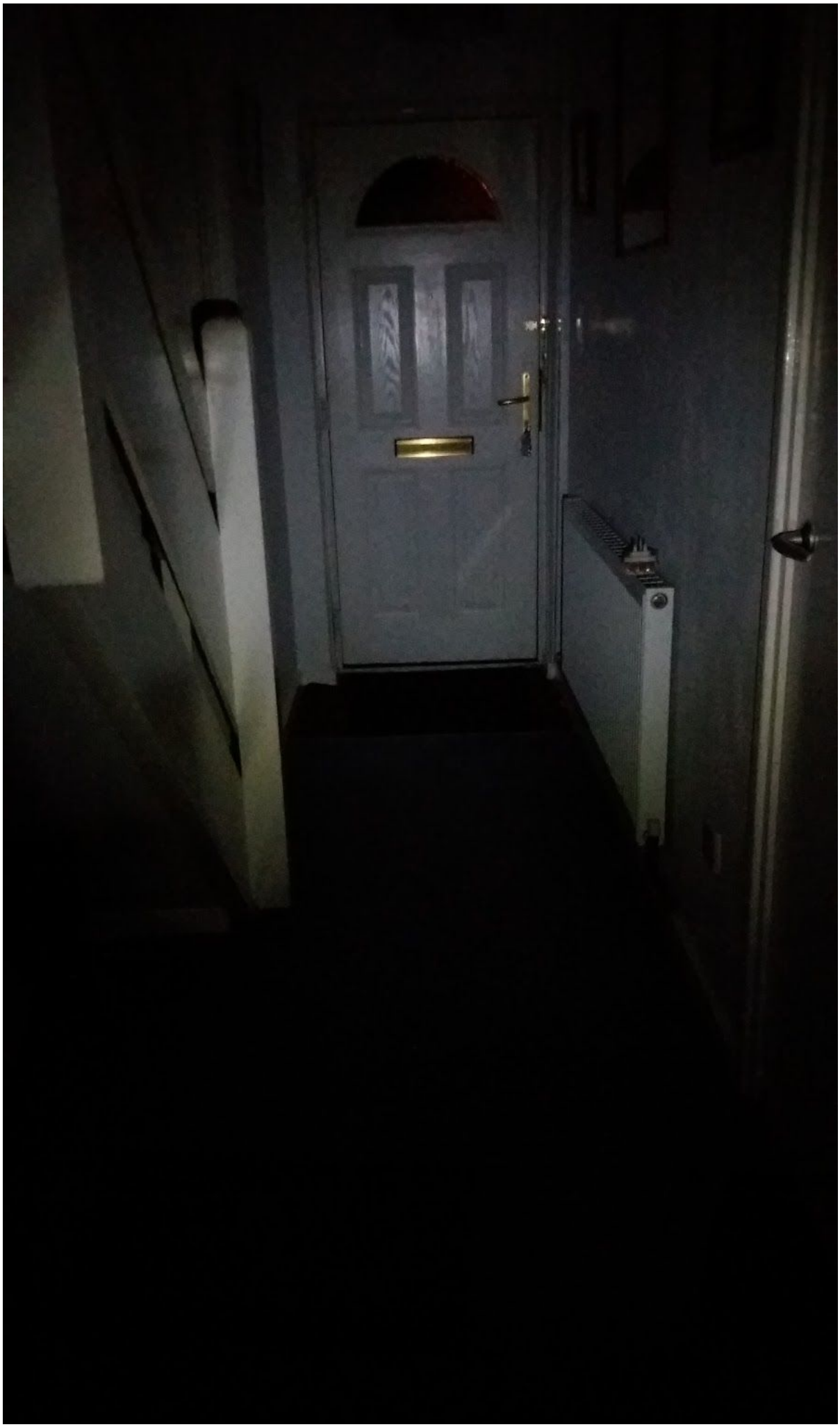
Now it's time to fit the new convex lens.

Working on a flat clean surface put the lens flat side down.
Next squarely press the bezel on to the lens until the back is flush with the tangs. It is a tight fit.

