

How to build your very own Starship Troopers Gun (or something like that)

Where to start? When I went to Tagcon this year I took along the Morita, the Starship Trooper gun (yes that's what its called according to the production designer). It generated some interest, with many people asking how I made it, so here we are, your very own set of plans (you can all thank Dave Bignall).

Before we start I should explain the basic construction techniques I use with aluminium.

Folding –

unless you have expensive folding equipment the easiest way to fold a piece of sheet metal (aluminium in our case) is to lightly score along the line you want to fold and then place the piece of metal on the edge of a straight bench or other surface like a kitchen worktop with the scoreline along the edge. Then exert downwards pressure on the part hanging over the edge. Voila a neatly folded edge. Easy to say, try a few folds first to get the hang of it. Its easy to do short bits but gets very tough to do long edges.

Cutting straight edges –

The easiest way to cut a straight edge with aluminium is very similar to above. Instead of lightly scoring a line (no jokes to do with white powder please) repeatedly score it with a craft knife then fold it as above. Then fold it back, then fold it again, repeat as many times as necessary until the metal snaps, you should have a very straight edge with a slight burr from the craft knife which you simply file away.

Folding Curves –

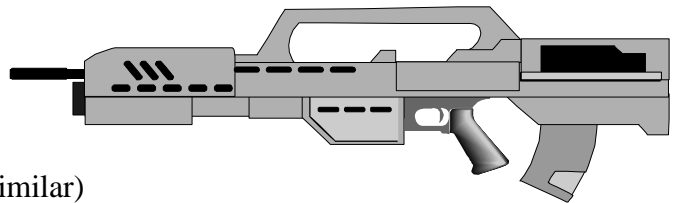
Simply find a piece of tube with a similar radius to the curve you require and fold the sheet around that, pushing both sides to get an even curve.

Pretty basic description right, just practice a bit first to get the hang of it.

Right lets start shall we!!!!

Required Tools

- Good craft knife (Stanley or similar)
- Drill (hand powered is what I use, you get more control)
- 3.5 mm, 4 mm, 10 mm HSS drill bit
- Flat file
- Half round file
- Aviation shears (available for about £3-5 at hardware shops or machine mart)
- Small hacksaw (if you cant get the aviation shears)
- ¼ inch Chisel (an old or cheap one preferably)
- Rivet gun (cost about £3)
- Screwdrivers, pliers, hammer
- Tap and die set (if you want to do it properly)

