Developer Note:

From this forum post(http://bg.battletech.com/forums/index.php?topic=44613.0_ Deadborder has create a couple of thousand sprites for Megamek below is his tutorial for how he makes them. No of the content has been changed, but formatting has been changed to allow for the creation of a PDF.

Deadborder own comment

Over the course of hundreds of Icons, I've developed something of a process for drawing them. It's served me well, and I have it down to (more or less) a fine art. So I thought I'd share it around with everyone else.

I also think at this point it's a good idea to have a drink handy and a lot of patience. You'll need it.

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Step 1: References

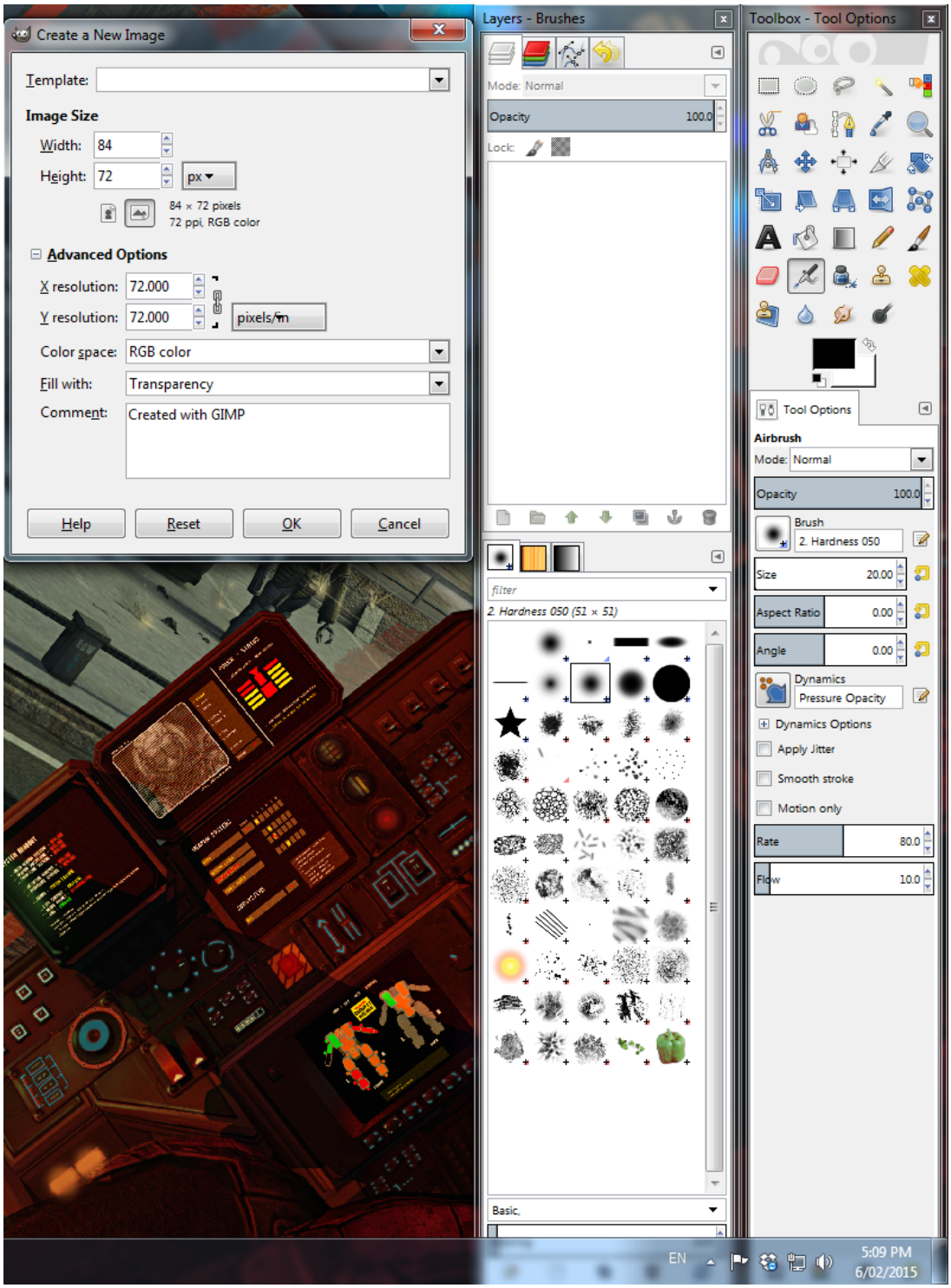
The first step is to know what you're drawing, and that means getting references to base it off. I find that the best thing to helping an icon is having a miniature of it at hand and right in front of you as you work, which can help the process an awful lot. Beyond that, here's what I use

- Technical Readouts and other source books for artwork
- Sarna for lists of variants and artwork
- Master Unit List for lists of variants and where to find them
- Record Sheets for the full breakdown of the variants and what goes where
- Camospecs for photos of the miniatures and access to extra views/details that may not be evident from the artwork
- Google for whatever else. It can't hurt

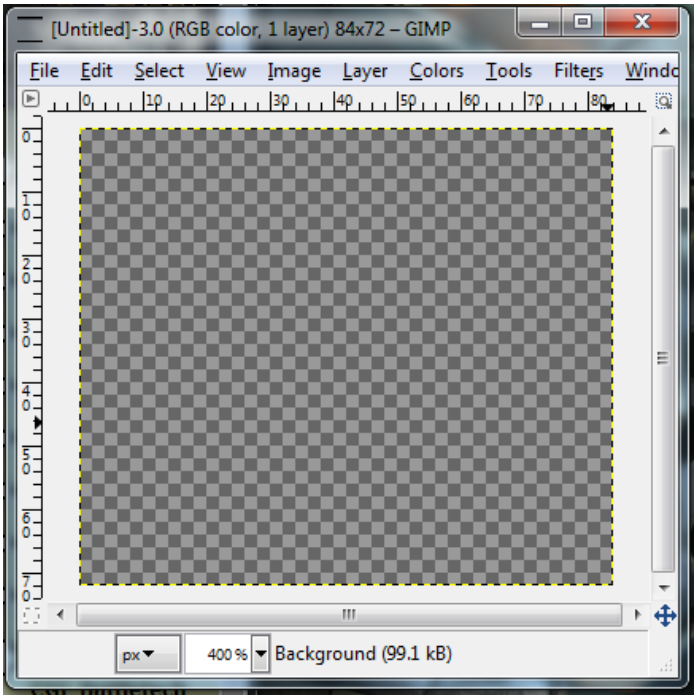
Bringing all this together gives me most of what I need to develop an Icon. By this point, I've generally got a good idea of what I want to do and what general shape and size the unit should be.