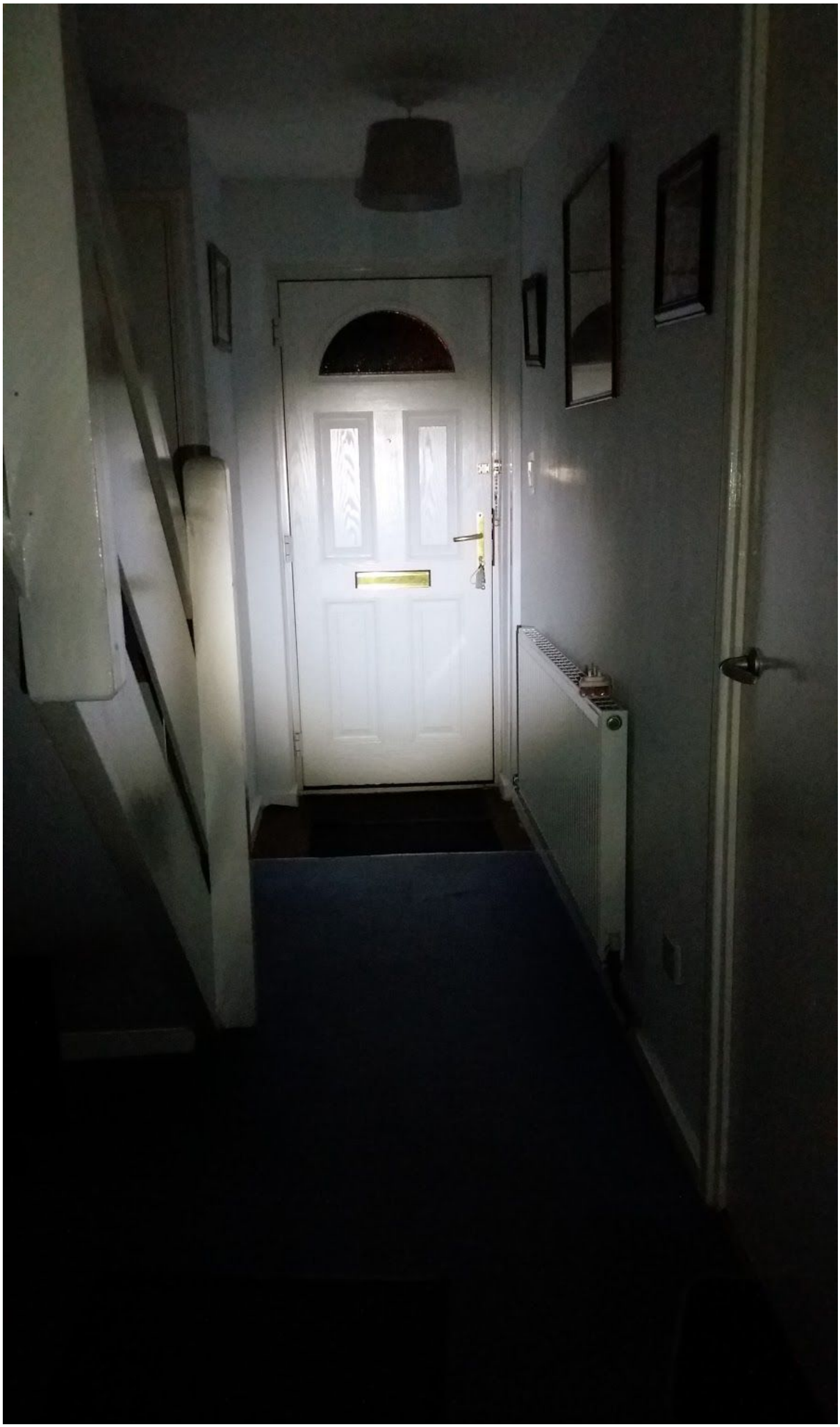
Refit the bezel and lens to the LAM aperture by aligning the tangs to 12 and 6 o’clock positions and turn anticlockwise to lock in.

Your newly upgraded LAM unit is now finished.

Your should now have gone from this…



To this!.....



A big improvement I think you'll find.

This guide is by no means the only way to fit a better LED, it's just my tried and tested method.
You undertake any modifications at your own risk of course.
If in any doubt of your ability to do this then don't do it.
I won't be held responsible for anything going wrong, ever, lol!

Thanks for reading, happy modding!

Jon Moss.