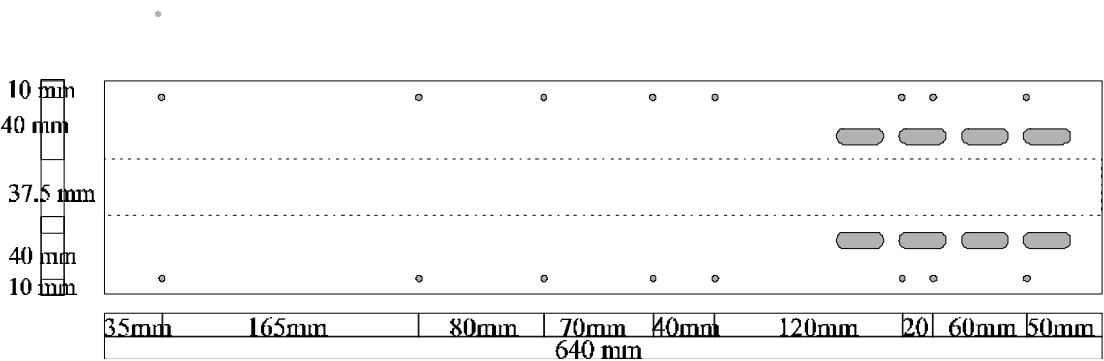


Required Materials

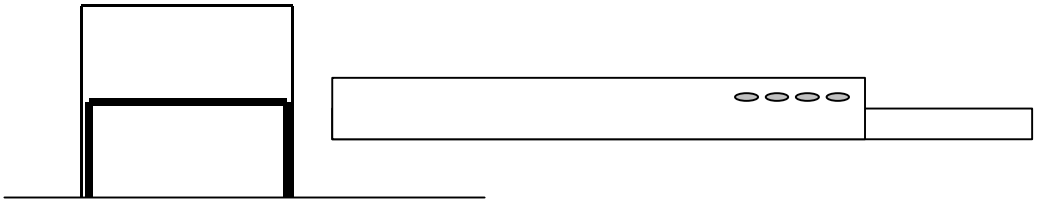
- A length of aluminium channel that is 84 cm long by 37.5mm (1 ½ inch) wide and 25mm (½ inch deep), with a wall thickness of 3 mm
- 1mm thick sheet 1m by ½ m (should be sufficient)
- M16 (the one Toys-R-Us sell is perfect or an airsoft or similar)
- 22mm plastic waste pipe (available from Wicks)
- 37.5mm plastic waste pipe (same as above)
- 40mm plastic waste pipe (for the IR barrel, if you want a different size you will have to modify the design)
- 4mm screws in 6mm,12mm, and 20mm lengths
- 4mm Rivets

Got all that ?

Cut a piece of the sheet to match the diagram below. You will have to scale up all the diagrams but that's life.