Step 2: Preparation

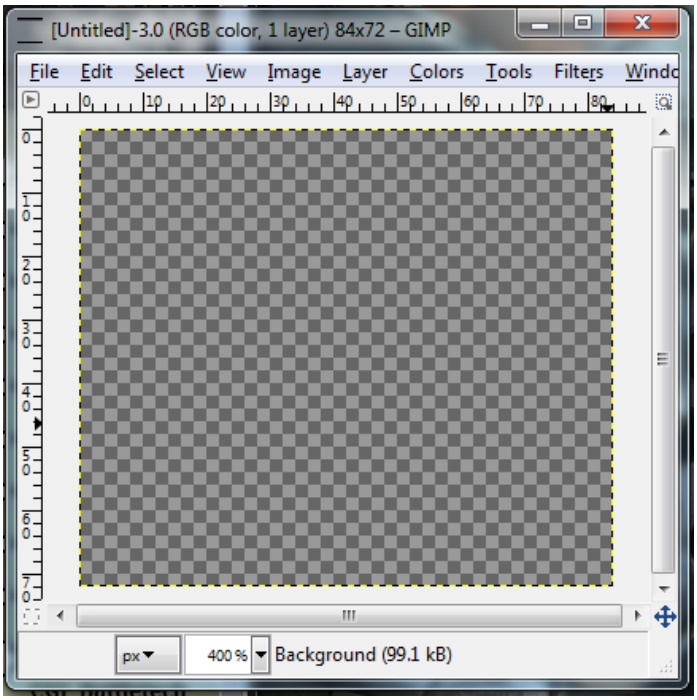
I draw all my icons in GiMP (https://www.gimp.org/), a freeware graphics program that has all the functions I need for the process. I assume that this would work in other programs such as Photoshop. I can also assure you now that this doesn't work in MS Paint, and I will never use Paint to draw an icon. Again.

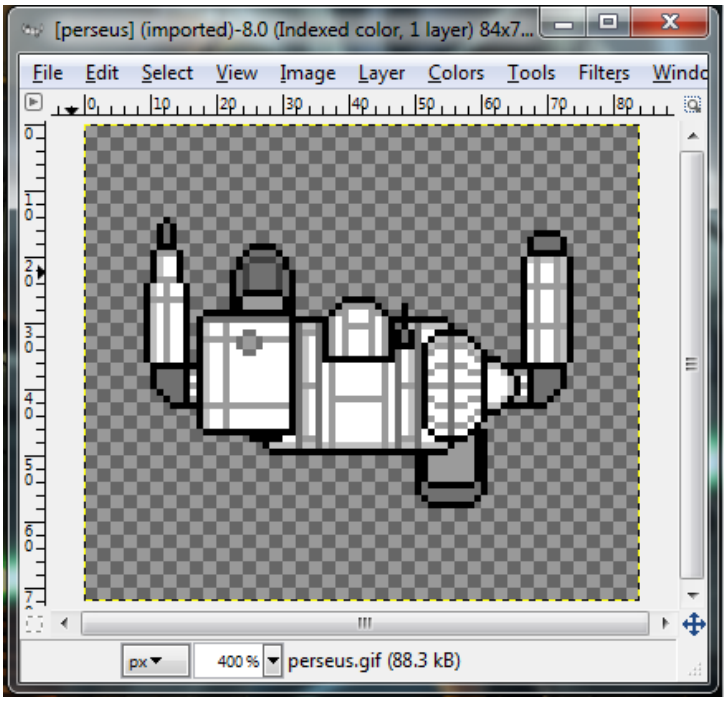


The first step is to open a new blank icon. I create a new image, scale it to 84 x 72 pixels (the size of a MegaMek icon) and set the background to Transparent. This gives you a blank template to work from.



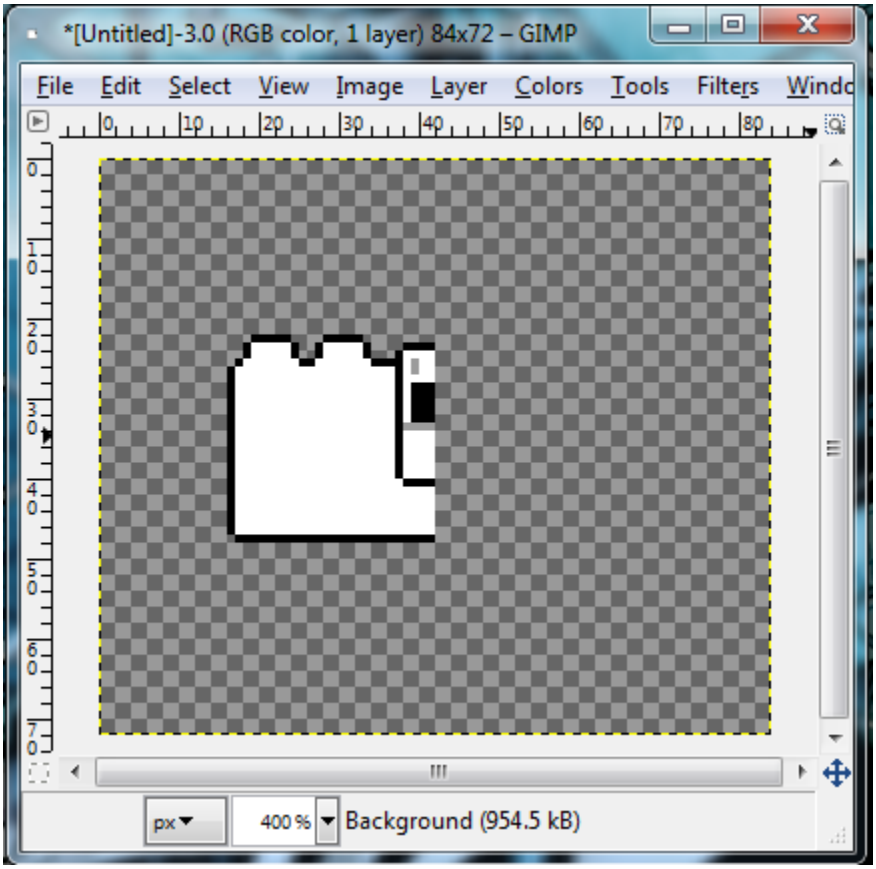
I usually will also open another pre-existing icon of a similar size and shape at the same time for two reasons. The first is to give me a rough scaling reference so I know what sort of size and shape I should aim at. The second is that I use a standardized palette across all my icons, and having a pre-existing open icon means I can easily sample from there.





Step 3: The Basics

Generally I look for a simple start point that I can build outwards from. With BattleMechs, this is usually the head, as that serves as a good “anchor point” for the rest of the icon to grow from. I also often am at this stage only drawing half the icon as a start point. While most BattleMechs tend to be asymmetrical in design and detail, this at least makes the process of “roughing” the shape a lot easier.



Once I’m more or less happy with the rough torso shape, I’ll begin to add details in the form of jump jets or major design features. Weapons are usually not added at this stage (more on this later) but the space where they go will usually be taken into consideration. I’ll also occasionally copy and drop the unfinished torso onto my scale comparison icon, just to see how scale and shape are going.

I’ll generally also do a few “copy and paste” of the torsos to get a finished shape to decide if I like how it’s shaping up. Depending on the size and shape of the ‘Mech and how its details work out, the icon might end up being an odd number of pixels wide, which means I need to be careful with the copying to maintain that integrity.

I’ll often re-scale the torso numerous times during this phase, and the whole thing can end up being re-scaled multiple times before it’s done. The details tend to also change a lot as I build an icon; if you compare all the screenshots in this series, you'll see a lot of changes image to image.

Step 4: Details

Once the Torso is pretty defined, I'll begin adding details. This is where my standardized palette comes in, with each colour having a specific function.

Black is used for the outline of the torso, defining the shape of major components (eg limbs, head, turret on a tank), canopies and the shape of weapons. It's not used as a fill colour except for canopies. This is done to keep the shapes of the unit distinct.

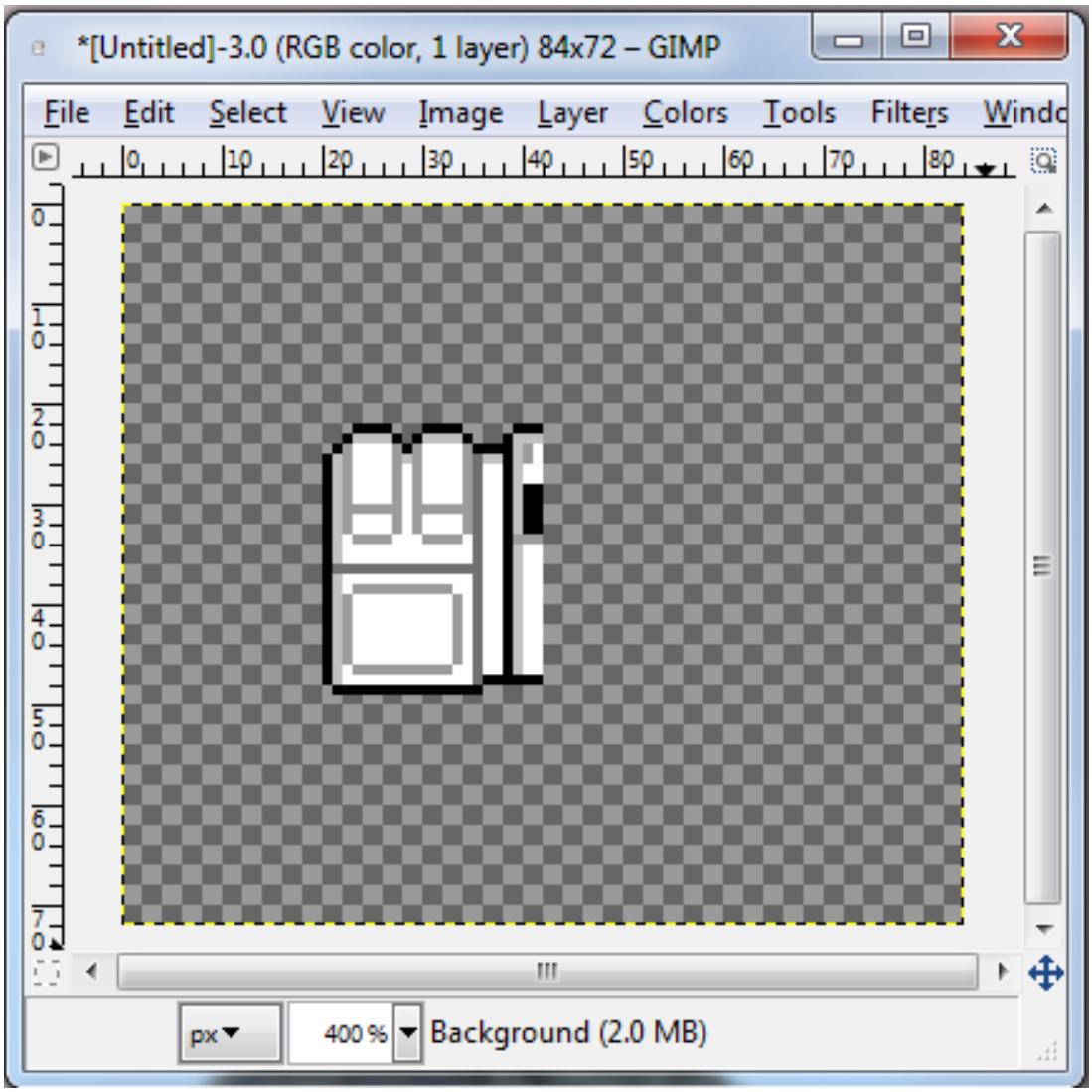
Dark Grey is used to define major details within body parts (eg, large rises or dividers, major torso shapes) as well as a fill colour for joints and weapon barrels.

Medium Grey is used largely to define minor details such as lines, vents, joints and so on, as well as added to weapons to give a bit of detail. It's also used with the dark grey above to define hands.

Light Grey is used around the edges of the body parts to give them a bit more definition, as well as being sometimes used to add a bit more detail in design areas. It's also used with medium grey above to define jump jets

Sometimes I'll also use a Very Dark Grey in areas that I think need a little more contrast or to stand out more from other areas without being solid black. Tank tracks and wheels are good examples