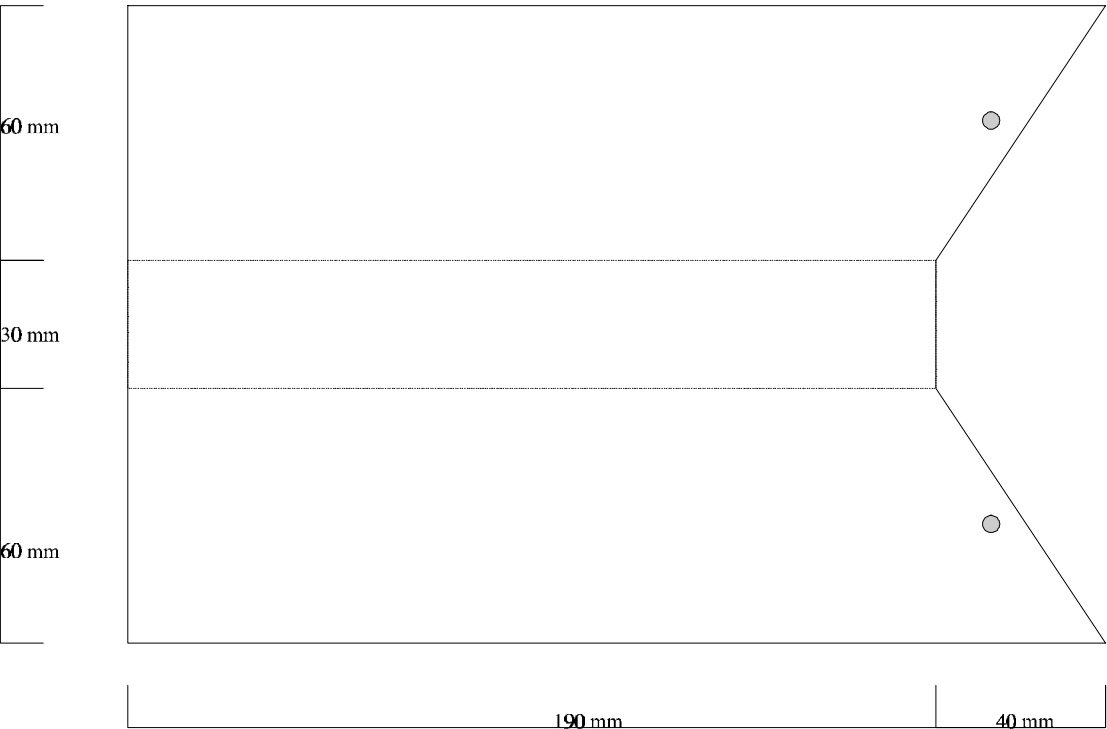


Drill the 4mm holes in the specified places and fold along the dotted line as they say. It will be a pig to fold believe me, because its very long. Work your way along bending it a bit at time as you go along, then a bit more etc until its at 90⁰ to the rest. Now do the other dotted line. Once its folded have a cup of coffee. You should now have a U shaped piece of sheet. Now's the time to cut the slots, if you want to that is, these are 35mm long and 10mm wide, mark to points 25mm apart for the two 10mm holes you are about to drill, now drill them, draw two lines connecting the edges of the holes, now making sure the sheet is resting on the bench place the chisel along the line you have marked and hit the back with a hammer a few times. If the chisel doesn't go through the metal completely don't worry just work along all the lines you drew then gently lever out with a pair of pliers. Alternately you could just paint them in after, its much easier (but I'm a glutton for punishment). Now get the channel and lay it on a flat worktop U shape down and place the sheet you've just folded over the top like so-

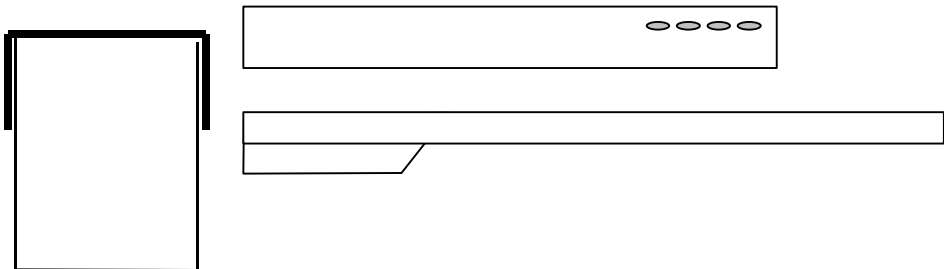


Now mark the thick channel through all the holes on the sheet. Then drill all the holes with a 3.5mm drill bit. Now use the tap and die set to make 4mm threads in the channel. Now make sure its fits, if you marked all the holes correctly it should. Remove the sheet so you are left with just the channel.

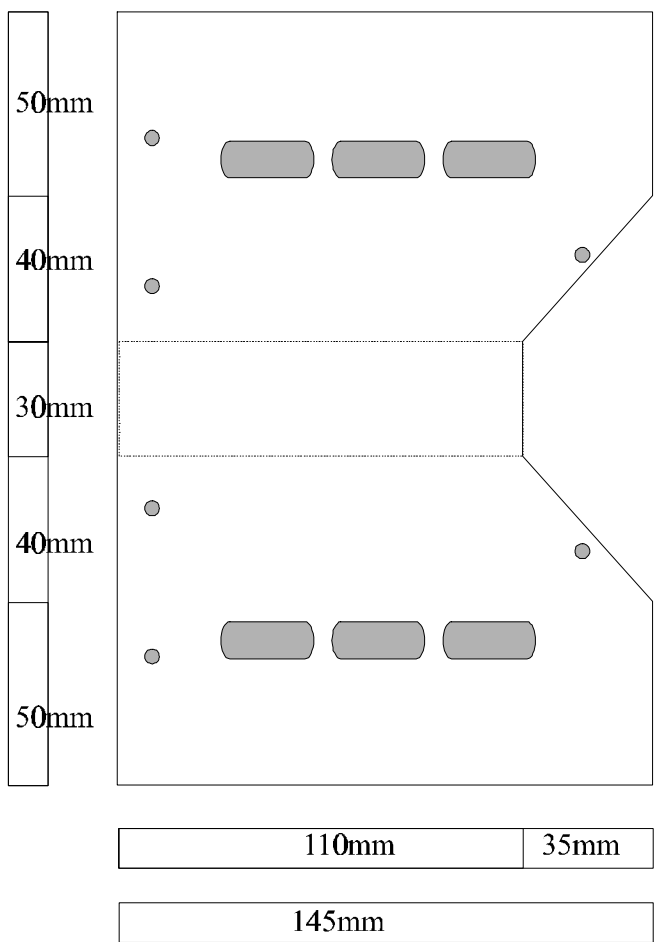
Do the same as above, but make the stock