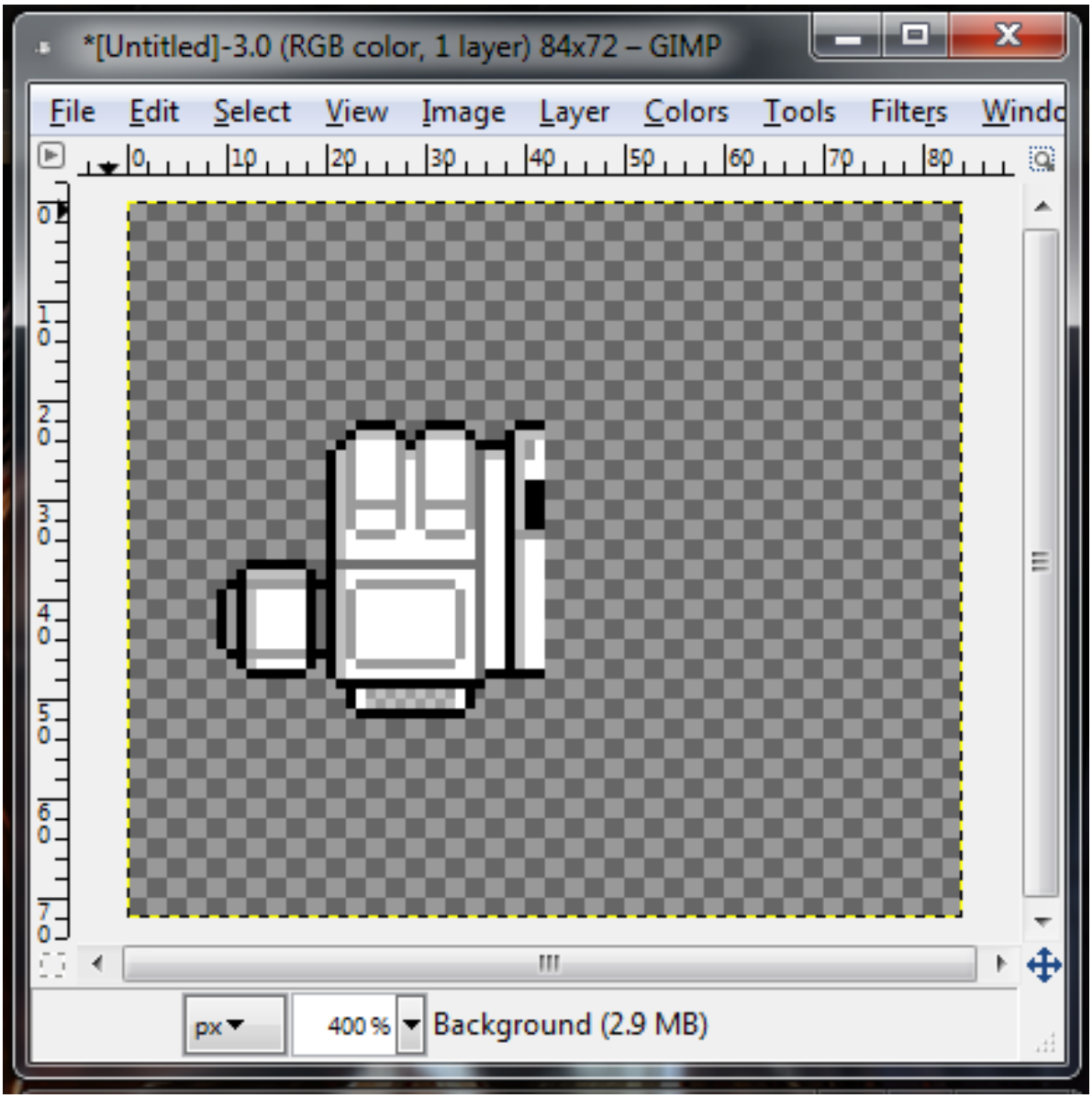
Using this palette allows me to fully define the details and know what is what on the icon. It also means that the Icon won't look like a single colour blur (hopefully) when the camo is added. (On a related note, I advise avoiding using solid black on your camo schemes for similar reasons)



Step 5: Arms

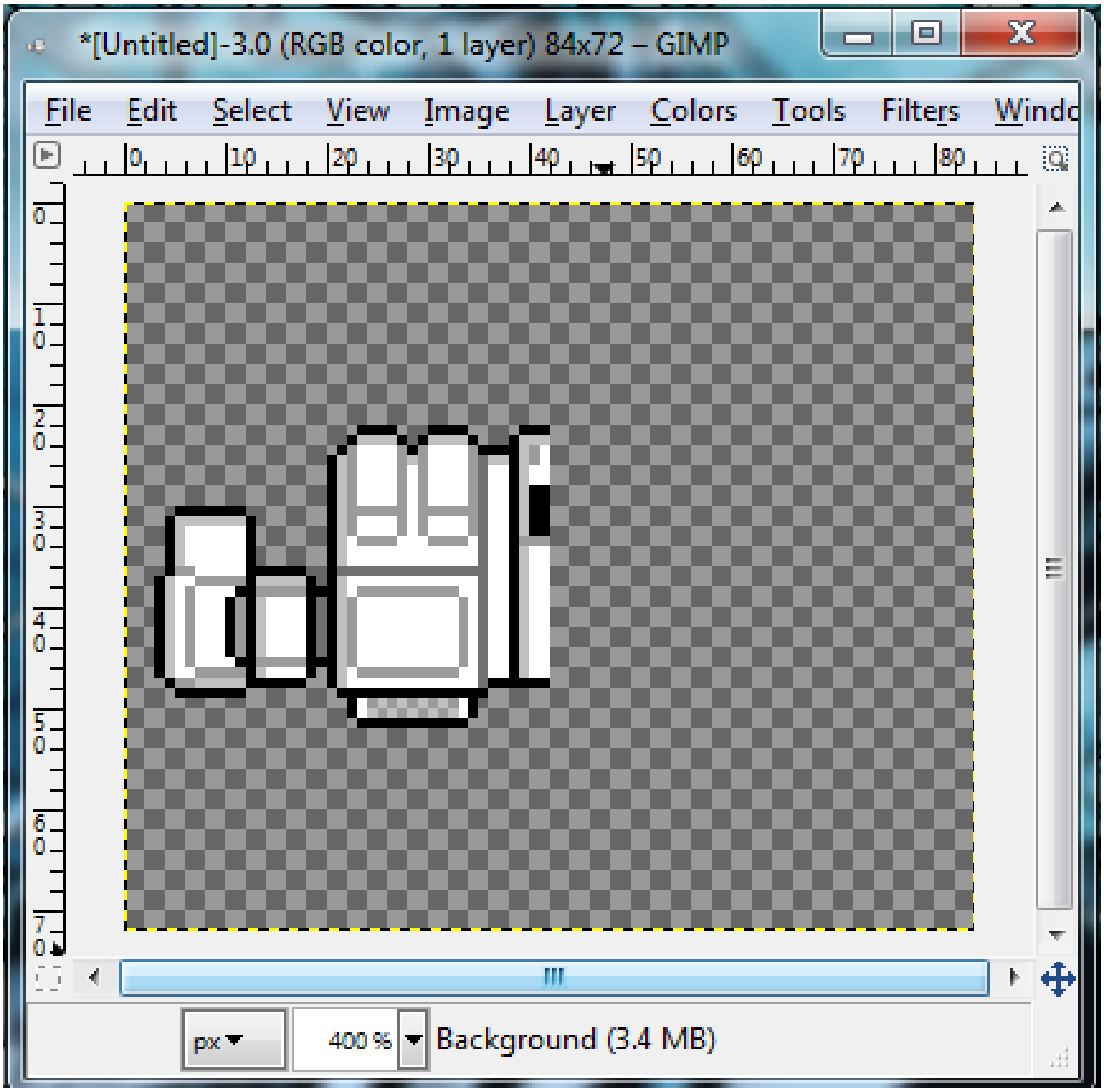
On a ‘Mech icon, the arms usually come after I’m done with the Torso, but I might even start defining them while I’m working on the torso as a part of the scaling process. I generally draw my ‘Mechs with an ‘arms straight out forwards’ stance for simplicity, but this can vary depending on the individual ‘Mech and how it stands. Also, how much ‘arm’ you need to draw can vary wildly.

I generally start with the shoulders (or at least what part is connected straight to the ‘Mech) and work down from there. The first step is to draw in the shoulders, again getting a rough idea for the shape and size that you want. Then once that’s finished, I add details to create the final-ish shoulders.



I then draw the lower arms as needed; given that this is a “blank” icon, I’ll usually draw as much arm as there is without weapons. If it’s a case of the weapon making up a large portion of the arm (Catapult, Warhammer, etc) I might draw that weapon in, if only to get a rough shape for the limb.

Different portions of the limbs will be separated with black, and sometimes joint details might be added with dark grey. Again, once the limb is reasonably defined, details will be added to it.

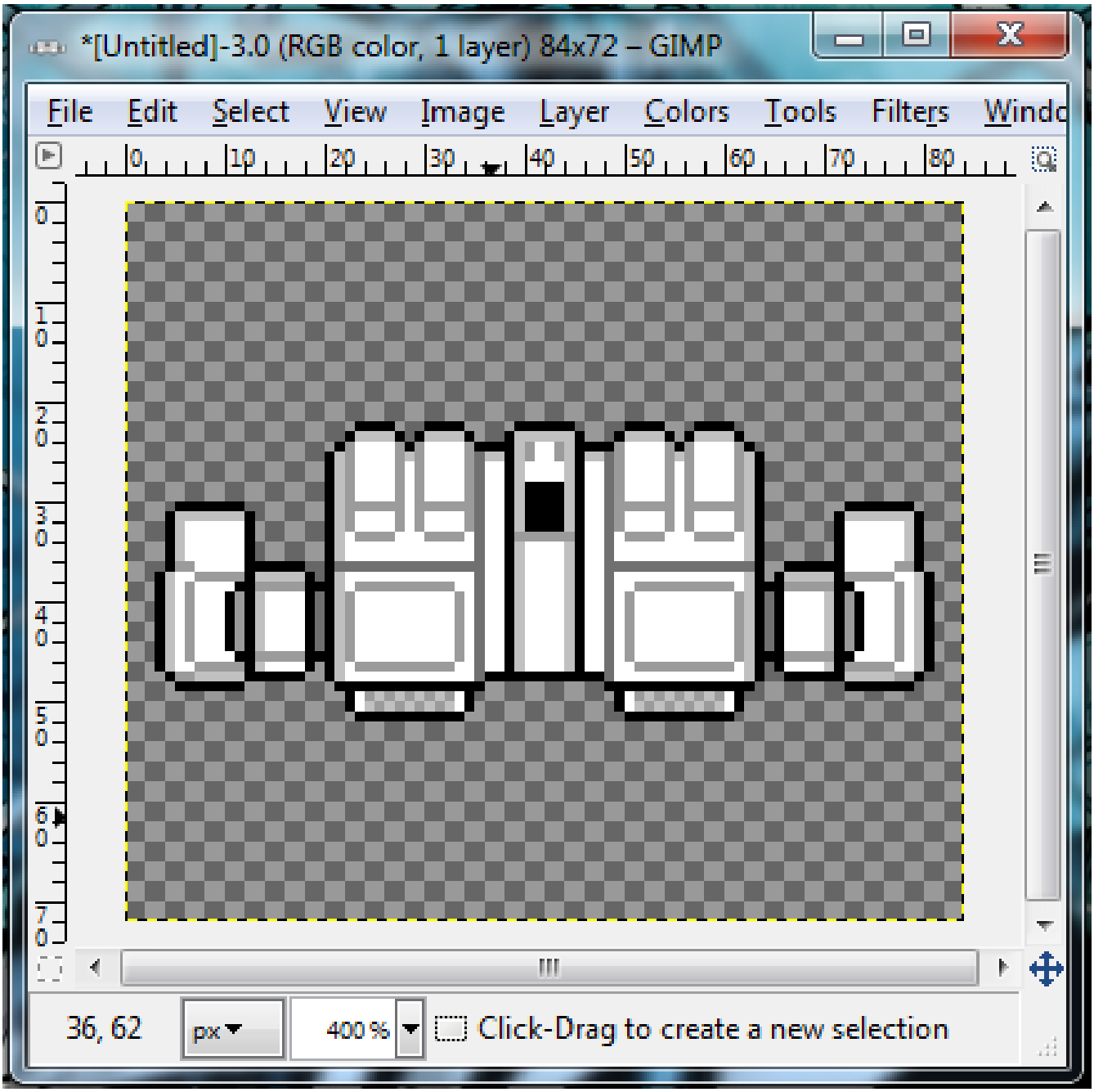


Usually I draw my hands as a simple box, then fill details as needed. This can vary, however, depending on the shape of the hand. There are plenty of ‘Mechs with fondle claws, pincers and all manner of other appendages.

Note that this stage was assuming that the arms are reasonably similar on both sides. When this is not the case, then Step 5 and then Step 6 below are reversed, with the arms coming after completing the torso.

Step 6: Completing the Torso

This step is relatively simple, and consists of copying and pasting what's been done so far to produce a completed torso shape. It will also usually result in a lot of work in re-scaling and re-shaping as well now that the finished torso shape is defined.