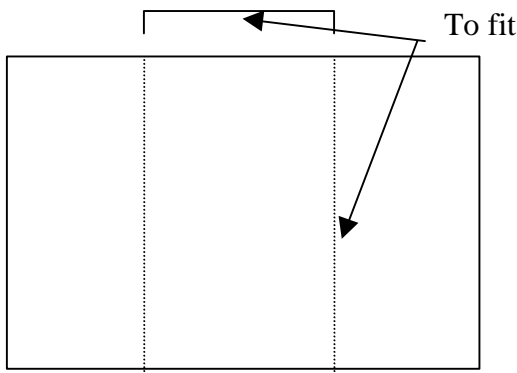
When you have cut and folded this piece place it into the channel and using the holes in the channel mark where the screws go and then drill them



Next we fit the speaker housing -



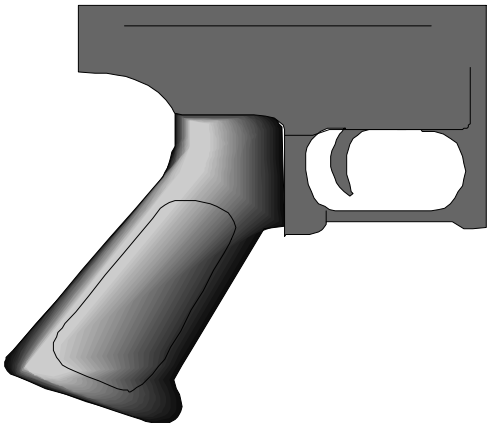
Use the same method as with the stock to fit it. The back edge of the piece needs to be 37.5 cm from the back of the gun. Notice the holes located at the front and back of the speaker housing. They are for the plates to “fill in the holes” in the ends of the piece. I have not provided measurements for the ends of any of the pieces in this guide as it is largely a matter of custom fitting. So all the edges meet. Make the ends out of thick card first, then when you have the size right use it as a template to make an aluminium piece. The piece for the speaker housing is straight forward. Its shaped like this –



This bit fits inside the back end like a cap. Mark through the holes and drill them. When finished just rivet it in place.

Do the front of the speaker housing in the same way. In fact the same method is used on the stock, carry handle and all the other bits of the gun that need the open ends filled in.

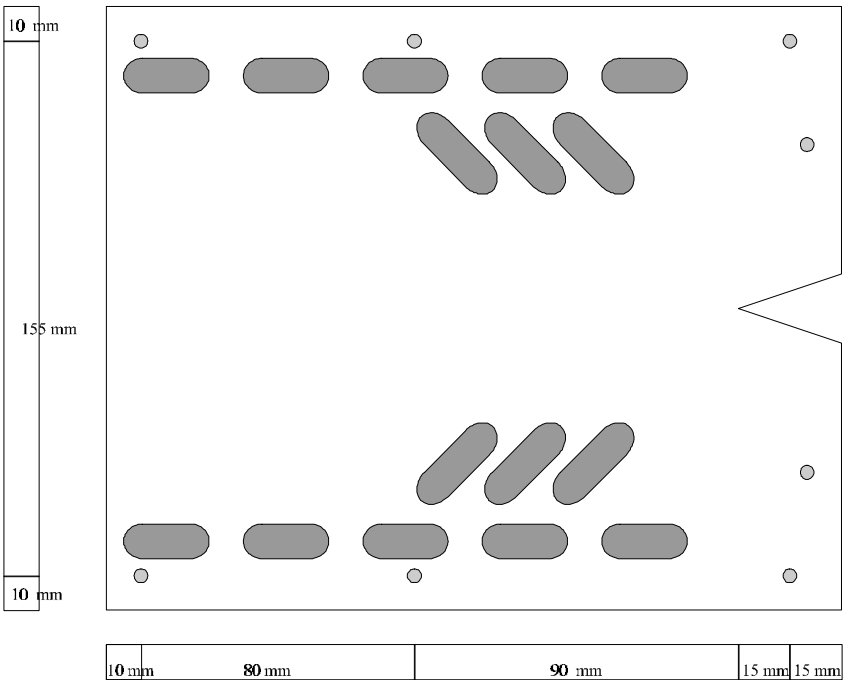
Next we fit the guns grip. Take your toy M16 and cut it with the hacksaw until it looks like this-