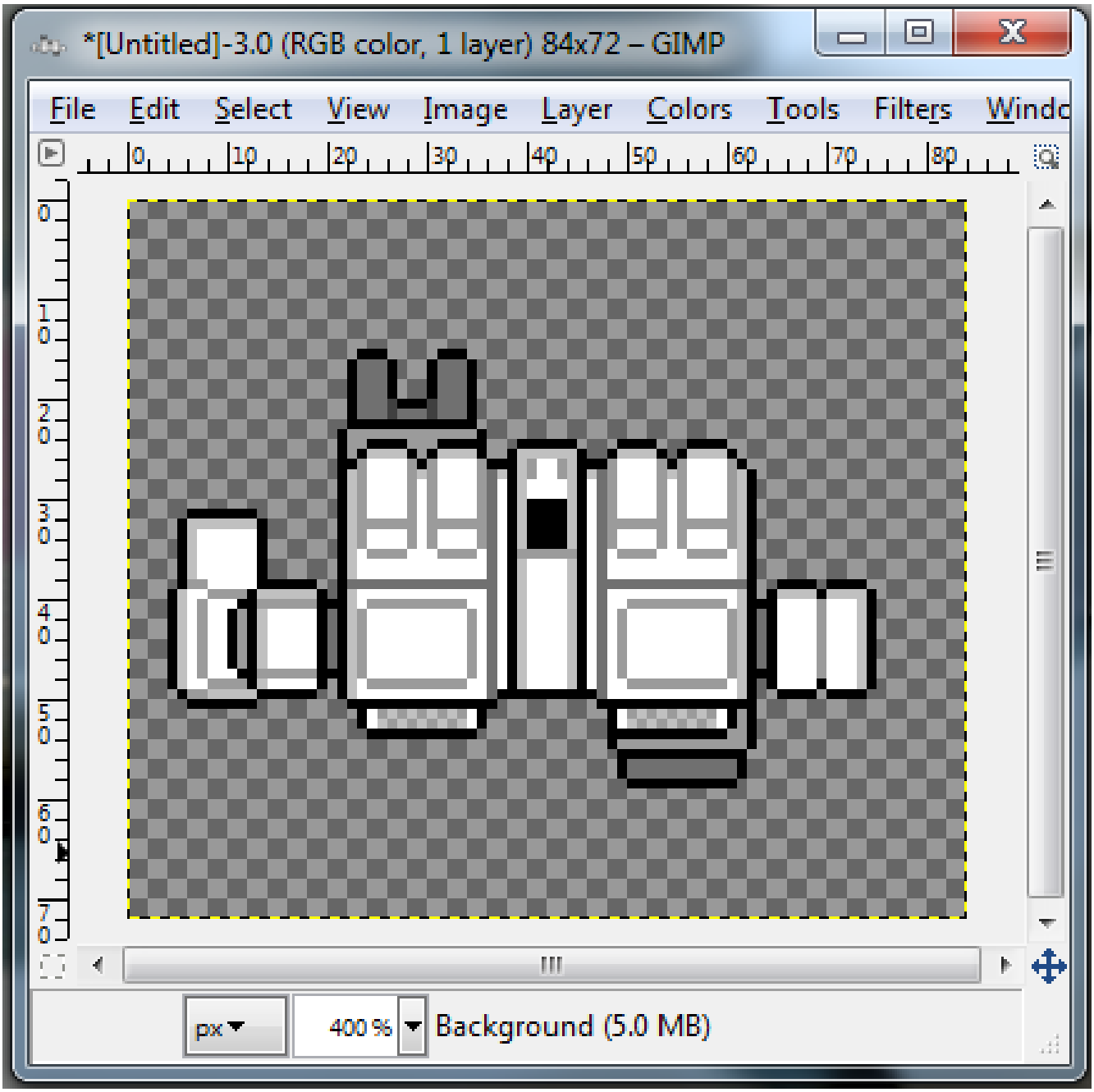


Step 7: Legs

This is actually quite a minor stage most of the time, but needs mentioning. I follow a standard of putting the ‘Mech in a walking/running pose, with the front of one leg visible at the front of the ‘Mech, and then the back of the other visible behind it. It adds a bit more definition to the ‘Mech and adds a bit of ‘life’ to the icon.

The start is to figure where the legs are relative to a top-down view of the ‘Mech. From there, drawing the leg largely consists of a visible portion of the foot and perhaps a bit of the upper leg as well. Of course, this can vary wildly with the individual leg structure, but again, this is just a general guide.

The foot is drawn with a black outline, then filled with dark grey. Separate sections of the leg are separated with black outline, and filled with medium grey. I rarely add too much detail onto the leg, largely in the name of clarity.



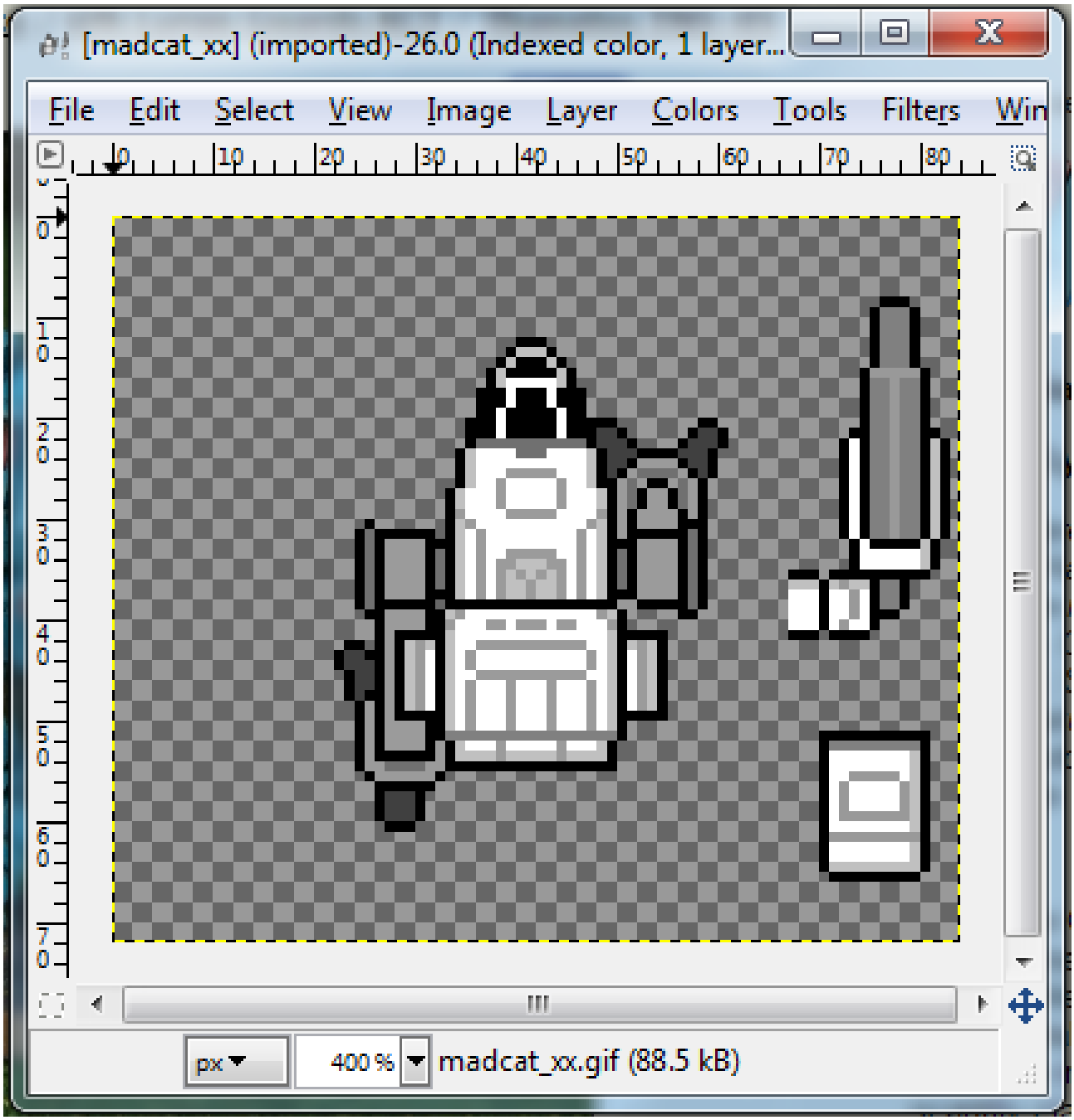
Step 8: Prepping the Blank

At this point, we have a blank, unarmed ‘Mech icon. Usually by now I’ll have looked for weapons that are common to numerous variants to have an idea of what I’ll need to add during the next stage. However, for the moment, I save this icon as

(mechname)_xx.gif

to keep as a blank template for developing the variants.