Place the grip so that the front butts up to the speaker housing. If you look the channel should already have the holes drilled in it for the grip, simply mark up the plastic where the holes are and drill them. When fitted use the 20 mm length screws. Its up to you how you fit a switch to the trigger, I'd use a microswitch glued into place.

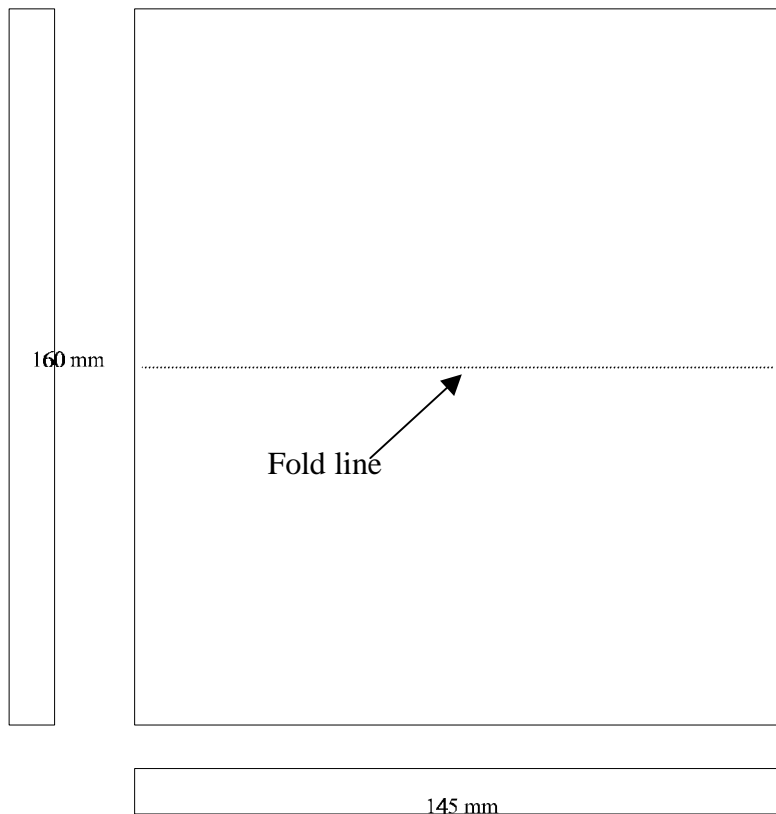
Next is a very simple piece, its just a rectangle 80 mm by 130 mm, with folds 50 mm in from both ends, giving a U shaped piece 50 mm by 30 mm by 50 mm and 80 mm long. This goes in front of the speaker housing.

Now we come to one of the most time consuming pieces, the barrel shroud.



The layout looks like this. Cut out the shape and drill the small holes but don't cut out the slots yet (if you are going to at all). Now bend it around a piece of 37 mm tube to get the curve in the middle. Bend it a little at a time and keep test fitting it against the channel until the bottom edges are the same distance apart as the channel. When they are, cut out the slots. If you cut the slots out before bending it the metal will bend at the slots rather than where you are trying to bend it. Now fit it to the channel making sure the front edge of the shroud and channel align. It should overlap the main body piece by about 1-2 cm, don't worry its supposed to. Now the triangular notch in the front of the barrel shroud needs bending, I did this by hand working the metal until the edges meet this should give you the sloping look at front.