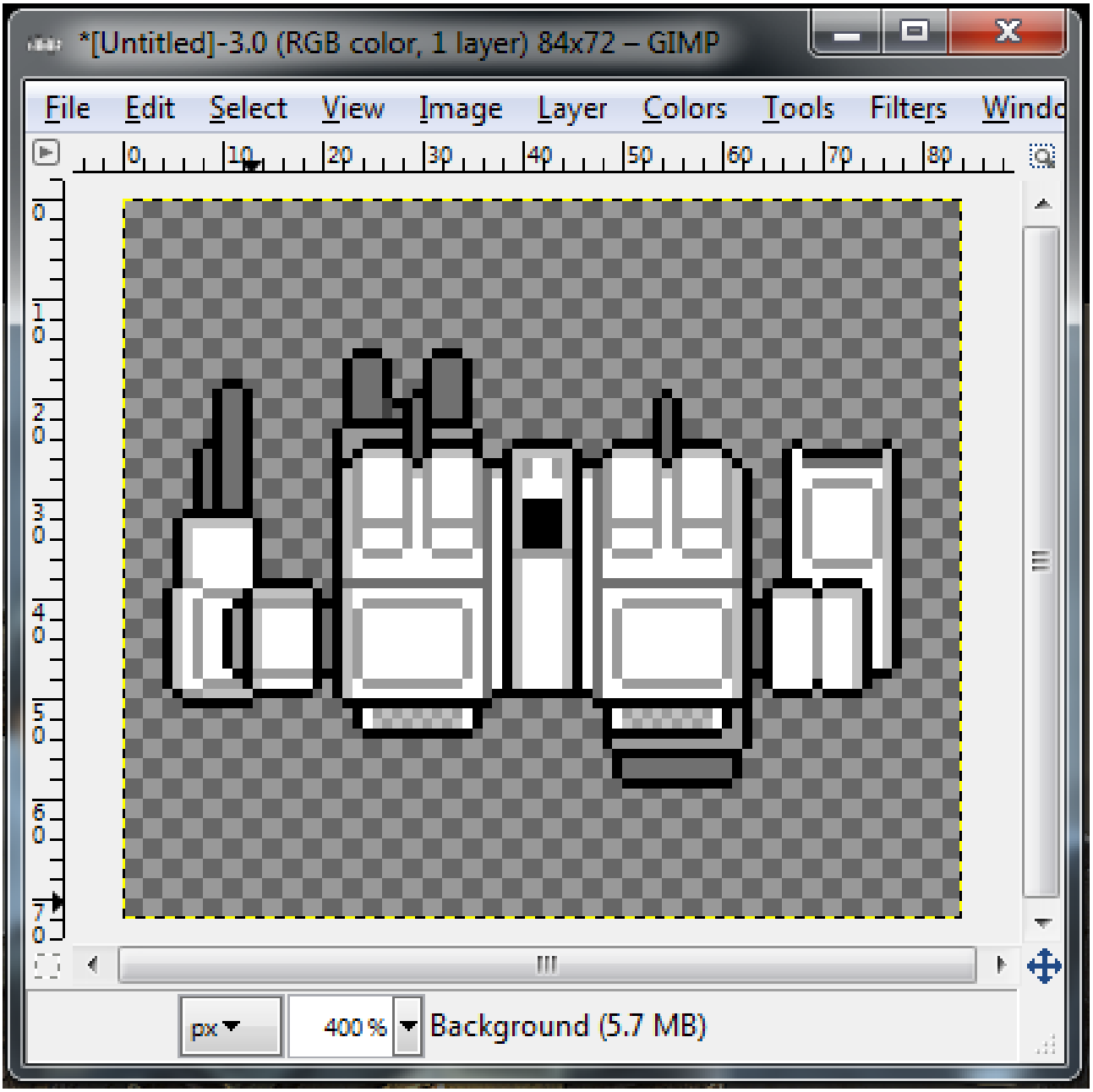
Sometimes if there are weapons or structures that will be common to numerous variants, I add them onto the blank. Often, they won’t be attached to the ‘Mech directly, but rather kept detached from the body so they can be copied, deleted, pasted and rotated as needed