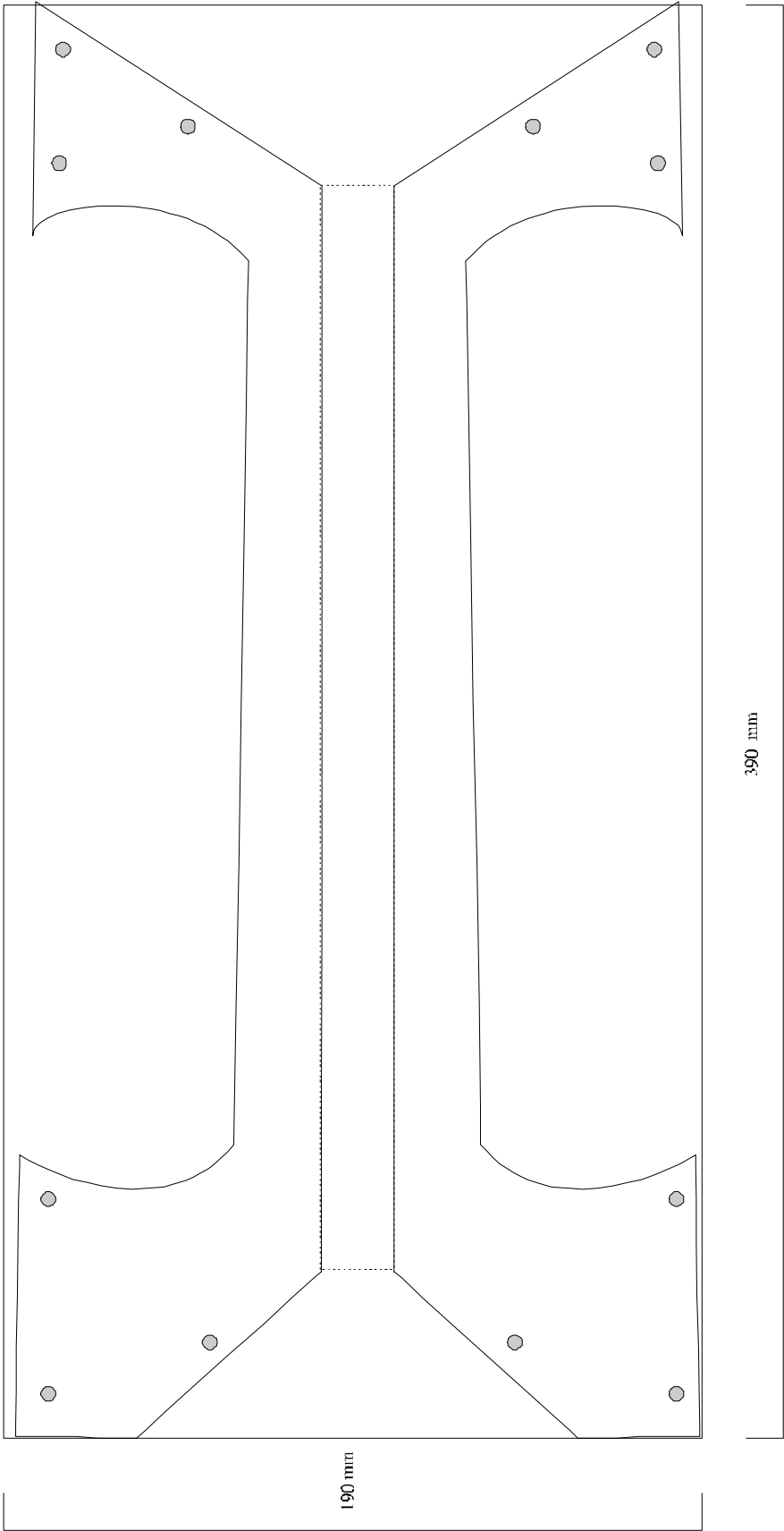
Cut a piece of aluminium 145 mm by 160 mm. Now bend it around a length of 40 mm tube, short ways, so that the finished piece is 145 mm long. Like so -