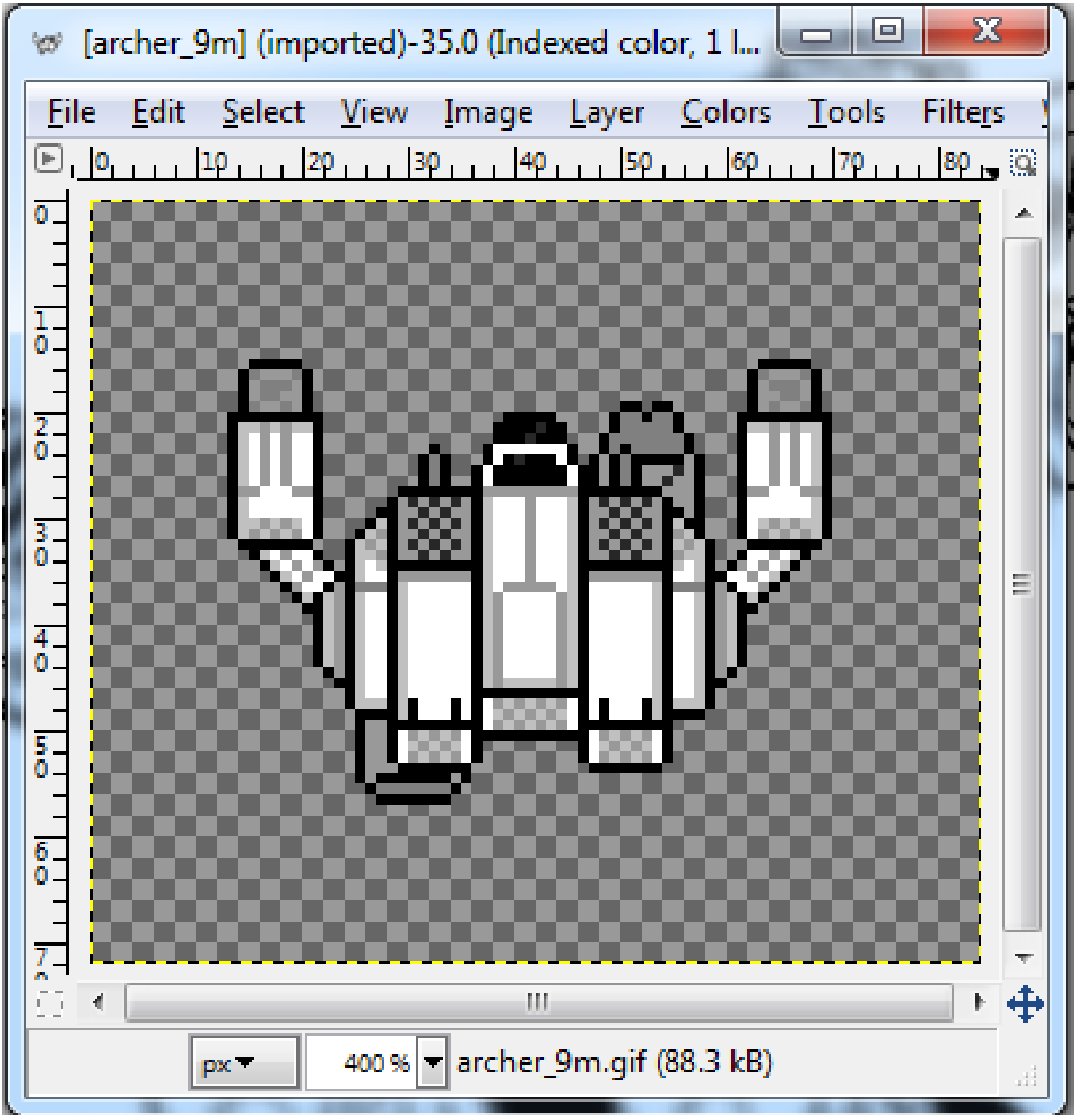
Step 9: Weapons and Equipment

This step can be the longest part of the process, simply depending on how many variants there are and how complicated they get. For each variant, I'll start from the blank defined above and then add weapons onto it as needed. However, I'll also copy elements between different variants in order to speed up the process, or if there are variants that differ in only smaller elements. It's also worth noting that not every variant gets its own icon. Some are so similar or differ only in minor detail that they can be lumped together with a single icon. This helps the process a lot.

I don't use the exact same artwork for each weapon type (eg PPC, Gauss Rifle) across all my icons, simply because the source cart can also vary wildly. I'll try to maintain some consistency though; for example, a PPC is bigger then a large laser which is bigger then a medium laser. Weapons are usually drawn as an outline in solid black, then filled with dark grey. In some cases, a housing may be defined also in solid black, picked out from the rest of the body



Missile launchers can be problematic, especially as from a top-down view there's often not much to see. Usually a Missile Launcher will be defined as a box picked out in black with a dark grey 'trim' to define the front of it, but this can vary by launcher type and individual installation. Sometimes I'll use very dark grey to pick out missile "tubes" if the design calls for it



The process is repeated with a new icon for each variant as needed.

Step 10: Import

This one is relatively simple. The icons are copied over to the /Megamek/data/images/(vehicle type) folder. I then edit the mechset.txt file to refer to the new icons by file name.

```
chassis "Thanatos" "mechs/thanatos.gif"
exact "Thanatos TNS-4T" "mechs/thanatos_4t.gif"
exact "Thanatos TNS-6S" "mechs/thanatos_6s.gif"
```

Step 11: Testing

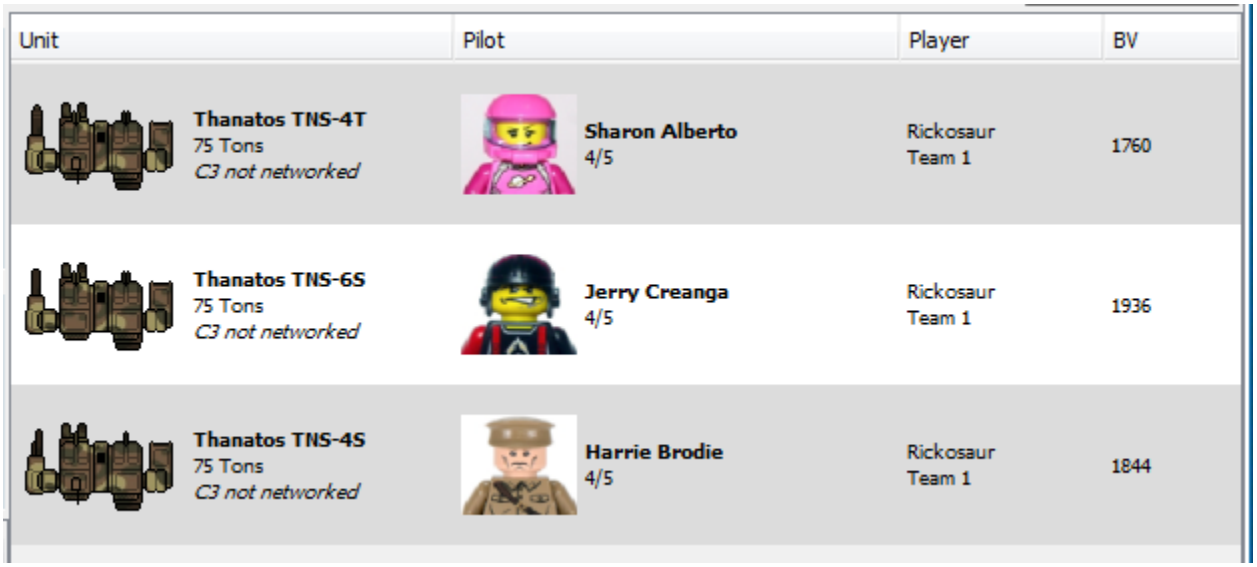
I boot up MegaMek and load up all the variants of the given 'Mech, then overlay several different camo schemes on them. This step helps check a number of things.

Does each icon work properly? Are there gaps which should have been filled but are instead blank? Are there holes in it? Does the palette need tweaking as areas are to indistinct or stand out too much? Is there stray "scrap" art outside the 'Mech that shouldn't be there?

Does each variant have its proper icon? Did I miss any along the way?

Does the icon look "right"? This is a hard measure, but often seeing an icon with the camo overlay and full functionality in context can be a lot different to seeing it just as a raw icon in a graphics program

If there are problems, I go back and correct them, and then repeat the process until I'm happy.



Once that's done, the icon is finished, and I die a little knowing the job's well done. Until the next one.

DEVELOPER NOTE:

Please see the Unit Shading Scripts Scripts.txt in the Docs folder for recommended next steps.