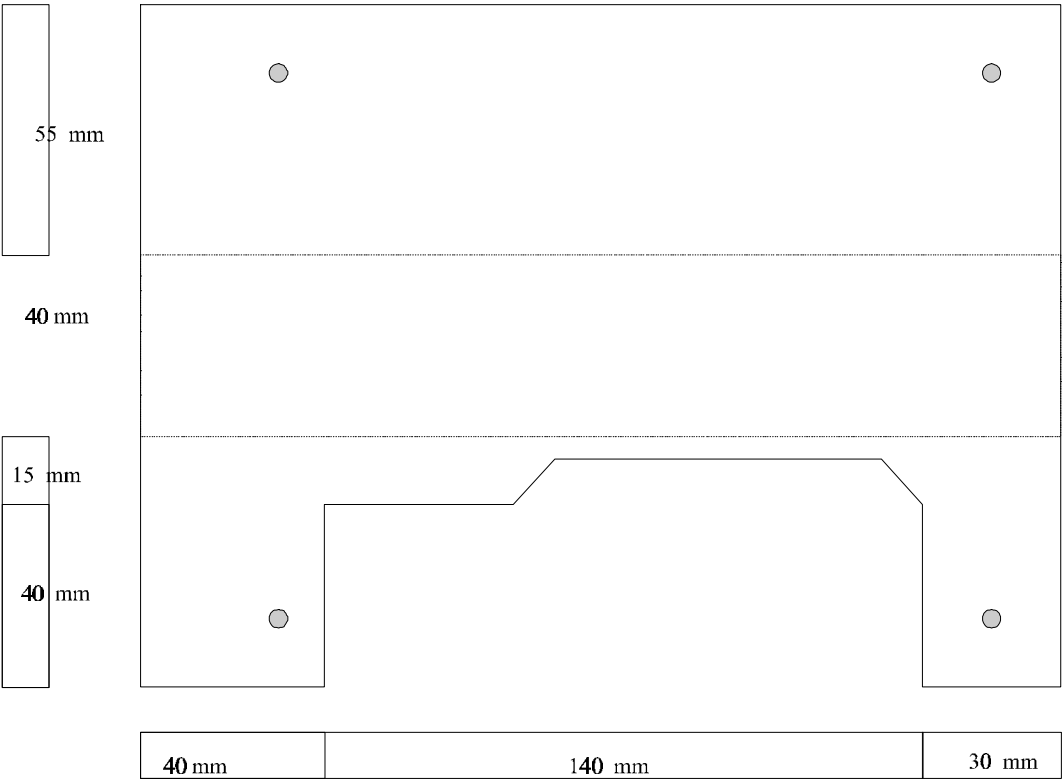
This is the fore grip of the gun. You fit this to the channel using the front 4 screws that hold the barrel shroud in place. Make sure that you fit it under the barrel shroud.

Now another tricky bit the carrying handle. When you've made this bit fill in the ends as described earlier and attach it to the gun using two more U shaped pieces. One 70 mm long by 35 mm wide with 15 mm uprights, this is bolted onto the main body 20 cm from the back of the gun in a central position, the back of the carry handle then rivets onto this. The other one is 75 mm long by 20 mm wide with 15 mm uprights and bolts onto the main body 55 cm from the back of the gun. The front of the carry handle rivets onto this.

Now the carry handle itself looks like this -

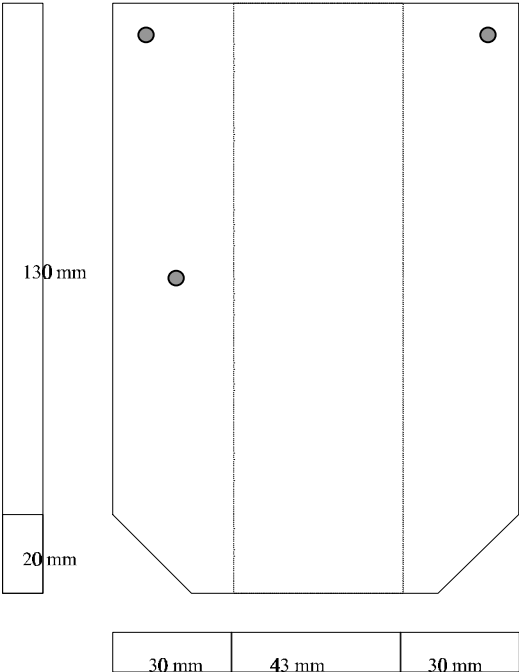


Next step is to make and fit the receiver it looks like this –



This fits behind the carry handle rivets onto the main body.

Next comes the butt plate. Here's the plan –



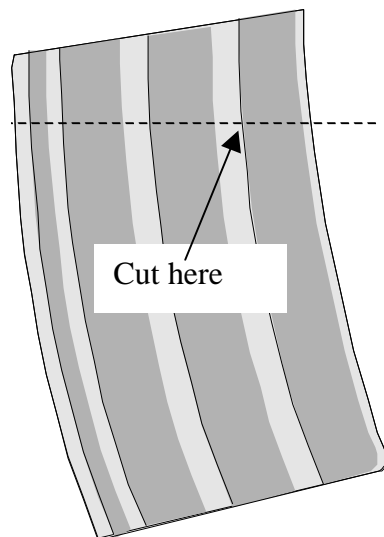
This is folded as marked and fitted to the back of the gun. Be careful not to place this right up against the back of the gun as this piece will pivot on the two rivets that go in the top two holes, so that you can put batteries into the gun. The third hole is for a 4mm screw that goes into the channel to hold the butt plate closed. Before drilling the holes in the receiver for the rivets mark them with pen and pivot the butt plate from closed to open position, if you can see the pen marks through the holes the whole time it should pivot alright.

Now get your 22 mm tube and cut 2 lengths one 11 cm long the other 25 cm. Now take the 25 cm long bit and cut out a section from the side all the way down. The idea is to fit the long tube inside the shorter tube so that the long tube just protrudes from the end of the shorter one. When you have done that mark two points on the channel at the front of the gun. 20 mm and 100 mm in from the front and exactly in the middle of the channel width. These are for two fixing bolts for your muzzle flash barrel. Now on your 22 mm tube drill two holes 145 mm and 225 mm from the front of the tube (on the side opposite the section you removed). These should match the holes in the channel, now bolt it in place (note - the same two bolts can be used to attach the IR barrel if you work it right).

I used a piece of 40 mm tube to make a barrel but if you aren't any good at making them or can't be bothered then the smaller sized barrel that Dave Bodger supplies should fit in quite nicely.

Use a length of 37.5 mm tube to fill the gap between the foregrip and speaker housing and just bolt it into place.

One final bit of construction is to fit the ammo magazine. Take the one off your M16 toy and cut it like so –



Then you guessed it another U shaped piece of aluminium that fits into the top of the magazine and bolts onto the bottom of the stock. Then holes are drilled in the mag and the U shaped piece and the mag is screwed into place. In the film the magazines are built up to look bigger. All I did was to cut out some plasticard and glued it to the

sides of the magazine then used some filler to blend it in. If you look at the complete diagram you will see the pattern they used, its just a case of sizing it to your magazine, again using card first to make a template is a good idea.

Finishing Touches

If you want to, use filler on all the edges to smooth the gun out and file off any sharp edges on the aluminium. Sand the entire gun down to give the paint something to key to and then paint the gun. I suggest a dark grey with black trimmings or if you want to be cheap about it like me I used grey car primer which is cheaper than normal car paint.

I hope there is enough info there for you to build one. I've tried not to be too long but this is the first article I've written so give me some leeway.

There is probably some thing I've left out so if you have any questions or enquires then write to me at –

Phil Higgins
18 Althorp Road,
St. James,
Northampton
England
NN5 5 EF

GOOD LUCK !

Phil

